



February
2024

CURRENT
AFFAIRS
MAGAZINE



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The Ray's IAS is one of the best institute of Odisha and Ray sir & Mam have always inspired me to boost my self confidence over my fear. My success cannot be possible without the effort given to me by all my lovely teachers of this institute. So thank you so much all sir and madam for all your teaching and blessings. 🙏🙏

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They have always been empathetic and believed that I have something special that can be built upon. This fundamental thing only helped me to get the success. Also needless to say that all the faculties were excellent, management was supportive, have very good study atmosphere which always provide a conducive environment for students to come with flying colors. Thanks again Ray's IAS

MANOJ PRADHAN
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The mock interview guidance program at Ray's IAS Institute helped me immensely in my personality test for Civil Services Examination-2021 conducted by OPSC.

I am so grateful to them & wish all the best for its future endeavours.
Thank you 🙏

BHABESH BAL
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I enrolled for mock interview program of RAY'S IAS and had enlightening interview sessions with the faculty. I learnt a great deal from them. Gratitude to Ray's IAS academy.

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Current Affairs

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Harvest Festivals Across India Syllabus: GS1/Art and Culture Context:

- The Prime Minister greeted people on the occasion of Makar Sankranti and harvest festivals celebrated in different regions of the country with different names.

Makar Sankranti

About

- Harvest festivals mark the beginning of festivities every year in India and can be seen in different States of India.
- These festivals are celebrated at different times of the year due to different climates and cropping patterns, and are a moment to celebrate the food that has been cultivated.
- India being an agrarian economy, with the majority of its population dependent on agriculture owes their growth and prosperity to Mother Earth and nature.
- These festivals commemorate the cycle of life and death and also indicate the end of the agricultural cycle and the beginning of the end of the year.
- It marks the end of an unfavourable phase and the beginning of a holy phase.
- It is celebrated in Maharashtra, Gujarat, Uttar Pradesh, Tamil Nadu, Haryana, Himachal, West Bengal, Punjab, Tamil Nadu, Karnataka, Kerala, Andhra Pradesh, Telangana, and Puducherry.
- Kumbh Mela is one of the key attractions during this festival.

Pongal

- It is primarily celebrated in Tamil Nadu, and is one of the most popular harvest festivals of South India.
- It marks the beginning of Uttarayan (sun's journey northwards i.e. sun's transit to the Capricorn).
- The literal meaning of Pongal is 'spilling over', and it is so called because of the tradition of boiling rice in a pot until it starts to spill.
- Jallikattu, a bull taming sport, is widely celebrated in the state of Tamil Nadu as part of Pongal celebrations.

Baisakhi

- It signifies the end of the harvest season in India marking a time of prosperity for the farmers.
- It is celebrated as the new year by the Hindu community.

Lohri

- It is a celebration of the commencement of the harvest season.
- Mainly celebrated in Punjab and other parts of North India by Sikh and Hindu communities.

Other festivities include

- Ellu Birodhu in Karnataka; Hangrai in Tripura; Poush Sangkranti in West Bengal; Pusna in West Bengal, Assam, and Meghalaya; Shishur Saenkraat in Kashmir Valley; Tusu in West Bengal, Jharkhand, Odisha; and Uttarayan in Gujarat; Ugadi in Andhra Pradesh, Karnataka & Telangana; Nuakhai in Odisha; Onam in Kerala; Gudi Padwa in Maharashtra, Karnataka & Andhra Pradesh, Khichdi in Eastern Uttar Pradesh and Magh Bihu or Bhogali Bihu in Assam.

Significance of these festivals

- Harvest festivals signify cultural, social, and religious aspects.
- The festival is celebrated to mark the beginning of the harvesting season in the country and is probably the only one that is celebrated in every region of India, on the same day, but in different manners and names.
- Sun's northward Movement: It is associated with the sun's northward journey.

Thiruvalluvar Day

Syllabus: GS1/Indian History; Culture Context:

- The Tamil Nadu Governor paid floral tributes to a portrait of Tamil poet-saint Thiruvalluvar on Thiruvalluvar Day.

About

- Thiruvalluvar Day was first celebrated on May 17 and 18 in 1935.
- In the present time, it is usually observed either on January 15 or 16 in Tamil Nadu and is a part of Pongal celebrations.

Who is Thiruvalluvar?

- He was a great poet, and philosopher, and regarded as a cultural icon by Tamils.
- Thiruvalluvar's primary work Thirukkural contains 1330 couplets (kurals) that are divided into 133 sections of 10 couplets each.
- The text is divided into three parts with teachings on Dharma, Artha, and Kama (virtue, wealth and love).

Social Influence

- A temple was built within the Ekambareswarar temple complex in Mylapore and it was dedicated to Thiruvalluvar in the early 16th century.
- Valluvar Kotam, a temple memorial built in Chennai in 1976. It has one of the largest auditoriums in Asia.
- Thiruvalluvar Statues in Kanyakumari and Ulsoor, near Bengaluru were unveiled in 2000 and 2009 respectively.
- A statue of Valluvar was also erected outside the School of Oriental and African Studies in Russell Square, London.

Veerbhadra Temple

Syllabus :GS 1/Art and Culture In News

- The Prime Minister performed darshan and puja at Veerbhadra Temple in Andhra Pradesh.



About Veerabhadra Temple

- It is also known as the Lepakshi temple.
- The literal meaning of the word is Lepa + Akshi, an embalmed eye or a painted eye.
- It is dedicated to Veerabhadra (the fiery incarnation of Lord Shiva).
- According to Hindu mythology, Daksha insulted his daughter Sati and her husband Shiva at a grand sacrifice he had organised.
- Unable to bear the humiliation, Sati immolated herself. To avenge her form of the wrathful Veerabhadra.
- Notable features: It has shrines dedicated to Shiva, Vishnu, Papanatheswara, Raghunatha, Rama and other deities.
- It exhibits the interchange of human values and socio-cultural traditions from 11th century Chalukyan Period to 15th century early Vijayanagara period.
- The present temple was reconstructed in Chalukya style of Hindu temple architecture and completed in May 1951.
- The reconstruction was completed by Vallabhbhai Patel.

Do you know ? The Sri Veerabhadra Swamy temple and the Monolithic Bull (Nandi) at Lepakshi in Anantapur district known for the Vijayanagara sculpture and painting art tradition, have found a place on the tentative list of the World Heritage Committee and the same was published on the Unesco World Heritage Convention website.

Somnath: A brief history of the temple

Syllabus :GS 1/Art and Culture In News

Ayodhya Priest says ‘incomplete Ram Mandir’ claim is misleading, cites Somnath Temple Pran Pratishtha.

About Somnath temple

- It is located in Prabhas Patan near Veraval in Saurashtra on the western coast of Gujarat.
- It means “The Protector of the moon god”.



- It is believed to be the first among the twelve jyotirlinga shrines of Shiva.
- The site of Somnath has been a pilgrimage site from ancient times on account of being a Triveni sangam (the confluence of three rivers — Kapila, Hiran and Sarasvati).
- Mahmud Ghazni attack : Mahmud’s last major raid was on Somnath temple in Saurashtra on the western coast of Gujarat in 1025 CE
- Reconstructed several times in the past after repeated destruction by several Muslim invaders and Portuguese.
- The present temple was reconstructed in Chalukya style of Hindu temple architecture and completed in May 1951.
- The reconstruction was completed by Vallabhbhai Patel.

- Mahmud of Ghazni Mahmud Ghazni invaded India 17 times during AD 1000–1026. Mahmud Ghazni He was Son of Sabuktigin, the founder of Ghazni dynasty & Turkish slave commander Mahmud's raids into India were only to acquire the famous wealth of India. This wealth would help him to consolidate his vast rule in Central Asia. He did not wish to establish an empire in India.

Guruvayur Temple Syllabus: GS1/ Art & Culture Context

- The Prime Minister of India recently visited Sree Krishna Temple, Guruvayur.

About the temple

- Guruvayur is home to the historic Sree Krishna Temple, called the Dwaraka of the South.
- It is among the most revered and popular pilgrimage destinations in Thrissur, Kerala.
- The temple is built in the traditional Kerala architectural style and the central shrine is believed to have been rebuilt in 1638 C.E.
- As per tradition, the shrine faces the East with two Gopurams (tower), one in the East and other in the West.
- In the front and the east side of the Nalambalam (a square shaped column) lie the pillars of light called Deepastambam. There are a number of such light pillars in the temple.
- One of the most popular offerings at Guruvayoor temple is Thulabharam, where devotees are weighed against bananas, sugar, jaggery and coconuts equivalent to their weight, on a giant pair of scales.

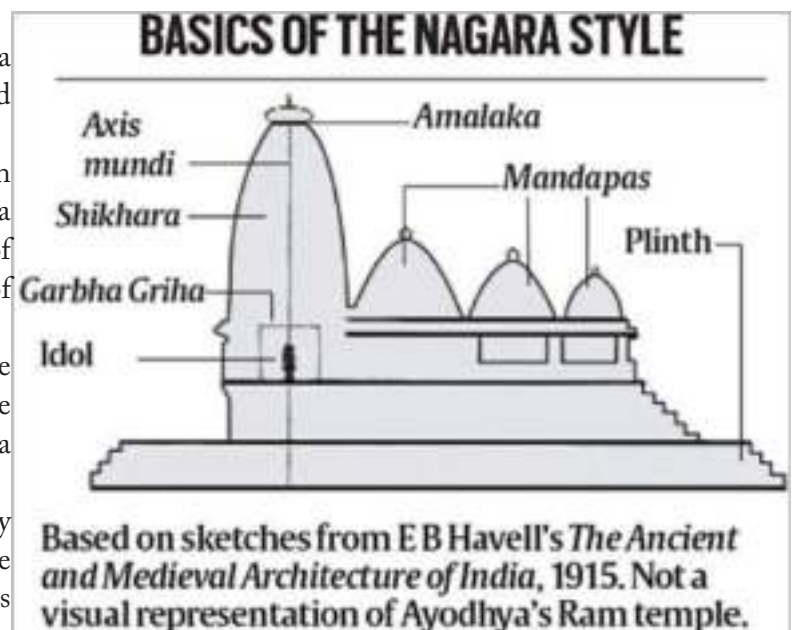
Nagara Style of Temple Architecture

Syllabus: GS1/Art and Culture In Context

- The Ram temple in Ayodhya is designed in the Nagara style of temple architecture.

About

- The Nagara style of temple architecture emerged some time in the fifth century CE, during the late Gupta period, in northern India.
- It is seen in juxtaposition with the Dravida style of southern India, which too emerged in the same period.
- Features: Nagara temples are built on a raised plinth, with the garbha griha (sanctum sanctorum) — where the idol of the deity rests — the most sacred part of the temple.
- Towering over the garbha griha is the shikhara (literally 'mountain peak'), the most distinguishable aspect of Nagara style temples.
- It also comprises a circumambulatory passage around the garbha griha, and one or more mandapas (halls) on the same axis as it.
- Elaborate murals and reliefs often adorn its walls.



Ram Temple: A new-age Architectural Marvel

Syllabus: GS1/Art and Culture Context:

- The Pran Pratishtha (consecration) ceremony of the Ram Lalla idol took place at Ram Temple in Ayodhya, Uttar Pradesh on January 22, 2024.
- The temple is a new-age architectural marvel of elegant sandstones with no use of iron or steel.

Key Facts about the Temple

- It is spread over nearly 3 hectares and is made with pink sandstone and adorned with intricate carvings.

- The temple blends traditional design with cutting-edge technology and is crafted without the use of iron, steel, or cement.
- The idol of Lord Ram inside the sanctum sanctorum (also known as Garbhagriha) of the temple; The statue was carved in black stone by sculptor Arun Yogiraj.

Construction Materials:

- Traditional construction materials have been used in their construction to reflect an alignment with traditional building practices along with an emphasis on sustainability.
- These include:
- Bansi Paharpur

Pink Sandstone from Bharatpur of Rajasthan (for the main temple structure);

- Granite Stones have been used in the plinths
- White Makrana and Colored Marbles have been used for the inlay work
- Teakwood has been used for the construction of the doors of the temple.
- Special Bricks with 'Shri Ram' inscribed: It intertwines modern craftsmanship with ancient symbolism.
- Other Materials Used: Shaligram Rock, Copper Plates, Gold, and Ashtdhatu

Facts & Figures	
• Estimated cost of temple:	₹1
• Total land:	70 acres
• Main temple land:	2.77 acres
• Floors:	3
• Gates:	12
• Doors:	44
• Total built-up area:	57,400 sq ft
• Height of each floor:	20 ft.
• No. of columns in ground floor:	392
• No. of columns in first floor:	392
• No. of columns in second floor:	392
• No. of pedes and pavilions:	5

Architectural Highlights:

- Foundation: A 14-meter thick layer of roller-compacted concrete, looking like an artificial rock, has been used to construct the foundation of the temple.
- A 21-foot-high plinth of Granite has been constructed for protection against ground moisture.
- The Main Temple: The main temple is built in Nagara Style. It consists of a total of five Mandaps (Hall) – Nritya Mandap, Rang Mandap, Sabha Mandap, Prarthna, and Kirtan Mandaps.
- It has three stories (ground plus two floors, with each story designed to give the devotees an experience of the various stages of Lord Rama's divine journey, each floor of the temple will be 20 feet high), and 392 pillars.
- The ground floor of the temple has been designed to depict the story of the birth and childhood of Lord Rama, and the first floor is designed like Lord Rama's Darbaar.
- The main entrance to the temple is called the Singh Dwar, which features a series of ornate statues of elephants, lions, Lord Hanuman, and Garuda.
- The Temple Complex Kuber Tila is located in the southwestern part of the complex.
- The ancient temple of Lord Shiva located in this part has been restored.
- A bronze idol of the Ramayana character 'Jatayu' is installed.
- The Bell is made of Ashtadhatu (Gold, Silver, Copper, Zinc, Lead, Tin, Iron, and Mercury)
- Some other temples proposed to be constructed within the temple complex are those dedicated to Maharishi Vashishtha, Maharishi Valmiki, Maharishi Vishwamitra, Maharishi Agastya, Nishad Raj, Devi Ahilya, and Mata Shabri.



Unique Feature:

- Around the grand temple is a rectangular periphery called Percota, a feature found in temples in south India, but not generally in north India.
- About 70% of the complex will be a green area.
- The temple complex has two sewage treatment plants, a water treatment plant, and a dedicated electricity line from the powerhouse.

- A Pilgrims Facility Centre of 25,000 capacity to provide medical facilities and locker facilities to the pilgrims.

Other Architectural Facets:

- A time capsule has been placed approximately 2,000 feet below the ground, right underneath the temple. The capsule contains a copper plate inscribed with relevant information regarding the Ram Mandir, Lord Rama, and Ayodhya.
- The purpose of this time capsule is to ensure that the identity of the temple remains intact over time so that it doesn't get forgotten in the future.
- The temple is an earthquake-resistant structure, with an estimated age of 2500 years.

Bordowa Satra (Batadrava Than)

Syllabus:GS1/Culture and History Context

- Recently Rahul Gandhi was prevented from visiting Batadrava Than.

About

- The Batadrava Than, is one of the most sacred sites for Assamese Vaishnavites and was established by Srimanta Sankardev in 1494 A.D.
- Location: It is located at the birthplace of revered Vaishnavite reformer-saint Srimanta Sankardeva (1449-1568) in Nagaon district, of Assam.
- Architecture: The campus encompasses diverse structures such as Natghar (Drama hall), Alohighar (Guest room), Sabhaghar (Assembly hall), Rabhaghar (Music room), Hatipukhuri, Aakashi Ganga, Doul mandir (festive temple), and others.

Philosophy of Srimanta Sankardeva

- Teaching: His teaching focused on prayer and chanting (naam) instead of idol worship.
- Dharma: His dharma was based on the four components of deva (god), naam (prayers), bhakats (devotees), and guru (teacher).
- Ek Saran Naam Dharma: The saint propagated the Ek Saran Naam Dharma, focussed on worship in the form of bhakti (devotion) to Lord Krishna, through singing and congregational listening of His name and deeds.
- Sankardeva espoused a society based on equality and fraternity, free from caste differences, orthodox Brahmanical rituals and sacrifices.
- The saint traveled across Assam, spreading his teachings and establishing the Sattras/Thans as centers of religious, social and cultural reforms in the 16th century.

Kadamba Inscription

Syllabus: GS1/Art and Culture Context

- 10th century Kadamba inscription written in Kannada, Sanskrit recently discovered in the Mahadeva temple at Cacoda in southern Goa.

About the Inscription (Discovery and Study)

- It throws light on the Kadamba period in Goa and opens with an auspicious word 'Be it well' (Swasthi Shri).
- It was found lying in between the temples of Mahadev and Sateri-Betal at Cacoda in Goa.

Epigraphic Details:

- It records that when Talara Nevayya was administering the mandala, his son Gundayya having taken a vow to fulfil his father's desire of capturing a gopura of the port of Goa, fought and died after fulfilling his father's wish.
- Its epigraph is engraved in Kannada and Nagari characters.
- It is in the literary style of the Talangre inscription of Jayasimha I of the same period.
- Deciphering of the Kadamba stone inscription has highlighted the historical and socio-cultural importance.



Historical Narrative:

- The Kadambas of Goa were the subordinates of Chalukyas of Kalyana.
- Chalukyan emperor Tailapa II appointed Kadamba Shasthadeva as Mahamandaleshwar a of Goa for his help in overthrowing the Rashtrakutas.
- Kadamba Shasthadeva conquered the Chandavara city in 960 A.D, and conquered the port of Gopakapattana (present Goa).
- It is believed that the Gundayya, son of Talara Nevayya, have participated in the battle, and won the port of Gopakapattana at the cost of his life.
- His father, Talara Nevayya, erected a memorial stone with the inscription in the temple of Mahadev of Cacoda to commemorate the heroic fight of his son.

Socio-cultural Importance:

- Cacora village lies in the vicinity of navigable waterways which connect to the Upper Ghat region through the ancient route of Diggi ghat leading to Karnataka.
- Cacoda, now a census town under the Municipality of Curchorem Cacora in Goa and it has the temple of the presiding deity Mahadev, with the affiliated deities of Betal, Dana Gaddi, Sidha, Bhumipurush, Paik, Vithal, Vagro and a shrine dedicated to Pir.

Kadambas Dynasty

- The Kadambas were an ancient Karnataka royal dynasty that controlled northern Karnataka and the Konkan region, established by Mayurasharma in about 345 AD.
- They lived alongside the Western Ganga Dynasty and created one of the first local kingdoms to rule the region autonomously.

Major sources of Kadamba history:

- Inscriptions like Talagunda, Gundanur, Chandravalli, Halasi, and Halmidi in Sanskrit and Kannada.
- a. The Talagunda inscription: It is one of their earliest inscriptions that establishes Mayurasharma as the kingdom's founder and provides the explanation for the creation of the Kadamba monarchy.

Architecture:

- It includes unique features, including some similarities to the Chalukyan and Pallava styles and was inspired by the Satavahana architectural tradition.
- The most noticeable aspect of their architecture is the Kadamba Shikara.

Chapter- 2

POLITY & GOVERNANCE

Understanding the Tenth Schedule

Context:

- The Maharashtra Assembly Speaker has refused to disqualify MLAs of the Eknath Shinde faction and Uddhav Balasaheb Thackeray group.

What is Defection?

- It means the transfer of allegiance by a legislator from one political party to another. It indicates revolt, dissent, and rebellion by a person or a party.
- In a political scenario it is a situation when a member of a political party leaves his party and joins hands with other parties.
- Traditionally, this phenomenon is known as ‘floor crossing’ which had its origin in the British House of Commons where a legislator changed his allegiance when he crossed the floor and moved from the Government to the Opposition side, or vice-versa.

Defections in India

- The practice of ‘defection’ in Indian politics has always been the breeding ground of political instability and uncertainty, often tending to shift the focus from ‘governance’ to ‘governments’.
- Defections are an integral part of parliamentary democracy, including India.
- According to the Chavan Committee Report (1969), following the Fourth General Elections, Indian politics were characterised by numerous instances of change of party allegiance by legislators in several States.
- Therefore, to ensure the stability of elected governments, the 52nd Constitutional Amendment introduced the ‘Anti-defection’ law through the Tenth Schedule in 1985.

Anti-Defection Law (ADL)

- It was formulated to bring stability to the Indian political system by curbing the tendency among legislators to switch loyalties from one party to another.
- It addresses the following kinds of defection:
 - By a member voluntarily giving up membership of the party on whose symbol they got elected.
 - By a member violating a direction (whip) issued by their party to vote in a particular way or to abstain from voting.
- The Supreme Court of India has interpreted ‘voluntarily giving up membership’ broadly, ruling that a legislator’s conduct (inside and outside the legislature) can indicate whether they have left their party.
- The law also allows a group of MPs/MLAs to join (i.e., merge with) another political party without inviting the penalty for defection.
- The law allows a party to merge with or into another party provided that at least two-thirds of its legislators are in favour of the merger.
- Nominated legislators: The law specifies that nominated legislators can join a political party within six months of being appointed to the House, and not after such time.
- Violation of the law in any of these scenarios can lead to a legislator being penalised for defection.

Deciding Authority

- Anti-Defection Law provides for the disqualification of legislators by the Presiding Officer of the Legislature (Speaker, Chairman) based on a petition by any other member of the House.
- However, the Supreme Court has held legislators can challenge their decisions before the higher judiciary.
- ADL does not provide a time frame within which the presiding officer has to decide a defection case.

- However, the Supreme Court has held that, ideally, Speakers should take a decision on a defection petition within three months.

Constitutional and Statutory Provisions for Disqualification

Significances of ADL

- Stability: ADL aims to bring stability to governments by discouraging legislators from changing parties, along with promoting party discipline.
- Loyalty: ADL tries to bring a sense of loyalty of the members towards their own party.
- It ensures that candidates elected with party support and on the basis of party manifestos remain loyal to the party policies.

Criticisms around the ADL

- No scope for acting independently: ADL penalises legislators for acting independently is that it goes against the idea of a parliamentary democracy.
- ADL binds legislators to the official position taken by their party on any issue.
- Accountability to the constituency: By preventing parliamentarians from changing parties, it reduces the accountability to the Parliament and the people.
- Split as a defence against disqualification: If there is a split in a particular party, and one-third of the legislators move along with the breakaway group, they will not be disqualified. So, split was a defence against disqualification.
- It is being misinterpreted as is seen in Maharashtra because there is no authoritative interpretation of the law.
- Ambiguous Nature of Split: In recent years, opposition MLAs in some states have broken away in small groups gradually to join the ruling party.
- In some of these cases, more than 2/3rd of the opposition has defected to the ruling party.
- However, it is not clear if they will still face disqualification if the Presiding Officer makes a decision after more than 2/3rd of the opposition has defected to the ruling party.
- Lure of office: It is widely claimed that Ideological defection doesn't take place in India & the legislators defect for the lure of office.

Suggestions by different Committees on ADL

- Dinesh Goswami Committee on Electoral Reforms (1990): Disqualification should be limited to cases where:
 - A member voluntarily gives up the membership of his political party;
 - A member abstains from voting, or votes contrary to the party whip in a motion of vote of confidence or motion of no-confidence.
- The issue of disqualification should be decided by the President/Governor on the advice of the Election Commission.
- Law Commission (170th Report, 1999): Provisions which exempt splits and mergers from disqualification to be deleted.
- Pre-poll electoral fronts should be treated as political parties under anti-defection law.
- Political parties should limit issuance of whips to instances only when the government is in danger.
- Constitution Review Commission (2002): Defectors should be barred from holding public office or any remunerative political post for the duration of the remaining term.
- The vote cast by a defector to topple a government should be treated as invalid.
- Election Commission: Decisions under the Tenth Schedule should be made by the President/ Governor on the binding advice of the Election Commission.

Related SC Judgement

- Kihoto Hollohan vs Zachillhu And Others (1992): The Supreme Court upheld the validity of the ADL and made the Speaker's order subject to judicial review on limited grounds.
- It held that Freedom to speech and expression is not an absolute right but is subjected to reasonable restrictions.

Way Forward

- The introduction of the Tenth Schedule in the Indian Constitution was aimed at curbing political defections and stable government, but it has failed to meet its objective of curbing political defections and ensuring political stability.
- Though the law has succeeded in a reasonable way but due to some of its loopholes, it has not been able to achieve the best it can.
- The apex court must review the controversial Tenth Schedule to prevent the further corrosion of democracy.

MPLADS e-SAKSHI Mobile Application

Context

- The government has launched the Members of Parliament Local Area Development Scheme (MPLADS) e- SAKSHI Mobile Application for revised fund flow procedure under MPLAD Scheme.

About

- The mobile app would offer convenience and accessibility, allowing MPs to propose, track, and oversee the projects at their fingertips.
- This real-time access enhances decision-making processes, enabling swift responses to emerging needs or issues.
- The application will streamline the communication between MPs and relevant authorities, facilitating a more efficient exchange of information.

About MPLAD Scheme

- The MPLADS is a Plan Scheme fully funded by the Government of India.
- The annual MPLADS fund entitlement per MP constituency is Rs. 5 crore.
- MPs are to recommend every year, works costing at least 15 percent of the MPLADS entitlement for the year for areas inhabited by Scheduled Caste population and 7.5 percent for areas inhabited by Scheduled Tribes population.
- Lok Sabha Members can recommend works within their Constituencies and Elected Members of Rajya Sabha can recommend works within the State of Election.
- Nominated Members of both the Rajya Sabha and Lok Sabha can recommend works anywhere in the country.
- All works to meet locally felt infrastructure and development needs, with an emphasis on creation of durable assets in the constituency are permissible under MPLADS as prescribed in the scheme guidelines.

National Essential Diagnostics List

Context:

- The Indian Council of Medical Research (ICMR) started revising the current National Essential Diagnostics List (NEDL) for the first time.

About the National Essential Diagnostics List (NEDL):

- Background: In 2018, the WHO had recommended the development and implementation of an NEDL to facilitate the availability of in-vitro diagnostics across the various tiers of the healthcare pyramid, in facilities with or without an onsite laboratory.
- India's first NEDL was released in 2019 by ICMR, to make the availability of diagnostics an essential component of the healthcare system.
- It lists the essential and most basic tests that should be available at various levels of healthcare facilities at the village level, in sub-health centres, health and wellness centres, and primary health centres.
- It contains the minimum diagnostic tests that should be available at healthcare facilities;

Criteria for proposing additional tests:

- Essentiality of the test: Essential diagnostic tests are those that satisfy the priority health care needs of the population and should be selected on the basis of:
 - Disease prevalence
 - public health relevance;

- iii. Evidence of efficacy
- iv. accuracy,
- v. Cost effectiveness.
- b. Disease burden: The test should focus on conditions with a high disease burden or having significant public health relevance.
 - There should be a clear impact on disease diagnosis and management by the introduction of diagnostic tests.
- c. Alignment with Indian Public Health Standards (IPHS) 2022: The proposed test should have documented utility and necessity at the level for which it is suggested.
 - The proposed addition should be in alignment with the availability of equipment, infrastructure and manpower, as per IPHS 2022.

About ICMR:

- It is the apex body in India for formulation, coordination and promotion of biomedical research
- It conducts, coordinates and implements medical research for the benefit of the Society.
- It translates medical innovations into products/processes and introduces them into the public health system.

Sub-categorisation of Scheduled Castes

Context

- The Union government has formed a committee to ensure equitable distribution of benefits to Scheduled Castes (SCs) across the country.
- The sub-categorisation of SCs comes after the Prime Minister's promise to look into the demand raised by the Madiga community of Telangana.

Sub-Categorisation within Scheduled Castes

- It is to identify and help the most backward among the SCs.
- In the last two decades, multiple states like Punjab, Bihar, and Tamil Nadu have tried to bring in reservation laws at the state level to sub-categorise SCs.
- In the last two decades, States like Punjab, Bihar, and Tamil Nadu have tried to bring in reservation laws at the State level in a bid to sub-categorise Scheduled Castes.

Legality of Sub-categorisation

- *E. V. Chinniah v State of Andhra Pradesh (2004)*: The Supreme Court through its 5-Judge Bench held that once a community is included in the Presidential List for Scheduled Castes under Article 341 of the Constitution, they become part of a single larger class of people, casting a wide net for the purposes of reservation.
- It held that the State did not have the legislative power to create sub-classifications within this single class and that such an action would violate the Right to Equality.
- However, all plans are held up in courts as the Supreme Court forms its larger Constitution Bench (in *Davinder Singh Case*) to decide the matter.
- The issue of sub-classification in reservations has been pending before a 7-Judge Constitution Bench for nearly two years without a hearing.

Arguments favouring sub-categorisation within Scheduled Castes

- **Graded Inequalities**: The principal argument for sub-categorisation of SCs has been the graded inequalities among SC communities.
- The thrust of it has been that even among the marginalised, there are communities that have lesser access to basic facilities.
- **Unequal Representation**: Some communities are more backward and have less representation than others.
- For instance, the Madiga community has claimed that the benefits, including that of reservation, meant for the SC category had been cornered by the Mala community, with the Madigas being left out.
- **Legal Standpoint**: A five-judge Bench headed by Justice Arun Mishra has affirmed the competence of the States to give preferential treatment to the weakest among the Scheduled Castes without depriving other castes of any benefit.

- The Court has noted that the Scheduled Castes list contains many castes and cannot be treated as a homogeneous group.
- Equitable Distribution of Benefits: The Union government has formed a committee of Secretaries to evaluate and work out a method for the equitable distribution of benefits, schemes, and initiatives to the most backward communities amongst the over 1,200 Scheduled Castes across the country.

Arguments against sub-categorisation within Scheduled Castes

- These are primarily based on the legal and practical challenges associated with it.
- Legal Challenges: The Supreme Court held that the State did not have the power to unilaterally sub-categorise communities in the list of SCs or Scheduled Tribes (STs).
- The Constitution has provided that these lists can only be made by Parliament and notified by the President.
- Data of socio-economic status: The population data related to SC, ST, and OBC categories are not updated since the 2011 census.
- It hampers the objective and scientific basis for sub-categorisation.
- Untouchability: The social and educational backwardness cannot be applied to Scheduled Castes and Scheduled Tribes. The special treatment is given to the SCs due to untouchability with which they have suffered since ages.

Conclusion

- The Constitution of India does not prohibit the Parliament to sub-categorise SCs but it needs to justify by the government that this move would be a 100% count of all castes – a caste census of each community and sub-community and their respective socio-economic data.
- The government should focus on the equitable distribution of benefits, schemes and initiatives to SCs population in India, as mandated by the Constitution and other Statutory provisions.

Andhra Pradesh Launches Caste Census

Context:

- Andhra Pradesh recently became the 29th State after Bihar, to take up caste census to enumerate all communities in the state.

About

- The Andhra Pradesh government will extensively deploy the village secretariat system for the caste census along with the volunteer system.
- Officials in the village secretariat system across the state will verify the accuracy of information collected by the volunteers and correct it, if necessary, before making the final record.

Caste census: A historical context

- Caste-wise enumeration of the population was introduced under the British colonial administration in 1881 and continued till the 1931 census.
- However, independent India abandoned caste enumerations, citing potential for social division and strengthening caste hierarchies.
- Every Census in independent India from 1951 to 2011 has published data on Scheduled Castes and Scheduled Tribes, but not on other castes.

Arguments for a Caste Census

- Enables effective governance: Provides a comprehensive picture of India's caste composition, including marginalized communities and sub-castes.
- Tracks progress: The absence of official data on caste distribution makes it difficult to track progress in affirmative action, address caste-based discrimination, and allocate resources effectively.
- Certainty in policy making: The available data does show that SC, ST and OBCs are lagging behind but there is no clarity over which caste groups are most progressive and which are the most marginalized, thereby hindering effective policy formulations.
- Social Justice: Enables better targeting of affirmative action programs and policies towards groups facing persistent discrimination.

- There are many castes which are yet to receive welfare schemes from the government and the census will help them address this.
- Resource Allocation: Helps in equitable distribution of resources based on the needs of different caste groups.
- Social Reforms: Provides data-driven evidence for social reform initiatives addressing caste-based disparities.

Arguments against a Caste Census

- Social Division: Critics argue it could solidify caste identities, exacerbate tensions, and lead to renewed claims of dominance and hierarchy.
- Unconstitutional: The Union Government has the sole right to conduct a census and not the states, thus violating Schedule VII of the Constitution, the Census Act, 1948 and the Census Rules, 1990.
- Census was enumerated at Entry 69 in the Union List in the Seventh VII of the Constitution.
- Data Misuse: Concerns exist about potential misuse of data for political gains or discrimination against certain caste groups.
- It can help the unscrupulous caste leaders to serve their narrow political interest at the cost of their caste brethren.
- New issues: The survey data can reopen the longstanding debate over the 50% ceiling on reservation imposed by the Supreme Court in its landmark ruling in Indra Sawhney v Union of India (1992).
- Logistical Challenges: Conducting a nationwide caste census is a complex and expensive undertaking, requiring careful planning and implementation.
- Alternative Data Sources: Some argue existing databases and surveys can provide sufficient data on caste and socioeconomic conditions.

Way Ahead

- Caste data is key to understanding three important factors – the functioning of the labour market, wealth inequality and implementation of policy schemes, which may help to understand the country's development pattern.
- Such data will reveal inequalities in social structures, enable better policy formulation and identify obstacles in policy implementation to usher in an era of genuine equal participation and redistribution of power and resources.
- Hence, rather than politicising caste census, every political party should embrace the idea so that the state will fulfill its responsibility to ensure welfare of the most marginalized sections of the citizens.

AI Governance Alliance Report on Generative AI Governance

Context

- The AI Governance Alliance (AIGA) released a series of three new reports on advanced artificial intelligence (AI).

About:

- The papers focus on generative AI governance, unlocking its value and a framework for responsible AI development and deployment.
- In the report “Generative AI Governance: Shaping Our Collective Global Future,” the highlight is on international cooperation.
- It also urges a more inclusive access to AI - both in terms of development and deployment.
- Unlocking Value from Generative AI: Guidance for Responsible Transformation guides stakeholders on how to adopt generative AI more responsibly.
- Particularly, it highlights use case evaluation, multistakeholder governance and transparent communication.
- The Presidio AI Framework: Towards Safe Generative AI Model underscores the need for a framework that standardizes model lifecycle management.
- It also focuses on shared responsibility and proactive risk management.
 - AI Governance Alliance (AIGA)The World Economic Forum launched the AI Governance Alliance in 2023.
- It is a dedicated initiative focused on responsible generative artificial intelligence (AI).
- It is a union of industry leaders, governments, academic institutions, and civil society organizations to champion responsible global design and release of transparent and inclusive AI systems.

What is Artificial Intelligence?

- Artificial intelligence (AI) is a wide-ranging branch of computer science concerned with building smart machines capable of performing tasks that typically require human intelligence.
- Artificial intelligence allows machines to model, or even improve upon, the capabilities of the human mind.
- From the development of self-driving cars to the proliferation of generative AI tools like ChatGPT and Google's Bard, AI is increasingly becoming part of everyday life — and an area every industry are investing in.

Generative AI

- Generative AI is a type of artificial intelligence technology that can produce various types of content, including text, imagery, audio and synthetic data.
- Generative AI models learn the patterns and structure of their input training data and then generate new data that has similar characteristics.
- ChatGPT, DALL-E, and Bard are examples of generative AI applications that produce text or images based on user-given prompts or dialogue.

Need for the Regulation

- Lack of transparency of AI tools: AI and deep learning models can be difficult to understand, even for those that work directly with the technology.
- AI is not neutral: AI-based decisions are susceptible to inaccuracies, discriminatory outcomes, embedded or inserted bias.
- Manipulation through Algorithm: Online media and news have become even murkier in light of
 - AI-generated images and videos, AI voice changers as well as deep fakes infiltrating political and social spheres.
- Lack of Data Privacy: AI systems often collect personal data to customize user experiences or to help train the AI models.
- Uncontrollable Self AI: There also comes a worry that AI will progress in intelligence so rapidly that it will act beyond humans' control — possibly in a malicious manner.
- Safety and Security: AI systems, especially those in critical domains like healthcare, transportation, and finance, must meet certain safety standards.
- International Cooperation: AI development is a global phenomenon, and regulatory frameworks can help establish common standards and principles.
- Avoiding Misuse: Without regulations, there is a risk of AI being used for malicious purposes, such as deepfake creation, cyber attacks, or autonomous weapons.
- Public Trust: Establishing clear regulations can enhance public trust in AI technologies.

Way Ahead

- AI systems can raise ethical issues, such as bias, discrimination, and invasion of privacy.
- Regulations are necessary to ensure that AI technologies adhere to ethical standards and do not contribute to social inequalities.
- These dangers may be mitigated by implementing legal regulations and by guiding AI development with human-centered thinking.

Sport Sector in India

Context

- The Prime Minister has inaugurated the sixth edition of the Khelo India Youth Games in Chennai.

About

- The Prime Minister of India recently credited the various reforms undertaken by the Union government for India's success in sports.
- Highlighting that sports was not just limited to the field, but also presents a huge economic opportunity, he said the country's sports-related industry will be worth at least 1 lakh crore in a few years.
- He asserted that India has a vast pool of sporting talent and is prepared to host the 2036 Olympic Games.

Reforms taken by the Government in the sports sector:

Talent Development and Athlete Support:

- Khelo India Program: Launched in 2017, this ambitious program identifies and nurtures young talent at the grassroots level through scholarships, training camps, and competitions across various sports.
- Target Olympic Podium Scheme (TOPS): Provides dedicated financial and logistical support to elite athletes with potential to win medals at the Olympic Games.
- National Sports Awards: Recognizes and rewards outstanding achievements of athletes, coaches, and administrators.
- Sports Authority of India (SAI): Revamped infrastructure and coaching staff at SAI training centers across the country.

Infrastructure Development:

- Khelo India Youth Games: Organizes annual national sports competitions for young athletes, utilizing upgraded infrastructure and facilities since 2018.
- Development of Sports Infrastructure Scheme: Provides financial assistance to states and sports bodies for upgrading existing and building new sports infrastructure.
- Public-Private Partnerships (PPPs): Encourages private sector participation in development and management of sports facilities.

Governance and Policy Reforms:

- National Anti-Doping Agency (NADA): Strengthens anti-doping measures and implements stringent regulations to promote clean and fair competition.
- National Sports Development Code of India: Provides a framework for governance, funding, and development of sports in India.
- Empowering National Sports Federations (NSFs): Reforms NSFs to ensure transparency, accountability, and autonomy in their operations.

Promoting Sports as a Career:

- University Grants Commission (UGC) Sports Scholarship Scheme: Provides financial support to student athletes pursuing higher education.
- National Sports University: Established First National Sports University of the country in Manipur at a total sanctioned cost of Rs.643.34 crore to provide world-class academic and athletic training.
- Career guidance and skill development programs: Equips athletes with skills and resources to transition successfully into post-retirement careers.

Sports Sector in India

- The market size of the sports industry across India was about 142 billion Indian rupees in 2022 and is expected to reach 300 billion Indian rupees by 2027.
- Cricket remains the dominant sport, but other sports like kabaddi, football, badminton, and hockey are gaining popularity and attracting significant viewership and investment.

Drivers of Growth

- Rising disposable incomes: Increased spending power fuels participation in sports and consumption of sports-related goods and services.
- Government initiatives: Schemes like Khelo India and Target Olympics Podium Scheme prioritize athlete development and infrastructure improvement.
- Private sector participation: Investments by corporations and entrepreneurship in leagues, franchises, and sports infrastructure are on the rise.
- Media & technology: Improved broadcasting, digital platforms, and online gaming are expanding fan engagement and revenue streams.

Challenges and Concerns

- Uneven development: Cricket enjoys disproportionate attention and resources, hindering the growth of other sports.

- Infrastructure deficit: Lack of quality sporting facilities in rural areas and smaller towns limits access and talent development.
- Lack of grassroots focus: Focus on elite athletes often neglects broader participation and talent identification at the grassroots level.
- Doping and corruption: Combating these issues is crucial for building a fair and healthy sporting ecosystem.

Opportunities and Measures

- Diversification: Expanding focus on other sports, especially Olympic disciplines, has immense potential for growth and medal glory.
- Technology and innovation: Sports tech startups and data analytics can revolutionize training, fan engagement, and revenue generation.
- Rural outreach: Government and private efforts to develop rural sports infrastructure and talent identification programs are crucial for inclusivity.
- Women's sports: Increased participation and investment in women's sports hold tremendous potential for growth and empowerment.

Way Ahead

- The Indian sports sector is undergoing a fascinating transformation, fueled by rising incomes, increased awareness, and growing government and private sector investment.
- With its immense potential and ongoing developments, the Indian sports sector is poised for an exciting future.
- Addressing the challenges, capitalizing on opportunities, and fostering a collaborative ecosystem will be key to creating a thriving and inclusive sporting landscape that benefits all stakeholders.

Bureau of Police Research and Development (BPRD)

Context:

- The Bureau of Police Research and Development (BPRD) has warned users of different scams perpetrated through messaging platform WhatsApp.

About Bureau of Police Research and Development (BPRD)

- It was formally established in 1970 under the Ministry of Home Affairs giving a new orientation to the existing Police Research and Advisory Council (1966) .
- Over the years, It has also been entrusted with the responsibility of monitoring the training needs and quality of training in the States and Central Police Organisations.

Objectives:

- To identify the needs and problems of the police in the country,
- To undertake research projects and studies, and suggest modalities to overcome problems and challenges and meet the needs and requirements of the police.
- It was also mandated to keep abreast of the latest developments in the fields of science and technology, both in India and abroad, with a view to promoting the use of appropriate technology in police work.
- Initiatives: During the year 2008, the Government of India decided to create National Police Mission under the administrative control of BPR&D to transform the police forces in the country into effective instrument for maintenance of internal security.

NHRC Stressed on Implementation of Idate Commission Report

Context

- The National Human Rights Commission (NHRC) has stressed on the need to implement the Idate Commission report for welfare of NTs, SNTs, and DNTs.

Nomadic, Semi Nomadic, and Denotified Tribes (NTs, SNTs, and DNTs)

- Nomadic and semi-nomadic communities are defined as those who move from one place to another rather than living at one place all the time.

- Denotified tribes (DNTs) are communities that were ‘notified’ as being ‘born criminal’ during the British regime under a series of laws starting with the Criminal Tribes Act of 1871.
- These are communities who are the most vulnerable and deprived.

Challenges faced by NTs, SNTs, and DNTs

- **Lack of Recognition and Documentation:** Denotified communities lacking citizenship documents, which makes their identity invisible and causes hindrances in obtaining government benefits, constitutional, and citizenship rights.
- **Limited Political Representation:** Inadequate representation for these communities making it challenging for them to voice their concerns and advocate for their rights.
- **Social Stigma and Discrimination:** NTs, SNTs, and DNTs often face discrimination and social stigma, both due to their historical denotified status and their distinct way of life.
- **Economic Marginalization:** Lack of access to resources, markets, and employment opportunities results in economic marginalization of these communities.
- **Educational Deprivation:** Educational opportunities for these tribes are limited, leading to high illiteracy rates.

Idate Commission:

- In 2014, a National Commission for Denotified, Nomadic and Semi Nomadic Tribes was constituted under the Chairmanship of Bhiku Ramji Idate for a period of three years.
- The commission has given the following recommendations;
- There is a need to identify challenges faced by the NTs, SNTs, and DNTs owing to the stigma imposed by the enactment of the Criminal Tribes Act, 1871 and later by the Habitual Offenders Act, 1952 and figure out a way to modify discriminatory provisions of the latter.
- It also suggested the non-inclusion of DNTs/NTs/SNTs under the SC/ST/OBC and formulation of specific policies for the former, among many others.
- Setting up a permanent commission for Nomadic, Semi Nomadic, and Denotified Tribes (NTs, SNTs, and DNTs) in India.
- It stressed on taking measures to discern hurdles endured by the communities in availing basic facilities such as education, employment, health care, and legal documents, among others.

Steps Taken by Government

- Based on the recommendations of the Idate Commission the Government of India constituted the Development and Welfare Board for DNTs, SNTs & NTs (DWBDNCs) in 2019.
- A committee has also been set up by the NITI Aayog to complete the process of identification of the De-Notified, Nomadic and Semi-Nomadic Communities (DNCs).
- **Scheme for Economic Empowerment of DNTs (SEED):** The scheme was launched in 2022 for the welfare of Denotified, Nomadic and Semi Nomadic Communities.
- **Budget:** The Ministry has been allocated Rs. 200 crore for this scheme to be spent over five financial years from 2021-22 to 2025-26.
- **Components:** The four components of the Scheme for Economic Empowerment of DNTs are;
- To provide good quality coaching for DNT candidates to enable them to appear in competitive examinations;
- To provide Health Insurance to them;
- To facilitate livelihood initiative at community level; and
- To provide financial assistance for construction of houses for members of these communities.

Way Ahead

- The colonial mindset about the Denotified Tribes having “criminal tendencies” needs to change to ensure their human rights are not violated.
- Proper documentation of their identities needs to be speeded up so that they get the benefits of welfare schemes and the basic needs are provided to them.
- The NHRC has suggested that there is a need to ensure representation of Denotified tribes in parliament, government institutions and higher education to mitigate the challenges faced by them.

Digital Study Material in Indian Languages

Context:

- The Government of India has decided that study material for all courses under school and higher education will be made available digitally in Indian languages included in the 8th Schedule of the Constitution.

Rationale Behind the Move

- The above directions emerge from the recommendations of the National Education Policy for promoting multilingualism in education at every level, so that students get the opportunity to study in their own language, and can have better learning outcomes.
- The decision was aimed at providing students with the opportunity to study in their own language.
- Studying in one's own language can provide a student the natural space to think innovatively without any language barrier.

Challenges

- Developing and distributing study materials in other languages can be expensive.
- Ensuring the quality and accuracy of content in other languages can be challenging.
- Limited access to technology and digital resources in local languages can be a significant hurdle.
- Difficulty in finding opportunities in the education sector.

Steps by Government

- Anuvadini AI based App: It translates Engineering, Medical, Law, UG, PG and Skill books with the help of Artificial Intelligence.
- e-kumbh portal: It hosts translated books that are available in various Indian languages.
- DIKSHA: In the school education ecosystem also study material is available in multiple Indian languages including over 30 languages on DIKSHA (Digital Infrastructure for Knowledge Sharing).
- Conducting exams in regional languages: Competitive exams like JEE, NEET, CUET are being held in 13 Indian languages.

Simultaneous Polls

Context:

- The Union Law Ministry recently informed that the Panel on 'One Nation One Election' has received 81% of citizens' affirmation of the idea of simultaneous polls. Simultaneous Elections in India
- It refers to the idea of holding elections of Lok Sabha and State Legislative Assembly together, intending to reduce the frequency of elections and their associated costs.
- It is on the line of 'One Nation One Election'
- The concept of 'One Nation, One Election' in India was followed for the first three Lok Sabha elections until 1967.
- However, the cycle was disrupted due to political instability and the invocation of a National Emergency under Article 356 of the Constitution.

Related Reports

- The Annual Report of ECI (1983): It recommended that a system should be evolved so that elections could be held simultaneously.
- The 170th Report of the Law Commission (1999): It stated that we must go back to the past when the elections to Lok Sabha and all the Vidhan Sabha were held simultaneously.
- The 79th Report of the Parliamentary Standing Committee (2015): It favored the idea of simultaneous elections which was reiterated by a NITI Aayog paper in 2017.

Implementation

- For simultaneous polls, there has to be a political consensus about the changes in the electoral system. Furthermore, amendments to the Constitution need to be formulated.
- A few of the important Articles that need to be amended for implementation of 'one nation one election' are:

- Article 172 and Article 83 deal with the duration of the Houses of Parliament, and guarantee a five-year term to both the elected Lok Sabha and state assemblies, unless they are dissolved sooner.
- Article 85 deals with the powers of the President to summon Parliamentary sessions, not exceeding a gap of more than six months.
- The President also carries the power to adjourn either House of the Parliament and the dissolution of the Lok Sabha.
- Article 356 comes into action in case of governance and constitutional failure in a state and deals with the President's Rule.
- Amendments to the People's Representation Act (RPA), 1951, and the Anti Defection Law must be made for organised conduct and stability in both Lok Sabha and state assemblies.

Benefits of Simultaneous Elections

- Cost Efficiency: India has had either a State or a national election every year for the last 36 years.
- This devours enormous financial resources and efforts, and the time of the government and political parties is the seeming concern.
- The ECI would require an estimated Rs 10,000 crore every 15 years to procure new EVMs if simultaneous polls are held for Lok Sabha and State assemblies.
- Smooth Implementation of Government Policies: An election held constantly in some parts of the country with a 'model code of conduct' distracts from governance and leads to policy paralysis.
- Hampering essential services: Regular elections hamper the delivery of essential services due to the engagement of public servants, including a large number of teachers, in the election process.
- Pressure on National Parties: The national parties are the ones that may feel the pressure of constant elections because municipal or State elections held in any part of the country involve their national leadership.
- Engagement of security forces: Deployment of security forces is normally throughout the elections and frequent elections take away a portion of such armed police force which could otherwise be better deployed for other internal security purposes.

Associated Concerns

- The Association for Democratic Reforms (ADR): It expressed that simultaneous elections would lead to 'artificially cutting short or extending the terms of elected assemblies which strikes at the root of Parliamentary democracy'.
- It mentioned that there were 'serious apprehensions' that the advocacy of simultaneous elections was a 'sleight of hand aimed at changing the federal character of the Constitution to a unitary structure'.
- Hamper federalism: It undermines the fundamental principle of federalism, which constitutes a basic component of our Constitutional structure.
- Logistical Challenges: All states and the central government face massive logistical challenges including significant challenges that need to be addressed.
- Regional Variations: Synchronizing elections may not account for these regional variations adequately.
- Financial Implications: Conducting elections is expensive and requires significant resources like Manpower
- Issue of dissolution: Prematurely dissolution on account of a vote of no-confidence.
- Holding simultaneous elections for the whole country has many practical difficulties for the Election Commission.
- It raises the question if the ruling party holds an absolute majority in all 29 states. Thus, whether new elections would be required.
- Disadvantage for regional parties: It will help the dominant national party or the incumbent at the Centre.

Conclusion:

- The idea of simultaneous elections could potentially bring about several benefits, but it also presents significant challenges that need to be addressed.
- It needs the careful consideration of these challenges, as well as extensive dialogue and consultation with various stakeholders.
- If simultaneous polls do reduce the duration of conducting polls, political parties will have ample time to address national issues and enhance governance.

Cancellation of FCRA Registration for NGOs

Context

- Recently, the Foreign Contribution of two prominent non-governmental organizations (NGOs) — Centre for Policy Research (CPR) and World Vision India (WVI) have been canceled.

About

- non-governmental organizations (NGOs) — Centre for Policy Research (CPR) and World Vision India (WVI) have been canceled.
- significant resources, like Manpower.
- Issue of dissolution: Prematurely dissolution on account of a vote of no-confidence.
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- It raises the question if the ruling party holds an absolute majority in all 29 states. Thus, whether new elections would be required.
- Disadvantage for regional parties: It will help the dominant national party or the incumbent at the Centre.

Conclusion

- The idea of simultaneous elections could potentially bring about several benefits, but it also presents
- The MHA alleged that CPR diverted foreign donations to fund “protests and legal battles against developmental projects” and misused funds to “affect India’s economic interests.”
- Since 2015, the FCRA registration of more than 16,000 NGOs have been canceled on account of violation. Currently there are 16,989 FCRA-registered NGOs active in the country.

What is Foreign Contribution Regulation Act, 2010

- FCRA aims to regulate the acceptance and utilization of foreign contributions to prohibit activities detrimental to the national interest.
- Origin: It was first enacted in 1976 but repealed and later replaced with new legislation in 2010. It was further amended in 2020.
- Provisions of the Act are as;
- Every person or NGO wishing to receive foreign donations to be registered under the Act,
- Registered groups can receive foreign contributions for social, educational, religious, economic and cultural programmes.
- To utilize the funds only for the purpose for which they have been received, and as stipulated in the Act.
- They are also required to file annual returns, and they must not transfer the funds to another NGO.
- The Act prohibits receipt of foreign funds by candidates for elections, journalists or newspaper and media broadcast companies, judges and government servants, members of legislature and political parties or their office-bearers, and organizations of a political nature.
- 2020 Amendment: Prohibiting the transfer of foreign contribution to any other person or organization.
- Reducing the limit of usage of foreign contribution for administrative expenses from 50% to 20%.
- FCRA 2022 Rules: In July 2022, the MHA introduced changes to FCRA rules. These changes included increasing the number of compoundable offences from 7 to 12.
- The regulations also increased the threshold for contributions from overseas relatives, which can be made without the need for government notification, from Rs 1 lakh to Rs 10 lakh. Additionally, the timeframe for informing the government about the opening of bank accounts was extended.
- Validity: The registration is valid for five years, after which the NGO has to apply for a renewal.
- The Union Ministry of Home Affairs (MHA) monitors the implementation of the FCRA to ensure that such funds do not adversely affect the country’s internal security.

Importance of regulating foreign contributions in India

- Preventing interference in Indian affairs: The FCRA was enacted to prevent foreign powers from interfering in India’s affairs by regulating foreign donations to individuals and associations.
- Transparency and accountability: The FCRA ensures transparency and accountability which is important to prevent misuse of funds.

- The MHA has also raised concerns that the NGOs in India are vulnerable to the risks of money laundering and terrorist financing.
- National security: The FCRA also helps in safeguarding national security interests by preventing foreign entities from funding activities that could be detrimental to India's security.

Challenges of regulating foreign contributions

- Administrative Delays: The registration and renewal process under the FCRA can take a long time which delays their work and impacts their ability to receive funding.
- Political Interference: The government's discretionary powers to cancel registrations or freeze accounts of NGOs have been misused in some cases to target NGOs critical of the government, leading to accusations of political interference.
- Hinders social and economic development: Stringent Compliance Requirements of foreign contributions affects the social and economic development in India.
- Lack of Transparency: Some NGOs have been criticized for lacking transparency in their utilization of foreign funds received under the FCRA.
- Concerns often arise when the specific purposes and beneficiaries of these funds are not clearly disclosed.

Way ahead

- While the FCRA has undergone amendments, the challenges in its implementation remain, such as the difficulty in balancing the need for transparency and accountability with the need to protect the autonomy of civil society organizations.
- Nonetheless, it is essential to continue working towards effective implementation of the FCRA to prevent misuse of foreign funds and ensure the transparency and accountability of NGOs in India.

Pradhanmantri Suryodaya Yojana

Context:

- PM announces a solar rooftop scheme to electrify one crore households with solar electricity.

About

- The government will launch 'Pradhanmantri Suryodaya Yojana' with the target of installing rooftop solar on one crore houses.
- It will not only reduce the electricity bill of the poor and middle class, but will also make India self-reliant in the field of energy.

Current status

- It is estimated that there are less than 10 lakh households with rooftop solar installations in the country.
- There was a target to install 100 GW by 2022 — 60 GW from utility projects (mega concentrated solar parks) and 40 GW from rooftop solar.
- But, according to the Ministry of New and Renewable Energy's website, solar power installed capacity in India has reached around 73.31 GW as of December 2023, while rooftop solar installed capacity is around 11.08 GW. Notably, solar power has a major share in the country's current renewable energy capacity, which stands at around 180 GW.
- In terms of total solar capacity, Rajasthan is at the top with 18.7 GW. Gujarat is at the second position with 10.5 GW.
- When it comes to rooftop solar capacity, Gujarat tops the list with 2.8 GW, followed by Maharashtra by 1.7 GW.

Need for expansion of solar energy in India

- Growing demand: India is expected to witness the largest energy demand growth of any country or region in the world over the next 30 years, according to the latest World Energy Outlook by the International Energy Agency (IEA).
- To meet this demand, the country would need a reliable source of energy and it can't be just coal plants.
- Fulfill commitments: It aims to reach 500 GW of renewable energy capacity by 2030.
- The country has increased it from less than 10 MW in 2010 to 70.10 GW in 2023, as mentioned before.

Other Schemes for Promoting Solar Energy

- PM-KUSUM (Kisan Urja Suraksha evam Utthaan Mahabhiyan): Aimed at ensuring energy security for farmers in India, along with honoring India's commitment to increase the share of installed capacity of electric power from non-fossil-fuel sources.
- Solar park scheme: For Development of Ultra Mega Renewable Energy Power Parks (UMREPPs) targeting 40,000 MW of solar power installed capacity by 2025-26.
- Atal Jyoti Yojana (AJAY): The AJAY scheme was launched in September 2016 for the installation of solar street lighting (SSL) systems in states with less than 50% households covered with grid power.
- National Solar Mission: The mission was launched in 2010 with the objective of establishing India as a global leader in solar energy.
- International Solar Alliance: The ISA was launched in 2015 in Paris, on the side-lines of the Conference of the Parties (COP-21), with 121 solar resource rich countries lying fully or partially between the tropic of Cancer and tropic of Capricorn as prospective members.
- One Sun, One World, One Grid (OSOWOG): It focuses on a framework for facilitating global cooperation, building a global ecosystem of interconnected renewable energy resources.

Jan Nayak Karpoori Thakur

Context:

- Recently, the Government of India conferred 'Bharat Ratna' (India's highest civilian award) to Karpoori Thakur (posthumously) on his 100th birth anniversary.

About Jan Nayak Karpoori Thakur Before Independence of India:

- Karpoori Thakur was greatly influenced by Mahatma Gandhi and Satyanarayan Sinha.
- He joined the All India Students Federation (AISF), the oldest student organisation in India, during his schooling days.
- He was inspired by Indian nationalistic thought, and left his graduation studies to join the Quit India Movement, a massive mobilisation started by Mahatma Gandhi in 1942 to force the colonial British rulers to leave India.

After Independence:

- He initially started working as a teacher in his village.
- He returned to active politics with a victory in the Bihar Legislative Assembly election in 1952 from Tajpur constituency, and soon represented the Socialist Party.
- He became a legend because of his successful fights for the rights of the workers and thus pushed for reservations for backward classes.
- He started his fast-unto-death agitation for the cause of the labourers in Telco in the year 1970, and was arrested for leading worker strikes.
- His life revolved around the twin pillars of simplicity and social justice.

Contributions made by Karpoori Thakur

- Social Justice: Thakur's political journey was marked by monumental efforts to create a society where resources were distributed fairly and everyone, regardless of their social standing, had access to opportunities.
- He wanted to address the systemic inequalities that plagued Indian society.
- OBC Politics: He is known as the pioneer of OBC politics in Bihar. He implemented quotas for backward classes in the state, a move that was pivotal in setting the stage for the implementation of the Mandal Commission recommendations.
- He appointed the Mungeri Lal Commission in 1970, that identified the 128 'backward' and 94 'most backward' communities.
- It paved the way for 26% reservation of which OBCs got a 12% share, the economically backward classes among the OBCs got 8%, women got 3%, and the poor from the 'upper castes' got 3%.
- Affirmative Action: One of Thakur's most significant contributions to India was his role in strengthening the affirmative action apparatus for the backward classes.
- He hoped that they would be given the representation and opportunities they deserved.

- **Selflessness:** During his tenure as the Chief Minister of Bihar, a decision was taken to build a colony for political leaders, but he himself did not take any land or money from the scheme.
- **Alcohol Ban:** Thakur is notably recognized in Bihar for implementing a complete ban on alcohol in 1970.
- **Education:** He was instrumental in establishing numerous schools and colleges, particularly in the underdeveloped regions of Bihar, ensuring that education became accessible to those who had been historically marginalised.

Social Audit Advisory Body (SAAB)

Context

- The 1st meeting of the Social Audit Advisory Body (SAAB) was held recently.

About

- The Meeting was chaired by the Secretary, Department of Social Justice & Empowerment.
- This advisory body, a first of its kind, has been established to guide the Ministry in institutionalizing social audits for its various schemes.
- **Members:** Representatives from key ministries and academic institutions are members of this advisory body.

What is Social Audit?

- Social Audit is the examination and assessment of a programme/scheme for comparing official records with actual ground realities.
- It includes an audit of the quality of works being executed at different levels along with the details of disbursements made, the number of labourers employed and materials used.
- **Objective:** The basic objective of social audit is to ensure public accountability in the implementation of projects, laws and policies.
- **Significance:** Social Audits play an important role in bringing transparency and driving corrective actions based on valuable feedback from citizens.

National Resource Cell for Social Audit (NRCSA)

- The Department of Social Justice and Empowerment has established the National Resource Cell for Social Audit (NRCSA) to ensure social audits through dedicated Social Audit Units at the state level.

The Telecommunications Act, 2023

Context:

- According to the Union Minister for Electronics and Information Technology the Telecommunications Act, 2023, is a set of real structural reforms.

About

- The act seeks to repeal the Indian Telegraph Act (1885), Indian Wireless Telegraphy Act (1933) and The Telegraph Wire (Unlawful Possession) Act, 1950.
- It also amends the Telecom Regulatory Authority of India (TRAI) Act, 1997.

Key Provisions of the Act

- **Assignment of spectrum:** Spectrum will be assigned by auction, except for specified uses, where it will be allocated on an administrative basis. The Specified purposes include, national security and defense, weather forecasting etc.
- **Right of way:** Facility providers may seek a right of way over public or private property to establish telecom infrastructure. It must be provided on a non-discriminatory and non-exclusive basis to the extent possible.
- **Digital Bharat Nidhi:** It renamed the Universal Service Obligation Fund (USOF), established under the 1885 Act to provide for telecom services in underserved areas, as Digital Bharat Nidhi and allows its use for research and development.
- **Appointments to TRAI:** It amends the TRAI Act to also allow individuals with,
- At least 30 years of professional experience to serve as the Chairperson, and

- At least 25 years of professional experience to serve as members.
- Protection of users: The central government may provide for measures to protect users which include:
- Prior consent to receive specified messages such as advertising messages,
- Creation of Do Not Disturb registers, and
- A mechanism to allow users to report malware or specified messages. Entities providing telecom services must establish an online mechanism for registration and redressal of grievances.
- Adjudication process: The Union government will appoint an adjudicating officer (must be of the rank of joint secretary and above) to conduct inquiries and pass orders against civil offenses under the Act.
- Orders of the adjudicating officer may be appealed before the Designated Appeals Committee (members will be officers of the rank of at least Additional Secretary) within 30 days.
- Appeals against the orders of the Committee, in connection to breach of terms and conditions, may be filed with the Telecom Disputes Settlement and Appellate Tribunal (TDSAT) within 30 days.
- Legal and Regulatory Framework: It seeks to create a legal and regulatory framework for a safe telecom network.
- It seeks to remove Over The Top (OTT) apps like WhatsApp, Telegram etc., from the definition of telecommunication.

Issues and Concerns

- Interception of communication: The Act provides that any message or class of messages between two or more persons may be intercepted, monitored, or blocked on specified grounds such as the interest of the security of the state, friendly relations with other countries, public order etc.
- Biometric verification: The requirement of biometric verification for users may not be proportionate and hence, may infringe upon the fundamental right to privacy.
- Suspension of Internet Services: The Telecom Bill (2023) proposes to empower the government to ‘take temporary possession’ of the network, without clarifying the ‘temporary possession’.
- Governments have previously taken steps such as suspending internet services in areas marred by violence till peaceful conditions prevail.
- It does not specify procedural safeguards with respect to powers to search premises and vehicles.

Way Forward

- The telecommunication sector is a key driver of economic and social development. Security of a nation is vitally dependent on safety of telecommunication networks.
- Therefore, there is a need for the right legal and regulatory framework that focuses on a safe and secure telecommunication network that provides for digitally inclusive growth.
- It is important that users’ sensitive personal information is not misused by any entity in the data processing lifecycle.

Pradhan Mantri Awas Yojana-Urban (PMAY-U)

Context

- More than 3,000 flats are likely to be allotted to slum dwellers by the Delhi Development Authority (DDA) under the PMAY-U.

About PMAY-U

- The Ministry of Housing and Urban Affairs (MoHUA) launched the Pradhan Mantri Awas Yojana – Urban (PMAY-U) in 2015, as a flagship Mission of the Government of India.
- Objective: It addresses urban housing shortage among the Economically Weaker Section (EWS)/Low Income Group (LIG) category including the slum dwellers by ensuring a pucca house to eligible urban households.
- Coverage: The Mission covers the entire urban area consisting of Statutory Towns, Notified Planning Areas, Development Authorities, Special Area Development Authorities, Industrial Development Authorities or any such authority under State legislation which is entrusted with the functions of urban planning & regulations.

- Implementation period: The scheme was earlier from 25.06.2015 to 31.03.2022. Now it has been extended up to 31.12.2024, except Credit Linked Subsidy Scheme (CLSS) vertical, to complete all the houses sanctioned under the scheme.

Features

- PMAY-U adopts a demand-driven approach wherein the housing shortage is decided based on demand assessment by States/Union Territories (UTs).
- It is a demand driven scheme and GoI has not fixed any target for construction of houses.

Components of the scheme

- In-situ Slum Redevelopment (ISSR): Central Assistance of Rs. 1 lakh per house is admissible for all houses built for eligible slum dwellers under the component of ISSR using land as a Resource with the participation of private developers.
- Credit Linked Subsidy Scheme (CLSS): Beneficiaries are eligible for an interest subsidy of 6.5%, 4% and 3% on loan amounts up to Rs. 6 Lakh, Rs. 9 Lakh and Rs. 12 Lakh respectively.
- Affordable Housing in Partnership (AHP): Under AHP, Central Assistance of Rs. 1.5 Lakh per EWS house is provided by the Government of India.
- An affordable housing project can be a mix of houses for different categories but it will be eligible for Central Assistance, if at least 35% of the houses in the project are for the EWS category.
- Beneficiary-led Individual House Construction/ Enhancement (BLC-N/ BLC-E): Central Assistance up to Rs. 1.5 lakh per EWS house is provided to eligible families belonging to EWS categories for individual house construction/ enhancement.
- The Urban Local Bodies validate the information and building plan submitted by the beneficiary so that ownership of land and other details like economic status and eligibility can be ascertained.

AISHE Report 2021-22

Context

- Recently, the Ministry of Education has released the All-India Survey of Higher Education (AISHE), 2021-22.

About

- It has been conducted since 2011, covering all Higher Educational Institutions (HEIs) in the country registered with AISHE.
- It collects detailed information on different parameters such as student enrollment, teachers' data, infrastructural information, financial information, etc.

Key Findings

- The total enrolment in higher education has increased to nearly 4.33 crore in 2021-22 from 4.14 crore in 2020-21.
- Out of 4.33 crore, 15.3% belong to Scheduled Caste, 6.3% belong to Scheduled Tribe, 37.8% are from Other Backward Class and remaining 40.6% students are from other communities.
- The Female enrolment has seen 32% increase in 2021-22 from 2014-15.
- The Minority enrolment has increased to 38% in 2021-22 from 2014-15.
- The Gross Enrolment Ratio (GER) in higher education for the age group 18-23 years has increased to 28.4 in 2021-22,, from 27.3 in 2020-21 and 23.7 in 2014-15
- The top States in terms of Student Enrolment are Uttar Pradesh, Maharashtra, Tamil Nadu, Madhya Pradesh, West Bengal and Rajasthan.
- The highest share of foreign students is from Nepal (28%), followed by Afghanistan (6.7%), United States (6.2%), Bangladesh (5.6%), UAE (4.9%), and Bhutan (3.3%).
- The enrollment is highest in Arts (34.2%), followed by Science (14.8%), Commerce (13.3%) and Engineering & Technology (11.8%).

Student enrollments in Engineering Substreams

- The top five sub-streams of engineering and technology as per enrollment are Computer Engineering (CE), Electronics Engineering, Mechanical

- o Engineering (ME), Civil Engineering and Electrical Engineering.
- Among these only CE and EE saw an increase in enrollments while ME, Electronics Engineering and Civil Engineering saw a dip.

Number of Institutions

- The total number of Universities / University level institutions registered is 1,168, Colleges 45,473 and Standalone Institutions 12,002.
- 341 Universities/University level institutions have been established since 2014-15.
- 17 Universities (of which 14 are State Public Universities) and 4,470 Colleges are exclusively for women.

Faculty

- The total number of faculty/teachers in 2021-22 are 15.98 lakh, of which about 56.6% are male and 43.4% are female.
- Female faculty/teachers have increased to 6.94 lakh in 2021-22 from 5.69 lakh in 2014-15 (an increase of 22% since 2014-15)

Minority Status and Aligarh Muslim University (AMU)

Context

- A seven-judge Bench of the Supreme Court (SC) is hearing the dispute over the minority character of the Aligarh Muslim University (AMU).

About AMU

- Sir Syed Ahmed Khan, a Muslim reformer, in 1877 founded the Muhammadan Anglo-Oriental College (MAO College) at Aligarh to address Muslim educational backwardness while protecting Islamic values.
- MOA not only imparted Western education but also emphasized Islamic theology.
- The Aligarh Muslim University Act, 1920 (AMU Act) was passed to incorporate the MAO college and the Muslim University Association into AMU.

Dispute over the minority character

- In 1951, the AMU Act was amended, removing compulsory religious education for Muslims and the exclusive Muslim representation mandate in the University Court.
- The legal dispute began in 1967 when the SC in *S. Azeez Basha versus Union of India (UOI)*, reviewed the 1951 and 1965 amendments.
- The petitioners argued that since Muslims established AMU, they had the right to manage it.
- However, a five-judge SC bench upheld the amendments, reasoning that AMU was neither established nor administered by the Muslim minority, highlighting the Act's enactment through Central legislation.
- This ruling triggered nationwide protests, leading to the amendment of the AMU Act in 1981, affirming the university's minority status.
- In 2005, AMU reserved 50% of postgraduate medical seats for Muslim candidates.
- The Allahabad High Court struck down the reservation policy in *Dr Naresh Agarwal vs UOI (2005)* holding the 1981 amendment unconstitutional.

Case in Supreme Court

- The apex court is addressing two issues — the criteria for determining the minority status of an educational institution and whether an institution established under a statute can enjoy such status.
- While the petitioners argue that AMU is entitled to the minority status, the UOI is now endorsing the *S. Azeez Basha* verdict.
- The judgment in this case will set a precedent impacting the rights and legal recognition of all minority institutions.

What constitutes a 'minority character'?

- Article 30 in Part III, of the Indian Constitution states the right of minorities to establish and administer educational institutions.
- Features of Article 30 of the Indian Constitution:

- o Article 30(1) says that all minorities, whether based on religion or language, shall have the right to establish and administer educational institutions of their choice.
- o Article 30(1A) deals with the fixation of the amount for acquisition of property of any educational institution established by minority groups.
- o Article 30(2) states that the government should not discriminate against any educational institution on the ground that it is under the management of a minority, whether based on religion or language, while giving aid.
- These institutions enjoy exemptions from the implementation of SC, ST, and OBC reservations in both admissions and employment. They can reserve up to 50% of seats for students from their community.
- In the T.M.A Pai Foundation (2002) case, the SC clarified that a ‘minority’ is to be determined by the concerned State’s demography, not the national population.

Uttarakhand likely to be first state to implement UCC

Context

- The Defence Minister of India has said that Uttarakhand is likely to become the first state in the country to implement a Uniform Civil Code (UCC).

What is Uniform Civil Code (UCC)?

- A Uniform Civil Code refers to the provision of one law for the entire country, applicable to all religious communities, in their personal matters such as marriage, divorce, inheritance, adoption, etc.
- Currently, separate personal laws apply for the members of different major religions.

Constitutional Provisions

- Article 44 contained in part IV of the Constitution says that the state “shall endeavor to secure for the citizens a uniform civil code throughout the territory of India”.
- Part IV of the Constitution outlines the Directive Principles of State Policy, which, while not enforceable or justiciable in a court of law, are fundamental to the country’s governance.

UCC in India

- UCC in Goa: It follows the Portuguese Civil Code of 1867, which means that people of all religions in Goa are subject to the same laws on marriage, divorce, and succession.
- The Goa Daman and Diu Administration Act of 1962, which was passed after Goa joined the union as a territory in 1961, gave Goa permission to apply the Civil Code.
- States like Gujarat, Madhya Pradesh and Assam have also expressed their willingness to follow the UCC, none have officially adopted it.

Arguments in favor of UCC

- Uniformity in Governance: Having a common set of laws would streamline governance and administrative processes, making it easier for the state to administer justice and ensure the rights of its citizens.
- Women’s Rights: Personal laws in different religions may have discriminatory provisions, particularly against women, and a uniform code will provide a more egalitarian legal framework.
- Secularism: A Uniform Civil Code is seen as a way to reinforce the secular fabric of the country by treating all citizens equally irrespective of their religious affiliations.
- International Image: Implementing a UCC may enhance India’s international image by demonstrating a commitment to principles of equality, secularism, and human rights.
- The Supreme Court in various judgments including Mohd. Ahmed Khan vs Shah Bano Begum judgment of 1985, has called for the implementation of the Uniform Civil Code.
- Promote national Spirit: The implementation of a UCC will promote the integration of India by establishing a shared platform for diverse communities.

Arguments against UCC

- Plurality in existing laws: Experts argue that if there is plurality in already codified civil and criminal laws, how can the concept of ‘one nation, one law’ be applied to diverse personal laws of various communities.
- Issues with implementation: The implementation of the code has been difficult because India is a diverse country with various religious communities following their own personal laws.

- It has been argued that the marriage and death rituals observed by tribal communities differ from Hindu customs, and there is concern that these practices may also face prohibition.
- Challenge for Law and Order: It would be a tyranny to the minority and when implemented could bring a lot of unrest in the country.
- Against Constitutional provisions: UCC is perceived as an infringement upon the constitutional right to freely exercise one's chosen religion found in Article 25 and 26 and the Sixth Schedule of the Constitution
- Fear among minorities: There is a contention that the Uniform Civil Code may potentially enforce a code that is influenced by Hindu practices in all communities.
- The Law Commission of India stated that a UCC "is neither necessary nor desirable at this stage". It recommended that discriminatory practices, prejudices and stereotypes within a particular religion and its personal laws should be studied and amended.

Way Ahead

- The authorities should consult with different sections of society before implementing the UCC to foster an environment of inclusivity, transparency, and respect for diverse perspectives throughout the process.
- The Law Commission expressed its support for achieving "equality within communities" as opposed to pursuing "equality between" communities.

Global Surgery

Context

- Global surgery is the neglected component in global health, especially in South Asia.

What is global surgery?

- Global surgery refers to the provision of surgical care on a global scale, with a focus on addressing the disparities in access to surgical services and improving surgical outcomes worldwide.
- These "surgeries" include essential and emergency surgeries such as surgery, obstetrics, trauma, and anaesthesia (SOTA).
- While it predominantly focuses on low- and middle-income countries (LMICs), it also prioritizes access disparities and under-served populations in high-income countries (HICs).

Global Scenario

- According to the Lancet Commission on Global Surgery (LCoGS) five billion people or over 70% of the global population lack timely access to safe and affordable surgical care when needed.
- Of the five billion people, over 1.6 billion people lacking access live in South Asia.
- Most severely, 99% and 96% of the people in low-and lower-middle-income countries (LLMICs) respectively, face access gaps compared to 24% in high-income countries (HICs).

Concerns

- In 2010, around 17 million deaths were attributed to surgically treatable conditions, surpassing the combined mortality burden of HIV/AIDS, tuberculosis, and malaria.
- The disease burden also leads to an economic burden. The cumulative projected loss to GDP due to the absence of scale-up of surgical care is estimated to be \$20.7 trillion across 128 countries by 2030.

Steps taken for Global Surgery

- In India the Pradhan Mantri Jan Arogya Yojana has provided millions of surgeries at zero or negligible cost to the bottom 40% of Indians.
- In South Asia, Pakistan has formulated a National Surgical Care Vision and Nepal has initiated a national surgical, obstetrics, and anaesthesia plan (NSOAP).

Way ahead

- Research and innovation, policy focus, and sustained financing are key to solving global surgery challenges.
- Organizations such as the World Health Organization (WHO) and non-profit groups can play a significant role in promoting global surgery initiatives.

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

Context

- The Supreme Court declined a request for an interim stay on the Chief Election Commissioner and Other Election Commissioners (Appointment, Conditions of Service and Term of Office) Act, 2023.

About

- The Act replaces the Election Commission (Conditions of Service of Election Commissioners and Transaction of Business) Act, 1991.
- The Act set the salary of the CEC and ECs at the same level as a Supreme Court judge.
- It did not provide for their appointment process, which continued to be decided by the President.

Background

- In 2023, while examining the appointment of the CEC and ECs, the Supreme Court declared that their appointment should not be done solely by the Executive.
- The Court noted that the ECI should be independent of Executive control.
- It mandated a selection process, which would hold until Parliament made a law.
- The Court directed that the appointment should be done by the President on the recommendation of a Selection Committee.
- The Selection Committee will consist of: (i) the Prime Minister, (ii) the Leader of Opposition in Lok Sabha, and (iii) the Chief Justice of India.

Article 324 of Constitution

- Article 324 of the Constitution states that the Election Commission will comprise the Chief Election Commissioner (CEC) and such number of Election Commissioners (ECs), as the President may decide.
- The Election Commission of India (ECI) is responsible for managing the preparation of electoral rolls and conducting elections to Parliament, State Legislatures, and the offices of the President and Vice-President.
- The Constitution specifies that the President will appoint the CEC and ECs, subject to the provisions of an Act of Parliament.

Key Features of the CEs and ECs Appointment Act, 2023

- **Election Commission:** The Election Commission will consist of a Chief Election Commissioner (CEC) and other Election Commissioners (ECs). The President will periodically fix the number of ECs.
- **Appointment of the Commission:** The Commission will be appointed by the President, upon the recommendation of the Selection Committee.
- The Selection Committee will comprise the Prime Minister, Cabinet Minister, and Leader of Opposition in Lok Sabha (or leader of the single largest opposition party).
- A Search Committee headed by the Cabinet Secretary will suggest five names to the Selection Committee.
- The Selection Committee may consider any person other than those suggested by the Search Committee.
 - **Eligibility criteria:** The CEC and ECs must: (i) be persons of integrity, (ii) have knowledge and experience in the management and conduct of elections, and (iii) be or have been Secretary (or equivalent) to the government.
 - **Term and reappointment:** Members of the Election Commission will hold office for six years, or until they attain the age of 65 years, whichever is earlier.
- Members of the Commission cannot be re-appointed.
- If an EC is appointed as a CEC, the overall period of the term may not be more than six years.
 - **Salary and pension:** The salary, allowances, and other conditions of service of the CEC and ECs will be equivalent to that of the Cabinet Secretary.
- **Removal:** The Bill retains the manner of removal of CEC and ECs as specified in the Constitution.
- The CEC may be removed in the same manner and on the same grounds as a Supreme Court Judge.
- ECs may be removed only upon the recommendation of the CEC.

Concerns of the Act

- Independence of the Election Commission: The Constitution envisages the Election Commission (ECI) as an independent body that is responsible for conducting free and fair elections.
- Several provisions in the Bill may undermine the independence of the ECI.
 - Selection Committee is Dominated by the Government: The Selection Committee will consist of the Prime Minister, a Cabinet Minister, and the Leader of Opposition in Lok Sabha which means majority of members are from the government of the day.
- Validity of Selection Committee: The Act upholds the validity of the Selection Committee even if there is a vacancy or defect in constituting the Committee.
- Role of Search Committee: The Selection Committee selects names from a panel of five people suggested by the Search Committee.
- The Selection Committee may go beyond the names suggested by the Search Committee, and choose any other candidate which may undermine the role of the Search Committee.
- Eligibility Criteria: Only a person who is or has been at a rank equivalent to Secretary to the government will be eligible.
- By limiting the eligibility criteria of the CEC and ECs to civil servants, the Bill may exclude other qualified individuals from such posts.
- Salaries: The Act equates the salary of the CEC and ECs to that of the Cabinet Secretary of the government. Earlier, it was equated to the salary of the Supreme Court Judge.
- Both salaries are currently equivalent but they are regulated differently.
- The salary of a Cabinet Secretary salary is fixed by the government upon the recommendation of the Central Pay Commission which allows the greater control of the Executive in determining the salary of the CEC and ECs.

Conclusion

- The CEC and EC Appointment Act 2023 shows reform in the selection process for the ECI, but it also raises concerns about the potential hijacking of the process of appointment of CEC & EC in the hands of the executive.
- The suggested alterations could potentially impact the autonomy and operations of the Election Commission of India.
- The independence of the Election Commission is paramount to guarantee impartiality and integrity in the execution of electoral processes.
 - Addressing these concerns and upholding the non-partisan nature of the Election Commission is essential for maintaining public trust in the electoral system and ensuring fair and unbiased elections.

Swachh Survekshan Awards 2023

Context:

- Recently, the President of India presented the 'Swachh Survekshan Awards 2023' at Bharat Mandapam in New Delhi.

About Swachh Survekshan Awards 2023:

- Indore (in Madhya Pradesh) and Surat (in Gujarat) together were declared as the cleanest cities of the country, and Navi Mumbai (in Maharashtra) ranked third spot.
- Indore has been ranked the cleanest city for the seventh time in a row.
- Clean Cities (population of less than 1 lakh): Sasvad, Patan and Lonavala secured the top three spots respectively.
- Madhyamgram, Kalyani and Haora, in West Bengal, are placed at the bottom.
- Cleanest Cantonment: Mhow Cantonment Board in Madhya Pradesh;
- Safai Mitra Surakshit Sheher: Chandigarh;
- Ganga Towns: Varanasi and Prayagraj secured the 1st and 2nd rank respectively.
- Best Performing State: Maharashtra, Madhya Pradesh and Chhattisgarh secured the rank 1, 2 and 3 respectively.
- Odisha is ranked fourth, followed by Telangana, Andhra Pradesh, Punjab, Gujarat, Uttar Pradesh, Tamil Nadu,



Sikkim, Karnataka, Goa, Haryana and Bihar.

- Rajasthan, Mizoram and Arunachal Pradesh were placed at the bottom in the rank.
- The discharge into rivers or any other water bodies is allowed only after exploring the option of its direct reuse for purposes such as agricultural use, industrial use, etc.

Swachh Survekshan:

- It is the world's largest urban sanitation and cleanliness survey conducted under the ambit of the Swachh Bharat Mission (Urban) since 2016.
- a. It is hosted by the Ministry of Housing and Urban Affairs (MoHUA).
- It has been instrumental in fostering a spirit of healthy competition among towns and cities to improve their service delivery to citizens and towards creating cleaner cities.

Theme (2023): 'Waste to Wealth'

- a. For 2024: 'Reduce, Reuse and Recycle'

National Mission for Clean Ganga (NMCG)

Context:

- The National Mission for Clean Ganga (NMCG), the agency responsible for abatement of pollution in river Ganga and its tributaries, has assumed new powers.

About

- The NMCG issued a notification recently to amend the River Ganga (Rejuvenation, Protection and Management) Authorities Order, 2016.
- The NMCG now has powers to allow discharge of treated sewage, which conforms to the norms prescribed under the Environment (Protection) Act, 1986.
- The discharge into rivers or any other water bodies is allowed only after exploring the option of its direct reuse for purposes such as agricultural use, industrial use, etc.
- The move will ensure more water into the rivers. For instance, 560 minimal liquid discharge treated sewage water from the Okhla Sewage Treatment plant in Delhi may be released into Yamuna, which will increase the flow of the river.
 - o Empowered Task Force (ETF) on river Ganga under chairmanship of Union Minister of Jal Shakti (Department of Water Resources, River Development and Ganga Rejuvenation).
 - o National Mission for Clean Ganga (NMCG).
 - o State Ganga Committees.
 - o District Ganga Committees in every specified district abutting river Ganga and its tributaries in the states.
 - o NMCG has a two-tier management structure and comprises Governing Council and Executive Committee.
- a. Both are headed by Director General, NMCG and the Executive Committee has been authorised to accord approval for all projects up to Rs.1000 crore.



Challenges persists

- The NMCG, though well-intentioned, faces several challenges in its quest to rejuvenate the Ganges River.

Funding and resource constraints:

- Inadequate allocation: Despite being a 20,000 crore mission, only a fraction of the funds have been disbursed to states, hindering project implementation.
- Financial dependence: States often lack their own budget for river conservation, making them reliant on central funds, creating delays and uncertainty.

Infrastructure and technological limitations:

- Outdated sewage treatment plants: Many existing STPs require upgrades or are malfunctioning, leading to untreated sewage flowing into the river.
- Limited monitoring and data collection: Real-time water quality monitoring systems are crucial for effective action, but their coverage is insufficient.

Social and behavioral challenges:

- Cultural practices: Traditional practices like idol immersion and washing clothes in the river contribute to pollution.
- Industrial waste discharge: Untreated industrial effluents from factories continue to pollute the river, requiring stricter enforcement of environmental regulations.

Policy and governance challenges:

- Riverbed sand mining: Unsustainable sand mining practices can damage the riverbed and disrupt ecological balance.
- Fragmented institutional framework: Multiple agencies at central state and local levels are involved, but coordination and accountability are often lacking.
- Limited focus on upstream river basins: Pollution control efforts primarily focus on the main stem of the Ganga, neglecting upstream tributaries that contribute significantly to the problem.

Measures

- Several Sewage Treatment Plants took time to be commissioned as there were problems with land acquisition. Hence, there is a need to ease the process of land acquisition.
- The Detailed Project Reports, which prescribe steps to execute a project, and the roles of various actors, needs revision as there is an impression that building treatment plants is entirely the Centre's responsibility.
- The parameters used by the Central Pollution Control Board (levels of dissolved oxygen, biochemical oxygen demand, and faecal coliform), vary widely along various stretches of the river, reflecting still a long way ahead.
- On the lines of the air quality index, there is a need to develop a water quality index, to be able to better communicate about river-water quality of various locations.

Way Ahead

- The NMCG has made significant progress in several areas, such as setting up wastewater treatment plants, increasing public awareness, and promoting riverfront development.
- Continuous efforts to address the challenges, along with innovative solutions and increased public participation, are crucial for the mission's long-term success and the ultimate revival of the Ganges.

Infrastructure Gaps for People with Disabilities Across Court Premises

Context

- As per the report of the Centre for Research and Planning of the Supreme Court there are severe gaps in accessibility for people with disabilities at courts across India.

About

- The first-of-its-kind report, sheds light on the inadequacies in the infrastructure of District Courts across India, raising serious concerns about the impediments faced by people with disabilities in accessing justice.

Major Findings of the Report

- More than half of the District Court complexes do not have ramps, only 25.2% have availability of wheelchairs.
- Only 30.4% of District Court complexes have separate disabled-friendly toilets.
- Only 5.1% of District Courts have tactile paving to assist persons with visual impairments in navigating the court building.
- Sign language interpreters are available in only 2.8% districts in India.
- Out of a sanctioned strength of 25,081 judges in District Judiciary, there are 20,831 courtrooms highlighting an infrastructure gap of 4,250 courtrooms.

- When courts function in private rented buildings, they not only face the challenge of non-availability of necessary amenities but also of a secure work environment.
- The data signifies a “critical shortcoming” in the judicial infrastructure with respect to accessibility, necessitating concerted attention and action.

Measures Taken by Government of India for the People with Disabilities

- National Policy for Persons with Disabilities, 2006: It supports Physical Rehabilitation, which includes early detection and intervention, counselling and medical interventions and provision of aids and appliances.
- India is a signatory of the UN Convention on the Rights of Persons with Disabilities (UNCRPD): It came into force in 2008. Three important obligations arise out of the Convention, namely
- Implementation of provisions of the UNCRPD, Harmonization of Indian Laws with the UNCRPD, and Preparation of a Country Report by 2010.
- Accessible India Campaign (Sugamya Bharat Abhiyan): Launched in 2015, this initiative aims to make public spaces and transportation accessible for people with disabilities. It includes provisions for accessible buildings, transport, and websites.
- Reservation in Education and Employment: The government provides reservation in educational institutions and government jobs for people with disabilities.
- This ensures that a certain percentage of seats and jobs are reserved for individuals with disabilities.
- The Rights of Persons with Disabilities Act, 2016: This legislation replaced the Persons with Disabilities (Equal Opportunities, Protection of Rights and Full Participation) Act, 1995.
- The new act expanded the categories of disabilities, increased the reservation in government jobs, and included measures to enhance accessibility.
- Economic Empowerment: National Handicapped Finance and Development Corporation is an apex institution for channelizing the funds to persons with disabilities through the State Channelizing Agencies (SCAs) nominated by the State Government(s) or through Non Government Organizations.

Way Ahead

- There is a need for regular inspection by the concerned agencies like the Public Works Department in coordination with the District Judges to explore modifications that can be made in existing court buildings to make the judicial infrastructure disabled-friendly.

Draft Guidelines for Coaching Sector

Context

- The Government is discussing the guidelines to regulate the misleading
- The Central Consumer Protection Authority (CCPA) conducted the first meeting of the Committee constituted to prepare Guidelines.
- Need: Recently, CCPA has issued notices to 31 coaching institutes for misleading advertisement and imposed fine on 9 of them for misleading advertisement.

Guidelines

- Applicability: The Guidelines shall be applicable to all the coaching institutes whether online or physical and cover all forms of advertisement regardless of form, format or medium.
- Defining Misleading Advertisement: It is defined under the Consumer Protection Act 2019 which inter-alia include concealing important information related to the course opted by the successful candidates.
- Coaching institutes shall not make false claims regarding success rates or number of selections and any other practices that may lead to consumer misunderstanding or subvert consumer autonomy and choice.
- DO's and DON'Ts before coming up with advertisements:-
- Coaching Institute shall mention requisite information with successful candidate photo – Rank secured by successful candidate, course opted by successful candidate, duration of course, whether it is paid or free.
- Coaching institutes shall not claim 100% selection or 100% job guaranteed or guaranteed preliminary or mains.
- The font of disclaimer or important information in the advertisement shall be the same as that used in the claim/advertisement. The placement of such information shall be at a prominent and visible place in the advertisement.

- Penalty for misleading advertisement by the coaching sector will be governed as per Consumer Protection Act, 2019.

The Central Consumer Protection Authority (CCPA)

- CCPA was established in 2020 under the provisions of the Consumer Protection Act, 2019.
- The primary mandate of the CCPA is to promote, protect, and enforce the rights of consumers. It aims to ensure fair trade practices and protect consumers from unfair business practices.
- Enforcement of Consumer Rights: The CCPA has the authority to investigate, inquire into, and take appropriate action against unfair trade practices, misleading advertisements, and violations of consumer rights.
- Penalties and Compensation: The authority can impose penalties on businesses or individuals found guilty of unfair trade practices.

Boeing 737 MAX Aircrafts & Safety Issue

Context

- Boeing had asked 737 MAX operators globally to carry out inspections after a loose bolt was found in the rudder control system of one of the planes.
- Three Indian airlines — Akasa Air, SpiceJet, and Air India Express — operate 737 MAX-8 planes which were also inspected for safety concerns as directed by the Directorate General of Civil Aviation (DGCA).

Aviation Sector in India

- India is the third-largest domestic aviation market in the world, after the USA and China.
- The Indian Aviation Industry is one of the fastest growing in the world, it was valued at \$20 Billion in 2020 and is projected to double by 2027.
- India has 137 airports which include 103 Domestic Airports, 24 International Airports, and 10 Customs Airports.

Regulation of Aviation Sector in India

- The Ministry of Civil Aviation is responsible for formulation of national policies for the development and regulation of the Civil Aviation sector.
- It is responsible for the administration of the Aircraft Act, 1934, Aircraft Rules, 1937 and various other legislations pertaining to the aviation sector.
- It exercises administrative control over attached and autonomous organizations like the Directorate General of Civil Aviation, Bureau of Civil Aviation Security, Indira Gandhi Rashtriya Uran Akademi and affiliated Public.
 - Sector Undertakings like Airports Authority of India and Pawan Hans Helicopters Limited.
- The Directorate General of Civil Aviation is the regulatory body primarily dealing with safety issues.
- It is responsible for regulation of air transport services to/from/within India and for enforcement of civil air regulations, air safety and airworthiness standards.
- It also co-ordinates all regulatory functions with the International Civil Aviation Organisation.
- Airports Authority of India (AAI): The AAI is responsible for managing and developing civil aviation infrastructure, including airports and air navigation services.
- Bureau of Civil Aviation Security: The main responsibilities of BCAS include laying down standards and measures with respect to security of civil flights at international and domestic airports in India.
- Bilateral Air Services Agreements (BASAs): India enters into bilateral agreements with other countries to regulate air services between them. These agreements outline the number of flights, routes, and other operational details between the two countries.

Challenges Faced by Indian Aviation Sector Safety Related Challenges

- Pilot Fatigue: Pilot fatigue remains a safety concern globally. Ensuring that pilots adhere to regulated duty hours, receive sufficient rest between flights, and have access to adequate facilities for rest is essential to prevent fatigue-related incidents.
- Technological Integration: Ensuring that pilots are adequately trained to handle and troubleshoot new technologies is essential for maintaining safety.

- **Maintenance Practices:** Strict adherence to maintenance schedules, regulatory standards, and the use of quality spare parts are essential for preventing technical failures that could compromise aircraft safety.
- **Aircraft Aging:** The aging fleet of some airlines can pose safety challenges.
- **Communication and Coordination:** Effective communication and coordination among different stakeholders, including air traffic control, airlines, and ground services, are crucial for preventing misunderstandings and ensuring safe and efficient operations.
- **Emergency Response Preparedness:** Being prepared for emergency situations, including engine failures, medical emergencies, or other in-flight incidents, is essential.

Industry Related Challenges

- **High Operating Costs:** Airlines in India often face high operating costs, including fuel prices, airport charges, and maintenance expenses.
- These factors impact the profitability of airlines and can lead to increased ticket prices for passengers.
- **Cutthroat Pricing:** To attract passengers, airlines in India often resort to dramatically slashing ticket prices, making it challenging to balance the books, especially when operational costs remain high.
- **Infrastructure Constraints:** Despite significant growth, the infrastructure at many airports in India faces challenges in terms of capacity, maintenance, and modernization.
- **Airspace Congestion:** The limited availability of airspace and outdated air traffic management systems contribute to congestion and delays in flight operations.
- **Volatility in Fuel Prices:** Fluctuations in global oil prices can significantly impact the operating costs of airlines.
- **Technological Advancements:** While technological advancements can enhance safety and efficiency, keeping up with rapidly evolving technologies requires significant investments.

Suggestions

- Regular maintenance, stringent checks, and adherence to retirement policies are crucial for ensuring the airworthiness and safety of older aircraft.
- Regular drills and training exercises should be conducted to enhance the preparedness of flight and ground crews.
- Adhering to international aviation security standards set by organizations such as the International Civil Aviation Organization (ICAO) is crucial for maintaining the security of aircraft.
- Compliance ensures a consistent and standardized approach to aviation security.
- Streamlining regulatory processes is crucial for a more agile and responsive industry.

Bharatiya Nyay Sanhita for Hit-and-Run Cases

Context

- Transporters and commercial drivers from States like Maharashtra, Chhattisgarh, West Bengal, and Punjab have staged protests against the recent legislation concerning hit-and-run incidents.

About the law

- Section 106 (2) of the Bharatiya Nyay Sanhita, 2023 (BNS) stipulates a penalty of up to 10 years in jail and a fine 7 lakh for fleeing an accident spot and failing to report the incident to a police officer or a magistrate.
- This law is in addition to the colonial-era provision on causing death due to rash or negligent acts under Section 304A of the Indian Penal Code, 1860.

Need for the law

- The new law comes in the backdrop of concerning figures related to road accidents in India.
- In 2022, India registered the highest count of road crash fatalities, exceeding 1.68 lakh deaths.
- It aims to deter drivers from engaging in rash and negligent driving that may lead to death.
- The intent is to punish an offender in the event that they attempt to escape the law after causing death due to rash and negligent driving.
- The law creates a positive obligation on part of the offender to report such an incident to the police or magistrate.

- They are also provisions to criminalise the omission in the performance of such a duty.
- The imposition of this legal duty clearly arises from a legislative intent to enforce moral responsibility on the part of the offender towards the victim of a road accident.

Reasons for Protest

- Transporters have raised concerns that the offence provides for stringent punishment even where the accidents are unintentional.
- They say that the penalty is excessive and that it fails to consider their challenging work conditions, including long driving hours and difficult roads.
- They argue that accidents may be caused by factors beyond the driver's control, such as poor visibility due to fog.
- The punishment provided by the law is disproportionate and does not align with the realities of road transport and the nature of accidents.
- The drivers are also concerned that the law may be abused by law enforcement agencies to their detriment.

Suggestion and Conclusion

- The way forward is to revisit and reconcile clauses so that more than 35 lakh truck drivers in the country are not treated unfairly, apart from individual vehicle drivers.
- For instance, an exception has been made under 106 (1) of the BNS for doctors in the event of rash or negligent acts, where the punishment will be up to two years with a fine.
- This limited categorisation is problematic and is against the principles of equality, as the liability of a wide variety of people working in other sectors also needs to be moderated.
- In order to provide a graded liability and commensurate punishment, the acts of rash driving and negligent driving must be separated and placed under different degrees of liability so that all incidents of this nature are not bracketed into one, causing prejudice to the actors.
- The road accidents resulting in minor injuries ought not to be equated with criminal acts.
- Here measures like community service or revoking of driving licences or mandatory driving retests etc. could be the ways to criminalise.

Revised Pharma Manufacturing Rules

Context

- The Ministry of Health and Family Welfare (MoHFW) has notified revised Pharma manufacturing rules under Schedule M of the Drugs and Cosmetics Rules, 1945.

About

Schedule M prescribes the Good Manufacturing Practices (GMP) for pharmaceutical products.

- GMP is mandatory standards which builds and brings quality into a product by way of control on materials, methods, machines, processes, personnel, and facility/environment, etc.
- GMP was first incorporated in Schedule M of the Drugs and Cosmetics Rules, 1945 in 1988 and the last amendment was made in 2005.
 - With the amendment, the words 'Good Manufacturing Practices' (GMP) has been replaced with 'Good Manufacturing Practices and Requirements of Premises, Plant and Equipment for Pharmaceutical Products'.

Need for Revising the Guidelines

- The move comes in the wake of overseas deaths linked to Indian-made drugs since 2022, prompting increased scrutiny of the pharmaceutical industry.
- To keep pace with fast-changing manufacturing and quality domain, there was a necessity to revise the principles of GMP mentioned in current Schedule M.
- It brings GMP recommendations at par with global standards, especially to those of World Health Organization (WHO), and ensures production of globally acceptable quality of drug.
- This will elevate the quality standards of medicines, reinforcing the reputation of industry and improving patient outcomes.

Guidelines

- **Implementation:** Large companies, which have a turnover of more than Rs 250 crore, will have to implement the guidelines within the next six months.
- Small and medium manufacturers, which have a turnover of less than Rs 250 crore, will get a year.
- **Data Security:** Companies should have GMP-related computerised systems, which ensure that there is no tampering of data related to the processes.
- **Testing and Final Product:** Companies must market a finished product only after getting “satisfactory results” on tests of the ingredients and retain a sufficient quantity of the samples to allow repeated testing or verification of a batch.
- **Addition of Products:** It has five new categories of drugs containing hazardous substances such as sex hormones, steroids (anabolic and androgenic), cytotoxic substances, biological products and radiopharmaceuticals.
- **Quality Risk Management:** There must be a comprehensively designed and correctly implemented pharmaceutical quality system incorporating GMP and Quality Risk Management (QRM).
- It introduced the product quality review (PQR) by the senior management of the companies annually.
- **Evaluation:** The manufacturer shall evaluate the results of the review and corrective and preventive actions or any revalidation shall be undertaken.

Wastewater Surveillance to Study Diseases

Context

- Wastewater surveillance can be a tool to monitor the presence of pathogens of diseases like malaria, dengue etc.

Vector-borne diseases

- Vector-borne diseases are human illnesses caused by parasites, viruses and bacteria that are transmitted by vectors. Example: Malaria, Dengue etc.
- Vector-borne diseases account for more than 17% of all infectious diseases, causing more than 700 000 deaths annually. They can be caused by either parasites, bacteria or viruses.

Need of Wastewater surveillance

- **Early warning of pandemics:** It can provide early warning signs of the presence of infectious diseases, such as viruses or bacteria, in a community. This allows for a quicker response to potential outbreaks and the implementation of public health measures.
- Wastewater surveillance carried out by the Tata Institute for Genetics and Society (TIGS) in Bengaluru was able to detect a silent wave of the XBB.1.16 Omicron variant in the city.
- **Non-invasive Population Screening:** Wastewater surveillance is a passive method that does not rely on individuals seeking testing.
- **Identification of Asymptomatic Carriers:** Wastewater surveillance can identify individuals who are shedding infectious agents, even if they are asymptomatic.
- **Tracking Trends and Variants:** Continuous monitoring of wastewater allows for the tracking of trends in the prevalence of specific pathogens over time.
- **Cost-Effective and Scalable:** It is a cost-effective and scalable method, especially in large populations. It provides a snapshot of the health status of an entire community without the need for individual testing, making it a resource-efficient approach.
- **Integration with Traditional Surveillance:** Wastewater surveillance complemented with traditional surveillance methods, such as clinical testing and case reporting provides a more comprehensive understanding of the health landscape.

Challenges

- **Data Interpretation:** Interpreting the data from wastewater surveillance requires expertise in epidemiology, virology, and environmental science. Establishing clear guidelines for interpreting results and translating them into actionable public health measures is essential.
- **Detection Limits and Sensitivity:** The sensitivity of detection methods for pathogens in wastewater may vary, and some low concentrations may go undetected.
- **Dilution Effects:** Dilution of wastewater in sewer systems can lead to underestimation of pathogen concentrations.

- Pathogen Stability: The stability of pathogens in wastewater can be influenced by environmental factors, such as temperature and pH.
- Delay in reporting results: most wastewater samples are sent to laboratories, with analysis involving either polymerase chain reaction (PCR) or genome sequencing, for identifying new variants. These methods incur a long delay in reporting results.
- Also the presence of PCR inhibitors in wastewater may lead to inconsistent results.
- Inappropriate results: In India, besides people shedding the pathogens through stools, there are several mammals, including nonhuman primates, that serve as reservoir hosts of malaria and dengue.
- So it is difficult to say that all the malaria and dengue microbes detected in wastewater are excreted only by humans.

Global Practices

- Wastewater surveillance has been routinely used for decades for tracking the polio virus in various countries.
- In 2022, Bangladesh launched a wastewater surveillance programme to track and monitor the pathogens like Salmonella typhi, Vibrio cholerae, and rotavirus in the communities.

Way Ahead

- While selecting priority pathogens of wastewater surveillance, it is essential to consider the limitations and challenges that arise from different sanitation systems and host-parasite geography.
- Hence the implemented techniques must be sensitive and specific, provide comprehensive and objective data, realize results in real-time, be able to monitor multiple diseases and pollutants, even those which are typical, be scalable and cost-effective; and be easy-to-use and demand no specialist resources.

Press and Registration of Periodicals Act, 2023

Context:

- Recently, draft Rules, 2024 have been proposed to implement the provisions of the Press and Registration of Periodicals Act, 2023.

Press and Registration of Periodicals Act, 2023.

- It replaces the Press and Registration of Books Act, 1867, which governed the registration of print and publishing industry in the country since 1867.
- The Press & Registration of Books Act, 1867 is a colonial era Act enacted with an aim to regulate the Printing Presses and newspapers with severe penalties including imprisonment for non-compliances of its provisions.
- The processes under the Act were cumbersome and complex causing unnecessary hardships to publishers for running a newspaper.

Key differences between the PRB Act, 1867 and the PRP act , 2023:

- Registration of periodicals: The 1867 Act provides for the registration of newspapers, periodicals, and books. It also provides for the cataloguing of books.
- The 2023 act provides for the registration of periodicals, which include any publication containing public news or comments on public news.
- Periodicals do not include books or scientific and academic journals.
- Foreign periodicals: An exact reproduction of a foreign periodical may be printed in India only with the prior approval of the central government.
 - o The manner of registration of such periodicals will be prescribed.
- No declaration for printing presses: The 1867 Act provides that a declaration specifying the printer/publisher be made to the DM.
- The 2023 act allows the publisher of a periodical to obtain a registration certificate by filing an online application with the Press Registrar General (PRG) and specified local authority.
- A person who has been convicted of a terrorist act or unlawful activity, or has acted against the security of the State will not be allowed to publish a periodical.
- Registration of a printing press: The 1867 Act requires a printing press to be declared before the DM. The PRP act , 2023 allows for information regarding printing presses to be submitted through an online portal.

- o Appellate authority: The new act also provides for an appellate authority.
- The Appellate Board (Press and Registration Appellate Board) will comprise the Chairperson, Press Council of India (PCI), and two members of PCI to hear an appeal against refusal of grant of registration, imposition of any penalty or suspension/cancellation of registration by PRG.

Post-Graduate Medical Education Regulations, 2023

Context

- The National Medical Commission (NMC) has recently introduced the 'Post-Graduate Medical Education Regulations, 2023'

About Post-Graduate Medical Education Regulations, 2023

- It outlines a comprehensive framework for post-graduate medical education. The regulations cover the admission, counselling, and course work for post graduate medical education in India.
- These reforms aimed at fostering quality, ethical practice, and inclusivity within the medical fraternity, encompass various critical aspects of post-graduate medical training and aim to enhance the standards of education and practice nationwide.
- Medical colleges/institutions can apply for permission to start postgraduate courses one year after initiating an undergraduate programme. They must, however, satisfy all requirements for running the existing undergraduate course.
- Previously, applying for a postgraduate programme was only allowed after admitting the third batch of MBBS students.
- Non-teaching government hospitals that fulfil the minimum requirements, including beds, qualified faculty, patient volume and adequate infrastructure, will be allowed to begin postgraduate medical courses.
- Medical colleges/institutions must now self-declare their resources and infrastructure annually.
- Components:
 - Theoretical knowledge;
 - Practical and clinical skills;
 - Writing thesis;
 - o Soft skill attributes including communication skills;
 - o Training in research methodology, medical ethics and medico legal aspects.
- The regulation prohibits the migration of students from one medical institution to another.

Key Concerns

- Working hours, mental health and burnout issues among resident doctors, as well as the irregularity of stipends — have not been addressed in the new PG medical education regulations.
- Doctors with Disabilities: The recommendations given by doctors with disabilities have been ignored.
- It offers inclusivity by providing 5% reservation to doctors with disabilities in PG admission, which was already in existence.
- It asserts that individuals with mental illness and autism cannot be granted admission due to a purported lack of methods to establish diagnosis, a claim contradicted by existing rules.
- Violation of Supreme Court Order: New terms like 'moderate' dyslexia have been introduced, which are not in accordance with the Act and violation of Supreme Court Order.
- The Supreme Court declared that a candidate with cerebral palsy (a group of disorders that affect a person's ability to move and maintain balance and posture) eligible for reservation under the Persons with Disabilities (PwD) Act, 2016 for admission in the MBBS Course.
- The guidelines are silent on the integration of Artificial Intelligence in the curriculum.

NCDC survey of usage of Antibiotics

Context

- The National Centre for Disease Control (NCDC) conducted a survey of antibiotics use across 15 States and two Union Territories.

Key findings

- Out of 11,588 admissions and 9,652 eligible patients, 72% were prescribed antibiotics.
- Of these, only 45% were prescribed antibiotics for therapeutic indications, meant to treat infection or disease.
- The remaining 55% were prescribed the drugs for prophylactic indications, meant to prevent the occurrence or spread of an infection.
- Only 6% were prescribed antibiotics after a confirmed diagnosis of the specific bacteria causing their illness, called definitive therapy.
- The remaining 94% were prescribed based on the doctor's clinical experience in assessing the likely cause of an illness, called empirical therapy.
- Using the WHO's Access, Watch and Reserve (AWaRe) classification, it was found that
- Only 38% of the prescriptions belonged to the Access group,
- 57% of the prescriptions were belonging to the Watch group,
- 2% of the antibiotics prescribed were from the Reserve group.

AWaRe Classification of Antibiotics

- The AWaRe classification is intended as a tool for monitoring antibiotic consumption, defining targets and monitoring the effects of stewardship policies that aim to optimize antibiotic use and curb antimicrobial resistance.
- It was developed in 2017 by the WHO Expert Committee.
- Antibiotics are classified into three groups, Access, Watch and Reserve. It is updated every 2 years.
 - a. The Access group offers the best therapeutic value, while minimizing the potential for resistance.
 - b. The Watch group is indicated for a specific, limited number of infective syndromes and are more prone to be a target of antibiotic resistance. These antibiotics have a higher potential to develop antibiotic resistance.
 - c. The Reserve group of drugs are used as a last resort.

What is Antimicrobial Resistance?

- Antimicrobial Resistance (AMR) occurs when bacteria, viruses, fungi and parasites change over time and no longer respond to medicines making infections harder to treat and increasing the risk of disease spread, severe illness and death.

7th Nepal-India Joint Commission Meeting

Context

- External Affairs Minister S Jaishankar and his Nepal counterpart NP Saud co-chaired the seventh meeting of the Nepal-India Joint Commission.

About

- Established in 1987, the India-Nepal Joint Commission provides a platform to review all aspects of the bilateral partnership.
- India and Nepal have signed five key agreements. They are:
 - An agreement to export 10,000 megawatts of electricity to India in the next decade.
 - Fifth tranche of Indian assistance for people affected by an earthquake in Jajarkot area of Nepal in November 2023.
 - Launch of Nepali space satellite,
 - Cooperation in renewable energy development,
 - Implementation of high-impact community development projects,
 - They Inaugurated three 132-kV cross-border transmission lines, including the second circuits of the Raxaul-Parwanipur line and the Kataiya-Kusaha line, and the New Nautanwa-Mainhiya line.

India-Nepal Relations

- Nepal is important for India in the context of its overall strategic interests in the region, and the leaders of the two countries have often noted the age-old 'roti beti' relationship, which refers to cross-border marriages between people of the two countries.

- Shared Border: The country shares a border of over 1,850 km with five Indian states – Sikkim, West Bengal, Bihar, Uttar Pradesh and Uttarakhand. Land-locked Nepal relies heavily on India for the transportation of goods and services and access to the sea is through India.
- The India-Nepal Treaty of Peace and Friendship: Signed in 1950, it forms the bedrock of the special relations that exist between India and Nepal.
- Nepalese citizens avail facilities and opportunities on par with Indian citizens in accordance with the provisions of the Treaty. Nearly 8 million Nepalese citizens live and work in India.
 - o Defense Cooperation: India has been assisting the Nepal Army (NA) in its modernisation by supplying equipment and providing training.
- Assistance during disasters, joint military exercises, adventure activities and bilateral visits are other aspects.
- The ‘Indo-Nepal Battalion-level Joint Military Exercise SURYA KIRAN’ is conducted alternately in India and in Nepal.
- Since 1950, India and Nepal have been awarding each other’s Army Chief with the honorary rank of General in recognition of the mutual harmonious relationship between the two armies.
- The Gorkha regiments of the Indian Army are raised partly by recruitment from hill districts of Nepal.
- Connectivity and Development Partnership: India has been assisting Nepal in development of border infrastructure through upgradation of 10 roads in the Terai area; development of cross-border rail links at Jogbani-Biratnagar, Jaynagar-Bardibas; and establishment of Integrated Check Posts at Birgunj, Biratnagar, Bhairahawa, and Nepalgunj.
- Water Resources Cooperation: Cooperation in water resources primarily concerning the common rivers is one of the most important areas of bilateral relations.
- A three-tier bilateral mechanism established in 2008, to discuss issues relating to cooperation in water resources, flood management, inundation and hydropower between the two countries, has been working well.
- Energy Cooperation: India and Nepal have had a Power Exchange Agreement since 1971 for meeting the power requirements in the border areas of the two countries, taking advantage of each other’s transmission infrastructure.
- India is currently supplying a total of about 600 MW of power to Nepal. An Agreement on ‘Electric Power Trade, Cross-border Transmission Interconnection and Grid Connectivity’ between India and Nepal was signed in 2014.
- Trade and Economic: India remains Nepal’s largest trade partner, with bilateral trade crossing US\$ 7 billion in FY 2019-20. India provides transit for almost the entire third-country trade of Nepal.
- India’s export to Nepal has grown over 8 times in the past 10 years while exports from Nepal have almost doubled. Despite the difficulties due to the pandemic, India ensured uninterrupted flow of trade and supplies to Nepal.
- Nepal is India’s 11th largest export destination, up from 28th position in 2014.
- In FY 2021-22, it constituted 2.34% of India’s exports. In fact exports from India constitute almost 22% of Nepal’s GDP.
 - o The ‘New Partnership in Agriculture’: It was announced in April 2018, which focuses on collaborative projects in Agriculture, Education and R&D.
 - o Mahakali River bridge: Recently, a MoU was signed between India and Nepal for the construction of a motorable bridge across the Mahakali River connecting Dharchula (India) with Darchula (Nepal), under Indian grant assistance.
 - o Operation Maitri & post-earthquake reconstruction assistance: In the wake of the 2015 earthquake in Nepal, GoI was the first responder and carried out its largest disaster relief operation abroad (Operation Maitri).
- India extended US\$ 1 billion to Nepal as part of its long-term assistance for post-earthquake reconstruction in housing, education, health and culture heritage sectors.

Issues between India & Nepal

- Treaty of Peace and Friendship of 1950: On 31 July 1950, India and Nepal signed a treaty of peace and friendship in an effort to “strengthen and develop these ties and to perpetuate peace between the two countries”.

- As time passed, Nepal believed the treaty was “incompatible with national self-respect”.
- Madhesi Issue: India’s entrenched interests in Nepal suffered a setback in 2015, when a blockade at the borders ensued following protests by Madhesis and some other ethnic groups against marginalization of their interests in the newly-passed Nepalese Constitution.
- Kalapani dispute: The area is in India’s control but Nepal claims the region because of historical and cartographic reasons. The area is the largest territorial dispute between Nepal and India consisting of at least 37,000 hectares of land in the High Himalayas.
- Susta Border dispute: Susta is a disputed territory between Nepal and India. It is administered by India as part of West Champaran district of Bihar.
- Nepal claims the area a part of West Nawalparasi District under Susta rural municipality, alleging that over 14,860 hectares of Nepali land in Susta has been encroached upon by India.

Way ahead

- Maharashtra is home to Dharavi that has close to 1 million people living in just over 2 square kilometres.
- Lack of Facilities: Of the 63% of
- There are several irritants that have developed, straining this relationship, and for now there seems to be a concerted attempt by both governments to return to bonhomie, with the Indian government seeking to utilize “religious diplomacy” as a means to emphasize the special relationship.
- India-Nepal relations need to graduate to a more meaningful partnership on economic and geopolitical issues, with the Indian government continuing to retain a substantial role in partnering the Nepali regime in development projects.

Slums in India

Context

- The subject of slums has found a prominent place in the debates and discussions of the Indian Parliament throughout history.

Slums in India

- Nationwide Data: Slums are found in 65 percent of the Indian towns. One in every six urban Indians lives in slums.
- Andhra Pradesh tops the list, with 36.1% of its urban population living in slums. Other states are: Chhattisgarh, Madhya Pradesh, Maharashtra, Odisha, West Bengal, Sikkim, Jammu & Kashmir and Haryana.
 - Indian slum households without any proper drainage system, out of them 44% have open drains and close to 19% of the households are without any drainage connection.
- Future Projection: In the next 10 years, 50 percent of India will reside in urban areas, up from the current 28%.
- With this increase in urban population, slums will grow exponentially.

Evolution of Government Policies of Slums

- Between the 1950s and 1960s, the slums were a result of partition and the inflow of a huge population.
- This resulted in people living in deteriorating buildings without basic civic amenities.
- Slums were considered an epidemic that needed to be eradicated.
- This changed with the introduction of the Slum Areas Act of 1956.
- Between the early 1970s and mid-1980s, the narrative around slums shifted- from being considered a space that needed eradication, it was looked at as a necessary evil that had to be developed.
- Town planning emerged as a governance tool, pushing slums to the peripheries. The narrative evolved to prioritise providing basic amenities to slums instead of destroying them.
 - Between the mid-1980s and late 1990s.
- From being considered liabilities, funding to cities and urban spaces including the slums, were now looked at as assets and investments for the economic growth of the State.
- The first two National Housing Policies were introduced during this period.
- Further, in 1996 the National Slum Development Programme was launched bringing back targeted funding from the union government towards slum redevelopment.

Reasons for the Growth of Slums in India

- **Rural-to-Urban Migration:** One of the primary drivers of slum growth in India is the significant influx of people from rural areas to urban centers in search of better economic opportunities.
- **Lack of Affordable Housing:** Many urban areas in India face a shortage of affordable housing. This leads people to settle in informal settlements due to the absence of alternatives.
- **Inadequate Urban Planning:** Cities may fail to accommodate the needs of their expanding populations, leading to the development of informal settlements.
- **Poverty and Unemployment:** Poverty and unemployment in both urban and rural areas push people toward informal settlements.
- **Inadequate Government Policies:** Inconsistent or ineffective government policies and programs to address urban poverty and slum development can exacerbate the problem.

The Importance of Slum Development in India

- **Poverty Alleviation:** Slums are often home to some of the most economically disadvantaged populations. By providing better living conditions, access to basic services, and economic opportunities, slum development can contribute to poverty reduction and improved living standards.
- **Social Equity and Inclusion:** It ensures that marginalized and vulnerable populations have access to decent housing, clean water, sanitation, education, and healthcare, reducing social disparities.
- **Health and Well-being:** Access to clean water, sanitation and hygiene facilities, and healthcare services can reduce the spread of diseases and enhance the overall well-being of slum residents.
- **Education Opportunities:** This allows children in slum areas to receive quality education, breaking the cycle of poverty and providing a brighter future.
- **Economic Empowerment:** Slum development can empower residents economically by providing access to stable housing, infrastructure, and job opportunities. This, in turn, leads to increased income and better living standards.
- **Urban Development:** Addressing slum development is integral to the broader urban development of Indian cities.
- **Crime Reduction:** Improved living conditions and economic opportunities can lead to reduced crime and violence in slum areas, enhancing the safety and security of residents.
- **Sustainability:** It involves not only providing housing and infrastructure but also creating economic opportunities and social services that support lasting development.

Major Challenges to Slum Development in India?

- **Overpopulation:** Slums are often densely populated, leading to overcrowding and inadequate living space. This overpopulation can strain already limited resources and infrastructure.
- **Resettlement Challenges:** Relocating slum dwellers to improve living conditions can be challenging, as it requires finding suitable land, addressing resistance from the affected communities, and ensuring that resettlement sites have adequate infrastructure.
- **Political and Bureaucratic Hurdles:** Slum development often involves navigating complex bureaucratic processes and overcoming political challenges, which can slow down progress and result in corruption.
- **Lack of Community Participation:** Successful slum development often requires the community's active participation in governance and planning.

Conclusion

- Slum development in India is crucial for poverty reduction, equity promotion, improved health, education, and sustainable urban growth.
- Grassroot development groups play a key role in these initiatives, but success demands a comprehensive approach supported by the government.
- This endeavor is vital for enhancing human well-being, particularly for impoverished slum dwellers.
- This requires collaborative efforts in creating affordable housing, providing basic services, improving infrastructure, and promoting livelihood opportunities for slum dwellers, while preserving the social and economic fabric of these communities.

Free Legal Aid in India

Context

- Supreme Court judge Justice BR Gavai has been nominated as the Chairman of the Supreme Court Legal Services Committee (SCLSC).

Supreme Court Legal Services Committee

- The Supreme Court Legal Services Committee was constituted under Section 3A of the Legal Services Authorities Act, 1987, to provide free and competent legal services to the weaker sections of society, in cases falling under the top court's jurisdiction.
- Section 3A of the Act states that the Central Authority (the National Legal Services Authority or NALSA) shall constitute the committee.
- It consists of a sitting SC judge, who is the chairman, along with other members possessing the experience and qualifications prescribed by the Centre.
 - o Both the chairman and other members will be nominated by the CJI.

Constitutional Backing

- Article 39A states, "The State shall secure that the operation of the legal system promotes justice, on a basis of equal opportunity, and shall, in particular, provide free legal aid, by suitable legislation or schemes or in any other way, to ensure that opportunities for securing justice are not denied to any citizen by reason of economic or other disabilities."
- Articles 14 (right to equality) and 22(1) (rights to be informed of grounds for arrest) also make it obligatory for the State to ensure equality before the law and a legal system that promotes justice based on equal opportunity.

Legal Services Authorities Act

- Establishment: In 1987, the Legal Services Authorities Act was enacted to give a statutory base to legal aid programmes.
- Eligible Groups: It aims to provide free and competent legal services to eligible groups, including women, children, SC/ST and EWS categories, industrial workers, disabled persons, and others.
- Monitoring Body: Under the Act, NALSA was constituted in 1995 to monitor and evaluate the implementation of legal aid programmes and to lay down policies for making legal services available.
- Implementation: A nation wide network has been envisaged under the Act for providing legal aid and assistance.
- It also disburses funds and grants to State Legal Services Authorities and NGOs for implementing legal aid schemes and programmes.
- State Legal Services: In every state, State Legal Services Authorities (SLSA) were established to implement NALSA's policies and directions, give free legal services to people, and conduct Lok Adalats.
- An SLSA is headed by the Chief Justice of the respective High Court and includes the senior HC judge as its Executive Chairman.
- While the HC Chief Justice is the patron-in-chief of the SLSA, the CJI is the patron-in-chief of NALSA.
- District Legal Services: Similarly, District Legal Services Authorities (DLSAs) and Taluk Legal Services Committees were established in districts and most taluks.
- Each DLSA is chaired by the District Judge of the respective district.
- The Taluka or Sub-Divisional Legal Services Committees are headed by a senior civil judge.

Assisted Reproductive Technology

Context

- The Union Health Ministry has sought data from States and UTs regarding the number of single women who have used Assisted Reproductive Technology (ART).

What is Assisted Reproductive Technology?

- Assisted reproductive technologies (ART) refer to a range of fertility treatments aimed at aiding reproduction for couples suffering from infertility or to persons who may wish to have a child through artificial methods.

- These arrangements include in-vitro fertilization (fertilizing an egg in the lab), gamete donation (sperm or egg), and gestational surrogacy (where the child is not biologically related to the surrogate mother).

Concerns of ART

- **Ethical Issues:** The process of selecting embryos for implantation raises ethical questions, especially when it involves the potential for genetic screening and manipulation.
- **Parental Rights:** Legal issues can arise regarding the determination of parental rights, especially in cases involving surrogacy, egg donation, or sperm donation.
- **Long-term Health Effects:** The long-term health effects of some fertility treatments and medications used in ART are not yet fully understood.
- **Access and Affordability:** Access to ART may be limited due to financial constraints, leading to concerns about socioeconomic disparities in the ability to access these technologies.

Assisted Reproductive Technology (Regulation) Bill, 2021:

- **Provision of ART services:** The Bill defines ART and the services will be provided through:
 - ART clinics, which offer ART related treatments and procedures, and
 - ART banks, which collect, screen and store gametes.
- **Registration of ART clinics and banks:** Every ART clinic and bank must be registered under the National Assisted Reproductive Technology and Surrogacy Registry.
- **A National Registry will be established under the Bill,** which will act as a central database with details of all ART clinics and banks in the country.
- **Boards:** The Bill provides that the National and State Boards constituted under the Surrogacy (Regulation) Bill, 2019 will also act as the National and State Boards for the regulation of ART services.
- **Rights of a child born through ART:** A child born through ART will be deemed to be a biological child of the commissioning couple and will be entitled to the rights and privileges available to a natural child of the commissioning couple.
- A donor will not have any parental rights over the child.

Income Support Programmes

Context:

- Recently, the Indian National Congress party pitched for its NYAY scheme, if voted to power in the upcoming 2024 general elections.

About

- NYAY is an acronym for Nyuntam Aay Yojana (or Minimum Income Scheme), and includes a guaranteed payment of Rs 72,000 to each eligible family annually.
- In 2018, the incumbent government had rolled out a similar scheme called PM-KISAN, billed as the world's largest direct benefit transfer scheme for farmers and involved "an income support of 6,000/- per year.

Nyay/PM-Kisan vs UBI

- While these schemes resemble UBI, they are not exactly the roll out of Universal Basic Income (UBI).
- Under a UBI, the government gives a "basic" income to every citizen in the country, universally and unconditionally, from the richest person to the poorest one, regardless of whether they work or not.
- But, the government also rolls back all types of subsidies in UBI — from food to fertiliser to medical bills.
- Nyay and PM-KISAN are different from UBI in three aspects.
- First, they are not accompanied by removal of all the existing subsidies.
- Secondly, the amount is much smaller than what anyone can consider to be the minimum or basic income that everyone needs to have to live a decent life.
- Lastly, the scope of the schemes is limited to a section of Indians; these are targeted schemes, not universal ones.

Problems with UBI

- While Universal Basic Income (UBI) holds promise as a revolutionary social policy, it faces several potential challenges and criticisms.

Cost and sustainability:

- **Affordability:** In rich countries such as Switzerland (refused to adopt UBI), the UBI amount is quite a lot even though the population may be small.
- In relatively poorer countries, the population is too large even if the UBI amount may be smaller. Either way, affordability is a massive stumbling block.
- **Economic impact:** The other problem is the reduction of existing subsidies, and raising of taxes to fund the UBI.

Practical challenges:

- **Administrative complexity:** Implementing a UBI scheme requires effective infrastructure and bureaucracy to handle registration, verification, and distribution of payments.
- **Political feasibility:** Announcing the removal of existing subsidies is almost certain to create a political backlash.

Uncertainties and unintended consequences:

- **Behavioral changes:** The impact of UBI on work ethic, entrepreneurship, and social behavior is unclear and could have unforeseen consequences.
- **Dependence and disincentive to work:** Concerns exist about potential dependency on UBI and reduced motivation to work, especially for low-skilled workers.

Way Ahead:

- The feasibility and effectiveness of UBI depend on careful design, implementation, and ongoing evaluation.
- Addressing the potential challenges and maximizing the benefits requires thorough research, public debate, and pilot programs to gather evidence before widespread implementation.

Antimicrobial Resistance, Its Threat

Context

- The World Health Organization (WHO) has identified antimicrobial resistance (AMR) as one of the top threats to public health.

What is Antimicrobial Resistance?

- Antimicrobial Resistance (AMR) occurs when bacteria, viruses, fungi and parasites change over time and no longer respond to medicines making infections harder to treat and increasing the risk of disease spread, severe illness and death.
- Nearly 700,000 people die of AMR every year. The toll can rise to as many as 10 million by 2050 and eat up 3.8 per cent of annual global gross domestic product (GDP).

Causes for Antimicrobial Resistance

- **Overuse and Misuse of Antibiotics:** The excessive and inappropriate use of antibiotics in humans and animals is a major driver of antimicrobial resistance. This includes using antibiotics without a prescription, not completing the full course of prescribed antibiotics, and using antibiotics for non-bacterial infections.
- **Inadequate Dosage and Duration:** When antibiotics are not taken in the correct dosage and for the recommended duration, it can lead to incomplete eradication of the targeted microorganisms, allowing the surviving bacteria to develop resistance.
- **Self-Medication:** Self-prescription without proper medical guidance contributes to the misuse of antibiotics.
- **Antibiotics Consumption in Food-Animals:** Use of antibiotics as growth promoters in food animals and poultry is a common practice and later it evolves in the food chain.
- **Poor Sanitation:** The large proportion of sewage is disposed of untreated into receiving water bodies, leading to gross contamination of rivers with antibiotic residues, antibiotic-resistant organisms.

Challenges Posed by AMR

- Antibiotic resistance is emerging as the threat to successful treatment of infectious diseases, organ transplantation, cancer chemotherapy and major surgeries.
- The issue of AMR causes out of pocket expenditure on health care, especially on medicines. The use of high order drugs or second-line expensive antibiotics pushing treatment costs high.

Global Efforts against Antimicrobial Resistance

- Global Action Plan on Antimicrobial Resistance (GAP): Globally, countries committed to the framework set out in the Global Action Plan (GAP) 2015 on AMR during the 2015 World Health Assembly and committed to the development and implementation of multisectoral national action plans.
- World Antimicrobial Awareness Week (WAAW): It is a global campaign that aims to raise awareness of antimicrobial resistance worldwide.
- Global Antimicrobial Resistance and Use Surveillance System (GLASS): WHO launched it in 2015 to continue filling knowledge gaps and to inform strategies at all levels.
- GLASS has been conceived to progressively incorporate data from surveillance of AMR in humans, surveillance of the use of antimicrobial medicines, AMR in the food chain and the environment.
- Global Antibiotic Research and Development Partnership (GARDP): A joint initiative of WHO and the Drugs for Neglected Diseases Initiative (DNDi), GARDP encourages research and development through public-private partnerships.
- By 2025, the partnership aims to develop and deliver five new treatments that target drug-resistant bacteria identified by WHO as posing the greatest threat.
- Country wise initiatives: A multi-sectoral \$1 billion AMR Action Fund was launched in 2020 to support the development of new antibiotics, and the U.K. is trialing a subscription-based model for paying for new antimicrobials towards ensuring their commercial viability.
- Peru's efforts on patient education to reduce unnecessary antibiotic prescriptions.
- Australian regulatory reforms to influence prescriber behaviour, and initiatives to increase the use of point-of-care diagnostics, such as the EU-supported VALUE-Dx programme.
- Denmark's reforms to prevent the use of antibiotics in livestock have not only led to a significant reduction in the prevalence of resistant microbes in animals, but also improved the efficiency of farming.

Measures Taken against Antimicrobial Resistance in India

- National Action Plan on Antimicrobial Resistance (NAP-AMR): It has a focus on the One Health approach & was launched with the aim of involving various stakeholders ministries/departments.
- AMR Surveillance Network: Indian Council of Medical Research (ICMR) established the AMR surveillance and research network (AMRSN) to generate evidence and capture trends and patterns of drug resistant infections in the country.
- India's Red Line campaign: Which demands that prescription-only antibiotics be marked with a red line, to discourage the over-the-counter sale of antibiotics– is a step forward.
- FSSAI has set certain guidelines limiting the antibiotics in food products such as fish and honey.
- National Health Policy, 2017: It terms antimicrobial resistance as one of the key healthcare issues and prioritizes the development of guidelines regarding antibiotic use and check on restricting the growth of antibiotics.
- National Antibiotic Consumption Network (NAC-NET): The network sites compile data on antibiotic consumption in their respective health facilities and send it to National Centre for Disease Control (NCDC).

Way ahead

- Addressing the challenges posed by AMR requires a coordinated global effort involving healthcare professionals, researchers, policymakers, and the public.
- Further initiatives to promote responsible antimicrobial use, surveillance of resistance patterns, development of new drugs, and international collaboration are crucial to mitigating the impact of AMR on public health.

Aadhaar-Based Payment System (ABPS)

Context

- Under the Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS) payments are made mandatory through an Aadhaar-based payment system (ABPS).

What is the Aadhaar-based payment system (ABPS)?

- Under ABPS, workers' 12-digit Aadhaar numbers are linked with their job cards as well as their bank accounts.

- ABPS uses the worker's Aadhaar number as their financial address.
- Aadhaar must be mapped with the National Payments Corporation of India (NPCI) database; and finally, the bank's institutional identification number must itself be mapped with the NPCI database.
- The system was first made mandatory with effect from February 1, 2023 but, through several extensions, the Centre allowed it until December 31, 2023.
- The ABPS became mandatory from January 1, 2024.

Benefits of Payments through ABPS

- **Easy and Secure Authentication:** Aadhaar provides a unique identification method through biometric authentication (fingerprint or iris scans), making transactions secure and reducing the risk of fraud.
- **Convenient:** Aadhaar-based payment systems eliminate the need for physical cards or documents for financial transactions.
- Users can authenticate themselves using their Aadhaar number and biometrics, making the process more convenient.
- It ensures the payment of beneficiaries into their bank accounts, even in case of frequent change of bank account by the beneficiary.
- **Reduced Leakages in Subsidy Programs:** Aadhaar is often linked to various government subsidy and welfare programs, ensuring that the benefits reach the intended beneficiaries directly.
- **Promotion of Digital Payments:** Integration of Aadhaar into payment systems contributes to the government's push for a less-cash economy by promoting digital transactions.
- This aligns with broader initiatives to enhance the digital infrastructure of the country.

Concerns with ABPS Payments

- **Over- Reliance:** Over-reliance on technical tools has resulted in problematic implementation, with beneficiaries devoid of a proper recourse for corrections in the system.
- **Authentication Issues:** There have been instances where individuals faced difficulties with biometric authentication due to factors such as poor connectivity, technical glitches, or errors in the Aadhaar database.
- Errors in any step of the process result in payment failures.

Conclusion

- The Ministry of Rural Development has said that it may consider an exemption from ABPS on a case-to-case basis for gram panchayats if there are technical issues.
- MGNREGS remains a vital demand-driven welfare scheme that helps the rural poor and its implementation must not be dependent upon a technological system.
- The Ministry could conduct social audits to ascertain the extent of the problem before insisting on ABPS

Amendment to Central Civil Services (Pension) Rules of 2021

Context:

- The Centre has amended the Central Civil Services (Pension) Rules of 2021.

About the amended rules

- Rule 50 of the Central Civil Services (Pension) Rules, 2021 allows the grant of family pension following the death of a government servant or retired government servant.
- The amendment was formulated by The Department of Pension and Pensioners' Welfare (DoPPW) in consultation with the Ministry of Women and Child Development taking into consideration representations received.
- It allows women government employees and pensioners to nominate their children for receiving family pension over their spouse, if at the time of their death, any proceedings for divorce, domestic violence, or dowry demands happen to be pending against the said spouse.
- Till now, the rules provided for the family pension to first go to the surviving spouse and the children became eligible to receive it only after the death of the spouse.

Purpose:

- Several women officials and pensioners were asking if it was possible to nominate children before the spouse in cases where divorce proceedings are under way or domestic violence cases are pending against the spouse.
- This amendment is progressive in nature and would empower women employees/pensioners significantly."

Regulating OTT Platforms and Digital Content

Context:

- The Draft Broadcasting Services (Regulation) Bill, 2023 introduced by the Ministry of Information and Broadcasting broadens regulation to cover OTT platforms and digital content.

Draft Bill of 2023 and OTT Platforms:

- The Bill expands regulatory oversight to include OTT Platforms and Digital Content, by proposing mandatory registration, content evaluation committees for self-regulation, and a three-tier regulatory system.
- **Mandatory Registration:** No person or broadcasting company can provide services or run a network without formal registration or intimation to the government, with the exception of a few authorised bodies.
- Similar provisions apply to terrestrial and radio broadcasting networks.
- **Broadcasting:** The Bill expands the purview of broadcasting rules to networks that use the internet to broadcast services and programmes, such as Internet Protocol Television (IPTV) and OTT broadcasting services (classified as broadcasting network operators in the draft) if they have the required number of subscribers or viewers.
- These Codes will apply to individuals and organisations that operate as a 'systematic business' or 'professional' entity.
- Digital copies of newspapers and publishers of commercial newspapers, however, will be exempted.
- The Draft Bill proposed to set up 'Content Evaluation Committees (CEC)' for self-regulation and 'Broadcast Advisory Council' to advise the central government on programme code and advertisement code violations.
- **Content Quality and Accessibility:** Any programme or advertisement broadcasted through TV, radio, or other broadcasting services must adhere to the Programme Code and Advertisement Code (however, these codes are not defined yet).
- **Self Regulation:** Every broadcaster or broadcasting network operator must establish a CEC with members from various social groups, including women, child welfare, Scheduled Castes, Scheduled Tribes, and minorities.
- Broadcasters will be allowed to air only those programmes certified by the CEC, except for specific shows exempted by the government.
- **Provision for inspection, seizure of equipment:** The Bill allows inspections by the government without prior notice.
- Operators must facilitate monitoring at their own cost and can face equipment seizure if violations are suspected. Companies are liable unless they prove a lack of knowledge or due diligence.
- **Concern over 'Authorised Officer':** An 'Authorised Officer' working under the government's directions could be influenced by political as well as personal influence.
- **Selective Targeting:** It has also been alleged that the rules will be more misused than for real regulation.
- There are instances when the government tried to curb certain anti-government agendas while ignoring populist fake news.

Challenges & Criticisms:

- **Application of same rules for different media:** 'OTT' broadcasting services subscribers, viewers retain the autonomy to not consume a programme if they wish to do so.
- It is a direct contradiction to the nature of cable TV or radio services, wherein consumers cannot choose to stop the airing of a programme (even if they may be able to switch channels).
- **Promoting linear representation:** The draft bill could amplify the erasure or the selective representation of Indian minority communities from the

National Investigation Agency (NIA)

Context:

- NIA achieved a 94.70% conviction rate in 2023.

About National Investigation Agency (NIA)

- Institutional Establishment:
- The Union government enacted the National Investigation Agency (NIA) Act after the wake of the 26/11 Mumbai terror attack in November 2008 and it is presently functioning as the Central Counter Terrorism Law Enforcement Agency in India.

Objectives:

- To be a thoroughly professional investigative agency matching the best international standards.
- To set the standards of excellence in counter terrorism and other national security related investigations at the national level by developing into a highly trained, partnership oriented workforce.
- Ensuring effective and speedy trial.
- Creating deterrence for existing and potential terrorist groups/individuals.
- To develop as a storehouse of all terrorist related information.

Jurisdiction:

- The law under which the agency operates extends to the whole of India and also applies to Indian citizens outside the country.
- Persons in the service of the government wherever they are posted.
- Persons on ships and aircraft registered in India wherever they may be.
- Persons who commit a scheduled offence beyond India against the Indian citizen or affecting the interest of India.
- NIA (Amendment) Act 2019:
- It empowers the NIA to probe terror attacks targeting Indians and Indian interests abroad.
- Investigation can also be conducted in other offenses such as human trafficking; circulation of fake currency; manufacture and sale of prohibited arms; and cyber-terrorism.
- The law included Section 66-F of the Information Technology Act in the schedule of the NIA Act, which pertains to cyber terrorism and prescribes punishment extending to life imprisonment.

NIA Special Courts:

- Various Special Courts have been notified by the Govt. of India for trial of the cases arising out of offences committed in various states of the Union.
- Appeal: An appeal shall lie from any judgement, sentence or order, not being an interlocutory order, of a Special Court to the High Court both on facts and on law.
- Every appeal shall be heard by a bench of two Judges of the High Court and shall, as far as possible, be disposed of within a period of three months from the date of admission of the appeal.
- Power of State Government to constitute Special Courts: The State Government may constitute one or more Special Courts for the trial of offences under any or all the enactments specified in the Schedule.

Aromatic Crops and Floriculture

Context

- High value aromatic crops and floriculture have recently emerged as a means to supplement livelihood of Odisha's tribal communities.

About

- Successful introduction of aromatic plants has been seen in Nabarangpur and Koraput districts of Odisha, where tribal farmers showed an interest in diversifying from the traditional maize crop.
- With the help of the Central Institute of Medicinal and Aromatic Plants (CIMAP) in Lucknow, the district has recently introduced different aromatic plants such as,
- menthol mint (the CIM Unnati variety),
- rosemary (Hariyali variety),
- patchouli (CIM Samarth),
- damask roses (Ranisahiba),
- chamomile,

- geraniums (CIM-Bharat).
- The favourable climate and availability of vast stretches of land offer exciting opportunities for farmers to foray into aromatic plantation, though it is an unfamiliar domain.

About aromatic plants:

- Aromatic plants are those that contain aromatic compounds, which are basically essential oils.
- These essential oils are odorous, volatile at room temperature, hydrophobic and highly concentrated compounds.
- They can be obtained from flowers, buds, seeds, leaves, twigs, bark, wood, fruits and roots.
- Aromatic plants do not face regulatory challenges medicinal plantations face.
- There is huge demand for aromatic plants in the market because of their diversified uses. Examples: Lemongrass, Mentha, Vetiver, Citronella, etc.

Uses:

- Culinary herbs: Basil, rosemary, thyme, and mint are culinary staples, adding flavor and aroma to dishes.
- Spices: Cumin, cloves, and star anise enrich our palates with their potent scents and taste.
- Medicinal plants: Lavender, chamomile, and valerian root are known for their calming and therapeutic properties.
- Cosmetics and perfumes: Rose, jasmine, and sandalwood essential oils are prized for their captivating fragrances in perfumes and beauty products.
- Aromatherapy: Essential oils from plants like eucalyptus and lemongrass can be used for inhalation or massage to promote relaxation and well-being.
- Insect repellents: Citronella and lemongrass oils offer natural alternatives to synthetic insect repellents.
- The distinct odour of lemongrass, citronella and vetiver, also repels elephants.
- Landscaping and gardening: Ornamental plants like fragrant roses, lilies, and lavender add beauty and fragrance to gardens and outdoor spaces.

About the Aroma Mission:

- CSIR's Aroma Mission aims to increase the income of the farmers through cultivation of high value and high demand aromatic crops by about Rs. 30,000 to 60,000/ha/year.
- On 4th June, 2023 CSIR-Indian Institute of Integrative Medicine, Jammu launched the third phase of CSIR-Aroma Mission during the Lavender Festival conducted at Bharderwah of Jammu & Kashmir, UT.
- It also aims to bring an additional area of 30,000 hectares under cultivation of these crops to further catalyze the cultivation of aromatic crops in about 60,000 hectares.
- This will help in production of an additional 700 tonnes of essential oil for perfumery, cosmetics and pharmaceutical industries, and use of these oils in value addition and herbal products would generate a business of at least 200 crores.
- About 45,000 skilled human resources capable of multiplying quality planting material, distillation, fractionation and value addition will also be developed under "Skill India" initiatives.
- More than 25,000 farming families would be directly benefited and an employment of more than 10-15 lakhs mandays will be generated in rural areas.
- Scientific interventions would provide assured benefits to the growers of Vidarbha, Bundelkhand, Gujarat, Marathwada, Rajasthan, Andhra Pradesh, Odisha and other states where farmers are exposed to frequent episodes of weather extremes and account for maximum suicides.

Vulture Restaurant in Jharkhand Syllabus:

Context:

- A 'Vulture Restaurant' has been established in Koderma of Jharkhand to conserve the declining vulture population.

About the Vulture Restaurant

- It is an undisturbed area where non-toxic, poison-free meat and carcasses are provided for vultures and other scavengers.
- The initiative aims to address the adverse impact of livestock drugs, particularly diclofenac, on vultures.
- The first 'vulture restaurant' came up in 2015 at Phansad Wildlife Sanctuary in Raigad, Maharashtra.
 - There are four other such restaurants, all in the same state.

Types of Vultures

- Vultures are one of the 22 species of large carrion-eating birds that live mostly in the tropics and subtropics.
- They act as nature's garbage collectors
- Vultures play a valuable role in keeping wildlife diseases in check.
- India is home to nine species of Vulture namely the Oriental white-backed, Long-billed, Slender-billed, Himalayan, Red-headed, Egyptian, Bearded, Cinereous and the Eurasian Griffon.

Conservation Status

- Schedule-1 of the Wildlife Protection Act 1972: Bearded, Long-billed, Slender-billed, Oriental white-backed.
- Rest are protected under 'Schedule IV'.
- IUCN Red List:
 - Critically Endangered:
 - Oriental White-backed Vulture, Long-billed Vulture, Slender-billed Vulture and Red-headed Vulture.
 - Endangered: Egyptian Vulture
 - Least Concerned: Eurasian Griffon

Threats

- Use of Diclofenac: A veterinary nonsteroidal anti-inflammatory drug (NSAID) found in the carcass of cattle the vultures feed on. The veterinary use of diclofenac was banned in 2008.
- Pesticides: The presence of organochlorine pesticide, polychlorinated biphenyls, polycyclic aromatic hydrocarbons and heavy metals were also the major cause of mortality.
- Other threats include lack of nesting trees, electrocution by power lines, and food dearth and contaminated food.

Conservation Efforts

- The National Board for Wildlife (NBWL) has approved an Action Plan for Vulture Conservation 2020-2025. It includes:
 - Vulture Conservation Centre: Uttar Pradesh, Tripura, Maharashtra, Karnataka and Tamil Nadu will get a vulture conservation and breeding centre.
 - Vulture Safe Zone: Establishment of at least one vulture-safe zone in each state for the conservation of the remnant populations in that state.
 - Rescue Centres: Establishment of four rescue centres, in Pinjore (Haryana), Bhopal (Madhya Pradesh), Guwahati (Assam) and Hyderabad (Telangana). There are currently no dedicated rescue centres for treating vultures.

- Establishment of Vulture Conservation and Breeding Centres: there are nine VCB Centres in India, of which three are directly administered by the Bombay Natural History Society (BNHS).
- Involvement of local villagers as 'gidhaad mitra' for rejuvenation and conservation efforts.

Pakke Paga Hornbill Festival

Context:

- The 9th edition of the Pakke Paga Hornbill Festival (PPHF) commenced to protect and conserve hornbills.

About

- The Festival was organised at Seijosa, Pakke Kessang District of Arunachal Pradesh.
- It is home to four species of hornbills, namely Wreathed, Great Indian, Oriental Pied and the endangered Rufous-necked.
- The area is the traditional homeland of the Nyishi people, the largest tribal group in the state.
- It was organised by the Pakke Tiger Reserve and the Pakke Paga Hornbill Festival Committee, in collaboration with Wildlife Trust of India.

Coevolutionary Balance between Plants and Ungulates

Context

- Introduction of Alien Species causes disruption to the coevolutionary balance between plants and ungulates.

What are Ungulates?

- Ungulates are hoofed mammals that walk on their toes. The word ungulate comes from the Latin word "unguis", which means nail, claw or hoof.
- Ungulates are divided into two classes: even-toed ungulates such as deer, giraffe, antelopes, and odd-toed ungulates such as horses, zebras and rhinoceroses.
- They have the ability to digest cellulose as they graze on the plants.

What is the coevolutionary balance between Plants and Ungulates?

- Cellulose is the fibrous plant material which is hard to digest but due to presence of the specialised bacteria in the gut of ungulates they can digest cellulose.
- So, Plants evolve defenses to prevent herbivory and ungulates evolve ways to overcome these defences.
- One important plant defence mechanism is using chemicals that can be toxic on consumption.
- Over thousands of years, mechanisms in ungulates evolved to tolerate or detoxify these chemicals and get to the nitrogen-rich foliage.

How does Introduction of Alien Species Affect it?

- The introduction of exotic invasive plants disrupts this coevolutionary balance and native ungulates lose out since they do not have mechanisms to address the novel toxins in the ecosystem.
- Eating Lantana, for example, beyond a certain proportion of the diet can be poisonous for native Indian species.
- Invasive exotics outcompete native flora, diminishing the edible biomass available to native ungulates.

Concerns

- Native flora and fauna evolve countermeasures, and ecosystems reach a new altered equilibrium.
- Rapidly spreading invasives, shrinking habitats and fragmented landscapes leave ungulates facing an uphill battle.
- Protected area management often advocates creating grasslands from forests to increase the carrying capacity for ungulates, but this practice can exacerbate the problem as grasses have poor nutrient content compared to shrubs that herbivores eat.

Conclusion

- Understanding the cause-effect relations between ungulates and invasive plant dynamics is a critical management need that deserves high priority for research.
- It appears important to develop a new discourse that incorporates scientific evidence, stakeholder preferences and evidence-based management to develop approaches that safeguard all native species and prevent further erosion of plant biodiversity.

Mapping of Deep Sea Coral Reef

Context:

- Scientists have mapped the largest deep-sea coral reef off the US Atlantic coast.
- The Great Barrier Reef in Australia is the biggest tropical coral reef system in the world.

More about the News

- The reef was found at depths ranging from 200 metres to 1,000 metres where sunlight doesn't penetrate.
- It uses new underwater mapping technology that makes it possible to construct 3D images of the ocean floor.

Species for Deep Sea Corals

- There are only six species that create reefs.
- The most common of these is *Lophelia pertusa*, which forms massive reefs throughout the Atlantic Ocean, including the Gulf of Mexico and the South Atlantic Bight.

In Comparison to Shallow-water Corals

- Deep reefs cover more of the ocean floor than tropical and shallow-water reefs.
- The world's largest tropical coral reef system, the Great Barrier Reef in Australia, stretches for about 2,301 kilometres.
- The deep-sea corals need to rely on alternative sources of food to obtain their nutrition, either by feeding on organic material falling from the surface or by feeding on small plankton. They lack algae, because algae cannot survive where there is no light. These are bright white in colour.
- Shallow-water corals rely on photosynthetic algae that live within the corals and provide their hosts with nutrition. These are brown and green in colour.

Coral Reefs

- A coral reef is an underwater ecosystem characterized by reef-building corals. Reefs are formed of colonies of coral polyps held together by calcium carbonate.
- Corals share a symbiotic relationship with single-celled algae called zooxanthellae. The zooxanthellae also give corals their bright colour. The algae provides the coral with food and nutrients, which they make through photosynthesis, using the sun's light. Algae provides up to 90 per cent of the coral's energy. In turn, the corals give the algae a home and key nutrients.
- They provide habitat for sharks, swordfish, sea stars, octopus, shrimp and many other kinds of fish.

Conditions favourable to Corals

- Temperature: The temperature of the water should not be below 20°C. The most favourable temperature for the growth of the coral reefs is between 23°C to 25°C.
- The temperature should not exceed 35°C.
- Salinity: Corals can survive only under saline conditions with an average salinity between 27% to 40%.
- Shallow Water: Coral reefs grow better in shallow water having a depth less than 50 m. The depth of the water should not exceed 200m.

Significance

- Ecosystem value: Coral Reefs provide an important ecosystem for life underwater, protect coastal areas by reducing the power of waves hitting the coast, and provide a crucial source of income for millions of people.
- The pristine and oldest ecosystem of corals share less than 1% of the earth's surface but they provide a home to nearly 25% of marine life.
- Thousands of species can be found living on one reef.
- Economy: Coral reefs have an estimated global value of £6 trillion each year, due in part to their contribution to the fishing and tourism industries and the coastal protection they provide.
- More than 500 million people worldwide depend on reefs for food, jobs and coastal defence.
 - Protection from Storm: Coral reefs also provide protection from storm waves.
 - Medicinal value: Extracts from animals and plants living on reefs have been used to develop treatments for asthma, arthritis, cancer and heart disease.

Threats

- These habitats are susceptible to similar risks, including climate change and disturbance from oil and gas drilling. These include:
- Damage from drilling muds and oil spills: Deep-sea corals are often found in areas of oil and gas operations, so there is potential for damage from drilling muds and oil spills. It may permanently remove large areas of deep-sea coral habitat.
- Impacts of Climate Change: The increasing temperatures may shift species' distributions and increasing acidity may weaken coral skeletons, particularly in deeper waters.
- Human-caused, or anthropogenic activities: Pollution, overfishing, destructive fishing practices using dynamite or cyanide, collecting live corals for the aquarium market, mining coral for building materials, and a warming climate are some of the many ways that people damage reefs all around the world every day.
- Deep Sea Mining: It may destroy deep sea habitats, eradicate rare and unique species, and introduce sediment clouds, noise, toxic chemicals, vibration and other forms of pollution into deep sea.
- It is still an experimental field to harness the polymetallic nodules (PMNs) such as copper, nickel and cobalt, used for the production of technologies like wind turbines and hybrid cars.

Way Forward

- It is a crucial task due to their importance in maintaining marine biodiversity and providing economic, social, recreational, and cultural benefits.
- These include use of advanced science to manage ecosystem services in marine and coastal areas, identifying and protecting marine ecosystems, mapping and monitoring with advanced scientific tools like 3D mapping to help protect deep-sea coral reefs.

Mosquitofish

Context:

- Recently, Andhra Pradesh, Odisha, and Punjab have released mosquitofish into local water bodies to address a mosquito menace.

About Mosquitofish

- The biological control of mosquitoes, introducing mosquitofish in freshwater ecosystems to feed on mosquito larvae became a prominent way to control mosquito menace.
- It is a prominent alternative to chemical solutions like pesticides that have dire adverse effects on both human health and the ecosystem.
- Among mosquito predators were two species of mosquitofish, *Gambusia affinis* and *Gambusia holbrooki*.
- In 1928, *Gambusia* was first introduced in India during British rule. The idea of this scheme was that the newly introduced species would prey on or compete with mosquito larvae, reducing the latter's population.
- The strategy was well-intentioned but it backfired, leading to severe ecological and environmental problems.

Major Concerns

- The mosquitofish began to proliferate with their populations eventually spreading far beyond their original habitats.
- These species of mosquitofish originated in the U.S. but today have become global inhabitants.
- They are notorious for their detrimental ecological impact, including, displacing and preying on native fauna,
- leading to the extinction of native fish, amphibians, and various freshwater communities.
- The authors who recently investigated the diversity of haplotypes and genotypes within *Gambusia* species in India, consider mosquitofish to be among the hundred most detrimental invasive alien species.
- Haplotypes are DNA variants likely to be inherited together; the genotype is an organism's entire genetic material.
- Aside from their resilience, these fish also have voracious feeding habits and have demonstrated aggressive behaviour in habitats to which they are introduced.
- Studies conducted in other countries have consistently revealed the harmful consequences of the presence of *Gambusia* in water bodies.

- For example, in Australia, introduced mosquitofish have led to the local extinction of the red-finned blue-eye (*Scaturiginichthys vermeilipinnis*), an endemic fish species.
- In India, some reports have indicated a decline in *Microhyla* tadpoles following the introduction of *Gambusia*.

Steps Taken

- The World Health Organisation stopped recommending *Gambusia* as a mosquito control agent in 1982.
- In 2018, the National Biodiversity Authority of the Government of India also designated *G. affinis* and *G. holbrooki* as invasive alien species.

Way Ahead

- India's *Gambusia* story thus underscores the importance of careful consideration, research, and monitoring when using biological control methods to manage pest species.
- At this time, more stringent enforcement measures are crucial to prevent the species from continuing to be introduced to freshwater ecosystems.
- Alternatives to *Gambusia* should come from local solutions. Native fish species that are capable of controlling mosquito larvae need to be introduced.

Scrub Typhus

Context

- According to a study conducted in Tamil Nadu, an increase in rainfall could lead to rise in monthly scrub typhus cases.

What is Scrub Typhus?

- It is an infectious disease caused by bacteria called *Orientia tsutsugamushi* and transmitted through infected mites (chiggers).
- Symptoms: It includes fever, headache, body ache and sometimes a rash.
- In severe cases, the infection can lead to respiratory distress, brain and lung inflammation, kidney failure and multi-organ failure, ultimately resulting in death.
- Causes: Mites carrying the disease are generally found in the bush, jungle and paddy areas. Several factors, like exposure to farming, owning domestic animals, outdoor activities and sanitation, affect its prevalence.
- Diagnosis: Elisa test is used to diagnose the disease.

Prevention and Treatment

- No vaccine is available to prevent scrub typhus. The risk of the infection can be reduced by avoiding contact with infected chiggers.
- If someone gets infected by scrub typhus then it should be treated with the antibiotic doxycycline.

Role of climate in spread of Scrub Typhus

- The study found that temperature, humidity and rainfall had a major role in the incidence of scrub typhus.
- For every millimeter increase in rainfall could lead to a 0.5 to 0.7 percent rise in monthly scrub typhus cases.
- Similarly monthly scrub typhus cases increased by 7.6 percent for every per cent jump in mean relative humidity.

Wadge Bank Ecosystem

Context

- The exploration of oil and gas blocks has raised serious concerns in Kanniyakumari district as it could badly affect the Wadge Bank Ecosystem.

Wadge Bank Ecosystem

- It is a part of the sea that is a fertile fishing ground and rich in biodiversity.
- The wadge bank ecosystem off the coastline of Kanyakumari, situated in the southwest off the shore, is the mainstay of marine resources for fisherfolk of the southern districts of India adjacent to the site.

Significance

- It is like a warehouse, a feeding house for the fish, and a number of reef systems exist in this region with over 200 varieties of rare fish species and more than 60 kinds of aquatic species.
- Wadge Bank was an invaluable treasure that indigenous people and communities depended on for food and resources that were important to their culture.

Coal Gasification

Context:

- The Union Cabinet approves 8,500 crore incentive scheme, the National Coal Gasification Mission, for coal gasification projects.

About the National Coal Gasification Mission

- It is an initiative by the Union Ministry of Coal, under the Atmanirbhar Bharat Abhiyaan.
- The mission aims to utilise coal through coal gasification, with the goal of achieving 100 MT coal gasification by 2030, with investments worth over Rs 4 trillion.
- It is expected to reduce imports by 2030.
- It envisions the adoption of indigenous technologies for the production of chemical products and their derivatives.
- It is expected to reduce the country's reliance on imports of natural gas, methanol, ammonia, and other essential products.

Significances

- Efficiency and Environmental Impact: Coal gasification is a cleaner option compared to burning coal.
- The SO_x and NO_x emissions are lower compared to regular combustion of coal in coal-fired boilers in thermal power plants.
- Reduced Dependence on Imports: The adoption of gasification technology in India will revolutionise the coal sector, reducing reliance on imports of natural gas, methanol, ammonia, and other essential products.
- Economic Impact: It holds the potential to alleviate the environmental burden by reducing carbon emissions and fostering sustainable practices, contributing to the country's global commitments towards a greener future.
- Job Opportunities: The adoption of coal gasification will contribute to job creation.

Concerns related to coal gasification

- Environmental Impact: Coal gasification actually produces more carbon dioxide than a conventional coal-powered thermal power plant.
- According to the Centre for Science and Environment (CSE), one unit of electricity generated by burning gasified coal generates 2.5 times more carbon dioxide than what would result when burning the coal directly.
- Efficiency and Cost: The efficiency of conversion in coal gasification is low because the process converts a relatively high-quality energy source (coal) into a lower quality state (gas), consuming a lot of energy.
- Moreover, coal gasification plants are costlier than conventional power plants.
 - Implementation Challenges: There have been delays in the implementation of the latest carbon capture storage technology and the implementation of emission norms at coal-based thermal power stations.
 - Financial Viability: The most advanced technology plants in India, such as Mundra and Sassan in Gujarat, are struggling financially, causing stakeholders to lose confidence in investing in cleaner and advanced technology.

Way forward

- India needs to adopt new technologies and build digital infrastructure to support the current and future requirements. There is a need to ensure optimal use of technology in the sector.
- India's hydrogen demand is likely to increase to 11.7 million tonnes by 2030 from 6.7 million tonnes per year as of now.
- Refineries and fertiliser plants are the largest consumers of hydrogen now, which is being produced from natural gas.
- It can be produced through coal in the processes during coal gasification.

Green Hydrogen: Enabling Measures Roadmap for Adoption in India

Context

- The World Economic Forum has released its report ‘Green Hydrogen: Enabling Measures Roadmap for Adoption in India’.
- The report recommends five areas that can benefit from public-private interventions in expediting the adoption of green hydrogen in India.

Extraction of Hydrogen

- Hydrogen exists in combination with other elements.
- Hence, for using it as a source of energy, it has to be extracted from naturally occurring compounds like water (which is a combination of two hydrogen atoms and one oxygen atom).
- Green hydrogen refers to hydrogen that is produced using renewable energy sources, such as wind, solar, or hydropower, through a process called electrolysis.
- Electrolysis involves splitting water (H₂O) into hydrogen (H₂) and oxygen (O₂) using an electric current.
- When this electricity comes from renewable sources, the hydrogen produced is considered “green” because the overall process has a minimal environmental impact.
- Grey Hydrogen: It involves extracting hydrogen from natural gas through a process called steam methane reforming (SMR).
- This process releases carbon dioxide (CO₂) as a byproduct, contributing to greenhouse gas emissions.
- Blue Hydrogen: It involves capturing and storing the CO₂ emissions generated during the production of hydrogen from natural gas.
 - Significance of Green Hydrogen: Green hydrogen is gaining attention as a clean and sustainable energy carrier because it avoids carbon emissions during its production.
- It is seen as a key component in efforts to decarbonize various sectors, including industries that currently rely heavily on fossil fuels.
- The use of green hydrogen is being explored in areas such as transportation, industrial processes, and energy storage, with the goal of reducing overall carbon footprints and promoting a more sustainable energy future.

Need for the Transition

- India is currently the third-largest economy in the world in terms of energy needs, and the country’s demand for energy is set to surge – demand is estimated to grow 35% by 2030.
- India set a commitment to achieve net zero by 2070 at the United Nations Climate Change Conference in Glasgow (COP26).
- Green hydrogen is critical to help meet India’s energy security needs while reducing emissions on the path to net zero.
- Most of the country’s current hydrogen supply is grey hydrogen.

Key Highlights of the Report

- Trends: There is limited on-the-ground traction for green hydrogen in the country, and indicates that most are in a “wait-and-watch” phase.
- Many expect sizable production of green hydrogen to take effect beginning in 2027 and after.

Five goals that, if met, can accelerate the offtake of green hydrogen in India:

- On the supply side, a cost of \$2/kg of hydrogen to reach cost-parity with grey hydrogen.
- On the demand side, enabling end industries to offtake green hydrogen by creating incentives for its use.
- Increasing direct subsidies for early adopters – for example, the USA has announced, under the Inflation Reduction Act (IRA), a tax credit of up to \$3/kg of hydrogen.
- Supporting long capital investment cycles for technologies with long-term clarity on policies and incentives.
- Encouraging the development and testing of indigenous electrolyser technology.

Initiatives by Government of India for Transitioning towards Green Hydrogen

- National Hydrogen Energy Mission (NHEM): NHEM is a part of National Hydrogen Mission (NHM) which was announced by the finance minister in the Union Budget 2021-22.

- Objective: To make India a global hub for the production and export of green hydrogen.
- Green Hydrogen Policy: Several states in India have been working on formulating green hydrogen policies to attract investments and promote the development of green hydrogen projects.
 - Hydrogen Energy Roadmap: The Ministry of New and Renewable Energy (MNRE) has been working on a roadmap for hydrogen energy to guide the development and deployment of hydrogen technologies in the country.
 - International Collaboration: Collaborations with countries and organizations that have advanced in hydrogen technologies aim to facilitate knowledge transfer and technology adoption.
 - Policy Support for Renewable Energy: Policies promoting the growth of renewable energy sources, such as solar and wind power, indirectly support the production of green hydrogen, as these sources are often used in the electrolysis process to generate hydrogen.
 - Incentives and Subsidies: The government may provide financial incentives, subsidies, or other support mechanisms to encourage the private sector to invest in green hydrogen projects.
- This can include tax incentives, grants, and subsidies for production and consumption.

Conclusion

- India has a unique opportunity to become a global leader in the hydrogen energy ecosystem.
- With proper policy support, industry action, market generation and acceptance, and increased investor interest, India can position itself as a low-cost, zero-carbon manufacturing hub, at the same time fulfilling its goal of economic development, job creation, and improved public health.

5 Years of National Clean Air Programme (NCAP)

Context

- The National Clean Air Programme (NCAP) recently completed five years.

About National Clean Air Programme (NCAP)

- The Ministry of Environment, Forest and Climate Change launched the NCAP in 2019 as a long-term, time-bound, national level strategy to tackle the rising air pollution.
- The NCAP's initial target was to reduce two key air pollutants, PM10 and PM2.5, by 20-30% by 2024, with 2017 levels as the base. In September 2022, the Centre revised this to a 40% reduction by 2026.
- The plan includes 131 non-attainment cities, across 23 states and Union territories, which were identified by the Central Pollution Control Board (CPCB) on the basis of their ambient air quality data between 2011 and 2015.
- Non-attainment cities are those that have fallen short of the National Ambient Air Quality Standards (NAAQS) for over five years.
- "PRANA" – Portal for Regulation of Air-pollution in Non-Attainment Cities, is a portal for monitoring the implementation of the National Clean Air Programme (NCAP).

Five-year status check of the NCAP's progress

- For 49 cities, PM2.5 data was available for all five years. Out of these, 27 cities recorded improvements in PM2.5 levels from 2019 to 2023.
 - Similarly, for PM10, data across five years was available for 46 cities. Of these, 24 cities saw an improvement in their PM10 levels.

Challenges in implementation Funding:

- Underutilisation of funds: Allocated funds are not utilised fully by most of the cities. Cities are lacking necessary will to implement action plans effectively.
- Unequal distribution: Some cities receive more funding than others, leading to disparity in progress and resentment.

Implementation Hurdles:

- Inter-departmental coordination: Seamless collaboration between various government agencies (environment, transport, industry) is crucial, but bureaucratic silos often hinder progress.

- Infrastructure gaps: Lack of adequate monitoring stations, waste management facilities, and cleaner alternatives for industries slows down progress.

Public Awareness and Behavior Change:

- Limited awareness: Many citizens don't understand the gravity of air pollution, hindering adoption of cleaner practices like carpooling or using public transport.
- Resistance to change: Existing habits and reliance on personal vehicles can pose a barrier to adopting eco-friendly behaviors.
- Ineffective outreach: Public awareness campaigns might not reach all communities, particularly vulnerable and marginalized groups.

Industrial Compliance and Regulation:

- Stringent standards vs. economic interests: Strict emission norms might be met with resistance from industries fearing financial implications.
- Weak enforcement: Existing environmental regulations lack strong enforcement mechanisms, leading to non-compliance by polluting industries.
- Outdated technologies: Industries using older, polluting technologies lack incentives to invest in cleaner alternatives.

Rapid urbanization and population growth:

- Increasing emissions from vehicles and construction activities put additional pressure on air quality.

Geographical factors:

- Topography and weather patterns can trap pollutants, making it harder to disperse them in certain regions like Delhi NCR.

Measures:

- Push for utilization of funds: There is a need to ensure that the funds are equitably distributed among cities with their proper utilisation.
- Streamlined implementation: Addressing bureaucratic bottlenecks and expediting project execution.
- Effective public awareness campaigns: Targeting diverse communities with tailored messages and promoting behavior change.
- Strengthening regulations and enforcement: Implementing stricter standards, improving monitoring, and holding polluters accountable.
- Investing in technology and innovation: Supporting research and development of cleaner technologies for industries and cleaner fuels for vehicles.

Way Ahead:

- NCAP represents a significant step towards cleaner air in India.
- Continued efforts from all stakeholders, including government agencies, industries, and citizens, are essential for achieving its ambitious targets and ensuring a healthier future for all.

Supreme Court Concern on GM Mustard

Context

- The Supreme Court has raised concerns regarding the biosafety of transgenic mustard hybrid DMH-11, which has been approved by the Genetic Engineering Appraisal Committee (GEAC) for environmental release.

What are GM crops?

- Crops that have undergone genetic engineering processes to alter their DNA are referred to as genetically modified crops.
- The techniques used in GM crops are: gene guns, electroporation, microinjection, agrobacterium etc.
- The types of modification are: transgenic, cis-genic, subgenic and multiple trait integration.
- The main trait types in GM crops are herbicide tolerance (HT), insect resistance (IR), Stacked traits etc.

Indian Scenario in GM crops

- Bt Cotton: In 2002, the GEAC had allowed the commercial release of Bt cotton.
- Bt cotton has two alien genes from the soil bacterium *Bacillus thuringiensis* (Bt) that allows the crop to develop a protein toxic to the common pest pink bollworm.
 - It is the only GM crop that is allowed in India.
 - Many varieties of GM crops are under different stages of development, like Bt brinjal and DMH-11 mustard.

Regulatory framework in India

- The Genetic Engineering Appraisal Committee (GEAC): It under the Ministry of Environment, Forest and Climate Change (MoEF&CC), is responsible for the assessment of proposals related to the commercial release of GM crops.
- Acts and rules that regulate GM crops in India are:
 - Environment Protection Act, 1986 (EPA)
 - Biological Diversity Act, 2002
 - Plant Quarantine Order, 2003
 - GM policy under Foreign Trade Policy
 - Food Safety and Standards Act, 2006
 - Drugs and Cosmetics Rule (8th Amendment), 1988.

Need for GM crops

- Food Security: Genetically modified crops can improve yield, build resistances to pests, flood, frost, drought etc.
- Sustainable food system: Crops can also be modified to reduce carbon emissions and boost the sustainability of food production.
- Higher Productivity: With GM crops it is possible to produce more food from less area and with less chemical pesticides and fertilizer.
- GM crop production uses only about 10% of the land non-GM crop production uses.
- Nutritional Security: Genetic modifications can enhance the nutritional content of crops. The crops may contain higher levels of essential nutrients, addressing malnutrition and improving public health.

Reasons for opposition of GM crops

- Unintended side effects: Environmentalists argue that the long-lasting effect of GM crops is yet to be studied and thus they should not be released commercially. Genetic modification can bring changes that can be harmful to humans in the long run.
- Threat to biodiversity: Some crops have been engineered to create their own toxins against pests. This may harm non-targets such as farm animals that ingest them.
- Health risks: GM crops are modified to include antibiotics to kill germs and pests. And when we eat them, these antibiotic markers will persist in our body and will render actual antibiotic medications less effective over a period of time, leading to superbug threats.
- Social and economic issues: There are concerns about multinational agribusiness companies taking over farming from the hands of small farmers. Dependence on GM seed companies could prove to be a financial burden for farmers.
- Public concern: People in general are wary of GM crops as they are engineered in a lab and do not occur in Nature.

Way Forward

- The environmental release of DMH-11 marks the beginning of a new era in self-reliance and sustainability in agriculture. This will help to achieve the target of Zero Hunger by 2030.
- Governments must address the problems brought on by GM crops, particularly in the areas of safety testing, legislation, industrial strategy, and food labeling.

European Union's Carbon Border Tax

Context:

- The European Union (EU)'s Carbon Border Adjustment Mechanism (CBAM) is a concern for India and there is a pressing need for India to formulate its own carbon taxation measures.

What is Carbon Border Adjustment Mechanism (CBAM)?

- It is a tool to put a fair price on the carbon emitted during the production of carbon intensive goods and at most significant risk of carbon leakage like cement, iron and steel, aluminium, fertilisers, electricity and hydrogen that are entering the EU.
- According to a Global Trade Research Initiative (GTRI) report, CBAM will translate into a 20-35% tax on select imports into the EU.
- It intends to tax carbon-intensive products coming into the EU from January 1, 2026.
- The EU intends to achieve the target of a 55% reduction in Greenhouse Gas (GHG) emissions by 2030, compared to 1990 levels, under the European Green Deal by the CBAM.

Significance of CBAM

- Combating Greenhouse Gas Emissions: As a price on carbon, it discourages emissions. As a trade-related measure, it affects production and exports.
- By 'equalising' the price of carbon between domestic products and imports, the EU claims to promote fair competition, levelling the playing field between EU and non-EU businesses.

What are the issues with the CBAM?

- According to the United Nations Conference on Trade and Development (UNCTAD):
- Russia, China and Turkey were most exposed to the CBAM.
- India, Brazil and South Africa would be most affected among the developing countries.
- Mozambique would be the most exposed least-developing country.

Challenges for India w.r.t. CBAM

- Acting as a Trade Barrier: India's exports of carbon-laden products to Europe — mainly aluminium and iron-and-steel — have been burdened with green reporting rules which is a trade barrier in itself.
- India's 26.6% of exports of iron ore pellets, iron, steel, and aluminium products go, and exported these goods worth \$7.4 billion in 2023 to the EU.
- India exported steel and aluminium, contributing nearly 14% of its export mix for all products.
- Uncompetitive Exports: India's products have a higher carbon intensity than its European counterparts, the carbon tariffs imposed will be proportionally higher making Indian exports substantially uncompetitive.
- Impacting Balance of Payment (BoP): International climate policies compel other countries to impose similar regulation eventually translating to 'a significant impact' on India's trading relationships and balance of payments.
- India is reportedly among the top eight countries that will be adversely affected by the CBAM.

Options available to India

- Carbon Trading Mechanism in India: The Carbon Credit and Trading Scheme (CCTS): It was notified by the Union Government under the Energy Conservation Act, 2001, to develop the country's first-ever domestic carbon market.
- It was set up as the regulatory framework for the Indian Carbon Market (ICM), with BEE as the administrator.
- It envisioned the formation of a National Steering Committee for Indian Carbon Market (NSCICM) for the governance and direct oversight of the Indian Carbon Market (ICM).
- The committee will be chaired by the Secretary (Ministry of Power); and co-chaired by the Secretary (Ministry of Environment, Forests and Climate Change).
- BEE will be the administrator for the ICM and will be responsible for the development of the GHG emissions trajectory and the targets for the entities to be obligated under the notification.
- The Central Electricity Regulatory Commission (CERC) will be the regulator for the trading of carbon credit certificates.

- country's international competitiveness.
- India has set the target of reducing the carbon intensity of its GDP by 33-35% by 2030.
- The government must consider the various challenges and opportunities in designing and implementing a carbon tax policy, including determining an appropriate tax rate, ensuring equity, simplifying the tax system, and ensuring transparency.
- A successful carbon tax policy in India could serve as a model for other countries and demonstrate the country's commitment to addressing climate change.

Self Pollination in Parisian Pansies

In News

- As per a recent study, Pansy Plants (*Viola arvensis*) growing near Paris have evolved themselves to produce less nectar, showing signs of self-pollination instead of depending on Pollinators.

What is Pollination?

- Pollination is the act of transferring pollen grains from the male anther (reproductive organ) of a flower to the female stigma (reproductive organ).

Plants can be:

- Self-pollinating – the plant can fertilize itself; or,
- Cross-pollinating – the plant needs a vector (a pollinator or the wind) to get the pollen to another flower of the same species.
- Pollinators: Organisms that facilitate the transfer of pollen from the anthers to the stigmas of flowers, leading to fertilization and the production of seeds.
- Example: Bees, butterflies, beetles, moths, wasps.

Major Concerns of Self Pollination

- Reduction in the Genetic Diversity among the plant species, make more susceptible to diseases and pests.
- Self-pollination reduces the adaptability by limiting the introduction of new genetic traits in the ecosystem.
- Self-pollination may lead to the expression of deleterious mutations or harmful recessive traits.
- Like in pansy species, pollinators may enter a loop where plants producing less nectar enable less food availability, driving them towards declines.

Why Pollinators are declining?

- Urbanization, agricultural expansion, and changes in land use destroyed their populations.
- The widespread use of chemical pesticides, herbicides & GMOs have impacted a lot.

Invasive species and Climate change Impacts : “The Role of E-fuels in Decarbonising Transport” Report

Context:

- The International Energy Agency (IEA) released a report titled “The
- The report extensively explores the potential and challenges of e-fuels as a solution for decarbonizing the transport sector.

Key Findings

- Rapid deployment of low-emission fuels: Significant reductions in fossil fuel demand are possible in road transport through fuel efficiency improvements and surging sales of electric vehicles (EVs).
- E-fuels crucial for deep decarbonization: Fuels obtained from electrolytic hydrogen, or e-fuels, could be a viable pathway and scale up rapidly by 2030, underpinned by a massive expansion of cheaper renewable electricity and anticipated cost reductions of electrolyzers.
- The report highlights the limitations of electrification for achieving net-zero emissions in sectors like aviation and shipping.
- E-fuels, with their near-zero carbon footprint, are deemed essential for deep decarbonization in these areas.
- Technological and economic viability: The report acknowledges the current high cost of e-fuels but forecasts substantial cost reductions with technological advancements and economies of scale.

- Infrastructure compatibility: E-fuels can be readily used in existing infrastructure and engines, eliminating the need for extensive infrastructure upgrades that electrification necessitates in certain sectors.
- Resource considerations: Producing e-fuels at scale will require significant renewable energy, water, and potentially captured CO₂. Sustainable management of these resources is crucial to ensure e-fuels don't create new environmental concerns.
- Policy recommendations: The report calls for governments to implement supportive policies including carbon pricing, research and development funding to create a conducive environment for their production and adoption.

E-fuels

- E-fuels (Electrofuels), also known as synthetic fuels, are low-emission liquid or gaseous fuels produced from renewable energy sources like solar or wind power, water, and captured carbon dioxide.
- Eg. eGasoline, eDiesel, eHeating oil, eKerosene, e-methane, e-kerosene and e-methanol.
- They can be tailored to replace conventional fuels like gasoline, diesel, and jet fuel, offering a drop-in solution for existing engines and infrastructure.
- In transport, low-emission e-fuels provide a complementary solution to sustainable biofuels.
- Particularly in aviation, e-fuels benefit from their ability to use existing transport, storage, distribution infrastructure and end-use equipment.

How are eFuels produced?

- eFuel production is based on the extraction of hydrogen. This happens by means of an electrolysis process that breaks down water (e.g. seawater from desalination plants) into its components of hydrogen and oxygen.
- In a second process step, with the aid of e.g. Fischer-Tropsch synthesis, the hydrogen is combined with CO₂ extracted from the air and converted into a liquid energy carrier-eFuel.
- After processing in refineries, this eFuel can be used as eGasoline, eDiesel, eHeating oil, eKerosene and eGas and can completely replace conventional fuels.
- Moreover, due to their drop-in capability, eFuels can be blended with conventional fuels in any ratio.

Benefits of e-fuels

- Deep decarbonization: E-fuels offer the potential for near-zero greenhouse gas emissions compared to fossil fuels, especially when combined with renewable energy sources and carbon capture technologies.
- Versatility: They can be used in existing transportation infrastructure and engines, requiring minimal adaptation compared to full electrification.
- This makes them particularly attractive for sectors like aviation and shipping, where battery technology has limitations.
 - Energy security: E-fuels can reduce dependence on fossil fuel imports and provide a domestic source of clean energy for transportation.

Challenges

- Cost: Currently, e-fuels are significantly more expensive to produce than fossil fuels. However, costs are expected to decrease as production scales up and technological advancements occur.
- Scalability: Large-scale production of e-fuels currently faces limitations in terms of renewable energy availability and infrastructure for water and carbon dioxide capture.
- Geopolitical implications: Increased reliance on e-fuels may shift dependence from oil-producing countries to countries with abundant renewable resources, potentially creating new geopolitical dynamics.
- Costly: Low-emission e-fuels are currently expensive to produce, but their cost gap with fossil fuels could be significantly reduced by 2030.
- Huge investment: Accelerated deployment of low-emission e-fuels for shipping would require significant investments in refueling infrastructure and in vessels.
- Achieving a 10% share in shipping would require around 70 Mt/yr of e-ammonia or methanol. This is 3.5 times the current global traded volume of ammonia or two times the trade in methanol.
- Access to CO₂: It is an important constraint to carbon containing low-emission e-fuels.
- The best wind and solar resources are not necessarily co-located with significant bioenergy resources, which puts additional constraints on siting e-fuel projects that require carbon input.

Scaling Up E-fuels: Measures to Unleash Potential

Cost Reduction:

- Policy support: Governments need to take bolder actions in carbon pricing mechanisms, tax breaks, and subsidies that can incentivize e-fuel production and make it competitive with fossil fuels.
- Technological advancements: Research and development efforts targeting more efficient electrolysis, carbon capture, and conversion technologies can significantly reduce production costs.
- Economies of scale: Investing in large-scale production facilities can leverage economies of scale and bring down e-fuel prices closer to fossil fuels.

Infrastructure Development:

- Renewable energy: Expanding renewable energy capacity is crucial to provide the clean electricity needed for e-fuel production.
- Water and CO₂ management: Sustainable water management and infrastructure for capturing and utilizing CO₂ are essential to ensure environmental responsibility.
- Distribution and storage: Building infrastructure for e-fuel distribution and storage across transportation hubs is vital for widespread adoption.

Market Creation and Demand Stimulation:

- Public procurement: Governments can create demand by mandating e-fuel blends in public transportation fleets and aviation fuel.
- Corporate commitments: Airlines, shipping companies, and fuel suppliers can set ambitious targets for e-fuel adoption, driving market demand.

Regulatory and Policy Framework:

- Carbon-neutral fuel standards: To enable widespread adoption, e-fuels will need to meet internationally agreed technical and safety standards for measuring life-cycle GHG emissions.
- International cooperation: Global collaboration on research, development, and policy frameworks can accelerate e-fuel innovation and deployment.

Way Ahead:

- Overall, e-fuels have the potential to play a crucial role in decarbonising the transport sector alongside other solutions like electrification.
- Addressing the challenges through continued research, technological development, and investment in production infrastructure is key to unlocking their full potential in the fight against climate change.
- Bringing the GHG emissions of the road transport sector down to zero by 2050 cannot be achieved by one measure alone. Countries that deploy a set of different measures such as reducing transport demand, improving vehicle efficiency, and adding renewable energy carriers such as biofuels.

Wetland City Accreditation scheme

Context

- India has nominated Indore, Bhopal and Udaipur for the Wetland City Accreditation (WCA) scheme under the Ramsar Convention.

About

- These are the first three Indian cities nominated for WCA based on the proposals received from state wetlands authorities in collaboration with municipal corporations.
- Sirpur Wetland (Indore), Yashwant Sagar (Indore), Bhoj Wetland (Bhopal), and several wetlands in and around Udaipur are lifelines to these cities.
- This will provide an opportunity for cities that value their natural or human-made wetlands to gain international recognition.

Wetland City Accreditation scheme:

- The Wetland City Accreditation scheme is an ongoing program administered by the Ramsar Convention on Wetlands.
- The scheme was implemented in 2015 under Resolution XII.

Contracting Parties to the Ramsar Convention (COP12).

- Purpose: To recognize and honor cities demonstrating outstanding efforts in protecting and managing their urban wetlands.

Significance:

- This voluntary scheme provides an opportunity for cities that value their natural or human-made wetlands to gain international recognition and positive publicity for their efforts.
- The scheme will encourage cities in close proximity to and dependent on wetlands, to highlight and strengthen a positive relationship with these valuable ecosystems.
- The Accreditation scheme should further promote the conservation and wise use of urban and peri-urban wetlands, as well as sustainable socio-economic benefits for local people.
- Overall, 43 cities in the world are accredited as wetlands cities under Ramsar Convention.
- Of these 18 were accredited in 2018 and 25 in 2022. However, India is yet to make it to the prestigious list.

Kochi-Lakshadweep Islands Submarine Optical Fibre Connection

Context

- The Prime Minister of India inaugurated Kochi – Lakshadweep Submarine Optical Fibre Cable to provide 100 Gbps internet connectivity to the Lakshadweep.

About

- For the first time since independence, Lakshadweep will be connected through Submarine Optic Fibre Cable.
 - Earlier, the only means of communication with the Islands was through Satellite medium, which had limited bandwidth capacity and was not able to meet the growing bandwidth demand.
- The project was funded through the Universal Service Obligation Fund (USOF), which is set to be renamed as Digital Bharat Nidhi after the Telecommunications Act, 2023 is notified.
- Bharat Sanchar Nigam Limited (BSNL) is the Project Executing Agency.
- Kavaratti, Lakshadweep's capital, will be connected along with the islands of Agatti, Amini, Kadmat, Chetlet, Kalpeni, Minicoy, Androth, Kiltan, Bangaram and Bitra.

Significance of KLI – SOFC

- It helps in achieving the objective of 'Digital India' and 'National Broadband Mission' and for rolling out various e-governance projects of Government of India in Lakshadweep Islands.
- Social infrastructure like Tourism, Education, Health etc will get a boost that further helps in improvement in standards of living of the people in Island and accelerate overall social and economic development in these areas.
- The potential of developing Lakshadweep as a logistics hub will get strength from this project,
- High speed broadband will be provided through FTTH and 5G/4G Mobile network.

Open Acreage Licensing Policy Bid Round-IX launched

News

- The Ministry of Petroleum and Natural Gas (MoPNG) recently signed contracts for 10 blocks awarded under Open Acreage Licensing Policy (OALP).

Open Acreage Licensing Policy (OALP)

- Launched in June 2017, it empowers companies to carve out exploration blocks of their choice, offering greater flexibility and potential for faster discoveries.

Core Principles of OALP

- Bidder-driven exploration: Companies can propose exploration blocks based on their own assessment of available data and geological potential.
- Continuous bidding: Bid rounds are held biannually, enabling companies to continuously submit proposals for new blocks.

- Revenue-sharing model: Successful bidders pay a royalty to the government based on the extracted hydrocarbon resources, replacing the earlier profit-sharing model.
- Simplified procedures: Streamlined approval processes and reduced paperwork aim to expedite exploration activities.

Benefits of OALP

- Faster exploration and development: OALP provides greater freedom and flexibility for companies, potentially leading to quicker discovery and production of oil and gas resources.
- Increased investment: By reducing bureaucratic hurdles and offering favorable terms, OALP aims to attract more domestic and international companies to invest in Indian hydrocarbon exploration.
- Enhanced transparency and competition: The open bidding process promotes competitiveness and encourages companies to focus on efficient exploration and development.
- Improved resource utilization: OALP allows companies to explore areas previously overlooked by state-owned enterprises, potentially leading to better utilization of India's hydrocarbon resources.

Challenges and Concerns

- Data availability: The quality and comprehensiveness of available geological data play a crucial role in attracting bidders and informing their choices.
- Environmental considerations: Balancing exploration activities with environmental protection remains a crucial challenge, requiring rigorous regulations and monitoring.
- Community engagement: Ensuring transparent communication and addressing concerns of local communities affected by exploration activities is vital for social sustainability.
- Competition and resource allocation: Managing competition amongst companies and ensuring fair allocation of promising blocks while preventing speculation requires careful regulatory oversight.

Way Ahead:

- Overall, OALP presents a promising approach to accelerate India's hydrocarbon exploration and production.
- However, its success hinges on addressing the challenges, ensuring responsible practices, and promoting transparency and sustainable development.

Increase in Coal Production in India

News

- The coal production in the country has shot up to over 664 million tonnes during the financial year 2023-24.

About

- It is a robust 12.29 percent increase over the corresponding figure of over 591 million tonnes for the same period of the previous year.
- The government aims to further increase production to reach 1 billion million tonnes by 2030.
- This increase ensures a consistent and robust coal supply to meet the energy needs of the power sector, highlighting the effectiveness of the coal supply chain.

Current Status of Coal Reserve

- India has rich deposits of coal in the world. Total estimated reserves of coal as on 01-04-2022 were 361.41 billion tonnes.
- The top three states with highest coal reserves in India total coal reserves in the country.
- India is the second largest producer and consumer of coal globally after China, surpassing the USA in 2022.

Reasons for High Production

- Reliance on coal for electricity generation: Coal-fired thermal power plants (TPPs) generated 74.3% of India's electricity during FY 2022-2023.
- Industrial demand: Industries like steel and cement heavily rely on coal as a fuel source.
- Limited domestic alternatives: Renewable energy sources like solar and wind are still not developed enough to fully replace coal.
- Only 10.4% of the 36.44 exajoules of India's primary energy consumption in 2022 are from renewables (hydroelectric, solar, and wind); coal and oil gas account for 55.1% and 33.3%, respectively.

Arguments in favour of India's continued reliance of coal

- India's cumulative emissions from fossil fuels like coal between the start of the industrial revolution in 1750 and the end of 2021 are only 3.3% of the global total, far behind those of Europe (31%), the U.S. (24.3%), and China (14.4%).
- Fulfilling the development needs of 17% of the world's population, which lives in India, is also a fundamental duty to which must be attended, failing which 'sustainable development' will simply be an empty catchphrase.
- Ninety-six percent of the coal used by TPPs in India comes from domestic mines and is key to why electricity is so affordable in India.

Challenges and Concerns

- Environmental impact: Coal mining and burning contribute significantly to air pollution, greenhouse gas emissions, and water contamination.
- Coal deposits in India generally contain high levels of ash (35-50%). Burning coal with more ash leads to pollution.
- Coal-fired thermal power plants (TPPs) are responsible for nearly 70% of India's greenhouse gas emissions.
- Health impacts: Air pollution from coal combustion has severe health consequences like respiratory illnesses.
- Climate change: Continued dependence on coal hinders India's progress towards carbon neutrality goals and commitments.
- Social impacts: Coal mining affects communities near mines, raising concerns about displacement, livelihood loss, and environmental degradation.

Way Ahead

- For India's long-term goal of reaching net-zero by 2070, the country must continue to implement clean coal technologies to reduce the power sector's emissions.
- India must focus on increasing the efficiency of its TPPs (Thermal Power Plants) to reduce emissions while ramping up nuclear, solar and wind energy into the grid.
- Coal production is expected to continue increasing in the near future. However, the long-term outlook for coal remains uncertain, with growing emphasis on clean energy transition and climate change mitigation.
- Diversifying energy sources, adopting cleaner technologies, and addressing social and environmental concerns are crucial for India's sustainable energy future.

India's K-shaped recovery Debate Syllabus :GS 3/Economy

In News

- According to a study by the State Bank of India, the ongoing debate about a K-shaped recovery of the domestic economy post-pandemic seems flawed and biased.

Key Findings of the SBI's study

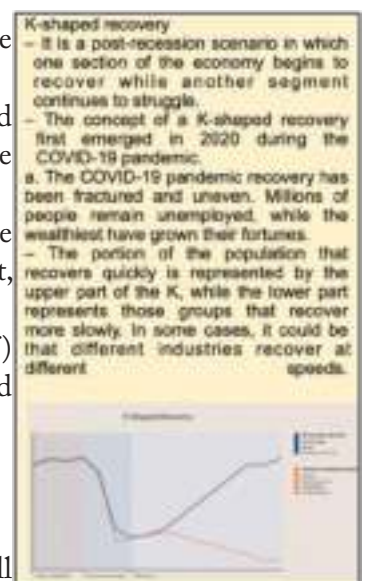
- Income inequality decreasing: The gap between different income levels, measured by the Gini coefficient of taxable income, decreased notably from 0.472 to 0.402 from FY14 to FY22 respectively.
- The Gini coefficient, also known as the Gini index or Gini ratio, is a measure of economic inequality in a population.
- Business growth: It highlighted the visible change in the income pattern of MSMEs (micro, small and medium enterprises) as the formalisation drive brings more entities into the net.
- Around 19.5 percent of majorly micro-sized firms have been able to shift their income upwards.
- MSME units are getting bigger and getting integrated into larger value chains with initiatives like PLI.
- Rise in individual's weighted mean income: The study shows the individual's weighted mean income has risen from 3.1 lakhs to 11.6 lakhs during FY14-FY21.
- The weighted mean income represents a more nuanced and granular barometer of increase in income within specific income brackets and their contribution to the overall increase.
- Rising female labour force: SBI quoted PLFS (Periodic Labour Force Survey) data which shows female labour force participation has risen from 23.3 in 2017-18 to 37 in 2022-23, marking an increase of 13.7.
- There has been an increase in the share of agriculture as an occupation among females at all India level. Meanwhile, it has declined for the males.
- Post-pandemic consumption trends: the bottom of the pyramid consumption share has increased.
 - The consumption of people spent below \$3.65, or ₹303, per day has increased by nearly ₹8.2 lakh crore.
 - Nearly half of India's consumption will be carried out by the lower-income segment, comprising 90% of the population, by the end of the next decade.

Economists view

- Growth in any economy always tends to be K-shaped where some sectors are moving up and down.
- Seldom do all sectors of the economy all move in the upward direction and when it happens, it is more when the growth is at a continuously elevated rate of over 8% per annum
- If we look at the Indian economy there are several sectors moving in the upward direction especially those related to infrastructure like steel, cement, machinery.
- However, consumer-oriented industries are still lagging as per H1 (first half) performance of companies and similarly the agricultural sector has witnessed a setback due to the monsoon being less than normal.

Highlights of Economic Survey – 2022-23 in this context

- The Indian economy underwent wide-ranging structural and governance reforms that strengthened the economy's fundamentals by enhancing its overall efficiency during 2014-2022.
- India's economic growth in FY23 has been principally led by private consumption and capital formation.



- It has helped generate employment as seen in the declining urban unemployment rate and in the faster net registration in the Employee Provident Fund.
- Still, private capex soon needs to take up the leadership role to put job creation on a fast track.
- Schemes like PM-Kisan and PM Garib Kalyan Yojana have helped in ensuring food security in the country, and their impact was also endorsed by the United Nations Development Programme (UNDP).
- The results of the National Family Health Survey (NFHS) also show improvement in rural welfare indicators from FY16 to FY20, covering aspects like gender, fertility rate, household amenities, and women empowerment

Other types of economic recovery

- Economic recoveries can take a variety of forms, most of which are determined by the rate at which they occur.
- a. V-Shaped: A V-shaped recovery is a rapid and sudden improvement in an economy that follows a rapid and severe fall.
 1. This usually happens following a one-time shock to the economy.
 - b. U-Shaped: The economic damage from a U-shaped recovery lasts for a longer amount of time before returning to the baseline level of growth.
 1. The economy recovers, but the harm at the bottom persists for some time.
 - c. L-shaped: The most gloomy scenario is an L-shaped recovery.
 1. In this form, the economy rebounds to some extent from a sharp dip, but growth never returns to pre-crisis levels for years, if at all. Following this is a period of economic stagnation.
 - d. W-shaped: This is a situation in which the economy experiences a rapid collapse, followed by a small and temporary recovery, and then another

India's 1991 Economic Crisis

Context

- S.Venkitaramanan, who served as the Governor of the Reserve Bank of India (RBI) from 1990 to 1992 passed away recently.

About S.Venkitaramanan

- He was appointed as the 18th Governor of RBI by the government in 1990.
- He navigated the Reserve Bank of India through the crucial years of the 1990 balance of payment crisis, subsequent economic reforms and the Harshad Mehta scam.
- He played a pivotal role not only in crisis management but also in implementing subsequent reforms under then PM Manmohan Singh.

1991 Economic Crisis in India

- Balance of Payments Crisis: India faced a severe balance of payments crisis in 1991. The country's foreign exchange reserves were depleted, and it struggled to meet its international payment obligations.
- External Debt: India had accumulated a substantial external debt, and servicing this debt became increasingly challenging. The country was at risk of defaulting on its debt payments.
- Stagnant Growth: The Indian economy was experiencing slow growth, and various sectors were characterized by inefficiencies, lack of competitiveness, and bureaucratic hurdles.
- The industrial licensing system, which required government approval for private investment in many sectors, stifled economic activity.
- Fiscal Deficit: The fiscal deficit was high, and the government was running large budgetary imbalances.
- This led to increased borrowing, contributing to the overall economic stress.
- Global Factors: The global economic environment, including rising oil prices after the Gulf War and economic sanctions on India in response to its nuclear program, added to the economic challenges.

Immediate Step Taken by Government

- Pledging gold holdings to shore up forex reserves: With the foreign exchange reserves going below the critical \$1-billion mark, the Government decided to sell confiscated gold.

- Nearly 47 tonnes of gold was shipped off to destinations abroad in four tranches.
- This helped raise about \$400 million for the government.
- The entire operation, cloaked in secrecy, was conducted by State Bank of India.
- Devaluation of the Indian Rupee: To address the balance of payments crisis and improve export competitiveness, the government devalued the Indian rupee by about 20% against major foreign currencies.

Reforms by Government of India

- **Liberalization:** The government initiated economic liberalization by reducing trade barriers, promoting foreign direct investment (FDI), and dismantling the license raj, which had restricted private sector participation in various industries.
- **Privatization:** The government started privatizing state-owned enterprises to improve efficiency and competitiveness.
- This was a significant departure from the previous policy of state control in various sectors.
- **Deregulation:** The government eased regulations and bureaucratic hurdles, making it easier for businesses to operate. This contributed to increased competition and efficiency in the economy.
- **Fiscal Reforms:** Efforts were made to address the fiscal deficit by reducing government expenditure and increasing revenue generation.
- **Creation of Special Economic Zones (SEZs):** The concept of Special Economic Zones was introduced to attract foreign investment and promote export-oriented industries.
- These zones were granted certain exemptions and benefits to encourage economic activity.
- **Initiation of Structural Reforms:** The government embarked on a broader program of structural reforms, addressing issues such as taxation, labor laws, and infrastructure development to create a more conducive environment for economic growth.
- **Budget 1991-92:** Presented by Manmohan Singh, the budget was a continuation of the reform measures undertaken by the Indian government.
- The budget increased corporate tax rates by 5 percentage points to 45 per cent and introduced the concept of tax deducted at source for some financial transactions like bank deposits.
- A scheme for people to declare unaccounted wealth was also announced. People were given immunity from

Conclusion

- These reforms marked a paradigm shift in India's economic policy, leading to higher economic growth, increased foreign investment, and improved economic indicators in the subsequent years.
- The year 1991 is often considered a turning point in India's economic trajectory, as it set the stage for the country's emergence as one of the fastest-growing major economies in the world.

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India's Toy Industry

Context:

- As per the recent official press release, the toy industry became a net exporter between FY 2014-15 and FY 2022-23.
- Its exports increased by 239% and imports declined by 52%, turning India into a net exporter.

Indian Toy Industry

- The Indian toy industry is among the fastest-growing globally, projected to reach \$3Bn by 2028.
- Domestic market size currently stands at an estimated value of \$1.5Bn. The sector is dominated by small & medium sized manufacturers.
- Labor-intensive toy categories like dolls, soft toys and board games offer significant manufacturing potential in India due to inherent cost competitiveness and growing demand.
- It is expanding its global presence, with increased high-value exports to Middle East and African countries.
- The toy manufacturers in India are mostly located in NCR, Maharashtra, Karnataka, Tamil Nadu, and clusters across central Indian states.

How India became a net exporter?

- India followed an inward-oriented industrial policy in the Planning era, which sheltered domestic production by providing a 'double protection' — by import tariffs and reservation of the product for exclusive production in the small-scale sector — known as the 'reservation policy'.
- Import Curb (Protectionism): Basic Customs Duty (BCD) on toys was increased from 20% to 60% in February 2020, and subsequently to 70% in Budget 2023.
- The Directorate General of Foreign Trade (DGFT) has mandated sample testing of each import consignment to curb the import of sub-standards toys.
- Quality Assurance: A Quality Control Order (QCO) for Toys was issued in 2020, with effect from 01.01.2021.
- Licensing: Special provisions were notified by Bureau of Indian Standards (BIS) to grant licences to micro sale units manufacturing toys without testing facility for one year and without establishing an in-house testing facility, which was further extended by three years.
- BIS has granted more than 1200 licences to domestic manufacturers and more than 30 licences to foreign manufacturers for manufacture of toys with BIS Standard Marks.
- 'Make in India' had a negligible effect on strengthening toy production and exports on a sustained basis.
- 100% FDI is allowed under the Automatic Route.
- National Action Plan for Toys (NAPT): It has 21 specific action points, implemented by 14 Central Ministries/Departments, with DPIIT as the coordinating body.
- The Government is planning to provide comprehensive support to promote 'Vocal for Local' in toys through NAPT.

What are the associated challenges?

- High Cost: Small manufacturers are unable to upgrade to machinery production as taxes levy on the equipment is high.
- Regulation and Adhering to Standards: Many of them have struggled to keep up with the regulatory changes and adhere to BIS standards.
- Supply Shortage: The small-scale retailers face a shortage of supply, and unwillingly buy a lower-quality product.
- They depend on the bigger companies producing and supplying quality products.
- Unemployment: The output of the informal or unorganised sector shrank, though it continues to account for the majority of establishments and employment.
- India's toy industry is minuscule and during the one-and-half decades between 2000 and 2016, industry output was halved in real terms (net of inflation) with job losses.

Conclusion

- The toy industry has turned net exporter since 2020-21. 'Make in India' policies with rising tariff and non-tariff barriers made it possible.
- Complementing protectionism requires the implementation of investment policies and the establishment of localized public infrastructure tailored to specific industries or clusters. This approach aims to create a positive cycle, fostering the growth of domestic capabilities to effectively contend with international competition.

Parvatmala Pariyojana

In News

- Union minister for road transport and highways announced over 200 Ropeway Projects Worth 1.25 Lakh Crore under Parvat Mala Program.

About Parvatmala Pariyojana

- Union Finance Minister, while presenting Union Budget for 2022-23, announced the National Ropeways Development Programme – “Parvatmala” – which will be taken up on PPP mode.
- The focus is on PPP under Hybrid Annuity Model with 60% contribution support by Government of India.
- It will be a preferred, ecologically sustainable alternative in place of conventional roads in difficult hilly areas.
- It is being started for areas such as Himachal Pradesh, Uttarakhand, Jammu-Kashmir and the North-East.
- Importance : The idea is to improve connectivity and convenience for commuters, besides promoting tourism.

Rising Gap in Incomes

Context

- According to a recent report by the State Bank of India (SBI), India has witnessed a significant fall in inequality over the last decade.

Key Findings

- The report claims that the Gini coefficient has fallen from 0.472 in 2014-15 to 0.402 in 2022-23.
- The Gini coefficient falls for regular wage and casual wage workers, but rises for the self-employed. However, the changes are largely minimal.

The polarization of incomes

- The fall in the Gini coefficient is accompanied by a polarization in incomes. Incomes of the top 10% have grown faster than the bottom 30%, with polarization largely seen amongst self-employed workers.
- The category of the self-employed includes own-account workers, such as individual farmers, roadside hawkers, etc. and those who are self-employed but also employ other workers.

Gini Coefficient for different segments

- The Gini for the self-employed workers rises from 0.37 to 0.3765, an increase of 1.5%.
- For regular and casual wage workers, the coefficient register falls of 1.7% and 4.8%, respectively.
- Though the Inequality has fallen, inequality among the top income earners seems to have fallen far more.

Concern

- The analysis is conducted on taxpayer data, and a majority of income-earners fall outside the tax net.
- According to data from the 2022-23 Periodic Labour Force Survey (PLFS), nearly 80% of income-earners earn less than 2.5 lakh per annum — the minimum taxable amount.
- Only those individuals who earn income from work are considered in the report. It excludes those who work as unpaid family helpers, a large proportion of whom are women.

India's First AI Unicorn

Context

- Ola group's AI firm Krutrim is India's first artificial intelligence unicorn.
- Krutrim has raised \$50 million at a valuation of \$1 billion in a funding round.

What is a Unicorn?

- Unicorn is a term used in the venture capital industry to describe a privately held startup company with a value of over \$1 billion.
- The term was coined to represent the rarity and uniqueness of such companies, much like the mythical creature.

- Unicorns are often characterized by their rapid growth, disruptive business models, and the ability to attract substantial investment.
- Growth of Unicorns: Work from home during the pandemic fueled the growth of digital businesses in India, the incident also resulted in a long unicorn list.
- Mainly three factors, a thriving digital payments ecosystem, large smartphone user base and digital-first business models, have come together to attract investors.
- Companies that achieve unicorn status are considered to be high-value and have the potential to impact their respective industries significantly.

Unicorns Of India

- As of 2023, India is home to 111 unicorns with a total valuation of \$349.67 Bn.
- The year 2021, 2020, and 2019 saw the birth of the maximum number of Indian unicorns.
- Bengaluru is India's unicorn capital with the largest number of unicorn headquarters followed by Delhi (NCR) and Mumbai.
- Traditional sectors such as E-commerce, Fin-tech, E-commerce, Supply Chain & Logistics, Internet Software & Services do dominate the arena but a strong wave of unconventional sectors such as Content, Gaming, Hospitality, Data management & analytics, etc are making their place on the list.
- Mensa Brands took only 6 months to become a unicorn in 2021, making it one of fastest unicorns in Asia.

Significance of Rise of Unicorns for Indian Economy

- Job Creation: Unicorns often experience rapid growth, leading to an increase in job opportunities.
- Innovation and Technology: Their success signifies a thriving ecosystem that fosters innovation, research, and the development of cutting-edge technologies.
- Foreign Investments: Foreign investments not only provide capital for these companies but also contribute to the overall inflow of foreign capital into the Indian economy, supporting economic growth.
- Entrepreneurship Ecosystem: The success stories of these companies motivate aspiring entrepreneurs, creating a positive impact on the overall entrepreneurship ecosystem.
- Global Recognition: Indian unicorns, especially those expanding globally, enhance the global recognition of India as a hub for technology and business innovation.
- Economic Growth: The success of unicorns contributes to economic growth by adding value to various sectors of the economy.

Measures Taken by Government of India to support Unicorn/Startups

- Atal Innovation Mission (AIM): The scheme was launched by the government in 2016, and aims to foster innovation as the government creates new programs and policies to assist start-up development in several economic areas.
- It grants approximately Rs 10 crores to finance firms over five years.
- Multiplier Grant Scheme (MGS): The Department of Electronics and Information Technology initiated the Multiplier Grant Scheme (MGS) to empower collaborative research and development among industries for the growth of goods and services.
- The government gives a maximum amount of Rs 2 crore per project for a duration of less than two years.
- Dairy Entrepreneurship Development Scheme (DEDS): The Department of Animal Husbandry, Fisheries, and Dairying has launched the DEDS scheme, which aims to create self-employment in the dairy sector.
- The activities include milk production, procurement, preservation, marketing, etc.
- Startup India Initiative: This is one of the most popular government schemes for startups in India. The Startup India Initiative aims to provide tax benefits to entrepreneurs for over five years.
- Startup India Seed Fund Scheme: The government of India introduced this scheme in 2021 to assist early-stage startups.
- The selected entrepreneurs under this scheme will get the funding of Rs 5 crore.
- Fund of Funds for Startups (FFS): The government has established the Fund in 2016 with a corpus of Rs 10,000 crore to provide financial support to startups.
- This fund is managed by SIDBI (Small Industries Development Bank of India) and aims to promote innovation and entrepreneurship.

Challenges

- India is home to a vibrant and diverse startup ecosystem, with a growing number of unicorn startups
- However, most of these unicorns have not gone public yet, due to various reasons, such as regulatory hurdles, high costs, and abundant private capital.
- India does not have a dedicated stock exchange for startups, unlike the US, which has the Nasdaq, or China, which has the STAR Market.
- The existing exchanges, such as the Bombay Stock Exchange (BSE) and the National Stock Exchange (NSE), have stringent listing norms, such as profitability criteria, minimum promoter holding, lock-in periods, and disclosure requirements, that may not suit the growth-oriented and the innovation-driven nature of startups.

Conclusion and Way ahead

- The Indian economy is intricately tied to the success of its startup ecosystem.
- The long-term prospects are still promising as the IMF projects that India's economy will grow to become the third largest in the world by 2027.
- An uptick in investment activity is anticipated in the upcoming years as the world economy stabilizes, solidifying India's standing as a top investment destination.
- There is a need to make more investments in startups that emphasize professional upskilling and ongoing education, demonstrating the industry's dedication to worker empowerment.

Growth in Lentil Production in India

In Context

- India's masur (lentil) production is estimated to touch an all-time high of 1.6 million tonnes in 2023-24.

About

- The total masur acreage has increased to 1.94 million hectare in the ongoing rabi season, when compared to 1.83 million hectare in the year-ago period.
- Despite being the world's largest producer and consumer of pulses, India imports certain pulses, including masur and tur, to meet domestic shortages.

Production of Pulses in India

- India is the largest producer (25% of global production), consumer (27% of world consumption) and importer (14%) of pulses in the world.
- Pulses account for around 20 percent of the area under food grains and contribute around 7-10 percent of the total foodgrains production in the country.
- Though pulses are grown in both Kharif and Rabi seasons, Rabi pulses contribute more than 60 percent of the total production.
- Gram is the most dominant pulse having a share of around 40 percent in the total production followed by Tur/Arhar at 15 to 20 percent and Urad/Black Matpe and Moong at around 8-10 percent each.
- The main regions with high productivity are Punjab, Haryana, Western Uttar Pradesh, West Bengal delta region, coastal Andhra Pradesh, Tamil Nadu, Kerala, coastal and eastern Karnataka and some parts of Maharashtra.

Reasons for Low Production in India

- Low Productivity: Pulses have traditionally been a neglected crop because of the instability of its yields.
- Residual Crop: Pulses in India are considered a residual crop and grown under rain-fed conditions in marginal/less fertile lands, with very little focus on pest and nutrient management.
- With the advent of the Green Revolution, which promoted rice and wheat using external inputs and modern varieties of seeds, pulses were pushed to the marginal lands. This resulted in decline in productivity and land degradation.
- Lack of Technological Advances: There has been no technology breakthrough in any of the pulses crops.
- Less Beneficial: Farmers perceive pulses as having a lower cost benefit ratio vis-à-vis other crops like wheat and rice.

- Penetration and adoption of high yielding varieties (HYV) seeds are also low.
- Post Harvest Losses: There are post-harvest losses during storage, due to excessive moisture and attack by stored grain pests especially the pulse beetle

Measures Taken By the Government to Increase Production

- National Food Security Mission: The Department of Agriculture & Farmers Welfare is implementing the National Food Security Mission (NFSM)-Pulses with the objectives of increasing production through area expansion and productivity enhancement in all the districts.
- Research and Development: In order to increase the productivity potential of pulses crops in the country, the Indian Council of Agricultural Research (ICAR) is undertaking basic and strategic research on these crops and applied research in collaboration with State Agricultural Universities for developing location-specific high yielding varieties.
- PM-AASHA: To ensure remunerative prices to farmers, Government implements an umbrella scheme PM-AASHA comprising Price Support Scheme (PSS), Price Deficiency Payment Scheme (PDPS) and Private Procurement Stockist Scheme (PPSS) in order to ensure Minimum Support Price (MSP) to farmers for their produce of notified oilseeds, pulses and copra.
- Integrated scheme of Oilseeds, Pulses, Oil Palm and Maize (ISOPOM) was launched in 14 major pulses growing states.
- Rashtriya Krishi Vikas Yojna was launched under which states can undertake Pulses Development Programmes.

Direct Tax Collection in India

Context

- The net Direct Tax collection is 80.61% of the total Budget Estimates of Direct Taxes for F.Y. 2023-24.

What is Tax?

- In order to garner income for the government to finance social projects, tax is collected from individuals and corporations via direct tax and indirect tax.
- Direct tax is the tax that is paid directly to the government by the person or company on whom it is levied.
- Income tax, wealth tax, corporation tax, and property tax are some examples of direct tax.
- Indirect taxes are those that are collected by intermediaries from individuals and corporations who bear the burden of the tax and passed on to the government.
- Goods and Services Tax (GST) is an example of indirect tax.
- Corporation tax forms a large chunk of the government's tax revenue.

Taxes as the Source of Income of the Government

- Revenue receipts can be of two types — non-tax revenue and tax revenue.
- Tax revenue is the income gained by the government through taxation.
- Tax revenue forms a part of the Receipt Budget, which in turn is part of the Annual Financial Statement of the Union Budget.
- The Union Budget is classified into Revenue Budget and Capital Budget.
- Total tax revenue as a percentage of GDP indicates the share of the country's output collected by the government through taxes.

Overview of Direct Tax Collection in India

- Widening the tax base has been one of the key action plan areas for the last several years but achievement has fallen short of targets.
- There is a need to enlarge the tax base as well as taxpayer base through both policy as well as enforcement action by bringing into the tax net high net worth assesses and potential tax payers.
- The focus has to be on bringing in new taxpayers, rather than putting a heavier burden on payers who are already in the tax net by targeting sectors that are currently untaxed, especially the informal/unorganised sectors.

Significance of Growth in Direct Tax Collection

- **Fiscal Stability:** A growing direct tax collection contributes to fiscal stability by reducing reliance on borrowings and ensuring a sustainable revenue stream. This is crucial for maintaining a balanced budget and avoiding fiscal deficits, which can have adverse effects on the overall economy.
- **Fund Allocation for Developmental Schemes:** The higher-than-expected revenue also means the Centre can direct some proceeds towards developmental schemes without having to worry about breaching the fiscal deficit.
- **Signal of Economic Growth:** Increasing direct tax collection is often associated with economic growth. As individuals and businesses earn higher incomes and profits, direct tax revenues tend to rise.
- **Creditworthiness:** Higher direct tax collections can positively impact a country's creditworthiness in the international financial markets.
- **Budgetary Planning:** Reliable and growing direct tax revenues provide the government with a more predictable source of income, facilitating better budgetary planning and execution of government programs.

Measures Taken by Government for the Growth of Direct Taxes

- **Tax Reforms:** The government periodically introduces reforms to simplify the tax structure, reduce compliance burdens, and enhance transparency.
- **Digital Initiatives:** Initiatives such as the Goods and Services Tax (GST) and the use of online tax filing systems aim to streamline tax administration, reduce manual errors, and improve overall efficiency.
- **Taxpayer Education and Awareness:** Public awareness campaigns and educational programs have been conducted to inform taxpayers about their rights, obligations, and the benefits of complying with tax regulations.
- **International Cooperation:** India has actively participated in international initiatives for the exchange of tax-related information. Collaboration with other countries helps in tracking and taxing income generated abroad by Indian residents, reducing the scope for tax evasion.
- **Simplification of Tax Laws:** Efforts have been made to simplify and rationalize tax laws to make them more comprehensible for taxpayers.
- **Clarity in tax laws** can contribute to better compliance and reduce disputes between taxpayers and tax authorities.

Way Ahead

- Taxes are vital resources whose maximisation and mobilisation is of importance to governments to finance the development needs of the poor and under-privileged sections of society and important sectors of the economy.
- This is possible through the expansion of the tax base and taxpayer base.
- Tax administration to professionalise the administration and make it taxpayer friendly also needs to be pursued with vigour to improve the administrative efficiency and compliance.

Dark Phase of Tea Industry

Context

- India's tea industry is experiencing challenges reminiscent of the "dark phase" of 2002-07, calling for introspection and resilience.

Challenges faced by Indian Tea Industry

- **Increased input cost:** The tea prices increased at a compound annual growth rate (CAGR) of around 4% over the past decade, however the cost of inputs like gas and coal grew at a CAGR of 9-15%.
- **Demand-supply gap:** The rise in small tea growers and so on production, is not in proportion with the domestic consumption and exports, leading to surplus production.
- **Weak exports:** The Iran market constitutes nearly 20% of total tea exports from India and there is decline of exports to Iran due to the payment issues causing financial stress to the exporters
- A decline in overall export demand due to surplus in the global markets, led to an international price crash.
- **Nepal's gardens:** Unhampered and easy influx of substandard tea from neighboring countries, especially Nepal" is jeopardizing the tea industry of India.

- Other factors: Stagnant prices, concentration of market power among a few key players, and a decline in the quality of teas to make the beverage more affordable etc. have been identified as major factors.

Steps taken by Indian Government

- The Tea Board of India had devised a scheme of “Assistance of education stipend to the wards of Small Tea Growers” to improve their livelihood and education needs.
- The Government of India through the Tea Board had helped in the formation of 352 Self Help Group (SHG), 440 Farmer Producer Organisation (FPO) and 17 Farmer Producer Companies (FPCs).
- A mobile app “Chai Sahyog”, is being developed to help Small Tea Growers in terms of better price realization and information.

Indian Tea Industry

- India is the 2nd largest tea producer and largest black tea producer.
- Indian teas are exported to various destinations like Iran, Iraq, Syria, Saudi Arabia, Russia etc. and is the 4th largest tea exporter in the World.
- The Indian tea Industry is employing 1.16 million workers directly and an equal number of people are associated with it indirectly.
- Assam grows about 55% of the teas produced in India. India’s tea production has increased by 39% in 2022 from 2008.
- Major tea producing states are Assam, hills of Darjeeling and Jalpaiguri districts in West Bengal, Tamil Nadu and Kerala. Apart from these, Himachal Pradesh, Uttarakhand, Meghalaya, Andhra Pradesh and Tripura are also tea-producing states in the country.

Tea Board of India

- The Tea Board of India is functioning as a statutory body of the Central Government under the Ministry of Commerce.
- It was established by the enactment of the Tea Act in 1953, to promote the cultivation, processing, and domestic trade as well as export of tea from India.

Geographical Condition for Tea production

- The tea plant grows well in tropical and subtropical climates. Tea bushes require a warm and moist frost-free climate all through the year.
- Soil: It requires deep and fertile well-drained soil, rich in humus and organic matter.
- Temperature: The average annual temperature for tea plants to grow well is in the range of 15-23°C.
- Precipitation: The rainfall needed is between 150-200 cm. Frequent showers evenly distributed over the year ensure continuous growth of

Way Ahead

- The Government needs to intervene by providing better export infrastructure, fully defraying State duties by increasing the RoDTEP (Remission of Duties or Taxes on Export Products) rate and reducing the interest rate on borrowings to make Indian tea producers/exporters more competitive in the international market.
- Steps are needed to regulate tea waste sold in the domestic market at lower prices, restricting import of poor-quality teas, and promotion of tea emphasizing its health benefits.

Switzerland’s Decision to Eliminate Import Duties

Context

- As per the Global Trade Research Initiative (GTRI), Switzerland’s policy to allow tariff-free entry from all countries limit gains for India under the proposed trade agreement with European Free Trade Association (EFTA).
- Switzerland has abolished tariffs on products, including chemicals, consumer goods, vehicles, and clothing.

About European Free Trade Association (EFTA)

- It is the intergovernmental organisation of Iceland, Liechtenstein, Norway and Switzerland.
- It was set up in 1960 by its then seven Member States for the promotion of free trade and economic integration between its members.
- Trade with India: In 2022, the combined EFTA-India merchandise trade surpassed USD 6.1 billion.
- The primary imports to the EFTA States consisted of organic chemicals (27.5%), while machinery (17.5%) and pharmaceutical products (11.4%), constituted the main exports to India.

About India's Trade and Economic Partnership Agreement (TEPA) with EFTA

- Talks on the trade deal began in 2008 and negotiations resumed again in 2016.
- The latest round of negotiations covered trade in goods and services, rules of origin, Intellectual property rights (IPR), trade and sustainable development, sanitary and phytosanitary measures, technical barriers to trade, trade remedies, and customs and trade facilitations.

How does Switzerland's Policy Effect India's Gains under EFTA?

- Effect on Negotiations: Switzerland's decision changes the dynamics of the negotiations as it has profound implications for India's gains from the ongoing India-EFTA trade agreement.
- Increase in Market Competitiveness: Switzerland is India's top export destination in EFTA and the import duty abolition means that Indian products would face a higher degree of competition in Switzerland despite a FTA with EFTA.
- No gains in Agricultural Exports: Exporting agricultural produce to Switzerland remains challenging due to the complex web of tariffs, quality standards, and approval requirements.
- EFTA, including Switzerland, has shown no inclination to make agriculture tariffs zero on most basic agricultural produce.
- Consequently, with zero industrial tariffs and the difficulty in exporting agricultural produce to Switzerland, India's prospective gains in merchandise exports are effectively nullified.
- Trade Deficit with Switzerland: In FY2023, India's imports from Switzerland stood at \$15.79 billion, in stark contrast to its exports of \$1.34 billion, leading to a substantial trade deficit of \$14.45 billion.
- Switzerland's policy will widen this trade deficit further.

Conclusion

- The trade agreement in the current format will not help Indian exports and will result in higher imports and wider trade deficit.
- India must navigate these negotiations with a focus on balancing trade, protecting domestic interests, and securing a fair and beneficial agreement.

Model-based algorithm lending

In News

- The Reserve Bank of India is closely examining the risks that can emerge from model-based algorithm lending, which led to the surge in unsecured loans,

About Model-based algorithm lending

- Algorithmic models are powered by artificial intelligence and machine learning
- It has not only reduced operational costs but has also expanded the outreach of financial services providers.
- It often operates as 'black boxes', making it challenging to decipher the rationale behind their decisions.
 - Such model-based lending could lead to a potential crisis.
- Therefore Management, boards of directors, and audit committees should ensure robustness in algorithms and gauge the possible risks these models could create.
- The Reserve Bank's supervisory systems have been recalibrated to attune them to the dynamics of the financial sector in a forward-looking approach so as to smell possible distress early.

Processed food exports up 150% in 9 years

In Context

- The Minister of Commerce & Industry highlighted the 150% growth in processed food exports over the last nine years.

About

- There is an immense potential of the Indian food market, catering to a domestic market of 1.4 billion and a global Indian diaspora of nearly three million people who relish Indian delicacies.
- India's agricultural exports stood at an aggregate of about US\$ 53 Billion.
- The government of India has set a vision for the sector to achieve a target of doubling its contribution to the GDP by 2030.

About Food Processing

- Food processing refers to the conversion of raw agricultural products into value-added products for human consumption.
- The processing is done through several processes, such as harvesting, cleaning, packaging, grading, preserving and transportation.
- The sector's size is estimated to be around US\$322 billion, and it is expected to reach US\$543 billion by 2025, growing at a CAGR of 14.6%.
- The food processing industry in India is primarily concentrated in the northern and western regions of the country.
- The states of Maharashtra, Uttar Pradesh, Andhra Pradesh, Tamil Nadu, and Gujarat are the leading contributors to the sector. However, there is a huge untapped potential for the sector in the eastern and north-eastern regions of the country.

Significance of Food Processing Sector

- **Economic Contribution:** The Food Processing sector provides jobs not only in food production but also in packaging, distribution, marketing, and research and development.
- **Food Safety:** The industry plays a key role in maintaining and improving food safety standards. Processing methods often include steps to eliminate or reduce pathogens, contaminants, and spoilage microorganisms.
- **Innovation:** Food processing allows for the creation of a wide variety of food products by combining and transforming raw ingredients. This innovation contributes to diverse food choices for consumers.
- **Export Opportunities:** Processed food products often have a longer shelf life and are more suitable for transportation, making them key players in international trade.
- **Fortification:** Food processing allows for the fortification of certain products with essential nutrients, addressing nutritional deficiencies in populations.
- **Energy Efficiency:** Advances in food processing technologies contribute to more energy-efficient methods, reducing the environmental impact of food production.

Challenges related to Food Processing Sector

- **Lack of cutting-edge infrastructure:** Many food processing businesses operate in the small and medium enterprises (SMEs) sector, which often lacks the resources needed to upgrade their facilities and machinery to thinitiae latest technology.
- **Lack of Cold Chain and Storage:** The industry is also plagued by inefficient supply chains, inadequate storage and transport facilities, and a lack of access to credit and financing.
- **Food Safety Issues:** Contamination risks, whether biological, chemical, or physical, can lead to foodborne illnesses, damaging both consumer trust and industry reputation.
- **Raw Material Sourcing:** Variability in crop yields, weather conditions, and geopolitical factors can affect the availability and cost of key ingredients.
- **Complex Regulations:** The industry is subject to a complex web of regulations, licenses, and permits, which can be challenging for businesses to navigate.

Important Government Initiatives

- National Mission on food processing: Launched in 2012 as Centrally Sponsored Scheme (CSS). This mission aimed to encourage the establishment of food processing units, enhance the processing levels, and increase value addition in the food chain.
- Mega Food Park Scheme: A mega food park is an integrated facility that provides for storage, processing. Additionally, value additions to a large number of players in the food processing industry.
- Under the Mega Food Park Scheme, the Government of India provides financial assistance up to Rs. 50.00 Crore per Mega Food Park project.
- The Mega Food Park Scheme is based on the “Cluster” approach and envisages a well-defined Agri/horticultural-processing zone containing state-of-the-art processing facilities with support infrastructure and well-established supply chain.
- Other initiatives: The Ministry is actively implementing three major schemes to promote the food processing sector: Pradhan Mantri Kisan SAMPADA Yojana (PMKSY), Pradhan Mantri Formalization of Micro Food Processing Enterprises (PMFME) scheme, and Production Linked Incentive (PLI) Scheme.
- Allowing 100% Foreign Direct Investment (FDI) approval under automatic route for the food processing sector.

Way Ahead

- There is a need for large-scale food processing, product branding, and export oriented strategy.
- Setting up intelligent food processing hubs equipped with cutting-edge technologies such as the Internet of Things (IoT), artificial intelligence (AI), and blockchain. These hubs have the capability to oversee the entire food supply chain, ensuring quality, traceability, and operational efficiency from the farm to the consumer’s table.

Rising Gap in Incomes

Context

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Key Findings

- The report claims that the Gini coefficient has fallen from 0.472 in 2014-15 to 0.402 in 2022-23.
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- Only those individuals who earn income from work are considered in the report. It excludes those who work as unpaid family helpers, a large proportion of whom are women.

Group Insolvency Mechanism

Context

- Reserve Bank of India Governor Shaktikanta Das recently pushed for a specified framework for the group insolvency mechanism.

Group insolvency mechanism

- Group insolvency mechanism is a legal framework designed to handle insolvency scenarios where multiple companies within a corporate group are financially distressed.
- This framework addresses the complex interdependencies between these companies, preventing cascading failures and ensuring a more comprehensive and efficient resolution process.
- Many developed countries, including the UK, US, and Japan, have implemented or are developing group insolvency frameworks.
- The UNCITRAL Model Law on Cross-Border Insolvency provides recommendations for countries to consider Group insolvency mechanisms when designing their own frameworks.

Need

- In the absence of a specified framework, the group insolvency mechanism has been evolving under the guidance of the courts in India.
- Also, current insolvency frameworks often treat each company within a group as a separate entity. This can be problematic when companies within a group are financially interconnected, with debts and assets shared across subsidiaries.

Benefits

- Increased creditor recoveries: A coordinated approach can maximize asset realization and improve creditor returns compared to separate proceedings for each company.
- Preservation of viable businesses: The framework can help identify and rescue healthy companies within the group, preventing unnecessary job losses and economic disruption.
- Enhanced overall economic stability: By preventing domino effects and resolving group insolvencies efficiently, the framework can contribute to a more stable business environment.

Challenges

- Complexity: The possible challenges in adopting the group framework are: intermingling of assets, devising a definition of a 'group' and addressing cross-border aspects.
- Absence of market for stressed assets: On stressed assets, one major impediment for implementing a successful resolution plan has been the absence of a vibrant market for stressed assets in the country. This effectively limits the pool of prospective resolution applicants for stressed assets under IBC.
- Potential abuse: Safeguards are needed to prevent companies from misusing the framework to their advantage or to shield assets from creditors.
- Enforcement: Effective enforcement mechanisms are crucial for ensuring compliance with the framework and achieving desired outcomes.

Way Ahead

- A robust secondary market in loans can be an important mechanism for management of credit exposures by the lending institutions.
- Any amendments to the Code with emphasis on a financial creditor-led resolution framework, in an overarching manner is the need of hour.

World Employment and Social Outlook: Trends 2024 Report

Context

- The International Labour Organisation (ILO) has released the World Employment and Social Outlook: Trends 2024 report.

Major Findings

- Joblessness and the jobs gap have both fallen below pre-pandemic levels but global unemployment will rise in 2024.
- The Economic Recovery: The macroeconomic environment deteriorated significantly over 2023.
 - Ongoing geopolitical tensions as well as persistent and broadening inflation triggered frequent and aggressive moves by central banks.
 - Monetary authorities in advanced and emerging economies implemented the fastest increase in interest rates since the 1980s, with significant global repercussions.
 - Economic Slowdown: China, Türkiye and Brazil slowed down considerably, causing adverse impact on global industrial activity, investment and trade.
- Despite the economic slowdown, global growth in 2023 was modestly higher than anticipated, and labour markets showed surprising resilience.
 - Unemployment Rate: The global unemployment rate in 2023 was 5.1%, a modest improvement from 2022.
- The labour market participation rates had largely also recovered from their pandemic lows.
- Although the imbalances eased somewhat in 2023, concerns are rising that these labour market imbalances are structural, rather than cyclical, in nature.
 - Real wages declined in the majority of G20 countries as wage increases failed to keep pace with inflation.
- In 2023, the numbers of workers living in extreme poverty – earning less than US\$2.15 per day per person in purchasing power parity (PPP) terms – grew by about one million globally.
- Only China, the Russian Federation and Mexico enjoyed positive real wage growth in 2023.
- Real wage growth in India and Türkiye was also positive.

Suggestions As per the Report

- In fast-ageing countries, policymakers need to support the participation of groups with weak labour market attachment, notably youth, women and older workers.
- Investment and skills policies need to raise productivity and potential growth and facilitate more productive use of technological progress.
- Improvements in sectors and occupations with low pay and difficult working conditions may motivate workers who left to come back.
- Ensuring that internationally mobile workers get matched to adequate jobs could alleviate some of the shortages.
- None of the structural headwinds facing labour market adjustment is likely to disappear over the short term, which makes it important that governments and social partners engage in supplemental efforts to address these challenges.

India's GDP Growth

In News

- India's real GDP growth in 2023-24 is estimated at 7.3%, compared to 7.2% a year ago, as per the NSO.

Key highlights of the NSO estimates

- GVA growth for the farm sector is estimated to more than halve from 4% a year ago to 1.8% this year, as is the case for Trade, Hotels, Transport, Communication and Services whose GVA uptick is estimated to moderate to 6.3% from 14% in 2022-23.
- The share of private final consumption expenditure in GDP is expected to drop this year to the lowest in at least three years at 56.9% from 58.5% in 2022-23.
- The investment rate is likely to pick up to nearly 30% of GDP, driven by government capex, higher consumption growth is vital for private investments to take on the onus of spurring the economy.
- Manufacturing GVA growth is estimated to accelerate to 6.5% in 2023-24 from just 1.3% a year earlier, while mining GVA is expected to rise 8.1%, from 4.6% in 2022-23.
- Real GDP or GDP at Constant (2011-12) Prices in the year 2023-24 is estimated to attain a level of 171.79 lakh crore, as against the Provisional Estimate of GDP for the year 2022-23 of ₹160.06 lakh crore, released on 31st May, 2023.

India's GDP Growth

- India's economic growth story has been impressive, with its nominal GDP reaching an estimated \$3.5 trillion in 2024 and \$7.3 trillion by 2030(IMF).
- However, maintaining this high growth trajectory faces several challenges, demanding proactive measures.

Challenges

- Global headwinds: Slowing global growth, rising interest rates, and geopolitical tensions can dampen foreign investment and trade, impacting India's export-oriented sectors.
- Domestic impediments: Infrastructure bottlenecks, bureaucratic hurdles, and skill shortages hinder efficient production and investment.
- Rural distress and uneven growth: Low agricultural income and slow job creation in rural areas lead to lower aggregate demand and hamper overall economic expansion.
- Financial sector woes: Stressed assets in the banking system limit credit availability for businesses and individuals, affecting investment and consumption.
- Environmental concerns: Balancing economic growth with environmental sustainability requires addressing rising pollution levels and ensuring responsible resource utilization.

Measures

- Boosting infrastructure investment: Investing in railways, highways, ports, and digital infrastructure improves connectivity, reduces logistics costs, and attracts investment.
- Ease of doing business: Streamlining regulatory processes, reducing bureaucratic red tape, and improving transparency incentivize investment and boost private sector participation.
- Skill development and education: Prioritizing education, skilling initiatives, and vocational training equips the workforce with relevant skills to meet industry demands and drive productivity.
- Revitalizing agriculture: Improving irrigation facilities, providing technical assistance, and fostering agritech innovation can enhance agricultural productivity and income for farmers.
- Financial sector reforms: Strengthening banks, resolving bad loans, and promoting financial inclusion improve credit flow and support economic growth.

Way Forward

- Addressing challenges and implementing effective measures are crucial for sustaining India's high GDP growth.
- Focusing on inclusive growth, environmental sustainability, and creating a conducive environment for domestic and foreign investment are key drivers of future economic prosperity.

Livelihood in Rural India

Context

- At a group discussion held by Life Skills Collaborative, most of the rural youth when questioned about their aspirations for the future they preferred staying in their village.

About

- With the prevalent trend of urbanisation — the UN projects that almost 50% of the Indian population will be living in urban areas by 2047— it is crucial not to overlook those who choose to stay behind in villages.

Rural Livelihood

- Main source of income: Farming is the main source of rural livelihoods, with children from many rural families supplementing their family's income by working on family-owned farms.
- Changing Trends: The rural economy is experiencing a major occupational shift, the National Sample Survey Office data recorded 34 million farmers leaving their farms and transitioning to other sectors such as construction during 2004-05 and 2011-12.
- This highlights the need for not only making agriculture an aspiring vocation among rural youth, but also creating alternative employment opportunities.
- Current vocational education: In rural India the current vocation education is intermixed with Industrial Training Institutes to upskill rural populations, but with little to no placement opportunities.

- Presently, rural education scarcely focuses on skill development, if learning is infused with rural life skills in schools, rural education will have the potential to nurture a generation capable of thriving.

Initiatives by Government of India to Upskill Youth in Rural India

- Pradhan Mantri Kaushal Vikas Yojana (PMKVY): Launched in 2015, PMKVY is a flagship skill development scheme that aims to enable a large number of Indian youth to take up industry-relevant skill training to help them secure a better livelihood.
- The scheme provides short-term training programs in various sectors, including agriculture, healthcare, construction, and more.
- Deen Dayal Upadhyaya Grameen Kaushalya Yojana (DDU-GKY): DDU-GKY is a part of the National Rural Livelihoods Mission (NRLM) and focuses on the rural poor youth.
- It aims to transform rural poor youth into economically independent and globally relevant workforce through market-driven training programs.
- National Rural Livelihoods Mission (NRLM): NRLM, launched in 2011, aims to reduce poverty by promoting diversified and gainful self-employment and wage employment opportunities in rural areas.
- It includes skill development as a key component to enhance the livelihood options for rural youth.
- Skill Development Initiatives under MGNREGA: Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA) includes provisions for skill development and wage employment in rural areas.
- States may allocate a portion of their MGNREGA funds for skill development programs.
- Rural Self-Employment Training Institutes (RSETIs): RSETIs are institutions established to provide training and skill development to rural youth, especially those from economically weaker sections.
- These institutes aim to promote self-employment and entrepreneurship in rural areas.
- Skill Development in Agriculture: Various initiatives focus specifically on skill development in the agricultural sector, including training programs on modern farming techniques, use of technology in agriculture, and agribusiness skills.
- Digital India: The Digital India initiative aims to bridge the digital divide in rural areas by providing digital literacy and skills training.

Way Ahead

- To control migration of these youth to urban areas in search of meaningful employment, it becomes imperative to provide vocational training to students to imbibe relevant rural skills.
- Effective rural education should be tailored such that technical as well as life skills, needed to empower youth in these areas, become accessible to them through formal education.
- Educational evidence from other developing economies suggests — such as Mexico's tele-schools and Bhutan's well-being-infused curriculum.
- The tele-schools provide lessons on subject matters as well as values, thereby providing a much higher level of access to value-based secondary education for remote areas where secondary schools are scarce.
- This has shown to have trickling benefits in the local economy with improved attitudes and increased aspirations among children and parents.
- By offering rural populations skills in fields like agricultural mechanisation, pollution monitoring, nursing and digital technologies via e-learning, rural India can boost employability in both traditional and non-traditional trades, leading to a vibrant economy.

Artificial Intelligence and Job Loss

Context:

- AI will affect 40% of jobs and probably worsen inequality, according to the head of the International Monetary Fund (IMF).

Analysis by the IMF

- About 60% of jobs in advanced economies such as the US and UK are exposed to AI and half of these jobs may be negatively affected.
- AI's ability to affect highly skilled jobs means that advanced economies face greater risks from the technology.
- The technology will also help to enhance some humans' productivity as AI improves their performance.
- The safest highly exposed jobs are those with a "high complementarity" to AI, meaning the technology will assist their work rather than displace it entirely.
- This includes roles with a high degree of responsibility and interacting with people – such as surgeons, lawyers and judges.
- High-exposure jobs with "low complementarity" – meaning the potential for being displaced by AI.
- This includes telemarketing, or cold-calling people to offer goods or services.
- AI applications may execute key tasks currently performed by humans, which could lower labour demand, leading to lower wages and reduced hiring.
- Low-exposure occupations include dish washers and performers.
- AI jobs exposure is 40% in emerging market economies – defined by the IMF as states including China, Brazil and India – and 26% for low-income countries, with an overall total of just under 40%, according to the IMF.
- In most scenarios AI would probably worsen overall inequality across the global economy and could stoke social tensions without political intervention.
- The IMF analysis shows that higher-wage earners whose jobs have high complementarity with AI can expect an increase in their income, leading to an increase in inequality.

AI Driven Other Positive Side

- Job creation: AI also creates new opportunities in fields like AI development, data analysis, and cybersecurity.
- Increased productivity: AI can boost productivity and efficiency in various sectors, potentially leading to economic growth and job creation in different areas.
- Reskilling and adaptation: With proper training and support, workers whose jobs are affected by AI can re-skill and adapt to new roles in demand.
 - The net effect of AI on employment remains uncertain. Some predict job losses due to automation, while others suggest AI will create more jobs than it displaces.
- The actual impact will likely vary depending on a range of factors like the rate of technological advancement, government policies, and the adaptability of workers.

Measures

- Investing in education and training: Equipping workers with the skills needed for the AI-driven economy is crucial.
- Social safety nets: It is crucial for countries to establish comprehensive social safety nets like unemployment benefits and offer retraining programmes for vulnerable workers.
- In doing so, we can make the AI transition more inclusive, protecting livelihoods and curbing inequality.
- Regulation and ethical considerations: Implementing responsible AI development and ensuring fair distribution of the benefits of AI are important considerations.

- AI property rights: Countries' choices regarding the definition of AI property rights, as well as redistributive and other fiscal policies, will ultimately shape its impact on income and wealth distribution.
- Mid-career transitions: AI could help with mid-career transitions as this is the age where expertise is at fingertips. So anyone can become an expert as an AI assistant is there to help.

Way Ahead:

- The relationship between AI and job loss is complex and multifaceted. While AI poses potential risks of job displacement, it also offers opportunities for new jobs and economic growth.
- The key is to manage the transition effectively through reskilling, social safety nets, and responsible AI development.
- By acknowledging the challenges and proactively preparing for the future, we can ensure that AI benefits everyone and contributes to a more equitable and prosperous future.

Light-Emitting Diodes

Context

- Light-emitting diodes (LEDs) succeed the incandescent bulbs and fluorescent lamps of previous centuries as the world's light-source of choice.

Light-emitting diodes (LED)

- A diode is an electronic component which has two points of contact, or terminals, called anode and cathode. A diode's primary purpose is to allow current to flow in only one direction.
- A light-emitting diode (LED) is a semiconductor device that emits light when current flows through it.
- LEDs have applications in industries, consumer electronics, and household appliances: from smartphones to TV screens, from signboards to 'feeding' plants light in greenhouses, from barcode scanners to monitoring air quality.

Colors produced by LEDs

- LEDs can produce all three primary colors which are red, green, and blue.
- Different LEDs can be combined on a display board to produce a large variety of colors.

Advantages of LEDs

- Long Lifespan: LED bulbs can last up to 25,000 hours or more, which means less frequent replacements and reduced maintenance costs.
- Energy Efficiency: They convert a higher percentage of electrical energy into light, reducing energy waste and lowering electricity bills.
- LEDs can produce up to 300 lumen (amount of visible light emitted per second) versus incandescent bulbs' 16 lumen and fluorescent lamps' 70 lumen.
- Instant Lighting: LEDs light up instantly without the warm-up time required by some fluorescent lights making it useful in applications where immediate and consistent light is essential, such as in traffic signals or emergency lighting.
- Environmentally Friendly: LED bulbs are mercury-free and do not contain other hazardous materials, making them environmentally friendly. They are also recyclable, further reducing their impact on the environment.
- Durability: LED bulbs are more rugged and durable than fragile incandescent and fluorescent bulbs. They are resistant to shock, vibrations, and external impacts.

North Korea tested solid-fuel missiles

Context

- North Korea has tested a new solid-fuel intercontinental ballistic missile (ICBM).

What is Solid-Fuel Technology?

- Solid fuel missiles are rockets that use a prepackaged propellant mixture of fuel and oxidiser, as opposed to liquid-fueled missiles which require separate tanks for fuel and oxidizer.

- Metallic powders such as aluminum often serve as the fuel, and ammonium perchlorate, which is the salt of perchloric acid and ammonia, is the most common oxidiser.
- The fuel and oxidiser are bound together by a hard rubbery material and packed into a metal casing.
- When solid propellant burns, oxygen from the ammonium perchlorate combines with aluminum to generate enormous amounts of energy and temperatures, creating thrust and lifting the missile from the launch pad.

Advantages of solid fuel

- **Faster deployment:** Solid fuel missiles require minimal preparation time, as fueling is not necessary. This allows for quicker launches, making them harder to pre-empt or target.
- **Increased survivability:** Solid fuel is more stable and less susceptible to damage compared to liquid fuels, making the missiles more resistant to pre-emptive strikes.
- **Easier storage and maintenance:** Solid fuel has a longer shelf life and requires less maintenance compared to liquid fuels, simplifying storage and reducing logistical burdens.
- The missiles can fly at unpredictable trajectories and change direction in flight, making them harder to track and intercept. They can also carry multiple warheads or decoys to confuse the enemy's radars and sensors.

Why is North Korea developing them?

- **Deterrence against potential threats:** North Korea is developing solid-fuel missiles to enhance its military capabilities and deterrence against potential threats from the United States and its allies.
- **Greater accuracy:** Solid-fuel missiles can increase the range and payload of North Korea's missiles, as well as improve the accuracy and survivability of its missiles.
- **Quick response:** Solid-fuel missiles enable North Korea to launch surprise attacks or respond quickly in a crisis, as they can be fired more rapidly and with less warning than liquid-fuel missiles.

National Quantum Mission

Context

- The government will set up a coordination cell to implement the National Quantum Mission (NQM) with a focus on establishing four technology hubs.

About

- The NQM is expected to set up four mission hubs in quantum computing, quantum communication, quantum sensing and metrology, and quantum materials and devices.
- It will essentially be a consortium of academia, research and development labs and industry.

Mission Coordination Cell (MCC)

- The MCC will be set up as a coordinating agency for the Mission and will work in coordination with the Mission Secretariat, DST.
- It will function under the overall supervision and guidance of Mission Technology Research Council (MTRC).

National Quantum Mission (NQM)

- The government approved the National Quantum Mission (NQM) in 2023 from 2023-24 to 2030-31.
- **Aim:** To seed, nurture and scale up scientific and industrial R&D and create a vibrant & innovative ecosystem in Quantum Technology (QT).
- This will accelerate QT led economic growth, nurture the ecosystem in the country and make India one of the leading nations in the development of Quantum Technologies & Applications (QTA).
- **Objectives:** The Mission objectives include developing intermediate-scale quantum computers with 50-1000 physical qubits in 8 years in various platforms like superconducting and photonic technology.
- Satellite-based secure quantum communications between ground stations over a range of 2000 kilometers within India, long-distance secure quantum communications with other countries, inter-city quantum key distribution over 2000 km as well as multi-node Quantum networks with quantum memories.
- Developing magnetometers with high sensitivity in atomic systems and Atomic Clocks for precision timing, communications, and navigation.
- It will also support the design and synthesis of quantum materials such as superconductors, novel semiconductor structures, and topological materials for the fabrication of quantum devices.

- Single photon sources/detectors, and entangled photon sources will also be developed for quantum communications, sensing, and metrological applications.
- Implementation: Setting up of four Thematic Hubs (T-Hubs) in top academic and National R&D institutes in the domains – Quantum Computing, Quantum Communication, Quantum Sensing & Metrology and Quantum Materials & Devices.
- The hubs will focus on generation of new knowledge through basic and applied research as well as promote R&D in areas that are mandated to them.
- Significance: NQM has the potential to elevate the country's Technology Development ecosystem to a level of global competitiveness.
- The Mission would greatly benefit various sectors including communication, health, financial, energy with applications in drug design, space, banking, security etc.
- The Mission will also provide a huge boost to National priorities like Digital India, Make in India, Skill India and Stand-up India, Start-up India, Self-reliant India and Sustainable Development Goals (SDG).
- Properties: It is the world's thinnest, strongest, and most conductive material of both electricity and heat.
- It conducts electricity better than copper.
- It is 200 times stronger than steel but six times lighter. It is almost perfectly transparent as it absorbs only 2% of light.
- It is impermeable to gases, even those as light as hydrogen and helium.

India's First Graphene Centre

Context

- The Union government recently launched India's first graphene centre (IICG) in Kerala.
- The centre was established to foster research and development, product innovation and capacity building in the area of graphene and 2D material systems.

About the Graphene

- Graphene, a single layer of carbon atoms arranged in a honeycomb

Applications

- Graphene composites are used in automotive, sports equipment and construction.
- It is used for high-performance batteries and super-capacitors, touchscreens, and conductive inks.
- Graphene-based sensors are used for environmental monitoring, healthcare and wearable devices.
- Graphene oxide membranes are used for water purification and desalination.
- Graphene-based masks were made during COVID.
- Graphene is important for defence and aerospace as well. Its exceptional strength makes it a promising material for armour and ballistic protection.
- Graphene has the potential to absorb and dissipate electromagnetic waves, making it valuable for developing stealth coatings and materials that reduce radar signatures and electromagnetic interference.
- Graphene is highly sensitive to environmental changes, which makes it an excellent candidate for sensing chemical and biological agents, explosives, radiation, and other hazardous substances.
- Besides, graphene-based materials can also protect us against chemical and biological attacks.

About the Centre of Excellence (CoE) in IIoT Sensors

- Along with the IICG, the Centre of Excellence (CoE) in IIoT Sensors was also launched.
- It aims to catalyse the development of sensors within the realm of Intelligent IoT systems covering a broad spectrum of applications of intelligent sensors in networks and devices.
- The IoT is a network of interconnected devices that communicate and share data with each other through the internet.

Soil-powered Fuel Cell

Context

- Recently, scientists have developed a new fuel cell, claiming it can harvest energy from microbes (bacteria) living in the soil.

About the Soil-powered fuel cell

- It is a new technology that generates power with the help of microbes in the soil instead of chemicals.
- The microbes release electrons during the decomposition of organic matter. These electrons flow from the anode to the cathode, creating an electric circuit that generates power.
- It can potentially last forever as long as there is organic carbon in the soil for the microbes to break down.

Significances

- It potentially be used in green infrastructure and precision agriculture applications.
- It could offer a sustainable, renewable alternative to traditional batteries, which hold toxic, flammable chemicals that leach into the ground and contribute to the ever-growing problem of electronic waste.

Distress Alert Transmitter

Context

- Recently, the Indian Space Research Organisation (ISRO) upgraded its Distress Alert Transmitter (DAT) as Second Generation DAT (DAT-SG) to aid Search and Rescue Operations in the Maritime Domain.

Second Generation DAT (DAT-SG)

- It can receive messages from the control centre, allowing for the transmission of advance alerts about bad weather, cyclones, tsunamis, or other emergencies.
- It can send back an acknowledgement to the fishermen who activate the distress alert, assuring them of incoming rescue.
- Information about Potential Fishing Zones to get a good yield in their catch and save time and fuel.
- It can be connected to mobile phones using Bluetooth, and the messages can be read in the native language using an App on the mobile.
- The Indian Mission Control Centre (INMCC), a central control centre, has a web based network management system called 'SAGARMITRA' which maintains a database of registered DAT-SGs
- It helps Maritime Rescue Coordination Centres (MRCCs) to access the information about the boat and coordinate the boat in distress in real time.
- It helps the Indian Coast Guard to undertake Search & Rescue operations at the time of distress, without any time delay.
- The services of DAT-SG are operational on a 24×7 basis.

Public Stockholding for Food Grains

Context

- India, in the 13th ministerial conference (MC13) of the World Trade Organisation (WTO) will push for a solution of the issue on public stockholding for food grains.

What is the issue of Public Stock Holding?

- Public stockholding programme is a policy tool used by the government to meet food security and safeguard millions of its hunger-stricken population.
- As per WTO norms, agricultural subsidies should not exceed 10 percent of the value of agricultural production for developing countries.
- However India and many other developing countries have been pushing for a permanent solution to the issue of providing subsidies for PSH, as it would allow them to expand schemes like MSP for foodgrains without worrying about breaching limits.

Peace Clause

- WTO members at the Bali ministerial meeting in 2013 put in place a mechanism called the Peace Clause to tackle the differences between nations on food subsidy.
- Under this clause, developing nations could not be dragged to arbitration if they did breach the prescribed limit of 10 per cent on support to farmers.
- However, there was confusion over whether the temporary reprieve would continue after four years.

Concerns of Western Nations

- Large agriculture commodity exporters such as the US and Canada are critical of such a move as they believe that higher subsidies are distorting agriculture prices in the global market.
- It is also argued that public stockholding at administered prices gives countries such as India an unfair competitive advantage in trade, contradicting the WTO's principles of open and fair trade.
- The US stated that the decision in the Bali agreement had caused detrimental consequences and enabled India to become the biggest rice exporter.

India's Stand

- India, proposed that domestic support provided by a developing country for PSH programmes should be considered compliant with the WTO's AoA (Agreement on Agriculture) rules and not subject to reduction commitments.
- The external reference price for calculating the subsidy element is pegged to 1986-88 prices, which leads to inflated subsidy calculations because existing international prices are much higher.
 - It also argued that it has enacted the National Food Security Act, 2013, to provide subsidized foodgrains to protect the interest of the farmers and poor population. Hence public procurement at subsidized rates and storage is required.

Ingenuity: Mars Helicopter

Context

- The National Aeronautics and Space Administration (NASA) regained contact with its Mars Ingenuity Helicopter after its 72nd flight.

About Ingenuity

- It is a small robotic chopper and the first aircraft to make a powered, controlled flight sent to Mars on an experimental basis.
- It has been called a 'Wright Brothers moment'.
- It flies in Mars' thin atmosphere, which isn't conducive for flying.
- It uses solar power to charge its batteries and relies on internal heaters to maintain operational temperatures during the cold Martian nights.
- It paves the way for future aerial explorers at Mars and, potentially, other space destinations.

Mpemba Effect

In News

- The Mpemba effect caught scientists' attention recently.

About Mpemba effect

- It is named after Tanzanian student Erasto Mpemba, who brought attention to this counterintuitive phenomenon in 1969.
- Aristotle, Francis Bacon, and René Descartes had noticed the effect centuries earlier.
- The effect is that hot water can freeze faster than cold water in similar conditions.
- Experiments : Researchers have conducted numerous experiments to determine the causes of this phenomenon
- Microbubbles : left suspended in water that has been heated by boiling.
- These cavities promote convection and transfer heat faster as the water cools.
- Evaporation: As warmer water evaporates more, it also takes away some heat (evaporation is inherently endothermic, which is how sweat cools your skin).
- Both convection and accelerated heat transfer are enhanced in warmer water because such water is less dense.
- The presence of frost in cold water:
- Frost is an insulator and could slow the loss of heat.
- Compounds in water: Scientists have also considered whether compounds in water like calcium carbonate could be precipitated by boiling, and then dissolve, thus increasing the water's freezing point.

D.K. Basu Judgment

Context

- Recently the Supreme Court of India highlighted the D.K. Basu Judgment (1996) against police abuse and custodial violence.

About the D.K. Basu vs. State of West Bengal Case (1996):

- It is a landmark judgement of the Supreme Court of India in the realm of human rights jurisprudence, and drawing attention to deaths in police custody in India.
- The petitioner, D.K. Basu, Executive Chairman of Legal Aid Services, West Bengal, addressed a letter to the Supreme Court of India drawing attention to deaths in police custody.
- The letter was treated as a Writ Petition within the 'Public Interest Litigation'.

The Judgement:

- It held that custodial violence, including torture and death in lock-ups, violates the rule of law and human dignity.
- It broadened the horizons of the meaning of fundamental rights.
- It held that compensation can be awarded for the infringement of fundamental rights.
- The SC has laid down the 'Basic Requirements' for Arrest and Detention, that includes:
 - Identification;
 - Memo of Arrest;
 - Information of Arrest;
 - Informing the right to the Arrestee;
 - Diary Entry;
 - Inspection Memo;
 - Medical Examination;
 - Copies of documents to Illaqa Magistrate;
 - Right to Lawyer;
 - Police Control Room;

Cannabis Compound having Antibiotic Effects

Context

- Scientists at CSIR-Indian Institute of Integrative Medicine (IIIM), Jammu, have found that phytocannabinoids, a class of compounds found in the cannabis plant, possess some hitherto unexplored antibiotic properties.

About the study

- The study specifically focused on tetrahydrocannabinol (THCBD), a phytocannabinoid, and its efficacy against *Staphylococcus aureus*, a bacteria contributing to antibiotic resistance.
- THCBD demonstrated strong antibacterial effects against various resistant strains of *S. aureus*, including the methicillin-resistant strain.

Challenges and opportunities

- Legal hurdles: Research related to cannabis comes up against legal constraints and the need to adhere to specific regulations when studying this plant.
- Section 20 of the Narcotic Drugs and Psychotropic Substances Act 1985 restricts the use of cannabis and doesn't make exceptions for research.
- Lack of ease of research: Currently, many universities lack approval to conduct research on the plant. Hence, establishing a framework and transportation agreement is important.
- Solubility challenge: Solubility is an important consideration for a drug. Before active ingredients of antibiotics can be absorbed at a specific site in the body, the drug will need to dissolve in an aqueous solution. If it doesn't dissolve properly, the body won't be able to absorb it as intended.

Way Ahead

- Cannabis has the potential to make a dent in India's fight against the escalating threat of antibiotic resistance.
- Highlighting the anti-bacterial nature of cannabis will go a long way towards circumventing the taboo around it, and transform it into a valuable resource.
- Conducting a comprehensive safety profile assessment, to pave the way for its use as a drug.

Three-Drug Regimen for Treating Leprosy

Context:

- The Central government has approved a new treatment regimen for leprosy, aiming to stop its transmission at the sub-national level by 2027.

Three-drug regimen

- The WHO has recommended this treatment regimen in 2015.
- It consists of three drugs — dapsone, rifampicin and clofazimine. The combination is referred to as MDT (multidrug therapy). MDT kills the pathogen and cures the patient.
- This regimen is known as 'Uniform MDT', where a single three-pack kit can be given to all leprosy patients. This measure facilitates ease of administration.
- The duration of treatment is six months for PB and 12 months for MB cases.

Leprosy

- Leprosy, also known as Hansen's disease, is a chronic infectious disease caused by the slow-growing bacteria *Mycobacterium leprae* bacteria.
- It primarily affects the skin and peripheral nerves, leading to potential disabilities if left untreated.
 - Leprosy is spread through close and frequent contact with untreated individuals, most commonly via respiratory droplets from the nose and mouth.
 - Early symptoms often involve pale, painless patches on the skin that can lose sensation.
 - Leprosy can be diagnosed through skin smear tests, nerve function tests, and biopsies.

NISAR Satellite

Context:

- Indo-US satellite- NISAR is to study Earth's cryospheric changes which will help in natural resource, hazard management

About the NISAR

- NASA-ISRO Synthetic Aperture Radar (NISAR) represents a first-of-its-kind collaboration between NASA and ISRO for an Earth-observing mission.
- The radar satellite is set to launch in 2024
- The goal of NISAR is to make global measurements of the causes and consequences of land surface changes using advanced radar imaging.
- Collaboration: NASA's Jet Propulsion Laboratory will lead the US component and provide the mission's L-band SAR.
- ISRO's UR Rao Satellite Centre and Space Applications Centre will contribute the spacecraft bus, launch vehicle and S-band SAR electronics.
- It will employ two radar systems, an L-band and an S-band, to penetrate clouds and darkness, offering comprehensive data even during polar winter nights.
- NISAR will cover nearly all of the planet's land and ice surfaces every 12 days.

Applications of NISAR

- Snow studies: The L-band radar is particularly adept at penetrating snow, offering insights into the movement of ice beneath, while the S-band radar focuses on snow moisture, indicating areas of melting.
- Glaciers: Beyond polar ice, NISAR will track changes in mountain glaciers, which have significantly contributed to sea level rise since the 1960s.
- Wetlands: This mission is distinguished by its ability to track a variety of Earth's vital signs, ranging from the health of wetlands to the impacts of deforestation and natural hazards.

- Geophysical dynamics: The measurements will also enable scientists to closely study what happens where ice and ocean meet.
- For example, when parts of an ice sheet sit on ground that is below sea level, saltwater can seep under the ice and increase melting and instability.
- Southern ocean: The mission's extensive coverage of the Southern Ocean is unprecedented and will offer new insights into these crucial areas.

Significance

- This initiative comes at a crucial time, as recent satellite imagery from East Antarctica has shown significant glacial collapse, highlighting the urgent need for detailed monitoring.
- The mission will also provide a 'time-lapse movie' of ice sheets, offering a consistent view of their motion, thus aiding in predictions of future changes. This is important to understand and predict the dynamics of ice sheets.
- The satellite's all-weather capability is particularly beneficial for monitoring regions like the Himalayas, where cloud cover can hinder data collection.

Quantum Computing

Context:

- Quantum computing has gained a significant interest in the past decade for its applications in various fields.

About Computing:

- A bit (binary digit) is the smallest piece of information storage in computing. Often, a large number of bits is required to convey meaningful information.
- In a computer, a bit is a physical system with two easily discernible configurations, or states – e.g. high and low voltage.
- These physical bits are useful to represent and process expressions that involve 0s and 1s: for instance, low voltage can represent 0 and high voltage can represent 1.
- A gate is a circuit that changes the states of bits in a predictable way. The speed at which these gates work determines how fast a computer functions.

Quantum computing:

- Quantum computing is a revolutionary computing paradigm utilizing the principles of quantum mechanics to perform calculations.
- Unlike classical computers that rely on bits (0 or 1), quantum computers harness qubits, which can exist in a state of superposition (both 0 and 1 simultaneously).
- For example, to perform one calculation that requires 16 different inputs, a classical computer requires a total of four bits and sixteen computations.
 - But with four qubits in superposition, a quantum computer could generate answers corresponding to all 16 inputs in a single computation.
- This unique property allows them to perform certain calculations exponentially faster than classical computers, opening doors to groundbreaking advancements in various fields.

Applications:

- Drug discovery: Simulating complex molecules to develop new drugs and materials, leading to accelerated medical innovation.
- Financial modeling: Optimizing financial portfolios and managing risk with unparalleled accuracy and speed.
- Cryptography: Breaking existing encryption methods and developing new, quantum-resistant ones.
- Machine learning: Revolutionizing AI by training algorithms on massive datasets much faster, leading to breakthroughs in natural language processing, computer vision, and more.
- Materials science: Designing novel materials with superior properties like high-temperature superconductors or efficient solar cells.

Challenges:

- **Hardware limitations:** Qubits are fragile and prone to errors, making it difficult to build large, stable quantum computers.
- **Software development:** Quantum algorithms are fundamentally different from classical algorithms, requiring specialized programming languages and techniques.
- **Cost and accessibility:** Current quantum computers are expensive and often not accessible to the general public or even smaller research institutions.
- **Security concerns:** The power of quantum computers poses potential threats to existing encryption methods, necessitating development of quantum-resistant cryptography.

Measures:

- **Investing in research and development:** Governments and private companies are pouring resources into advancing quantum hardware and software technologies.
- **Developing error correction techniques:** Robust methods for mitigating qubit errors are crucial for building reliable quantum computers.
- **Building quantum ecosystems:** Creating platforms and tools to make quantum computing more accessible and user-friendly for developers and researchers.
- **Addressing security concerns:** Collaborating on international standards and protocols for quantum-resistant cryptography to ensure secure communication in the future.

Conclusion:

- Quantum computing holds immense potential to revolutionize various industries and solve significant challenges facing humanity.
- While we remain in the early stages of this technology, sustained efforts to address the existing hurdles are paving the way for a future where quantum computers unlock unprecedented possibilities across diverse fields.

Thirty Meter Telescope (TMT) Project

Context

- An Indian delegation visited Mauna Kea, Hawaii, USA and discussed challenges in the progress of the Thirty Meter Telescope (TMT) project and ways to overcome them.

About

- The project has faced considerable challenges. The upcoming projects have invited local opposition on the grounds that building telescopes violates religious and cultural customs.
- **Alternate site:** There are plans to construct the TMT at an alternate site, on La Palma in Spain's Canary Islands, which is seen as the next best choice.

Thirty Meter Telescope (TMT) Project

- The TMT has been conceived as a 30-metre diameter primary-mirror optical and infrared telescope that will enable observations into deep space.
- It is proposed as a joint collaboration involving institutions in the US, Japan, China, Canada, and India.
- Indian participation in the project was approved by the Union Cabinet in 2014.

Indian contribution

- India expects to be a major contributor to the project and will provide hardware (segment support assemblies, actuators, edge sensors, segment polishing, and segment coating), instrumentation (first light instruments), and software (observatory software and telescope control systems) worth \$200 million.
- Of the 492 precisely polished mirrors that the telescope needs, India will contribute 83.
- The Indian Institute of Astrophysics (IIAP) is leading the consortium of Indian institutions that are involved with the TMT project.

Superconductivity in LK-99

Context

- A group of scientists have reported finding a sign of superconductivity in a material called LK-99 at room-temperature.

What is a superconductor?

- A superconductor is a material that can conduct electricity or transport electrons from one atom to another with no resistance.
- This happens at temperatures between 240 K and 275 K, that is, approximately between –33 degrees Celsius and 2 degrees Celsius.
- This means no heat, sound or any other form of energy would be released from the material when it has reached the temperature at which the material becomes superconductive.

Properties of superconductor

- Electronic effect: The material will transport an electric current with zero resistance.
- Thermodynamic effect: The electronic specific heat drops drastically at the superconducting transition temperature.
- The specific heat is the heat required to increase the temperature of the electrons in the material by 1 degree Celsius drops.
- Spectroscopic effect: The electrons in the material are forbidden from attaining certain energy levels, even if they could when the material wasn't a superconductor.
- Meissner effect: A material transitioning to its superconducting state, will expel any magnetic field in its bulk to the surface. This expulsion is called the Meissner effect.

Types of superconductors

- There are two types of superconductors, depending on how they respond to a magnetic field.
- Type I superconductors: If the magnetic field applied to a superconductor becomes too strong, the material will completely lose its superconducting state and allow the field to penetrate its body.
- Type II superconductors: When the magnetic field strength crosses a threshold, the extent superconductivity inside the material will gradually drop until, at a higher second threshold, it vanishes completely.

Applications

- Magnetic Levitation (Maglev) Trains: Superconducting magnets enable the development of Maglev trains, which use magnetic repulsion to lift and propel the train above the tracks, minimizing friction and allowing for high-speed travel.
- Electric Power Transmission: Superconductors can transmit electrical power with minimal loss, making them ideal for applications where efficiency is crucial.
- SQUIDS (Superconducting Quantum Interference Devices) can be used to take magnetic cardiograms based on magnetic fields generated by electric currents in the heart.
- Power Grids and Fault Current Limiters: Superconductors can be employed to enhance the efficiency of power grids and act as fault current limiters, preventing damage to electrical equipment during power surges or faults.

OTT Sector

Context

- India's OTT market, sized at \$2.5 billion, went through a major disruption in 2023.

About

- This disruption was due to Jio Cinema offering the most premium content-IPL, free to users.
- This negatively impacted subscription revenue growth for peers and the industry at large and led to Disney Plus offering cricket World Cup free for mobile customers.

What are OTT Services?

- OTT (Over-the-Top) refers to content providers that deliver media directly over the internet to users without the need for traditional cable or satellite TV services.
- Essentially, OTT platforms utilize streaming technology (transmit data [audio, video, etc.] in real time over the internet) to deliver their content to users.

Indian OTT Sector

- Market Size and Growth: The OTT market in India is currently at 10,500 crore, including subscription revenues. This is expected to touch 12,000 crore by FY 2024 and 30,000 crore in FY 2030 with a 20 per cent growth on year-on-year basis, according to CII.
- There are currently over 45 million OTT subscribers in India.

Key Players:

- Global giants: Netflix, Amazon Prime Video, Disney+ Hotstar.

Benefits

- Domestic players: ZEE5, SonyLIV, Voot, MX Player, ALTBalaji.
- Regional players: Aha (Telugu), Hoichoi (Bengali), Voot Select (Tamil).
 - Media Ethics Code) Rules 2021 to establish regulations for Over-the-Top (OTT) platforms.
- Recently, the Union government has introduced a new bill that will consolidate the regulatory framework for various broadcasting
- Original content: Rising focus on creating original Indian shows and movies, catering to diverse regional and linguistic preferences.
- Genre diversification: Expansion beyond traditional genres like drama and comedy, with thrillers, documentaries, and reality shows gaining popularity.
- Language focus: Increased focus on regional languages, with platforms launching original content in Tamil, Telugu, Malayalam, and other regional languages.
- Short-form content: Growing popularity of bite-sized content like web series and short videos.

Challenges

- Competition: Intense competition among both global and domestic players requires robust content strategies and competitive pricing.
- Data costs and affordability: High data costs remain a barrier for some users, particularly in rural areas.
- Piracy and copyright infringement: Protecting content from piracy remains a challenge.
- Regulation and censorship: Balancing creative freedom with government regulations and cultural sensitivities requires careful navigation.

Laws Regulating OTT Platforms

- In 2022, the Central Government issued the Information Technology (Intermediary Guidelines and Digital services, including over-the-top (OTT) content.
- The bill, once passed, will set up content evaluation committees for regulation and watchdog.

Opportunities

- Rural market expansion: Strategies to address data affordability and cater to regional content preferences can unlock rural market potential.
- Technological advancements: Integration of Augmented/Virtual Reality and personalized recommendations can enhance viewer experience.
- Consolidation and partnerships: Potential for mergers and acquisitions or strategic partnerships to optimize resources and compete effectively.
- Global content export: Indian OTT platforms have the potential to export original content to international markets.

Way Ahead

- The Indian OTT sector is poised for continued growth, driven by rising disposable incomes, increasing internet penetration, and a growing appetite for diverse and engaging content.

- Overcoming challenges like affordability and piracy while capitalizing on opportunities in rural markets and technological advancements will be crucial for sustained success.

Voice Cloning

Context

- Voice cloning through Artificial Intelligence (AI) has created fears around the AI software as AI voice cloning-related scams burgeoned.

About

- A report by Market US has revealed that the global market for these voice cloning applications stands at \$1.2 billion in 2022 and is estimated to touch almost \$5 billion in 2032 with a CAGR above 15-40%.

How are voice clones done?

- Once a scammer finds an audio clip of an individual, all it takes is to upload their voice clip to the online program that is able to replicate the voice accurately barring some intonations.
- There's a host of these applications online with popular ones like Murf, Resemble and Speechify.
- Recently, former Pakistani Prime Minister Imran Khan's political party used an AI-generated speech from the now imprisoned leader in an attempt to rally for votes.

Applications

- Preserving legacy: Can keep the voices of loved ones alive for future generations.
- Apple introduced a voice cloning feature in iOS 17 intended to help people who may be in danger of losing their voice to a degenerative disease.
- Personalized experiences: Custom virtual assistants, interactive storytelling, and more immersive digital interactions.
- Gaming: Prominent tech companies also have a hand in the AI voice game. Recently, Meta launched SeamlessM4T, which can understand nearly 100 languages from speech or text and generate translations in real-time.
- Accessibility: Can offer voice to those who have lost it or will lose it due to illness or disability.
- Song creations: YouTube took a similar route and announced Dream Track that allows them to create song clips featuring AI vocals with permission from pop stars like Demi Lovato, Sia and John Legend.
- Creative applications: Enhancing storytelling, audio games, and immersive experiences.

Issues

- Scams: In April 2023, a family living in Arizona, U.S. was threatened to pay ransom for a fake kidnapping pulled off by an AI cloned voice.
- Reporting issues: Several cases went unreported and only some came to light.
- Fake news: Easy access to AI voice clones also spawned disinformation.
- Harry Potter actress Emma Watson allegedly read out a portion of the Mein Kampf.
- Privacy and consent: Concerns about unauthorized recording and use of voices without consent need to be addressed.
- Ethical considerations: Potential for exploitation, manipulation, and emotional harm through impersonation and misuse.
- Social implications: Impact on identity, trust, and communication dynamics in the digital age.
- Hate speech: Recently, users started flocking to free AI voice cloning tools to generate celebrity hate speech.
- Conservative political pundit Ben Shapiro allegedly made racist comments against Democrat politician Alexandria Ocasio-Cortez.

Measures

- Regulatory frameworks: Robust legal and ethical guidelines are crucial to prevent misuse and protect privacy.
- The U.S. Federal Trade Commission is considering the adoption of a recently-proposed Impersonation Rule that will help deter deceptive voice cloning.
- Technological safeguards: Watermarking and other authentication mechanisms can help identify and verify cloned voices.

- Public awareness and education: Educating the public about voice cloning technology and its potential risks is vital.
- The US Federal Trade Commission has also launched a Voice Cloning Challenge which asked the public to send in their ideas to detect, evaluate and monitor cloned devices.
- Responsible development and application: Promoting ethical and transparent use of voice cloning for positive societal impact.

Way Ahead

- The future of voice cloning hinges on responsible development and utilization, balancing its potential benefits with ethical considerations and safeguards to avoid its misuse.

'Deep Tech' Policy

Context

- The Principal Scientific Advisor to the Government of India informed that the 'Deep Tech' Policy was sent to the Union Cabinet for approval.

Background

- The Union government unveiled a 'Draft National Deep Tech Startup Policy (NDTSP)' in July 2023 for public comment.
- It proposes a comprehensive policy framework to address the needs and strengthen the Indian Deep Tech Startup Ecosystem.
- It claims that there are more than 10000 startups recognised by the Department for Promotion of Industry and Internal Trade (DPIIT), under Union Ministry of Commerce and Industry which are classified across various sub-sectors within the larger deep tech space.

National Deep Tech Startup Policy (NDTSP)

- It is strategically formulated to stimulate innovation, spur economic growth, and promote societal development through the effective utilisation of deep tech research-driven innovations.
- It centralises on bolstering deep tech startups, thereby solidifying India's financial stability and stimulating the transition towards a knowledge-centric economy, consequently augmenting India's overall productivity.
- Vision (Deep Tech of India):
 - Ensuring the Security of India's Economic Future;
 - Facilitating a Seamless Transition to a Knowledge-Driven Economy;
 - Bolstering National Capability and Sovereignty through the Atma Nirbhar Bharat Imperative; and
 - Fostering Ethical Innovation
- Thematic Priority:
 - Nurturing Research, Development & Innovation; Strengthening the Intellectual Property Regime; Facilitating Access to Funding; Enabling Shared Infrastructure and Resource Sharing; Creating Conducive Regulations, Standards, and Certifications; Attracting Human Resources & Initiating Capacity Building; Promoting Procurement & Adoption; Ensuring Policy & Program Interlinkages; and Sustaining Deep Tech Startups.

Significances

- Nurturing the Research, Development & Innovation Ecosystem: The Policy proposes an increase in Gross Expenditure on R&D to provide renewed impetus to basic Research, Development & Innovation with aim of emerging science base for deep tech startups; and the critical base of trained scientific human resources.
- It aims to suitably amend the existing research assessment practices at academic institutes and research labs to enable translation of knowledge outputs into entrepreneurial outcomes.
- Technology Commercialisation: By creating seamless partnerships between academic institutions, research labs and industry;
- Platforms and technology commercialisation offices within academic institutes and research labs and providing;
- It aims to promote innovation in fields such as AI, Blockchain, biotechnology, drones, and quantum computing.

- Open Science and Data Sharing Platform: The policy promotes setting up an Open Science and Data Sharing platform for encouraging collaboration and knowledge sharing among the stakeholders to promote deep tech innovations.
- It aims to incentivise faculty members, through suitable amendments in their appraisal and assessment policies, to undertake entrepreneurial risk.
- Strengthening India's Intellectual Property Rights (IPR) Regime: By measures like:
 - Establishing a Single Window Platform that enables an Unified IP Framework;
 - Customised for deep tech startups;
 - Guidelines on creation of Design IPs leading to greater strength in respective technology competencies;
 - Guidance on streamlining the patent application process; and
 - Unified database from all Higher Education Institutes (HEIs) populated with publication, patent and project information .
- Strengthening Global Competitiveness: The policy proposes to strengthen India's position in global IP related convention, cross border IP protection, providing provisions in Free Trade Agreement (FTA) and establishing a well-defined mechanism for evaluating the suitable amendments in National IPR Policy.
- Enable Shared Infrastructure and Resource Sharing: The policy aims to provide access to shared infrastructure, for a nominal fee wherever necessary, is key to reducing initial capital expenditure for the startups.

Major Concern

- Funding: Currently in India, only about 10% of startups are 'deep tech'.
- Investments in 2023 hit a five-year low of \$7 billion, taking India's global ranking from third to fourth place.
- Funding declined across all stages, with late-stage funding witnessing the biggest drop of 73%, to \$4.2 billion in 2023 so far.
- The quantum of funds in 'deep tech' needed is vastly larger, unlike startups focussed on fintech or retail software.
- Competition from China: India stood second in terms of research in technologies, including biofuels, smart materials, advanced composite materials, and high-specification machining processes.
- China's global lead was spread across defence, space, robotics, energy, environment, biotechnology, artificial intelligence (AI), and quantum technology.
- Other key barriers such as resource and infrastructure constraints, and understanding risks associated with frontier technologies.

Way Forward

- Funding is a key driver of a startup's growth journey, and access to long-term finance is particularly critical for deep tech startups for product development, validation, and scaling.
- It is essential to Facilitate Targeted Long-term Funding for deep tech startups, and there is a need to address the key barriers for the best utilisation of deep tech.
- There are International Initiatives within the Indian Deep Tech Startup ecosystem, like the Indo-US Joint Working Group on Artificial Intelligence (2020); the Indo-Israel Deep Tech & Life Sciences Mission; the Indo-Japan Deep Tech & Startups Partnership from which India can utilise effectively and efficiently in the field of deep tech.

Aditya L1 Mission

Context

- Recently, ISRO performed a crucial maneuver to bind Aditya-L1 into L1 orbit.

What is the Aditya-L1 mission?

- Aditya-L1 is the first space-based Indian observatory to study the Sun.
- The solar mission will not see the spacecraft actually go to the sun, it will instead create a space observatory at a point from which the sun can be observed even during an eclipse.
- The spacecraft will be placed in a halo orbit around the Lagrange point 1 (L1), around 1.5 million km from the Earth, of the Sun-Earth system.
- The mission has a life of five years during which its payloads are expected to provide the information to understand the phenomenon.

- Coronal heating; coronal mass ejection; pre-flare and flare activities and their characteristics;
- Dynamics of space weather; and propagation of particles and fields.
- It is equipped with seven payloads (instruments) on board with four of them carrying out remote sensing of the Sun and three of them carrying in-situ observation.

What are the seven payloads?

- The Visible Emission Line Coronagraph (VELC) will study the Corona, imaging and spectroscopy, and Coronal mass ejections.
- The Solar Ultraviolet Imaging Telescope (SUIT) will focus upon the Photosphere and Chromosphere imaging- narrow and broadband. It will also measure the solar irradiance variations.
- The Solar Low Energy X-ray Spectrometer (SoLEXS) and High Energy L1 Orbiting X-ray Spectrometer (HEL1OS) will study the soft and hard X-ray flares from the Sun over a wide X-ray energy range.
- The Aditya Solar wind Particle Experiment (ASPEX) and Plasma Analyser Package For Aditya (PAPA) will analyze the electrons and protons in the Solar wind or particles. It will also study the energetic ions.
- The Advanced Tri-axial High Resolution Digital Magnetometers will study the interplanetary magnetic field at L1 point.

GSAT-20

Context:

- NewSpace India Limited (NSIL), ISRO's commercial arm, will launch GSAT-20 satellite on-board SpaceX's Falcon-9 during the second quarter of 2024.

About the GSAT-20

- It is, weighing 4700 kg, a High Throughput Satellite (HTS) with Ka-Ka-band which is fully owned, operated and funded by NewSpace India Limited (NSIL).
- It was recently renamed as GSAT-N2.
- It will be the second 'demand driven' satellite launch enabled by NSIL.

Significance:

- It is a high-capacity communication satellite that is meant to offer broadband services, including In-flight and Maritime Connectivity (IFMC) services.
- It offers Pan-India coverage including Andaman and Nicobar and Lakshadweep islands, along with an HTS capacity of nearly 48 Gbps and has been specifically designed to meet the demanding service needs of remote and unconnected regions.

Why Falcon 9 of SpaceX?

- GSAT-20 weighs about 4,700 kg, much heavier than launch capacity of ISRO's most powerful rocket, LVM-3.
- For its heavier satellites, weighing more than 4,000 kg, India had been depending on Arianespace's heavy launch vehicle Ariane-5.
- However, it was retired and its successor Ariane-6 is yet to make its debut.
- Typically, communication satellites are launched into space at an orbit that is 170 km x 36,000 km (also known as Geosynchronous Transfer Orbit or GTO).
- India's GSLV and LVM3 rockets are designed and reliably proven to deliver payloads into such a highly elliptical (egg-shaped) orbit.
- GSLV can deliver around 2250 kg to GTO
- LVM3 can deliver 4000 kg to GTO.
- However, GSAT-20 is beyond the payload capacity of India's operational rockets.

India's Palm Oil Imports

Context

- India's palm oil imports rose in December to their highest in four months.

Palm Oil

- It's an edible vegetable oil that comes from the fruit of oil palm trees, having the scientific name *Elaeis guineensis*.
- The oil palm tree is native to West and Central Africa. It also grows extensively in Malaysia and Indonesia.
- Palm oil, obtained from the fruits, is used in making soaps, cosmetics, candles, biofuels, and lubricating greases and in processing tinsplate and coating iron plates.
- Palm kernel oil, from the seeds, is used in manufacturing such edible products as margarine, ice cream, chocolate confections, cookies, and bread, as well as many pharmaceuticals.

Indian import of palm oil

- India is the largest importer of palm oil in Asia, accounting for 15% of global imports, followed by China (9%), Pakistan (4%) and Bangladesh (2%).
- India buys palm oil mainly from Indonesia, Malaysia and Thailand.

National Mission on Edible Oils – Oil Palm (NMEO-OP)

- It is a Centrally Sponsored Scheme with a special focus on the North east region and the Andaman and Nicobar Islands.
- Funding: A financial outlay of Rs.11,040 crore has been made for the scheme, out of which Rs.8,844 crore is the Government of India share and Rs.2,196 crore is State share.
- Under this scheme, it is proposed to cover an additional area of 6.5 lakh hectares for oil palm till the year 2025-26 and thereby reaching the target of 10 lakh hectares ultimately.
- Objective: To augment the availability of edible oil in the country by harnessing area expansion and increasing crude palm oil production to reduce the import burden.
- The salient features of NMEO-Oil palm are:
 - Assistance for planting material,
 - Inputs for intercropping up to gestation period of 4 years and for maintenance,
 - Establishment of seed gardens, micro irrigation, vermicompost units, solar pumps, harvesting tools, custom hiring center cum harvester Groups,
 - Farmers and officers training, and for replanting of old oil palm gardens etc.

SMART 2.0

Context

- Recently SMART 2.0 (Scope for Mainstreaming Ayurveda Research)
- The program was launched by the Central Council for Research in Ayurvedic Sciences (CCRAS) along with the National Commission for Indian System of Medicine (NCISM).
- The objective of 'SMART 2.0' is to generate tangible evidence to demonstrate efficacy and safety of Ayurveda interventions using interdisciplinary research methods and translating it into public health care.

Central Council for Research in Ayurvedic Sciences (CCRAS)

- It is an apex organization for the formulation, co-ordination, development and promotion of research on scientific lines in Ayurveda.
- CCRAS is functioning under the Ministry of Ayush.

FIU IND Act Against Virtual Asset Providers

In News

- The Financial Intelligence Unit India (FIU IND) issued compliance show cause notices to nine offshore Virtual Digital Asset Service Providers (VDA SPs).

About compliance action

- As part of compliance action against the offshore entities, FIU IND issued show-cause notices to offshore virtual digital asset service providers (VDA SPs) for "operating illegally" without complying with the provisions of the Prevention of Money Laundering Act, 2002 (PMLA).
 - o FIU IND has written to the Secretary of the Ministry of Electronics and Information Technology, urging the blocking of URLs associated with these offshore entities.

- This move aims to prevent their continued operation in India without adhering to the regulatory obligations outlined in the PMLA.

Legislation

- In March 2023, Virtual Digital Asset Service Providers (VDA SPs) in India were brought under anti-money laundering/counter financing of terrorism regulations.
- They were mandated to comply with PMLA 2002, verify the identities of onboarded clients, and maintain records of their financial positions and potentially suspicious transactions.
- This obligation applies to all VDA SPs operating in India irrespective of physical presence and engaged in activities like exchange between virtual digital assets and fiat currencies, transfer of virtual digital assets, safekeeping or administration of virtual digital assets or instruments enabling control over virtual digital assets etc. are required to be registered with FIU IND as Reporting Entity

Purpose

- The objective of the PMLA and its reporting obligation are to enable monitoring and tracking of financial transactions to curb money laundering and terror financing.
- Recent move comes as part of the broader effort to bring Virtual Digital Assets Service Providers under the Anti Money Laundering/Counter Financing of Terrorism (AML-CFT) framework,

Present Status and Challenges

- Till date 31 VDA SPs have registered with FIU IND.
- However, several offshore entities, though catering to a substantial part of Indian users, were not getting registered and coming under the Anti Money Laundering (AML) and Counter Financing of Terrorism (CFT) framework.

Other steps to regulate VDAs

- The Bureau for International Settlements (BIS), which is the global forum for cooperation among central banks, in a report about financial stability from crypto assets in emerging economies (August 2023) observed three high-level policy options under consideration.
 - These include an outright ban, containment and regulation. BIS observed that an outright ban may not prove enforceable.
 - This is because of the pseudo-anonymous nature of crypto markets. There could be a possibility that regulators lose all sight of the market, further shrinking their transparency and making them less predictable.
 - Containment would imply controlling the flows between crypto markets and traditional financial systems.
- However, BIS argued that the strategy would not address the vulnerabilities inherent in the crypto markets and could result in financial stability risks.

Conclusion and Way Forward

- As the cryptocurrency landscape continues to evolve globally, regulatory interventions become imperative to protect investors and prevent illicit financial activities.
- The actions taken by the Indian government signal a proactive stance in addressing potential risks associated with the use of virtual digital assets.
- The cryptocurrency community will keenly observe the developments to gauge the impact on the industry's regulatory landscape in India.

Radiocarbon Dating

Context

- Radiocarbon dating helped establish the age and authenticity of the famous Dead Sea.

Radiocarbon Dating

- Radiocarbon dating, or carbon-14 dating, is a scientific method that can accurately determine the age of organic materials.

- It was developed in the late 1940s by Willard Libby, the technique is based on the decay of the carbon-14 isotope.

How does radiocarbon dating work?

- It starts with cosmic rays—subatomic particles of matter that continuously rain upon Earth from all directions.
- When cosmic rays reach Earth's upper atmosphere, physical and chemical interactions form the radioactive isotope carbon-14.
- Living organisms absorb this carbon-14 into their tissue. Once they die, the absorption stops, and the carbon-14 begins very slowly to change into other atoms at a predictable rate.
- By measuring how much carbon-14 remains, scientists can estimate how long a particular organic object has been dead.

What are the limitations of carbon-14 dating?

- Radiocarbon dating works on organic materials up to about 60,000 years of age.
- Conventional radiocarbon dating requires samples of 10 to 100 grams (0.35 to 3.5 ounces) of an object, depending on the material in question.
- Newer forms of dating can use much smaller amounts, down to 20 to 50 milligrams or 0.0007 to 0.0018 ounces.
- Radiocarbon samples are also easily contaminated, so to provide accurate dates, they must be clean and well-preserved.

Has radiocarbon dating improved over the years?

- Technological and analytical advances have made radiocarbon dating faster and much more precise—and expanded its range of uses by reducing the size of the sample needed.
- The latest form of radiocarbon dating, called accelerator mass spectrometry, needs samples of only 20 to 50 milligrams however, it is also more expensive.
- Another newer development is Bayesian statistical modeling, which applies probability analytics to radiocarbon dates, which always involve an error margin.

What discoveries has carbon-14 testing revealed?

- The breakthrough introduced a new scientific rigor to archaeology, allowing archaeologists to put together a history of humans across the world.
- Carbon dating has helped us reveal how our bodies work, to understand the climate of the Earth and reconstruct its history, and to track the sun's activity and the Earth's magnetic fields.
- Radiocarbon dating was also instrumental in the discovery of human-caused climate change, as scientists used it to track the sources of carbon in the atmosphere over time.

XPoSat (X-ray Polarimeter Satellite) mission

News

- Recently, the Indian Space Research Organisation successfully launched the PSLV-C58 XPoSat (X-ray Polarimeter Satellite) mission.

About

- The XPoSAT mission launch also marked the 60th flight of the Polar Satellite Launch Vehicle (PSLV).
- XPoSat (X-ray Polarimeter Satellite) is India's first dedicated polarimetry mission to study various dynamics of bright astronomical X-ray sources.
- After this launch, India became the second nation after the US to send an observatory to study astronomical sources, such as black holes, and neutron stars, among others.

XPoSat's payloads

- The spacecraft will carry two scientific payloads in a low earth orbit. The primary payload POLIX (Polarimeter Instrument in X-rays) will measure the polarimetry parameters.
- The XSPECT (X-ray Spectroscopy and Timing) payload will give spectroscopic information in the energy range of 0.8-15 keV.

How are X-Rays witnessed in space?

- X-rays have much higher energy and much shorter wavelengths, between 0.03 and 3 nanometers, so small that some x-rays are no bigger than a single atom of many elements. The physical temperature of an object determines the wavelength of the radiation it emits. The hotter the object, the shorter the wavelength of peak emission.
- X-rays come from objects that are millions of degrees Celsius — such as pulsars, galactic supernova remnants, and black holes.

Significance

- The mission helps in comprehending the emission processes from various astronomical sources like black holes, neutron stars, active galactic nuclei, and pulsar wind nebulae.
- Space based observatories are also unable to give information about the exact nature of the emission from such sources. Therefore, newer devices can measure specific properties.

Chapter- 6

INTERNATIONAL RELATION

Agreement Signed on Development of Chabahar Port

Context

- India and Iran signed an agreement on the further development of the Chabahar Port.

Chabahar Port

- Iran's Chabahar port is located on the Gulf of Oman and is the only oceanic port of the country.
- It is situated in the city of Chabahar in Sistan and Baluchestan Province.
- Chabahar has two ports; Shahid Kalantari and Shahid Beheshti.
- The former is an old port with limited water front to accommodate feeder vessels.
- The Shahid Beheshti Port is being developed in four phases. On completion of all 4 phases, port capacity will be 82 million tons per year.
- The port gives access to the energy-rich Persian Gulf nations' southern coast and India can bypass Pakistan with the Chabahar port becoming functional.



Significance of Chabahar Port for India

- Geopolitical Significance: Chabahar Port is strategically located at the crossroads of South Asia, Central Asia, and the Middle East. It provides India with direct sea access to Afghanistan and Central Asia, bypassing Pakistan.
- India can bypass Pakistan in transporting goods to Afghanistan.
- Gateway to INSTC: Chabahar port will boost India's access to Iran, the key gateway to the International North-South Transport Corridor (INSTC) that has sea, rail and road routes between India, Russia, Iran, Europe and Central Asia.
- Countering China: Chabahar port will be beneficial to India in countering Chinese presence in the Arabian Sea which China is trying to ensure by helping Pakistan develop the Gwadar port.
- Gwadar port is less than 400 km from Chabahar by road and 100 km by sea.
- Trade Benefit: With Chabahar port becoming functional, there will be a significant boost in the import of iron ore, sugar and rice to India.
- The import cost of oil to India will also see a considerable decline.

Brief on India and Iran Relations

- Political Relations: India and Iran signed a friendship treaty in 1950. The two countries have in place several Bilateral Consultative Mechanisms at various levels including the Joint Committee Meeting (JCM), Foreign Office
 - Consultations (FOC), Security Consultations at the level of National Security Advisers.
- India and Iran also have Joint Working Groups to facilitate cooperation in various important sectors.

- Economic Relations: India-Iran bilateral trade during the FY 2022-23 was \$2.33 billion, registering a growth of 21.76%.
- India and Iran have also been trying to diversify their channels of payment to increase bilateral trade.
 - Energy Cooperation: India has consistently been among the top importers of Iranian oil, although this relationship has faced challenges due to international sanctions on Iran.
 - Regional Stability: India and Iran share concerns and interests in the stability of the region, especially in the context of Afghanistan.
- The two nations have collaborated on various initiatives to address common security challenges.

Areas of Concerns

- International Sanctions: Iran has faced international sanctions, particularly in relation to its nuclear program.
- These sanctions have affected economic relations between India and Iran, especially in the energy sector.
- India's ability to import oil from Iran has been impacted, leading to uncertainties in their energy cooperation.
- Geopolitical Challenges: The geopolitical landscape in the Middle East and South Asia has been complex, and both countries need to navigate carefully to balance their regional interests.
- Security Concerns: The security situation in the region, including the volatile conditions in Afghanistan, has implications for both India and Iran.
- Their cooperation on regional security issues is essential, but differences in strategic perspectives can pose challenges.
- Chabahar Port Development: While the development of the Chabahar Port is a significant project, progress has been slower than anticipated.
- Impact of External Players: Both India and Iran have relationships with external players that may not align with each other's interests.
- The influence of external powers in the region can complicate their bilateral dynamics and create challenges for mutual cooperation.
- Nuclear Deal Uncertainties: The uncertainties surrounding the Iran nuclear deal (JCPOA) and the potential for changes in the international approach toward Iran's nuclear program can impact the diplomatic and economic relations between India and Iran.

Way Ahead

- Although India has followed a balancing act in the Middle East, the evolving geopolitical realignments could pose newer challenges for India to deepen its cooperation with Iran amid escalating tension between Iran and the West.
- The relationship faces challenges due to geopolitical dynamics, including the influence of other regional players.
- However, both countries continue to explore opportunities for collaboration and economic partnership.

India and Saudi Arabia

Context:

- India and Saudi Arabia have decided to set up a Joint Committee on Defence Cooperation to give a boost to the defence ties.

India-Saudi Arabia Relations:

- Establishment of diplomatic relations in 1947, and it was strengthened by the signing of Delhi Declaration in 2006 and elevated to a strategic partnership by signing of Riyadh Declaration in 2010.
- The Prime Minister of India's visit to Riyadh in 2016 captured the spirit of enhanced cooperation in the political, economic, security, and defence realms.
- King Salman conferred the King Abdulaziz Sash (the Kingdom's highest civilian honour) to India's Prime Minister, indicating the importance of Saudi Arabia-India relations.



Current Scenario:

- India's relations with Saudi Arabia have witnessed unprecedented growth in recent years, marked by a remarkable rise in trade and other investments.
- Trade: India's foreign trade with Saudi Arabia reached an all-time high of \$52.75 billion in FY23.
- India received \$3.22 billion in FDI from Saudi Arabia between April 2000 and June 2023.
- India sources crude petroleum, petroleum products, fertilisers, raw plastic, organic and inorganic chemicals from Saudi Arabia.
- Energy Security: Saudi Arabia contributes to India's energy security as India is highly dependent on imports for its energy needs, importing 87% of oil consumed, and the Middle East accounts for over 60% of India's crude oil imports.
- Food Security: India complements Saudi countries in their food security as Saudi Arabia is largely import-dependent for its food needs and manufactured goods, including textiles.
- Strategic Partnership Council (SPC): India is the fourth country after the UK, France, and China to partner with Saudi Arabia to establish the India-Saudi Arabia Strategic Partnership Council (SPC) in 2019.
- This aims to take forward mutual collaborations on the economy, investments, as well as social, political, and security matters.
- Defence Cooperation: India and Saudi Arabia have a Joint Committee on Defence Cooperation (JCDC) that meets regularly.
- Indian Navy cooperates with Royal Saudi Naval Force through various initiatives, which include operational interactions such as bilateral naval exercise Al Mohed Al Hindi, training and other maritime avenues.
- Indian Navy ships have been regularly undertaking port calls at various ports of Saudi Arabia.
- Various Exercise: The Indian Navy has also been interacting with the Royal Saudi Naval Force in various multilateral fora – Ex Milan, Indian Ocean Naval Symposium, Combined Maritime Forces and Djibouti Code of Conduct – Jeddah Amendment (DCoC-JA).
- Regional Stability: Both countries agreed to work together for peace, security and stability of the region, as Iranian-backed Houthi militants in Yemen stepped up attacks on vessels and disrupted maritime traffic in the Red Sea.
- Indian Ocean Naval Symposium (IONS): The navies of the two countries could explore practical cooperation in the fight against piracy and an active role of the Royal Saudi Navy in the IONS.

Challenges

- Energy Dependence: The core element of their relationship continues to revolve around energy, particularly Saudi Arabia's export of crude oil.

- India is highly dependent on imports for its energy needs, importing 87% of oil consumed, and the Middle East accounts for over 60% of India's crude oil imports.
- Saudi Arabia's Aid to Pakistan: While engaging with India, Saudi Arabia's aid to Pakistan raises concerns.
- Economic Shifts, Political Transitions, and Geopolitical Dynamics: These factors have tested their relationship. However, the underlying respect, shared interests, and commitment to mutual growth have allowed their ties to remain resilient.
- Role of China: The country is also engaged with China, moving towards rapprochement with Iran and Israel, and is also now consolidating the Saudi partnership with the US, India, and Europe.
- Many have thus already described this engagement as a power shift, with China emerging as a significant player in the Middle East.
- Increasing Chinese influence in the Middle East may indirectly help Pakistan, both economically and strategically.

Conclusion and Way Forward

- Despite the challenges, both nations have recognized the importance of adapting their partnership to address modern challenges. They have established the India-Saudi Arabia Strategic Partnership Council (SPC) in 2019 to take forward mutual collaborations on the economy, investments, as well as social, political, and security matters.
- India needs to patiently assess if China's growing involvement in the Gulf is detrimental to its long-term security interests and the regional balance of power.
- The I2U2 partnership between India, Israel, the UAE, and the US has already put India on the region's alliance canvas.
- At the same time, recent developments also provide a window of opportunity for India to embed itself as a significant player in the Middle East.

World Economic Forum

Context:

- The WEF Annual Meeting 2024 began in Davos, Switzerland amid growing concerns over climate change, conflicts and misinformation.

World Economic Forum (WEF) About:

- It is a significant global event that brings together leaders from various sectors to discuss pressing global issues.
- It serves as a platform for global leaders to discuss and address pressing issues, fostering a spirit of cooperation and shared responsibility.

Genesis of WEF:

- The WEF was founded by German professor Klaus Schwab in 1971, and introduced the concept of 'stakeholder capitalism'.
- Stakeholder Capitalism is a form of capitalism where companies seek long-term value creation by considering the needs of all their stakeholders and society at large.
- It was originally known as the European Management Forum.

Reports by WEF:

- Global Gender Gap Report: It assesses the gender gap in various countries. The gender gap is the difference between women and men as reflected in social, political, intellectual, cultural, or economic attainments or attitudes.
- In the 2023 report, India was ranked 127 out of 146 countries.
- The Global Risks Report: It explores some of the most severe risks we may face over the next decade, against a backdrop of rapid technological change, economic uncertainty, a warming planet and conflict.
- Other reports include Global Competitiveness Report (GCR), Travel and Tourism Competitiveness Report, and Global Information Technology Report.

India at WEF:

- India's presence at the WEF is significant, with Union ministers,
 - Chief ministers, and numerous officials and CEOs participating.
- The Indian industry's presence at Davos has been conceptualised with the theme of 'Credible India', showcasing India's impressive economic achievements and its future potential as a significant contributor to global growth.

Iran-Pakistan Conflict

Context

- Pakistan has launched missile strikes into Iran under Operation Marg Bar Sarmachar (Death to Insurgents), following Iran's missile strikes in Pakistan.

Where is Balochistan?

- Balochistan is a region with a distinct cultural and historical identity, divided between three countries: Pakistan, Iran and Afghanistan.
- The 909-km Iran-Pakistan border, known as the Goldsmith Line, stretches from a tripoint with Afghanistan to the northern Arabian Sea.
- The region takes its name from the Baloch tribe. Roughly 9 million ethnic Baloch live on either side of the line, in the Pakistani province of Balochistan, and the Iranian province of Sistan and Baluchestan.
- The largest portion of the region is in south-western Pakistan. It is Pakistan's largest province, comprising 44% of the total landmass.
- It is arid, and the country's least inhabited and least economically developed region.

Issues of Balochistan

- Economic issues: The people of Balochistan had long felt their region was neglected in terms of development and political representation, fuelling resentment towards the ruling establishment.
- Political issues: In Pakistan, the Baloch are an ethnic minority physically and politically distant from the Punjabi-dominated regime and also in Iran, the majority-Sunni
 - Baloch are a religious minority who have been persecuted by the state.
- Demand for separate state: Their marginalization in both countries in subsequent years fuelled several separatist movements for a "Greater Balochistan" nation state.

Militant groups involved

- Jaish Al-Adl (JAA): The Sunni separatist militant group operates freely from Balochistan and is fighting for independence in Iran's Sistan and Baluchestan province.
- Baloch Liberation Front and Baloch Liberation Army: Both are Iran-based hideouts of two Baloch militant groups deemed as "terrorist organizations" by Pakistan.

Relations Between Iran and Pakistan

- Before the 1979 Islamic Revolution in Iran, both countries were firmly allied to the United States.
- In 1955, both of them joined the Baghdad Pact, later known as the Central Treaty Organization (CENTO), a military alliance modeled on NATO.
- However an ultra-conservative Shiite regime took power in Iran and Sunni -majority Pakistan was undergoing its own Islamisation under military dictator Gen Zia-ul-Haq. In this way the two countries found themselves at opposite ends of the sectarian divide.
- The Baloch militant insurgency has been a long-running source of tensions between Pakistan and Iran. Both the nations often accused each other of harboring separatist terrorists.



India's Stakes in the region

- Traditionally India has stayed neutral in the conflicts within the Middle East.
- However, the fragility of the Baloch frontier, China's strategic presence in Balochistan along with its growing role in the Gulf are of deep concern to India.
- Also India has invested in Chabahar port lying the Makran coast of Sistan and Baluchistan Province is of concern for India.

India and Cuba

In News

- Memorandum of Understanding signed between India and Cuba on Cooperation in the field of Sharing Successful Digital Solutions Implemented at Population Scale for Digital Transformation.

India and Cuba Ties

- Beginning: India and Cuba enjoy excellent bilateral relations and have been traditionally warm and friendly.
- India was among the first countries to extend recognition to the new Cuban government following the Cuban revolution in January 1959.
- Trade: Bilateral trade has been moderate. The main items of Indian export to Cuba are pharmaceutical products, organic chemicals, plastic products, medical equipment, engineering goods, textile products, metal products, mineral oil products and tools.
- Imports from Cuba primarily comprise pharmaceutical and tobacco products.
- Development Cooperation: Development Assistance has been a priority area in bilateral relations.
- India has granted disaster relief assistance to Cuba in the wake of devastation caused by various hurricanes over the years.
- Energy: Energy cooperation is one of the main aspects of India-Cuba relations. Cuba is a member country and the Vice-President of Latin America & the Caribbean region at International Solar Alliance (ISA).
- Science & Technology, Biotechnology and Health: India-Cuba relations in the field of S&T and health have been strengthened by ministerial level visits from both sides.
 - Cultural relations: Indian culture and civilization is well appreciated in Cuba.
- Mahatma Gandhi, Nehru and Tagore occupy a special place in Cuba
 - Indian Community: Indian Community in Cuba is small. One of the components of the community is the people of Indian origin, descendants of Indians who came to Cuba in the early twentieth century from Jamaica and other part of the West Indies to work on sugarcane plantations.

Cuba Key Facts

Capital: Havana

Location: Cuba is located where the northern Caribbean Sea, Gulf of Mexico, and the Atlantic Ocean meet.

- West: Mexico
- North: American state of Florida and the Bahamas
- Southeast: Haiti-Dominican Republic
- South: Jamaica and the Cayman Islands



Political Features:

- Cuba has had a socialist political system since 1959 based on the 'one state - one party' principle.
- Cuba is constitutionally defined as a Marxist-Leninist socialist state guided in part by the political ideas of Karl Marx.

Geographical Features:

- Island Nation
- 1. Cuba is an archipelago of nearly 4,200 islands, cays and reefs.
- 2. 2 comprises of the island of Cuba, as well as Isla de la Juventud and several minor archipelagos.
- 3. White sand beaches, as well as mangroves and reefs, are found in thousands.

Cuba's terrain is mostly flat or rolling plains, with rugged hills and mountains in the southeast.

- Highest Point
- 1. Highest point is Pico Turquino at 6,476ft
- 2. It is a part of the Sierra Maestra Mountain range, located in the southeast of the island.

- Freshwater: Cuba has negligible inland water area.

1. The largest natural water mirror is Laguna de Loro.



India-Myanmar Border Free Movement Regime

Context:

- The Union Ministry of Home Affairs (MHA) is planning to end the Free Movement Regime (FMR) with Myanmar.

Free Movement Regime (FMR) Agreement

- The FMR is a mutually agreed arrangement between the two countries that allows tribes living along the border on either side to travel up to 16 km inside the other country without a visa.
- It was aimed to minimise the historical divide and facilitate cultural and economic ties.
- The border between India and Myanmar was demarcated by the British in 1826, without seeking the opinion of the people living in the region, which effectively divided people of the same ethnicity and culture into two nations without their consent.
- People in the region have strong ethnic and familial ties across the border.
- It was implemented in 2018 as part of the Act East Policy and was supposed to provide impetus to local trade and business and boost regional ties.

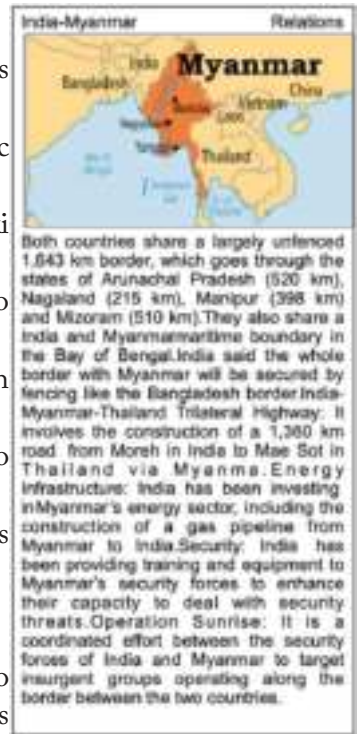
- The region has a long history of trans-border commerce through customs and border haats.

Differed Opinion

- Manipur had urged the MHA to suspend the FMR and fence the entire India-Myanmar border in September 2023.
- It had already suspended the FMR in 2022 to prevent large-scale migration of refugees from Myanmar.
- However, Mizoram and Nagaland have opposed this move of MHA, arguing that the FMR allows the tribes residing across the borders to maintain their ethnic, social, and cultural ties, as well as contribute to the economic well-being of people on both sides of the border.
- They have also opposed the proposal of fencing the entire border with Myanmar.

Why ending the FMR Agreement is significant to India?

- Security Concerns: There are illegal immigrants, drug traffickers, and insurgents from Myanmar have been misusing the liberty of the FMR.
- Control of Ethnic Violence: There have been several instances of ethnic violence in the region.
- About 200 people have lost their lives in ethnic violence between the Kuki tribes and the Meiteis in the second half of 2023.
- Border Management: The decision to end the FMR is part of a broader plan to secure the India-Myanmar border.
- The government plans to fence the border, similar to the India-Bangladesh border.
- Regulation of Movement: The FMR allowed locals from both countries to enter either side up to a certain distance without visas and passports.
- This arrangement will be scrapped, regulating the movement of people across the border.



India's strategy to safeguard its borders

- Developing Infrastructure: As part of the strategy to secure the borders as also to create infrastructure in the border areas of the country, several initiatives have been undertaken by the Border Management Division.
- These include the construction of the fence, floodlighting, roads, Border Out Posts (BOPs), Company Operating Bases (COBs), and deployment of technological solutions along the India-Pakistan, India-Bangladesh,

India-China, India-Nepal, India-Bhutan and India-Myanmar borders.

- Deployment of Troops & Surveillance: The Indian Army and the BSF are deployed in multiple layers to form an anti-infiltration grid.
- The border fence and deployment of other surveillance devices have helped in reducing infiltrations.
- Improving our intelligence network within the state to nab the drug dealers on our side of the border must be the main priority of our security forces.
- Along Bangladesh, Nepal, Bhutan, and Myanmar borders: Our borders with these countries are guarded primarily by paramilitary forces, and they have to deal with the smuggling and trafficking of humans, drugs, arms, illegal migration, and movement of suspected insurgents.
- Drugs Challenge: Drones have proved to be an effective tool in smuggling drugs across the border.
- It will take more than mere vigilance on the border to deal with this menace permits.
- Crossing the border freely highlights the fact that the India-Myanmar border continues to be poorly guarded.

Conclusion and Way Forward

- There is a need to ensure that the border between India and Myanmar is effectively secured and regulated by all stakeholders.

World Economic Forum Annual Meet in Davos

Context

- The 54th annual meeting of the World Economic Forum in Davos, Switzerland was concluded recently.
- Mere scrapping of FMR might not make any difference on the ground, as in the case of Manipur where FMR has remained suspended since September 2022.
- The people continue to cross the international border

About

- Every year, leaders from various fields, such as business, politics, economics, etc., gather in the Swiss town to discuss challenges facing the world and explore the ways forward.
- The five-day session was held offline for the first time in three years.

Five Takeaways of the 2024 Summit:

- **Artificial Intelligence:** Many transformational abilities for human welfare were discussed, so were the need for regulation, fear of job losses, the risks of impersonation and misinformation, and the inequalities it can potentially worsen.
- The overall discussion seemed to be that the positives outweigh the negatives, and human intelligence did not face a major threat from AI.
- **War and Uncertainty:** Business leaders spoke of the risk posed by a fragile geopolitical situation, wars in the Middle East and Europe, the threats to global supply chains, and the uncertainty around food security.
- Yet, no plans or roadmaps for peace were offered about the Israel-Gaza violence.
- **Climate:** The need for businesses to adapt to climate change and for countries to unite for action against it despite differences was another topic.
- The need for the Developed countries to assist in the financing of climate action in the developing countries was discussed.
- **China's Economy:** Facing a slowing economy, China tried to attract more investment from the West, which has witnessed some cooling.
- At 5.2%, China's GDP growth in 2023 is still below pre-pandemic levels, and it is battling American attempts to isolate it.
- **India:** India seemed to be the most visible among its regional Asian peers, with major tech companies staging booths in Davos.
- Indian business leaders were seen at the forefront of debates over technology and supply chain issues.
- One of the key takeaways from the Forum meeting was the announcement of the launch of a Global Good Alliance for Gender Equity and Equality with the support by WEF and Government of India.
- The objective of this Alliance is to bring together global best practices, knowledge sharing and investments in the identified areas of women's health, education, and enterprise.

19th NAM Summit

Context

- The 19th Non-Aligned Movement (NAM) Summit was held in Uganda's capital, Kampala.

Key discussions at the summit

- **Israel-Hamas war:** The leaders of NAM countries have denounced Israel's offensive in Gaza and demanded an immediate ceasefire during the summit.
- India urged establishing a free Palestinian state and asked for a two-state solution where the Palestinian people can live within a secure border.
- **India's "Vishwa Mitra" initiative:** India emphasized its role as a friend to the world, or "Vishwa Mitra" to global solidarity and cooperation in his address.

What is Non-Aligned Movement (NAM)?

- NAM is an alliance of developing nations that refuses to identify with any major superpower during the Cold War.
- **History:** It has its origins in the 1955 Bandung conference in Indonesia during which representatives from

29 Asian and African countries, including many newly independent states that had been colonized for years, discussed common concerns.

- NAM was established and held its first conference in 1961 in Belgrade, the capital of Yugoslavia.
- Founders: The movement's founders are President Sukarno of Indonesia, Prime Minister Jawaharlal Nehru of India, Gamal Abdel Nasser of Egypt, Kwame Nkrumah of Ghana, and President Josip Tito of Yugoslavia.
- Secretariat: NAM does not have a permanent secretariat or a formal founding charter, act, or treaty. After the United Nations, NAM is the second-largest grouping of nations.
- Members: Currently, NAM membership consists of 120 countries: 53 from Africa, 39 from Asia, 26 from Latin America and the Caribbean, and two from Europe. It also includes the non-UN member state of Palestine, and 17 other observer countries.

Challenges faced by NAM in today's world

- Changing Geopolitical Dynamics: The geopolitical landscape continues to evolve, with emerging powers and shifting alliances. NAM is facing it challenging to navigate these changes.
- Human Rights: Issues related to human rights and governance like Crisis in Gaza have gained prominence on the international stage. It is difficult to balance the diverse political systems while addressing concerns related to democracy, human rights abuses, and good governance.
- Internal Differences: The NAM consisted of countries with diverse political systems, economic structures, and cultural backgrounds. Solving internal differences and maintaining cohesion within the movement is an ongoing challenge.

Relevance of NAM today

- Address economic Challenges: After the Cold War, there is still an economic divide between developed and developing countries. NAM has significant relevance in today's world as the movement now shifts from a political concept to an economic one.
- To ensure World Peace: The movement plays a key role in maintaining world peace and preserving the independence of every nation is equally relevant. It acts as a catalyst to foster cooperation between South nations.
- Development of nations: It also raises key issues of economic, political, and social development to achieve the desired results of moving from developing to developed nations.

Way ahead

- Despite these challenges, the Non-Aligned Movement has remained a forum for cooperation and dialogue among its member nations, contributing to diplomatic efforts, conflict resolution, and the promotion of peace and development.

NATO

In News

- Turkey's parliament ratified Sweden's North Atlantic Treaty Organization(NATO) membership bid.

About NATO

- It was formed in 1949 with the signing of the Washington Treaty.
- NATO's founding member countries were: Belgium, Canada, Denmark, France, Iceland, Italy, Luxembourg, the Netherlands, Norway, Portugal, the United Kingdom and the United States.
- It is a security alliance of countries from North America and Europe.
- Its purpose is to guarantee the freedom and security of its members through political and military means.
- Joining NATO: The Open Door Policy is a founding principle of NATO.
- This means that any country in Europe is free to join NATO if it is prepared to meet the standards and obligations of membership, contributes to the security of the Alliance, and shares NATO's values of freedom, democracy and the rule of law.

Mandate

- It promotes democratic values and enables members to consult and cooperate on defence and security-related issues to solve problems, build trust and, in the long run, prevent conflict.

- It is committed to the peaceful resolution of disputes.
- If diplomatic efforts fail, it has the military power to undertake crisis-management operations.
- Under Article 5 of the Washington Treaty, The Parties agree that an armed attack against one or more of them in Europe or North America shall be considered an attack against them all.

Turkey finally backs Sweden's NATO Bid

Context:

- Sweden's attempt to join NATO cleared a major hurdle recently after Turkey's parliament supported its membership.

About:

- This move came after Sweden tightened its anti-terror legislation and pledged closer cooperation with Turkey on security concerns.
- For a new country to join the North Atlantic Treaty Organization (NATO), all the existing members have to approve it. Turkey and Hungary had been opposing Sweden's entry for almost the past two years.

Background

- Sweden has not fought a war in two centuries, staying neutral through the two World Wars and the Cold War.
- However, this neutrality had to be abandoned after Russia invaded Ukraine.
 - With public opinion increasingly in favour of joining NATO, both Sweden and Finland applied for membership in 2022.
 - While Finland's bid was cleared, Sweden ran into stiff opposition from Turkey's President Recep Tayyip Erdogan and Hungary's Prime Minister Viktor Orban.

Reasons behind the opposition to Sweden's bid to join NATO:

- Erdogan objected to Sweden's accession, accusing Swedish officials of being too lenient on militant groups, including the Kurdistan Workers' Party (PKK) and being a mute spectator when Quran-burning protests were held in Sweden.
- Hungary's grievances with Sweden include Stockholm's negative remarks about the rule of law and state of democracy under Hungary's Prime Minister Orban. Orban is also more friendly with Russia than other NATO nations.
- After Turkey's move, Orban said recently that he had invited Swedish Prime Minister Ulf Kristersson to Budapest to discuss future cooperation in the field of security and defence as allies and partners.

What will Sweden bring to NATO?

- Once a country is a NATO member, an attack on its territory is considered an attack on the US-led alliance, and all 31 members are obliged to defend each other (Article 5 of the North Atlantic Treaty).
- It effectively put Sweden under the "nuclear umbrella" of the US.
- Once Sweden becomes a member, almost all of the Baltic Sea coastline, except that in Russia's control, will become NATO territory.
- This will provide the alliance strategic bases close to Russia, make supply lines more streamlined, and make it easier to defend assets in the sea.
- Sweden's military, though numerically small, is modern and experienced in past NATO missions. Importantly, it has advanced aircraft and submarine capabilities.

India and France Strengthen Ties

Context

- French President Emmanuel Macron was the Chief guest at the 75th Republic Day Celebration.

Major Highlights of India and France Relations

- Strategic Partnership: After India's 1998 nuclear tests, France was the first country to initiate a Strategic Dialogue with India.

- o By displaying a greater understanding of India's security compulsions as compared to other countries, France refused to impose bilateral sanctions on India.
- o France was the first western country India signed a strategic partnership with.
- o The year 2023 marked 25 years of India-France Strategic Partnership.
- The comprehensive Roadmap between India and France, which was adopted last year at Bastille Day, was classified under three pillars — Partnership for Security and Sovereignty; Partnership for the Planet; and Partnership for People.
- Economic: Trade relations have witnessed steady growth, with bilateral trade reaching \$13.4 Bn in 2022-23.
- France is one of the largest investors in India with FDI inflow of US\$ 659.77 million for FY 2022-23.
- For FY 2023-24, Indian exports to France totaled \$3.06 billion and imports from France totaled \$2.36 billion.
- Defence: Bilateral defence cooperation between the two sides is reviewed under Annual Defence Dialogue (Defence Minister level) and High Committee on Defence Cooperation (Secretary level).
- P-75 Scorpene Deal 2005: An agreement for building six Scorpène submarines under technology transfer at Mazagaon Docks Ltd. in India with French help.
- The procurement of Rafale jets as part of India's air power is a testament to the deep defence ties.
- Joint defense exercises between the Air forces (Garuda series) and the Armies (Shakti), Navies (Varuna) are conducted regularly.
- Space: There's a rich history of cooperation in the field of space for over 50 years between ISRO and the French Space Agency, Centre National D'Etudes Spatiales (CNES).
- France remains a major supplier of components and equipment for the Indian space programme.
- Energy Cooperation: In 2023, both leaders welcomed the progress made during discussions related to the Jaitapur Nuclear Power Project (JNPP). However, the progress here has been slow, though the first pact was agreed in 2008.
- The two sides have also agreed to establish a partnership on Small Modular Reactors (SMR) and Advanced Modular Reactors (AMR).
- The International Solar Alliance was launched jointly by India and France.
 - o Education: It is estimated that there are about 10,000 Indian students in France. An agreement on mutual recognition of degrees was signed in 2018.
- In 2023, it was agreed to increase the number of Indian students in France to 30,000 by 2030.
 - o Community in France: Mainland France has an estimated 1,19,000 Indian community (including NRIs) members, largely originating from erstwhile French colonies of Puducherry, Karaikal, Yanam, Mahe and Chandernagore and the States of Tamil Nadu, Gujarat and Punjab.
 - o Tourism: About 2.5 lakh French travelled to India in 2019 while about 7 lakh Indians went to France for tourism.
- Rajasthan continues to lead among all Indian destinations for French tourists.
- Support on international fora: France has continued to support India's claim for permanent membership of the United Nations Security Council and the reforms of the United Nations.
- France's support was vital in India's accession to the Missile Technology Control Regime (MTCR), Wassenaar Arrangement (WA) and Australia Group (AG). France continues to support India's bid for accession to the Nuclear Suppliers Group (NSG).
- India and France have resolved to work together for adoption of the Comprehensive Convention on International Terrorism (CCIT) in the UN.

Future Outlook

- As we look ahead, the India-France relationship is poised for even greater heights as the Prime Minister's state visit to France in 2023 marked a turning point in the bilateral relationship.
- Closer ties with India can assist France in pursuing its interests in the Global South.
- Both countries recognize the strategic importance of continuing to enhance this partnership for maintaining regional stability and paving the way for advancements across several sectors of importance.
- The current visit will give both countries an opportunity to discuss the Russia-Ukraine war, Israel-Hamas war, China's assertiveness in the Indo-Pacific, and defence and security cooperation.

South Africa's case against Israel in ICJ

In News

- Judges at the International Court of Justice(ICJ) opened two days of legal arguments in a case filed by South Africa accusing Israel of genocide in Gaza war.

About Issue

- South Africa had moved the ICJ, invoking the Convention on the Prevention and Punishment of the Crime of Genocide, 1948, against Israel, accusing it of committing genocide during its ongoing military campaign in Gaza.
- Both South Africa and Israel are signatories to the Genocide Convention of 1948.
- Earlier Instances : In 2019, the Gambia had approached the ICJ against Myanmar for its alleged genocide against the Rohingya community.

Stand of South Africa

- South Africa drew heavily upon statements and remarks attributed to Israeli officials and military leaders, to contend that one could infer genocidal intent from their words and deeds.
- It argued that the current operations should be seen in the context of the 'Nakba' of 1948, 75 years of 'apartheid', 56 years of occupation and 16 years of siege.
- Nakba, which means 'catastrophe' in Arabic, refers to the mass displacement of Palestinians during the Arab-Israeli war.
- South Africa highlighted the Israeli Prime Minister's theory of 'Amalek' to justify the killing of Gaza residents
- Amalek, according to the Hebrew Bible, was a persecutor of the Israelites and it is the duty of Israelites to eliminate Amalekites.
- It has also accused Israel of causing hunger, dehydration, and starvation in Gaza by impeding sufficient humanitarian assistance, cutting off water, food, fuel, and electricity, and failing to provide shelter or sanitation to Palestinians in Gaza
- South Africa has sought a series of measures including the immediate suspension of Israel's military operations in Gaza and to desist from the commission of any act within the scope of the Convention against the Palestinian people.

Israel's counter the arguments

- Israel rejected any genocidal intent behind its ongoing campaign and argued that its response was legitimate and based on the norms of international law.
- It anchored its presentation on its right to self-defence.
- It claimed that its operations in Gaza were not aimed at destroying its people, but to protect them and that it was directed solely against Hamas and its allied groups and were aimed at removing Hamas' capacity to threaten Israel.
- It rejected the charge that any remarks attributed to its Prime Minister or Defence Minister indicated any genocidal intent.
- Israel also put the blame on casualties on Hamas, claiming that its use of civilians as human shields was aimed at maximising harm to civilians.

Future Outlook

- A ruling on whether to issue provisional measures and, if so, what these measures will be, is expected within weeks.
- Proceedings instituted before the ICJ usually take years for disposal.
- Provisional measures are interim rulings of the ICJ aimed at preventing either party from doing irreparable harm to the main case.
- However, the ICJ has no means to enforce its own orders. It is possible for the UN Security Council to take measures, but it is subject to the veto power of permanent members.
- In the event of an adverse ruling, Israel may be banking on the U.S. to veto any attempt to enforce any such order.

India- United States Trade Policy Forum (TPF)

Context

- The 14th Ministerial-level meeting of the India- United States Trade Policy Forum (TPF) was held recently.

About

- The Ministers agreed to establish a Joint Facilitative Mechanism (JFM) to mitigate non-tariff barriers which would eliminate duplicative testing requirements and reduce compliance costs for trade in high-quality goods.
- USA is India's top export market for shrimps. In this context, both the Ministers welcomed the finalization of the Turtle Excluder Device (TED) design developed with the technical support of the National Oceanic and Atmospheric Administration (NOAA).
- TED is an effective device in minimizing the impact of fishing on sea-turtle population and would foster enhanced seafood trade between the two countries.
- India also emphasized the need to increase the number of inspections by the U.S. Food and Drug Administration (U.S. FDA) in India to reach the pre-pandemic level. USA is India's top export market for pharma products.
- The Indian side reiterated India's interest in restoration of its beneficiary status under the U.S. Generalized System of Preferences program.

India- United States Trade Policy Forum (TPF)

- It is an arrangement between the two Governments to discuss trade and investment issues, established in 2005.
- The TPF is co-chaired by the Minister of Commerce & Industry,

Government of India and United States Trade Representative.

- The issues and concerns are discussed under five Focus Groups.
- The dialogue addresses a wide range of issues that will lead to initiatives in key sectors and create momentum for expanding bilateral trade.
- A Private Sector Advisory Group (PSAG) was formed in 2007 as an adjunct to TPF to provide the TPF with views and advice from non-government trade and investment experts.

India – USA Trade and Economic Relations

- In FY23, the bilateral trade between India and the US stood at a record US\$ 128.78 billion as against US\$ 119.48 billion in FY22.
- In FY23, India had a trade surplus of US\$ 28.30 billion with the US.
- During 2022-23, the US was the third largest source of FDI into India.
- India-USA trade is likely to touch US\$ 300 billion in 2026-27 from its current trade.

Dialogue Mechanisms:

- India-U.S. Trade Policy Forum (TPF).
- India-U.S. Commercial Dialogue: Focuses on cooperation in standards, ease of doing business, travel & tourism, and other important issues of commercial significance.
- India-U.S. CEO Forum: Established in 2005, the Forum meets on sidelines of the Commercial Dialogue and submits recommendations to the Commercial dialogue.
- Information and Communications Technology (ICT): A Joint Working Group on ICT was established in 2005 to bring together government and industry from both sides to discuss cooperation in the electronics & IT sector.
- India – U.S. Economic and Financial Partnership Dialogue (EFP): It is led by Finance Minister and the U.S. Secretary of the Treasury.
- Indo-Pacific Economic Framework [IPEF]: India joined the launch of IPEF in 2022 along with 13 Partner countries.
- India joined three of the four Pillars of IPEF, related to supply chains, tax and anti-corruption and clean energy.

Conclusion

- The evolving relationship between India and the United States holds significant importance in shaping the global order of the 21st century.
- To fully unlock the potential of this partnership, both governments must focus on reducing bilateral and multilateral bottlenecks and charting a course for a comprehensive and strategic global alliance.

India and Czech Republic Ties

In News

- India signed bilateral cooperation agreements with the Czech Republic at the Vibrant Gujarat summit.

Key Points

- India and Czech Republic have agreed to strengthen mutual ties and tap into untapped potential for innovation cooperation.
- Their collaboration is set to extend across various areas, including new and emerging technologies, automobiles, climate change, and defence.

India-Czech Republic Bilateral Relations

- **Historic Linkages:** India's relations with former Czechoslovakia and with present Czech Republic, have always been warm, friendly and have a long history.
- In the medieval ages, the Kingdom of Bohemia (now a part of Czech Republic) traded with India in precious goods and Indian spices.
- During the Czech National Revival- a cultural movement which took place during the 18th and 19th centuries with the purpose of reviving the Czech language, culture and national identity, prominent Czech scholars got inspired by ancient Indian culture.
- **Diplomatic relations:** They were established with Czechoslovakia on 18 November, 1947.
- After the dissolution of Czechoslovakia on 1 January 1993, India immediately recognized the Czech Republic.
- **Economic and Commercial Relations:** The bilateral economic relations gained momentum after the Czech Republic gained entry into the European Union in 2004.
- New mechanisms and diversified interaction thereafter resulted in revival of bilateral trade to more than US \$ 3.16 billion in 2022, from just US \$ 86 million in 1993 as per Czech statistics.
- **Defence Cooperation:** The bilateral Defence Cooperation gained momentum with the signing of MoU on Bilateral Defence Cooperation in October 2003.
- Accordingly, a Joint Defence Committee has been set up.
- The Czech defence companies have been regularly supplying military equipment to Indian armed forces.
- **Science and Technology Cooperation:** India and Czech Republic are working in niche technologies given the latter's strength as the incubator of Technologies in strategic sectors such as defence, nuclear energy, cyber security, AI, Big Data, nanotechnology, laser etc.

Do you know?

- The Czech Republic is a landlocked country in Central Europe.
- It is bordered by Poland to the north, Germany to the west, Austria to the south and Slovakia to the east.
- Its capital and largest city is Prague.
- It consists of five main geographic regions: the Bohemian Mountains, the
 - o In June 2017, ISRO launched Czech nanosatellite -VZLU-SAT-1 (size 20 cm x 10 cm x 10 cm and weight 2 kg), the first Czech technological satellite. Its mission is to verify new products and technologies on Earth's orbit.
 - o **Multilateral Cooperation:** The Czech Republic strongly supported India's full membership of the Nuclear Suppliers Group(NSG) through its constructive role in NSG and in EU deliberations.

Sudeten Mountains, the Bohemian Basin, the Bohemian-Moravian Highlands and the Moravian Lowlands.
– It has several major rivers, including the Elbe, Ohre, and Vltava.



- o Educational and Tourism Cooperation: Indology has a very old tradition in Prague, starting with the establishment of a Chair in Sanskrit in the prestigious Charles University in the 1850s.
- Indian languages like Hindi, Bengali, Tamil are currently taught in this University.
- In January 2020 Czech Foreign Minister announced an expansion in quota for fast track visas for highly skilled/professionals from India.
- The Czech Republic is a popular destination for Indian tourists.
 - o Indian Community: Approximately 9000 Indian nationals- mostly IT professionals, business personnel and students residing in the Czech Republic.

World Tamil Diaspora Day

Context

- Tamils from about 58 countries participated in the two-day World Tamil Diaspora Day celebrations.

About Day

- It is organised by the Government of Tamil Nadu .
- Tamils who excelled in 8 categories namely Tamil literature, Education, Social Development, Women, Business, Science and Technology, Sports and Medicine were honoured by the Tamil Nadu Chief Minister

Indian Diaspora

- Diaspora is a word of Greek origin that means scattering or sowing of seeds.
- It is used to refer to people who leave their native lands to live in other parts of the world for employment, business or any other purpose.
- Indian Diaspora is a generic term used for addressing people who have migrated from the territories that are currently within the borders of the Republic of India.
- Historical Linkages : The Indian example of migration began in large numbers during the British rule as indentured labourers to former colonies like Fiji, Kenya and Malaysia.
- It continued in the post-independence period with Indians from different social strata moving to countries like the United Kingdom, the United States, and Gulf countries.
 - o Composition : ‘Diaspora’ is commonly understood to include Non-Resident Indians (NRIs), Persons of Indian Origin (PIOs) and Overseas Citizens of India (OCI), of which PIO and OCI card holders were merged under one category — OCI — in 2015.
 - o Distribution : They are spread more than 140 countries in the world.
- The US, Saudi Arabia, the United Arab Emirates, Malaysia, Myanmar, the UK, Sri Lanka, South Africa and Canada host an Indian diasporic population of at least one million each.

Importance :

- The Indian Diaspora today constitutes an important, and in some respects unique, force in world culture.
- The Government of India recognises the importance of Indian Diaspora as it has brought economic, financial, and global benefits to India.
- One of the greatest benefits of engaging with the Indian diaspora has been in terms of remittances.
- Remittances aid in socio-economic development as it is used for the recipient family’s personal use , in temple building, and for donations to schools
- These remittances have played a role in poverty reduction while changing consumption behaviour in rural areas.
- Another tangible long-term advantage in nurturing ties with an active diaspora is an accelerated technological sector
- India’s permanent membership to the United Nations Security Council (UNSC) can become a reality with support from the diaspora.

Issues and Concerns:

- Support of the diaspora is neither automatic nor continuous, and their interests need not be India’s priorities.
- For example, the Indian community in the US was not vocal enough in criticising President Donald Trump’s proposal to restrict the H-1B visa programme that has benefited many Indians.

- Remittances may not always be used for beneficial purposes. For instance, India faced problems due to foreign funding for extremist movements like the Khalistan movement
- Poor schemes coupled with ineffectual implementation sometimes hinder the diaspora's contribution towards the growth of India.

Recent Policies:

- The government's initiatives towards the diaspora are two-pronged.
 - For one, they cater to the needs of NRIs and OCIs by providing them with consular services, protection and conduct outreach activities to engage with them.
 - They create policies to encourage the diaspora to contribute to India's growth through philanthropy, knowledge transfers, investments in innovation and assistance in other development projects.
 - The Know India Programme of the Ministry of External Affairs is a three-week knowledge programme designed for the diaspora youth. The primary objective of the KIP is to foster a closer connection between Indian diaspora youth and their ancestral homeland by augmenting their understanding of India.
 - Pravasi Bharatiya Divas (PBD) has been celebrated on 9th January every year since 2003 to mark the contribution of the Overseas Indian community in the development of India.

Future Outlook

- Today, there is more potential for the diaspora to contribute to India's growth story, their success will also be a reflection of the Indian government's schemes, policies and outreach activities toward them.
- The Indian government, while continuing to engage with the diaspora as a part of its foreign policy, will have to be cautious of sensitive issues that may impact the security of the state.

India & UK sign MoU for Bilateral International Cadet Exchange Programme

Context

- India and U.K. recently signed a MoU for bilateral international cadet exchange programme during the Defence Minister's visit.

About

- Both Ministers discussed a range of defence, security and cooperation matters with particular emphasis on enhancing defence industrial collaboration.
- The LoA on R&D was also signed between India's Defence Research and Development Organisation (DRDO) and UK's Defence Science and Technology Laboratory (DSTL).
- These documents will provide impetus to the people-to-people exchanges particularly among the youth, and a larger area of defence research collaboration between the two countries.

India-UK Relations: A Multifaceted Partnership

- India and the UK enjoy a long and complex relationship, shaped by history, culture, and common interests.

Historical Ties:

- Colonial past: The UK ruled India for over 200 years, leaving behind a complex legacy of shared history and cultural influences.
- Independence and diplomatic relations: India gained independence in 1947, and both countries established diplomatic relations soon after.

Political Connections:

- Strategic partnership: Upgraded in 2004, the relationship focuses on cooperation in areas like counter-terrorism, cyber security, trade, and climate change.
- Regular high-level exchanges: Prime ministerial visits and meetings between foreign ministers occur regularly, reflecting the importance both countries place on this partnership.
- Commonwealth of Nations: Both India and the UK are members of the Commonwealth of Nations, a group of former British colonies, fostering continued collaboration and dialogue.

Economic Links:

- Significant trade and investment: The UK is the 6th largest investor in India and has invested \$34,513.58 Mn in FDI inflows between April 2000 to September 2023.
- The UK is also the 18th largest trading partner for India, while India ranks 6th among foreign investors in the UK.
- Focus on technology and innovation: Collaboration in areas like artificial intelligence, healthcare, and infrastructure development is expanding.
- Joint economic initiatives: Both countries are working on initiatives like the Enhanced Trade Partnership and the UK-India Free Trade Agreement to further boost economic ties.

Cultural and Social Dimensions:

- Strong diaspora: The UK has a large Indian diaspora of 1.864 million as per the 2021 Census and forms 3.1% of the total population of the UK, which is 59.597 million.
- Educational and academic partnerships: Numerous student exchange programs and academic collaborations foster knowledge sharing and cultural understanding.
- Bollywood and cricket: Shared passion for these cultural spheres further strengthens the bond between the two nations.

Challenges

Trade and Investment:

- Protectionism and barriers: Brexit raised concerns about increased trade barriers on Indian exports to the UK. Additionally, domestic protectionist policies in both countries can hinder the flow of goods and services.
- Diversification beyond traditional sectors: Over Reliance on sectors like IT and pharmaceuticals limits the scope of trade and necessitates broader diversification.

Political and Security Tensions:

- Geopolitical alignments: While both countries share concerns about China's growing influence, their differing alignments with other powers like the US and EU can sometimes create friction.
- Regional security issues: Divergent stances on issues like Kashmir and Afghanistan can complicate strategic cooperation.

Human rights concerns:

- Concerns raised by India about UK visa practices and by the UK about ads, fake claims by the coaching sector.

Suggestions:

- Open and transparent communication: Engaging in constructive dialogue and addressing concerns openly can build trust and understanding.
- Focus on common interests: Prioritizing areas of shared concern like counter-terrorism, climate change, and economic growth can solidify the foundation of the partnership.
- Creative solutions and flexibility: Adapting to changing circumstances and finding innovative solutions to complex problems can maintain momentum and progress.
- Engaging stakeholders: Involving businesses, civil society, and academic communities can broaden the partnership and garner wider support.

Way Ahead

- Overall, India-UK relations are multifaceted and dynamic, rooted in history but evolving with shared interests and aspirations.
- Addressing challenges while building on existing strengths holds the key to further strengthening this important partnership in the 21st century.

Red Sea Trouble

Context:

- A spate of attacks on cargo ships in the Red Sea since November by the Houthi militia of Yemen has turned the quickest marine route linking Asia with Europe through the Suez Canal unsafe.

About

- The attack has forced freighters to take a longer transit around the Cape of Good Hope in Africa's southern tip, making shipments both dearer and longer to deliver.
- It has compounded the woes of global trade as it emerges from the aftermath of the pandemic, feels the heat of the Russia-Ukraine war and grapples with a global economic slowdown.

Importance of Red Sea Trade Route

- The Red Sea, stretching from Egypt's Suez Canal to the narrow Bab el-Mandeb Strait separating the Arabian Peninsula from Africa, remains a key trade route for global shipping and energy supplies.
- Opened in 1869, the Suez Canal is one of the busiest canals in the world, carrying around 12% of global trade. In 2022, 23,583 ships used this route.
- Linking East and West: The Red Sea serves as a bridge between the East and West, providing a shorter and more direct route for maritime trade between Europe, Africa, the Middle East, and Asia.
- Strategic Importance: The Suez Canal, which connects the Red Sea to the Mediterranean, is one of the world's most important artificial waterways, facilitating global trade and reducing shipping times and costs.
- Trade in Goods and Resources: The region is a significant source of oil and natural gas, and the Red Sea remains an important route for the transportation of energy resources.
- Economic Impact: The trade routes through the Red Sea support the economies of countries along its shores by providing employment, stimulating economic activity, and fostering international relations.
- Political Significance: The control of key chokepoints, such as the Bab el Mandeb and the Suez Canal, has implications for global trade and security.
- Political stability and cooperation among the countries bordering the Red Sea are crucial for ensuring the smooth flow of goods.



Impact on Indian trade

- After the attacks, major cargo shipping lines decided they would not operate on this route. Even small feeder vessels have of late stopped plying in these waters.
- Commodities are the worst affected whether it be chemicals, plastic, petrochemicals, because margins are not there to absorb the hike in freight.
 - Almost 90% of western hemisphere cargo, both inbound or shipped from India, that used to go through the Red Sea is now getting re-routed through the Cape of Good Hope.
- The remaining 10% of Indian import or export cargo is either not moving or using a transit facility.
 - Elongation of Both import and export cycles: Container Corporation of India is saying about 25% of its containers are being held back by Indian exporters.
- Besides the extra time taken on account of the longer route, the developments could make imports costlier and call for better inventory management.
 - Increase in freight cost: While all consignments are likely to be impacted by the increase in freight cost — by up to six-fold in some cases — and the longer voyage time, the pinch would be felt most by low-value, high-volume cargo as well as perishables.
 - Final products: Also, the crisis could result in final products turning expensive.
- For instance, the Red Sea crisis could come in the way of any plans to reduce pump prices of petrol and diesel.
- Energy security: Gross imports of crude oil and petroleum products as a share of India's gross imports in value terms was 25.8% in 2022-23.

- In fact, India's import dependence (based on consumption) in the April-September 2023 period was 87.6%, according to the government's Petroleum Planning and Analysis Cell.

What has been the response?

- The UN has said "no cause or grievance" could justify Houthi attacks against freedom of navigation in the Red Sea.
- The U.S. wants more support for the multinational 'Operation Prosperity Guardian' it is spearheading to keep the sea lanes open and free of threats.
- India is closely watching the situation, and the Commerce Secretary is said to have held discussions with officials and trade bodies.

One Year of India-Australia ECTA

Context

- The India-Australia Economic Cooperation and Trade Agreement, recently completed one year.

About

- Negotiations are also underway for concluding the Comprehensive Economic Cooperation Agreement between the two countries but there is no defined deadline at the moment.

India-Australia Economic Cooperation and Trade Agreement:

- The ECTA is a bilateral free trade agreement signed between India and Australia on December 2, 2022. It came into effect on December 29, 2022.

Objectives:

- Boost bilateral trade and investment: Removing tariffs and trade barriers aims to increase trade volume and create opportunities for businesses in both countries.
- Enhance market access: The agreement provides preferential access for Indian and Australian goods and services in each other's markets.
- India has agreed to Negative listing after 5 years of coming into force of the Agreement.
- Streamline customs procedures: Simplifying customs processes aims to save time and costs for businesses involved in cross-border trade.
- Promote regulatory cooperation: ECTA encourages harmonization of technical standards and regulations between the two countries.

Expected benefits for India

- Duty-free access for 96.4% of India's exports to Australia: This includes key sectors like textiles, agriculture, and leather products.
- Exports: Exports are expected to increase by 10 billion by 2026-27 and the total bilateral trade is expected to cross US \$ 45-50 billion by 2035.
- Increased job creation: Increased trade is expected to generate approximately 10 lakh new jobs in various sectors in India.
- Greater foreign investment: Improved market access and a more predictable regulatory environment could attract more foreign investment into India.
- Closer economic ties with Australia: ECTA strengthens the economic partnership between India and Australia, opening up new avenues for collaboration.

Achievements so far

- According to official data, India's exports to Australia grew 14% year on year in value terms to \$5.87 billion between April and November 2023 while imports contracted 19% year on year to \$11.46 billion in the period.
- The trade deficit between the two countries was \$5.2 billion between April and November 2023 as against \$8.6 billion in the corresponding period a year ago.
- Exports to Australia on preferential lines grew by 17.8% in the same period and grew by 15.14% on non-preferential lines.

- Meanwhile, agricultural exports to India from Australia are 50% higher since the trade agreement came into force.

Way Ahead

- While ECTA presents promising opportunities, some challenges remain, such as differences in regulatory standards and potential implementation issues.
- Continued dialogue and collaboration between both countries are crucial to maximize the benefits of the agreement.
- Its successful implementation could pave the way for further cooperation and contribute to regional economic growth and development.

Expansion of BRICS

Context

- Egypt, Ethiopia, Iran, Saudi Arabia, and the United Arab Emirates have joined BRICS as new full members.

About

- It was done as per the decision adopted by the 15th BRICS Summit in 2022.
- A proposal to admit six countries, including Argentina, into the bloc with effect from January 1.
- Argentina's new President announced withdrawing his country from becoming a member of the BRICS.

About BRICS

- BRICS is an acronym that refers to a group of five major emerging national economies: Brazil, Russia, India, China, and South Africa.
- The term was originally coined by economist Jim O'Neill in 2001.
- BRICS brings together five of the largest developing countries of the world, representing around 41% of the global population, around 24% of the global GDP and around 16% of global trade.
- Origin: As a formal grouping, BRIC started after the meeting of the Leaders of Russia, India and China in St. Petersburg on the margins of the G8 Outreach Summit in 2006.
- The grouping was formalized during the 1st meeting of BRIC Foreign Ministers on the margins of UNGA in New York in 2006.
- The success of the meet led to the crystallisation of an annual summit under the aegis of BRIC.
- Initially, the grouping was termed BRIC as South Africa was inducted in 2010 and from there on it has been referred to as BRICS.
- Summits: The governments of the BRICS states have met annually at formal summits since 2009.
- Over a period of time, BRICS countries have come together to deliberate on important issues under the three pillars of:
 - political and security,
 - economic and financial and
 - cultural and people-to-people exchanges.
- New Development Bank: Formerly referred to as the BRICS Development Bank, is a multilateral development bank established by the BRICS states.
- The Bank shall support public or private projects through loans, guarantees, equity participation and other financial instruments.

Significance of Expansion

- Strengthening the Group: BRICS currently represents around 40% of the world's population and more than a quarter of the world's GDP.
- With the additions, it will represent almost half the world's population, and will include three of the world's biggest oil producers, Saudi Arabia, the UAE and Iran.
- Focus on Middle East: With the inclusion of Saudi Arabia, Iran, the UAE, and Egypt, there is a discernible Middle East focus, bearing geo-economic, geostrategic, and geopolitical implications.
- Representative of Developing Countries: The addition of new members bolsters the BRICS group's influence as a representative body of the developing world.

- Voice for Global Governance: The grouping now represents a larger share of the world's population and economy.
- However, this only means that the group is potentially a powerful voice for reform of the arrangements for global governance and a powerful actor in these arrangements.

Impact on India's Position

- Chinese Dominance: Among the newly admitted members, India regards each as a valuable partnership to cultivate.
- Apprehensions have emerged regarding the potential for the group to become more pro-China, potentially overshadowing India's influence and concerns.
- Although China desires BRICS to embody an anti-western stance, India's perspective is inclined toward maintaining the group as a "non-Western" entity.
- Addressing the Challenges: For BRICS to maintain long-term effectiveness, India and China must address their border disputes and cooperate on complex global matters, including allocating resources for the growth of developing economies.
- If India aims to genuinely represent the voice of the Global South, harmonizing these diverse interests into a unified stance could present a more formidable challenge than initially anticipated.

Way Ahead

- As the BRICS operates based on consensus-driven decision-making, attaining consensus among 10 countries characterized by diverse economies, geographical locations, and interests proves to be substantially more challenging than doing so among the original five members.
- To ensure the continued effectiveness and consistency of the institution, in the long run, BRICS might opt to focus on easier-to-achieve objectives.

Role of Governor and Need for Reform

Context

- The Kerala government has filed an amended petition with the Supreme Court seeking directions for the Governor to clear pending bills immediately.

More in News

- Kerala has also sought the intervention of the top court to interpret the phrase "as soon as possible" in the first proviso to Article 200 of the Constitution on the timeline applicable to the disposal of the Bills presented to the Governor

About Governor

- The Governor is the Executive Head of the State within the meaning of Article 153 and 154 of the Constitution of India.
- Article 153. The Governor : There shall be a Governor for each State. Provided that nothing in this Article shall prevent the appointment of the same person as Governor for two or more States.
- Article 154. Executive power of State : (1) The executive power of the State shall be vested in the Governor and shall be exercised by him either directly or through officers subordinate to him in accordance with this Constitution.
- Article 163: There shall be a Council of Ministers with the Chief Minister at the head to aid and advise the Governor in the exercise of his functions, except in so far as he is by or under this Constitution required to exercise his functions or any of them at his discretion.

Powers related to passage of bill

- Article 200 of the Constitution lays down that when a Bill, passed by a State Legislature, is presented to the Governor for their assent, they have four alternatives —
- may give assent to the Bill;
- may withhold assent to the Bill, that is, reject the Bill in which case the Bill fails to become law;
- may return the Bill (if it is not a Money Bill) for reconsideration of the State Legislature; or
- may reserve the Bill for the consideration of the President.

Emerging Issues

- In recent years, the bitterness between states and Governors has been largely about the selection of the party to form a government, deadline for proving majority, sitting on Bills, and passing negative remarks on the state administration.
- Ongoing proceedings before the Supreme Court raise concerns about the conduct of some Governors.
- Several States were facing the similar situation where the Governors were keeping the Bills pending for inordinate periods and without exercising the power under Article 200 of the Constitution, thus rendering the State Legislatures ineffective.
- There is no limit set for how long a Governor can withhold assent to a Bill.
- The frictions have become especially acute in several states over the last few years.

Observations of Court

- In judgement, *Shamsher Singh vs State of Punjab (1974)*, the Supreme Court said that President and Governor shall “exercise their formal constitutional powers only upon and in accordance with the advice of their Ministers save in a few well-known exceptional situations”
- In *NCT of Delhi v. Union of India (2018)*, a Constitution Bench of the Supreme Court emphasised the need to identify the “moral values of the Constitution” based on a notion of “constitutional culture”.
- It said that the “constitutional morality places responsibilities and duties on individuals who occupy constitutional institutions and offices”
- In *Rameshwar Prasad v. Union of India (2006)*, after finding that the Governor abused power in recommending Presidential rule in Bihar, the Supreme Court said that the motivated and whimsical conduct of the Governor is amenable to judicial review.

Commission reports

- The Sarkaria Commission Report (1988) highlighted that “some Governors have failed to display the qualities of impartiality and sagacity expected of them”.
- It recommended that respective chief ministers should be consulted before appointing a governor.
- In dealing with a State Bill presented to him under Article 200, the Governor should not act contrary to the advice of his Council of Ministers merely because, personally, he does not like the policy embodied in the Bill
- The Punchhi Commission (2010), had recommended that the Governor should take a decision with respect to a Bill presented for their assent within a period of six months.

Conclusion and Way Forward

- It is time to think about the behaviour of Governors in Opposition-ruled States.
- The Supreme Court must now come up with an authoritative decision so that uncooperative Governors do not use grey areas to their advantage.
- It must also be clarified whether ‘withholding assent’ is a final act of rejection of a Bill or it needs a follow-up action in the form of returning the Bill with a message for reconsideration by the House,
- However, federalism is a basic feature of the Constitution and the Governor’s office should not undermine the powers of elected governments in the States.

Free Movement Regime to end at Myanmar Border

Context

- India plans to end the Free Movement Regime along the international border with Myanmar.
- People living in Myanmar, who could cross over to India, will soon require visas.

About Free Movement Regime (FMR)

- Ind0-Myanmar is an open border with the Free Movement Regime (FMR) within 16kms on both sides of the border.
- Both countries share an unfenced border, and citizens on either side have familial and ethnic ties, which prompted the arrangement in the 1970s. It was last revised in 2016.
- Every member of the hill tribes, who is either a citizen of India or a citizen of Myanmar, and who resides within 16 km on either side of the border can cross the border on production of a border pass, usually valid for a Telescope Manager element, the “neural network” or the software that will make the telescope work.

India, Pakistan Exchange List of Nuclear Installations

Context

- India and Pakistan exchanged the list of nuclear installations and facilities through diplomatic channels simultaneously at New Delhi and Islamabad.

About

- The nuclear installations and facilities are covered under the Agreement on the Prohibition of Attack against Nuclear Installations and Facilities between India and Pakistan.
- It is the 33rd consecutive exchange of such lists between the two countries, the first one having taken place on January 01, 1992.

The Prohibition of Attack against Nuclear Installations and Facilities:

- It is also known as the India-Pakistan
- Non-Attack Agreement, that was signed on 31 December 1988 and entered into force on 27 January 1991.
- It provides that India and Pakistan inform each other of the nuclear installations and facilities to be covered under the Agreement on the first of January of every calendar year.
- Each party shall refrain from undertaking, encouraging or participating in, directly or indirectly, any action aimed at causing the destruction of, or damage to, any nuclear installation or facility in the other country.
- The term 'nuclear installation or facility' includes nuclear power and research reactors, fuel fabrication, uranium enrichment, isotopes separation and reprocessing facilities as well as any other installations with fresh or irradiated nuclear fuel and materials in any form and establishments storing significant quantities of radio-active materials.

Significance of the Agreement:

- Both the countries reaffirm their commitment to durable peace and the development of friendly and harmonious bilateral relations.
- They are conscious of the role of confidence building measures in promoting such bilateral relations based on mutual trust and goodwill.
- Even a small nuclear exchange between India and Pakistan could kill 20 million people in a week. If a nuclear winter is triggered, nearly 2 billion people in the developing world would be at risk from death by starvation.

Nuclear Power: India and Pakistan

India:

- India tested its first nuclear weapon in 1974, becoming the sixth country to detonate a nuclear weapon, and it has approximately 164 nuclear warheads, and has land-based, sea-based and air-launch nuclear capabilities.
- India had declared a No First Use policy, which means they have vowed to never use nuclear weapons first in a conflict.
- However, as of August 2019, India said they are reconsidering this policy.
- India is pursuing membership to the Nuclear Suppliers Group (NSG) and became a member of the Missile Technology Control Regime (MTCR) in 2016.
- India has not signed the Nuclear Non-Proliferation Treaty nor The Pakistan became a nuclear power in 1998, becoming the world's 7th state to officially test a nuclear weapon and has approximately 170 warheads.
- This number exceeds the projection made by the U.S. Defense Intelligence Agency in 1999 that Pakistan would have 60-80 warheads by 2020.
- If the current growth trend continues, Pakistan's arsenal could grow to 220 to 250 warheads by 2025.



Pakistan:

- Pakistan became a nuclear power in 1998, becoming the world's 7th state to officially test a nuclear weapon and has approximately 170 warheads.
- This number exceeds the projection made by the U.S. Defense Intelligence Agency in 1999 that Pakistan would have 60-80 warheads by 2020.
- If the current growth trend continues, Pakistan's arsenal could grow to 220 to 250 warheads by 2025.
- Unlike India, Pakistan has not declared a No First Use policy, and instead has opted to emphasise smaller battlefield or 'tactical' nuclear weapons as a counter to India's larger and superior conventional forces.
- However, it has adopted a position of 'no first use' against non-nuclear weapon states.
- Pakistan keeps its nuclear warheads stored separately from its missiles and will only assemble one if it will be used.
- Pakistan's declared strategic nuclear policy claims to avoid conflict through 'full spectrum deterrence' while maintaining minimum credible deterrence against India's nuclear and superior conventional forces.
- Similar to India, Pakistan is not a signatory of the Nuclear Non-Proliferation Treaty (NPT).

1. The Jan Vishwas (Amendment of Provisions) Act, 2023 Conception and Development

- The ministries in the Centre and the States/UTs have been trying to reduce the compliance burden on businesses and citizens. It can be reduced by decriminalising minor offences.
- In this regard, the idea of a common amendment bill to unify decriminalisation efforts across sectors, saving time for both the judiciary and the legislative department, was put forward by the Hon'ble Prime Minister of India.
- The Jan Vishwas Act, 2023 was initiated to
 - simplify legal processes,
 - reduce compliance burden, and
 - foster a more business-friendly environment.
- It prioritised a balanced legal framework to replace non-harmful and minor criminal offences with administrative actions and civil penalties respectively.
- The coordination across 19 Union Ministries for the Jan Vishwas Act required meticulous planning and clear communication channels. Regular consultations, inter-ministerial meetings, and a shared commitment to regulatory reforms were key to effective coordination. Challenges were addressed through extensive briefings, informal communication channels, and proactive approaches to swiftly resolve concerns, maintaining overall momentum.
- Stakeholder engagement during the formulation of the Jan Vishwas Act involved consultations at the ministry level and comprehensive efforts with industry associations. Regular communication channels were established to understand specific challenges faced by different industries, ensuring a balanced and practical approach. This highlights the government's commitment towards ease of doing business.
- The Act addressed provisions across 42 Acts administered by 19 ministries, presenting challenges in managing such a comprehensive legislative overhaul. Common directions, a committee, and extensive legal vetting played pivotal roles in ensuring consistency across amendments.
- Aligning the interests and objectives of various ministries was a major challenge during the Act's development.
- In this regard, the guidance of the PM and the Cabinet Secretary helped to align the respective amendments of different ministries by providing a common aim and vision.
- Additionally, a committee comprising CEO NITI Aayog, the Department of Legal Affairs (DoLA), the Department for Promotion of Industry and Internal Trade (DPIIT), and the respective ministries and departments was formed to establish principles guiding the decriminalisation process.
- The Act addresses provisions ranging across 42 Acts administered by 19 ministries.
- Common directions issued to all respective Ministries helped to address the complexities by setting a unified and cohesive approach.
- In addition, a committee of representatives from CEO NITI Aayog, the Department of Legal Affairs, and the Department for Promotion of Industry and Internal Trade, helped set common principles serving as a guiding framework.
- One such principle was to specifically target the general criminal provisions (provisions prescribing punishments for any contraventions applicable across the Act). The strategy was to identify serious contraventions for separate criminalisation while decriminalising minor provisions. For example, the general provision under the Environment Protection Act (Section 15) prescribed punishment for all contraventions under the Act with imprisonment of up to five years. It has been amended under the Jan Vishwas Act, 2023 to be replaced with specified ranges of penalty according to the gravity of offences. The amendments were legally vetted extensively.
- Inter-ministerial consultations also helped in better collaboration.
- It also reduces the workload of an overburdened judiciary.

- It achieves this by decriminalising (and replacing them with civil penalties or administrative actions) minor offences involving no harm to the public interest or national security.
- Severe criminal consequences are no longer attached to minor technical, and procedural defaults.
- The courts will no longer need to adjudicate upon majority cases originating from 183 provisions across 42 Acts after the implementation of the Jan Vishwas Act.
- Some legislatures also introduced suitable adjudication mechanisms wherever applicable and feasible. In addition, appellate mechanisms have also been introduced as grievance redressal forums for dissatisfactions arising from decisions of adjudicating officers related to the penalty.
- Presenting the Jan Vishwas Act to the Joint Parliamentary Committee (JPC) involved a meticulous process of addressing considerations and challenges. Transparent communication, detailed presentations, and responsiveness to the committee's concerns were crucial in accommodating recommendations, except for the retrospective effect, which was deemed not feasible.
- The Jan Vishwas Act underwent a thorough review by the JPC, which made general recommendations, most of which were accepted by the ministries. Challenges included addressing the JPC's recommendation on retrospective effect, which was carefully examined and deemed unfeasible.
- Principles and learnings from the Jan Vishwas Act can guide future efforts, such as Jan Vishwas 2.0. These include directions from higher authorities, recommendations from the JPC, and a multifaceted approach to decriminalisation. The Act's success rested on collaborative efforts, transparency, and a commitment to incorporating valuable feedback into the legislative framework.

2. Trusting Citizens Decriminalisation Way

- The experience of drafting the Jan Vishwas (Amendment of Provisions) Bill, 2023 (Jan Vishwas Bill) was a unique and challenging endeavour for the Legislative Department of India.
- The Jan Vishwas Bill is part of the Indian Prime Minister's broader vision to trust the people and implement measures aimed at easing living and doing business in the country.
- It aligns with initiatives such as self-attestation of documents, the creation of a national judicial data grid, and various other reforms in goods and services tax, insolvency, and bankruptcy laws.
- Notably, the Jan Vishwas law represents a significant shift by converting criminal punishments into monetary penalties, promoting trust-based governance.
- The drafting team faced several challenges in this unprecedented task. With no exact legislative precedents and a diverse range of subjects involved, the team had to navigate uncharted drafting territory.
- Initially proposed to amend around 30 enactments, the bill ended up amending 42 Central Acts with 182 provisions, spanning pre- and post-independence Acts.
- The drafting process required collaboration with 19 administrative ministries, vetting 42 draft notes for the Cabinet, and drafting an equal number of Amendment Bills.
- The urgency and timeliness of the task were evident, given the government's policy agenda focused on the 'Ease of Living' and the 'Ease of Doing Business.' The decision to draft a single bill covering all amendments to different acts, rather than individual bills, streamlined the process and reduced the burden on the Cabinet.
- The primary objective of the Jan Vishwas Bill is to replace imprisonment with monetary penalties for minor offences, rationalise penalties based on offence gravity, and facilitate adjudication by authorities other than criminal courts.
- A key innovation involves incorporating provisions for periodic revision of fines and penalties to match inflation, ensuring fairness and proportionality.
- The drafting team also had to address the need for a suitable saving clause, considering the repeal of provisions in various Acts. The clause aimed to ensure that actions taken under the repealed provisions would remain valid.
- The long and short titles of the bill were carefully crafted to reflect the Prime Minister's vision of 'decriminalising' and 'rationalising' offences for the 'Ease of Doing Business.'
- The Jan Vishwas Act, despite being an amending legislation, holds a permanent place in the statute book. Its unique features, including the conversion of imprisonments into monetary penalties and periodic revisions, contribute to its lasting significance. There may be more Jan Vishwas Acts in the future, indicating a potential paradigm shift in trust-based governance and legislative approaches in India.

3. Government e-Marketplace (GeM) Leading the Digital Wave

- Government e-Marketplace (GeM), established in August 2016, is a robust digital portal facilitating end-to-end procurement for Central and State Government departments, organisations, and public sector undertakings (PSUs).
- It provides a paperless, cashless, and contactless ecosystem for government buyers to directly purchase goods and services from sellers across India.
- GeM covers the entire procurement process, from vendor registration to receipt of goods and timely payments.
- The need for a digital solution in public procurement arose due to the challenges of an opaque, time-consuming, and corrupt system that was prone to cartelisation.
- GeM was envisioned to replace manual processes, making public procurement more efficient, transparent, and inclusive. The platform aimed to establish a competitive marketplace for quality goods and services at reasonable rates.
- GeM's genesis lies in transforming the public procurement ecosystem through a technologically advanced, digital-only platform. Digitalization has led to higher process efficiencies, improved transparency, reduced cycle times, and increased trust among bidders. The platform supports hassle-free digital transactions, empowering buyers and sellers nationwide.
- Despite challenges, GeM has witnessed significant year-on-year growth. In the first year, it recorded a Gross Merchandise Value (GMV) of ~INR 420 crore. In FY 21-22, transactions grew to INR 1 lakh crore, and in FY 22-23, an 88% growth was achieved, surpassing INR 2 lakh crore worth of GMV. GeM aims to breach the 3 lakh crore GMV mark in FY 23-24.
- Initially, the GeM platform developed a wide range of product categories. But, it rapidly expanded its portfolio to include a large variety of service offerings as well.
- One of the shining lights in GeM's success story is the order value in services, with exponential growth over the last 3 years. It witnessed 168% growth in FY 22-23 over the last year. It has received 4.8 lakh service orders valued at more than INR 2 lakh crore since its inception.
- GeM is a category-driven e-marketplace with over 11,600 product categories and 300+ service categories.
- GeM promotes Ease of Doing Business by connecting buyers, sellers, and service providers in a unified platform. The platform's features include a dynamic goods and services platform, diverse buying modes, contract management, cashless payments, and a trust-based rating system.
- GeM has played a pivotal role in empowering sellers of diverse backgrounds, including MSMEs, startups, women entrepreneurs, artisans, and self-help groups. The platform ensures inclusivity, providing a level playing field in government tenders. GeM Sahay, a mobile application, addresses credit access challenges for MSMEs and startups, offering loans at the point of order acceptance.
- Looking ahead, GeM plans to revamp and upgrade its platform with advanced technologies, focusing on artificial intelligence, machine learning, augmented reality, and virtual reality.
- The platform aims to enhance user experience, improve transparency, and promote inclusivity in public procurement processes.
- GeM is committed to expanding its regional footprint, integrating government buyers from all tiers, and prioritising environmentally sustainable products and services to contribute to the country's net-zero carbon emissions commitment.

4. Delicate Balance: Regulatory Enforcement & Favourable Business Environment

Overview of Jan Vishwas (Amendment of Provisions) Act, 2023:

- The Act marks a monumental shift in India's regulatory landscape, decriminalizing 183 provisions across 42 Acts administered by 19 ministries.
- Aims to balance regulatory enforcement and create a business-friendly environment, reflecting a departure from conventional approaches.

Penalty Modification for Enhanced Deterrence:

- Substantial modification of penalties replaces imprisonment with higher fines/penalties for various offenses.
- Strategic shift focuses on effective deterrence against violations without disrupting business operations.

Industry's Demand for Decriminalization:

- Long-standing industry demand for decriminalization to enhance the investment climate.
- Criminal cases against directors for minor operational offenses had created a deterrent effect and hindered businesses from realizing their full potential.

FICCI's Principles of Decriminalization:

- Directors, especially independent directors, should not be held liable for operational non-compliance.
- Proposes no criminal liability for technical errors, only financial penalties.
- Advocates a graded penalty system for subsequent non-compliance.

Global Alignment in Regulatory Frameworks:

- Act aligns with global trends emphasizing financial consequences over custodial sentences.
- Essential for India's integration into the global business landscape and showcases commitment to international standards.

Impact on Micro, Small, and Medium Enterprises (MSMEs):

- Act simplifies regulatory frameworks, reducing the burden on MSMEs in day-to-day operations.
- Provides a more level playing field, benefiting MSMEs in competing with global counterparts.

Jan Vishwas 2.0: Recommendations and Considerations:

- FICCI recommends additional considerations for the ongoing Jan Vishwas 2.0 exercise.
- Proposes differentiation between technical lapses and serious offenses.
- Suggests provisions for compounding offenses to streamline compliance and reduce litigation.

Sector-Specific Recommendations:

- Highlights specific sections in labour codes, legal metrology, and environmental laws for modification.
- Advocates revisiting penalties to better align with business interests in these sectors.

Challenges and Solutions:

- Acknowledges challenges at the state level due to overriding central legislation.
- Urges a targeted approach, with major states leading in the decriminalization process to enhance ease of doing business.

Significance of Jan Vishwas (Amendment of Provisions) Act, 2023:

- Recognizes the transformative impact of the Act on creating a more business-friendly environment in India.
- Stresses the need for continuous efforts at both central and state levels to address decriminalization effectively.

Way Forward:

- Encourages states to follow the example of Haryana in initiating the process of decriminalizing certain laws.
- Emphasizes the importance of reducing burdensome compliances to enhance the ease of doing business and living for citizens.

Conclusion:

- The Jan Vishwas (Amendment of Provisions) Act, 2023, stands as a landmark initiative reshaping India's regulatory approach.
- Ongoing efforts and collaborative action at both central and state levels are imperative for sustaining and expanding the positive impact of decriminalization on businesses and the overall economic landscape.

5. Indo-African Relationship amidst South-South Cooperation

Introduction to Global South Dynamics:

- The Global South emerges as a distinct voice in international multilateralism, representing developing countries' aspirations for recognition and power.

- Challenges include adverse global terms of trade, limited investment opportunities, sovereign debt concerns, and recent crises like climate change, COVID-19, conflict, and the rising cost of living.

India's Role in Global South:

- India, as the founder of NAM (Non-Aligned Movement) and an active participant in G77 deliberations, positions itself as a legitimate voice for the Global South.
- Utilizes reputational capital to secure wins in global rule-making and addresses issues of concern to developing nations.

Historical Ties between India and Africa:

- Ancient trade between the Indus Valley and African civilizations documented.
- Maritime interactions between ancient Egypt and Indian rulers through the Indian Ocean established a 'monsoon culture.'
- Mahatma Gandhi's moral and political awakening in South Africa solidifies ties with African leaders expressing gratitude for Gandhian ethics.

India's Contribution to African Development:

- India actively participates in UN peacekeeping missions, supporting newly independent African states.
- Bandung Conference marks a milestone in South-South Cooperation (SSC), challenging Northern-dominated systems.

Indo-African Cooperation Dynamics:

- Focus on UN Security Council reforms, health equity, climate justice, and energy security strengthens bilateral and plurilateral engagements.
- Engagement extends to regional organizations, including ECOWAS, the African Continental Free Trade Agreement, BRICS, OIC, ADB, NDB, and more.

Economic and Trade Relations:

- Trade volume records a fourteen-fold increase between 2001 and 2013.
- India has become one of the top 5 investors in Africa with a hybrid engagement strategy.
- Trade diversification, private investments, and initiatives like the India-Africa Partnership Project contribute to reaching \$100 billion in trade by 2022-23.



Developmental Initiatives and Investment:

- Initiatives like Exim Bank's Focus Africa Programme and India-Africa Partnership Project promote development.
- Comprehensive economic cooperation agreements, trade pacts, and investment in various sectors contribute to mutual growth.

South-South Cooperation Strategies:

- South-South Cooperation (SSC) evolves as a rule-maker, challenging traditional power dynamics.
- Triangular cooperation frameworks, such as g7+, aim for mutual benefit and shared goals.

Prescriptions for Enhanced Cooperation:

- Focus on building productive capacities, especially in agriculture, food security, and rural development.
- Strengthen governance standards, improve human and social development through aid and investments, and explore debt-for-nature swap agreements.

Challenges and Future Initiatives:

- Challenges include trade issues, political instability, logistics costs, and securitization of African resources.
- Future initiatives should be result-driven, demand-driven, and context-agnostic, focusing on human resources, knowledge, technology, and sustainability.

Role of South-South Cooperation in Global Development:

- South-South Cooperation should be proactive in aligning with national systems and achieving global targets like SDGs and MDGs.
- Collaboration networks must deepen to avoid fragmentation and maximize the benefits of aid.

Conclusion:

- Indo-African relations, embedded in the principles of South-South Cooperation, have evolved into a strategic partnership with economic, trade, and developmental dimensions.
- The future requires continued efforts towards mutual growth, addressing challenges, and fostering deeper cooperation in the evolving landscape of global development.

1. Redefining Rural Landscapes: Startups Paving the Way for Inclusive Development

- India is the 3rd largest startup ecosystem globally with over 1 lakh registered startups (DPIIT data).
- Startup culture is expanding beyond urban hubs, contributing to decentralisation and inclusivity where startups are leveraging technology to bridge the rural-urban divide.

Government Schemes for Rural Startups:

- **Atal Community Innovation Centres (ACIC):** Launched under the Atal Innovation Mission (AIM) in 2020, it aims to create community innovation centres for rural entrepreneurs. 14 ACICs established till now, supporting 200+ community-based startups.
- **Startup Village Entrepreneurship Programme (SVEP):** Implemented by the Ministry of Rural Development, it is a sub-scheme under DAY-NRLM to support the rural people to set up enterprises at the village level in non-agricultural sectors.
- **Skill India Mission:** Implemented by the Ministry of Skill Development and Entrepreneurship, it aims to skill development through various schemes like Pradhan Mantri Kaushal Vikas Yojana (PMKVY) and National Apprenticeship Promotion Scheme (NAPS). 70.5% of PMKVY 2.0 beneficiaries have received placement after the programme.
- **ASPIRE (Scheme by Ministry of MSME):** It aims to provide training and incubation support to agro-rural entrepreneurs through Livelihood Business Incubators (LBIs). 61 Livelihood Business Incubators (LBIs) are functional in the country training more than 50,000 people.

Rural Startup Landscape:

- Over 65% of the total population in India resides in rural areas, presenting a significant market.
- **Role of Digitization:** India has one of the cheapest data rates globally. Internet penetration and data accessibility are driving growth in startups catering to rural needs.
- Rural India presents a large market for startups, especially in sectors like agritech, food processing, ed-tech, skill development, e-commerce, health tech, renewable energy, handicrafts and traditional arts, and fintech.

Types of Rural Startups:

- **Urban-based founders with rural solutions:** Entrepreneurs from urban areas addressing unique challenges faced by rural communities. It involves bridging the gap between urban and rural lifestyles by introducing technology-driven initiatives in agriculture, healthcare, education, etc.
- **Rural-based founders with rural solutions:** Develop solutions based on their firsthand knowledge of local needs and traditions, like agricultural innovations or craft preservation.
- **Self-Help Groups (SHGs):** Collective community enterprises focused on income generation and development through activities like handicrafts or micro-enterprises.
- **Micro, Small, and Medium Enterprises (MSMEs):** Local enterprises catering to specific demands of rural markets and contributing to employment and economic growth.

Challenges for Rural Startups:

- **Connectivity Issues:** Limited connectivity with urban suppliers impacting operational efficiency due to delays, increased costs, and logistical complexities.
- **Access to Financing:** Difficulty in securing reliable and affordable financing for rural startups.
- **Lack of Support System:** Absence of mentorship, networking opportunities, and incubation centres hindering growth.
- **Difficulty in Finding Early Adopters:** Limited communication channels, lower income and lower digital penetration pose challenges in identifying early adopters.
- **Limited Funding Mechanism:** Funding for startups is concentrated mainly in major urban centres, leaving rural startups with limited access to capital.

Conclusion:

- The migration of startups from rural to urban areas is inevitable but establishing an enabling innovation ecosystem in rural areas is crucial.
- Fostering an environment supporting the growth of startups, particularly in rural areas, is imperative for achieving the USD 10 Trillion milestone by 2030.

2. Reform, Perform & Transform through Agri-Startups

- India has been ranked the third-largest unicorn hub globally, with a total of 90 unicorns, behind the United States of America and China.
- Agriculture contributes around 18% to India's GDP and 55% of the population relies directly on agriculture for their livelihood.
- The agricultural sector has witnessed steady growth in recent years, and the rise of startups has prompted young entrepreneurs to leave traditional roles to establish their own ventures.
- Technologies like hybrid seeds, Artificial Intelligence, geo-tagging, big data analytics, mobile apps, and farm management can be applied at every stage of the agricultural process to enhance productivity and increase farm incomes.

Government Reforms Facilitating Startups:

- Make in India (2014): It aims to position India as a global design and manufacturing hub. Know more about Make in India in the link.
- Startup India (2016): 19-point action plan to boost innovation, funding support, and industry-academia partnerships. It has led to a notable increase in the establishment of new companies showcasing innovative ideas across various sectors.
- Atal Innovation Mission (AIM): It has been catalysing the development of innovation hubs, addressing grand challenges, nurturing startups, and promoting self-employment in technology-driven sectors.
- NewGen Innovation and Entrepreneurship Development Centre (NewGen IEDC): It promotes knowledge-based and technology-driven startups by supporting up to 20 new projects annually within educational institutions by providing one-time financial aid of Rs. 25 lakh.
- Innovation & Agri-Entrepreneurship Program (2018-19): It aims to increase farmers' income by promoting innovation.

Rising Proliferation of Agri-Startups

- Over the past few years, a wave of agritech startups has surfaced in India, aiming to resolve issues such as marketing linkage, supply chain, use of outdated equipment, insufficient infrastructure, and limited access to diverse markets for farmers.

Ecosystem Supporting Agri-Tech Startups:

- Incubators/Accelerators: a-IDEA, AGRIUDAAN, Centre for Innovation, Incubation and Entrepreneurship (CIIE), International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) and Agri-Tech Startup Accelerator are a few important accelerators and incubators supporting the agri-tech sector in India.
- Government Support in Union Budget 2023: Increased allocations for rural infrastructure, development of agriculture, and allied sectors. Integration of rural markets with e-Nam and broadening Minimum Support Price for comprehensive coverage of agricultural commodities.
- Agri-Startups Impacting Supply Chain and Market Linkage: Addressing challenges in India's supply-driven agriculture. Companies like Sabziwala, MeraKisan, and Dehaat successfully aggregated horticulture products.

Conclusion:

- The Indian Government, through initiatives like "Startup India," actively supports the vibrant startup ecosystem, particularly in the agriculture sector.
- Agri-tech startups are integrating technology to transform market linkages and supply chains, contributing to the overall growth and sustainability of the agricultural sector.
- The comprehensive network of institutions is vital for converting agri-startup intentions into profitable enterprises.

3. Redefining the Food Processing Sector through Startups

- The food processing sector acts as a vital link between agriculture and industries, reducing wastage and ensuring value addition. This diversification and commercialisation of agriculture generates incremental employment and income for farmers.
- It's one of the fastest growing sectors in India, having grown at 10.3% from 2015–16 to 2020–21, compared to the overall manufacturing sector's 5.1% growth.

Startups: Sunrise and Inclusive Growth

- The food processing sector is a “sunrise sector” in India with tremendous entrepreneurial potential. Startups can play a crucial role in driving innovation and revitalizing supply chains.
- Role of Women: Women entrepreneurs make up a significant portion of the food processing sector. According to the Ministry of Food Processing Industries' Annual Report (2022–23), 25% of workers in the unincorporated non-agricultural enterprises of the sector are women.
- Initiatives like the Self-Reliant Fund for Micro, Small and Medium Enterprises (MSMEs) have provided equity support to growth-oriented startups.

Meeting Challenges through Focused Attention:

- Startups in India face major challenges related to Availability, Accessibility, Affordability, and Awareness (the 4 “A”s).



Government initiatives:

- Make in India: Food processing is a priority sector under this initiative.
- Various schemes: Pradhan Mantri Kisan Sampada Yojana, Formalisation of Micro Processing Enterprises, Production Linked Incentive Scheme, Agri-Infra Fund, etc., all promote the food processing sector.

Image source: Kurukshetra Magazine

- Foreign Direct Investment: 100% FDI under automatic route is allowed. The sector has attracted Rs. 50,000 crore of FDI in the last nine years.

Promoting Startups:

- Fund of Funds scheme: Providing capital for early, seed, and growth stages of startups.
- Credit guarantee scheme for loans taken by startups.
- Fast-tracked patent applications and disposal for startups.
- Tax benefits and extended incorporation periods to bolster resilience.
- Agriculture Accelerator Fund: Encouraging agri-startups by young rural entrepreneurs.
- Government agencies like the Agricultural and Processed Food Products Export Development Authority (APEDA) facilitate exports and collaborations with other countries. The share of processed foods in exports has risen from 13% in 2014 to 23% in 2023.



Conclusion:

- Technological advancements and changing consumer preferences could drive the growth of startups in the food processing sector.
- Startups across the value chain have the potential and dynamism to bring transformational changes in the economy.

4. Startups as the Engine of Growth for North-East India

Overview of India's Startup Landscape:

- India's startup ecosystem has witnessed remarkable growth, emerging as the third-largest globally with over 1.12 lakh startups across 763 districts.
- The startup movement is crucial for capitalizing on new opportunities, creating wealth, and generating jobs, especially considering the demographic dividends.

Transformation in Entrepreneurship:

- The last decade has seen a surge in entrepreneurship in India, driven by innovative solutions and technology.
- Policy reforms have played a pivotal role, fostering a shift from a job-seeking mindset to a culture of job creators.

Startups and India's Economic Ambitions:

- Startups are integral to India's ambition to become the third-largest economy globally.
- The ecosystem has expanded beyond traditional hubs, with 49% of startups emerging from Tier 2 & 3 cities.

Diversity in Startups and Sectors:

- Startups in India are solving problems across 56 sectors, showcasing diversity beyond the conventional IT services.
- Cities like Hyderabad, Pune, and Chennai have become startup hubs, with entrepreneurs from smaller towns contributing scalable opportunities.

Startups in North-East India:

- The entrepreneurial ecosystem in North-East India is evolving, albeit not at the same pace as metropolitan areas.
- Each state in the region has implemented its startup policies, with Assam and Manipur leading the startup ecosystems.

Sectors Dominating North-Eastern Startups:

- Startups in North-East India primarily focus on sectors such as agriculture, handloom, textiles, tourism, IT & ITES, retail, health, education, waste management, and renewables.
- Agriculture and allied activities hold the majority, followed by ITES, handloom & textiles, and education.

Challenges Faced by North-Eastern Startups:

- Common challenges include limited access to funding, lack of skilled manpower, limited mentorship support, and the need for professional services.
- The region faces unique challenges compared to more mature startup ecosystems in metropolitan areas.

Incubators and Funding Initiatives:

- The North-East region has around thirty incubators, with 80% hosted in academic institutions.
- While there are funds like the North-East Venture Fund (NEVF), a small percentage of startups are fit for accessing venture capital funding.

Challenges in Scalability and Innovation:

- A significant number of startups in North-East India are 'me-too' ventures, posing challenges for scalability.
- Mentorship and technical guidance are identified gaps in the ecosystem, hindering the growth of innovative startups.

Possible Way Ahead for North-East Startups:

- Emphasis on integrating design thinking, creative capacity building, and collaborative problem-solving for startups.
- Structured support needed for funding, documentation, and creating a vibrant and inclusive community of entrepreneurs.

Empowering North-East Startups:

- Building a wide pipeline of innovative, entrepreneurially skilled youth is crucial.
- Evolving outcome-oriented sustainable incubation modes that support competitive businesses, even without venture funding.

Integration and Collaboration:

- Building leaders of incubators, expert mentors, consultants, lawyers, accountants, and technical experts.
- Integrating information, infrastructure, and funding efforts across government agencies, private incubators, and funding institutions.

Leveraging 'Aatmanirbharta' for Growth:

- Capitalizing on the Government of India's focus on 'Aatmanirbharta' (self-reliance) is essential for startups in North-East India.
- The 'Aatmanirbhar Bharat' initiative aligns with the spirit of innovation and entrepreneurship, offering opportunities for startups.

Global Opportunities for Indian Startups:

- India's economic growth, technological advancements, and youthful workforce create a promising backdrop for startups.
- International collaboration and focus on sustainability align with global SDG priorities, offering opportunities for Indian startups.

North-East India as a Gateway:

- North East India's Act East Policy positions it as a gateway to Southeast Asia, providing startups with a strategic platform for success.

Conclusion:

- The evolving startup ecosystem in North-East India holds significant potential for growth and innovation.
- Addressing challenges, fostering mentorship, and leveraging government initiatives can empower startups to contribute to the region's economic development.

5. Supporting Women-led Startups

- The Indian startup ecosystem is growing rapidly, with increasing participation of women entrepreneurs.
- The number of women-led startups has increased from 6,000 in 2017 to 80,000 in 2022 (a 1233% increase).
- The share of VC funding to women-led startups increased from 11% in 2017 to 20% in 2022.
- Women-led companies have performed 63% better than male-led companies in terms of Return On Investment in the last decade.
- Out of 105 startups turned unicorns in 2022, 17% were women-led startups.

Government Initiatives to Promote Women Entrepreneurship:

- Fund of Funds for Startups scheme: 10% of the funds in the Fund of Funds for Startups scheme is reserved for women-led startups.
- Virtual Incubation Programme for Women Entrepreneurs: Supported 20 women-led tech startups with pro-bono acceleration.
- Webpage Dedicated to Women Entrepreneurs: Provides policy measures by Central and State Governments.
- Awareness and Capacity-Building Workshops: Various workshops focusing on women entrepreneurs' needs.
- WING (Women in India's Startup Ecosystem): Aims to support 7,500 women entrepreneurs annually through capacity development.

Challenges to Women-led startups

- Women-owned startups face challenges in accessing credit due to collateral, creditworthiness, and perceptual biases.

Government Schemes for Supporting Women-led Startups:

- Mudra Yojana for Women/Mahila Udhyaami Yojana: Offers loans up to Rs 10 lakh without collateral for women entrepreneurs in non-corporate, non-farming, and non-agriculture-based businesses headed by women entrepreneurs.
- Stand-Up India (SUI) Scheme: Facilitates bank loans between Rs. 10 lakh and Rs. 1 crore to at least one Scheduled Caste (SC) or Scheduled Tribe (ST) borrower and at least one woman borrower per bank branch for greenfield enterprises.
- Special Schemes for Rural/Disadvantaged Women: This includes Skill Upgradation and Mahila Coir Yojana training programs aimed at the skill development of women artisans engaged in the coir industry.



- Mahila Samridhi Yojana: A microfinance scheme for women from backward classes by the National Scheduled Castes Finance and Development Corporation (NSFDC) under the Ministry of Social Justice.
- Women Entrepreneurship Platform (WEP): Hosts information, workshops, and campaigns for women entrepreneurs.
- Nai Roshni Scheme: A leadership development program for women belonging to minority communities. Read more on the Nai Roshni scheme.
- Special Schemes of Public Sector Banks: Concessional financing options for women entrepreneurs. Examples include the State Bank of India (Stree Shakti Scheme), Punjab National Bank (PNB Mahila Udyami), and Central Bank of India (Cent Kalyani).

Way Forward:

- According to the NITI Aayog report 'Decoding Government Support to Women Entrepreneurs in India,' the economic contribution of women in India accounts for 17% of the GDP.
- There is a need for more effective implementation of schemes to benefit female entrepreneurs and ensure equal access to all entrepreneurship support schemes.
- Additionally, there is a need for non-financial support such as technology upgrades and skill training, as well as more schemes supporting entrepreneurship in the digital economy.
- Women-owned enterprises can bring about demographic shifts and inspire future generations.

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Biswajit Prusty
Rank - 95



Sampat Ku. Dash
Rank - 11



Priti Ranjan Rath
Rank - 22



Subrat Kumar
Rank - 33



Sachin Patel
Rank - 61



Taitwomassi Mohapatra
Rank - 101

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