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1. INDIAN SOCIETY & POLITY

1. Four sites in India get World Heritage Irrigation Structure tag

Why in News?

- Four sites in India have received the World Heritage Irrigation Structure (WHIS) in 2020.

Highlights:

- **The sites are:**
 - ✓ Cumbum (Kambham) lake, Andhra Pradesh
 - ✓ Kurnool-Cuddapah Canal, Andhra Pradesh
 - ✓ Porumamilla Tank (Anantharaja Sagaram), Andhra Pradesh
 - ✓ Dhamapur Lake, Maharashtra

World Heritage Irrigation Structure:

- The WHIS sites are annually recognised by International Commission on Irrigation and Drainage.
- **Aim:** To understand the evolution of irrigation in civilizations across the world.
- **Objective:**
 - ✓ To learn from their significant achievements and gather knowledge about their unique features that have sustained the project Over Centuries.
- Criteria for recognition:
- **The structure should be:**
 - ✓ More than 100 years' old
 - ✓ Functional, achieving food security
 - ✓ Have archival value
- **International Commission on Irrigation and Drainage (ICID):**
 - ✓ The ICID is a global network of irrigation, drainage, and flood management experts.
 - ✓ It recognises irrigation structures of international significance on the lines of World Heritage Sites recognised by the UNESCO.
 - ✓ Japan (42) has the highest number of WHIS sites followed by China (23).
 - ✓ India has 6 WHIS sites.

Significance:

- The recognition will provide the State governments more incentive and motivation to maintain them and ensure they are Functional.

Kambham Lake:

- Kambham (or Gundlakamma Lake) is a historical water body located at Markapur in Prakasam district, Andhra Pradesh.
- Built on the Gundlakamma River upon Nallamalai hills, it is the second largest man-made irrigation tank in Asia.
- It was built over 500 years ago and is about 7 km long and 3.5 km wide.
- It was built by queen Varadharajamma (also known as Ruchidevi) the first wife of Sri Krishnadevaraya of Vijayanagara Empire.

Porumamilla Lake:

- The Porumamilla Lake located near Kalasapadu in Kadapa district, Andhra Pradesh.
- As per the Porumamilla inscription, it was built during the reign of Bhaskaradu (Bhavaduradu), the son of the first Bukkarayalu of the Vijayanagara empire, when he was the head of the Udayagiri kingdom.
- It has a history of over 500 years and extends over an area of 3,864 acres.

KC Canal:

- The Kurnool- Cuddapah Canal was constructed by the Britishers between 1863 and 1870 as an irrigation and navigation canal.
- This canal interconnects the rivers Penna and Tungabhadra.
- It presently irrigates nearly 1,70,000 acres with 40 Tmcft (thousand million cubic feet) water utilisation from the Krishna River.

Dhamapur Lake:

- It is a 490-year-old Lake, in the Sindhudurg district Maharashtra.
- There are 64 streamlets that feed it and it irrigates 237-hectare land annually.
- The site was built in 1530 by villagers of Dhamapur and Kalse, Maharashtra.
- The lake remains full as it receives water throughout the year.
- The lake receives water throughout the year and remains full throughout the year.
- It is one of the top 100 wetlands in India identified by the Union Government for rapid restoration and improvement.
- It is expected to be proposed as a Ramsar site (wetland of international significance) by the Maharashtra government.
- There are 193 floral and 247 faunal species in this wetland.

2. Postal Ballots for Non-Resident Indian voters

Why in News?

- The Election Commission of India (ECI) has said that it is technically and administratively ready to extend the Electronically Transmitted Postal Ballot System (ETPBS) to Non-Resident Indian (NRI) voters for elections next year in Assam, West Bengal, Kerala, Tamil Nadu and Puducherry.

Current System:

- Voters residing abroad can only cast their votes in their respective constituencies.
- This regulation is seen as restrictive as only a few thousand Indians living overseas have registered as voters, the maximum being from Kerala.

Proposed System:

- It was in 2014 that the ECI took up the proposal to permit NRI voters to cast their votes.
- To extend this facility to overseas voters, the government only needs to amend the Conduct of Election Rules 1961. It doesn't require Parliament's nod.
- Any NRI interested in voting through the postal ballot in an election will have to inform the Returning Officer (RO) at least five days after the notification of the election.
- On receiving such information, the RO will dispatch the ballot paper electronically.
- The NRI voters will mark their preference on the ballot printouts and send it back along with a declaration attested by an officer appointed by the diplomatic or consular representative of India in the country where the NRI is resident.

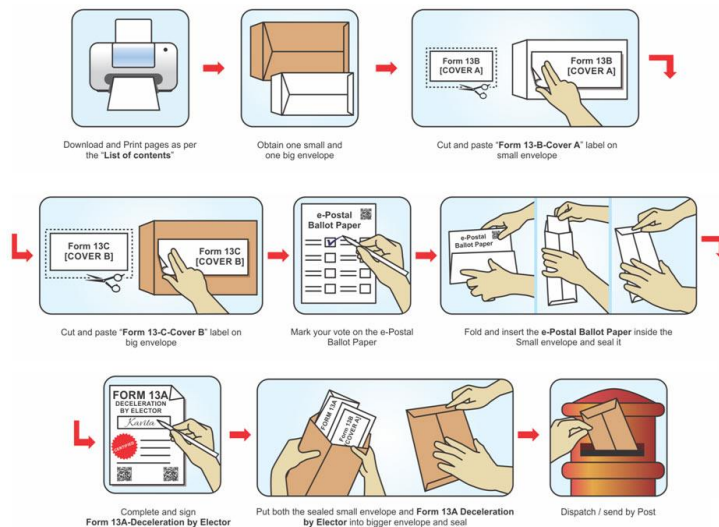
Issues:

- Diplomatic missions do not have the logistical wherewithal to handle attestation for a large number of overseas electors. May be difficult in non-democratic countries.
- Prone to Electoral Frauds.

Postal Voting:

- Postal voting is voting in an election where ballot papers are distributed to electors (and typically returned) by post, in contrast to electors voting in person at a polling station or electronically via an electronic voting system.
- Available to limited to individuals meeting certain criteria, such as a proven inability to travel to a designated polling place.
- The system is followed in numerous countries such as Australia, France, Germany, United States of America etc. A variant of the same is also followed in India.

Electronically Transmitted Postal Ballot System (ETPBS):



- Postal voting in India is done only through the Electronically Transmitted Postal Ballot Papers System (ETPBS) system.
- It was developed by Election Commission of India with the help of Centre for Development of Advanced Computing (C-DAC), for the use of the Service Voters.
- Under this system, ballot papers are distributed to the registered eligible voters and they return the votes by post.

Features:

- Service voters can avail this service from anywhere outside their constituency.
 - ✓ The system facilitates the creation of service voter electoral roll data.
 - ✓ Easy, Efficient and Hassle-free
- It is a secure system, having two-layer security.
- Class of Electors who are eligible for ETPBS
 - ✓ Service Voters i.e. People working in the Union armed forces and state police and employees working for the Government of India who are officially posted abroad.
 - ✓ The wife of a Service Voter who ordinarily resides with him.

Overseas Voters:

- The Representation of the People (Amendment) Bill, 2017, proposes to amend Section 60 and extend the facility of proxy voting to Indian voters living abroad.
- However, the bill lapsed with the dissolution of the 16th Lok Sabha.
- Approx. 1 crore Indians settled abroad, of whom about 60 lakhs could be of eligible voting age. The majority are from Punjab, Gujarat and Kerala.

3. India's Population with Disabilities

Why in News?

- December 3 is marked by the UN as International Day of Persons with Disabilities in a bid to promote a more inclusive and accessible world for the differently-abled and to raise awareness for their rights.

Disability in India:

- About 2.2% of India's population lives with some kind of physical or mental disability, as per the National Statistics Office report on disability released last year.
- How are the disabled identified?
- Until the 2011 census, there were questions on seven kinds of disabilities in the questionnaire.
- This list of disabilities was expanded to 21 when the Rights of People with Disabilities was introduced in 2016.
- Accordingly, the 2019 report included questions to identify people with temporary loss of ability as well as neurological and blood disorders in addition.
- The earlier definition included mental retardation and permanent inability to move, speak, hear and see.
- Significantly, the revised definition recognizes deformities and injuries of acid attack victims as disabilities, entitling them to various Relief Measures.

Who are Disabled and in What Way?

- Rural men had the highest prevalence of disability in India, according to the NSO report.
- A higher proportion of men were disabled in India compared with women, and disability was more prevalent in rural areas than in urban areas.
- Inability to move without assistance was the most common disability. More men experienced locomotor disability than women.
- These numbers were self-reported. In other words, the respondents were asked if they experienced any difficulty in performing tasks like moving, talking, etc.
- Are these measures in line with those from other surveys?
- The 2011 census estimated that the number of people with disabilities in India is close to 2.68 crore (or 2.2% of the population) — that is more than the Entire population of Australia.

- This number was based on the older definition of disability, yet the proportion of disabled people in the population is not different from the 2019 NSO report, which used the expanded definition of disability.
- Other metrics for evaluating disability have provided different estimates.
- A group of doctors from AIIMS found that alternate questionnaires like the Rapid Assessment of Disability have resulted in a prevalence ranging from 1.6%-43.3%.

How can the Range be so wide?

- The proportion of population facing disability becomes bigger as one move from a narrow definition to a broader one.
- For instance, if one defines disability as the difficulty in accessing public services for all kinds of reasons, even social or economic, then the Proportion goes up.

Why is it Important to Map Disabled People?

- Like other disadvantaged groups, the disabled in India are entitled to some benefits, ranging from reservation in educational institutes to concessions on railway tickets.
- To claim these benefits, they have to furnish certificates as proof of disability.
- At the macro level, data on the prevalence and type of disability is useful while making allocations for welfare schemes.

4. Historical Truths must be Depicted without encouraging hatred or enmity, says SC

Why in News?

- The Judgement was passed against the FIRs that were filed against a T.V. news anchor for alleged remarks on Khwaja Moinuddin Chishti in a News Show.

The Supreme Court verdict:

- Court accepted that the historical truth may be relevant or important factor but it must be depicted without in any way disclosing or encouraging hatred or enmity between different classes or Communities.
- Truth may be a subjective element, making it one person's relative truth over another's.
- Cultural value system, historical experiences, lived realities of social system and hierarchies determine how Individual Perceives the truth.
- Free speech has empowered those who were marginalised and discriminated, and thus it would be wholly incorrect and a mistake to assume that free speech is an elite concept and indulgence.

- We must condemn and check any attempt at dissemination of discrimination on the basis of race, religion, caste, creed or regional basis.
- Social harmony and tolerance for hateful can be achieved by self-restraint, institutional check and correction, self-regulation or through mechanism of statutory regulations.
- Penal threat alone which can't help us achieve and ensure equality between groups.
- Dignity of citizens of all castes, creed, religion and region is best protected by the fellow citizens belonging to non-targeted groups and even targeted groups.
- In a polity committed to pluralism hate speech can't contribute to the democracy rather it repudiates the right to equality.
- Objective of criminalizing hate speech is to protect dignity, ensure political and social equality between different identities and groups regardless of caste, creed, religion, sex, gender identity, sexual orientation, linguistic preference etc.
- Dissent and criticism of the elected Government's policy, when puissant, deceptive or even false would be ethically wrong, but would not invite Penal Action.

Other SC Cases Involving Matter of Hatred:

- K A Abbas vs Union of India, 1970
- Ebrahim Suleiman Sait v. M C Mohammed and Another, 1980

2. GOVERNANCE

1. Quality Council of India launches Scheme for Approval of Hygiene Rating Audit Agencies

Why in News?

- The Quality Council of India (QCI) in collaboration with the Food Safety and Standards Authority of India (FSSAI) has launched a scheme for approval of Hygiene Rating Audit Agencies.

Hygiene Rating Scheme:

- Hygiene Rating Scheme is a user driven certification system.
- It is applicable to food businesses supplying food directly to consumers either on or off the premise. Food businesses are rated on the basis of food hygiene and safety conditions found at the time of inspection and are given a score between (five to one) as per their hygiene and food Safety Compliance.

Objective:

- Allow consumers to make an informed food choice about where to eat and inculcate right eating habits.
- Encourage food businesses to adopt high hygiene standards and to sustain them so as to showcase the same to their consumers.
- This scheme is applicable for food service sector such as hotels & restaurants, cafeterias, etc.

Quality Council of India:

- Quality Council of India (QCI) was set up in 1997 as an autonomous body under the Societies Registration Act.
- It was setup jointly by the Government of India and the Indian Industry represented by the three premier industry associations i.e.
- Associated Chambers of Commerce and Industry of India (ASSOCHAM)
- Confederation of Indian Industry (CII)
- Federation of Indian Chambers of Commerce and Industry (FICCI)
- Objective: To establish and operate national accreditation structure and promote quality through National Quality Campaign.
- The Department of Industrial Policy & Promotion, Ministry of Commerce & Industry, is the nodal ministry for QCI.

- Chairman of QCI is appointed by the Prime Minister on recommendation of the industry to the Government.

Food Safety and Standards Authority of India (FSSAI):

- Food Safety and Standards Authority of India (FSSAI) is an autonomous statutory body established under the Food Safety and Standards Act, 2006.
- It is responsible for protecting and promoting public health through the regulation and supervision of food safety.
- Ministry of Health and Family Welfare is the nodal ministry for this body.
- The headquarters of FSSAI is located in New Delhi.

2. 12th (Green Rating for Integrated Habitat Assessment) GRIHA Summit

Why in News?

- During the recently held GRIHA Summit, the Vice President of India has appealed to the Finance Commissions and local bodies to encourage green buildings through various measures such as Tax Incentives.

12th GRIHA summit:

- **Theme:** Rejuvenating Resilient Habitats
- **Aim:** To enable knowledge sharing and encourage the development of green and sustainable habitats across the country.
- **There were three e-publications of GRIHA Council launched namely –**
 - ✓ 30 Stories Beyond Buildings
 - ✓ Shashwat Magazine
 - ✓ Version 2019 Manual of the Council.

Impact of Covid-19:

- The pandemic has proven how excellent smart infrastructure in our cities can help to respond Unpredictable Externalities.
- It showed a path for an economic regeneration, safety and child-friendly interventions to ensure a Green Recovery from Covid-19.

Concept of Green Building:

- A 'green' building is a building that- in its design, construction or operation- reduces or eliminates negative impacts and can create positive impacts on our climate and natural Environment.

- Currently, buildings and construction account for 39% of energy-related CO₂ emissions in the world.
- There is an urgent need to accelerate the process of de-carbonization of the built Environment.

Benefits of Green Building:

- Help preserve precious Natural Resources
- Provides simple and cost-effective solution that can lower indoor temperatures by 2 to 4 degrees Celsius.
- In India, over 60% of roofs are made from metal, asbestos, and concrete - thus trapping heat inside buildings and contributing to heat island effect in urban areas.
- Improve our quality of life.
- Inspire behavioural change by providing the ecosystem for sustainability and sanitation.
- It will address 9 of the 17 Sustainable Development Goals (SDGs).

Government Initiatives:

Energy Conservation Building Code (ECBC):

- ECBC is a flagship initiative of Bureau of Energy Efficiency (BEE) under Ministry of Power. It was developed as a first step towards promoting energy efficiency in the building sector. It is expected to overcome market barriers in building energy efficiency.
- The purpose of the is to provide minimum requirements for the energy-efficient design and construction of buildings.
- Provides two additional sets of incremental requirements for buildings to achieve enhanced levels of energy efficiency that go beyond the minimum requirements.
- The National Building Code of India 2016 (NBC) is the reference standard for lighting levels, heating, ventilating, and air conditioning (HVAC), thermal comfort conditions, natural ventilation, and any other building materials and system design criteria addressed in this Code.

Challenge:

- Implementation of the BEE's ECBC has not been uniform across the nation.
- Global Housing Technology Challenge India (GHTC-India):
- Organised by the Ministry of Housing and Urban Affairs in January 2019.
- **Aim:** To identify and mainstream best available and proven construction technologies that are sustainable, green and disaster-resilient to enable a paradigm shift in housing Construction.

Construction Technology Year (2019-2020):

- Six innovative technologies have been selected for constructing 6 Light House Projects (LHPs).
- Affordable Sustainable Housing Accelerators – India (ASHA-India) initiative:
- Five Incubation Centers have been set up for identifying innovative materials, processes and technology for resource-efficient, resilient and Sustainable Construction.

Climate-Smart Cities Assessment Framework (CSCAF) 2.0 and 'the Streets for People Challenge':

- **Aim:** To make our cities people-centric, pedestrian-friendly and climate-resilient.

Swachh Bharat Mission:

- Swachh Bharat Mission has generated and sustained behavioural change for sanitation and hygiene in people through programmatic interventions and citizen-led networks.

Smart Cities Mission:

- Smart Cities Mission is working towards integrated and comprehensive development of cities.
- As part of the Covid-19 response, 47 Integrated Command and Control Centres (ICCC) created under the Smart Cities Mission are serving as crisis management war rooms helping monitor the on-ground situation while leveraging various technological innovations like Geospatial Mapping and Telemedicine Services.

3. National Commission for Minorities celebrated Minorities Day

Why in News?

- Recently, the National Commission for Minorities celebrated Minorities Day on 18th December.

National Commission for Minorities (NCM):

- The Union Government set up the National Commission for Minorities (NCM) under the National Commission for Minorities Act, 1992.
- Initially five religious communities, viz., Muslims, Christians, Sikhs, Buddhists and Zoroastrians (Parsis) were notified as minority communities by the Union Government. Jains were notified as 6th minority community in 2014.
- Union Government constituted National Commission for Minorities, New Delhi and State Government constituted State Minorities Commissions in their respective State Capitals.

- These organisations are set-up to safeguard and protect the interests of minorities as provided in the Constitution of India and laws enacted by the Parliament and the State Legislatures.

Composition of NCM:

- **The Commission consists of-**
 - ✓ A Chairperson
 - ✓ A Vice- Chairperson
 - ✓ Five Members
 - ✓ i.e. Total of 7 persons to be nominated by the Central Government from amongst persons of eminence, ability and integrity.
 - ✓ Each Member holds office for a period of three years from the date of assumption of office.

Constitutional Provisions:

- The Constitution provides two sets of rights of minorities which can be placed in ‘common domain’ and ‘separate domain’.

Common Domain:

- The rights which fall in the ‘common domain’ are those which are applicable to all the Citizens:

Under Part III- Fundamental Rights:

- **Article 14:** people’s right to ‘equality before the law’ and ‘equal protection of the laws’.
- **Article 15 (1) & (2):** prohibition of discrimination against citizens on grounds of religion, race, caste, sex or place of birth.
- **Article 15 (4):** authority of State to make ‘any special provision for the advancement of any socially and educationally backward classes of citizens’.
- **Article 16(1) & (2):** citizens’ right to ‘equality of opportunity’ in matters relating to employment or appointment to any office under the State and prohibition in this regard of discrimination on grounds of religion, race, caste, sex or place of birth.
- **Article 16(4):** Authority of State to make ‘any provision for the reservation of appointments or posts in favour of any backward class of citizens which is not adequately represented in the services under the State in the opinion of the State itself.
- **Article 25(1):** people’s freedom of conscience and right to freely profess, practice and propagate religion, subject to public order, morality and other Fundamental Rights.

- **Article 26:** right of every religious denomination or any section to establish and maintain institutions for religious and charitable purposes, manage its own affairs in matters of religion, and own and acquire movable immovable property and administer it in accordance with law.
- **Article 27:** prohibition against compelling any person to pay taxes for promotion of any particular religion.
- **Article 28:** people's freedom as to attendance at religious instruction or religious worship in educational institutions wholly maintained, recognized, or aided by the State.
- Under Part IV- Directive Principles of State Policy:
 - ✓ **Article 38 (2):** obligation of the State to endeavour to eliminate inequalities in status, facilities and opportunities amongst individuals and groups of people residing in different areas or engaged in different vocations.
 - ✓ **Article 46:** obligation of State to promote with special care the educational and economic interests of the weaker sections of the people.
- **Under Part IVA- Article-51A- Fundamental Duties:**
 - ✓ Citizens' duty to promote harmony and the spirit of common brotherhood amongst all the people of India transcending religious, linguistic and regional or sectional diversities.
 - ✓ Citizens' duty to value and preserve the rich heritage of our composite culture.

Separate Domain:

- The rights which fall in the 'separate domain' are those which are applicable to the minorities only and these are reserved to protect their identity.
- **Article 29(1):** Right of any section of the citizens to conserve its distinct language, script or culture.
- **Article 29(2):** Restriction on denial of admission to any citizen, to any educational institution maintained or aided by the State, on grounds only of religion, race, caste, language or any of them.
- **Article 30(1):** Right of all Religious and Linguistic Minorities to establish and administer educational institutions of their choice.
- **Article 30 (2):** freedom of Minority-managed educational institutions from discrimination in the matter of receiving aid from the State.
- **Article 347:** special provision relating to the language spoken by a section of the population of any State.

- **Article 350 A:** provision for facilities for instruction in mother-tongue at primary stage.
- **Article 350 B:** provision for a Special Officer for Linguistic Minorities and his duties.
- Sikh community's right of 'wearing and carrying of kirpans.

4. Post-Matric Scholarship Scheme for Scheduled Castes

Why in News?

- The Cabinet Committee on Economic Affairs recently approved changes to the Post-Matric Scholarship Scheme for students from the Scheduled Castes.
- The changes include a new funding pattern of 60-40 for the Centre and States.

Post-Matric Scholarship Scheme for Scheduled Castes:

- It is a Centrally Sponsored Scheme, implemented through State Government and UT Administration.

The Scheme Provides:

- Financial assistance to the Scheduled Caste students studying at post matriculation or post-secondary stage to enable them to complete their education.
- The scholarships are available for studies in India only and are awarded by the government of the State/Union Territory to which the applicant actually belongs i.e. permanently settled. It allows students to pursue any course from class 11, with the government providing for the cost of Education.

Objective:

- To support the parents of SC children for educating their wards, so that the incidence of drop outs at this stage is minimized.

Changes:

- The new funding pattern would increase the Centre's involvement in the scheme, replacing the existing "committed liability" formula.
- The amount would be sent to the beneficiaries' accounts directly.
- It will enroll the poorest students, ensure timely payments, comprehensive accountability, continuous monitoring and total transparency in the scheme.

Significance of the Scheme:

- The scheme will be run on an online platform.
- Robust cyber security measures would assure transparency, accountability, efficiency, and timely delivery of the assistance without any delay.

- Full-proof verification of the eligibility, for identification of original beneficiary.

Other Scholarship schemes for SC students:

- **Pre-Matric Scholarship to the SC Students":**
 - ✓ To support parents of SC children for education of their wards studying in classes IX and X.
- **National Fellowship scheme for Scheduled Caste Students**
 - ✓ It provides opportunities for pursuing higher education leading to M. Phil/Ph.D degrees in Sciences, Humanities, Social Sciences and Engineering & Technology streams.
- **National Overseas Scholarship Scheme (NOS):**
 - ✓ It provides financial assistance to the selected candidates for pursuing Master level courses and Ph.D abroad in the accredited Institutions/University by an authorized body of that country.

5. Governance Reforms in Central Universities

Why in News?

- Central Universities need reforms in their Governing Councils to make them realise their potential.

Central Universities in the Need of Reforms:

- There are 55 central universities.
- These are endowed with prime land, extensive funding from the central government and there is a long line of students waiting to get in.
- However, , they are in turmoil in recent years, six vice-chancellors (VCs) of central universities have been sacked.
- Some of these institutions have seen their glory days, yet increasingly, the energy is going out of the system.
- However, not a single new private university has so far been able to create a true broad-based viswavidyalaya with the full range of humanities, social and natural sciences and the professional disciplines.
- Therefore, to save academia in India, central Universities must be saved.

Organizational Structure:

- Each of the 55 central universities is governed by a separate Act. but the broad structure is as follows.

- The Visitor of the university is the President of India.
- On his behalf, the Ministry of Education recommends an eminent citizen as the chancellor, whose role is mostly ceremonial.
- The Ministry also constitutes a search committee for the post of VC, which comes up with the list of 3 candidates.
- From this list, the government picks a VC.
- Separately, and through a different process, governing council (GC) is chosen.
- The governing council (GC) of the university usually have nominees from various stakeholders, including the government, faculty, students, and citizens.
- The university's work is carried out by the executive council chaired by the VC, who also appoints the registrar.
- A separate finance committee is constituted, headed by a chief finance officer, who is often a civil servant on secondment to the university.
- This arrangement is designed to Maintain Financial Checks and Balances.

Issues with the Governance:

- The GC has no say in the selection of the VC.
- The GC typically meets only once a year and its size is usually very large.[Delhi University has 475 members]
- In theory, the VC presents and gets approval for the annual plan of the university from the GC. In practice, after much grandstanding on both sides, the plan is rubberstamped.
- After that, throughout the year, there is minimal direction or monitoring from the GC, which may or may not meet again.
- There are typically no quarterly updates, and there is little oversight.
- Under the circumstances, the high number of failures should not come as a surprise, since effectively, there is Minimal Governance.

Comparing with Provisions in IIM Bill:

- The new IIM Bill very sensibly limits the GC to at most 19 members.
- They are expected to be eminent citizens, with broad social representation and an emphasis on alumni.
- This GC chooses the director, provides overall strategic direction, raises resources, and continuously monitors his or her performance.
- **Within the guidelines provided by the GC, the director has full autonomy but also full accountability.**

Way Forward:

- The governing councils of all central universities, IITs, and all other central institutions, need to be restructured by an Act of Parliament.
- The most eminent alumni of these institutions must be brought on their boards.
- The dynamism and exposure that these alumni will bring to the table will promptly lead to world-class innovations.

6. e-Sewa Kendra

Why in News?

- Chief Justice of India recently inaugurated the e-Sewa Kendra in Tripura High Court.

Highlights:

- e-Sewa Kendra were conceived by the Supreme Court under a project to ensure access to justice for all.
- The decision to shift judicial processes online would make justice “technology-dependent” but it had been done to avoid a complete shutdown of courts amid the pandemic.

e-Sewa Kendra:

- e-Sewa Kendra have been created in the High Courts and in one District Court in each State on a pilot basis.
- They are supposed to serve the common litigant as a one stop center for all his/her Court related needs.
- In order to make it more visible, it is envisaged that it shall be strategically located right at the public entry gate accessed by litigants and shall provide every possible assistance to a litigant walking in.
- These Kendra represent a significant step for the common man and his right to access to Justice.

Principle:

- Technology must be harnessed to “Empower” and “Enable”.
- Ensuring Access to Justice to all.
- Creating an efficient and Responsive Judicial System.

Facilities provided by e-Sewa Kendra:

- Handling inquiries about case status, next date of hearing and other details.
- Explaining the method of arranging and holding a video conference court hearing.

- Online Applications for certified copies.
- e-Filing of petitions:
- Scanning of hard copy petitions
- Appending eSignatures
- Uploading them onto CIS
- Generation of filing number
- To assist in online purchase of e-Stamp papers/ePayments.
- To help in applying and obtaining Aadhaar based digital signature.
- Publicize and assist in downloading the Mobile App of e-Courts.
- Facilitate in the booking of e-Mulakat appointments for meeting relatives in jail.
- Handling queries about Judges on leave.
- Guide people on how to avail free legal services from:
 - ✓ District Legal Service Authority
 - ✓ High Court Legal Service Committee
 - ✓ Supreme Court Legal Service Committee
 - ✓ Facilitate disposal of traffic challan in virtual Courts as also online compounding of traffic challans and other petty offences.
 - ✓ Provide soft copies of judicial orders/judgments via email, WhatsApp or any other available mode.

Other Government initiatives to provide online legal services:

Tele Law:

- Launched by Ministry of Law and Justice in April 2017 to facilitate legal advice for marginalized communities. It would help to connect lawyers with clients by video conferencing through the common service centres (CSCs) which would be operated by para-legal Volunteers.

Nyaya Mitra:

- It aims to reduce pendency of cases across selected districts, with a special focus on those pending for more than 10 years. It will actively identify such cases through the National Judicial Data Grid, providing legal advice and connecting litigants to government agencies and civil society organizations. This initiative would be launched in 227 districts:
 - ✓ 27 districts in the North East and J&K
 - ✓ 200 in Uttar Pradesh, Bihar, Maharashtra, Rajasthan, Odisha, Gujarat, and West Bengal.

7. Action Agenda for an AtmaNirbhar Bharat (AAAN)

Why in News?

- The Health Ministry has released the report Action Agenda for an AtmaNirbhar Bharat (AAAN) prepared by Technology Information, Forecasting and Assessment Council (TIFAC).

AAAN Report:

- The report AAAN is a consequential follow-up of the TIFAC's White Paper on Focused Interventions for 'Make in India': post-COVID -19 which was released earlier this year.
- The White Paper highlighted five thrust sectors namely, Healthcare, Machinery, ICT, Agriculture, Manufacturing, and Electronics that would be critical for India's economic growth post-COVID.
- This AAAN action plan has been structured with reference to timeline, highlighting short/medium and long term interventions in various identified sectors.

Why need such an Agenda?

- The World is experiencing unprecedented health and economic crisis. A widespread deep global recession has been bolstered, undermining global cooperation and multilateralism.
- The most outward global economies have turned inwards and are designing enhanced measures for rebooting and resilience of the Economy.
- The document also specifically defines overarching policy recommendations with reference to technological inputs, focusing towards Local to Global.
- It would thereby revive the Indian economy, in identified domains of Innovation and Technology Development, Technology Adoption/Diffusion, Boosting up Manufacturing and Productivity, Trade and Globalization etc.

3. SCIENCE & TECHNOLOGY

1. RT-LAMP: a New Technology for Detecting COVID-19

Why in News?

- The Novel Coronavirus, SARS-CoV-2 causes the Coronavirus disease-2019 (COVID-19).

Current Available Tests:

RT-PCR Test:

- The current method for SARS-CoV-2 diagnosis is the real time reverse transcription polymerase chain reaction (RT-PCR) test.
- It detects the presence of viral nucleic acids in Nasopharyngeal Swab Samples.

Shortcomings of the Test:

- Requires complex and Costly Equipment.
- Extensive training for Potential Users.
- The specificity and sensitivity of the test is about 95%, leaving a possibility of false negative results.
- Turnaround time or result outcome longer (about 10 hours).

Serology Tests:

- COVID-19 serology tests are used to detect antigens that are associated with the virus infection.
- These tests are easy to use with rapid results and have minimal expenses.
- However, they lack the necessary accuracy to be a reliable diagnostic test due to its low sensitivity and high false negative/positive rates.

RT-LAMP (Reverse Transcriptase loop-mediated isothermal amplification)

Technology:

- RT-LAMP (Reverse Transcriptase loop-mediated isothermal amplification) technology is a superior technique.
- It is a one-step nucleic acid amplification method to multiply specific sequences of RNA (Ribonucleic acid) of the coronavirus.
- The RNA is first made into cDNA (copy DNA) by the usual reverse transcription.
- Then, the DNA is amplified by the LAMP Technique.

The LAMP Technology has Many Advantages over RT-PCR Technology:

- The RT-PCR test needs different temperatures in one cycle. The temperature of the solution has to be changed from 92 degrees C to 56 degrees C and again to 72 degrees C

every two minutes, and this cycle has to be repeated. Thus, the PCR test needs expensive thermal cycler as well as the real time PCR machines.

- The new RT-LAMP technology is done at 65 degrees C, where the DNA amplification is done at a constant temperature (isothermal), so that expensive thermal cycler is not required.
- The quantity of DNA amplified in the LAMP technology is hundred thousand times more than that in PCR. The final assay is possible with a simple colour reaction, removing the need for very costly real time PCR machines.
- Results can be obtained within 30 minutes and positive samples are amplified as early as 10 minutes compared with the PCR technique which needs 8–10 hours for completion.
- The reagents in LAMP technology are to be stored at 4-degree C (ordinary fridge), whereas the PCR-based reagents are to be stored and transported at (minus) –20 degrees C, which needs deep freezers that escalate the cost.
- LAMP is cost effective and does not need complex expensive equipment and can be performed with minimum skill and minimum infrastructure.

Recently Validated:

- The LAMP technology has been recently validated by the Indian Council of Medical Research with sensitivity 98.7% and specificity 100%.
- In the case of LAMP-based kits, the Positive predictive value is 100% and Negative predictive value is 98.8% with accuracy of 99.38%.

2. ARTPARK to usher in AI & Robotics for societal impact

Why in News?

- An AI & Robotics Technologies Park (ARTPARK) set up in Bengaluru will promote technology innovations in AI (Artificial Intelligence) & Robotics.
- It will lead to societal impact by executing ambitious mission mode R&D projects in Healthcare, Education, Mobility, Infrastructure, Agriculture, retail and cyber-security.

AI & Robotics Technologies Park (ARTPARK):

- ARTPARK is a unique not-for-profit foundation established by Indian Institute of Science (IISc), Bengaluru as a public-private model with AI Foundry.
- It is seed funded by Govt. of India and supported by consortium of Industry partners, academia and startups.

Objective:

- To create a world with inclusive and equitable access to AI via open Tools, Databanks, Standards, IP, Technologies and companies, while creating AI for next 6 bn people.

Significance:

- It will help translate cutting edge AI & Robotics research to solutions with triple impact (Societal impact, economic impact and technology impact).
- Generous additional support of the Government of Karnataka to the ARTPARK Hub brings extraordinary value in increasing its effectiveness, reach and use.
- ARTPARK will develop DataSetu that will enable confidentiality and privacy-preserving framework to share data and run analytics.
- This will spur data-sharing ecosystem and create a Data Marketplace.

National Mission on Interdisciplinary Cyber Physical Systems (NM-ICPS):

- NM-ICPS was launched in 2018 to harness the potential of this new wave of technology and make India a leading player in Cyber Physical Systems.
- The NM-ICPS with its 25 Hubs has a unique architecture that envisages a strong collaboration and co-ownership among the triple helix of industry, academia and government.
- NM-ICPS is a Pan India Mission and covers entire gamut of India that includes Central Ministries, State Governments, Industry and Academia.

Cyber Physical Systems (CPS):

- CPS are new class of engineered systems that integrate computation and physical processes in a dynamic environment.
- CPS encompasses technology areas of Cybernetics, Mechatronics, Design and Embedded systems, Internet of Things (IoT), Big Data, Artificial Intelligence (AI) and many more.
- The CPS systems are intelligent, autonomous and efficient and are expected to drive innovation in sectors as diverse as agriculture, water, energy, transportation, infrastructure, security, Health and Manufacturing.

3. Surveyor-2 Spacecraft

Why in News?

- NASA has confirmed that the Near-Earth Object called 2020 SO is the rocket booster that helped lift the space agency's Surveyor spacecraft toward the Moon in 1966.

Surveyor-2:

- The Surveyor-2 spacecraft was supposed to make a soft landing on the Moon's surface in September 1966, during which time one of the three thrusters failed to ignite.
- As a result of this the spacecraft started spinning and crashed on the surface.
- The aim of the mission was to reconnoiter the lunar surface ahead of the Apollo missions that led to the first lunar landing in 1969.
- While the spacecraft crashed into the Moon's surface, the rocket booster disappeared into an unknown orbit around the Sun.

How was the Object Determined to be the Rocket Booster?

- Astronomers track Asteroids using Telescope to determine if there are potentially hazardous asteroids that pose a threat to the planet.
- Therefore, it is also important for them to be able to distinguish between natural and artificial objects that orbit around the Sun.
- The Rocket Booster has come "somewhat close" to the Earth in the past few decades.
- One approach to the Earth in late 1966 was so close that the object was thought to have originated from Earth.
- In September, the NASA-funded telescope detected it.

4. Arecibo Radio Telescope

Why in News?

- A Massive radio telescope at Puerto Rico's Arecibo Observatory — one of the world's largest — collapsed on after sustaining severe damage, following 57 years of astronomical Discoveries.

Arecibo Telescope:

- The Arecibo Observatory, also known as the National Astronomy and Ionosphere Center (NAIC), was an observatory in Arecibo, Puerto Rico owned by the US National Science Foundation (NSF).
- It was the world's largest single-aperture telescope for 53 years, surpassed in July 2016 by the Five-hundred-meter Aperture Spherical Telescope (FAST) in China.
- The second-largest single-dish radio telescope in the world, it had withstood many hurricanes and earthquakes since it was first built in 1963.

Its contributions:

- Being the most powerful radar, scientists employed Arecibo to observe planets, asteroids and the ionosphere. It made several discoveries over the decades, including finding prebiotic molecules in distant galaxies, the first exoplanets, and the first millisecond pulsar. In 1967, Arecibo was able to discover that the planet Mercury rotates in 59 days and not 88 days as had been originally thought.
- In the following decades, it also served as a hub in the search for extraterrestrial life, and would look for radio signals from alien civilizations.
- In 1993, scientists Russell Hulse and Joseph Taylor were awarded the Nobel Prize in Physics for their work on the observatory in monitoring a binary pulsar.
- It provided a strict test of Einstein's Theory of General Relativity and the first evidence for the existence of Gravitational Waves.

5. The Rise of the AI Economy

Why in News?

- Artificial Intelligence (AI) has the potential to transform the Indian economy. In the last few years, India made significant progress in its adoption. However, there are several areas India need to focus on to make the most of what AI offers.

AI Adoption and Capacity Building in India:

- NITI Aayog's national strategy for AI envisages 'AI for all' for inclusive growth.
- NITI Aayog identifies healthcare, agriculture, education, smart cities and infrastructure, and smart mobility and transportation as focus areas for AI-led solutions for social impact.
- The Telangana, Karnataka, Tamil Nadu and Maharashtra governments, among others, have announced policies and strategies for AI adoption.
- Technology companies have established AI centres of excellence to create solutions for global clients.
- India has a thriving AI start-up ecosystem.
- Our talent pool in AI/ML (Machine Learning) is fast-growing, with over 5,00,000 people working on these technologies at present.

AI will boost Indian Economy:

- Nasscom believes that data and AI will contribute \$450 billion-\$500 billion to India's GDP by 2025, which is around 10% of the government's aspiration of a \$5 Trillion Economy.

- The growing AI economy will create Employment Opportunity by creating an estimated over 20 million Technical Roles. AI can create not just niche solutions to specific problems that banks and other service providers are deploying, such as speeding up loan application processing or improving customer service; it can also provide solutions for better governance and social impact. AI can create not just niche solutions to specific problems that banks and other service providers are deploying, such as speeding up loan application processing or improving customer service; it can also provide solutions for better governance and social impact.

Focus on 3 Areas:

1. Talent development

- ✓ In 2019, we nearly doubled our AI workforce to 72,000 from 40,000 the year before.
- ✓ However, the demand continues to outpace the supply.
- ✓ That means our efforts to develop talent must pick up speed.

2. Policies Around Data

- ✓ Without data, there cannot be AI.
- ✓ However, we need a balanced approach in the way we harness and utilise data.
- ✓ We need a robust legal framework that governs data and serves as the base for the ethical use of AI.

3. Providing the right amount of training data

- ✓ Though the use of digital technologies has gone up, the level of digitisation continues to be low. This poses a big challenge for organisations in finding the right amount of training data to run AI/ML algorithms, which in turn affects the accuracy of the results.
- ✓ Then there is the problem of availability of clean datasets.
- ✓ Organisations need to invest in data management frameworks that will clean their data before they are analysed, thus vastly improving the outcomes of AI models.

6. Intentional Genomic Alteration

Why in News?

- The US Food and Drug Administration (FDA) approved a first-of-its-kind intentional Genomic Alteration (IGA) in a line of domestic pigs referred to as GalSafe pigs.

Intentional Genomic Alteration:

- Intentional genomic alteration in animals' means making specific changes to the genome of the organism using modern molecular technologies.

- These are popularly referred to as “genome editing” or “genetic engineering”. However, there are other technologies that can be used to make IGAs in animals.
- Such changes in the DNA sequence of an animal may be carried out for research purposes, to produce healthier meat for human consumption and to study disease resistance in animals among other reasons.
- One example is of using IGAs to make an animal more susceptible to certain diseases such as cancer, which helps researchers get a better understanding of the disease and develop new therapies to treat it.

What does FDA’s Recent Approval Mean?

- The FDA made the announcement this week and allowed IGA in GalSafe pigs to eliminate a type of sugar found in mammals called alpha-gal.
- This sugar is present on the surface of these pigs’ cells and when they are used for products such as medicines or food.
- The sugar is found in red meats such as beef, pork and lamb, the sugar makes some people with Alpha-gal Syndrome (AGS) more susceptible to developing mild to severe allergic reactions.
- IGA will help eventually free these products from detectable alpha-gal sugar, thereby protecting their human consumers from Potential Allergies.

7. Why the Universe has less ‘Antimatter’ than Matter?

Why in News?

- Antimatter is the opposite of normal matter. More specifically, the sub-atomic particles of antimatter have properties opposite those of normal matter.
- The electrical charge of those particles is reversed.
- Antimatter was created along with matter after the Big Bang, but antimatter is rare in today’s universe.
- To better understand antimatter, one needs to know more about the matter.
- The matter is made up of atoms, which are the basic units of chemical elements such as Hydrogen, Helium or Oxygen.

Their Existence:

- The existence of antimatter was predicted by physicist Paul Dirac’s equation describing the motion of electrons in 1928.

- At first, it was not clear if this was just a mathematical quirk or a description of a real particle.
- But in 1932 Carl Anderson discovered an antimatter partner to the electron – the positron – while studying cosmic rays that rain down on Earth from space.
- Over the next few decades’ physicists found that all matter particles have antimatter partners.
- Scientists believe that in the very hot and dense state shortly after the Big Bang, there must have been processes that gave preference to matter over antimatter.
- This created a small surplus of matter, and as the universe cooled, all the antimatter was destroyed, or annihilated, by an equal amount of matter, leaving a tiny surplus of matter.
- And it is this surplus that makes up everything we see in the Universe today.

Studying the Difference Between matter and Antimatter:

- A Quark is a type of elementary particle and a fundamental constituent of matter.
- Quarks combine to form composite particles called hadrons, the most stable of which are protons and neutrons, the components of atomic nuclei.
- The behaviour of quarks, which are the fundamental building blocks of matter along with leptons, can shed light on the difference between matter and antimatter.
- Since they are unstable, they will “decay” – fall apart – into other more stable particles at some point during their oscillation.

8. IISER Scientists identify the Gene that Greens Plants

Why in News?

- Researchers at the Indian Institute of Science Education and Research (IISER) have identified a gene that facilitates in the Greening of Plants.

BBX11:

- The synthesis of chlorophyll in plants is a lengthy, multi-step process.
- When a seedling emerges from under the soil it must quickly synthesize chlorophyll to start supporting its own growth.
- In order to facilitate the quick synthesis of chlorophyll, plants make a precursor of chlorophyll called ‘protochlorophyllide’ in the dark, which glows red when blue light is shone on the plant.

- As soon as the plant comes out into the light from under the soil, light-dependent enzymes convert protochlorophyllide to chlorophyll.
- The two proteins oppositely regulate the 'BBX11' gene to maintain optimum levels of 'BBX11'.

How does it Work?

- It plays a crucial role in regulating the levels of protochlorophyllide – an intermediate in the biosynthesis of the green pigment chlorophyll.
- The amount of protochlorophyllide synthesized needed to be proportional to the number of enzymes available to convert them to chlorophyll.
- If there is an excess of free protochlorophyllide, then exposure to light converts it into molecules that cause 'photobleaching'. Thus, it is very important to regulate the amount of protochlorophyllide synthesized by the plant and here comes the vital part played by the 'BBX11' gene.
- If it is less, plants are unable to efficiently 'green' in order to Harvest Sunlight.

Benefits of the Research:

- The study could have tremendous implications in the agriculture sector in tropical countries like India and can help provide leads to optimize plant growth under stressful and rapidly changing climatic conditions. Due to the rapidly changing climatic conditions, farmers in several states in India, especially in Maharashtra, are suffering huge losses in crop yields.
- This often leads to severe distress among the farming community as indicated by the high number of farmer suicides in Maharashtra for the past several years.
- Severe drought, high temperature and high light are some of the major reasons for crop failure. Young seedlings emerging out of the soil are extremely sensitive to high irradiance of light.
- This study can provide leads to optimize plant growth under these stressful conditions.

9. Exploiting 5G Strategically

Why in News?

- The launch of 5G in Nepal would mean that Nepal's business interests could pass into Chinese control.

Implications of Chinese 5G Technology for Nepal:

- The launch of 5G in Nepal would mean that Nepal's business interests could pass into Chinese control.
- Real-time information on weather, routes, map etc could be based on Chinese 5G, thus making locals or visitors to Nepal dependent on it.
- A related development of infrastructure along the borders, where most mountaineering sites are, could make Nepal's borders vulnerable and damage its tourism industry.
- With lower incomes, the tourism industry might get lured into Chinese cheap loans, leading to a strategic debt trap.
- Such development would have several ramifications for India.

Implications of Chinese 5G Technology for the World

- 2020 has been no ordinary year — Militaries have been pushed to the borders, treaties and agreements are being signed, and a record number of military deals have happened.
- This year has witnessed the most unprecedented intensification of global military conflicts since the Gulf War.
- AI applications have been at display in warfare, with drone killing machines being advertised.
- There is no option left but to get the 5G technology now.
- Huge Chinese investments across the world to spread a 5G network will encompass the planet — a “digital encirclement of the world”.
- Combined with the BRI (Belt and Road Initiative), this encirclement would be complete.
- Intrinsic to the BRI is the fact that Chinese companies will build the digital infrastructure.
- Militaries who allow Chinese 5G, could then become hostage to Chinese technology, as seen during the Pandemic.

Indian 5G Technology: Advantages and Challenges Ahead:

- India is likely to survive the Chinese 5G invasion if it accelerates the launch of Indian 5G.
- India is working on technologies that would enable it to launch Indigenous 5G that would run IOT platforms for civilian as well as military applications.
- The banning of Chinese apps and blocking of hardware supply chains would be the correct counteroffensive to protect the business and security interests of the country.
- The problem is India being poor in “implementation”.
- Where India starts losing out is in slow adoption, getting entangled in policy processes and the crosshairs of the bureaucracy.

4. ECONOMY

1. State of Food and Agriculture Report 2020

Why in News?

- A Report titled 'The State of Food and Agriculture 2020: Overcoming water challenges in agriculture' was released by the Food and Agriculture Organization (FAO) recently.

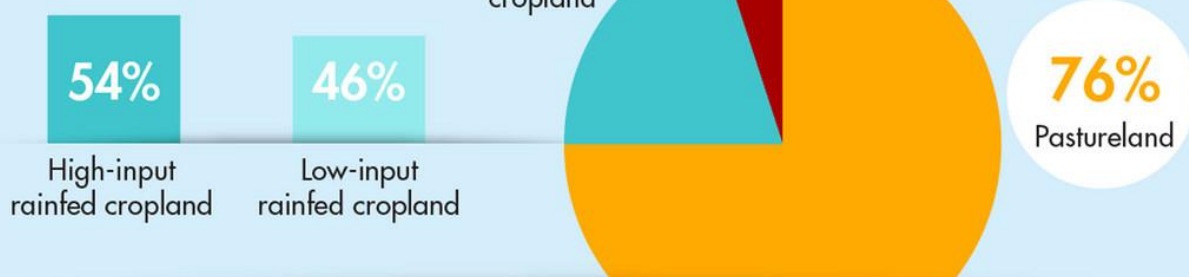
Highlights:

- Around 3.2 billion people across the world live in agricultural areas with high or very high-water shortages or scarcity, with 1.2 billion people in very high levels of water stress.
- Some 520 million of the 1.2 billion people lived in rural areas while 660 million lived in small urban centres surrounded by agricultural areas.
- Nearly half of the 1.2 billion people lived in south Asia, while 460 million lived in east and southeast Asia.
- About one-fifth of the population lived in agricultural areas with very high-water shortages or scarcity in central Asia, west Asia and north Africa.
- Only 1–4 per cent lived in extremely water-constrained areas in Europe, Latin America and the Caribbean, north America and Oceania.
- About 11% of rain-fed cropland and 14% of pastureland experienced severe recurring droughts, while more than 60% of irrigated cropland was highly water-stressed.
- The annual amount of available freshwater resources per person had declined by more than 20% in the past two decades.

Agricultural areas by production system

95% of agricultural areas rely on rainfall

ALMOST HALF OF RAINFED CROPLAND STILL RELIES ON LOW-INPUT PRODUCTION



Mapping the SDG Target:

- The United Nations Sustainable Development Goals (SDGs), SDG 6 aims to ensure availability and sustainable management of water and sanitation for all.
- Water is closely linked to several SDGS, so managing scarce water resources is a critical determinant for their fulfilment including achieving Zero Hunger.
- Agriculture accounts for 70% of the world's freshwater withdrawals.
- The UN called for better management of water, especially in agriculture, to keep resources in check and boost Agricultural Yields.

Major Suggestions:

- Unlocking the potential of rainfed agriculture.
- Collecting or harvesting more water, and infiltrating it into the root-zone.
- Conserving water by increasing plant uptake capacity and reducing root-zone evaporation and drainage losses.
- Rehabilitating and modernizing sustainable irrigation systems in irrigated areas.
- Implementing best agronomic practices.
- Investing in non-consumptive uses of water (Ex: aquaculture) and in non-conventional sources of water (water reuse and desalination).
- Water accounting and auditing should be the basis for any effective strategy for addressing water shortages and scarcity.
- Strengthening policy coherence and improving water management in countries. Specific steps include:
 - ✓ Capacity strengthening for public institutions
 - ✓ Coordination across ministries (water, agriculture and energy)
 - ✓ Improved planning and monitoring tools
 - ✓ Upgraded and integrated databases.

2. Hybrid Renewable Energy Park

Why in News?

- The Prime Minister of India will inaugurate the world's largest renewable solar and wind energy park with a capacity of 30,000 MW in Gujarat's Kutch.

Hybrid Renewable Energy Park:

- The Hybrid Renewable Energy Park will have two zones-

- A 49,600-hectare hybrid park zone that will accommodate wind and solar power plants of 24,800 MW capacity.
- It will be located 6 km from the border.
- An exclusive wind park zone spread over 23,000 hectares and will come up within 1-6 km of the international border.
- Putting windmills near the border will act as a boundary.
- Solar Energy Corporation of India (SECI) will set up wind projects in the entire 23,000 ha at the exclusive wind zone park.
- 50 per cent of the total generation capacity will be developed in the next three years, and the entire project will be finished in next five years.

Highlights:

- Government of India committed to install 175 GW of renewable energy capacity by 2022.
- Out of the Gujarat's installed power generation capacity of 30,500 MW, renewable energy forms 37 per cent (11,264 MW), which includes:
 - ✓ 7,845 MW of Wind.
 - ✓ 3,273 MW of Solar.
 - ✓ 81.6 MW Biomass.
 - ✓ 63.33 MW mini-hydro projects.
 - ✓ There has been a 10-fold increase in renewable energy capacity in Gujarat from 1,170 MW in 2008 to 11,264 MW in 2020.

3. India's RTGS Channel to be Available round the Clock

Why in News?

- The Reserve Bank of India has announced its Real Time Gross Settlement System (RTGS) will become a 'round the clock' service, available on 'all days of the year'.

Highlights:

- It will provide extended flexibility to businesses for effecting payments and will enable introduction of additional settlement cycles in Ancillary Payment Systems.

Real Time Gross Settlement (RTGS):

- RTGS systems are specialist funds transfer systems where the transfer of money or securities takes place from one bank to any other bank on a "real-time" and on a "gross" basis.

- In this transfer, the beneficiary bank receives the instruction to transfer funds immediately when you carry out the transaction, and the transfer is instantaneous.
- It is specifically suited for high value transactions.
- RTGS began its operations from 2004.
- It is operated by central bank of any country as it is considered as critical infrastructure for any country.
- Payments under RTGS are irrevocable.
- The feature of positive confirmation for credit to beneficiary accounts is also available in RTGS.
- From July 2019, RBI stopped levying charges on transactions through NEFT and RTGS.

Benefits:

- Does not require any physical exchange of money.
- Suited for low volume, high value transaction system.
- It lowers the settlement risks.
- It is a safe and secure system.
- Transactions have legal backing.
- Transaction charges have been capped by RBI.

National Electronic Funds Transfer System (NEFT):

- Objective: establish an electronic funds transfer system to facilitate an efficient, secure, economical, reliable and expeditious system of funds transfer and clearing in the banking sector throughout India.
- NEFT is maintained by RBI.
- NEFT enables bank customers in India to transfer funds between any two NEFT-enabled bank accounts on a one-to-one basis.
- It is done via electronic messages.
- It doesn't occur in real-time basis.
- There would be 48 half-hourly batches occurring between 00.30 am to 00:00 am every day regardless of a holiday or otherwise.
- There are no service charges.

4. Over 50% Vehicles on Road Uninsured: Report

Why in News?

- Recently, the Insurance Information Bureau of India published its annual report on motor vehicles.

Highlights of the Report:

- More than half the vehicles on the road in India do not have any insurance cover.
- Nearly 57% of the total vehicles on the road were uninsured as of March 2019.
- Nearly 57% vehicles were uninsured in 2019 as compared to 54% in 2017-18.
- Cars are largely insured (90%).
- The bulk of uninsured vehicles are two-wheelers (66%).
- About 52% vehicles don't renew their insurance after the first year (mostly two-wheelers).
- According to the Motor Vehicles Act, 2019, it is mandatory for all vehicles to be insured with third-party vehicle insurance policy.
- Third-party or liability insurance covers the legal liability arising due to death or disability of third party loss or damage to their property.
- When an uninsured vehicle meets with an accident, the injured or relatives of dead people don't get any compensation.
- There is no compensation for damaged vehicles.
- Motor was the biggest line of business in the general insurance industry with nearly 40% share of the gross underwritten premium.
- Six states (Maharashtra, Tamil Nadu, Uttar Pradesh, Karnataka, Gujarat and Delhi) contributed nearly 50% of the total policies and claims.
- The highest average for death claims was in Kerala and the lowest in Bihar.
- The Union Territories and the southern states have high average deaths as compared to others.

Insurance Information Bureau of India:

- It was established by the Insurance Regulatory and Development Authority of India (IRDAI) in 2009.
- It was registered as an independent society under the Andhra Pradesh Societies Registration Act on 21st November 2012.
- The Society is governed by a Governing Council headed by the Chairman, IRDAI.

Objectives:

- Act as single point for entire insurance industry data
- Ensure data is available to various market players, researchers, policyholders and common public for real time decision making
- Provide benchmark rates for the industry
- Publish reports to aid IRDAI in regulatory functions and insurers in decision making
- Publish reports for the benefit of the whole industry
- Provide the necessary inputs for policy research and insurance industry development activities
- Take initiative for fraud detection, identification of uninsured vehicles, etc.

Brasilia Declaration on Road Safety (2015):

- It was hosted by the Government of Brazil on in Brasilia, Brazil, and co-sponsored by WHO.
- It was the 2nd Global High-Level Conference on Road Safety represented a historic opportunity to chart progress at the mid-point of the Decade of Action for Road Safety 2011-2020.
- It lays down recommendations on:
 - ✓ Strengthening existing legislations
 - ✓ Adopting sustainable transport
 - ✓ Strengthening post-crash response
- In the declaration, participants reasserted their commitment to reduce the deaths caused due to traffic accidents to half by the year 2020.
- This target was set under the 2030 Agenda for Sustainable Development.
- Citing its importance for traffic safety, the declaration promotes sustainable commuting ways and prioritizes pedestrians, cyclists and motorists.

5. Only 12.9% Indian Women Hold Agricultural Land: Report

Why in News?

- The “State of Land Report, India” was released by Bhubaneswar-based Centre for Land Governance recently.
- Secure and impartial land rights for women are crucial for a country to achieve sustainable developments goals, such as ending poverty and Achieving Gender Equality.

State of Land Report:

- The index was prepared using the data of Agriculture census of 2011, Socio-economic Caste Census of 2011 among others.
- The index ranks states in terms of women holding land rights in percentage points.
- Status of women in agriculture sector:
- On average, 12.9% of Indian women hold land.
- The Southern states (15.4%) and Northeast (14.1%) outperform the Northern states (9.8%) and the eastern states (9.2%) in women land holding.
- Lakshadweep and Meghalaya are the best among all the 35 states and Union Territories at providing land rights to women. Punjab and West Bengal are the worst.
- The government intended to give joint titles to men and women while distributing land and home sites since the Sixth Five Year Plan (1980-85).
- According to the Food and Agriculture Organization, women constitute a third (32%) of India's agricultural labor force and contribute 55-66% to farm production.
- According to the index, they hold only 12.8% of operational holdings in India.

6. Bitcoin Hits All Time High

Why in News?

- Bitcoin the cryptocurrency has crossed the level of \$20000 mark.

Bitcoin:

- Origin of the Bitcoin is unclear.
- It is said that Satoshi Nakamoto have conceptualized an accounting system in the aftermath of the 2008 financial crisis.
- Bitcoins are identified by a Bitcoin address comprising 26-35 alphanumeric characters starting with either "1" or "3".
- The Bitcoin address remains anonymous and represents the destination of a Bitcoin, or a fraction. The Bitcoin was intended to provide an alternative to fiat money and become a universally accepted medium of exchange directly between two Involved Parties.

What has led to the rise in Bitcoin prices?

- Large players like payments firm PayPal, and Indian lenders like State Bank of India, ICICI Bank, HDFC Bank and Yes Bank, have given legitimacy to Cryptocurrency through some of their decisions during pandemic.

- Indian banks allowed their customers to use their bank accounts to fund Cryptocurrency trading. Some pension funds and insurance funds took permission to park a small part of their portfolio in Bitcoins.

Are records of Bitcoin Transactions Maintained?

- Publicly available open ledger would maintain all the transactions ever made in anonymous and encrypted form.
- This ledger is called blockchain.
- How does one acquire a Bitcoin?

Bitcoin Mining:

- A chain of computers is constantly working towards authenticating the transactions by solving complex cryptographic puzzles.
- For solving puzzles, these systems are rewarded with bitcoins. This process is called bitcoin mining. One can mine a new Bitcoin if they have the computing capacity, purchase them via exchanges, or acquire them in over-the-counter, person-to-person transactions.
- A Bitcoin exchange functions like a bank where a person buys and sells Bitcoins with traditional currency.
- Miners validate a Bitcoin transaction and secure the network with their hardware.
- New Bitcoins are created at a fixed rate.
- Only 21 million Bitcoins can be created.
- No one can manipulate the system to increase profits.

Is there a need for Regulating Cryptocurrency?

- There is no underlying asset in the Bitcoins and the value is fictitious.
- If the cryptocurrency is regulated, it could result in
- Volatility reduction
- Increase acceptability and monetisation needs easing up.

7. Spectrum Auction Right

Why in News?

- Based on the recommendation of the Telecom Regulatory Authority of India (TRAI), the government is planning to auction spectrum in the sub GHz bands of 700, 800 and 900 MHz along with mid-band frequencies in bands of 1800, 2100, 2300, and 2500 MHz across the 22 Licensed Service Areas (LSAs) of the country.

Details of the Auction:

- The cumulative reserve price — and hence the potential revenue accrual to the government at reserve prices — is about \$50 billion.
- Total reserve price of spectrum put on auction in 2016 was about \$90 billion while the realised value was just about one-tenth of that.
- Hence, while the 2016 auction could be considered as a failure from the auctioneer's point of view.

Factors Determining the Success of the Spectrum auction:

- **Right reserve Price:**
 - ✓ Research on a cross-country spectrum database shows that the reserve price significantly and positively correlated to the winning bid price.
 - ✓ However, a higher reserve price also inhibits bidders from bidding for more spectrum blocks.
 - ✓ If the quantity effect is more than the price effect, then it results in reduced revenues for the government exchequer, as it happened in 2016.
- **Role of Over The Top (OTT) Provider:**
 - ✓ Over The Top (OTT) providers who are providing substitute goods such as Voice Over Internet Protocol (VoIP); and capturing a greater mind share of customers while remaining relatively invisible to government regulators.
 - ✓ The rise of VoIP subscribers could have a positive effect on winning bid prices.
 - ✓ However, the erosion of the position of telcos in the overall digital value network of devices, connectivity and apps, could result in a lower willingness to pay.
- **Allocation of unlicensed spectrum for WiFi:**
 - ✓ By off-loading mobile data, Wi-Fi supplements the carrier network and reduces the demand for mobile network capacity.
 - ✓ A number of countries including the United States have unlicensed the V-band spectrum in 60 GHz — pencil beam band.
 - ✓ Referred to as “wireless fibre”, the 60 GHz spectrum provides huge capacities in a limited area.
 - ✓ Wi-Fi 6 (a.k.a. IEEE 802.11 ax) that operates in the 2.4/5 GHz unlicensed band requires additional unlicensed spectrum allocation to provide Gigabit speeds.
 - ✓ The more the unlicensed spectrum allocation, the lower will be the demand for licensed spectrum.

Clarity on the Availability of Spectrum for Auction:

- While there is an indication by the government that the spectrum for 5G auction, namely 3.4-3.6 GHz, will be held in late 2021, the amount of spectrum that will be made available is not clear.
- There is still uncertainty about the release of 26 GHz by the Department of Space for mobile services.
- With this limited visibility, the bidders will be in a quandary whether to acquire the spectrum now, or wait for subsequent auctions.
- Further, some part of the current spectrum holding of all the operators is coming up for renewal in mid-2021, and hence there is additional pressure on them to retain them in the forthcoming auction.
- **Steps need to be taken:**
 - ✓ A re-visit of reserve prices and lower it further, especially that of 700 MHz which is the “golden band” for covering the hinterlands of the country.
 - ✓ Releasing more unlicensed spectrum in 2.4/5/60 GHz for proliferating Wi-Fi as a suitable complement to [the] carrier network.
 - ✓ This will also augment the deployments of the Public Wi-Fi project which the cabinet approved recently.
 - ✓ Provide visibility of future auctions, especially the quantum of spectrum that can be put on the block in 3.3/3.6/26/28 GHz.
 - ✓ The government should release guidelines on how OTT platforms will be regulated and what will be regulated so that the telcos and OTTs can join hands to provide superior services for the benefit of the consumers.

8. Rights to the Electricity Consumers

Why in News?

- The Ministry of Power has for the first time laid down Rights to the Electricity Consumers through “Electricity (Rights of Consumers) Rules, 2020”.

Rights to the Electricity Consumers: A highlight

- Following key areas are covered in the Electricity (Rights of consumers) Rules:
- Rights of consumers and Obligations of Distribution licensees
 - ✓ Release of new connection and modification in an existing connection
 - ✓ Metering Arrangement

- ✓ Billing and Payment
- ✓ Disconnection and Reconnection
- ✓ Reliability of supply
- ✓ Consumer as Prosumer
- ✓ Standards of Performance of licensee
- ✓ Compensation Mechanism
- ✓ Call Centre for Consumer Services
- ✓ Grievance Redressal Mechanism

1. Rights and Obligations:

- ✓ It is the duty of every distribution licensee to supply electricity on request made by an owner or occupier of any premises in line with the provisions of Act.
- ✓ It is the right of the consumer to have minimum standards of service for the supply of electricity from the distribution licensee.

2. Release of new connection and modification in an existing connection:

- ✓ Transparent, simple and time-bound processes,
- ✓ The applicant has an option for online application,
- ✓ The maximum time period of 7 days in metro cities and 15 days in other municipal areas and 30 days in rural areas identified to provide new connection and modify an Existing Connection:

3. Metering:

- ✓ No connection shall be given without a meter
- ✓ Meter shall be the smart pre-payment meter or pre-payment meter.
- ✓ Provision of Testing of meters
- ✓ Provisions for replacement of defective or burnt or stolen meters specified

4. Billing and Payment:

- ✓ Transparency in applicable consumer tariff and bills
- ✓ A consumer shall have the option to pay bills online or offline.
- ✓ Provision for advance payment of bills

5. Reliability of Supply:

- ✓ The distribution licensee shall supply 24×7 powers to all consumers. However, the Commission may specify lower hours of supply for some categories of consumers like agriculture.
- ✓ The distribution licensee shall put in place a mechanism, preferably with automated tools to the extent possible, for monitoring and restoring outages.

6. Consumer as prosumer:

- ✓ The prosumers will maintain consumer status and have the same rights as the general consumer.
- ✓ They will also have the right to set up RE generation unit including rooftop solar photovoltaic (PV) systems – either by himself or through a service provider.
- ✓ Net metering for loads up to ten kW and for gross metering for loads above ten kW.

7. Standards of Performance:

- ✓ The Commission shall notify the standards of performance for the distribution licensees.
- ✓ Compensation amount to be paid to the consumers by the distribution licensees for violation of standards of performance.

8. Compensation mechanism:

- ✓ Automatic compensation shall be paid to consumers for which parameters on standards of performance can be monitored remotely.
- ✓ The standards of performance for which the compensation is required to be paid by the distribution licensee include, but are not limited to.

9. Call Centre for Consumer Services:

- ✓ Distribution licensee shall establish a centralised 24×7 toll-free call centre
- ✓ Licensees shall endeavour to provide all services through a common Customer Relation Manager (CRM) System to get a unified view

10. Grievance redressal mechanism:

- ✓ Consumer Grievance Redressal Forum (CGRF) to include consumer and prosumer representatives.
- ✓ The consumer grievance redressal has been made easy by making it multi-layered and the number of consumer's representatives has been increased from one to four.
- ✓ The licensee shall specify the time within which various types of grievances by the different levels of the forums are to be resolved. Maximum timeline of 45 days specified for grievance redressal.

9. Cabinet Approves 100% FDI in DTH Services

Why in News?

- The Union Cabinet approved revised guidelines for Direct-to-Home (DTH) broadcasting services, allowing 100% foreign direct investment (FDI) as well as increasing the license period to 20 years.

Revised Guidelines:

- The licenses will be issued for a period of 20 years, compared to 10 years at the moment.
- The license fee has been revised from 10% of gross revenue (GR) to 8% of adjusted gross revenue (AGR), which will be calculated by deduction of Goods and Services Tax (GST) from GR. Broadcasting firms will have to pay the license fee on quarterly basis, rather than the annual basis as of now.
- It may also enable DTH service providers to invest for more coverage leading to increased operations and higher growth and thereby enhanced and regular payment.
- DTH operators, willing to share DTH platform and transport stream of TV channels, on voluntary basis, will be allowed.
- Distributors of TV channels will be permitted to share the common hardware for their Subscriber Management System (SMS) and Conditional Access System (CAS) applications.

What is DTH?

- The Direct-To-Home (DTH) technology enables a broadcasting company to directly beam the signal to a TV set through a receiver that is installed in the house.
- There is no need for a separate cable connection.

Description:

- In India, direct-to-home (DTH) Broadcasting Service refers to the distribution of multi-channel TV programmes in the K_n Band by using a satellite system by providing TV signals direct to subscribers' premises.
- The K_n band is the portion of the electromagnetic spectrum in the microwave range of frequencies from 12 to 18 gigahertz.
- The company beams an encrypted signal that only the set installed in the household can receive and enable viewing.

Advantages of DTH:

- Does away with the cable operator giving channels of his choice with compromised quality.
- Superior quality of signals since the signal is not split through a cable.

- By choosing just the signals that one needs, it reduces monthly cable bill.

Disadvantages of DTH:

- The capital cost that has to be borne initially.
- This involves setting up of a receiving apparatus at the subscriber's end.

What is FDI?

- A foreign direct investment (FDI) is an investment made by a firm or individual in one country into business interests located in another country.
- Generally, FDI takes place when an investor establishes foreign business operations or acquires foreign business assets in a Foreign Company.

FDI Routes in India:

- FDI in India:
- According to the data of the Department for Promotion of Industry and Internal Trade (DPIIT) 2020, the inflows during the period stood at USD 500.12 billion.
- About 29% of the FDI came through the Mauritius route.
- It was followed by Singapore (21 per cent), the US, the Netherlands, Japan (each 7 per cent), and the UK (6 per cent).
- India received USD 144.71 billion from Mauritius and about USD 106 billion from Singapore during the period under review.
- The other big investors have been from Germany, Cyprus, France and Cayman Islands.

Advantages of FDI:

- Inflow of Equipment and Technology
- Competitive advantage and Innovation
- Financial resources for expansion
- Employment generation
- Contribution to Export growth
- Improved consumer welfare through reduced cost, wider choice and improved quality.

Disadvantages of FDI:

- Crowding of Local industries
- Conflict of Laws
- Loss of control
- Effect on Natural Environment
- Effect on Local Culture.

10. India Challenges Vodafone arbitration ruling in Singapore

Why in News?

- India recently challenged verdict by an International Arbitration Court as it had questioned the right of a sovereign to levy tax and not on the tax demand per se.

Background:

- British telecommunications company Vodafone Plc had won an arbitration case against India previously. The Permanent Court of Arbitration at The Hague; held that the retrospective legislation was in breach of the guarantee of fair and equitable treatment guaranteed under the Bilateral Investment Treaty.
- The tribunal directed India to reimburse 4.3 million pounds along with 3000 euros as legal costs.

Vodafone Arbitration Case:

- Vodafone Plc had invoked India-Netherlands bilateral investment treaty in 2013.
- Seeking a resolution to the tax demand imposed on it by enacting a tax law with retrospective effect to escape the Supreme Court judgement that went in the company's favour.
- Vodafone had argued that India did not have jurisdiction over the matter on account of its investment pact with the UK.
- It moved the International Court of Justice (ICJ) in 2016.
- The International Court of Justice (ICJ) later ruled the imposition of tax liability on Vodafone violated the investment treaty agreement between India and the Netherlands.

Retrospective Tax:

- Retrospective taxation effectively allows a country to pass a rule on taxing certain products, items or services, and deals, and charge companies from a time before the date on which the law is passed. Countries use this route to correct any anomalies in their taxation policies that have, in the past, allowed companies to take advantage of such Loopholes.

Permanent Court of Justice (PCA):

- The Permanent Court of Arbitration (PCA) is an intergovernmental organization located in The Hague, Netherlands.
- The organization is not a United Nations agency, but the PCA is an official United Nations Observer.

- It was established by the Convention for the Pacific Settlement of International Disputes, concluded at The Hague in 1899 during the first Hague Peace Conference.

Functions:

- It is not a court in the traditional sense, but provides services of:
- Arbitral tribunal to resolve disputes that arise out of international agreements between member states, international organizations or private parties.
- The cases span a range of legal issues involving:
 - ✓ Territorial and maritime boundaries
 - ✓ Sovereignty
 - ✓ Human rights
 - ✓ International investment
 - ✓ International and regional trade
 - ✓ Membership:
 - ✓ The PCA is constituted through two separate multilateral conventions with a combined membership of 122 states.

11. India to become fifth-largest economy in 2025: Centre for Economics and Business Research (CEBR)

Why in News?

- India, which is world's sixth-biggest economy in 2020, will again overtake the U.K. to become the fifth-largest in 2025 and race to the third spot by 2030.

India Specific Findings:

- As the manufacturer of the majority of the world's vaccines, India is better placed than many other developing countries to roll out the vaccines successfully and efficiently.
- Efforts to liberalise the agricultural sector can deliver economic benefits. However, with the majority of the Indian workforce employed in the agricultural sector, the reform process requires a delicate and gradual approach that balances the need for longer-term efficiency gains with the need to support incomes in the short-term.
- The government's stimulus spending in response to the COVID-19 crisis has been significantly more restrained than most other large economies, although the debt to GDP ratio did rise to 89% in 2020.

- The outlook for the economy going forwards will be closely related to the government's approach to infrastructure spending.
- It forecasts that the Indian economy will expand by 9.0% in 2021 and by 7.0% in 2022.
- Annual GDP growth expected to sink to 5.8% in 2035.
- India will become the world's third largest economy by 2030, overtaking the UK in 2025, Germany in 2027 and Japan in 2030.

12. Dedicated Freight Corridors (DFCs)

Why in News?

- Prime Minister has inaugurated a 351-km section between Khurja and Bhaupur in Uttar Pradesh for commercial operations of the Dedicated Freight Corridor (DFC).

Background of DFCs:

- The concept of Dedicated Freight Corridor (DFC) was mooted in 2006 to generate substantial capacity for freight traffic by developing separate tracks on identified routes.
- The Dedicated Freight Corridor Corporation of India Ltd (DFCCIL) was incorporated as a separate company under the Ministry of Railways.

What is the DFC?

- Under the Eleventh Five Year Plan (2007–12), Railways started constructing a new DFC in two long routes, namely the Eastern and Western freight corridors.
- The section recently launched is part of the 1,839-km Eastern DFC that starts at Sohnewal (Ludhiana) in Punjab and ends at Dankuni in West Bengal.
- The other arm is the around 1,500-km Western DFC from Dadri in Uttar Pradesh to JNPT in Mumbai, touching all major ports along the way.
- There is also a section under construction between Dadri and Khurja to connect the Eastern and Western arms.

Why is it Important?

- Around 70% of the freight trains currently running on the Indian Railway network are slated to shift to the freight corridors, leaving the paths open for more passenger trains.
- Tracks on DFC are designed to carry heavier loads than most of the Indian Railways.
- DFC will get track access charge from the parent Indian Railways, and also generate its own Freight Business.

What Trains will use the New Section?

- Freight trains plying on this section from now on will help decongest the existing Kanpur-Delhi main line of Indian Railways, which currently handles trains at 150% of its line capacity.
- The new section means on the Indian Railway mainline, more passenger trains can be pumped in and those trains can, in turn, achieve better punctuality.
- Foodgrain and fertilizers from the northern region are transported to the eastern and Northeast regions.
- From East and Northeast, coal, iron ore, jute and petroleum products are transported North and West.



5. GEOGRAPHY & ENVIRONMENT

1. India Inches Towards First Marine ‘Designated Area’ off Maharashtra Coast

Why in News?

- A proposal has been sent to the Centre to notify Angria Bank as a ‘designated area’ under the Maritime Zones Act, 1976.

What is the Matter?

- The Maharashtra state government has sent its final proposal to the Centre to notify 2,011.43 sq km Angria Bank as a ‘designated area’ under the Maritime Zones Act, 1976.
- Angria Bank is located 105km off the Konkan coast.
- The Angria bank, named after Maratha Admiral Kanhoji Angre, is located in Malvan town of Sindhudurg district
- It will be the India’s First marine protected zone beyond territorial waters, if approved.

Significance of Angria Bank:

- It is a submerged plateau with coral reef formation (39 species of both hard and soft corals (protected under Schedule I of the WPA) across 650 sq km.).
- Wildlife Institute of India has identified Angria Bank among 106 important coastal and marine biodiversity areas in India.
- As many as 123 species of fish, 43 species of invertebrates, dolphins and whales among other marine animals protected under India’s wildlife laws were recorded.
- Threats including overfishing, oil, natural gas and mineral exploration, rising ocean Temperatures, and rising marine traffic were identified.

Why there was the Need to Send a Proposal to center?

- As Angria Bank lies beyond the Indian territorial waters (12 nautical miles), it is not possible to declare the site as a protected area under the Wildlife Protection Act (WPA), 1972.
- Therefore, being in the exclusive economic zone (EEZ), the only way to provide legal protection is by notifying it as a ‘designated area’ for marine protection under the Maritime Zones Act, 1976, (covering territorial waters, continental shelf, exclusive economic zone, and other maritime zones) of the Ministry of External Affairs.
- This proposal is a first under the Maritime Zones Act, 1976.

- With more conservation focus there will be more protective measures, promotion of research, a bit of controlled tourism, and control over suspected threats.

The Proposal was based on Which Sources?

- The proposal was based on underwater and boat surveys.
- The decision will help India meet international obligations for more protection of our marine biodiversity.
- **Marine Protected Areas:**
 - ✓ Marine Protected Areas are created by delineating zones with permitted and non-permitted uses within that zone.
 - ✓ Marine Protected Areas in India are the area defined under IUCN Guidelines. They limit anthropogenic activities and exploitation of resources in these areas.
 - ✓ The term Marine Protected Areas include marine reserves, fully protected marine areas, no-take zones, marine sanctuaries, ocean sanctuaries, marine parks, locally managed marine areas, to name a few.
- Gulf of Kutch Marine National Park is the first National Marine park of India.
- **India's other marine protected areas are:**
 - ✓ Gahirmatha Sanctuary
 - ✓ Gulf Kutch Sanctuary
 - ✓ Mahatma Gandhi Marine National Park
 - ✓ Gulf of Mannar National Park
- Many of these have quite different levels of protection, and the range of activities allowed or prohibited within their boundaries varies considerably too.
- (As per World Wide Fund for Nature (WWF), Marine Protected Area are:-
- An area designated and effectively managed to protect marine ecosystems, processes, habitats, and species, which can contribute to the restoration and replenishment of resources for social, economic, and cultural enrichment.

2. C40 Cities Initiative

Why in News?

- Mumbai has joined the C40 cities initiative.

Highlights:

- Joining this initiative will help to manage Future Developments in Mumbai, to focus on green recovery and to push for reforms to help Fight Climate Change.

Maharashtra State Climate Change Action Policy, 2017 [Draft]:

- Maharashtra State Climate Change Action Policy, 2017 is a detailed plan to address climate change impacts and the sea-level rise for coastal areas.
- As per the action plan's Climate Vulnerability Index, Mumbai, Nandurbar, Dhule and Buldhana from Maharashtra were identified as the most vulnerable districts to climate threat.
- These cities face a likely risk of a 22%-32% rise in extreme weather events by 2030.
- The plan identifies a rise in annual mean temperatures ranging from 1.19 degrees Celsius to 1.33 degrees Celsius by the next decade and up to 15 degrees Celsius increase in heat index (measure of rising temperatures incorporating humidity) for the coastal cities in Maharashtra.
- The sea-level rise is projected to be 24-66cm along Maharashtra's coastline by 2030.
- Almost, three million people living within a kilometre of Mumbai's coastline are under threat from coastal flooding, storm surges and sea-level rise.

C40 Cities Climate Group:

- C40 connects 97 of the world's largest and most influential cities.
- C40 membership encourages cities to develop and implement a climate action plan for keeping the global average temperatures below 1.5 degrees Celsius and reducing emissions by 2030 as per the Paris Agreement.
- It uses a science-based approach.
- C40 measures the level of participation of its member cities annually.
- They offer three types of membership categories:
 - ✓ Megacities
 - ✓ Innovator Cities
 - ✓ Observer Cities
- C40 member cities' list from India: Mumbai, Bengaluru, Chennai, the National Capital Territory (NCT) of Delhi, Jaipur and Kolkata.
- Its 2019 annual report recognised Delhi NCT, Dubai and Dhaka as the most active cities in the South and West Asia region.

Climate Positive Development Program:

- It is the initiative of C40's Urban Planning & Development for the world's most ambitious low-carbon projects.
- It aims to create replicable models for large-scale urban communities that-

- ✓ Reduce GHG to the greatest possible extent.
- ✓ Manifest the highest standards of sustainability.
- ✓ Innovate climate resilient solutions.
- ✓ Find economically viable ways.
- It supports the development of projects that seek to meet a climate positive emissions target of net-negative operational greenhouse gas (GHG) emissions associated with energy, waste and transportation.
- Climate positive outcome is achieved by-
 - ✓ Reducing emissions on-site.
 - ✓ Offsetting emissions by reducing carbon in the neighbouring community
- These projects are helping to establish critical collaborations between the public sector and the private sector to create a case for holistic planning and development that improves the local environment, creates jobs, and enhances local quality of life.

3. Jaguars can Survive Climate Change but lack of Food Threatens prey Species

Why in News?

- The six jaguar population scenarios were analysed, mapping the cat's solitary behaviour, mating, birth of cubs, competition, illegal hunting, starvation and availability of key prey.

Highlights:

- Species exhibit some robustness to extreme drought and flood, but repeated exposure can result in rapid decline. Predictions show species can recover- at lower numbers -- if there are periods of benign Climate Patterns.

Jaguar:

- The jaguar (*Panthera onca*) is a large felid species and the only extant member of the genus *Panthera* native to the Americas.
- The jaguar's present range extends from the extreme southwestern United States and Mexico in North America, across much of Central America, and south to Paraguay and northern Argentina in South America.
- The jaguar is the largest cat species in the New World, and the third largest in the world.
- Habitat of jaguar is tropical and subtropical moist broadleaf forest, swamps, and wooded regions.

- IUCN status- near threatened
- It is the keystone species.
- It is an organism that helps define an entire ecosystem.
- Without it, the ecosystem would be dramatically different or cease to exist.

4. Mount Everest

Why in News?

- Nepal and China jointly announced the new height of Mount Everest as 8,848.86 meters.

Highlights:

- Mount Everest or Sagarmatha, Earth's highest mountain above sea level, is located in the Himalayas between China and Nepal -- the border between them running across its summit point.
- Its current official elevation – 8,848.86m – places it more than 200m above the world's second-highest mountain, K2, which is 8,611m tall and located in Pakistan-occupied Kashmir. The mountain gets its English name from Sir George Everest, a colonial-era geographer who served as the Surveyor General of India in the mid-19th century.
- Considered an elite climbing destination, Everest was first scaled in 1953 by the Indian-Nepalese Tenzing Norgay and New Zealander Edmund Hillary.

Everest's First Survey:

- The mission to measure the world's highest peak was taken up on a serious note in 1847 and culminated with the finding of a team led by Andrew Waugh of the Royal Surveyor General of India.
- The team discovered that 'Peak 15' — as Mt Everest was referred to then — was the highest mountain, contrary to the then-prevailing belief that Mt Kanchenjunga (8,582 m) was the highest peak in the world.
- Another belief, prevailing even today, is that 8,840 m is not the height that was actually determined by the 19th-century team.
- That survey, based on trigonometric calculations, is known as the Great Trigonometric Survey of India.

Why is the height being revised?

- The height of the summit, however, is known to change because of tectonic activity, such as the 2015 Nepal earthquake.

- Its measurement over the decades has also depended on who was surveying.
- Another debate is whether the height should be based on the highest rock point or the highest snow point.

5. Narmada Landscape Restoration Project

Why in News?

- National Thermal Power Corporation (NTPC) has signed a Memorandum of Understanding (MoU) with Indian Institute of Forest Management (IIFM), Bhopal, to implement the Narmada Landscape Restoration Project (NLRP).

Narmada Landscape Restoration Project:

- **Aim:** To establish an incentivisation mechanism to maintain sustainable landscape practices in Narmada basin.
- Landscape restoration is the concept of sustainable development and building a public participation platform integrated with experts, designers, and user.

Funding Mechanism:

- The project will be jointly implemented with
 - ✓ IIFM, Bhopal, an Autonomous Institute under the Ministry of Environment, Forest and Climate Change (MoEF&CC),
 - ✓ Government of India (GoI) with the grant-in-aid from NTPC Ltd.
 - ✓ Global Green Growth Institute (GGGI) an intergovernmental organization that promotes sustainable and inclusive economic growth in emerging economies
 - ✓ United States Agency for International Development (USAID)
 - ✓ The international development arm of the US Government.

Implementation:

- 4-year project will be implemented in Khargone District of Madhya Pradesh, in the catchments of tributaries of the River Narmada between Omkareshwar and Maheshwar dams.

Omkareshwar Dam:

- The Omkareshwar Dam is one of the major downstream dams of Indira Sagar Project.
- lies along the bank for the Narmada and Kaveri.

Maheshwar Dam:

- Maheshwar is one of the planned large dams on the Narmada Valley to provide 400 MW electricity.

Implementing Agencies:

- IIFM, Bhopal, an Autonomous Institute under the Ministry of Environment, Forest and Climate Change (MoEF&CC) will be jointly implementing this project with Global Green Growth Institute (GGGI).

Benefits of the Project:

- Demonstrate nature-based solutions for enhancing ecosystem services.
- Promote a clean and Sustainable Environment concerning land, water and air.
- Improvement in Water Quality and Quantity.

Narmada River:

- Narmada is the largest west flowing river of the peninsular region.
- It rises from Maikala range near Amarkantak in Madhya Pradesh.
- It flows through a rift valley between the Vindhya Range on the north and the Satpura Range on the south.
- It drains a large area in Madhya Pradesh and some areas in Maharashtra and Gujarat.
- It forms Dhuandhar Falls near Jabalpur (Madhya Pradesh).
- There are several islands in the estuary of the Narmada of which Aliabet is the largest.
- Major Tributaries: Hiran, Orsang, the Barna and the Kolar.
- Major Hydro Power Projects: Indira Sagar, Sardar Sarovar etc.

6. Worldwide Legal Wildlife Trade Increased by 2,000% since 1980

Why in News?

- A report by the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services has said that trade in wildlife has become Highly Unsustainable.

Highlights:

- The international legal wildlife trade has increased 500 per cent in value since 2005 and 2,000 per cent since the 1980s.
- Estimated value of the global illegal trade in wildlife is worth around \$7-23 billion per year, equivalent to nearly 25 per cent of the value of the legal market.
- Legal wildlife trade is unsustainable and becoming a threat to biodiversity conservation.
- North America, Europe and some parts of Asia were net importers and consumers.
- Countries in South America, Africa, Southeast Asia and Oceania were net suppliers or had a Large Domestic Trade.

- In China, a growing wealthy middle class is often the main consumer of fashion products of wildlife for traditional Chinese medicine or for food.
- The European Union and the United States were leading consumers of legally traded wildlife.
- The US was one of the largest legal importers of wildlife globally.
- CITES had been able to reduce wildlife trade, drive up value of sustainably traded species and products and promote captive-breeding, ranching or farming as alternatives to wild capture. Captive breeding might increase consumer demand and put pressure on free-living populations for founder stock.

Note:

- Fisheries and forestry resources — were not regulated under CITES.
- Domestic use and trade of wildlife fell outside the Purview of the CONVENTION.

What the Report said on Wildlife Farming?

- Wildlife farming might offer an alternative source for wildlife products and reduce hunting pressure on free-living populations but it has its negative sides too.
- Wildlife farms are stocked repeatedly with wild-caught individuals that are largely indistinguishable from those that are captive-bred.
- Record keeping is often lax or non-existent.
- Enforcement of laws is often poor.
- Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services:
 - It was established in 2012 by 94 governments.
 - Currently it has 137 member countries.
 - It is an independent intergovernmental body established by States to
 - Strengthen the science-policy interface for biodiversity and ecosystem services.
 - Conservation and sustainable use of biodiversity.
 - Long-term human well-being and sustainable development.
 - The United Nations Environment Programme (UNEP) provides secretariat services to IPBES. India is a member of IPBES since 2012.

Work of IPBES:

- Assessments: On specific themes (e.g. “Pollinators, Pollination and Food Production”); methodological issues (e.g. “Scenarios and Modelling); and at both the regional and global levels (e.g. “Global Assessment of Biodiversity and Ecosystem Services”).

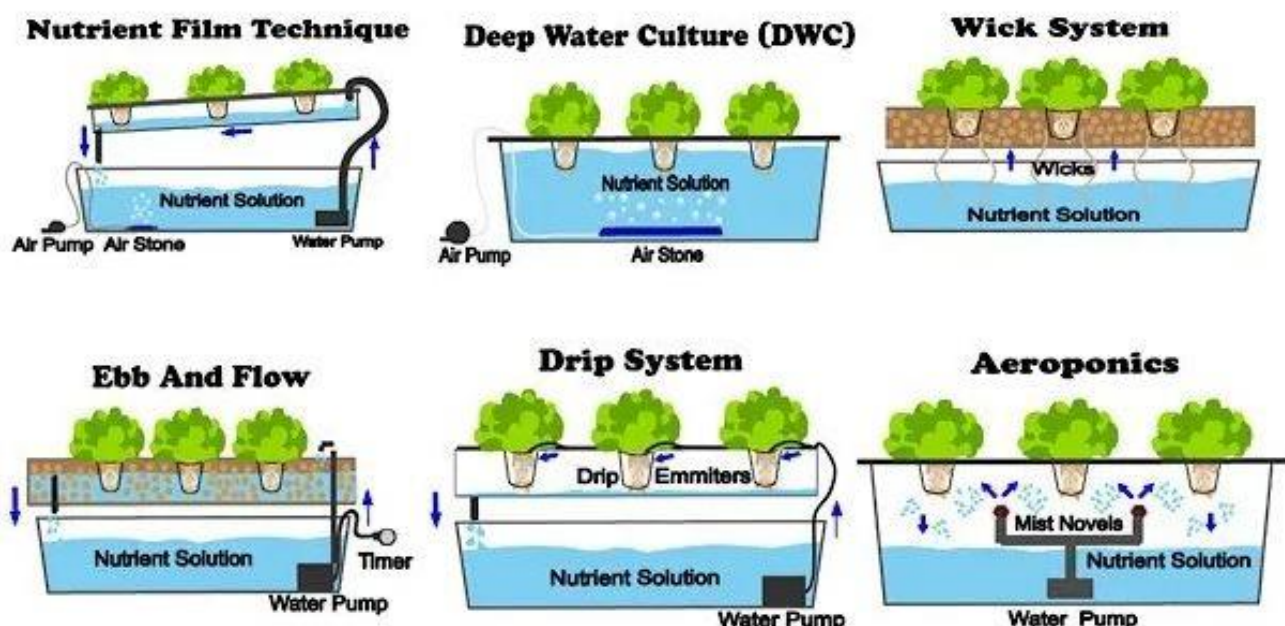
- Policy Support: Identifying policy-relevant tools and methodologies, facilitating their use, and catalyzing their further development.
- Building Capacity & Knowledge: Identifying and meeting the priority capacity, knowledge and data needs of our member States, experts and stakeholders.
- Communications & Outreach: Ensuring the widest reach and impact of our work.

7. Hydroponics: the art of soil-less farming

Why in News?

Hydroponics:

- Hydroponics is the cultivation of plants without using soil.
- Hydroponic flowers, herbs, and vegetables are planted in inert growing media and supplied with nutrient-rich solutions, oxygen, and water.
- This system fosters rapid growth, stronger yields, and superior quality.
- When a plant is grown in soil, its roots are perpetually searching for the necessary nutrition to support the plant.
- If a plant's root system is exposed directly to water and nutrition, the plant does not have to exert any energy in sustaining itself.
- The energy the roots would have expended acquiring food and water can be redirected into the plant's maturation. As a result, leaf growth flourishes as does the blooming of fruits and flowers.



Why Hydroponics?

- Plants sustain themselves by a process called photosynthesis. But they do not need soil to photosynthesize.
- They need the soil to supply them with water and nutrients.
- When nutrients are dissolved in water they can be applied directly to the plant's root system by flooding, misting, or immersion.
- Hydroponic innovations have proven direct exposure to nutrient-filled water can be a more effective and versatile method of growth than traditional irrigation.

How does Hydroponics Work?

- Hydroponic systems work by allowing minute control over environmental conditions like temperature and pH balance and maximized exposure to nutrients and water.
- It administers nutrient solutions tailored to the needs of the particular plant being grown.
- They allow you to control exactly how much light the plants receive and for how long.
- pH levels can be monitored and adjusted. In a highly customized and controlled Environment, Plant Growth Accelerates.

Components of Hydroponics

- To maintain a flourishing hydroponic system, we need to become acquainted with a few components that make it run efficiently.

Growing Media:

- Hydroponic plants are often grown in inert media that support the plant's weight and anchor its root structure.
- Growing media is the substitute for soil, however, it does not provide any independent nutrition to the plant.
- Instead, this porous media retains moisture and nutrients from the nutrient solution which it then delivers to the Plant.

Air Stones and Air Pumps:

- Plants that are submerged in water can quickly drown if the water is not sufficiently aerated. Air stones disperse tiny bubbles of dissolved oxygen throughout your nutrient solution reservoir.
- These bubbles also help evenly distribute the dissolved nutrients in the solution. Air stones do not generate oxygen on their own.
- They need to be attached to an external air pump via opaque food grade plastic tubing

Net pots:

- Net pots are mesh planters that hold hydroponic plants. The latticed material allows roots to grow out of the sides and bottom of the pot, giving greater exposure to oxygen and nutrients.
- Net pots also provide superior drainage compared to traditional clay or plastic pots.

Benefits:

- By controlling the environment of the plant in hydroponics, many risk factors are reduced:
- Plants grown in gardens and fields are introduced to a host of variables that negatively impact their health and growth. Fungus in the soil can spread diseases to plants.
- Wildlife like rabbits can plunder ripening vegetables from your garden.
- Pests like locusts can descend on crops and obliterate them in an afternoon. Hydroponic systems end the unpredictability of growing plants outdoors and in the earth.
- Without the mechanical resistance of the soil, seedlings can mature much faster.
- By eliminating pesticides, hydroponics produces much healthier and high-quality fruits and vegetables. Without obstacles, plants are free to grow vigorously and rapidly.

Various limitations:

- A hydroponic system isn't cheap
- Constant monitoring is required
- Micro-organisms that are water-based can creep in rather easily
- Growing a hydroponic garden demands an expertise
- Production is limited compared to field conditions
- If a disease appears, all plants in the system will be affected
- Without soil to serve as a buffer if the system fails plant death will occur rapidly

8. Shola Sky Islands of the Western Ghats

Why in News?

- Tropical montane grasslands (TMG) in the Shola Sky Islands of the Western Ghats have suffered big losses due to invasions by Exotic Trees.

Sky Islands:

- “Sky islands” are the tops of tall mountains that become environmentally isolated from each other even if they are close together, geographically speaking.

- The Western Ghats are a mountain chain in southwest India home to spectacular and unique sky islands.
- The peaks of the Western Ghats, ranging between 3,000 and 8,500 feet above sea level, host an almost unbelievable array of microclimates, looking like “patches of forests floating in a sea of grasslands.

What are TMGs?

- TMG are high elevation grasslands forming only 2% of all grasslands in the world.
- Among their functions is regulating the global carbon cycle and serving as a source of water to downstream communities.
- Researchers say grasslands do not benefit from conservation and restoration efforts afforded to tropical montane forests, possibly due to limited information.

Treasures of Shola:

- One of the specific habitats unique to the sky islands of this area is a type of low-temperature, high-humidity tropical cloud forest full of stunted trees mixed with grasslands called the Shola.
- The Shola forests of South derive their name from the Tamil word solai, which means a ‘tropical rain forest’.
- Classified as ‘Southern Montane Wet Temperate Forest’ the Sholas are found in the upper reaches of the Nilgiris, Anamalais, Palni hills, Kalakadu, Mundanthurai and Kanyakumari in the states of Tamil Nadu and Kerala.
- These forests are found sheltered in valleys with sufficient moisture and proper drainage, at an altitude of more than 1,500 metres.

Various threats to them:

- Loss of grasslands due to invasive exotic trees is a “novel threat” through the establishment and expansion of exotic tree plantations.
- These exotic trees include acacias, pines and eucalyptus, shrinking the range sizes of endemic species, including plants, birds, amphibians and mammals.
- In the Western Ghats, 23% of montane grasslands were reportedly converted into invasive exotic tree cover over a period of 44 years.
- Attempts to manage invasive exotic trees in montane grasslands incorporated approaches that include prevention and mechanical, chemical and biological control.
- **For invasive species such as *Acacia mearnsii* that grow rapidly and disperse seeds widely, removing mature trees is often ineffective.**

9. Species in news: Myristica Swamp Treefrog

Why in News?

- Myristica swamp treefrog, a rare arboreal (living on trees) species endemic to the Western Ghats has been recorded for the first time in Kerala's Thrissur district.

Myristica Swamp Treefrog:

- It bears the scientific name *Mercurana myristicapalustris*.
- The frog was first spotted in 2013 in the Myristica swamps of Arippa, near the Kulathupuzha Reserve Forest, in the western foothills of Agasthyamalai, in Kollam district.
- Unlike the Myristica swamp treefrog found in the foothills of the Agasthyamalai, these frogs were found to be active throughout June and early July.

Unique Traits:

- These frogs are rare and elusive for the reason that they are arboreal and active only for a few weeks during their breeding season.
- During this season, there is a large aggregation of males that descend from the high canopy of the trees.
- The breeding season, unlike for other frogs, starts in the pre-monsoon season (May) and ends before the monsoon becomes fully active in June.
- Before the end of the breeding season, the female frogs along with their male counterparts descend on the forest floor. The female digs the mud and lays eggs in shallow burrows in mud. After breeding and egg-laying, they retreat back to the high canopies of the tree and remain elusive till next breeding season.

10. Bringing life back to Western Ghats grasslands

Why in News?

- Sites for restoration have been found in the Nilgiris, Palani Hills and Anamalai, where exotic trees are Erasing Biodiversity.

Highlights:

- Tropical Montane Grasslands (TMG) in the Shola Sky Islands of the Western Ghats have suffered big reductions due to invasions by exotic trees such as acacias, pines and eucalyptus, shrinking the range sizes of endemic species, including plants, birds, amphibians and mammals.

- 23% of montane grasslands were converted into invasive exotic tree cover over a period of time.
- Grassland restoration sites were identified using satellite images and have recommended careful removal of young and isolated exotic trees at the invasion front and restoring grasslands, instead of removing dense stands of mature exotic trees.

Tropical Montane Grasslands (TMG):

- TMG are high elevation grasslands forming only 2% of all grasslands in the world.
- They are tropical, subtropical, and temperate.
- Plants of these habitats display features such as rosette structures, waxy surfaces, and abundant pilosity.
- Drier, subtropical montane grasslands, savannas, and woodlands include the Ethiopian Highlands, the Zambebian montane grasslands and woodlands, and the montane habitats of southeastern Africa.
- They regulate the global carbon cycle and serve as a source of water to downstream communities.
- In India, TMG have even been classified as wastelands in forest management plans since they are unlikely to generate revenue, contrary to the timber found in forests.

Shola Grasslands:

- Sholas are the local name for patches of stunted tropical montane forest found in valleys of higher montane regions of south India.
- They are found in the states of Karnataka, Kerala and Tamil Nadu.
- 35 percent of the plants, 42 percent of the fish, 48 percent of the reptiles, and 75 percent of the amphibians that live in these rain forests are endemic species.
- Invasive Alien Species are the greatest threats to endemic Flora and Fauna.

Invasive Alien Species (IAS):

- Invasive alien species are species that are introduced, accidentally or intentionally, outside of their natural geographic range and that become threat to the local species.
- It can lead to the local or global extinction of native species.
- E.g. Papaya Mealy Bug, Cotton Mealy Bug, Amazon sailfin catfish, Black Wattle, etc.

11. Converting Waste to Energy

Why in News?

- The new plant at Bidadi has several advantages but also some operational challenges.

The Prospectus of New Plant:

- The new 5 MW waste-to-energy plant is going to set up near Bidadi, Karnataka.
- This plant is expected to process 600 tonnes per day of inorganic waste.
- The inorganic waste, which consists of bad quality plastics and used cloth pieces, can be processed as Refuse Derived Fuel (RDF). This material has a calorific value of more than 2,500 kJ/kg.
- This can be used to generate steam energy, which can be converted into electric energy.

A well-Planned Plant:

- The waste-to-energy plants usually accept the RDF material generated in organic composting plants.
- They also segregate the wet and inorganic material near the plant, convert organic waste to compost, and inorganic waste to energy.
- About 50 tonnes of RDF generate 1 MW of power, which indicates that the plant at Bidadi has been appropriately designed.

A Permanent Solution:

- Handling inorganic waste that is not fit for recycling has always been a challenge.
- At present, these high-calorific materials are landfilled or left unhandled in waste plants and cause fire accidents.
- Attempts to send this material to cement kilns have not fructified.
- The proposed plant can source 600 tonnes per day of this RDF and generate 11.5 MW of power equivalent to 2.4 lakh units of power per day.
- This will reduce the dependence on unscientific landfills, reduce fire accidents, and provide a permanent solution to recover value from inorganic waste.

Challenges:

- Needed a good demonstration model – Over the last decade, several Indian cities have been trying to set up such plants but a good demonstration model is yet to be established.
- Nature of waste – Technology suppliers are international organizations who struggle with the change in quality and nature of waste generated in Indian cities. A few plants in India have stopped operations for this reason.

- The plants require fine inorganic material with less than 5% moisture and less than 5% silt and soil contents, whereas the moisture and inert content in the mixed waste generated is more than 15%-20%.
- The sticky silt and soil particles can also reduce the calorific value.
- Economic cost per unit of electricity – The other big challenge for this plant is the power tariff which is around ₹7-8 Kwh which is higher than the ₹3-4 per Kwh generated through coal and other means.

12. Himalayan Trillium

Why in News?

- The Himalayan trillium (*Trillium govatanum*), a common herb of the Himalayas was declared 'endangered' by the International Union for Conservation of Nature (IUCN) last week.



Himalayan Trillium:

- In recent years, the plant has become one of the most traded commercial plants of the Himalayan region, due to its high medicinal quality.
- It is found in temperate and sub-alpine zones of the Himalayas, at an altitude from 2,400-4,000 metres above sea level.
- Their existence has also been traced across India, Bhutan, Nepal, China, Afghanistan and Pakistan.
- In India, it is found in four states only- Himachal Pradesh, Jammu and Kashmir, Sikkim, and Uttarakhand.
- Often called Nagchatri, in local areas this herb grows to a height of 15-20 cm.

Various Applications:

- It has been used in traditional medicine to cure diseases like dysentery, wounds, skin boils, inflammation, sepsis, as well as menstrual and sexual disorders.
- Recent experiments have shown that the rhizome of the herb is a source of steroidal saponins and can be used as an anti-cancer and anti-ageing agent.
- This increased its market value and has now become an easy target for poachers.

13. Gas Production at KG-D6 Block begins

Why in News?

- Reliance Industries Ltd and BP (British Petroleum) have announced the start of gas production from the R cluster in the Krishna-Godavari Basin.

Krishna-Godavari Basin:

- Extensive deltaic plain formed by Krishna and Godavari rivers in the state of Andhra Pradesh and the adjoining areas of Bay of Bengal in which these rivers discharge their water is known as Krishna Godavari Basin.
- It is a proven petroliferous basin of continental margin located on the east coast of India.
- It's on land part covers an area of 15000 sq. km and the offshore part covers an area of 25,000 sq. km up to 1000 m isobaths.
- The major geomorphologic units of the Krishna Godavari basin are Upland plains, Coastal plains, Recent Flood and Delta Plains.
- KG inland and offshore basins have good prospects of tight oil and tight gas reserves from the conducted field studies. The first gas discovery in the basin was in 1983.

R Cluster:

- R cluster is the deepest off-shore gas field in Asia.
- The R cluster, along with the Satellite Cluster and MJ gas fields in the KG Basin is expected to produce around 30 MMSCMD (million standard cubic meters per day) of natural gas.
- This is about 15% of India's projected demand for natural gas by 2023.
- Do the KG-Basin reserves impact India's Energy Security efforts?
- The three projects are a key part of the plan to boost domestic production of natural gas to increase the share of natural gas in India's energy basket from 6.2% now to 15% by 2030.
- Increased domestic production of natural gas is an important aspect in reducing India's dependence on imports and improve energy security.

14. First Tiger Translocation at Rajaji National Park

Why in News?

- A total of five tigers are scheduled to be translocated from the Jim Corbett National Park to the Rajaji National Park.

What is Translocation?

- Translocation is a conservation tool that aims to carry out managed movement of live indigenous plants or animals from one location to another.

Significance of Translocation:

- Can boost the overall population of a species by establishing viable populations spread out in more than one area.
- This helps increase genetic diversity and safeguards populations from being wiped out by poachers, diseases or natural disasters like fire and floods.
- Can reducing conflict, thus repopulating potential animal habitat and diversifying populations.
- Can establish a species in a specific region for a specific purpose such as advocacy, education or scientific study.

Rajaji National Park:

- **Location:** Along the foothills of Shiwalik ranges, in Pauri Garwal, Dehradun and Saharanpur districts of Uttarakhand.
- Created in 1983 by merging three wildlife sanctuaries: Motichur, Chilla and Rajaji Wildlife Sanctuaries.
- It has been named after C. Rajagopalachari (Rajaji). He was: -
- A prominent leader of the Freedom Struggle.
- Second and last Governor-General of Independent India.
- Bharat Ratna Awardee (in 1954)
- It was declared as a tiger reserve in 2015.
- It's location in a transition zone between temperate western Himalaya and central Himalaya enhances the species diversity.
- River Ganga flows through the National Park for a distance of 24km.
- It is home to the Van Gujjars community in the winters.
- It is the Northern and Western most boundary of Asian Elephant under Project Elephant.

15. International Blue Flag hoisted at 8 beaches across the Country

Why in News?

- The Environment Minister has virtually hoisted the international blue flags in 8 beaches across the country.



Blue Flag Certification:

- This Certification is accorded by an international agency “Foundation for Environment Education, Denmark” based on 33 stringent criteria in four major heads i.e.
 - ✓ Environmental Education and Information,
 - ✓ Bathing Water Quality,
 - ✓ Environment Management and Conservation and
 - ✓ Safety and Services on the beaches.
- It started in France in 1985 and has been implemented in Europe since 1987, and in areas outside Europe since 2001 when South Africa joined.
- Japan and South Korea are the only countries in South and southeastern Asia to have Blue Flag beaches.
- Spain tops the list with 566 such beaches; Greece and France follow with 515 and 395, respectively.

Which are the 8 beaches?

- The beaches where the International Blue Flags were hoisted are:
 - ✓ Kappad (Kerala)

- ✓ Shivrajpur (Gujarat)
- ✓ Ghoghla (Diu)
- ✓ Kasarkod and
- ✓ Padubidri (Karnataka)
- ✓ Rushikonda (Andhra Pradesh)
- ✓ Golden (Odisha) and
- ✓ Radhanagar (Andaman & Nicobar Islands)

16. New Guidelines for the Management of Community Forest and Habitat Rights

Why in News?

- Recently, new guidelines have been drafted by the Union Ministry of Tribal Affairs (MoTA) for management of community forest rights (CFR) and Habitat Rights.

Aim:

- To bring the forest governance outside the colonial approach
- To decentralise and Democratised forest Governance.

Highlights:

- Gram Sabhas will have more power in the management of community forest rights (CFR) and habitat rights.
- An increased representation of various user groups such as graziers, minor forest produce collectors etc.
- It draws a distinction between habitat rights and CFR.
- Recommended training of state government officials for a better understanding the importance of FRA and Habitat Rights.

Community Forest Rights (CFR):

- Under the Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act (FRA) 2006, Gram Sabhas can claim collective ownership over a patch of forest traditionally owned and used by the village in the form of CFR.
- The provision grants them the right to manage and conserve their CFR area.

Guidelines for CFR:

- It is aimed at creating community forests resource management committee (CFRMC) as an executive arm of the Gram Sabha in managing CFR areas.

Gram Shaba will:

- Integrate the committees that it has had traditional rights with for protection of wildlife, forest and biodiversity, catchment areas, water sources and other ecological sensitive areas. Be empowered to carry out the powers and authority as laid down under section 5 of FRA. File complaint before the state level monitoring committee (SLMC) in case of any violation.
- Make rules and issue appropriate directions for governance and conservation of CFR, including functions of CFRMC; conflict / dispute resolution; benefit sharing; issuance of transit permit; fund management and etc., regulating powers, functions and activities of the CFRMC.
- Make rules or issue directions for management of fund generated from various sources.
- Approve CFR conservation and management plan / strategies / actions prepared / suggested by the CFRMC. If required, the Gram Sabha can modify suggested plans / actions / strategies including CFR conservation and management plans.
- Appoint any person or hire any institution for extending support to the Gram Sabha for preparation of CFR conservation and management plan, financial management system or activities coming under the purview of the Gram Sabha.
- Resolve any conflict or dispute related to the CFR governance and management.
- It proposes financial independence of the Gram Sabha through a fund, which would get the money from the-
- Sale of forest produce.
- Development grant from the government and non-profits.
- Compensatory afforestation funds.

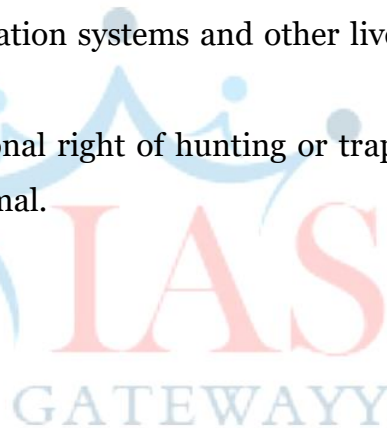
Habitat Rights:

- Habitat rights under the FRA are granted to the notified 75 Particularly Vulnerable Tribal Groups (PVTG) in India. However, the FRA isn't clear on the nature of the right.
- The draft observes that FRA doesn't define habitat. Thus, draft has defined habitat.
- Habitat as places where tribal and other traditional forest dwellers have ancient connections in spiritual, cultural, social (burial grounds, birth places, temples, deities, lands perceived as abodes of deities including ancestors, sacred lands and plants, and areas used for festivals and processions) and livelihood matters (areas used for forest produce collection, fishing sources, seasonal cultivation areas, and collection of medicinal plants).

-
- Habitat rights can be defined as a bundle of rights comprising of these connections with the landscape that forms their habitat.
 - Many of these rights are not necessarily exclusive to one community and are often shared with other communities living in the habitat area based on traditions of mutuality and reciprocity.

Guidelines for Habitat Rights:

- Right to perform all customary religious or cultural ceremonies in the landscape related to their clans.
- Right to protect and conserve the natural entities and sacred sites recognised under habitat rights.
- Right to protect and conserve places important for religious and spiritual purposes such as sacred groves; the right of passage to abodes of deities in forests, hill tops, origin of rivers and other remote parts of forests.
- Right to practice traditional cultivation systems and other livelihood generating activities including seasonal resource use.
- Habitat rights exclude any traditional right of hunting or trapping or extracting a part of the body of any species of wild animal.



6. INTERNATIONAL RELATIONS

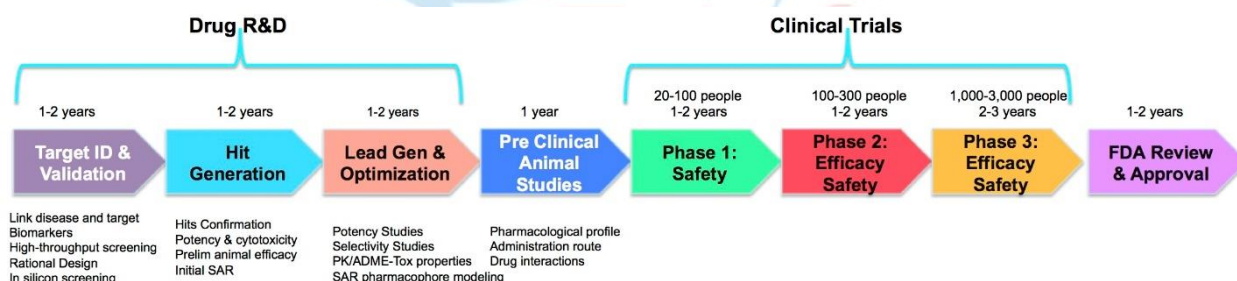
1. Emergency Use Authorisation

Why in News?

- Various pharmaceutical companies have applied for emergency use authorisation for their COVID-19 vaccines.

Emergency Use Authorisation (EUA):

- EUA is a mechanism to grant interim regulatory approvals where sufficient evidence is available to suggest a medical product is safe and effective.
- Generally, to ensure medicines, vaccines, diagnostic tests and medical devices are safe to be administered, there is a long-drawn regulatory approval process.
- However, during public health emergencies such as COVID pandemic, countries have developed a fast-tracked regulatory approval process to approve vaccines and medicines for public use, this is called EUA.
- However, final approval is granted only after completion of the trials and analysis of full data.



EUA in the US:

- In the US, the Food and Drug Administration (FDA) grants a EUA.
- EUA can be considered only after sufficient efficacy data from phase 3 trials had been generated. A EUA cannot be granted solely based on data from phase 1 or phase 2 trials, although these too need to show the product is safe.
- Here, EUA has been granted for Tamiflu to treat H1N1.

EUA in India:

- In India, the regulatory authority is the Central Drugs Standard Control Organisation (CDSCO).
- India's drug regulations do not have provisions for a EUA, and the process for receiving one is not clearly defined or consistent.

- In the recent past, CDSCO has been granting emergency or restricted emergency approvals to Covid-19 drugs such as remdesivir, favipiravir and itolizumab.
- Any company seeking to launch a vaccine approved elsewhere would have to conduct local trials to prove it is safe and effective on the Indian population.
- The fastest approval for any vaccine until now — the mumps vaccine in the 1960s — took about four-and-a-half years after it was developed.

2. Global Health Estimates Report 2019

Why in News?

- Recently, the World Health Organisation (WHO) released the Global Health Estimates (GHE) report 2019.
- The report conveys the need for an intensified global focus on preventing and treating cardiovascular diseases, cancer, diabetes and chronic respiratory diseases in all regions of the world, as set out in the agenda for the UN Sustainable Development Goals.

Highlights:

- The new estimates are a reminder that efforts are needed to rapidly step-up prevention, diagnosis and treatment of non-communicable diseases:
- They make up 7 of the world's top 10 causes of death.
- Heart disease has remained the leading cause of death at the global level for the last 20 years and it is now killing more people than ever before.
- Alzheimer's disease and other forms of dementia are now among the top 10 causes of death worldwide.
- Deaths from diabetes increased by 70% globally between 2000 and 2019.
- There is a general global decline in the percentage of deaths caused by communicable diseases.
- In 2019, pneumonia and other lower respiratory infections were the deadliest group of communicable diseases and together ranked as the fourth leading cause of death.
- HIV/AIDS dropped from the 8th leading cause of death in 2000 to the 19th in 2019.
- Tuberculosis is also no longer in the global top 10.
- The estimates further confirm the growing trend for longevity but with more disabilities.
- In 2019, people were living more than 6 years longer than in 2000, with a global average of more than 73 years in 2019.

- Drugs and Injuries are a major cause of disability and death.

GHE:

- GHE is published by the World Health Organisation (WHO) at the end of the decade.
- It provides the latest available data on death and disability globally, by region and country, and by age, sex and cause.
- The latest updates include global, regional and country trends from 2000 to 2019 inclusive.
- It provides key insights on mortality and morbidity trends to support informed decision-making on health policy and resource allocation.

3. US Imposes CAATSA Sanctions on Turkey

Why in News?

- The US has imposed sanctions on NATO-ally Turkey for its purchase of Russia's S-400 missile defence system.

Turkey Defies the US:

- Turkey decided to move ahead with the procurement and testing of the S-400, despite the availability of alternative, NATO-interoperable systems to meet its defence requirements.
- This decision resulted in Turkey's suspension and pending removal from the global F-35 Joint Strike Fighter Partnership.

What is CAATSA?

- CAATSA stands for Countering America's Adversaries through Sanctions Act (CAATSA).
- It is a US federal law that imposed sanctions on Iran, North Korea, and Russia.
- The bill provides sanctions for activities concerning:
- (1) cybersecurity, (2) crude oil projects, (3) financial institutions, (4) corruption, (5) human rights abuses, (6) evasion of sanctions, (7) transactions with Russian defence or intelligence sectors, (8) export pipelines, (9) privatization of state-owned assets by government officials, and (10) arms transfers to Syria.

Why is India Concerned?

- This sanction is of particular interest to New Delhi, which is also in the process of buying the S-400 from Moscow.
- This action has sent a clear signal that the US will fully implement CAATSA sanctions and will not tolerate significant transactions with Russia's defence and intelligence sectors

What does the sanction mean?

- These sanctions comprise:
 - ✓ a ban on granting specific US export licences and authorizations for any goods or technology,
 - ✓ a ban on loans or credits by US financial institutions totalling more than \$10 million in any 12-month period
- a ban on US Export-Import Bank assistance for exports
- Additionally, sanctions will include full blocking sanctions and visa restrictions as well.
- Last year, the US had removed Turkey from its F-35 jet programme over concerns that sensitive information could be accessed by Russia if Turkey used Russian systems along with US jets.

India may Get an Exemption:

- Most of India's weapons, naval arsenal, missiles, aircraft and aircraft carriers are of Soviet/Russian origin. As per the Stockholm International Peace Research Institute (SIPRI) Arms Transfer Database, during the period 2010-17, Russia was the top arms supplier to India. The Russian share in India's arms imports during the same period has declined to 68 per cent, from an all-time high of 74 per cent during the 2000s.
- The combined share of the US and Israel has increased from nine to 19 per cent.
- Accounting for about 15 per cent, the US is the second-biggest supplier of arms to India during the five year period ending 2017.
- Hence, US officials have earlier requested for "some relief from CAATSA" for countries like India.

China Factor:

- China being more assertive and Russia finding new partners, this waiver or "carve-out" would mean India has been able to secure its interests.
- Hence, the US has designated India as a Major Defence Partner, and both countries coming together on Indo-Pacific strategy, the newly formed Quad, are on a stable footing.

Why is CAATSA Bad?

- CAATSA impacts Indo-US ties and dents the image of the US as a reliable partner.
- It also makes a point on principles that, as a sovereign country, India cannot be dictated about its strategic interests by a third country.
- It also shows the need for India to be nimble-footed in its diplomacy when it comes to its key major power relationships – and one cannot be sacrificed at the cost of another.

4. India and the UK: Shackles and Ties

Why in News?

- India and the U.K. must not allow concerns of the moment to dominate their relationship.

Secretary's Delhi Visit:

- British Foreign Secretary Dominic Raab's Delhi visit came with a declaration of immediate and longer-term goals for the India-U.K. relationship.
- It prepares the way for PM Johnson's India visit, as the chief guest at Republic Day and to invite PM Modi to the U.K. to the G-7 and the Climate Change (COP26) summits next year.
- Johnson will be the first head of government to visit India after the spread of COVID-19; this will also be his first bilateral visit anywhere after Brexit signalling the importance of ties with India.

A New Page in Ties:

- Upgrading the ties – Both countries up for upgrading of the 2004 India-U.K. Strategic Partnership to a “Comprehensive” Strategic Partnership.
- This will help to envision closer military ties, cooperation in Indo-Pacific strategies, counter-terrorism and fighting climate change.
- Hoping for FTA – Britain is on a mission to secure free trade partners after Brexit. It has wrapped up nearly 20 trade deals, including most recently with the U.S., Japan, and Vietnam and is hoping for India to sign the same.
- Corona pandemic and cooperation for vaccine manufacturing – The highlight of India's relations will be closer cooperation on the coronavirus vaccine.
- India's Serum Institute set to produce and distribute the Oxford/AstraZeneca vaccine in India, and then as part of the COVAX project to other developing countries.

Challenges in India-UK Relations:

- Stagnancy in the relations – India-UK relations are stagnant for the past five years due to Britain's Brexit preoccupation.
- The relationship has failed to progress in this time, despite visits by Mr Modi and former British Prime Minister Theresa May.
- Other less important issues gained the narrative – Issues such as visas and the fate of fugitive Indian businessmen in the U.K. have been allowed to dominate the narrative.
- The MEA had responded sharply to protests at the Indian High Commission in London over the Article 370 move in Jammu and Kashmir, and the Citizenship (Amendment) Act.

- Britain's concerns about the farmers' protests that sparked responses in New Delhi about interference in India's internal matters.
- Sometimes, intense interest from the British Indian diaspora makes Indian politics a factor in British politics is a reminder of how closely linked the two countries remain.
- A new chapter in India-UK relationship would necessarily entail the K. to be more sensitive to India's concerns, and for India to be less sensitive when Britain expresses its Concerns.

5. India's New Europolitik

Why in News?

- Three recent developments underline India's changing perceptions of Europe.
 1. India's support for France's membership of the Indian Ocean Rim Association (IORA).
 2. India's backing for a larger European role in the Indo-Pacific.

Delhi has welcomed the interest of Germany and Netherlands in building a new geopolitical architecture in the Indo-Pacific.
 3. Security cooperation in the Indo-Pacific is also emerging as an important theme in partnership between India and the U.K.

Reasons for India's Shift

- India is looking beyond the bipolar geopolitical competition between the US and China.
- Delhi also wants to insure against the inevitable volatility in the complex dynamic between Washington and Beijing.
- To cope with the uncertain political trajectory of the US, Delhi is already supplementing its American partnership with a network of minilateral groups with other middle powers, such as the India-Australia-Japan forum and the trilateral dialogue with France and Australia.

Rebuilding ties with Europe and challenges:

- Rebuilding ties with Europe needs a significant corrective to Delhi's traditional strategic neglect of the continent.
- The bipolar Cold War dynamic and the North-South framework developing world versus the developed prevented Delhi from taking a more nuanced view of Europe's political agency after WWII.
- Attempts to impart strategic momentum after the Cold War did not really succeed.

- As the economic gap between China and India widened, so did the scale of European interest in both countries.
- It is also true that the European ability to project military power into the Indo-Pacific is limited.
- But in combination with Asian democracies, Europe can certainly make a difference.
- It can mobilise massive economic resources, wield political influence and leverage its significant soft power to shape the Indo-Pacific discourse.

Exceptional relationship with France:

- France has been an exception in Europe in its connection with India.
- India's partnership with France now has a strong regional anchor — the Indo-Pacific as it has its territories in the Western Indian Ocean and the South Pacific.
- France and Britain have lingering disputes left over from the era of decolonisation in parts of the Western Indian Ocean.
- India will have to contribute to the amicable resolution of those problems.

6. The New League of Nations

Why in News?

- Despite China's rise, the world will remain committed to multi-polar order. The article highlights the emerging trends in the global order against the backdrop of a pandemic and explains how there could be an opportunity for India.

Changing Geopolitical Landscape and Choices India Face:

- As the world is slowly recovering from the disruption caused by the pandemic, there are worrying intimations of other crises looming round the corner.
- Geopolitics has been transformed and power equations are being altered.
- There are a new set of winners and losers in the economic changes.
- Technological advancement will magnify these changes.
- India will need to make difficult judgements about the world that is taking shape and find its place in a more complex and shifting geopolitical landscape.
- As the pandemic recedes, the world could draw the right lessons and proceed on a more hopeful trajectory.

Unlearnt Lessons: lack of International Cooperation:

- Most challenges the world faces are global, like the pandemic.

- However, international cooperation in either developing an effective vaccine or responding to its health impacts has been Minimal.
- The pre-existing trend towards nationalist urgings, the weakening of international institutions and multilateral processes continues.
- Even in the distribution of vaccines, we are witnessing a cornering of supplies by a handful of rich Nations.

Need for collaborative Solution:

- Global challenges such as climate change, cyber security, space security, terrorism, drug trafficking, money laundering and ocean and terrestrial pollution demand collaborative, not competitive solutions.
- The challenges require some display of statesman-like leadership to mobilise action on a global scale.
- The nation-state will endure but its conduct will need to be tempered by a spirit of internationalism and a sense of Common Humanity.

Role of China and Asia:

- The pre-pandemic shift in the centre of gravity of the global economy and political power and influence, from the trans-Atlantic to the trans-Pacific, has been reinforced under the impact of the crisis.
- East Asian and South-East Asian countries are the first to register the green shoots of recovery.
- China has been the first large economy to witness a significant rebound in its growth rate.
- The regional supply chains centred on China have been reinforced rather than disrupted.
- China will emerge in pole position in the geopolitical sweepstakes commencing in 2021.
- The power gap with its main rival, the US, will shrink further.

Why should India Prefer Multi-Polar World Order:

- As the power gap between India and China is expanding, threat from China will intensify and demand asymmetrical coping strategies.
- Despite China emerging a relative gainer from the pandemic the trend towards multipolarity is here to stay.
- Neither the US nor China can singly or as a duopoly manage a much more diffused distribution of economic and military capabilities across the globe.
- This is only possible through multilateral approaches and adherence to the principle of equitable burden-sharing.

- But a multipolar order can only be stable and keep the peace with a consensus set of norms, managed through empowered institutions of international governance and multilateral processes.
- India's instinctive preference has been for a multipolar order as the best assurance of its security and as most conducive to its own social and economic development.
- India now has the opportunity to make multipolar order as its foreign policy priority as this aligns with the interests of a large majority of middle and emerging powers.
- This will be an important component of a strategy to meet the China challenge.

Favourable geopolitical moment for India:

- Due to China's aggressive posture across the board and its unilateral assertions of power, there is a significant push-back even from smaller countries, for example, in South-East Asia and Africa.
- China's blatant "weaponisation of economic interdependence" such as action against Australia, has made its economic partners increasingly wary.
- In this context, India is seen as a potential and credible countervailing power to resist Chinese ambitions.
- The world wants India to succeed because it is regarded as a benign power wedded to a rule-based order.
- India can leverage this propitious moment to encourage a significant flow of capital, technology and knowledge to accelerate its own modernisation.
- India should seize the opportunity and make multi-polar world order a pillar of its foreign policy to counter China threat while trying to leverage the moment to attract the flow of capital, technology and knowledge to accelerate its own Modernisation.

7. Tibetan Policy and Support Act (TPSA)

Why in News?

- The US and China sparred over Tibet and the South China Sea over the passing of the Tibetan Policy and Support Act (TPSA).

TPSA:

- The TPSA, once signed into law would make it the official policy of the US Government to oppose any effort by the govt. of People's Republic of China to select, educate, and venerate Tibetan Buddhist religious leaders in a manner inconsistent with Tibetan Buddhism.

- The proposed legislation will empower the US Government to impose sanctions on the China who might try to interfere in the process of selecting the next incarnation of the Dalai Lama.

Why Such a Law?

- Tibetans were concerned over the possibility of the Chinese Government making an attempt to install someone loyal to it as the 15th Dalai Lama after the death of the incumbent.
- The PRC could use him as a puppet to fizzle out the global campaign against its occupation of Tibet.
- The incumbent and the 14th Dalai Lama have been living in exile in India ever since his 1959 escape from Tibet, which had been occupied by the Chinese People's Liberation Army (PLA) in 1950-51.
- He has been leading the movement for "genuine autonomy" for Tibet and the Tibetans.

Significance of TPSA:

- The TPSA acknowledged the legitimacy of the Tibetan Parliament in Exile elected by the exiled community as well as the CTA.
- It seeks to introduce key provisions aimed at protecting the environment and water resources on the Tibetan Plateau.
- In an aggressive move, PRC government has forced resettlement of the nomads from grasslands.
- TPSA recognizes the importance of traditional Tibetan grassland stewardship in mitigating the negative effects of climate change in the region.
- In addition, it calls for greater international cooperation to monitor the environment on the Tibetan plateau.

7. INTERNAL SECURITY & DISASTER MANAGEMENT

1. Information Management and Analysis Centre (IMAC)

Why in News?

- India is looking at integrating more countries into coastal radar network IMAC.

What is IMAC?

- The Indian Navy's IMAC located in Gurugram which was set up after the 26/11 Mumbai terror attacks is the nodal agency for maritime data fusion.
- It functions under the National Maritime Domain Awareness (NMDA) Project.
- The NMDA project was launched in accordance with the vision of PM on SAGAR (Security and Growth for All in the Region).
- The IMAC monitors movement of more than 120,000 ships a year passing through the Indian Ocean.
- The cargo carried by these ships accounts for 66 per cent of world crude oil, 50 per cent of container traffic and 33 per cent of bulk cargo.
- Thus, IMAC performs a very crucial role in collecting shipping information, analysing traffic patterns and sharing the inputs with the User Agencies.

Expanding IMAC:

- It is meant to enable real-time Monitoring of the high seas for threats as also expand India's assistance for capacity building to Indian Ocean littoral states.
- Efforts are in advanced stages to set up coastal radar stations in Maldives, Myanmar and Bangladesh.
- Mauritius, Seychelles and Sri Lanka have already been integrated into the country's coastal radar chain network.
- Similar plans are in the pipeline with Maldives and Myanmar and discussions are ongoing with Bangladesh and Thailand.