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CURRENT AFFAIRS
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1. POLITY AND CONSTITUTION

1.1. RIGHT TO INFORMATION ACT AND PUBLIC AUTHORITIES

Why in news?

- Law Commission of India (LCI) in its 275th report has recommended to bring BCCI under RTI act.
- Election Commission recently said in an order that political parties are out of the purview of the RTI Act contrary to the Central Information Commission's directive of declaring political parties as public authorities.

What is a Public Authority under RTI act?

- **Section 2(h)** of the RTI Act states that "public authority" means any authority or body or institution of self-government established or constituted-
  - o By or under the Constitution;
  - o By any other law made by Parliament;
  - o By any other law made by state legislature;
  - o By notification issued or order made by the appropriate Government, and includes any—
    - ✓ Body owned, controlled or substantially financed (The RTI Act does not define substantial financing. Consequently, courts are often required to decide whether a particular form and quantum of financial aid constitutes substantial finance.)
    - ✓ Non-Government organization substantially financed, directly or indirectly by funds provided by the appropriate Government.
- The RTI Act empowers citizens with the right to access information under the control of 'public authorities' and imposing penalties on officials of public authorities for failing to disclose 'information' defined in Section 2(f).
- The RTI Act also mandates that "every public authority shall pro-actively disclose information pertaining to it, and maintain its documents and records to facilitate the right to information under the Act

BCCI as Public Authority

- **Mukul Mudgal Panel** for drafting National Sports Development Bill, 2013 **and Justice R.M. Lodha** suggested bringing BCCI under purview of RTI.
- Supreme Court in '*BCCI vs Cricket association of Bihar & others*' asked LCI to examine whether it should be covered under RTI. LCI recommended its inclusion under RTI as:
  - o BCCI can be classified as a **limb of State** within the meaning of Article 12 of the Constitution because government does exercise control over its activities and functioning say requirement of approval for cricket matches between India and Pakistan in view of tense international relations.
  - o It also shall be deemed "**Public Authority**" because its functions are of public nature and it receives **'substantial financing'** from appropriate Governments over the years (in the form of tax exemptions, land grants etc.).
  - o It is the **"approved" national level body** holding virtually monopoly rights to organize cricketing events in the country. It also selects the Indian cricket team.
  - o It virtually acts as **National Sports Federation** and like all other sports bodies which are listed as NSFs BCCI should also be covered under the RTI Act and the act should be made applicable to all of its constituent member cricketing associations.

> **BCCI**
>
> It is a registered society under Tamil Nadu Societies Registration Act, 1975.
>
> It is headquartered in Mumbai and is the central governing body regulating the game of cricket in India.

> **Law Commission of India**
> - It is a non-statutory body constituted by the Government of India from time to time.
> - The Commission was originally constituted in 1955 and is re-constituted every three years.
> - The current 21st Law commission was constituted in 2015 to undertake research in law and review of existing laws in India for making reforms therein and enacting new legislations and undertake studies and research for bringing reforms in the justice delivery systems.

Political Parties as Public Authorities

- Six national parties — the BJP, the Congress, the BSP, the NCP, the CPI and the CPI(M) were **brought under the ambit of the RTI Act** by a full bench of the Central Information Commission in 2013. (The Trinamool Congress was also recognised as the seventh national party in 2016).
- However, the political parties have refused to entertain the RTI applications directed at them.
- Several activists have approached the Supreme Court on the grounds of non-compliance of the CIC order and the matter is pending.

Arguments in favour of bringing Political parties under RTI

- **Need to ensure Transparency in Funding**-
    - According to **Association for Democratic Reforms,** between FY 2004-05 and 2014-15 only 31.55% of the total income of political parties was through voluntary contributions/donations and for the rest 68.45% they have evaded declaring any details by exploiting section 29C of the Representation of the People Act, 1951 which exempts them from declaring any donations below Rs 20,000.
    - **Crony capitalism -** From FY 2004-05 to FY 2014-15, six national parties have declared receiving 88% of their total donations in excess of Rs 20,000 crore from corporate or business houses which is not without any quid pro quo for the corporates.
    - **Black money -**According to ADR, 34% of the donations have been received with no address or any other detail of the donor, and 40% donations have been received with no PAN details.
    - **Illicit foreign contributions:** National parties have been accepting foreign contributions despite The Foreign Contribution (Regulation) Act (FCRA), 1976, prohibited political parties from accepting contributions from foreign companies or companies in India controlled by foreign companies.

> The **Central Information Commission (CIC)**
> - CIC set up under the Right to Information Act is the authorised body, established in 2005, to act upon complaints from those individuals who have not been able to submit information requests to a Central Public Information Officer or State Public Information.
> - It includes 1 Chief Information Commissioner (CIC) and not more than 10 Information Commissioners (IC) who are appointed by the President of India.
> - The jurisdiction of the Commission extends over all Central Public Authorities.
> - When it comes to the RTI Act, the Central Information Commission is the only appellate authority which may declare a body as public authority if it is convinced that the organisation fits into the criteria for being under the **Right to Information** Act.

- **Political parties are vital organs of the State**- According to CIC, critical role played by these political parties point towards their public character. They perform functions like government bodies and they have monopoly over selection of candidates, who will ultimately form the government. Therefore, they cannot escape the scrutiny by the common people of their functioning.
- **Political parties are public authorities-**The CIC held that political parties **enjoy various benefits** directly or indirectly like land for offices of political parties on concessional rates, allotment of free time on Doordarshan/All India Radio and supplying electoral roll copies free of cost during elections hence they are 'public authority' under section 2(h) and answerable under the RTI Act.
- **Larger Public Interest:** The disclosure of the information is in larger public interest. Even **170th report of Law Commission of India on reform of the electoral laws** recommended to introduce internal democracy, financial transparency and accountability in the working of the political parties

Arguments against bringing Political parties under RTI

- **Obstruct party functionin**g: Political parties cannot disclose their internal functioning and financial information under the Right to Information Act as it will hamper their smooth functioning
- **RTI can be a tool of misuse:** RTI can become a weak spot and rivals with malicious intentions may take advantage of RTI.
- **Not 'public authorities':** Political parties are not established or constituted by or under the Constitution or by any other law made by Parliament. Even the registration of a political party under the 1951 Act was not the same as establishment of a government body.
- **Transparency provisions for parties already exist** in the Income Tax Act, 1961, and Representation of the People Act, 1951, which demand "necessary transparency regarding financial aspects of political parties.

- **Information in public domain:** Government holds the view that information about a political body is already in the public domain on the website of the Election Commission.
- **Not envisaged in the RTI Act** -According to the Department of Personnel and Training (DoPT) when the RTI Act was enacted, it was never visualised that political parties would be brought within the ambit of the transparency law.

1.2. EXCESSIVE GOVERNMENT LITIGATIONS

Why in news?

Recently, Supreme Court in a judgement imposed Rs. 1 lakh penalty on the Government for frivolous litigation as similar appeals had already been dismissed earlier by the Court.

Implications of frivolous litigations

- **Hurts investor's confidence**: As Economic Survey 2017-18 discusses, **economic activity is getting affected** by high pendency and delays across the legal system. Delays of economic cases (company cases, arbitration cases and taxation cases) in courts are leading to stalled projects, legal costs, contested tax revenues, and consequently reduced investment.
- **Adds to the burden of Courts** and collaterally harms other litigants by delaying hearing of their cases through the sheer volume of numbers.
- **Increase in project costs**: Delays in power, roads, and railways projects led to an **increase in almost 60% of the project costs**.
- **Slows down government administrative processes** by delaying decision-making on matters that are the subject of litigation.
- **Diversion of precious resources:** A recent document by the **Ministry of Law & Justice**, state that the government, including PSUs and other autonomous bodies, are party to around **"46%" of the 3.14 crore court cases** pending in various courts in the country, making it the biggest litigant in the country. Handling these cases must be using a major portion of taxpayers money.
- **Affects ease of doing business:** India suffers badly in the World Bank's Ease of Doing Business rankings primarily because of the conduct by government agencies (regulators) that generates litigation by writing orders, even on closed issues. Even after improvement in India's rankings, it ranks very low on Enforcing Contracts.

Steps taken to reduce pendency

- In **1989, the Department of Public Enterprises set up a "Permanent Machinery of Arbitrators"**. Based on this, it directed enterprises that all commercial disputes (excluding disputes on income-tax, customs and excise, later extended also to the railways) should be settled by arbitration, and that this dispute resolution mechanism should be a part of all contractual and tender agreements.

Challenges in dealing with government litigations
- Government litigation being an **encounter of unequals**, where an ill-equipped individual person or entity is pitted against a massive government machinery with its limitless resources.
- **Lack of adequate and reliable data**: After the **126th Law Commission of India report,** no actual estimate of costs or comprehensive litigation data (regarding number of cases, categories and government department party) has been collated.
- **Risk avoiding attitude of bureaucracy**: Due to fear of CVC, CBI, they tend to shift the burden of taking risky decisions on judiciary.

Some features of National Litigation Policy, 2010
- Government must **cease to be a compulsive litigant,**
- The easy approach "Let the courts decide" must be eschewed and condemned,
- Challenge to the orders of the Tribunal should be an exception and not a matter of routine,
- Proceedings will not be filed in service matters merely because the order of the Administrative Tribunal affects a number of employees,
- It recommends setting up of the **national and regional level monitoring system** to minimize litigation. **"Nodal Officer"** in each departments to "actively" monitor litigation and track court cases.

However, the policy did not become successful due to reasons such as Ambiguity, rhetoric and generic phraseology, absence of adequate data, No measurable outcomes or implementation mechanism, Lack of any form of impact assessment etc.

- Adoption of **"National Litigation Policy 2010"** as part of **"National Legal Mission to Reduce Average Pendency Time from 15 Years to 3 Years"** to transform government into an Efficient and Responsible litigant. All states formulated state litigation policies after National Litigation Policy 2010.
- An internal portal called **Legal Information Management and Briefing System (LIMBS), was created in 2015** with the objective of tracking cases to which the government is a party. As of 11th June 2018, data collected by LIMBS show 2.4 lakh 'live' cases.
- In **April 2017,** the Law Minister called upon each Ministry/Department to chalk out an '**Action Plan for Special Arrears Clearance Drives'** to reduce the number of court cases and implement the plan on Mission Mode.
- The Government, in September 2015, proposed a **National Litigation Policy** for out-of-court settlement of cases among government departments, public sector undertakings and other government bodies. However, no concrete decision has been taken yet in this regard.

Way Forward

- **The National Litigation Policy should be revised**
  o It should **address all three stages of dispute**, viz. pre-litigation, litigation and post litigation stage.
  o It must have clear objectives that can be assessed. **Minimum standards for pursuing litigation must be listed out.**
  o The role of **different functionaries must be enumerated** and **fair accountability mechanisms** must be established.
  o **Consequences for violation of the policy** must be clearly provided and a **periodic impact assessment programme** must be factored in.
  o Appointment of a **Nodal Officer to regularly monitor the status of the cases** in every department at the Joint Secretary Level to coordinate effective resolution of the disputes.
  o Promotion of **alternative dispute resolution mechanisms** to encourage mediation as the preferred form of dispute resolution in service related matters. All agreements to mandatorily include a reference to either arbitration or mediation.
- **Suggestions by economic survey 2017-18 may be adopted**:
  o **A Coordinated action between government and the judiciary**- a kind of **horizontal Cooperative Separation of Powers** to complement vertical Cooperative Federalism between the central and state governments-- would address the "Law's delay" and boost economic activity.
  o **Judicial capacity should be strengthened** in the lower courts to reduce the burden on higher courts. Government must increase its expenditure on the judiciary, improve the courts case management and court automation system, and create subject specific benches.
  o **Tax departments must limit their appeals**, given that their success rate is less than 30% at all three levels of judiciary (Appellate Tribunals, High Courts, and Supreme Courts).
  o Courts could consider **prioritising stayed cases and impose stricter timelines** within which cases with temporary injunctions may be decided, especially when involving government infrastructure projects.
- **Solutions unique to each litigation prone department need to be identified**: For instance - robust internal dispute resolution mechanisms for service related disputes within each department will inspire confidence among employees.
- **Quasi-judicial authorities** should be judicially trained or a separate class of judicial officers to discharge quasi-judicial functions should be created.
- The **bureaucracy should be sufficiently motivated** to tackle the issues.
- A major recommendation of the **100th Law Commission of India (LCI) report** was to set up a **'litigation ombudsman'** in each state to manage and handle government litigation. Similarly, the **126th LCI report** recommends the creation of a **grievance redressal system** within departments, specifically to manage disputes between the government-employer and its employees.
- **Step by step online dispute resolution** must be adopted as done by Ministry of Consumer Affairs on a pilot basis for e-commerce related disputes. The ministry has established an **Online Consumer Mediation Centre** with the motto **'Anytime Anywhere Dispute Resolution',** for mediation services for consumer disputes in e-commerce.

- Conducting a thorough **100-percent audit of all pending appeals** filed by regulators to decide what ought to be withdrawn, would be a good way to start.

1.3. REVISION OF RAJYA SABHA RULES

Why in news?

A two-member committee **(Agnihotri committee)** has been appointed to make recommendations for revising the rules of the Upper House.

About rules of procedure

- **Article 118(1)** of the Constitution gives the two Houses of Parliament the power to make rules to regulate their functioning.
- Thus, both houses have their own rules of procedure that govern various functions of the house including meetings, summons to members, oaths, sitting of council, election of deputy chairman, arrangement of business, etc.
- These rules are the **bulwark of our parliamentary democracy**. For **Parliament to be effective** in its role, these rules require regular updating and strengthening.
- However, even after various amendments, in some cases, the provisions were merely carried forward. For example, the rules to discipline disorderly MPs are the same ones as before.

Need for revision of rules

- **Frequent disruption of parliamentary proceedings** - Over 120 working hours of a total of 165 were lost during the Budget session. Thus, there is a need to devise solutions for protecting the sanctity of parliamentary proceedings.
- **Increasing complexities and technicalities of the issues before Parliament -** In such an environment, the committee's suggestions for strengthening deliberations in the House will be crucial.
- **Need to balance completion of government business with discussions raised by other political parties –** As of now, the two Houses of Parliament meet mostly for transacting government business.
- **Need to overhaul accountability mechanisms** - The existing mechanisms, like Question Hour, for securing the government's accountability to Parliament have lost their edge.
- **Reducing the difference in two houses** - There are differences in provisions of Lok Sabha and the Rajya Sabha Rules in certain matters.

The two Houses of Parliament are responsible for the formulation of laws in the country thus being the basis of Democracy. Their better functioning requires better management, which in turn is a result of updated and well laid out set of rules for the functioning.

1.4. ROLE OF GOVERNOR IN HUNG ASSEMBLY

Why in news?

The role of governor came under question in recent Karnataka legislative assembly elections.

More about the news

- It came under question that whether Governor should call single largest party to form the government and prove its majority in the House or a post-poll alliance to form a majority that overcomes the single largest party and form the government
- **Article 164(1)** provides for the appointment of chief minister by governor. Supreme Court clarified that there is no qualification mentioned in article 164(1) and reading it with collective responsibility in 164(2), the only condition chief ministerial candidate need to satisfy is that he/she should be commanding majority in the house.
- But this discretionary power is being misused by governors. It may encourage horse trading of MLAs, defections against the spirit of tenth schedule and decline in public trust in the office of Governor.
- In case of Goa, Manipur and Mizoram, the single largest party was not given preference to form the government unlike in Karnataka. Thus, raising question mark on the role of Governor and also forcing Supreme Court to take cognizance of the issue.

Suggestions

- **Sarkaria Commission** and a constitutional bench judgement in *Rameshwar Prasad v Union of India*, 2005 held that:
  - The party or combination of parties with widest support in the Legislative Assembly should be called upon to form the Government.
  - If there is a pre-poll alliance or coalition, it should be treated as one political party and if such coalition obtains a majority, the leader of such coalition shall be called by the Governor to form the Government.
  - In case no party or pre-poll coalition has a clear majority, the Governor should select the CM in the order of preference indicated below:
    - ✓ The group of parties which had pre-poll alliance commanding the largest number.
    - ✓ The largest single party staking a claim to form the government with the support of others.
    - ✓ A post-electoral coalition with all partners joining the government.
    - ✓ A post-electoral alliance with some parties joining the government and the remaining supporting from outside.
- **M M Punchhi Commission** elaborated that the governor should follow **"constitutional conventions"** in a case of a hung Assembly.
- While **SR Bommai case** related to discretion of Governor does not apply to hung assembly but it laid emphasis on floor test in the house within 48 hours (although it can be extended to 15 days) so that legislature should decide the matter and Governor's discretion should merely be a triggering point.

The Governor must be true to the oath of office and must ensure that the person he/she invites to be Chief Minister will be able to form a responsible and reasonably lasting government in the State. Even Dr. B.R. Ambedkar in his speech described how a Governor should use his discretion not as "representative of a party" but as "the representative of the people as a whole of the State".

1.5. ELECTRONICALLY TRANSMITTED POSTAL BALLOT SYSTEM (ETBPS)

Why in news?

The ETPBS was recently used in Chengannur (Kerala) Assembly bypoll for service voters.

More about ETPBS

- It was developed by the Election Commission with the help of Centre for Development of Advanced Computing (C-DAC) to provide an alternative method of quick dispatch of Postal Ballot paper electronically (earlier delivered by post) to the entitled Service Voters.

> **Service Voter**
> As mentioned in Representation of People's Act, 1950, Service voters are:
> - members of Armed Forces of the Union
> - members of forces to which provisions of Army Act, 1950 applies.
> - members of armed police force of a State and serving outside that state
> - persons who are employed by GoI in a post outside India.

- It uses QR codes for uniqueness of the Service Voters and the secrecy in transmission is ensured by the use of OTP and PIN.
- The postal ballots are delivered in **electronic data format** to voters on a **real time basis**. The voters can download the postal ballot and votes so cast would be received by the returning officer **through post**.
- It was first used in Nellithope by-elections in Puducherry in 2016.

2. INTERNATIONAL RELATIONS

2.1. GENERAL DATA PROTECTION GUIDELINES (GDPR)

Why in news?

The GDPR became applicable to all the European Union member states from May 2018.

What is GDPR?

- It is **comprehensive privacy and data security legislation** by the EU, to protect personal data of its people (residents and citizens, called as data subjects, in the Regulation) and to help them control how this data is collected, processed, shared and stored.
- It mandates companies (called as data controllers and processors) to take "**freely given, specific, informed and unambiguous**" consent from the data subjects, regarding movement and use of this data. Thus, GDPR also **regulates exportation of this data outside the EU**.
- Further, '**record' of consent** is required to be maintained under the new regime.

Highlights of the GDPR

- It creates **European Data Protection Board** (EDPB), along with member states' Data Protection Authorities (DPA), to regulate and implement GDPR and resolve disputes. It also requires firms to appoint **Data Protection Officers** (DPO) wherever applicable.

- **Personal data:** any data that can be directly or indirectly associated with a living individual or his/her professional, personal and public life. This covers information such as name, photo, address – email or postal, bank details, social media posts, medical information, biometric data, IP address, political opinions, sexual orientation and so on.
- **Data controller** i.e. who owns the data: It defines how and for what purposes the personal data is processed. It is also responsible for making sure that outside contractors comply.
- **Data processor** i.e. who helps manage the data: These may include the internal groups that maintain and process personal data records or any outsourcing firm that performs all or part of those activities e.g. cloud providers.
- **Data breach:** breach of security leading to accidental or unlawful destruction, alteration, unauthorised disclosure of, or access to, personal data.
- **Pseudonymisation**: masking method to substitute identifiable data with a reversible, consistent value, where additional information is required to re-identify the original data.
- **Anonymisation:** encryption method that converts clear text data into nonhuman comprehendible and irreversible form and destroys the original identifiable data.
- **Forced consent** is when the users have to choose between consenting to their data gathering, or they giving up the use of service. This is not in accordance with GDPR.

- **Data protection principles:** Personal data should be processed as per following six principles:
  - Processed lawfully, fairly and transparently
  - Collected only for specific legitimate purposes
  - Adequate, relevant and limited to what is necessary
  - Must be accurate and kept up to date
  - Stored only as long as is necessary
  - Ensure appropriate security, integrity and confidentiality
- **Governance and accountability:** It requires maintenance and enforcement of internal data protection policies and procedures, along with documentation of data breach and investigations. **Data protection impact assessments (DPIAs)** are a must for high-risk processing operations.
- **Data protection "by design" and "by default":** This means that the design of future business operations and management workflows relating to data should be GDPR-compliant; and default collection mode must be to gather only the personal data that is necessary for a specific purpose. Data storage must use highest-possible privacy settings by default and should use **pseudonymisation** or **anonymization.**
- **Right to erasure of personal data**: GDPR requires organizations to completely erase data from all repositories when: (i) data subjects revoke their consent; (ii) partner organization requests data deletion, or (iii) service or agreement comes to an end. However, data **can be retained for certain legal reasons** as per few exceptions; it also provides for right to be forgotten, right to rectify data, right to data portability, etc.
- Companies are required to **report the data breach** within 72 hours to the nominated national DPA. These breaches must be disclosed to the individuals as well.
- **Exemptions/ restrictions:** Following cases are not covered by the regulation:

- o Lawful interception, national security, military, police, justice
  - o Statistical and scientific analysis
  - o Deceased persons, subject to national legislation
  - o Employer-employee relationships (covered as per a separate law)
  - o Processing of personal data by a natural person in the course of a purely personal or household activity
  - o Conversely, an entity has to be engaged in "economic activity" (as per EU laws) to fall under GDPR.
- **Firms based outside the EU**, that provide services or goods to the EU are also subject to the GDPR. These companies may need to appoint a representative in the EU.
- It includes a **separate Data Protection Directive** for the police and criminal justice sector that provides rules on personal data exchanges at national, European, and international levels.
- Failure to comply invites penalties as huge **as €20m or up to 4% of global annual revenues.**
- It emphasizes on **simplification** of information and processes so that public can comprehend these and take actions with ease.
- **ePrivacy Regulation** for online data activities, are yet to be finalised by the EU.

Implications for India and beyond

- It **impacts work practices of technology sector,** online retailers, software companies, financial services, online services/SaaS, retail/consumer packaged goods, B2B marketing etc.
- For Indian firms: Europe is a significant market for Indian IT/BPO/technology/pharma sectors and hence, GDPR compliance becomes priority for all Indian organisations having business there.
  - o **Challenges-** According to an **Ernst & Young study,** only 13% of Indian companies are prepared for GDPR. These provisions would be a challenge for **smaller firms and young start-ups** demanding huge costs of compliance or otherwise loss of business.
  - o **Opportunity-** At the same time, there is **an opportunity** for new consultancy and advisory firms to set up their operations and help other firms with GDPR compliance across the world. Also, compliance can be turned into a **competitive advantage** vis-à-vis other Asian firms.
- **India and the EU relations:**
  - o One of the routes to transfer personal data outside the EU is when the EU has designated a country as providing an adequate level of data protection. Given that the EU has not accorded **'data secure country' status** to India, operations between Indian and Europeans firms may get difficult. This also has implications for **India-EU BTIA (Broad-based Trade and Investment Agreement).**
  - o GDPR provides that a legal order/judgement by a third country asking action on part of data controller/processor may not be recognized in absence of an international agreement such as the **Mutual Legal Assistance Treaty** (MLAT). This is of concern since Germany refused to sign MLAT with India in 2015, citing its objections to India's death penalty provisions.
- **Blockchain technologies:** Decentralized nature of these technologies can help protect personal data better. Simultaneously, anonymity offered by crypto-currencies based on these technologies may contradict the compliance norms under the GDPR.
- **For consumers world over:** They will demand better laws to protect their data via campaigns against bad practices of other governments and companies that harvest on personal data without consent, thus violating Right to privacy.

2.2. INDIA-US PACTS

Why in news?

Ministry of Defense is re-examining Communications, Compatibility, Security Agreement (COMCASA) and Basic Exchange and Cooperation Agreement for Geo-spatial Cooperation (BECA) agreements with US.

Background

- Three **proposed defense foundational agreements** between the United States and India—the Logistics Exchange Memorandum of Agreement (LEMOA), the

FOUNDATIONAL AGREEMENTS	
Basic purpose	
LEMOA	Enable deployed forces to share logistics support to meet unforeseen requirements that might arise in the field or unanticipated mission requirements
CISMOA	Provide the legal mechanism to exchange command, control, communications, computer intelligence, surveillance & reconnaissance (C4ISR) data to a foreign country, establish secure communications channels, and exchange communications supplies & services
BECA	Enable the sharing of a range of geospatial products, including access to mapping and hydrographic data, flight information products, and the U.S National Geospatial-Intelligence Agency's geospatial information bank

Communications Compatibility and Security Agreement (earlier referred to as CISMOA), and the Basic Exchange and Cooperation Agreement for Geospatial Intelligence—have been in negotiations for years.
- So far, India has **signed only LEMOA**. While efforts to conclude remaining two pacts are being renegotiated recently.

Why India should sign these agreements?
- Each of these agreements expands U.S.-India defense cooperation in a fairly modest manner, without necessitating a revolution in either side's approach to the partnership.
- COMCASA creates the conditions for the Indian military to **receive modern, secure and net-enabled weapons systems** such as precision armament, air-to-air missiles, space systems and navigation systems that are critical components in platforms like fighter aircraft and unmanned aerial systems. Hitherto India has had to purchase more expensive commercial communications equipment, raising the overall acquisition price of a platform.
- The absence of COMCASA and BECA agreements has **affected the functionality of U.S. platforms sold to India** (such as P-8I aircraft) and limits interoperability and data sharing between their militaries.
- Apart from this, these agreements are largely about building a **foundation of trust**.

Why India has not signed these agreements?
- **Strategic Concerns**
  o These agreements pave the way for a military alliance and force India to **compromise its strategic autonomy**.
  o It **may antagonize China**, leaving India in a disadvantageous position vis-a-vis its border disputes with Beijing.
  o It can **jeopardize historically close security relationship** with Russia and ongoing projects. Also, the agreement will make it **difficult to integrate India's Russian** origin weapon systems on US Platform.
- **Operational Concerns**
  o Implementation of the COMCASA-
    ✓ **Could reveal locations of Indian military** assets to Pakistan or other countries. Further, the use of American C4ISR systems could **compromise India's tactical operational security**, enabling the US to keep track of Indian warships and aircraft as the coding and keying systems will be the same.
    ✓ Would be **too burdensome for the Indian military**, given U.S. procedures.
  o There is **no clear need for these agreements**, given the recent ascendancy of bilateral defense cooperation and the use of workaround agreements, such as the recently renewed Fuel Exchange Agreement.

2.3. TRACK-II DIPLOMACY

Why in News?

India and Pakistan recently held a Track -II Dialogue in Islamabad.

More on News

- One of the oldest **Track-II initiatives** (referred as Neemrana dialogue) between India and Pakistan and was first held in 1991-92, in Neemrana Fort (Rajasthan).
- Current meeting was held from April 28th to April 30th, 2018, in Islamabad and the two sides discussed issues related to **Kashmir, Siachen, terrorism, cross-border firing, Sir Creek** and also **Afghanistan** but both sides did not make any official statements on the event.

> **Track I Diplomacy**
> Track One Diplomacy is official government diplomacy whereby communication and interaction is between governments.

- Last such Track-II dialogue between India-Pakistan was held three years back on 10th July 2015, on the side-lines of the Shanghai Cooperation Organisation **(SCO) Summit in Ufa, Russia.**

About Track II Diplomacy

- It is also known as Backchannel Diplomacy, in which private individuals (such as former diplomats, military veterans, academicians etc.), meeting **unofficially**, can find their way to common ground that official negotiators can't and the talks under it are not codified as official statements.

- **Strengths** of Track II Diplomacy
  - Track Two parties are not subdued by political or constitutional power; therefore, they can express their own viewpoints on various issues.
  - It **involves grassroots and middle leadership** who are in direct contact with the conflict.
  - This diplomacy is not affected by electoral cycles.
- **Weaknesses** of Track II Diplomacy
  - Its participants have **limited ability to influence foreign policy** and political power structures because of their lack of political influence.
  - Track Two interventions can take **too long to yield results**.
  - It has limited ability to influence change at the war stage of a conflict.
  - Its participants **rarely have resources** necessary for sustained leverage during negotiations and for the implementation of agreements.

2.4. KISHENGANGA PROJECT

Why in news?

PM recently inaugurated the state run NHPC Ltd's Kishanganga hydro power project in Jammu and Kashmir.

More about the news

- It is a 330 megawatt **Run of the River** Hydroelectric power project located in Gurez valley of Bandipora district in north Kashmir.
- It envisages diversion of water from the Kishenganga River to a power plant in the Jhelum River basin through an **underground tunnel** and the discharge of the water into the Wular lake.
- The project began in 2009 but in 2010 Pakistan appealed to **Hague's Permanent Court of Arbitration** complaining that the project violated the Indus River Treaty and deprived Pakistan the water share to its power project which is under construction at Neelam valley in PoK, as the Kishanganga river flows into Pakistan.

> **Indus Water Treaty**
> - The treaty was signed in 1960 by India and Pakistan
> - As per the treaty, control over three eastern rivers Ravi, Beas and Sutlej was given to India. While control over three western rivers Indus, Jhelum and Chenab was given to Pakistan.
> - It allows India to use only 20% of the water of Indus River, for irrigation, power generation and transport.

- Pakistan is constructing its own 1,000 megawatts **Neelum-Jhelum hydropower project** with the assistance of China on its side of the river.
- Court of Arbitration ordered India to **submit technical data** of the project and allowed India to go ahead with the construction of the dam while maintaining minimum 9 cubic metres of flow of water across border.
- 12 per cent of the power generated from Kishanganga project will be given to the J&K as "royalty", apart from an extra 1 per cent for "local development", while the rest will go into the national grid.

Significance of Kishanganga Hydroelectric Project

- It is expected to give boost to the development of the region.
- It is an assertion by India over the territory of J&K and over its resources.
- The project has a great strategic value due to India's assertion of its rights under the Indus Waters Treaty.

Other Major Disputed Projects

Project	River/Tributary	Location	Type of Dam
Pakal Dul Dam	Marusadar River, a tributary of the Chenab	Kishtwar district of Jammu and Kashmir.	A concrete-face rock-fill dam
Ratle	Chenab River, downstream of the village of Ratle	Doda district of Jammu and Kashmir.	A run-of-the-river hydroelectric power station currently under construction
Miyar	Miyar Nallah, a tributary of Chenab	Near Lahaul & Spiti in Himachal Pradesh.	A Run-of-the-River scheme
Lower Kalnai	On Lower Kalnai Nalla, tributary to river Chenab	Doda district of Jammu & Kashmir.	A gravity dam

2.5. INDIA PROTESTS PAKISTAN'S GILGIT-BALTISTAN ORDER

Why in news?

India recently **opposed Pakistan's order** to integrate the region of Gilgit-Baltistan into the federal structure of the country.

What is the dispute over Gilgit-Baltistan?

- After the first Indo-Pak war over Kashmir, the UN resolutions created a temporary ceasefire line separating the state into Indian and Pakistani administered regions pending a referendum.
- India, Pakistan and China all claim partial or complete ownership of Kashmir.
  - **India-controlled**: One state, called Jammu and Kashmir, makes up the southern and eastern portions of the region, totaling about 45% of Kashmir.
  - **Pakistan-controlled**: Three areas called Azad Kashmir(AJK), Gilgit and Baltistan make up the northern and western portions of the region, totaling about 35% of Kashmir.
  - **China-controlled:** One area called Aksai Chin in the north-eastern part of the region, equalling 20% of Kashmir.
- Hitherto **Pakistan's federal institutions had maintained** that Gilgit-Baltistan is a UN declared disputed area and her residents cannot be declared citizens of Pakistan until India and Pakistan resolve the issue of accession of Jammu and Kashmir.
- **India, unlike Pakistan, claims Gilgit-Baltistan** as a constitutional part of the country and declares the people of Gilgit-Baltistan as her citizens. In 1994, both houses of the Indian Parliament passed a unanimous resolution reiterating that Pakistani controlled parts of AJK and Gilgit-Baltistan are integral parts of India.

Background

- In 2009, Pakistan had passed a **Gilgit-Baltistan Empowerment and Self-Governance Order** in the Cabinet which granted self-rule to the people by creating a legislative assembly and a council but it did not provide for any constitutional means of linking it to Pakistan.
- Now Pakistan's Cabinet has approved to an executive order namely **Gilgit-Baltistan Order 2018** to replace the above order and begin legislative, judicial and administrative measures to **integrate Gilgit-Baltistan** with the rest of the federal structure of Pakistan **as its fifth province**.
- The order essentially seizes the powers of the region and entrusts Prime Minister of Pakistan with indisputable authorities vis-a-vis Gilgit- Baltistan.
- As per the previous arrangement, Pakistan's National Assembly received representation from five provinces — Punjab, Sindh, Balochistan, Federally Administered Tribal Agencies (FATA) and Khyber Pakhtunkhwa thus excluding the Gilgit-Baltistan region which remained on the Pakistani side following the war of 1947 and was governed directly from Islamabad.
- The idea of granting provincial status to Gilgit-Baltistan has gained momentum since work on the China-Pakistan Economic Corridor (CPEC) passing through the region, demanded greater coordination between the local and central-level leaders.

Significance of Gilgit Baltistan Order

- The order also aims to **alleviate China's concerns about the unsettled status** of Gilgit-Baltistan considering China Pakistan Economic Corridor (CPEC) passes through the disputed region.
- The order has also spread **discontent in pro Indian** and some other sections of people of Gilgit-Baltistan which want an independent republic in accordance with UN resolutions on Jammu and Kashmir which require Pakistan to withdraw from Gilgit-Baltistan and transfer control to local powers.
- Further such a measure also aims to **hide the grave human rights violations**, exploitation and denial of freedom to the people residing in Pakistan occupied territories.

2.6. INDIA-INDONESIA

Why in news?

The Indian Prime minister recently visited Indonesia.

More about the visit

- Both sides have agreed to elevate the bilateral relationship between the two countries to the level of **Comprehensive Strategic Partnership.**
- The need for "free, open, transparent, rule-based (UNCLOS), peaceful, prosperous and inclusive Indo-Pacific region" was emphasized**.**
- A **shared Vision on Maritime Cooperation in the Indo-Pacific** was announced to harness the opportunities and the following was agreed to-
  - o Enhancing Trade and Investment Cooperation:
  - o Expanding cooperation in disaster risk management:
  - o Fostering tourism and cultural exchanges, etc.
- A link will be established between Andaman Nicobar and Aceh to tap the economic potentials of both areas.

Significance of India- Indonesia relations

- **Securing sea lanes of communication-** Strategic location of Indonesia at the transition of Indian and Pacific Ocean is very important to secure the major sea lanes of communication considering the South East Indian ocean is the hotbed of piracy and smuggling of people, arms, drugs and money; illegal, unreported and unregulated fishing; and the movement of terrorists etc.
- **Strategic importance:** Recently Indonesia agreed to give access to the strategic island of **Sabang**, close to the Malacca Strait for Indian investment. This would help India to become a **net security provider in the Indian ocean** region.
- **Countering China:** China's increasing assertiveness in the region has required for greater cooperation among various players in the region.
- **India's Act East policy:** Indonesia's support will bolster its Act East Policy as it is the largest country in southeast Asia both population wise and economically. Also, India's vision of SAGAR (Security and Growth for all in the Region) matched with Indonesia's Global Maritime Fulcrum.
- **Trade and investment:** In 2017, trade between the two countries was USD 18.13 billion. India and Indonesia have agreed to triple bilateral trade to USD 50 billion by 2025. Both countries can play critical role towards promotion of blue economy and fast tracking RCEP (Regional Comprehensive Economic Partnership).
- **Countering terrorism:** Both the countries face threats of increasing religion-based terrorism. Thus, both the Country had agreed to establish interfaith dialogues to address this issue.

Challenges in India Indonesia relations

- **Strong presence of China in the region:** Indonesia has friendship treaty with China of cold war time, hence it would not go to an extent which could concern China even after comprehensive strategic partnership.
- **Cold war era hostility:** After independence India had good relations with Indonesia as both the countries were founder of Non-alignment movement, however it deteriorated later as India tilted towards USSR and Indonesia towards USA. During Indian's war with Pakistan, Indonesia had supported Pakistan.
- **Demarcation of maritime border between the two countries in the Andaman sea** has not been completed. However, during the visit, both have reiterated to settle it soon
- **Poor Connectivity:** The potential of India Indonesia relations has been unrealized due to poor connectivity. The direct air connectivity was launched only recently.

Way forward

- India and Indonesia can provide **complementary models for coexistence of religious minorities** with majoritarian communities in Asia based on their own tradition of coexistence. The **interfaith dialogue forum** should be promoted for it.
- India can strengthen Indonesia's democratic credentials by advocating its admission in a revived India-Brazil-South Africa forum.
- India may also invite Indonesia in the Quadrilateral security dialogue which includes Japan, USA and Australia, which focuses on the security aspects in the Indo-Pacific region.

2.7. IRAN NUCLEAR DEAL

Why in news?

USA has decided to withdraw from 2015 Nuclear Agreement with Iran and reinstate sanctions upon it.

Background

- The Iran deal, also known as **Joint Comprehensive Plan of Action (JCPOA)**, is an agreement reached in 2015 between Iran and six world countries - US, China, Russia, Britain, France and Germany, plus the EU (i.e. P5+Germany+EU).
- **Under the agreement Iran agreed** to completely eliminate its stock of medium enriched uranium, reduce the stock of low enriched uranium by 98% and reduce almost by 2/3rd its gas centrifuges for 13 years.
- It further sets out rigorous mechanisms for monitoring restrictions placed on Iran's nuclear programme.
- Until 2031, Iran will have to comply with any IAEA access request. If it refuses, the commission can decide on punitive steps, including the re-imposition of sanctions through a majority vote.
- The reason sighted by the USA for withdrawal is that the deal does not target- Iran's ballistic missile programme, its nuclear activities beyond 2025 and its role in conflicts in Yemen and Syria.

AFTER TRUMP DECISION: WHAT CHANGES, WHAT REMAINS

	BEFORE 2015 DEAL	UNDER THE ACCORD	AFTER US PULLOUT
US sanctions	No Iranian goods and services imports, virtually no trade and investment by Americans in Iran	Billions of dollars of Iran funds held in foreign banks unfrozen, nuclear-related sanctions lifted	Nuclear-related punitive sanctions will be restored. President Donald Trump has announced
N – Programme	Iran had capability to build weapons; my have needed only a few months to make bomb fuel	Iran's ability to secretly build nuclear weapons was severely compromised or eliminated	All restrictions remain in place
Inspections	Some monitoring under NPT requirements, but it was far less intrusive than under the deal	International monitoring of uranium mines, centrifuge production	For now, inspections will continue
£ EU sanctions	Extensive international sanctions, including oil embargo and limits on banking, isolated Iran	UN sanctions tied to Iran's nuclear work terminated, EU ended an oil embargo	EU sanctions remain suspended or terminated

- In current scenario, the nuclear deal itself won't be scrapped as long as Iran and the other signatories remain committed to it.

Likely effects of withdrawal on the world

- One of the biggest concern is a likely **rise in oil prices** which could further lead to **volatility in financial markets**.
- 37% of Iranian oil reaches European destinations. The trade relations have expanded several folds after JCPOA. Exiting the agreement would **tarnish Washington's credibility** in the world especially with European countries and can weaken the NATO alliance.
- This would render life very difficult for the populace who might, in the absence of other avenues, take to the streets **against the regime**.

Impact of decision on India

- **Chabahar Port**- This will impact the work on the project which is crucial for India in terms of better connectivity with Afghanistan and other Central Asian countries.
- **Bilateral trade in oil**- During previous sanctions, USA pressed Delhi to curtail its economic relations with Iran, specifically in the area of purchasing oil. Iran is presently India's third biggest supplier (after Iraq and Saudi Arabia), and any increase in prices will hit both **inflation levels** as well as the **Indian rupee**.
- **Shanghai Cooperation Organisation**- Iran's inclusion in the SCO as proposed by China may position it as an anti-American group which may further impact Indo-US relations.
- **International North-South Transport Corridor** (a ship, rail, road route between India and Central Asia, passing through Iran), is crucial for connecting India with Central Asia and Russia. New U.S. sanctions will affect these plans, especially if any of the countries along the route or banking and insurance companies dealing with the INSTC plan also decide to adhere to U.S. restrictions on trade with Iran.

- **NSG-** Like France (EU), USA is also a strong backer of India's NSG membership. India's commitment towards JCPOA may complicate the matter as US might push India for support.
- **Non-oil trade** with Iran may not be impacted as much, as New Delhi and Tehran have instituted several measures in the past few months, including allowing Indian investment in rupees, and initiating new banking channels, between them.

USA recently withdrew from various other forums like the U.N. Climate Change treaty (Paris Accord), and the Trans-Pacific Partnership with East Asian trading partners. Such behavior essentially means that India must handle its relations with USA a bit more strategically, as India believes in Rule based Order.

2.8. CHINA- BURKINA FASO SIGN DEAL

Why in news?

China and Burkina Faso signed an agreement to establish diplomatic relations after the West African nation cut ties with Taiwan.

Background

- Burkina Faso followed suit of Sao Tome, Panama and Dominican Republic of severing diplomatic ties with Taiwan to keep up with evolution of the world and the socio-economic challenges of their country and region.
- Taiwan now has only one diplomatic ally left in Africa — the kingdom of Swaziland — and has official relations with just 18 countries worldwide, many of them poor nations in Central America and the Pacific.
- The move is yet another victory for Beijing in its campaign to isolate the island.

China-Taiwan Relations

- China and Taiwan **split in 1949** after a civil war won by the Chinese Communists. The two sides often use economic support and other aid to bargain for diplomatic recognition.
- Taiwan continues to be Beijing's **most sensitive territorial issue** and is claimed by China as its own province under '**One China Principle**", with no right to state-to-state relations.

What is the 'One China' principle?

- It is a Chinese principle meaning- There is only one China in the world. Taiwan is an inalienable part of Chinese territory. The government of People's Republic of China is the sole legitimate government representing the whole of China.
- The principle **affirms Chinese sovereignty** over Taiwan and is the cornerstone of bilateral diplomatic relations between Washington and Beijing.
- Any country that wants to establish political and diplomatic relations with China must agree to adhere to this principle and not recognize Taiwan as an independent country.
- In practice, the principle is a **stabilization mechanism** that **preserves the status quo** over Taiwan's political status while allowing it to function as an independent economic, civic and administrative entity.
- Since 1979, Taiwan has had to negotiate its 'international living space' but it has largely honoured the 'One China' principle.

What is One-China policy?

- It is **fundamentally U.S. policy** (or say countries that adhere to it) acknowledging that China has made certain claims over Taiwan, but that **the U.S. does not recognize Chinese claim** of sovereignty over Taiwan. (However, China does not differentiate between the policy and the principle.)
- India has also followed the "One China Policy" for decades, and places restrictions on the official-level exchanges with Taipei.

2.9. COLOMBIA TO JOIN NATO

Why in news?

- **Colombia** will be the next country to formally join the **North Atlantic Treaty Organization (NATO)**. It has also been approved as a member by OECD.

More about the news

- Colombia has become the only Latin American nation in the NATO alliance.
- It will be given the status of "**Partner across the globe**" in the group.
- Being a global partner **Colombia need not necessarily have to take part in military action** and yet will be **fully accredited as a member** in NATO.

Who are the "Partners across the globe"?

- NATO cooperates with a range of countries **which are not part of formal group**. They are often referred to as "**Partners across the globe**" or simply "**Global Partners**"
- These countries develop cooperation with NATO **in areas of mutual interest, including emerging security challenges,** and some contribute actively to NATO operations **either militarily or in some other way**.
- Other countries in the alliance with status of **"partners across the globe"** are **Afghanistan, Australia, Iraq, Japan, the Republic of Korea, Mongolia, New Zealand and Pakistan.**

North Atlantic Treaty Organization (NATO)

- It is also called as the North Atlantic Alliance, an **intergovernmental military alliance between three United Nations Security Council (United States, France and United Kingdom) permanent members and 26 other North American and European countries.**
- The alliance was established by the **North Atlantic Treaty 1949**.
- It constitutes **a system of collective defence** whereby its independent member states agree to mutual defence in response to an attack by any external party.
- Its Headquarters are located in **Haren, Brussels, Belgium**.

Organisation for Economic Co-operation and Development (OECD)

- It aims to promote policies that will improve the economic and social well-being of people around the world.
- It has 35 members which include many of the world's most advanced countries but also emerging countries like Mexico, Chile and Turkey.
- India is not a member of this.

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3. ECONOMY

3.1. SUGARCANE PRICING

Why in news?

Union government recently approved financial assistance of Rs 5.50 per quintal for cane crushed by sugar mills in the ongoing 2017-18 season.

Details

- The money would be credited directly into the bank accounts of farmers, who haven't received the "fair and remunerative price" (FRP) for sugarcane fixed by the Centre.
- The Centre's Sugarcane (Control) Order mandates mills to pay the FRP within 14 days of cane purchase from farmers, failing which 15% annual interest is charged on the due amount for the period of delay.
- Considering the large cane price arrear dues to farmers the mills say they cannot pay farmers beyond 75% of their realisations from sugar and thus the amount sanctioned by government is grossly inadequate.
- The populist increases in SAP recent years has resulted in excessive production of sugarcane, estimated at 295.07 lakh tone thus triggering a glut of supply of sugar which reached an all-time high of 29.98 million tonne.

> **Sugarcane Pricing Policy**
> Sugarcane Pricing Policy in India aims to ensure a fair price to cane growers, adequate returns to industry and supply of Sugar to consumers at reasonable prices. India has dual sugarcane pricing.
> The pricing of sugarcane is governed by the statutory provisions of Sugarcane (Control) Order, 1966 issued under the Essential Commodities Act (ECA), 1955.
> **Fair and Remunerative Price (FRP)**
> - It is the cane price announced by the Central Government on the basis of the recommendations of the Commission for Agricultural Costs and Prices (CACP) after consulting the State Governments and associations of sugar industry.
> **State Advised Price (SAP)**
> - Citing differences in cost of production, productivity levels and also as a result of pressure from farmers' groups, some states declare state specific sugarcane prices called State Advised Prices (SAP), usually higher than the SMP.
> This dual sugarcane pricing with higher SAP distorts sugarcane and sugar economy and leads to cane price arrears. Industry association recommends to remove the system of SAP; in case states announce SAP, such price differential should be borne by the state governments.

- Further considering the high cost of production of sugar (partly due to high cane prices in India) in other countries the export prices of sugar are much lower than from domestic sales.

Other Major Challenges facing the Sugar Industry in India

- India has the largest area under sugar cane cultivation in the world but the yield per hectare is extremely low and is even lower in North India than in South India
- The sugar industry has a **seasonal character** and the crushing season normally varies between 4 and 7 months in a year leaving the mill and the workers idle for almost half of the year.
- Average **rate of sugar recovery** from the sugar cane is less than 10 per cent which is much lower than other sugar producing areas like Java, Hawaii and Australia, up to 14 per cent.
- Most of the **sugar mills** in our country are of more old, have small size and outdated machinery with a crushing capacity of about 1200 tons per day.
- The **cost of sugar production** in India is one of the highest in the world mainly due to high sugar cane cost, uneconomic production process, inefficient technology and high taxes exercised by the state and the central governments.
- The industry faces problems in **disposing by-products** i.e. bagasse and molasses, especially under pollution control devices.
- The government policy, based on **dual price system**, discourages the entrepreneurs to make investment for further growth and improvement.
- The **per capita annual consumption** of sugar is about 10 kg in India, whereas it is about 20 kg in the world.

Suggestion

- Government has already taken following measures to arrest the downslide in sugar prices and to ameliorate the liquidity position of sugar mills:

- o Increased import duty on sugar from 50 to 100 per cent
  - o Imposition of stock holding limits on sugar mills for two months
  - o Fixing of Minimum Indicative Export Quotas (MIEQ) and
  - o Removal of customs duty on export of sugar to find a way for surplus output in the overseas markets.
- **C. Rangarajan Committee (2012)** on sugarcane pricing had recommended abolition of SAP and favoured **revenue sharing formula (RSF)** for cane price payments, 75 per cent of sugar value or 70 percent of the value of sugar and its byproducts should be disbursed to farmers towards sugarcane price.
- **CACP** has also recommended **a hybrid approach** with simultaneous implementation of Revenue sharing formula, FRP of Sugar and Sugar Price Stabilization fund.
- Better pricing, predictability and augmentation of storage facilities under **Ethanol Blended Petrol programme** to incentivise its procurement by OMCs.
- **Power generation** using cogeneration technology is another option through which companies can generate revenues by selling extra electricity generated as a by-product of sugar production to power distribution companies.
- Government should also **incentivise crop diversification** towards other less water intensive crops to reduce the problem of excess groundwater extraction from crops like sugarcane.

3.2. GREEN REVOLUTION - KRISHONNATI YOJANA

Why in news?

The CCEA has given its approval for Green Revolution - Krishonnati Yojana in agriculture sector beyond 12th Five Year Plan for the period from 2017-18 to 2019-20.

Details about Krishonnati Yojana

- The scheme has been continued as part of its objective to double farmers' income by 2022.
- It is an umbrella of 11 schemes/missions under Ministry of Agriculture:
  - o **Mission for Integrated Development of Horticulture (MIDH):** to improve nutritional security and income support to farm Households.
  - o **National Food Security Mission (NFSM),** including National Mission on Oil Seeds and Oil Palm (NMOOP)**:** to increase production of rice, wheat, pulses, coarse cereals and commercial crops and to augment the availability of vegetable oils to reduce its import.
  - o **National Mission for Sustainable Agriculture (NMSA):** promotes sustainable agriculture practices best suitable to the specific agro-ecology focusing on integrated farming, appropriate soil health management and synergizing resource conservation technology.
  - o **Submission on Agriculture Extension (SMAE)**: to strengthen the ongoing extension mechanism of State Governments, local bodies, to forge effective linkages and synergy amongst various stake-holders, to support HRD interventions, to promote pervasive and innovative use of electronic / print media, inter-personal communication and ICT tools, etc.
  - o **Sub-Mission on Seeds and Planting Material (SMSP)** to increase production of certified / quality seed, to increase SRR, to promote new technologies in seed production, infrastructure, etc.
  - o **Sub-Mission on Agricultural Mechanisation (SMAM):** to increase the reach of farm mechanization to small and marginal farmers, to promote 'Custom Hiring Centres', to create hubs for hi-tech and high value farm equipment, to create awareness among stakeholders through demonstration and capacity building activities, and to ensure performance testing and certification at designated testing centers located all over the country.
  - o **Sub Mission on Plant Protection and Plan Quarantine (SMPPQ)**: to minimize loss to quality and yield of agricultural crops from the ravages of insect pests, diseases, weeds, nematodes, rodents, etc. and to shield our agricultural bio-security from the incursions and spread of alien species, to facilitate exports of Indian agricultural commodities to global markets, and to promote good agricultural practices, particularly with respect to plant protection strategies and strategies.
  - o **Integrated Scheme on Agriculture Census, Economics and Statistics (ISACES)**: to undertake the agriculture census, study of the cost of cultivation of principal crops, to undertake research studies on

agro-economic problems of the country, to improve agricultural statistics methodology and to create a hierarchical information system on crop condition and crop production from sowing to harvest.

- o **Integrated Scheme on Agricultural Cooperation (ISAC)**: to provide financial assistance for improving the economic conditions of cooperatives, remove regional imbalances and to speed up - cooperative development in agricultural marketing, processing, storage, computerization and weaker section programmes.
- o **Integrated Scheme on Agricultural Marketing (ISAM)**: to provide infrastructure facilities for grading, standardization and quality certification of agricultural produce; to establish a nation-wide marketing information network; and to integrate markets through a common online market platform to facilitate pan-India trade in agricultural commodities
- o **National e-Governance Plan (NeGP-A):** to improve access of farmers to information & services throughout crop-cycle and to build upon, enhance & integrate the existing ICT initiatives of Centre and States.

3.3. CORPUS FOR MICRO IRRIGATION FUND

Why in News?

A dedicated Micro Irrigation Fund (MIF) with National Bank for Agriculture and Rural Development (NABARD) under Pradhan Mantri Krishi Sinchayee Yojana (PMKSY) has been set up.

Status of Micro -Irrigation in India

- According to a study the average penetration level of Micro-irrigation in India is **5.5%.** Only few states like Haryana, Sikkim, Andhra Pradesh, Rajasthan, Karnataka, Gujarat, Maharashtra, Tamil Nadu have penetration level greater than national average.
- Micro-irrigation in India is largely being **promoted in arid and semi-arid regions** where groundwater is the primary source of water.
- The task force on micro irrigation had estimated a **potential of 69.5 million hectare under micro irrigation**, whereas the area covered so far is only about 10 million hectares.

Micro Irrigation Fund

- It intends to provide states financial assistance on concessional rate of interest to **encourage Micro-Irrigation** and an allocation of Rs 2,000 crore has been made for this fiscal while Rs 3,000 crore has been earmarked for the 2019-20 fiscal.

Micro-irrigation
- It is the slow application of water above, or below the soil by surface drip, subsurface drip, bubbler and micro-sprinkler systems, thereby increases the yield and productivity of crops.
- Due to recurring droughts in years 2012, 2015 and 2016, micro-irrigation has become a policy priority in India in form of **Per Drop More Crop Component** of PMKSY.

NABARD
- It was established under the **NABARD Act of 1981** with an objective of providing and regulating credit and other facilities for the promotion and development of Agriculture, Small-scale industries, Cottage and village industries, Handicrafts and other allied economic activities in rural areas.
- It **refinances the financial institutions** like state co-operative agriculture and rural development banks (SCARDBs), state co-operative banks (SCBs), regional rural banks (RRBs), commercial banks (CBs) which finances the rural sector.
- It promotes **SHG-Bank linkage programme** for mainstreaming of the microfinance innovation and encourages other banks to lend to SHGs.
- **Long Term Irrigation Fund (LTIF)** has been established in NABARD during Budget 2016-17, as a part of PMKSY with an initial corpus of **20,000 Crore Rupees** and it has been doubled to 40,000 crores in Budget 2017-18.

Pradhan Mantri Krishi Sichayee Yojana
- It aims to extend the coverage of irrigation 'Har Khet ko pani' and improving water use efficiency 'More crop per drop' in a focused manner with end to end solution on source creation, distribution, management, field application and extension activities.
- It will be supervised and monitored by Inter-Ministerial National Steering Committee (NSC) under PM with Union Ministers of all concerned Ministries. A National Executive Committee (NEC) is to be constituted under the Chairmanship of the Vice Chairman, NITI Aayog to oversee programme implementation
- PMKSY has been formulated amalgamating ongoing schemes viz. Accelerated Irrigation Benefit Programme (AIBP); Integrated Watershed Management Programme (IWMP); and On Farm Water Management (OFWM) component of National Mission on Sustainable Agriculture (NMSA).
- Water budgeting is done for all sectors namely, household, agriculture and industries.

- The lending rate under the MIF has been proposed at **3% lower** than the cost of raising the fund by NABARD.
- It will have **a pan-India coverage** and the loans extended by NABARD can be **paid back in 7 years**, including a grace period of two years.

Advantages of MIF

- It would supplement the efforts of **Per Drop More Crop Component (PDMC)** of Pradhan Mantri Krishi Sinchayee Yojana in an effective and timely manner and may ensures water use efficiency as much as 50-90%.
- Fund will help to bring **more area under micro-irrigation** over 5 years, i.e. almost about 10 million hectares.
- Farmers Producers Organization (FPO)/Cooperatives/State Level Agencies **can also access** the funds with state government guarantee or equivalent collateral.
- It will also **help states mobilise resources** for their own initiatives, including additional subsidy, to bring about **2 million hectares under micro irrigation each year** during the remaining period of the 14th Finance Commission.
- **Increase in Farmer Income**-Farmers can add more new crops in an improved water scenario which ultimately results in increase in farmer's income.

Challenges Ahead

- **High cost of Installation**- Micro-sprinklers are quite costly and to offset the financial constraint of the farmers, Government will have to provide the subsidies to the extent of 40-90%, of the cost of Micro-Irrigation.
- **Inefficiency in implementation**- Implementation agency for micro-irrigation was changed from a dedicated mission to a component part of NMSA under PMKSY this has led to inefficiencies like improper utilisation of funds across the states.
- **Other Issues** include inadequate electricity supply as well as poor follow up services by drip agencies.

3.4. PRECISION AGRICULTURE USING ARTIFICIAL INTELLIGENCE

Why in news?

A Statement of Intent has been signed between NITI Ayog and IBM to develop **Precision Agriculture using Artificial Intelligence** (AI) in Aspirational Districts.

Details

- It is first of a kind project leveraging AI in agriculture across 10 Aspirational Districts in India across the States of Assam, Bihar, Jharkhand, Madhya Pradesh, Maharashtra, Rajasthan and Uttar Pradesh in its Phase I. The project will aim at improving yields of small landholders.
- IBM will be using AI to provide all the relevant data and platform for developing technological models for improving agricultural output and productivity for various crops and soil types, for the identified districts.
- NITI Aayog, on its part, will facilitate the inclusion of more stakeholders on the ground for effective last mile utilisation and extension, using the insights generated through these models.
- The scope of this project is to introduce and make available climate-aware cognitive farming techniques and identifying systems of crop monitoring, early warning on pest/disease outbreak based on advanced AI innovations.
- It also includes deployment of weather advisory, rich satellite and enhanced weather forecast information along with IT & mobile applications with a focus on improving the crop yield and cost savings through better farm management.

PRECISION FARMING CONCEPT

"THE RIGHT **INPUT**, THE RIGHT **AMOUNT**, THE RIGHT **TIME** AND THE RIGHT **PLACE**"

TECHNOLOGIES EMPLOYED

Remote sensing, satellite navigation system | Geographical Information Systems | Automatic Yield recording system

Automatic soil sensor | Variable Rate Technology | Advanced agronomy | Advanced farm management

What is precision agriculture/satellite farming?

- Precision agriculture means application of precise and
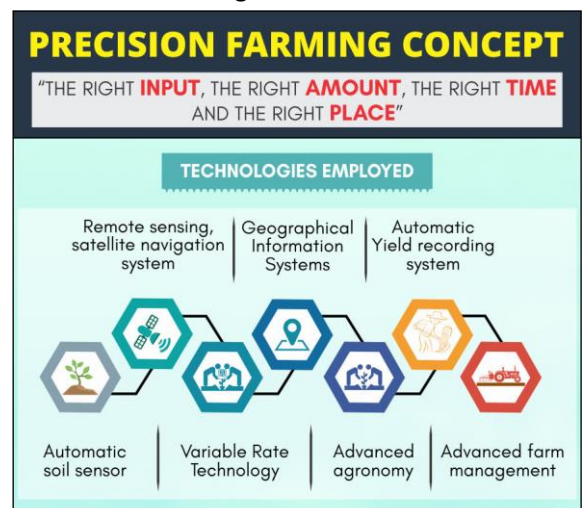
correct amount of inputs like water, fertilizer, pesticides etc.
- It is a farming management concept based on observing, measuring and responding to inter and intra-field variability in crops.
- The goal is to define a decision support system (DSS) for whole farm management for optimizing returns on inputs while preserving resources.
- Advanced technology like big data analytics, artificial intelligence (AI), and the Internet of Things (IoT) can help farmers to make precise decisions from planting, growing, harvesting, to transporting food.

3.5. WIDENING OF INDIA'S TAX BASE

Why in news?

India's tax base has been widening over last few years but some issues still remain.

Major trends

- Country's total taxpayer base increased to 6.41 crore in 2016-17 from 4.38 crore in AY 2011-12 which shows a rise of over 46 per cent over five years with individual tax payers registering a faster growth rate than total tax payers.
- The surge in the numbers is partly attributable to the tax department's focus on increasing compliance on the direct tax front, especially after demonetisation (Operation Clean Money).
- Even within the class of individual taxpayers, there is a skew in the tax pay out trend wherein average tax payment by a salaried individual is more than average individual business taxpayer.

Issues and Concerns

- Currently the total number of individual taxpayers at 6.08 crore, constitute only 4.86 per cent of India's total population of 125 crore.
- The Standing Committee on Finance has said the **low number of individual taxpayers** vis-à-vis the country's total population demonstrated the **"regressive nature of our direct tax regime"** and "the narrow base the (Revenue) Department operates on.
- The Economic Survey 2017-18 highlighted that there has been a **decline in the reliance on direct taxes** in India which contribute only around 35 per cent of total taxes as against a contribution of about 70 per cent in Europe.

Need to widen tax base

- A Study on **Widening of Tax Base and Tackling Black Money** by FICCI highlighted widening of tax net helps in achieving higher tax to GDP ratio, achieve fiscal consolidation, meet the targeted tax collection and reduce the shortfall in tax collection with budget estimates.
- Further, it helps the government to **undertake planned investments in infrastructure** and other important areas for growth & development.

Operation Clean money
- It is a programme of Income Tax Department (ITD) **Operation Clean Money** to bring out illegal wealth.
- It involved e-verification of large cash deposits using data analytics during demonetisation.

Tax Administration Reforms Commission (TARC)
Parthasarathi Shome headed panel gave following recommendations to widen tax base:
- Focus on bringing in new taxpayers by targeting sectors that are currently untaxed, especially the informal/unorganised sectors
- Extension of scope of TDS for early collection of tax and also deter tax evasion
- Using presumptive tax schemes for small businesses to ease and encourage compliance
- Reinstate banking cash transaction tax (BCTT) and Fringe Benefit tax(FBT).
- Large farmers with income more than 50 lakh should be brought into the tax net
- Use surveys and technology based information and intelligence systems to identify potential taxpayers.
- The tax administration needs to be oriented more towards customers to improve voluntary compliance

- Above all, it will shift the **revenue pressures from honest taxpayers** and creates the possibility of reducing the direct and indirect tax rates in the future thus improving ease of doing business scenario in India.

Suggestions

- **Implement Direct Taxes Code:** Government has constituted Arbind Modi headed task force to review the Income-tax Act and draft a new direct tax law.
- Simplifying/**rationalising the process** and procedures of tax laws & tax administration
- **Rationalise the tax slabs**/rates in respect of GST may to broadening the tax base and increasing tax compliance.
- **Promoting electronic payments** by making digital payments mandatory for payment of wages & salaries for some sectors and in case of payment of statutory dues like property taxes, stamp duty, utility bills etc.
- **Economic Survey** has suggested devolution of taxation powers to local government so that they can collect more direct taxes rather than devolved resources.

3.6. CORPORATE ENVIRONMENT RESPONSIBILITY

Why in News?

Ministry of Environment, Forest and Climate Change has issued guidelines that will require every corporate seeking green clearance to follow the CER norms.

What is CER?

- It is the **social responsibility of the companies to protect the environment** by integrating the environmental concerns including those related to forestry, wildlife and bio-diversity, wherever applicable, into the main stream of the Corporate Policies.
- This term derives from **Corporate Social Responsibility (CSR) and** CER activities will include measures like pollution control, wildlife and **forest conservation**, **compensatory afforestation** and rehabilitation and resettlement of displaced persons.

> **Responsibilities of Companies under CER**
> - Ensure, as a part of this policy, adherence with the environmental clearances and forestry clearances wherever applicable, granted to the company.
> - Ensure that inter-alia the company functions in conformity with the policy.
> - Ensure that deviations from this policy and cases of violation of environmental and forestry clearances conditions should be duly reported to the Board of its Directors and desirably reflected thereafter on its website and its annual report.
> - Identify and designate responsible persons at all levels of the hierarchy for ensuring adherence to this policy and compliance with environmental laws and regulations.

- Funds can be used for creating drinking water supply **infrastructure, sanitation, health, education and skill development**, among others.

New Guidelines vis-à-vis CER

- Every corporate seeking green clearance to set aside **2%** of its capital investment for the new projects above 1 billion and for project seeking expansion with 1bn additional cost to spend max. of **1%** cost on CER activities.
- CER will be imposed over and above the expenditure the company will have to undertake for implementing the mandatory **environment management plan (EMP)** for the project-affected area.

Criticism

- **Loss to the smaller projects**- In the name of **CER smaller projects will pay more** as a percentage of their capital expenditure compared to bigger ones.

Green load
Fund allocation for Corporate Environment Responsibility to be subject to these rules:

Capital investment (₹)	Green-field project*	Brown-field project*
Less than or equal to ₹ 100 crore	**2**	**1**
₹ 100–500 cr	**1.50**	**0.75**
₹ 500–1,000 cr	**1**	**0.50**
₹ 1,000–10,000 cr	**0.50**	**0.25**
Over ₹ 10,000 cr	**0.25**	**0.125**

*% of capital investment

- **Non-utilisation of Compensatory Afforestation (CA) Fund**- CA has been brought under the scope of CER activity, while Compensatory Afforestation Fund Management and Planning Authority is sitting on nearly Rs 42,000 crore of unutilised funds which has been collected from companies seeking environment and forest clearances. Thus, **bringing Compensatory afforestation under CER has little justification**.
- **Another layer of Clearance**- The existing mechanism of Environmental Impact Assessment is already facing various issues in terms of compliance and approval and adding another layer of Environmental clearance in form of CER may lead to stagnancy of the projects.
- **Over and above CSR**- With in this companies are being forced to pay twice the mandatory CSR amount.

3.7. REPORT OF TASK FORCE ON SHELL COMPANIES

Why in news?

Recently 'Task Force on Shell Companies' has submitted its report to government.

Background

New criteria set for dubious firms

- **Lack of business** ownership
- **Rotation in transactions** with no apparent business purpose
- **Majority of the shares** held by other companies
- **Huge inconsistencies** in bit-ticket transactions
- **Disproportionate investments** in shares of other companies
- **Board of directors** are of low means
- **Transfers large sums** of funds to a related-party

- The Task Force was constituted in 2017 under the co-chairmanship of the revenue secretary and the corporate affairs secretary for effectively tackling the malpractices by shell companies in a comprehensive manner.
- In India Shell companies are **not defined under Companies Act, 2013** or any other legislation. However some laws can help curbing illegal activities such as money laundering and can indirectly be used to target shell companies — Benami Transaction (Prohibition) Amendment Act 2016; The Prevention of Money Laundering Act 2002 and The Companies Act, 2013 etc.
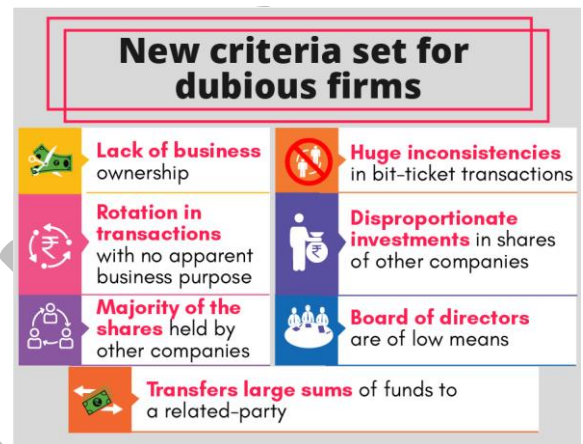
Recommendations

- The task force has listed **18 key parameters** to determine if a company has been created to launder money or exploit regulatory arbitrage (See Picture).
- It has recommended that MCA must look into the filings of financial statements of companies which had been misused to channel **unaccounted cash after demonetisation**.
- Further it has suggested keeping a watch on companies with **abnormal increase or decrease in debts**, or more than 10 per cent of bad debts written off, and the increase in investment in partnership firms by 100 per cent or more.

Other Government Measures to tackle shell companies

Shell Companies
• Shell companies typically refer to companies **without active business operations or significant assets**.
• Task force has explained that a typical shell firm is incorporated with a standard memorandum or articles of associations. It has inactive shareholders and directors, and is left dormant. It is created for the purpose of being palmed off later.
• After the sale transaction, inactive shareholders usually transfer their shares to the buyer and the so-called directors resign or flee.

- Serious Fraud Investigation Office under the Ministry of Corporate Affairs has prepared **comprehensive digital database** of shell companies and their associates that were identified by various law enforcement agencies.
- Income Tax department has conducted **investigations** that led to detection of more than 1155 shell companies which were used as conduits by over 22,000 beneficiaries.
- **Information sharing mechanism** between various law enforcement agencies is implemented under the Regional Economic Intelligence Council (REIC) and Central Economic Intelligence Bureau (CEIB) forums.
- **Ministry of corporate affairs has deregistered** over 2.26 lakh companies for various non-compliances and being inactive for long.
- Government has **removed the exemption under Section 276CC of the Income Tax Act** through Budget 2018-19. It provided that if a person with tax liability more than Rs. 3000 wilfully fails to furnish the return of income in due time, he shall be punishable with imprisonment and fine. The provision was being misused by around 3 lakh inactive companies showing nil income.

3.8. DIRECTORATE GENERAL OF TRADE REMEDIES

Why in News?

A unified **Directorate General of Trade Remedies (DGTR)** has been formed for providing comprehensive and swift trade defence mechanism in India.

About Directorate General of Trade Remedies

- It would subsume the Directorate General of Anti-dumping and Allied duties, Directorate General of Safeguards and some functions of the Directorate General of Foreign Trade.
- It will be the **apex national authority** for all trade remedial measures including anti-dumping, countervailing duties and safeguard measures.

Additional Information
Anti-Dumping Duties
- These are special import duties imposed when a firm, following an enquiry, is assessed as having sold a product in the importing market-
- At a price below the one it charges in the home market or
- Below the cost of production or at less than fair value; and
- It damages the producers in the importing country.

Countervailing Duty
- If the exporting nation is found to offer export subsidies to their exports, then CVD is imposed by the Importing Nation on imports.

Safeguard Duty
- The safeguard duty as a temporary measure is used when imports of a product, due to tariff concessions or other WTO obligations, increase unexpectedly to a point that they cause or threaten to cause serious injury to domestic producers.

- It will have all expertise, including legal skills, people dealing with accounting, trade experts and revenue people, under one roof and it will function as an **attached office of Department of Commerce.**
- The recommendation of DGTR for imposition of anti-dumping, countervailing and safeguard duties would be considered by the **Department of Revenue**.

3.9. CABOTAGE LAW

Why in News?

Recently, Ministry of Shipping relaxed Cabotage restrictions on the movement of foreign ships.

About the move

- It will allow movement of foreign ships engaged in transporting containers laden with goods for export or import as well as empty containers between and among Indian ports along the country's coastline.

About Cabotage?
- Cabotage refers to shipping along coastal routes between foreign sea ports, and also to the restriction on the operation of vessels between sea ports within a particular country.
- It is governed by the Merchant Shipping Act (MSA) of 1958.
- It aims to protect domestic shipping industry from **foreign competition** as well as for the purpose of **national security**.
- Presently, foreign-flagged ships can transport cargo within the country, in the non-availability of India Ships, after obtaining a licence.

Benefit of the move

- **Cargo Growth:** Indian ports can now attract cargo originating from or destined to foreign ports which would turned Indian ports into major transhipment hub.
- **Time-Cost Saving:** it will increase competitiveness of the Indian traders and manufacturers by reducing the supply chain lag time and transhipment cost at a foreign port.
- **Competition**: It would allow coastal movement of export, import/ empty containers by foreign vessels leading to healthy competition among shipping lines.
- **Congestion:** it would also address the problem of empty containers getting accumulated at some Indian port while other ports facing a shortage of empty containers.

Concerns

- Indian trade carried by Indian ships/flagships has come down from around 42% in the 1990s to less than 8% at present. Similarly, Operational expertise available to foreign shipping industry would **undermine the position** of the domestic shipping industry.
- Moreover, relaxation in cabotage law demand a balance in **national security consideration**.

3.10. FREE TRADE AGREEMENT AND THEIR COSTS

Why in news?

Recently NITI Aayog released a note on free trade agreements and their costs

Drivers of Indian Exports

- India's exports are **more sensitive to changes in external demand than price changes**. Thus given the export basket composition first, increase in global demand drives India's exports much more than price cuts.
- Further, the supply-side constraints like **energy shortages** dampen price responsiveness of exports. Tackling the issue of energy deficit can boost export performance considerably.
- Similarly, **higher logistics costs** have been a major impediment to export growth. The Economic Survey 2017-18 also points out that, "Improved logistics have huge implications on increasing exports, as a 10% decrease in indirect logistics cost can contribute to around 5-8% of extra exports."
- In the **Global Competitiveness Index 2017-18** compiled by the World Economic Forum, while China ranks 27th, India is placed 13 points below at the 40th place. India has improved but India's manufacturing exports have been technologically backward and have also grown slower than China.

Indian experience with FTAs

India is a fairly open economy with overall trade (exports plus imports) as a percentage of GDP at around 40% with exports diversified both in terms of markets and products in the past two decades.

> **Regional comprehensive Partnership Agreement (RCEP)**
> - RCEP is a proposed free trade agreement (FTA) between 10 ASEAN countries and their six FTA partners, namely Australia, China, India, Japan, Korea and New Zealand.
> - It accounts for 25% of global GDP, 30% of global trade, 26% of FDI flows and
> - 45% of the total population.

- India's exports to FTA countries has **not outperformed overall export growth** or exports to rest of the world with both growing at an 13 % year on year average.
- Taking example of **ASEAN, Korea and Japan** it is visible that Bilateral trade has increased post signing of FTAs but Imports from FTA partners into India increased more than India's exports to partner countries resulting into **widening of trade deficit**.
- According to Economic Survey 2016-17, FTAs have had a **bigger impact on metals on the importing side and textiles on the exporting side**. A 10% percent reduction in FTA tariffs for metals increases imports by 1.4 %
- India's exports are much **more responsive to income changes** as compared to price changes and thus a tariff reduction/elimination does not boost exports significantly.
- Since India runs a trade deficit with ASEAN as well as the partner countries of **RCEP**, tariff eliminations may be more harmful to Indian Industry and more so due to **India's inability to negotiate a good services deal** in the past and China's excess capacity in most sectors.
- Further the **Utilisation rate** of other Regional Trading Agreements by exporters in India is very low (between 5 and 25%). Lack of information on FTAs, low margins of preference, delays and administrative costs associated with rules of origin, non-tariff measures, are major reasons for underutilization

Suggestions

- Before getting into any multilateral trade deal India should firstly, **review and assess its existing FTAs** in terms of benefits to various stakeholders like industry and consumers, trade complementarities and changing trade patterns in the past decade.
- Second, **negotiating bilateral FTAs with countries where trade complementarities** and margin of preference is high may benefit India in the long run.
- Third, India needs to reduce **compliance cost** and administrative delays which are extremely critical to increase utilisation rate of FTAs.
- Fourth, proper **safety and quality standards** should be set to avoid dumping of lower quality hazardous goods into the Indian market.
- Fifth, **circumvention of rules of origin should be strictly dealt** with by the authorities as occurred in case of India-SriLanka FTA regarding copper exports.

Thus FTAs have to be signed keeping two things in mind, mutually reciprocal terms and focusing on products and services with maximum export potential.

3.11. DESIGNATED OFFSHORE SECURITIES MARKET

Why in News?

Bombay Stock Exchange has become the **first Indian exchange** to be designated as a 'Designated Offshore Securities Market' (DOSM) by the U.S. Securities and Exchange Commission (SEC).

More on news

- Till now, equity and bond securities traded on the BSE and issued in the US could not generally be resold in non-prearranged trades without fulfilling certain requirements.
- DOSM status **allows sale of securities to US investors through the trading venue of BSE without registration of such securities with the US SEC**, which eases the trades by US investors in India.
- It will also enhance the attractiveness of Indian Depository Receipts (IDRs) amongst US investors.
- The BSE's new status will provide additional benefits to companies whose securities are traded both in the US and on the BSE for e.g. certain directors and officers of dual-listed companies will be permitted to resell their securities on the BSE, regardless of any restrictions or holding periods that may apply under the US securities laws.
- Only a few exchanges globally enjoy the DOSM recognition, such as **London Stock Exchange**, Bourse de Luxembourg, **Tokyo Stock Exchange** and Toronto Stock Exchange.

Bombay Stock Exchange
- It is **Asia's oldest stock exchange** establishes in 1875.
- BSE's overall performance is measured by the **Sensex**, an index of 30 of the BSE's largest stocks covering 12 sectors.
- India INX, India's 1st international exchange, located at GIFT CITY IFSC in Ahmedabad is a fully owned subsidiary of BSE.

IDR
- It is a **financial instrument denominated in Indian Rupees** in the form of a depository receipt created by a Domestic Depository (registered with the SEBI India) against the underlying equity of issuing company to enable foreign companies to raise funds from the Indian securities Markets.

3.12. GOVERNMENT SAVINGS PROMOTION ACT

Why in news?

Government proposed creation of a New Government Saving Promotion Act during the budget (2018).

More on News

- The Act would be a merger of Government Savings Certificates Act, 1959 and Public Provident Fund (PPF) Act, 1968 with the Government Savings Banks Act, 1873.
- No existing benefits to depositors are proposed to be taken away through this process, while certain new benefits have been proposed.
- Moreover, no change in interest rate or tax policy on small savings scheme is being made through these amendments.

The proposed amendments intend to remove the various existing ambiguities due to **multiple Acts and rules** for Small Saving Schemes and also introduce certain flexibilities for the investors.

Present Scenario

- There has been a sharp rise in government borrowings from small savings scheme in the past five years.
- Small savings schemes accounted for a little over a fifth (20.9 per cent, in FY18) of all central government borrowing, up from 17.2 per cent a year before and 2.4 per cent in FY14.

About Small Saving Schemes (SSSs)
- They are important source of household savings for **providing social benefit.**
- These can be classified under three heads;
  (i) **Postal deposits:** Savings account, recurring deposits, time deposits of varying maturities and monthly income scheme(MIS)];
  (ii) **Savings certificates:** (National Small Savings Certificate and Kisan Vikas Patra (KVP).
  (iii) **Social security schemes:** Public Provident Fund (PPF), Senior Citizens Savings Scheme(SCSS), and Sukanya Samridhi Account Scheme.

Features of Small Saving Scheme
- They offer slightly **higher interest rates** compared to bank deposits. Some of the small savings schemes also have **income tax benefits,** assure return and government's guarantee.
- All the money pooled form different SSSs goes to **National Small Savings Fund (NSSF)** which was established in 1999 within the Public Account of India.

- Interest rates for small savings schemes are to be notified on a **quarterly basis**.

Proposed Amendments

- Provision of premature closure of Small Savings Schemes may now be introduced to **deal with medical emergencies, higher education needs**, etc. -through specific scheme notification. Presently this provision is absent in PPF act.
- Investment in small saving scheme can be made **by a guardian on behalf of minor**(s). The guardian may also be given **associated rights** and responsibilities- such as, **provisions for nominations** etc. Thus, the move will promote culture of savings among children.
- Provisions of accounts **for differently abled persons** have now been made, which **was not clear** in aforesaid acts.
- The amended Act place a mechanism for **redressal of grievances** and for amicable and expeditious settlement of disputes relating to Small Savings.

Other Issues and suggested Reforms

- The **sharp rise in central borrowing** from small saving schemes distorts the interest rate structure, which hampers the cost of funds economy-wide. Thus, it is imperative to align the government borrowing with **fiscal prudence**.
- Government needs to create a more conducive environment for **monetary transmission,** (process through which the policy action of the central bank is transmitted for stable inflation and growth) by aligning the rates on small **savings schemes with market rates** or to align SSSs to the benchmark Government Security yield, as suggested by the Urjit Patel committee report (2014).
- The tax administration for the small savings instruments need to be made more efficient to ensure tax compliance **(Shyamala Gopinath 2011).**

3.13. PRIVATE PARTICIPATION IN NATIONAL APPRENTICESHIP PROMOTION SCHEME

Why in News?

Government has decided to execute the **National Apprenticeship Promotion Scheme (NAPS)** in the public-private partnership mode.

National Apprenticeship Promotion Scheme (NAPS)

- Its objective is to promote apprenticeship training and incentivize employers who wish to engage apprentices.
- It reimburses **25% of prescribed stipend** subject to a maximum of Rs. 1500/- per month per apprentice and targets 15 lakh apprentices in 2018-2019 **& 20 lakh apprentices in 2019-20.**
- **It covers all apprentices except** the Graduate, Technician and Technician (Vocational) apprentices which are covered by the scheme administered by MHRD.
- It also promotes **dual-learning Mode of training** in which theoretical instructions are given in the ITI's while practical training is given in the industry, thus improves the connect between industry and ITI's

NAPS under PPP Mode

- Until now, the programme was being run by the **director general of training** under the

NSDC (National Skill Development Corporation)
- It was established in 2009 as a Public Private Partnership Company with an objective to bridge the emerging skill gaps in the Indian economy and also addresses the worldwide skill shortages.
- Government of India through Ministry of Skill Development & Entrepreneurship (MSDE) holds 49% of the present equity base, while the private sector has rest 51%.
- It is also aligned to **re-skilling and upskilling** those who are already a part of the formal human resource.

Sector Skill Councils (SSCs)
- They are set up **under NSDC** as autonomous **industry-led bodies** for steering skill development and training by identifying Skill gaps, conducting Train the Trainer Programs, providing the real time information about the labour market and developing a robust training delivery mechanism.
- **Sharada Prasad Committee (2016)**, recommended scrapping of the existing Councils due to their overlapping roles and also highlighted the conflict of interest in these.

- ministry of skill development and entrepreneurship.
- It will be partly operated by National Skill Development Corporation (NSDC) and Sector Skill Councils (SSCs) to increase the rate of private participation.

3.14. RENEWABLE ENERGY POLICIES IN A TIME OF TRANSITION

Why in news

Recently, *Renewable Energy Policies In A Time Of Transition* report is released in a collaborative effort of **International Renewable Energy Agency (IRENA),** the **International Energy Agency (IEA),** and the **Renewable Energy Policy Network for the 21st Century (REN21).**

Background

- Since 2012, renewable energy has **accounted for more than half of capacity additions** in the global power sector.
- **Increasing investment in renewable**: In 2017, investments in new renewable power capacity outstripped the amount invested in fossil-based generating capacity, with most of the installation of new renewable energy capacity currently occurring in developing and emerging countries.
- **Reaching to hinterland**: Nearly 146 million people are now served by off-grid renewable power, and many small island developing states are advancing rapidly towards targets of 100% renewables.

Findings of report

Objective: To provide policymakers with a comprehensive understanding of the diverse policy options to support the development of renewables across sectors, technologies, country contexts, energy market structures, and policy objectives.

- **Policies in The Heating and Cooling Sector**
  - Heating is the largest energy end-use, accounting for over 50% of total final energy consumption in 2015, with over 70% of that met by fossil fuels.
  - Renewables can play a **key role in decarbonising** and providing a cleaner heating and cooling supply option by mandating building codes, enacting energy efficiency policies, providing fiscal and financial incentives and imposing carbon or energy taxes.
- **Transport sector**
  - Transport is the second largest energy end use sector, accounting for 29% of total final energy consumption in 2015, and 64.7% of world oil consumption.
  - Decarbonisation of the transport sector requires a fundamental change in the nature and structure of transport demand, integrated planning and policy design to overcome the immaturity or high cost of

International Renewable Energy Agency (IRENA)
- It is an intergovernmental organization, principal platform for international co-operation, a centre of excellence, and a repository of policy, technology, resource and financial knowledge on renewable energy.
- Promotes the widespread adoption of renewable energy, including bioenergy, geothermal, hydropower, ocean, solar and wind energy.
- India is a member country of IRENA.

International Energy Agency (IEA)
- It is a **Paris-based autonomous intergovernmental organization** established in the framework of the **Organization for Economic Co-operation and Development (OECD)** in 1974 in the wake of the 1973 oil crisis.
- It works to ensure reliable, affordable and clean energy for its 29 member countries and beyond. Its mission is guided by **four main areas of focus: energy security, economic development, environmental awareness and engagement worldwide.**
- Only the OECD member states can become members of the IEA. Except for Chile, Iceland, Israel, Mexico, and Slovenia, all OECD member states are members of the IEA. In 2014, Estonia joined the IEA and became its 29th member.
- **China, India, Indonesia, Morocco, Singapore and Thailand** are the associate members of IEA.
- With India as a member, it now formally covers 70% of the world's energy consumption.
- Important publications of IEA:
  - **World Energy Outlook 2016**
  - **World Energy Investment 2016**

Renewable Energy Policy Network for the 21st Century
- It is the global renewable energy policy multi-stakeholder network with the goal of facilitating knowledge exchange, policy development and joint action towards a rapid global transition to renewable energy.
- It brings together governments, non-governmental organisations, research and academic institutions, international organisations and industry to learn from one another.
- India is a member.

certain technologies, improvements in energy infrastructure, changes in the energy mix, removal of fossil fuel subsidies etc.
- **Power Sector**
  - o Power sector consumed only about a fifth of total final energy consumption in 2015, however it received most attention in terms of renewable energy support policy due to falling technology costs and support policies.
  - o Investments in the sector are largely driven by regulatory policies such as quotas and obligations and pricing instruments, supported by fiscal and financial incentives.
  - o To ensure the effectiveness of quotas and certificates, a robust framework to monitor and penalise non-compliance is needed along with auctioning in setting pricing policies, net metering and net billing for efficient distribution and avoidance of cross subsidization.
- **Universal Energy Access:** National energy access plans should consider both on and off grid solutions to reach universal access in a timely manner. It should also prioritise the adoption of clean-cooking systems and fuel switching towards modern fuels.
- **Cheaper option:** To expand energy access in rural areas are increasingly turning to renewables as the most cost-effective, cleanest and most secure option.
- **Renewable role in Improving Air Quality**: According to WHO, an estimated 7.3 million premature deaths per year are attributable to household and outdoor air pollution.

Challenges

- **Awareness and capacity barriers:** It relates to a lack of sufficient information and knowledge about renewables and their performance as well as a lack of skilled personnel and training programs.
- **Cost barriers:** It pertains to the capital/investment costs of renewable energy technologies particularly in the early stages of market growth.
- **Financial barriers:** It pertains to the lack of adequate funding opportunities, difficulty in accessing suitable financial instruments, lack of institutional knowledge, lack of access to and affordability of effective risk mitigation instruments and financing products for renewable.
- **Infrastructure barriers:** It pertains to the availability of needed infrastructure to incorporate renewable energy into the energy grid resulted in the curtailment of power from renewable sources.
- **Institutional and administrative barriers:** It includes a lack of institutions and authorities dedicated to renewables; the absence of clearly defined responsibilities; complicated licensing procedures; difficulty with land acquisition and permission etc.
- **Market barriers:** It includes inconsistent pricing structures that lead to disadvantages for renewables, irregular pricing of renewable energy products, information asymmetries, distortions in market power, fossil fuel and nuclear subsidies, and a failure to incorporate social and environmental externalities into costs.
- **Public acceptance and environmental barriers:** It constitutes constraints that could lead to a renewable energy project being found unsuitable for a specific location.

Way Forward

- **Increasing Direct policy support** for renewable energy in the power and end-use sectors, which both account for large shares in final energy consumption as well as energy related CO2 emissions.
- **Enabling policies** are needed to ensure effective operating conditions like level playing field with other technologies, facilitating innovation etc. for renewables in energy systems and markets
- **Integrating policies**: Renewable energy needs to be integrated into the daily life of consumers as well as into the institutional framework, to allow them to be part of the overall energy transition.
- **Effective participation by all stakeholders**: To ensure improved energy transition and it have transformative impact on society, institutions, financing and on the wider economy.
- **Contextual policy making**: Policies need to be continuously adapt to changing market conditions, to achieve greater cost-competitiveness and improved integration of renewables into the grid system.
- **Increasing share of renewable to achieve Paris Goals:** According to **Global Energy Transformation: A Roadmap to 2050**, the share of renewables in the primary global energy supply must increase from 15% today to 65% by 2050.

- **Sustainable Development Goal (SDG) 7 on energy**: Policies are needed to support the **deployment of decentralised renewables** to accelerate the pace of energy access and **achieving universal access to modern energy services by 2030.**
- **Power Infrastructure Integration**: To ensure the smooth integration of renewables into the wider energy system for a cost-effective and sustainable energy transition.

3.15. PATRATU SUPER THERMAL POWER PROJECT

Why in news?

Recently, Prime Minister laid foundation stone for the first phase of Patratu Super Thermal Power Plant.

About Patratu Super Thermal Power Project (STPP)

- It is a joint venture (74:26) between Government of Jharkhand and **Patratu Vidyut Utpadan Nigam Ltd. (PVUN)**, a subsidiary company of NTPC.
- The project will also ensure 24X7 power supply to household under **Pradhan Mantri Sahaj Bijli Har Ghar Yojana.**
- Salient Features of the project include –
  - **Dry ash disposal system** – It is presently being used in NTPC Dadri Thermal Power Plant.
  - **Zero liquid discharge system** - Under this the waste water from the plant which contains salts and other impurities is evaporated and clean water is collected. The solid residue is further used for landfill purposes.
  - **Air cooled condenser technology –** This technology ensures that there is less water consumption and allows the exhaust steam to directly condense from steam turbine.
  - **Rail loading facility for transportation of ash**
  - Project is also complaint with the **new emission norms with high efficiency** Electrostatic Precipitator, Flue-Gas desulphurization (FGD) and Nox control emission.

> **Super Thermal Power Station**
> - These are a series of thermal power plants with a capacity of **1000MW and above.**
> - Government is currently developing STPSs which will add about 100,000 Megawatt. E.g. Patratu Super Thermal Power Plant, Talcher Super Thermal Power Plant etc.
>
> **Ultra-Megawatt Power Projects**
> - These power projects have the capacity of **4000MW or more.**

New Emission Norms for Power Plants

- Ministry of Environment, Forest and Climate Change had notified new environmental norms in December 2015 with respect to suspended particulate matter, sulphur oxide, nitrogen oxide and mercury along with water consumption norms for thermal power stations.
- Under these norms the **power plants have been categorized** into 3 categories based on the year of commissioning as mentioned below –
  - Plants installed before the December 2003
  - Plants installed after 2003 but before December 31 2016
  - Plants installed after January 2017
- These standards are to be **implemented in a phased manner**.
- They aim at reducing PM10, sulphur Dioxide and Oxides of Nitrogen which will further aim at improving Ambient Air Quality in an around Thermal Power Plants.
- The norms will also help to **reduce mercury emission** which is a co-benefit and it also limits the use of water.
- However, 90% of the coal fired thermal power plants have still not complied with the norms and around 300 have been given deadline extension even though the deadline for new norms was December 2017.
- **Reasons for extending the deadlines** – high cost incurred due to retrofitting with FGD systems, increased cost per unit for the consumers, reluctance on part of private thermal power plants etc.

3.16. STRATEGIC OIL RESERVE

Why in news?

Recently India received a consignment of 2 million barrels of crude oil from United Arab Emirates (UAE) for India's strategic petroleum reserve at Mangalore.

Details

- India at present stores – including private and public firms – crude oil, petroleum products and gas to last for 63 days
- India is building around 39 million barrels of strategic crude oil storage facility of which the 5.86 million barrels supplied by state-run Abu Dhabi National Oil Company (ADNOC)— the only one to partner with India on its crude oil reserve programme till date
- Ministry of Petroleum and Natural Gas had also invited Saudi Arabia and Oman early this year to participate in the Indian Strategic Petroleum Reserve Programme.

Strategic Oil Reserve

- It is storage of crude oil which would act as a cushion during any external supply disruptions or supply-demand mismatch shock.
- The crude oil storages are constructed in underground rock caverns.
- They are maintained by Indian **Strategic Petroleum Reserves Limited** (a SPV of the Oil Industry Development Board under Ministry of Petroleum and Natural Gas.
- Presently, strategic reserves are situated at Visakhapatnam (Andhra Pradesh), Mangalore (Karnataka), and Padur (Karnataka).
- Moreover, project of three additional reserves is in pipeline-at Chandikhol (Orrisa), Bikaner (Rajasthan) and Rajkot (Gujrat).

3.17. FREIGHT CORRIDORS TO BE OPERATIONAL SOON

Why in news?

The first phase of the dedicated rail freight corridors project is likely to be completed by year end.

About Dedicated Freight Corridor project

- The dedicated freight corridor (DFC) project is being implemented by Ministry of Railways. The project involves the construction of six freight corridors traversing the entire country.
- Initially the construction of Eastern and Western DFCs is being undertaken.
- The other four corridors North-South (Delhi-Tamil Nadu), East-West (West Bengal-Maharashtra), East-South (West Bengal-Andhra Pradesh) and South-South (Tamil Nadu-Goa) are in planning stage.
- Once operational, the western and eastern corridors will increase the railway's freight carrying capacity to around 2,300 million tonnes, up from 1,200 million tonnes at present, and help reduce cost of freight transportation.
- The construction of the western corridor is being fully funded by the **Japanese International Cooperation Agency**, which has provided around Rs 33,000 crore as soft loan. The eastern corridor is being partially funded by the **World Bank**.

EASTERN AND WESTERN DEDICATED FREIGHT CORRIDOR

Western Corridor (1499km)
Western DFC Line
Eastern Corridor (1839km)
Eastern DFC Line
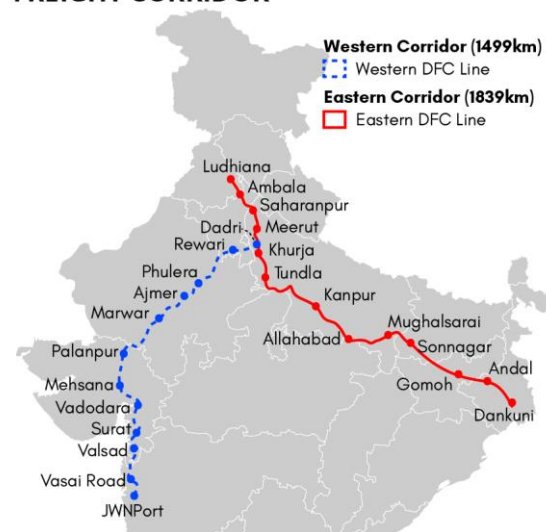
3.18. NABH (NEXTGEN AIRPORTS FOR BHARAT) NIRMAN INITIATIVE

Why in News?

The Government has decided for **capacity augmentation of the airports,** as a part of NABH Nirman initiative.

Background

- **Capacity Constraint** has come to such a point that airports like Delhi and Mumbai are unable to provide further slots for new services.
- According to some government documents**, at least 25 of the 50 busiest airports** in India are already operating beyond their capacity, while almost all the others will reach optimal capacity in 2018-19 with the **aviation industry growing at an unanticipated 18-20% every year.**

About NABH Nirman Initiative

- It was announced in the budget (2018). It seeks expansion of the airport capacity **more than 5 times** to **handle a billion trips** a year.
- The key aspects of NABH Nirman are-
  - o Fair and equitable **land acquisition**.
  - o Long-term master plan for airport and regional development and
  - o Balanced economics for all stakeholders.
- It aims to establish about **100 airports in 15 years** at an estimated **investment of Rs 4 lakh crore** and a large percentage of the investment is to come from the private sector.
- It will help to **connect smaller towns and cities** and increase tourism and economic activity.

4. SECURITY

4.1. NEW INITIATIVES TO CURB LEFT WING EXTREMISM

Why in news?

Recently MHA has taken various measures to tackle Left Wing Extremism (LWE) in India.

Various initiatives

- **Black Panther combat force –** A specialised anti-Naxal combat force for Chhattisgarh on the lines of Greyhounds unit. The Greyhounds are a special force that specialize in Jungle warfare and anti-insurgency operations against Naxalites with jurisdiction limited to Telangana and Andhra Pradesh.
- **Bastariya Batallion -** It is newly formed batallion of CRPF with more than 534 tribal youth from four highly naxal infested districts of Chhattisgarh. Another remarkable feature of it is its adequate female representation which is in sync with the Government's policy of 33% reservation for women making it the first composite battalion in any of paramilitary forces.
- **Approval of Projects under USOF -** Union cabinet has approved the Universal Service Obligation Fund (USOF) supported scheme to provide mobile services in 96 districts of LWE-affected states. The project will help not only in communication with the security personnel but also, for the residents of these areas.
- **Multi-disciplinary groups to check funding of Naxalites -** Union ministry of home affairs has formed multi-disciplinary groups with officers from central agencies, including from the IB, NIA, CBI, ED and DRI, and state police to choke the financial flow to Maoists.
- A process has also been initiated to create a separate vertical in the NIA for investigating important cases relating to Left Wing Extremism (LWE)

For more details on Left Wing Extremism, refer April 2018 current affairs

> **Universal Service Obligation Fund (USOF)**
> - USOF was established in 2002 in pursuance of objective of Universal service to all uncovered areas, including the rural areas, and encourage development of telecommunication facilities in remote, hilly and tribal areas of the country
> - It derives its funding from **Universal Service Levy** (USL) of 5% charged from all the telecom operators on their Adjusted Gross Revenue (AGR) which are then deposited into the Consolidated Fund of India, and require prior parliamentary approval to be dispatched.

4.2. JOINT LOGISTICS NODE AT ANDAMAN

Why in news?

Government has decided to set a joint logistic node at the India's only tri-services command in Andaman and Nicobar Islands.

More about the news

- It will provide logistical support to all three defence services and will improve utilisation of resources, manpower and remove duplication.
- The joint logistics node comprises of three elements:
  - Joint Logistics Command & Control Centre (JLC&CC), which is the overall command organisation,
  - Tri-services Detachment at Material Organisation (TRIDAMO), which will meet logistical needs of the armed forces and
  - Tri-services Advanced Detachment (TRISAD), based on mainland and responsible for sending troops and equipment to the nodes.
- There are plans to set up similar nodes at 12 or 13 locations in the western and north-eastern sectors and they are important in areas where two or more services are located.

4.3. PROJECT "NETWORK FOR SPECTRUM"

Why in news?

- The Cabinet Committee on Infrastructure approved substantial hike in the budget for the Network for Spectrum (NFS) project.

About Project Network for Spectrum (NFS)

- It was launched to establish the **alternative communication network for exclusive use by defence services** to boost the communication capabilities of defence forces.
- The project is result of an agreement reached in 2010 between Defence ministry and Dept. of Telecom (DoT) in which DoT agreed to vacate 25 MHz of 3G spectrum and 20 MHz of 2G spectrum in phases solely for defence communication purpose
- The project is being implemented by state-run **Bharat Sanchar Nigam Limited (BSNL).**

4.4. PINAKA ROCKET

Why in news?

An upgraded version of Pinaka rocket was recently successfully test-fired from Chandipur in Odisha.

About the rocket

- The **upgraded Pinaka system, Pinaka mark-II,** is a guided one unlike the earlier version and has navigation, guidance and control kit.
- The range of new version is more than **70 kilometre** which was earlier only 40km.
- It is a multi-barrel rocket launcher which can fire a salvo of 12 rockets in 44 seconds.

4.5. MILITARY EXERCISES

- Recently, 13th edition of the Joint Military Exercise **SURYA KIRAN** between **India and Nepal** was held. It is **a biannual event** which is conducted alternatively in Nepal and India.
- Recently, Indian Army and Air Force conducted exercise 'Vijay Prahar' to finetune Joint manship to maximize the impact of Joint Operations.

5. ENVIRONMENT

5.1. COMMUNITY FOREST RESOURCE

Why in news?

Recently, People's Forests Report was released by Centre for Science and Environment (CSE) on Community Forest Resource (CFR) management.

Background

- **National Forest Policy, 1988**, had paved the way for semi-decentralization of forest governance in the country, leading to the emergence of **joint forest management (JFM).** It led to increased availability of non-timber forest produce (NTFPs) and fuelwood and improved forest protection.
- In 2006, The **Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act** or the **Forest Rights Act (FRA)** was passed which provides for recognition of forest lands as **community forest resources (CFR).**
- As of 2016, a little over 1.1 million hectares (ha) of forestland had been brought under CFR management. However, as per an estimate by **Community Forest Resource-Learning and Advocacy**, 45 % of India's total forest area, should be recognised as CFR.

Finding of report

- **Poor implementation**: Only seven states have formally recognized the rights of forest dwelling communities (Only 3% of potential areas) to manage and govern their forest resources with huge disparities among states.
- **Global Acceptance of CFR**: As of 2013, at least 15.5%, of the world's forests were under some form of community control.
- **CFR governance helping forest conservation**: Forest-dependent communities have adopted an innovative practice to manage their CFR areas, among which protection from forest fires and the protocols for sustainable harvest of NTFPs are common to most Gram Sabhas.
- **Improving Livelihood**: CFR has increased collective bargaining power of community which has helped in alleviating poverty and reverses the trend of migration from forest areas.

> **Forest Right Act 2006: It** provides for a rights-based, democratic and decentralized governance of forests. Rights recognized under FRA.
> - **Individual forest rights (IFR)** to legally hold forestlands that the forest dwelling communities have been residing on and cultivating prior to 13 December 2005.
> - **Community rights (CRs)** of ownership, use and disposal of 'minor forest produce', also known as **non-timber forest produce (NTFP).** CRs include rights of grazing, collection of firewood, fish and other such products from water bodies, as well as rights to biodiversity and intellectual property, including those related to traditional knowledge.
> - **Community forest resource (CFR)** rights under Section 3(1)(i) to protect, regenerate, conserve or manage forest resources for sustainable use, providing for community governance of forests.
>
> **About CFR**
> - **CFR rights** is the most empowering provision of the Act because it restores gram sabha's [village council] control over governance of forests from the forest department, thereby democratising the country's colonial forest governance as a whole.
> - **CFR management committees (CFRMCs)** are created by Gram Sabha, which are expected to prepare a conservation and management plan for community forest resources in order to sustainably and equitably manage CFR areas.

- **Increasing new employment opportunities in CFR areas**: A bottom-up approach plans by Gram Sabha for development plan is creating huge employment opportunity for its members in the CFR areas.
- **Strengthening PVTG Status**: Members from particularly vulnerable tribal group (PVTG) are benefitted from inclusive approach under Act, which provide them a sustain source of livelihood and mainstreaming in the development process of country.

Challenges

- **Operational Challenges**: Communities have often faced **stiff resistance** from forest departments in attempts to assert CFR rights despite approval from gram sabhas.
- **Administrative reluctances**: The state and district administration have taken little initiatives to scale up the recognition of CFR rights or support CFR management in the country.

- **Fencing of CFR** areas to avoid case of 'encroachment', when a group of outsiders from a nomadic community camped inside the village's CFR with their livestock.
- **Unscientific Plans:** Concerns among the department officials about ecological integrity and scientific rigour in the CFR plans of gram sabhas, as sometimes their plans are for short term gains rather than long-term sustenance.
- **Conflicting legislations and orders:**
  - **Conflicts between Ministry of Tribal Affairs and MoEF&CC**: National Tiger Conservation Authority order in March 2017, denied forest rights to communities in critical tiger habitats.
  - **Indian Forest Act (IFA), 1927**, prohibits (and prescribes punishment) for activities such as grazing and removal of forest produce, FRA, on the other hand, legitimizes the use of forests for grazing and collection and sale of NTFPs
  - Different legislations in states for collection and trade of NTFP's.
- **Poor Financial health of concerned departments in States**: A total of Rs 26.54 crore have been approved to five states which is insufficient for proper implementation of ACT.
- **Lack of Awareness**: Most gram sabhas eligible for CFR rights are not aware of the full potential of CFR rights
- **Infrastructure and Marketing constraints**: Connectivity to market is a major challenges as it constraint future prospect of minor produce sale and production.

Way Forward

- **Convergence of Plans and procedure**: CFR management should be integrated into existing government's programmes like MGNREGA, National Bamboo Mission, National Horticulture Mission, Aspirational District program etc. so that the flow of funds to gram sabhas becomes an institutionalized practice.
- **Use of technology**: GPS devices can be used by the villages in identifying and mapping locations in their CFR areas that need intervention.
- **Adopting best practices**: Many states can learn from other in effective implementation of FRA, as CFR rights can revitalise rural economy, create employment and develop sustainable business models from forestry.
- **CAMPA fund** can be utilized strengthening CFR activities like fund for fire protection work in the CFR areas.
- **Develop guidelines for the role of government departments in CFR areas** to explicitly clarify the role of government as facilator and support CFR governance processes without undermining the autonomy and authority of gram sabhas
- **Develop a new framework for CFR governance**: Ministry of Tribal Affairs should develop a framework to ensure ecological sustainability, financial transparency and social equity in CFR governance.

IMPORTANT DIFFERENCES BETWEEN JFM AND CFR

Joint Forest Management	Community Forest Resource Management
Lacking legal sanctity, JFM is an approach to involve local people as partners in the protection and management of forests, implemented through resolutions adopted by states.	CFR rights are provided under a Central legislation, thus, they have legal backing. Guidelines issued by the Ministry of Tribal Affairs in April 2015 require CFR areas to be recorded as a new category of forest area under the record of rights (ROR) maintained by the forest department.
The allocation of forestland under JFM is done in an ad hoc manner by the forest department.	Under the CFR provisions of FRA, customary forest boundaries of a village are identified and demarcated by the gram sabha. Often the CFR area of one gram cuts across the areas of more than one JFM group.
The executive committee of the joint forest management committee (JFMC) is supposed to have a number of official members from the forest department and sometimes, also the panchayat.	The committees constituted for CFR management comprise members exclusively from the gram sabha with no representation of forest or other officials.
JFM provided for a state-specific benefit-sharing mechanism from the harvest of forest produce. In Odisha, JFMCs are entitled to 100% of intermediate NTFP produce and 50% share from timber at the time of final harvest. In West Bengal, the share from timber is 25% of the net profit.	CRs and CFR rights provide 100% authority over collection and sale of all NTFPs to the gram sabhas. Timber rights are contentious under FRA.
Under JFM, communities had usufruct but no tenurial rights over forestlands assigned to them. JFMCs were subject to dissolution if an inspecting forest officer recorded irregularity or illegality in their work.	CFR provisions of FRA provide tenurial rights to gram sabhas over forestlands. FRA does not provide for revocation of forest rights once recognized.

- **Build capacity and leadership of CFRMCs**: To provide them information on the best methods to tap the potential of these areas to improve their livelihoods as well as health of the forests.
- **Resolve the timber debate in CFR areas**: Gram sabhas should be allowed to sustainably harvest and sell timber in their CFR areas with proper checks and balances mechanism in place to ensure that illegal timber exploitation does not happen inside CFR areas.
- **Develop a multi-tier FRA monitoring and information system**: rigorous well-designed web-based information system is needed to ensure successful implementation, disseminating cross learning and monitoring the impact of FRA initiatives on local livelihoods and forest health.

5.2. NATIONAL POLICY ON BIOFUELS-2018

Why in news?

The Union Cabinet recently approved National Policy on Biofuels – 2018 to encourage the generation and use of biofuels.

Background

- The government has also formulated National Policy on Biofuels earlier in 2009. The policy included features like:
  o An indicative target of 20% blending of biofuels both for biodiesel and bioethanol by 2017
  o Biodiesel production from non-edible oilseeds on waste, degraded and marginal lands to be encouraged.
  o MSP for non-edible oilseeds to ensure fair price to farmers.
  o Minimum Purchase Price (MPP) for purchase of bio-ethanol and bio-diesel.
  o Major thrust on R&D with focus on plantations, processing and production of bio-fuels, including Second Generation Bio-fuels.

> **Biofuel** is any hydrocarbon fuel that is produced from organic matter in a short period of time. This is in contrast with fossil fuels, which take millions of years to form. Biofuels are considered renewable form of energy as it emits less than fossil fuels. Different generation biofuels:
>
> - **First Generation Biofuels:** It uses the food crops like wheat and sugar for making ethanol and oil seeds for bio diesel by conventional method of fermentation.
> - **Second Generation Biofuels:** It uses non-food crops and feedstock such as Wood, grass, seed crops, organic waste are used in fuel preparation.
> - **Third Generation Biofuels:** It uses specially engineered Algae whose biomass is used to convert into biofuels. The greenhouse gas emission here will be low in comparison to others.
> - **Fourth Generation biofuel:** It aimed at not only producing sustainable energy but also a way of capturing and storing CO_2.
>
> **Different types of Bio Fuels:**
>
> **Bio ethanol**: It is an alcohol produced from fermentation of carbohydrate and cellulosic material of crops and other plants and grasses. It is generally used as an additive to increase octane number of fuel.
>
> **Bio Diesel**: It is a methyl or methyl ester of fatty acids produced by trans esterification of oils and fats obtained from plants and animals. It can be directly used as fuel.
>
> **Bio gas**: Biogas is methane produced by anaerobic digestion of organic material by anaerobes. It can be produced either from biodegradable waste materials or by the use of energy crops fed into anaerobic digesters to supplement gas yields.

  o Financial incentives for second generation bio-fuels.
  o National Biofuel Coordination Committee, headed by the PM to provide policy guidance and coordination.
  o A Biofuel Steering Committee, chaired by Cabinet Secretary to oversee implementation of the Policy.
  o However, the Biofuels programme in India has been largely impacted due to the sustained and quantum non-availability of domestic feedstock for biofuel production.
  o In India, industrial-scale availability of ethanol so far has been only from sugar factories, which were free to divert it to other users such as alcohol producers, who would pay more.
  o The **National Policy on biofuels-2018** tries to address these supply-side issues by encouraging alternative feedstocks with an aim to reduce the cost of producing biofuels and improve affordability for consumers as well as developing biofuel production into a vibrant Rs 1 trillion industry in the next six years.

Salient Features of the National Policy on biofuels, 2018

- **Categorisation of biofuels** to enable extension of appropriate financial and fiscal incentives under each category. The two main categories are:

- o **Basic Biofuels-** First Generation (1G) bioethanol & biodiesel
- o **Advanced Biofuels** - Second Generation (2G) ethanol, Municipal Solid Waste (MSW) to drop-in fuels, third Generation (3G) biofuels, bio-CNG etc.
- **Expands the scope of raw material for ethanol production** by allowing use of Sugarcane Juice, Sugar containing materials like Sugar Beet, Sweet Sorghum, Starch containing materials like Corn, Cassava, Damaged food grains like wheat, broken rice, Rotten Potatoes, unfit for human consumption for ethanol production.
- **Allows use of surplus food grains for production of ethanol** for blending with petrol to ensure appropriate price to farmers during surplus. However, it needs the approval of National Biofuel Coordination Committee.
- **Thrust on Advanced Biofuels**: Viability gap funding scheme for 2G ethanol Bio refineries of Rs.5000 crore in 6 years in addition to additional tax incentives and higher purchase price as compared to 1G biofuels.
- **Encourages setting up of supply chain mechanisms** for biodiesel production from non-edible oilseeds, used Cooking Oil, short gestation crops.
- **Synergising efforts** by capturing the roles and responsibilities of all the concerned Ministries/Departments with respect to biofuels in the policy document itself.

Potential Benefits of the policy

- **Reduce Import Dependency:** The large-scale production of biofuels would reduce import dependency on crude oil and save forex.
- **Cleaner Environment**: By reducing crop burning & conversion of agricultural residues/wastes to biofuels there will be reduction in GHGs emissions and other particulate matters.
- **Municipal Solid Waste Management**: It is estimated that, annually around 62 MMT of Municipal Solid Waste gets generated in India. The policy promotes conversion of waste/plastic, MSW to drop in fuels (hydrocarbon fuels from solid waste).
- **Infrastructure Investment in Rural Areas**: addition of 2G bio refineries across the Country will spur infrastructural investment in the rural areas.
- **Employment Generation**: the establishment of bio-refineries would create jobs in Plant Operations, Village Level Entrepreneurs and Supply Chain Management.
- **Additional Income to Farmers**: Farmers can capitalize on agricultural residues /waste which otherwise are burnt by them. They can sell their surplus output to ethanol making units when price dump, thus, ensuring appropriate price.

Challenges and way forward

- **Abuse of policy especially when prices of crude oil soar** as farmers would find it economically more rewarding to convert farm produce into ethanol for doping with petrol.
- **Need of improvement in technological and financial feasibility** with respect to production of biofuels. Thus, industry academic collaboration should be enhanced in an integrated manner.
- **Inadequate supply-chain infrastructure** to deliver biofuels to the final consumer. Hence, improved investment should be done in building robust infrastructure.
- **Limits on private investment**: The government should also take steps to remove policy barriers that have discouraged private investment in building supply chains for tapping India's huge biofuel potential.

5.3. SCHEME FOR BIOMASS BASED COGENERATION PROJECTS

Why in news?

Ministry of New and Renewable Energy recently approved the scheme namely "Scheme to support promotion of biomass-based cogeneration in sugar mills and other industries in the country."

Cogeneration
- Cogeneration – 'generating together' – refers to the process wherein we obtain both heat and electricity from the same fuel at the same time.
- A variety of fuels can be used for cogeneration including bagasse, natural gas, coal, and biomass.
- Its advantages include: lowering the cost of energy generation, low capital investment, higher profitability of plant due to substantial reduction in cost of production, less consumption of costly and scarce fuels like diesel oil etc.
- The potential for cogeneration projects is estimated at 3500 MW of additional power generation from the country's existing functional sugar mills.

More about the scheme

- It aims to support Biomass based Cogeneration Projects in Sugar mills and Other Industries for power generation in the country.
- It will provide Central Financial assistance(CFA) for projects utilizing biomass like bagasse, agro-based industrial residue, crop residues, wood produced through energy plantations, weeds, wood waste produced in industrial operations, etc.
- **Municipal Solid Waste is not covered under the programme.**
- The assistance will be provided at the rate of Rs.25 Lakh/MW (for bagasse cogeneration projects) and Rs.50 Lakh/MW (Non-bagasse Cogeneration projects) after successful commissioning and commencement of commercial generation and performance testing of the plant.
- Registered Companies, Partnership Firms, Proprietorship Firms, Cooperatives, Public Sector Companies, Government owned Firms are eligible for financial support available under the scheme.
- Biomass based cogeneration projects which intend to add capacity to the existing plants will also be considered for grant of CFA.

5.4. DUST STORM

Why in news?

- A violent storm led to deaths of more than 100 people in Uttar Pradesh, Andhra Pradesh, West Bengal and Delhi-NCR.

What is a Dust storm?

- A dust storm, or sandstorm, is a phenomenon common in hot and dry climates.
- Dust storms are also known as **Haboob**, which is Arabic for violent wind.
- The strong storms can develop in many parts of the world and can travel for thousands of miles or even across oceans.
- A dust storm requires a large availability of dust, and enough sustained wind to lift the particles.
- Dust storms also commonly occur with thunderstorms before it is about to rain.
- The rain water does not manage to reach the ground as it is evaporated by the heat.
- This causes the air to cool down, **meaning there is an area of cold air sitting above the warm air on the ground.**
- The cold air comes down in a **down-burst** which splashes against the surface **which kicks the dust upwards.**

HOW CHAIN OF STORMS ARE FORMED

Storm cause a downward movement of air which feeds into successive convective which feeds into successive convective storm systems.

- Convective storm systems develop when intense heat at or near the surface causes air and moisture to travel upwards in the atmosphere to form storm-bearing clouds.
- As a cloud gains height, water vapour condenses and forms water droplets which fall as rain or hail when the cloud is no longer able to hold the moisture.
- The peculiar characteristic about the storms in the first week of May, especially in northern and northwestern India, was a kind of chain reaction of storms, which was apparently triggered by a single squall line—bands of high speed winds high up in the atmosphere that typically bring storms and rain. These winds entered the country through Pakistan and Afghanistan.
- The squall line not only invigorated the systems of cyclonic circulations in northern India, but also brought the moisture that perpetuated convective storms

Why was the recent storm so devastating?

- The recent storm was aided by 'ideal' conditions that magnified its intensity.
  - There was huge thunderstorm complex that swept through the area overnight, generating high winds that also carried lots of dust.
  - Temperatures in Rajasthan reached 45®C.
  - There was presence of easterly wind that brought in moisture.
  - The intensity of western disturbances increased.
- Unsustainable farming practices have deteriorated the soil profile aiding the erosion.
- There were more deaths also due to lack of disaster resilient infrastructure.
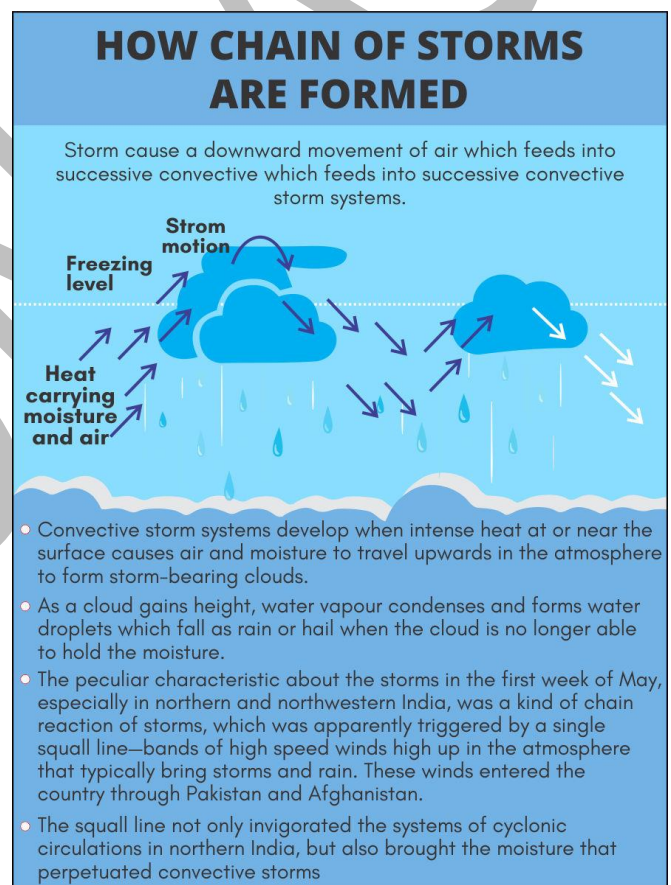
Impact of dust storms

- It leads to loss of life and property as witnessed in North India.
- They are one of the biggest contributors to **air pollution**.
- They carry harmful particles that **increase the spread of diseases** across the globe. Virus spores in the ground are blown in the air and spread through acid rain or urban smog.
- Inhaling dust affects the respiratory system. Prolonged exposure to dust can cause silicosis, which leads to lung cancer.

- They also put people in danger of keratoconjunctivitis sicca or 'dry eyes', which, if left untreated, may lead to visual impairment or blindness.
- They get deposited in the Ocean changing the salinity of the waters and affecting the marine ecology.

Related information

- IMD was able to give timely warning about the Dust storm through its "**Now Cast"** services, which is a free SMS service sent on extreme weather conditions is provided every three hours.

Way forward

- There is a need to check desertification which is affecting nearly one-fourth of the nation.
- Sustainable farming practices like Permaculture, organic farming should be encouraged in areas with degraded soil.
- There should be adoption of practices that reduce dust formation in Urban areas at construction sites, unpaved roads etc.
- There needs to be more investment in disaster resilient infrastructure like storm shelters.
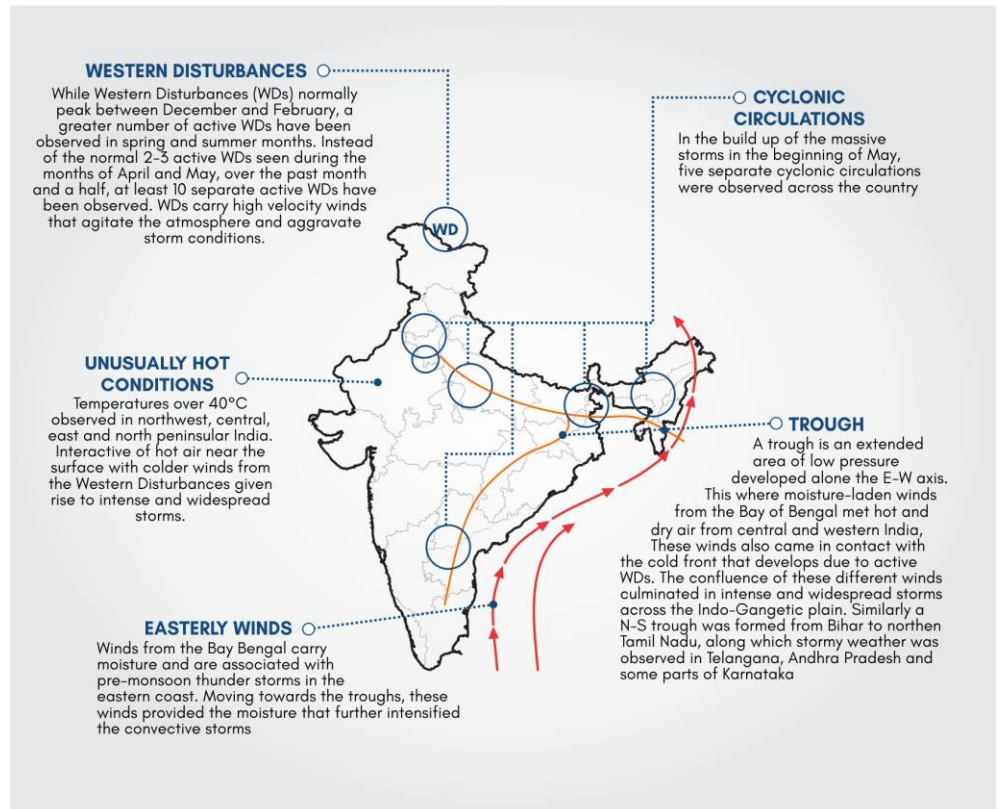
5.5. SUVA EXPERT DIALOGUE ON LOSS AND DAMAGE

Why in news?

Recently Suva Expert Dialogue on loss and damage was held at Bonn to furthering collective understanding of approaches to address loss and damage, associated finance needs, and sources of support.

Loss and damage in UNFCC

- **1991:** Proposed by Vanuatu on behalf of Alliance of Small Island States (AOSIS) for the international community to provide "assurance" that climate change would not endanger their survival;

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- **2010**: Establishment of the **Subsidiary Body of Implementation (SBI)** Work Program on loss and damage in Cancun (COP 16);
- **2013:** Establishment of the **Warsaw International Mechanism (WIM**) under the Cancun Adaptation Framework;

How to deal with Loss and Damage:

- **Effectively Addressing Slow Onset Processes** through developing a lowland drainage system, creating vegetative buffers and setback Areas, developing mobile marine protected areas Map flood zones and mapping flood zones etc.
- **Tackle Migration and Displacement especially from Small Island Developing States** through
  - Improved disaster risk reduction and management, climate change adaptation measures and developing a policy on "migration with dignity".
  - International collaborations such as Platform on Disaster Displacement and Global Compacts for safe, orderly and regular migration and on Refugees
- **Plugging Legal gaps for cross border movements** and development of the issue in the international and United Nations Framework Convention on Climate Change (UNFCCC) policy sphere.
- **Comprehensive Climate Risk Management which includes:**
  - Risk reduction through **structural measures** (e.g. engineering techniques to achieve hazard resistance structures), non-structural measures (e.g. knowledge, practice or agreements to reduce risks and impacts),

Suva expert Dialogue
- It is an expert dialogue decided at COP23 in Bonn due to demands of developing nations for a **separate agenda item on loss and damage**.
- The **dialogue aims** for facilitating the mobilization and securing of expertise, and enhancement of support, including finance, technology and capacity-building, for addressing loss and damage associated with the adverse effects of climate change**.**

Warsaw International Mechanism on Loss and Damage
- It was established in COP 19 under UNFCCC in 2013
- It deals with Climate Change Impacts (Loss and Damage Mechanism), including extreme events and slow onset events, in vulnerable developing countries through-
  - Enhancing knowledge and understanding of comprehensive risk management approaches to address L&D;
  - Strengthening dialogue, coordination, coherence and synergies among relevant stakeholders;
  - Enhancing action and support, including finance, technology and capacity-building.
- It is also anchored in the Article 8 of the 2015 Paris agreement which emphasizes the "importance of averting, minimizing and addressing loss and damage associated with the adverse effects of climate change".

Small Island Developing States (SIDS) and Loss and Damage
- They are a group of 57 small island countries that tend to share similar sustainable development challenges, including small but growing populations, limited resources, remoteness, susceptibility to natural disasters etc.
- They were first recognized as a distinct group of developing countries at the United Nations Conference on Environment and Development in June 1992.

Impact of Loss and Damage on SIDS

The Intergovernmental Panel on Climate Changes 5th Assessment Report (AR5) describes the particular affectedness of SIDS to be mostly defined by:

- **Sea level rise (SLR):**
  - **Immediate effects** of SLR include saltwater intrusion of surface waters, increasingly severe storm surges, submergence and increased flooding of coastal land.
  - **Longer-term effects** of SLR are increased erosion, saltwater intrusion into groundwater and a decline of coastal wetlands (saltmarshes, mangroves etc.)
  - SLR **endangers freshwater supplies** (through salinization), food yields (through loss of arable land) and physical safety (through damages to coastal infrastructure such as roads, housing and sanitation systems), in several low-lying Small Island States and leads to the displacement of people
- **Tropical (and extra tropical) cyclones** cause various risks including certain vector, food- and water-borne diseases, deterioration of water quality and quantity, destruction of infrastructure and loss of productive farmland, loss of livelihoods, coastal settlements, ecosystem services and economic stability to the decline and possible loss of coral reef ecosystems. For some SIDS, their **very existence could be threatened** by SLR.
- **Ocean acidification,** which result in reduced coral growth and coral skeleton weakening which will have impacts on coastal protection and marine biodiversity.

legislative measures (such as building codes and standards) or early warning systems;
- o **Financial risk transfer** through climate risk insurances, catastrophe bonds or climate bonds;
- o **Risk retention** through contingent credits, contingency and reserve funds, contingency budgets and social protection;
- o **Resilient recovery** after a disaster to "build back better" to prevent or reduce future L&D;
- o **Transformational approaches** (e.g. diversification of livelihoods and migration) to address residual L&D
- **Climate Risk Insurance** through initiatives such as G7 "InsuResilience Initiative and G20 "Global Partnership for Climate and Disaster Risk Finance and Insurance Solutions"
- **Loss and Damage Finance** needs to be made available after a scientific assessment of L&D, developing financial instruments and plugging gaps in existing institutional arrangements within and outside of the UNFCCC including making GHG emitters accountable.

Concerns

- **Fair and just redressal mechanism which** address communication gaps, effectively targets financial support to make it reach to those who require it the most and addressing the technological gaps regarding risk assessment and reduction is yet to reach fruition.
- **Current mechanisms and financial instruments** for managing climate have been inadequate in terms of lack of technical capacity and access to finance.
- **Doubt over feasibility of climate-based insurance system** due to lack of terms of affordability of premiums by small and marginal farmers and the access of payouts (following an extreme event or weather-related disaster).
- **Gaps in current loss and damage mechanisms** like **slow speed of action** to address climate issue.

Conclusion

- The Suva dialogue is expected to help in furthering collective understanding of approaches to address loss and damage and identify finance needs for addressing the gaps that exist in meeting these needs in developing countries.
- Further, the areas where finance approaches have not yet been matched like, addressing slow onset events or for recovery and rehabilitation from climate-related events can be better addressed through such forums in future.

5.6. CLEAN AIR- INDIA INITIATIVE

Why in news?

- Recently, the clean air-India initiative was launched in Delhi by Prime Minister of Netherlands.

About the initiative

- The Clean Air India Initiative is a collaborative project between **Get in the Ring** (a platform for start-ups by the government of the Netherlands), **Start-up India** and **INDUS Forum** (an online matchmaking platform of Indian and Dutch businesses).
- The campaign aims to curb air pollution in Indian cities by promoting partnerships between Indian start-ups and Dutch companies and build a network of entrepreneurs working on business solutions for cleaner air.
- Under the initiative, an **'INDUS impact'** projects is also present which aims to halt the hazardous burning of paddy stubble by promoting business partnerships that "up cycle" it. This entails using paddy straw as feedstock to make materials that would find use in construction and packaging.

#StartUpLink
- It was launched by Invest India and Dutch government for Indian and Dutch start-ups which offers access to key information, relevant networks, pilot opportunities, and navigators for the respective start up ecosystems.
- The initiative will fulfil the twin objective of facilitating market expansion for start-ups in the two countries alongside fostering a joint sense of innovation and entrepreneurship.
- **'Clean Air' India Ring** is a critical component of the Indo-Dutch #StartUpLink.
- The initiative is a multi-corporate challenge that will test and scale innovations through collaboration between start-ups, corporates and governments that solve the problem of pollution.
- As a partner for #StartUpLink, Dutch company shell has established a Shell E4 Start hub, the **first energy focused start up hub in India.**

5.7. TOXICITY IN INDIAN RIVERS

Why in news?

A recent report titled **Status of trace and toxic metals in Indian rivers 2018** by Central Water Commission.

More about the news

- The report has highlighted that **42 rivers in India** have at least **two toxic heavy metals** in quantities beyond the permissible limit.
- Ganga, the national river, was found to be polluted with five heavy metals—chromium, copper, nickel, lead and iron.
- It is an issue because a majority of Indians still use water directly from **rivers for their domestic use**. With an increase in population, the pressure on these rivers will only increase.
- According to the report, mining, milling, plating and surface finishing industries are the **main sources of heavy metal pollution** and the concentration of such toxic metals has increased rapidly over the past few decades.

Type of toxic metals and sources of metal Pollution

- The term ''**heavy metal**'' refers to any metal and metalloid element that has a relatively high density ranging from 3.5 to 7 g/cm^3 and is toxic or poisonous at low concentrations.
- **Primary metals** considered to be toxic are lead, arsenic, copper, cadmium, mercury and nickel. These hazardous metals are also referred to as **trace elements**.

Health impacts of toxic metals

- Heavy metals pose a serious threat to humans and the environment because of its toxicity, non-biodegradability and bioaccumulation and may result in reduction of **species diversity.**
- Their absorption in the body may cause changes in the blood composition and damage to the lungs, kidneys, liver, and other vital organs.
- It also causes acute or chronic toxicity/ poisoning resulting in damaged or reduced mental and central nervous functions.
- It leads to physical, muscular, and neurological degenerative processes that are similar to Alzheimer's disease, Parkinson's disease, muscular dystrophy, multiple sclerosis, cancer and various other allergies.

Corrective measures

- **Controlling runoff pollution** such as agriculture runoff, urban runoff and runoff from livestock farms through afforestation, sustainable agriculture practices and using wastewater for irrigation etc.
- Proper enforcement of Bureau of Indian Standards (BIS) and Indian Council of Medical Research (ICMR) **drinking water standards** for trace and toxic metals for humans as well as for livestock and irrigation use in India.

NUMBER OF RIVERS POLLUTED WITH UNACCEPTABLE LEVELS OF HEAVY METALS

CONTAMINANT	PERMISSIBLE LIMIT	NO OF RIVERS
Lead	10 µg/L	69
Nickel	20 µg/L	25
Iron	300 µg/L	137
Copper	50 µg/L	10
Chromium	50 µg/L	21
Cadmium	3 µg/L	25

Central Water Commission (CWC)
- It is premier Technical organization under Ministry of Water Resources, River Development and Ganga Rejuvenation.
- It undertakes measures for control, conservation and utilization of water resources throughout the country and has been monitoring water quality of river water since year 1963.

Major Sources of River Pollution
- **Natural** – Rocks, Volcanic eruption, Wind-blown dust particle, Sea spray, Aerosols.
- **Agricultural** - Inorganic fertilizer, Pesticide, Sewage sludge& fly ash, Waste water, Fungicides.
- **Industrial** - Industrial waste, Thermal power, Coal & crude ore mining industry, Chemical industry, Various refineries
- **Domestic** - E-waste, Used batteries, Inorganic & organic waste, Used filters, Biomass burning.
- **Miscellaneous**- Incineration, Open dumps, Traffic and other emission, Landfills, Medical waste.

Major remediation techniques
- Precipitation and coagulation
- Ion exchange
- Membrane filtration
- Bioremediation
- Heterogeneous photocatalysts
- Adsorption

- **Chemical and biological treatment** to industrial discharge from the tanneries, mining and other industries along with establishment of **common effluent treatment facilities** for smaller industries
- Promotion of effective and **efficient implementation of water pollution control laws** and regulations.
- Using **Green remediation techniques** such as Phytoextraction for soils and wetlands contaminated with toxic metals. e.g. - Water hyacinth is used for cleansing polluted water by absorbing pollutants especially chromium.
- **Stringent Government policy and monitoring** for effluents discharged from agriculture and industries into the several Indian rivers. CWC has recommended that **quality of water should be monitored** at least four times a year.

Arsenic (As)	Pesticides, fungicides, metal smelters
Cadmium (Cd)	Welding, electroplating, pesticides, fertilizer, batteries, nuclear fission plant
Chromium (Cr)	Mining, electroplating, textile, tannery industries
Copper (Cu)	Electroplating, pesticides, mining
Lead (Pb)	Paint, pesticides, batteries, automobile emission, mining, burning of coal
Manganese (Mn)	Welding, fuel addition, ferro manganese production
Mercury (Hg)	Pesticides, batteries, paper industries
Nickel (Ni)	Electroplating, zinc base casting, battery industries
Zinc (Zn)	Refineries, brass manufacture, metal plating, immersion of painted idols

5.8. GHG EMISSION FROM SHIPPING INDUSTRY

Why in news?

Members of the International Maritime Organisation (IMO) have reached an agreement on **reducing their** greenhouse gas emissions from shipping by at least 50% of 2008 levels **by 2050.**

Background

- International Council on Clean Transportation (ICCT) found that if treated as a country, international shipping would be **the sixth largest emitter of carbon dioxide** in the world - roughly the same as Germany. It accounts for around 2.2% of global CO2 emissions and they are projected to grow between 50 and 250% by 2050 if no action is taken.
- IMO was tasked with limiting and reducing emissions from shipping under the **Kyoto Protocol** in 1997.
- Despite its major role in polluting the planet, shipping was **not accounted for** in the **Paris agreement** on climate change.
- The world's shipping industry has now, **for the first time**, defined its commitment to tackle climate change, bringing it closer in-line with the Paris agreement.

> **About IMO**
> - It is the United Nations specialized agency with responsibility for the safety and security of shipping and the prevention of marine pollution by ships.
> - It is the global standard-setting authority for the safety, security and environmental performance of international shipping through a fair and effective regulatory framework.
> - IMO currently has 174 Member states and 3 Associate members.
> - India has been one of the earliest members of the IMO, having it as a member-state in the year 1959.

- The agreement took place in the historic **London session of Marine Environment Protection Committee (MEPC)** of IMO.
- The ultimate goal for shipping industry is to reduce greenhouse gas emission **to zero** by the middle of the century, with most newly built ships running **without fossil fuels by the 2030s.**
- The agreement was **opposed by** Brazil, Saudi Arabia and the US.

Pollution from Global Shipping Industry

- Large commercial vehicles primarily run on **heavy fuel oil** which is not refined and emits black carbon, unburnt hydrocarbons, carbon monoxide, carbon dioxide, and oxides of nitrogen and sulphur. Of the total global air emission, shipping accounts for 18 to 30 % of the **nitrogen oxide** and 9% of the **sulphur oxides emission**.

- **Diesel engines** also account for around one-fifth of the world's black carbon emissions which is the **second-largest driver** of global warming next only to carbon dioxide.
- Pollution from ships **affects the health of communities**, especially in coastal regions around the world. It is a cause of concern because it **continues to increase** as the sector grows whereas land-based emissions, particularly from fixed installations, have been reduced dramatically at great cost.

Mechanism to reduce the emissions further:

- **Slowing down-** A recent study of container ships, bulkers and tankers found that greenhouse gas emissions from these three types of ships could be reduced by a third cumulatively if their speed is reduced, because it will lower power requirements and thereby fuel consumption.
- **Scrubbers-** Ships can install scrubbers or other exhaust gas cleaning devices to remove polluting particles. (However, discharges from open-loop scrubbers are let into the water, which can pollute the marine environment)
- **Using low-sulphur fuels-** Ships use heavy fuels because they are cheaper. But to cut emission of pollutants they should adopt fuels without Sulphur like liquefied natural gas (LNG). LNG also reduces nitrogen oxide and black carbon emissions.
- **Alternative energy sources-** Experiments with wind and solar power, and bio-fuels are being undertaken to reduce carbon footprint.

5.9. INDIA BIODIVERSITY AWARDS, 2018

Why in news

Recently, India Biodiversity Award 2018 was conferred by the **National Biodiversity Authority (NBA).**

Background

- In 2012, the **Government of India**, in partnership with **UNDP India**, initiated **the India Biodiversity Awards**
- **Aim:** To recognize and honour outstanding models of biodiversity conservation, sustainable use and governance at the grassroots level.
- Awards is presented in different categories:
  - Conservation of Wild and Domesticated Species
  - Sustainable Use of Biological Resources
  - Replicable Mechanisms for Access and Benefit Sharing
  - Best Biodiversity Management Committees
- Different awards given in various categories are:

About NBA
- It is a statutory body established under the provisions of **the Biological Diversity Act, 2002**.
- It performs **facilitative and advisory functions** for the Union government on issues of conservation, sustainable use of biological resources and fair and equitable sharing of benefits arising out of the use of biological resources.

About Bugun Liocichla
- It's the only new bird species to have been discovered in India since 1947.
- They are found only in the Singchung village of Arunachal Pradesh.
- It has been named after the **Bugun tribe.**
- **IUCN status**: Critically Endangered (CR).
- WPA status:
- **Threa**t: Activities like timber extraction, forest clearance and infrastructure development have threatened its habitat.
- **Singchung Bugun Community Reserve (SBVCR):** It's a 17 km^2 hotspot for biodiversity launched by Bugun community of Singchung Village by joining hands with the Forest Department.
- **Wildlife (Protection) Act, 1972**, allows the state government to declare **any private or community land** that is not part of a national park, sanctuary or conservation reserve as a community reserve, to protect fauna, flora and traditional conservation values and practices.

About Amur Falcon
- They are the longest travelling raptors in the world which migrates to India from Mongolia and then reach South Africa via Myanmar and central & western India.
- Males are mostly grey in colour and the females have dark-streaked cream or orange underparts.
- They used to be hunted for meat by Nagas. However, after vigorous campaign for their conservation, not a single bird is being hunted in the area.

About kharai camels
- Kharai Camel or **Swimming Camels** are found **only in Gujarat's Bhuj area**.
- Kharai Camel can live in **both coastal and dry ecosystems.**
- It grazes on saline / mangrove trees and is tolerant to high saline water.
- It can swim up to three kilometers into the sea in search of mangroves, its primary food.
- They are bred by two distinct communities — Fakirani Jats, the handlers, and Rabaris, who are owners.

- o **Singchung Bugun Village Community Reserve Management Committee: Conservation of Wild Species (Institution)** for conservation of the **Bugun Liocichla bird**.
- o **Lemsachenlok Organization: Conservation of Wild Species (Institution)** for successful creation of an **8-10 sq km Community Conserved Area** to encourage coexistence and reduce human-wildlife conflict. The village has now become a safe haven for 85 species of birds, including **Amur Falcons.**
- o **Kutch Unt Uchherak Maldhari Sangathan (KUUMS): Conservation of Domesticated Species (Institution)** for working closely with the local community to breed, cure and protect Kharai camels.
- o **Kalden Singhi Bhutia (Sikkim): Conservation of Domesticated Species (Individual)** for conservation and propagation of Tibetan sheep**.**
- o **Sangham Women Farmers Group: Sustainable Use of Biological Resources (Institution)** for preserving agrobiodiversity. They also started the **Millet Sisters Network** to conserve and preserve different varieties of millets, with the produce organically certified and packaged for marketing in the urban areas.
- o **Parvathi Nagarajan (Tamil Nadu): Sustainable Use of Biological Resources** for environment protection, wellness and women's empowerment. She joined hands with the **Sustainable Livelihood Institute (SLI)** to take regular **'Herbs for Health' classes** for women in her area.
- o **Raipassa Biodiversity Management Committee, Tripura: Sustainable Use of Biological Resources** for ensuring that bio-resources of the area are traded in a manner, that is both commercially and environmentally viable. This community depends on the cultivation, collection and sale of **broom grass** for its livelihood.
- o **Eraviperoor Grama Panchayat, Kerala: Biodiversity Management Committee** is an excellent model of a multi-stakeholder partnership in local biodiversity conservation, sustainable management of water resources, promotion of renewable energy and enhanced livelihoods. They have rejuvenated a tributary of the river Pampa and have successfully revived the traditional cultural practice of boat racing.
- o **Pithorabad Grama Panchayat, Madhya Pradesh: Biodiversity Management Committee** has conserved around 115 traditional types of paddies, 32 varieties of vegetables, and medicinal plants by establishing a community seed bank and facilitated value addition in the form of marketing for select products like organic wheat.

5.10. SOUTH ASIA WILDLIFE ENFORCEMENT NETWORK (SAWEN)

Why in news?

Recently the first meeting of SAWEN was held in India to curb wildlife crime in the South Asian region.

About SAWEN

- It is an **inter-governmental wildlife law enforcement support body** of South Asian countries namely- Afghanistan, Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan and Sri Lanka.
- It was officially **launched in January, 2011** in Paro Bhutan.
- In 2016 the Union Cabinet gave permission to adopt the statute of SAWEN.
- SAWEN operates its activities from the Secretariat based in Kathmandu, Nepal.
- It focuses on policy harmonization, institutional capacity strengthening through knowledge and intelligence sharing; and collaboration with regional and international partners to enhance wildlife law enforcement in the member countries.

5.11. INDUS DOLPHINS (BHULAN)

Why in news?

The Punjab government along with WWF-India are conducting the **first organised census** on population of **Indus Dolphin**.

About Indus Dolphin (Bhulan)

- They are **endangered**, **freshwater**, and functionally **blind** species of dolphins which rely on **echolocation** to navigate,

Other River Dolphins in the world
Apart from the 3 river dolphins in India, there are 4 other important species viz-
- **Amazon River Dolphin** (the pink river dolphin or Boto) are found only in **freshwater and** are **Vulnerable**.
- **Tucuxi** (Data Deficient Category), found in Amazon and its tributaries, can live in **both salt- and freshwater**.
- **Yangtze river dolphin** (Baiji) of China has been declared "**functionally extinct**" in 2006.
- **Yangtze/Finless Porpoise** (only porpoise species that can live in freshwater) is Endangered and is found in the Yangtze River and its adjacent lake systems.

communicate and hunt prey including prawns, catfish and carp.

- Except for a tiny, isolated population of about 30 in India's Beas River (185 km stretch between Talwara and Harike), Indus river dolphins live exclusively in the Indus river in Pakistan.
- In 2017, a survey was done by WWF-Pakistan which showed an increase in their population. Similar survey is being conducted in India now with the help of WWF-India.

Other Indian River Dolphins

- **Ganges River Dolphin** (Susu)
  - It is **endangered,** can only live in **freshwater** and is essentially **blind**.
  - It has been declared as national aquatic animal.
  - It once ranged throughout the **Ganges-Brahmaputra- Meghna and Karnaphuli-Sangu** river systems of Nepal, India, and Bangladesh, from the Himalayan foothills to the Bay of Bengal. Today its population is divided by dams into isolated groups and has a much reduced range.
  - The lowest estimate for the total population is 1,200-1,800 individuals.
- **Irrawaddy Dolphin**
  - They are **Crtitically Endangered** and live in **both salt- and freshwater** in South and Southeast Asia.
  - **Three** exclusively freshwater populations are found in **Irrawaddy/Ayeyarwady** River (Myanmar), **Mekong** River (Lao PDR, Cambodia); and **Mahakam** River (Indonesia).
  - In addition, very small numbers survive in the partially freshwater Songkhla Lake (Thailand) and the brackish Chilika Lake (India). Irrawaddy dolphin is the **only salt water dolphin found in India.**

Main threats to the river dolphins are:

- **Unintentional killing** through entanglement in fishing gears and over-exploitation of prey or Fisheries bycatch, mainly due to the widespread use of non-selective fishing gear.
- **Directed harvest** for meat and for dolphin oil which is used as a fish attractant and for medicinal purposes
- **Water development projects** (e.g. water extraction and the construction of barrages, high dams, and embankments) have resulted into genetic isolation of dolphin populations.
- **Other Issues-** They are key indicators of river health, and **river pollution** due to industrial waste and pesticides, municipal sewage discharge and noise from vessel traffic are primary reasons for their decline. Compounds such as organochlorine and butyltin found in the tissues of Ganges River dolphins are a cause for concern about their potential effects on the sub-species.

5.12. BLACK PANTHER

Why in News?

Recently, Forest and Environment Department of Odisha recorded the presence of black panthers in a **forest in Sundargarh district**.

About Black Panther

- It is the same species as a normal-coloured panther with a **high amount of pigment (melanin** caused by **agouti gene)** causing the animal to appear black.
- Other habitats of Black Panther;
  - Kerala (Periyar Tiger Reserve),
  - Karnataka (Bhadra Tiger Reserve, Dandeli-Anshi Tiger Reserve and Kabini Wildlife Sanctuary),
  - Chhattisgarh (Achanakmar Tiger Reserve, Udanti-Sitanadi tiger reserve),
  - Maharashtra (Satara),

Related information

- Odisha is the **only state** in the country to have melanistic tigers, white tigers and black panthers.
- **Conservation Status of Black Panther**
  - **Vulnerable:** IUCN (International Union for Conservation of Nature).
  - **Schedule I**: Indian Wildlife (Protection) Act, 1972,
  - **Appendix I**: CITES (Convention on International Trade in Endangered Species of Wild Fauna and Flora).

Phenomenon of Melanism

- Melanism is the **undue development of dark-coloured pigment** in the skin which gives black skin in many animals, birds and even fish.
- Melanism **is hereditary-** but it is not necessarily passed on directly to the next generation.
- A normal-coloured leopard can carry the recessive melanistic gene. Moreover, if both parents are black, the leopard cubs are always black.
- A closer look at a panther's coat will reveal the characteristic spots of the leopard hiding under a cloak of excess melanin which is called '**ghost striping'.**

- o Goa (Mhadei Wildlife Sanctuary),
- o Tamil Nadu (Mudumalai Tiger Reserve),
- o Assam
- o Arunachal Pradesh.

5.13. GAJ YATRA

Why in news?

- Recently, the Ministry of Environment, Forest and Climate Change and the Wildlife Trust of India (WTI) rolled out the 'Gaj Yatra' from Tura in Garo Hills, Meghalaya.

About Gaj Yatra

- 'Gaj Yatra' aims at securing **100 elephant corridors across India**.
- It is a mega-campaign by Wildlife Trust of India (WTI) and the International Fund for Animal Welfare (IFAW) to raise awareness about the shrinking space for India's wild elephants
- It was launched on World Elephant Day, August 12, 2017.
- It was organized in the Garo Hills in recognition of the people's initiative of community forests for human-elephant harmony and conservation of animals such as **hoolock gibbon.**

About elephant corridors

- As forest lands continue to be fragmented, relatively narrow, linear patches of vegetation provide linkages between larger forest patches.

> **Wildlife Trust of India (WTI)** is an NGO to conserve wildlife and its habitat and to work for the welfare of individual wild animals, in partnership with communities and governments.
>
> **IFAW** is an NGO working on conservation measures towards animal welfare.

> **About Indian elephants**
> - In 2010, Elephants were declared as national heritage animals.
> - Under Wildlife (Protection) Act, 1972 Elephant is a Schedule I animals and Asian elephants are listed as "endangered" in the IUCN Red List of threatened species.
>
> **World Elephant Day** was founded to bring attention to the plight of Asian and African elephants.
>
> **Western Hoolock gibbon**
> - The western hoolock gibbon (Hoolock hoolock) and the eastern hoolock gibbon (Hoolock leuconedys) are the **only apes found in India.**
> - It is listed as 'endangered' by the IUCN red list.
> - In India, it is listed on Schedule 1 of the Indian (Wildlife) Protection Act 1972.

- These linkages allow elephants to move between secure habitats freely, without being disturbed by humans reducing man-animal conflict.
- In many cases, elephant corridors are also critical for other wildlife including India's endangered National Animal, the Royal Bengal tiger.

5.14. NATIONAL WATER INFORMATICS CENTRE

Why in News?

The government has set up **National Water Informatics Centre (NWIC)** to maintain a comprehensive water resources data.

About NWIC

- It would be a **repository of nation-wide water resources data** and would work as a Subordinate Office under the Ministry of Water Resources, River Development and Ganga Rejuvenation which is to be headed by a Joint Secretary level officer.
- It will provide latest and reliable water data **(other than classified data**) through web-based India Water Resources Information System (India-WRIS) on a **GIS platform** in Public Domain.
- It will also **collaborate with leading national and international research institutes** to provide technical support to central and state organisations dealing with water emergency response of hydrological extremes.
- It is a component of **National Hydrology Project** and also in consonance with the **National Water Mission** which has an objective of "conservation of water, minimizing wastage and ensuring its more equitable distribution through integrated water resources development and management".

Merits of NWIC

- It will be easier to take a decision even on **settling inter-state river water sharing dispute** with the single window source of the updated data.
- A comprehensive "**Water Resources Information System**" (WRIS) in public domain will help in generating awareness and involvement of all concerned, **for effective integrated water resources management.**
- It will **help in scientific assessment**, monitoring, modelling and Decision Support System (DSS) of Water resources.

National Hydrology Project

- It is a **central sector scheme**. Under this, the Hydro-meteorological data will be stored and analyzed in real time basis and can be seamlessly accessed by any user at State, District and Village level.
- Its components include-
  - In Situ Hydromet Monitoring System and Hydromet Data Acquisition System.
  - Setting up of National Water Informatics Centre (NWIC).
  - Water Resources Operation and Management System
  - Water Resources Institutions and Capacity Building

Water Resource Information System

- It is a joint venture of the **Central Water Commission (CWC**), Ministry of Water Resources and Indian Space Research Organization (**ISRO**), Department of Space.
- India-WRIS provides **'Single Window solution'** for all water resources data & information in a national GIS framework.

India-WRIS Wiki

- It is a collaborative knowledge sharing web application developed for sharing updated information.

6. SCIENCE AND TECHNOLOGY

6.1. TRANS FAT

Why in News?

World Health Organization has urged developing nations to eliminate man-made trans fatty acids from their food supplies.

About Trans-Fat

- Also known as Trans Fatty Acids (TFA), they are of 2 types-
  - o **Natural Trans-Fat**- Occur naturally in the dairy and some meat products.
  - o **Artificial Trans-Fat**- They are created when the oil goes through hydrogenation, which involves adding hydrogen to the liquid oil to make it more solid.

> **"REPLACE" by WHO**
> - WHO has released a step by step guide for the industry to eliminate trans fats from the food by 2023.
> - The guide, called REPLACE, has **six actions**, which include
>   - o A review of dietary sources of trans fats,
>   - o Promoting replacement with healthier fats,
>   - o Setting up a regulatory framework,
>   - o Assessing and monitoring trans fats content in food,
>   - o Creating awareness and
>   - o Enforcing regulation.

- They help to increase the shelf life of oils and foods and stabilise their flavours.
- In India, Vanaspati, desi ghee, butter and margarine are the main sources of trans fat. Vanaspati is favoured by the industry as it prolongs a food product's shelf life and is cheap.

Health Hazards due to Trans-Fat

- According to various studies, a 2% increase in energy intake from trans-fat has been associated with a 23 % increase in the **risk of heart disease** and according to another estimate by WHO.
  - o Its consumption increases the risk of heart disease by raising the level of **low-density lipoprotein (LDL)**, also known as the "bad" cholesterol and at the same time it reduces the level of **high-density lipoprotein (HDL)** which is the "good" cholesterol.
- They are supposed to be the **main cause of Type-2 Diabetes** and linked to insulin resistance, that is why WHO recommends that no more than one per cent of a person's calories come from trans fats.

> **Perceptible Progress in Developed Countries**
> - Many developed countries have already eliminated Trans-fat.
> - **Denmark was the first country** to restrict industrially-produced trans fats in food and it has witnessed a sharp decline in deaths due to cardiovascular diseases.

FSSAI Recommendation

- The current **permitted level of trans fat** is 5 per cent (by weight) in India. FSSAI has further proposed to limit the maximum amount of trans fat in vegetable oils, vegetable fat and hydrogenated vegetable oil to 2 per cent to make India **trans-fat free by 2022.**
- It had also notified standards on **re-use or reheating of cooking oil** last year, according to which, vegetable oils that have accumulated the total polar compounds (Polar compounds are formed due to oxidation, hydrolysis and some other chemical reactions of oils during frying) of **more than 25 per cent cannot be used**.

6.2. NEW NORMS FOR LABELLING PACKAGED GM FOODS

Why in news?

FSSAI has issued Draft food Safety and Standards (Labelling and Display) Regulations 2018 wherein it has proposed that all packaged food products containing genetically modified (GM) ingredients must clearly state it on their labels.

Background

- Genetically modified crops are cultivated from seeds that are genetically engineered to increase yields or tolerance to pests. The first GM labelling requirements for food products were introduced by the European Union (EU) in 1997.

- In case of India, a Supreme Court **moratorium** has been in place concerning the cultivation of GM food crops.
- Furthermore, GM food imports require approvals under two laws- the Environment Protection Act of 1986 and the Food Safety and Standards Act of 2006.
- While the EPA, 1986 covers environmental impacts of the food products, the FSSA, 2006 assesses the food's impact on human health.
- There are no regulations in India for GM products till now.

Draft food Safety and Standards (Labelling and Display) Regulations, 2018

- It makes it mandatory to label such food stuffs as "Contains GMO/Ingredients derived from GMO" if such items contain 5% or more GE ingredients.
- It also suggests mandatory declaration by packaged food manufacturers about nutritional information such as calories, total fat, trans fat, sugar and salt per serve on the front of the pack.
- It has also proposed a colour code scheme where food with the high fat, sugar and salt will be coloured 'red' in case the value of energy from total sugar is more than 10% of the total energy provided by the 100 grams or 100 ml of the product. It has similar provisions for trans-fat and sodium content as well.

> **Food Safety and Standards Authority of India (FSSAI)**
> - FSSAI, under the **Ministry of Health & Family Welfare**, has been established under Food Safety and Standards Act, 2006.
> - It has responsibility of laying down scientific standards for articles of food and to regulate their manufacture, storage, distribution, sale and import to ensure availability of safe and wholesome food for human consumption.
>
> **Genetic Engineering Appraisal Committee,**
> - It functions under the Ministry of Environment, Forest and Climate Change (MoEF&CC)
> - It is responsible for appraisal of activities involving large scale use of hazardous microorganisms and recombinants in research and industrial production from the environmental angle.
> - It is also responsible for appraisal of proposals relating to release of genetically engineered (GE) organisms and products into the environment

Should labelling of GM foods be mandatory?

Arguments in favour	Arguments Against
- Consumers have the **right to know** which products may have GM item as they are already being used in a lot of processed foods. - Labelling is **already mandatory** in 27 member nations of the European Union, Australia, New Zealand, Japan, Korea, Brazil and China. So India also must follow suit. - GMO technology is **unpredictable, uncontrollable** and may have unforeseeable effects - **Eighty percent of GMOs** are engineered to withstand toxic pesticides and herbicides using neurotoxic chemicals and genes. - GMO crops, with **heavy herbicide use**, destroy the microbiome of the soil, reduce the nutritional content of the food and leave **higher residues of chemicals** on the food. - Further GM technology into Indian fields may also lead to the **widespread industrialisation of food production.**	- The experience in EU and Japan has shown that consumers, retailers and processors shift away from GM ingredients or food products. Thus, mandatory labelling would act as an **import barrier and diverts trade** and may result in GM foods not appearing at retail level at all. - It results in **additional taxpayer costs** due to enforcement and testing. It also amounts to **loss to those consumers** who would otherwise prefer to buy lower-priced GM food products but may not get them due to the shift. - Mandatory labelling makes it is easier for **pressure groups** opposed to genetic modification to **target any product** and launch a negative campaign against the processing firms. - **Voluntary labelling** could achieve less-distorted results with lower costs and is a superior regulatory solution.

Way Forward

- India needs to establish a **regulatory mechanism for GM foods**. The regulation of GM products may be integrated with other major initiatives undertaken by FSSAI for food safety such as:
  - **Food Safety on Wheels** initiative under which 62 mobile food lab units will be deployed across the country for food testing, public education and awareness and for conducting training and certification programmes.
  - A centralised lab management system called **InFoLNet (Indian Food Laboratory Network)** to connect all the government and private food labs.
  - **Food safety index** which will be launched by FSSAI, considering the need for States to have a robust food safety ecosystem, to measure their performance on various parameters.

- Along with mandatory labelling of GMOs labels such as **Organic label and Non-GMO label** should also be promoted.

6.3. ZOONOTIC DISEASES

Why in news?

Recently, there were several cases of deaths due to 'Nipah' (NiV) virus in Kerala.

Nipah virus

- Nipah virus was first identified in Kampung Sungai **Nipah**, Malaysia in 1998 from where it derives its name.
- The first outbreak in India was reported from Siliguri, West Bengal in 2001.
- The natural host of the virus is the fruit bat but it can also infect pigs or **any domesticated animals.**
- The virus is present in bat urine, faeces, saliva, and birthing fluids which then transmits it to Humans climbing trees or drinking raw palm sap covered in it.
- Transmission of Nipah virus also takes place through **direct contact** with other NiV-infected people.

What are Zoonotic diseases?

- A zoonotic disease is a disease that spreads between animals and people.
- They can be caused by **viruses, bacteria, parasites, and fungi**.
- Important Zoonotic diseases in India are: Nipah virus, avian influenza, rabies, Japanese encephalitis, leptospirosis, Hanta virus, SARS, cysticercosis, anthrax, plague, echinococcosis and schistosomosis, Kyasanur forest disease (KFD) etc.

Why are zoonotic diseases a concern?

- Over the past 70 years, more than 300 zoonotic diseases have been reported, they result in 75 per cent of all emerging infectious diseases (EIDs) among humans.
- In a globalized world, the mobility of diseases has greatly increased, for example the SARS virus originated in wild animals in China quickly spreading globally.
- Some EIDs have adapted to a human-sustained cycle independent of animals for example, Human immunodeficiency virus (HIV) virus.
- Some carriers of diseases like birds can help in transmitting the diseases across vast distances.
- More than 220 million people in India depend on forestry and are vulnerable due to contact with wild animals but have less economic capacity to fight disease outbreaks like Kyasanur forest disease (KFD).

Why is there an increase in Zoonotic diseases?

- The recent upsurge has often been attributed to the dramatic **increase in population, mobility** and the associated social and environmental changes in the past 70 years.
- **Habitat destruction** forces many species to move towards human settlements for example, In the first outbreak of encephalitis in Malaysia in 1998, fruit bats were displaced from their natural forested habitat due to severe deforestation and fires.
- **Extinction of one species** leads to a cascading effect that may increase the population of reservoir species.
- Forest clearing for **agriculture** leads to expansion of ecotones (transition zones between adjacent ecological systems) and overlapping environment for wild and domesticated animals increasing chances of transmission of diseases.
- The geographic range of many diseases like chikungunya virus (CHIKV) and dengue virus are increasing due to effects of **climate change.**

The One Health Initiative defines One Health as 'the collaborative efforts of **multiple disciplines** working locally, nationally and globally to attain optimal health for **people, animals, plants and our environment'.**
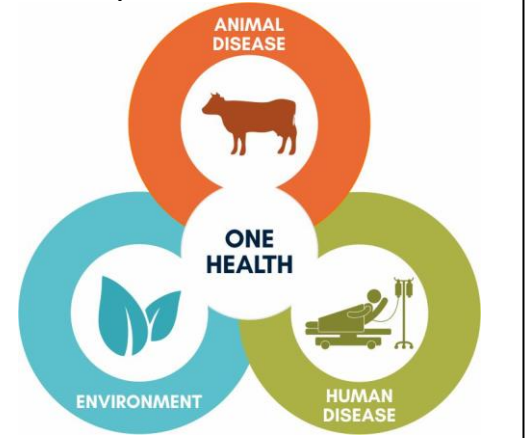
Way forward

- Since, there are no vaccine available for many zoonotic diseases, there needs to be adoption and awareness generation of preventive measures.
- Habitat conservation should be given priority to prevent deforestation and fragmentation of forests.
- Intensification of agriculture and livestock farming near wild animals should be regulated.
- We need to adopt **"one health"** approach particularly to fight zoonotic diseases.

6.4. ANIMAL-FREE TESTING FOR DRUGS

Why in News?

Indian Pharmacopoeia Commission has approved modern, animal-free tests for drug manufacturers.

New Guidelines

- In the **2018 edition of Indian Pharmacopoeia**, the IPC has **replaced the pyrogen test** carried out on rabbits and the abnormal toxicity test carried out on guinea pigs and mice.
- Pyrogen test will be replaced by a bacterial endotoxin test or a monocyte activation test which can be carried out in test tubes.
- **Abnormal toxicity test** can be waived by getting a compliance certificate from the National Control Laboratory.
- Tests like the one for abnormal toxicity have been removed by the U.S. and European pharmacopoeia as they are not an efficient marker.
- The guidelines will come into effect from 1 July 2018.

Pyrogen Test

- A **pyrogen is a foreign substance** that causes a fever (temperature elevation) in an animal's body. Vaccines and other injectable drugs must be confirmed to be pyrogen free according to regulatory requirements.
- For the test, the drug is **injected into a rabbit** (Food and water is withheld to rabbit overnight) and the animal is **closely observed for feverish symptoms.**

Abnormal Toxicity Test

- This test is carried out to check potential hazardous biological contamination in vaccine formulations i.e. the degree to which a substance can damage living or non-living entity.
- The scientists observe if there is death of any animal during the tests.

> **Indian Pharmacopoeia Commission (IPC)**
> - It is an autonomous institution of the Ministry of Health and Family Welfare, Government of India.
> - It is created **to set standards of drugs** in the country.
> - It **publishes official documents** for improving Quality of Medicines by way of adding new and updating existing articles in the form of Indian Pharmacopoeia (IP).
> - It also **promotes rational use** of generic medicines by publishing National Formulary of India.
>
> **Indian Pharmacopoeia (IP)**
> - It **contains a collection** of authoritative procedures of analysis and specifications for Drugs.
> - It has **got legal status** under the Second Schedule of the Drugs & Cosmetics Act, 1940 and Rules 1945 there under.

6.5. THIRD MISSION INNOVATION (MI-3) MINISTERIAL MEETING

Why in News?

India recently participated in the 3rd Mission Innovation Ministerial Meeting held in Sweden.

Initiatives taken

- **Mission Innovation Champions Programme** was launched by Mission innovation countries to felicitate clean energy innovators.
- **Hydrogen Innovation Challenge** was announced to reduce costs along the value chain and further expand the deployment of hydrogen.
- India announced setting up of **First International Incubator for clean energy** in public-private partnership at a total investment of around US $ 5 million in Delhi.
- India announced participation in Global cooling innovation challenge

Mission Innovation

- It was launched at COP21 of UNFCCC in Paris in November 2015. It is a **global platform of 23 countries and European Union** aimed at accelerating clean energy innovations through-
  - o Enhanced Government funding,
  - o Greater public-private sector partnership and
  - o Enhanced global cooperation.
- It seeks to **double investments** in clean energy innovation over five years.
- India is founding member of Mission Innovation and part of the Steering Committee besides co-lead of innovation challenges on smart grids, off grids and sustainable bio-fuels.
- **Department of Biotechnology (DBT)** is nodal agency of this mission in India
- The first Ministerial meeting was held in June 2016 in San Francisco.
- 4th MI Ministerial will be hosted by Canada, Vancouver in May 2019.

> The **seven Innovation Challenges** under Mission Innovation are the following:
> - Smart Grids Innovation Challenge
> - Off-Grid Access to Electricity Innovation Challenge
> - Carbon Capture Innovation Challenge.
> - Sustainable Biofuels Innovation Challenge
> - Converting Sunlight Innovation Challenge
> - Clean Energy Materials Innovation Challenge
> - Affordable Heating and Cooling of Buildings Innovation Challenge

6.6. ATAL TINEKRING MARATHON

Why in news?

A six month long Atal Tinkering Marathon has been organized by Atal Tinkering Lab of Atal Innovation Mission of NITI Ayog.

Details of the Atal Tinkering Marathon:

- Its aim is to find out the **best student innovators** of India.
- The marathon puts nation-wide **challenge in 6 thematic areas** namely Clean Energy, Water resources, Waste management, Healthcare, Smart mobility, and Agri-tech.
- Out of all innovations received, top 100 are shortlisted on the basis of novelty and prototype functionality. These 100 teams are given a month to refine their prototypes. Out of 100, **Top 30 innovations are selected** by an esteemed panel of judges including industry and academia experts.

> **ATL STUDENT INNOVATOR PROGRAM**
> - It is an effort to institutionalize a mechanism, where **high school students can work with university incubators** to pursue their innovative and entrepreneurial ideas along with their education.
> - Students will be **trained on business and entrepreneurship skills**, including intellectual property, effective communication, making an elevator pitch and so on.
> - ATL schools will also be offered a participation voucher to **World Robotics Olympiad (WRO)**, which is a global innovation challenge.

- The Top 30 Innovations are showcased through **a booklet compiling the work** done by the children, the mentors, teachers and schools.
- The Top 30 teams are being awarded with several prizes including **a three month-long ATL Student Innovator Program** (ATL SIP) in partnership with industry and start-up incubator.

Atal Innovation Mission

- It is a flagship initiative set up by the NITI Aayog to promote innovation and entrepreneurship across the length and breadth of the country, based on a detailed study and deliberations on innovation and entrepreneurial needs of India in the years ahead.
- It shall have **two core functions**:
  - o Entrepreneurship promotion through **Self-Employment and Talent Utilization**, wherein innovators would be supported and mentored to become successful entrepreneurs
  - o Innovation promotion: to provide a platform where innovative ideas are generated through-
    - ✓ Atal Tinkering Labs
    - ✓ Atal Incubation Centers
    - ✓ Scale-up support to Established Incubators

6.7. DIGITAL VILLAGE PROGRAMME

Why in news?

Recently, it has been decided to expand Common Service Centres (CSC) to 2.50 lakh gram panchayats and to establish 700 Digital Villages by the end of this year.

More on news

- The CSC model has adopted six villages in the country in the pilot phase to be developed as Digital Villages.
- **DigiGaon or Digital Village** is conceptualized as a connected place in a rural and remote part of the country where citizens can avail various e-Services of the Central Government, state Governments and private players.
- The idea behind this project is to turn these villages into self-sustaining units. It aims at promoting rural entrepreneurship and building rural capacities and livelihoods through community participation and collective action.
- The digital villages have been equipped with solar lighting facility in their community center, LED assembly unit, sanitary napkin unit (with active participation on Asha and Anganwadi workers) and Wi-fi choupal.

> **Common Service Centres**
> - Common Service Centres (CSC) scheme is one of the **mission mode projects** under the Digital India Programme.
> - CSCs are the access points for delivery of **essential public utility services, social welfare schemes, healthcare, financial, education and agriculture services, apart from host of B2C services** to citizens in rural and remote areas of the country.

Challenges in digitizing rural India

- **High level of digital illiteracy:** As per the 71st NSSO Survey on Education 2014, only 6% of rural households have a computer. This makes adoption of technology driven services delivery very slow.
- **Slow and delayed digital infrastructure development** along with the need of high upfront investment in creating infrastructure.
- **Change in behavioral pattern:** Village community is generally perceived to possess conservative mindset. They are accustomed with years of same of practice and resist changes. The biggest challenge is ensuring that each panchayat point of broadband is functional and in use**.**
- **Connectivity to remote areas:** The challenge of connectivity is a complex issue because **every state has different laws pertaining to its execution**. Due to this, often the remote areas are neglected under implementation of the several programmes like Bharat net.
- **Promoting Entrepreneurship abilities** as rural youth are needed to be educated about the potential benefits and progress that digitization entails for the village.

> **Pradhan Mantri Gramin Digital Saksharta Abhiyan' (PMGDISHA)**
> - It was launched in 2017 to **make 6 crore rural households digitally literate by March 2019.**
> - It is expected to be **one of the largest Digital Literacy Programmes** in the world.
> - Under the scheme, 25 lakh candidates will be trained in the FY 2016-17; 275 lakh in the FY 2017-18; and 300 lakh in the FY 2018-19.
> - To ensure equitable geographical reach, **each of the 250,000 Gram Panchayats would be expected to register an average of 200-300 candidates.**

Way Forward

- **PPP models** must be explored for sustainable development of digital infrastructure, as has been the case for civic infrastructure projects **like roads and metro**.
- **PMGDISHA (Prime Minister Gramin Digital Saksharata Abhiyaan)** must be implemented swiftly and coverage should be expanded to all rural households.
- Along with that, **a regular awareness campaign** must be organized in collaboration with civil societies about the benefits of adoption of technology.
- Local authorities should be empowered to fill in the digital gaps in terms of advanced infrastructure, digital skills as well as digital public services and create an environment to facilitate digital innovation in rural areas.

6.8. GRAVITYRAT MALWARE

Why in news?

Maharashtra Cybercrime department has reported the malware **"GravityRAT"**.

Background

- The 'RAT' in the name stands for **Remote Access Trojan**, which is a program capable of being controlled remotely and thus difficult to trace.
- It was first detected by Indian Computer Emergency Response Team, CERT-In in 2017.
- Malware, or malicious software, is any program or file that is harmful to a computer user. It includes computer viruses, worms, Trojan horses and spyware.
- These malicious programs can perform a variety of functions, including stealing, encrypting or deleting sensitive data, altering or hijacking core computing functions and monitoring users' computer activity without their permission.

More about Gravity RAT

- It infiltrates a system in the form of an innocuous looking email attachment, which can be in any format, including MS Word, MS Excel, MS Powerpoint, Adobe Acrobat or even audio and video files.

> **CERT-In**
> - It is the **national nodal agency** for responding to computer security incidents as and when they occur, operational since January 2004.
> - In the **IT Amendment Act 2008**, it has been designated to serve following functions-
>   - Collection, analysis and dissemination of information on cyber incidents.
>   - Forecast and alerts of cyber security incidents.
>   - Emergency measures for handling cyber security incidents.
>   - Coordination of cyber incident response activities.
>   - Issue guidelines, advisories, vulnerability notes and whitepapers relating to information security practices, procedures, prevention, response and reporting of cyber incidents.
>   - Such other functions relating to cyber security as may be prescribed.

- Unlike most malware, which inflict short term damage, it is an **Advanced Persistent Threat (APT)** i.e. it silently evolves and does long-term damage.
- It is **self-aware and is capable of evading** several commonly used malware detection techniques such as '**sandboxing**' (used to isolate malware from critical programs on infected devices and provide an extra layer of security).
- Typically, malware activity is detected by the 'noise' it causes inside the Central Processing Unit, but GravityRAT is **able to work silently**.
- It can also **gauge the temperature of the CPU** and ascertain if the device is carrying out high intensity activity, like a malware search, and act to evade detection.

6.9. NEPAL ELIMINATES TRACHOMA

Why in news?

Recently, WHO has announced that Nepal has eliminated Trachoma and became the first country in South East Asia to do so.

What is Trachoma?

- It is a chronic infective eye disease caused by infection with the bacterium **Chlamydia trachomatis** which is transmitted through contact with eye

> **Criteria used by WHO for assessing a country's claim for having eliminated trachoma as a public health problem.**
> - less than 5% of children aged 1–9 years have signs of active trachoma which can be treated with antibiotics, in each previously-endemic district;
> - less than 0.2% of people aged 15 years and older have trachomatous trichiasis, which requires eyelid surgery, in each previously-endemic district; and
> - A health system which can identify and manage new cases of trachomatous trichiasis.

and nose discharge of infected people, particularly young children who are most vulnerable to the infection.
- It is also spread by flies which come in contact with the infected person and is most common under poor environment, low personal hygiene and inadequate access to water.
- It is one of the causes of the avoidable blindness and one of the 18 Neglected Tropical Diseases (NTD).
- During 1950s, India was a hyperendemic to Trachoma. About 50%-80% children from North-west India were affected by it.
- Ministry of Health and Family Welfare of India had recently released National Trachoma Survey Report and also declared **India Trachoma free** under **WHO GET2020 program**, however it has not been yet announced by WHO

Global Initiatives for Trachoma

- **WHO's SAFE (Surgery, Antibodies, Facial cleanliness, Environmental modification)** strategy (1997) and Global Elimination of Blinding Trachoma by 2020 to eliminate Trachoma.
- **GET2020**- a WHO International Alliance of interested parties who work for elimination of Trachoma also known as Alliance for Global Elimination of Trachoma by 2020.
- **Vision 2020 of WHO and IAPB** (International Agency for the Prevention of Blindness) - includes Trachoma as a priority under its disease control component.

6.10. WHO PUBLISHES ESSENTIAL DIAGNOSTICS LIST

Why in news?

World Health Organization (WHO) published its first **Essential Diagnostics List (EDL)** – which catalogues tests to diagnose the most common conditions and a number of global priority diseases.

Details

- EDL consists of **113 products** – 58 tests for a range of common conditions and the rest 55 test for "priority" diseases such as HIV, TB, HPV, syphilis, malaria and hepatitis B and C.
- It focuses on *in-vitro* **tests** i.e. test of human specimen such as blood and urine.
- Some tests are particularly suitable for primary healthcare centres, where there is a lack of laboratories and highly trained personnel.
- It is intended to **serve as a template** for countries to develop their own list. WHO will support the countries for its local adaptation.

Need and use for EDL

- It will help improve patient care and clinical outcomes, by encouraging the countries to build laboratories, accessible across habitations
- Diagnostics infrastructure so created may help detect emerging infectious diseases, facilitate epidemiological surveys, program evaluation and disease elimination
- Awareness and public demand, large-scale purchases and volume discounts will lower costs and make these services affordable e.g. Xpert MTB/RIF test which is a good test but not affordable on small scale
- Laboratory accreditation and training will also improve regulation and quality of diagnostics.
- It may help reduce Anti-Microbial Resistance and also provides leads for new product development, based on local public health profiles.

6.11. BIOSENSOR TECHNIQUE TO DETECT CHIKUNGUNYA VIRUS

Why in News?

Recently, Indian scientists have developed a **biosensor technique** to detect chikungunya virus.

Need

- There has been **rapid increase** (around 300-400 per cent) of Chikungunya cases in India during the period of 2014 to 2016.
- Chikungunya is detected through RT-PCR (Real-time polymerase chain reaction) from serum samples and by determination of serum anti-bodies which are **time consuming and cumbersome**.

About the Biosensor technology

- Scientist made a Molybdenum disulphide nanosheet which is absorbed onto the screen-printed **gold electrodes** and then used in the detection of **chikungunya virus DNA** using **electrochemical voltammetric techniques**.
- **Advantages:** Used to develop a **point of care device** for rapid identification of disease. It is suitable for mass production, has low cost, higher disposability and design flexibility as compared to traditional electrode materials.

> **About Chikungunya**
> - Chikungunya is a mosquito-borne viral disease spread by Aedes aegypti **and** Aedes albopictus **mosquitoes** (They transmit dengue and zika as well).
> - There is no cure for the disease. Treatment is focused on relieving the symptoms.

6.12. COSMIC MICROWAVE BACKGROUND RADIATION (CMBR)

Why in news?

Scientists from the **Raman Research Institute (RRI)** in **Bengaluru** have conducted an experiment for detection of Cosmic Microwave back ground radiation in a place called **Timbaktu in Andhra Pradesh**.

More about news

- The experiment by RRI can profoundly change our understanding of the early universe, specifically of events leading up to the formation of the first stars.
- Similar experiment conducted by Arizona State University (ASU) at a similarly quiet place in Australia in February this year has observed unusual and unexplained shapes in the spectrum of CMBR.
- Timbaktu is chosen as it is described as **Radio Quiet** — an area where there is virtually no interference from signals produced by modern technology like mobile, TV etc. which makes it most suitable place to detect even faint electromagnetic signals from the sky.

> **Important Scientific Inferences derived from CMBR:**
> - Most cosmologists consider this radiation to be **the best evidence for the hot big bang model of the universe.**
> - The early universe was filled with **hot, dense and extremely uniform gas**, mostly hydrogen.
> - The first stars were formed when these blobs of gas got together under the influence of gravity. **That is when visible light also made its first appearance** in the universe. Scientists refer to this phase **as cosmic dawn**.

Cosmic Microwave Background Radiation (CMBR)

- It was first discovered in **1964**.
- It is **an all-pervasive, but weak, electromagnetic radiation** from the early universe**, about 3,80,000 years after the Big Bang when matter was still to be formed.**
- This radiation **does not come from any of the objects that we see in the universe, like stars or galaxies** but from a time **when matter and radiation were in thermodynamic equilibrium**.
- The spectrum produced by **CMBR is very smooth**. It does, however, contain **small wiggles, or deformities**, in its shape.
- **Each of these wiggles has valuable encoded information** about specific events that took place as the first stars were born.
- CMB signals are so **faint**, and so pervasive is the **interference** from modern technology that there is a proposal to set up CMB observation experiments on the other side of the moon.

6.13. INTERSTELLAR ASTEROID 2015 BZ509

Why in news?

Scientist found an asteroid known as **2015 BZ509** which is supposed to be the first interstellar body to stay in our solar system.

More about news

- 2015 BZ509 was discovered in **2014**, **by Pan-STARRS (Panoramic Survey Telescope and Rapid Response System)** in **Hawaii** but at that time it was thought of as part of our solar system and **not regarded as interstellar object**.
- Now Researchers argue that It is **supposed to be captured from other star system** in the **early phase of formation of our solar system approximately 4.5 billion years ago**.
- Its orbit is "**retrograde,"** i.e. 2015 BZ509 **moves around the sun in the opposite direction (clockwise if seen from Sun's imaginary North Pole)** of Jupiter, Earth and most other bodies in the solar system.
- The **orbit of the asteroid almost coincides with the Jupiter.**

6.14. QUEQIAO RELAY SATELLITE TO EXPLORE FAR SIDE OF MOON

Why in news?

China launched a relay satellite to be the first to land a spacecraft on the far side of the moon.

Details

- As a part of Mission **Chang'e 4** under Phase II of Chinese Lunar Exploration Programme (CLEP), China launched Queqiao (or "Magpie Bridge,").
- It is now on its way to the Lagrange point-2 (L2) of Earth-Moon system and will function as a communication relay satellite between the Earth and Chang'e 4 lander-rover spacecraft.
- Chang'e 4 spacecraft is scheduled to be launched in December 2018.

> **How much moon do we see from earth?**
> From Earth, **59%** of the moon is visible over a period of time. This is explained by two phenomena:
> - **Tidal locking:** Moon takes nearly same time i.e. 27 days, to come one orbit around the Earth and also to rotate once on its own axis. Thus, same side of the moon is visible from Earth while the farther remains dark
> - **Lunar vibrations:** due to tidal locking, ideally 50% of the moon should be visible but we see 59% because of north-south rocking and east-west wobbling of moon – rightly called as lunar vibrations
>
> **Lagrange point or L-point:**
> It a point where combined gravitational forces of two bodies, say Earth and sun or Earth and moon, equal the centrifugal force felt by much smaller body. Such interaction of forces creates equilibrium where spacecraft can be positioned to make observations.

6.15. NEW ELEMENT WITH MAGNETIC PROPERTIES DISCOVERED

Why in News?

Researchers at the University of Minnesota (US) have discovered **magnetic properties in chemical element ruthenium (Ru).**

About Ruthenium (Ru)

> **Ferromagnetism**
> It is the property of material by which certain materials (such as iron) form permanent magnets or are attracted to magnets.

- It belongs to the platinum group, has atomic number 44 and is mostly used in the electronics industry for chip resistors and electrical contacts.
- It is the **fourth element to have unique magnetic properties** at room temperature.
- Other than this only three elements have been found to be ferromagnetic at room temperature - **iron (Fe), cobalt (Co), and nickel (Ni).**
- It is one of the **rarest metals on the earth**, resistant to oxidation, and additional theoretical predictions claim it has a high thermal stability.
- Magnetic materials are of great importance to modern industry and are used in many everyday applications such as sensors, electric motors, generators, hard drives and Spintronic storage.

6.16. INTELLECTUAL PROPERTY RIGHTS MASCOT

Why in news?

Recently, Ministry of Commerce and Industry launched Intellectual Property Rights (IPR) Mascot - IP Nani.

More from news

- Mascot IP Nani has been launched to create awareness among people specially children which will fulfill the objective of **National Intellectual Property Rights Policy** i.e. IPR Awareness: Outreach and Promotion.
- Mascot IP Nani is a tech-savy grandmother who helps the government and enforcement agencies in combating IP crimes.
- CIPAM (Cell for IPR Promotion and Management) had collaborated with the European Union Intellectual Property Office (EU-IPO) to produce a series of animated videos on IPRs for children with IP Nani as their central character.

> **World Intellectual Property Organisation (WIPO)**
> - It is a specialised self-funding United Nations agency which acts as global forum for intellectual property services, policy, information and cooperation.
> - It was established under the WIPO Convention in 1967 and currently has 191 member states.
> - India joined WIPO in 1975 and has established various IP laws and regulations.
> - **Mission** - to lead the development of a balanced and effective international intellectual property (IP) system that enables innovation and creativity for the benefit of all.
>
> **World IP Day**
> - It is celebrated every year on 26th April to celebrate the brilliance, ingenuity, curiosity and courage of women and indeed everyone in their quest to bring their amazing ideas to market.

- The character is also in line with the **World Intellectual Property Organisation's (WIPO)** campaign for the **World IP Day**.

6.17. GREEN PROPELLANT

Why in news?

- ISRO has reported progress in the development of an environment-friendly propellant to power satellites and spacecrafts.

Details

- Liquid Propulsion Systems Centre (LPSC) of ISRO is developing a green monopropellant based on **hydroxyl ammonium nitrate (HAN) to replace hydrazine.**
- The HAN based green propellant also contains ammonium nitrate (AN), Methanol and Water. Methanol reduces combustion instability and AN controls the burn rate and lowers the freezing point of the propellant.
- The conventional hydrazine rocket fuel is a **highly toxic and carcinogenic chemical**.

- A monopropellant is a chemical propulsion fuel which **does not require a separate oxidizer**. It is used extensively in satellite thrusters for orbital correction and orientation control.

- Green propellant is needed as almost any propellant that gives good performance is a very active chemical; hence, most propellants are corrosive, flammable, or toxic, and are often all three.

7. SOCIAL

7.1. WOMEN SAFETY IN INDIA

Why in news?

- Recently, Ministry of Home Affairs has created a new division to address issues related to women safety in comprehensive manner in coordination with relevant Ministries/ Departments and State Governments.

Women safety in India

- Women safety involves various dimensions such as Sexual harassment at workplace, rape, marital rape, dowry, acid attack etc.

> **This new Division will also deal with**:
> - Crimes against SCs &STs.
> - Crimes against children, elderly persons.
> - Anti-trafficking Cell.
> - Matters relating to Prison legislation and prison Reforms.
> - All schemes under NIRBHAYA fund.
> - Crime and Criminal Tracking & Network System (CCTNS).

- The **United Nation's 'Safe Cities and Safe Public Spaces' programme**, which started in 2010, recognized that cities all around the world were becoming unsafe for women.
- The **latest NCRB data for the year 2016** shows that
  - Overall crimes against women have risen by just about 3%, whereas incidents of rape have gone up by 12%.
  - Majority of cases categorized as crimes against women were reported under '**Cruelty by husband or his relatives' (32.6%).** This draws a bleak picture of women safety in private places or home.

Challenges in addressing women safety

- **Lack of reporting**: It is seen as a major roadblock for creating a safe atmosphere for women.
- **Slow criminal justice system:** The investigation and disposal of cases take long time thereby encourage offenders.
- **Inadequate implementation:** Many employers are yet to establish Internal complaints committee which is a clear violation of law.
- **Poor gender sensitization** of law enforcing agencies like police, judiciary etc.
- **Various social factors** like level of education/illiteracy, poverty, myriad social customs and values, religious beliefs, mindset of the society etc. also pose a challenge.
- **Frivolous complaints**: This is seen mostly in context of domestic violence act.
- **Exclusion by Technology**: Technology though helpful to enhance public safety in certain ways, but **its scope is limited so far** as they **exclude women without access to smartphones**.

> **Common reasons for failure to report safety concerns**
> - **Lack of understanding:** Most women perceive that the behavior is not serious enough for them to take the next step and complain.
> - **Lack of faith in complaint process**: as they think the process can be embarrassing & difficult.
> - **Social stigma**: Fear of being looked down upon in the society.
> - **Fear of retaliation:** by the harasser.
> - **Fear of repercussions** in promotions and career growth.
> - **Non-inclination of family to report** such incident as the offenders are known to victim most of the times.

- **Hinders women development:** For example- Sexual harassment at workplace is one of the most important causes of low labour force participation rate of women in India. Male dominated nature of India's public sphere is being recognized but not challenged.

Some steps taken by government

- **For sexual harassment at workplace**- VISHAKA guidelines by Supreme Court which provide measures to be taken by employers, Sexual Harassment of Women at workplace (prevention prohibition and redressal) Act 2013 by parliament, SHE Box by Ministry Of Women and Child Development for online complaint.
- **For rape cases**: Proposal of *Justice Verma Committee* was accepted to treat juvenile between 16-18 years age as an adult for committing heinous crimes. Recently, the government has brought amendments in PoCSO act 2012 in which Rape of girl child below 12 years will be punished by death penalty
- **For domestic violence**: Domestic violence act 2005 and Section 498A of IPC deals with cruelty by husband or relatives.

- **Other initiatives**: SWADHAR: A Scheme for Women in Difficult Circumstances, GPS tracking, 'panic buttons' etc.
- Government is also planning to set up a dedicated **National Mission on women safety to ensure specified actions by Ministries and Department**

Way forward

- **Strengthening criminal justice machinery:** Strict enforcement of laws, setting up of fast track special courts, strengthening of prosecution machinery, strengthening of Alternate Dispute resolution mechanism like Lok Adalat, implementing **Draft National Policy for Women 2016** in letter and spirit etc.
- **Encourage women to step up and speak** to the relevant committee in the organization in case of any issues such as harassment and improper conduct and situation. Women should also be trained for self-defence.
- **Gender sensitisation** of the law enforcement agencies, especially the police and the judiciary through periodic training as well as instituting gender-sensitization trainings in corporates
- **Development of a community-based strategy** to tackle domestic violence and community policing initiatives such as Mahila Suraksha Samiti and Women State Committee to check crimes
- **Adopting zero tolerance policy** towards any form of harassment at the workplace. It should be embedded in an organization's various policies and principles, such as the code of conduct.
- Civil society in collaboration with all sections of society should organize several grass root movements. Many movements like '**Pinjra Tod**' and '**One Billion Rising**' are contributing significantly via bottom up approach for the cause of women safety.
- **Moral education**: Moral overhauling of the mindset of masses should be attempted through awareness and education.

7.2. BURDEN OF STUNTING IN INDIA

Why in news?

Recently, a research 'Understanding the geographical burden of stunting in India' was published by the International Food Policy Research Institute (IFPRI).

More about the research

- The paper has tried to understand the geographical burden of stunting across districts, using data from the National Family Health Survey 4 (2015-2016).
- In India, 38.4% (63 million) of children under five are stunted. It accounts for about a third of the world's total population of stunted preschoolers.
- Stunting prevalence varies considerably across districts ranging from 12.4% to 65.1%. 239 of the 640 districts have stunting levels above 40%.
- High-stunting districts are heavily clustered in the northern and central states of India. They are home to 80% of the stunted children in India. In comparison, all the southern states put together account for about 13% of the stunted children in India.

International Food Policy Research Institute
- It was established in 1975 to provide research-based policy solutions that sustainably reduce poverty and end hunger and malnutrition
- It is a research center of CGIAR (Consultative Group on International Agricultural Research), a worldwide partnership engaged in agricultural research for development.
- Its releases **Global Food Policy Report** annually.

Child Stunting
- It is defined as low height for age among children less than five-year-old.

Underlying causes behind various determinants of stunting
- **Poverty**: It hinders the accessibility of adequate food.
- **Lack of Awareness:** about nutritional needs of infants and young children.
- **Social strains on Women**: Early marriages of girls leads to teenage pregnancies resulting in low birth weight of the new-borns, poor breastfeeding practices and poor complementary feeding practices.
- **Male domination**: In most Indian families, women even take food after the male members where they get less nutritious food.
- **Lack of health infrastructure** leads to poor access to health.
- **Lack of availability of safe drinking water** hinders proper digestion and assimilation of food and also cause water and food borne diseases.
- **Poor sanitation and environmental conditions** leads to spread of many diseases that sap children's energy and stunts their growth.
- **Other causes:** illiteracy in women and large household size.

These factors also explain differences in stunting prevalence between low and high burden districts

Steps taken by Government

- **National Nutrition Mission** with a target to bring down stunting in children from 38.4% to 25% by 2022.
- **Integrated Child Development Services (ICDS) Scheme**: ICDS covers the nutrition needs of children of 6 months -6 years age, pregnant and lactating mothers.
- **Nutrition Rehabilitation Centres (NRCs):** special units for the treatment of children with severe acute malnutrition.
- **Other health and nutrition related schemes:** Food security act, National Health Mission, Mid-Day Meal scheme, and Pradhan Mantri Surakhit Matritva Yojana**.**

Conclusion

Government needs to meet constitutional obligation under **Article 47** which states that it is the "duty of the State to raise the level of nutrition and the standard of living and to improve public health". The steps towards nutrition would also help in achievement of SDG goal 2 – "End hunger, achieve food security and improved nutrition".

Following steps can be taken by government:

- **Systematic data collection** as lack of disaggregated stunting data at the district level has been a challenge for policy and programme strategies in a decentralized governance system.
- **Institutional mechanism:** A **food and nutrition commission** should be established, headed by the Prime Minister.
- **Fortified foods**: It can be incorporated into a mid-day meal, public distribution shops and anganwadi centres. Micronutrients should be adequately emphasised. Therapeutic feeding can be undertaken for children with severe acute malnutrition.
- **Collaboration with civil society:** NGOs should be promoted to educate women about family planning and child nourishment.
- **Change in approach towards malnutrition:** There is need to go beyond the current focus on health and nutrition and target social inequalities. Very high-stunting districts could eliminate 71% of the gap with low-stunting districts if they are able to improve on specific issues of gender and inequality.

7.3. ONE STOP CENTRES

Why in News?

Ministry of Women and Child Development has approved 100 additional One Stop Centres.

One Stop Centre (OSC) Scheme

- It is a sub-scheme under **National Mission for Empowerment of women** which is being run by Ministry of Women & Child Development.
- It is aimed at supporting **women affected by violence** in private and public spaces, within the family, community and at the workplace.

> **Services Offered by OSC**
> - Emergency response and rescue services.
> - **Medical Assistance** to women affected by Violence.
> - **Skilled counsellor** to provide Socio-Psychological Support/ Counselling.
> - Assistance to women in **lodging FIR**.
> - **Temporary shelter** to aggrieved women.
> - **Legal Aid** and Counselling.
> - **Video Conferencing** to facilitate speedy and hassle-free police and court proceedings.

- Establishment of OSCs was one of the **key component of Nirbhaya Fund.** Every OSC is integrated with newly operational **Women's Helpline (181).**
- The first OSC built at **Raipur, Chhattisgarh** has received the President's award on March 8, 2018 on the International Women's Day.

Constraints of OSC

- **Limited capacity**- At present, each centre can shelter only five victims, irrespective of the size and demography of a district. They are also not equipped with required number and skills (e.g.-skilled IT staff) of staff personnel.

- **Lack of awareness**- Hospitals that are required to maintain such OSCs are either unaware of the requirement to maintain or have not set up the relevant infrastructure in accordance with the guidelines that have been set in place.

Way Forward

- **Improvement in Housing Capacity & Staff Strength**- Both must be increased, based on the population, crime-against-women index of a district and average no. of cases dealt by each OSC.
- **Improvement in Cyber Security Architecture**- More stringent cyber security measures are required to keep the **identity of the victim secret** which is legally mandatory.
- **Skilling of the Staff-** OSCs require skilled IT staff and case workers, and there must be reskilling of existing staff.

7.4. PRADHAN MANTRI JAN VIKAS KARYAKARAM (PMJVK)

Why in news?

The **Multi-sectoral Development Programme** (MsDP) under Ministry of Minority Affairs has been restructured and renamed as **Pradhan Mantri Jan Vikas Karyakram** (PMJVK).

PMJVK or Restructured MsDP:

- **The criteria for identification** of Minority Concentration Towns (MCTs) and Cluster of Villages has been rationalised and is based on 2011 census:
  - Earlier only those Towns which were found backward in terms of both in **Basic Amenities and Socio-economic parameters** were taken up as MCTs. Now, the Towns which were found backward in **either or both** of the criteria have been taken up as MCT.
  - Now the population criteria for selection of cluster of villages has been **lowered to 25% population** of minority community (which was earlier at least 50%)**.**
- **Funding of the scheme** would be from budgetary provision of the Ministry of Minority Affairs. The recurring/maintenance expenses will be borne by the State Government/UTs/Organization.
  - **80%** would be earmarked for projects related to **education, health and skill development.**
  - **33 to 40%** would be specifically allocated for **women centric projects.**
- The PMJVK would now cover **five more States/UTs** namely Himachal Pradesh, Tamil Nadu, Nagaland, Goa and Pondicherry (total 32 States/UTs).
  - Minority Concentration Areas of 61 districts out of 115 Aspirational districts have been covered under PMJVK.
  - Unit area of implementation has been further broadened by including **Minority Concentration Districts Headquarters** in addition to the minority concentration Blocks, Minority Concentration Towns and cluster of minority concentration villages.
- The area to be covered under PMJVK would be **57% more** (308 districts) as compared to the existing MsDP (196 districts).
- **Monitoring Mechanism:**
  - An online module along with **geo-tagging** has been included.

> **MsDP**
>
> - It has been identified as one of the **Core of the Core Schemes** under National Development Agenda of NITI Aayog.
> - The programme was launched in the year 2008-09 in 90 identified Minority Concentration Districts (MCDs) having at least 25% minority population.
> - It was designed to address the developmental gaps/deficits in identified backward minority concentration areas by **topping up of existing Centrally Sponsored Schemes** of various Central ministries/departments without any change in the norms, guidelines and the funding pattern.
> - The projects considered are additional class rooms, laboratories, school buildings, hostels, toilets, buildings for Polytechnics, ITIs, Community Health Centres, Primary Health Centres / Sub-centres, Anganwadi Centres, Rural Housing etc.
> - It also provides for taking up innovative projects which are not covered by any of the existing CSS of various ministries and these are funded in the ratio of 60:40 (90:10 for NE and Hilly States) between the Centre and States.

7.5. PRADHAN MANTRI VAYA VANDAN YOJANA (PMVVY)

Why in news?

Investment Limit for Senior Citizens has been doubled under Pradhan Mantri Vaya Vandan Yojana (PMVVY). The time limit for subscription has also been increased from May 4, 2018 to March 31, 2020.

About PMVVY

- It has been **launched by Ministry of Finance** to provide an assured pension based on a guaranteed **rate of return of 8% to 8.3% per annum** for ten years, with an option to opt for pension on a monthly / quarterly / half yearly and annual basis.
- It will enable to provide a **larger social security cover to the Senior citizens** (aged 60 years and above) and enable upto Rs.10,000 Pension per month for them.
- The investment limit (purchase price) was kept between Rs 1.5 lakh and 7.5 Lakh (now 15 Lakh) per family. A **loan facility** is also available after completion of 3 policy years. The maximum loan that can be granted shall be 75% of the Purchase Price.
- The deposits made in the scheme are exempt from income tax. However, the interest earned on the deposit is not exempt from income tax.
- The scheme is implemented by LIC, and GoI compensates LIC through subsidy if return generated is less than the guaranteed return.

7.6. PRADHAN MANTRI SWASTHYA SURAKSHA YOJANA (PMSSY)

Why in news?

Union Cabinet has approved the continuation of PMSSY beyond 12th Five Year Plan to 2019-20.

About PMMSY

- It is a **Central Sector Scheme** under Ministry of Health and Family Welfare and was announced in 2003, with two components:
  - Setting up of AIIMS-like institutions; and
  - Up-gradation of existing State Government Medical College (GMCs)
- It aims **to correct the imbalances in the availability of affordable tertiary healthcare facilities** in different parts of the country in general, and augmenting facilities for **quality medical education** in the under-served States in particular.

7.7. SWACHH SURVEKSHAN 2018

Why in news?

The results of Swachh Survekshan 2018 were announced recently.

More about the news

- The Swachh Survekshan survey has been launched under **Swachh Bharat Mission**.
- The Ministry of Housing and Urban Affairs takes up the Swachh Survekshan in **urban areas** and the Ministry of Drinking Water and Sanitation in **rural areas**.
- The **Quality Council of India (QCI)** is responsible for carrying out the assessment.

Quality Council of India
- It was **set up 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) and Federation of Indian Chambers of Commerce and Industry (FICCI).
- It aims to establish and operate **national accreditation structure** and promote quality through National Quality Campaign.
- It is **governed by a Council** of 38 members **with equal representations** of government, industry and consumers.
- **Chairman of QCI** is **appointed by the Prime Minister** on recommendation of the industry to the government.
- The Department of Industrial Policy & Promotion, **Ministry of Commerce & Industry**, is the nodal ministry for QCI.

- All 4041 cities were part of Swachh Survekshan-2018. 500 cities with populations more than 1 lakh have been ranked on national level while 3,541 cities with less than 1 lakh population will have State and Regional ranking.
- The three cleanest cities as per the Survekshan 2018 are Indore, Bhopal and Chandigarh
- Jharkhand was adjudged the best performing state, followed by Maharashtra and Chhattisgarh.
- The 2018 survey captured the progress in following 6 broad parameters
  o Collection and Transportation of Municipal Solid Waste
  o Processing and Disposal of Municipal Solid Waste:
  o Sanitation related progress
  o IEC (Information, Education and Communication)
  o Capacity Building
  o Innovation and Best Practices (Used for the first time to learn how our cities have responded the call for Make India Clean and ODF by October 2019).
- **Negative marking was also introduced this year** to ensure cities do not make false claims about improvement in sanitation infrastructure.

7.8. 71ST ASSEMBLY OF WHO

Why in news?

The World Health Organization's 71st World Health Assembly was recently held.

Highlights of the assembly

- The meet's primary focus this year is **universal health coverage**
- It has **developed a new strategic plan for the next five years** to help the world **achieve the Sustainable Development Goals** – with a particular focus on SDG3- ensuring healthy lives and promoting wellbeing for all at all ages by 2030.
- It sets three targets to ensure that by 2023-
  o 1 billion more people benefit from universal health coverage;
  o 1 billion more people are better protected from health emergencies; and
  o 1 billion more people enjoy better health and wellbeing.
- WHO estimates that achieving this **"triple billion"** target **could save 29 million lives.**
- **Digital health resolution** initiated by India was adopted as its first resolution on digital health.
- The Assembly also adopted a resolution to help countries **tackle snake bites.**

> **World Health Assembly**
> - It is the **decision-making body** of WHO, attended by delegations from all WHO Member States and focuses on a specific health agenda prepared by the Executive Board.
> - The **main functions** of the World Health Assembly are to determine the policies of the Organization, appoint the Director-General, supervise financial policies, and review and approve the proposed programme budget.
> - It is **held annually** in Geneva, Switzerland.

7.9. PROTOCOL UNDER WHO FRAMEWORK CONVENTION ON TOBACCO

Why in News?

Cabinet has given approval for India to accede to the Protocol under **WHO Framework convention on Tobacco Control (WHO FCTC)** to eliminate unlawful trade in tobacco products.

Background

- The WHO Framework Convention on Tobacco Control (WHO FCTC) is the **first international public health treaty** negotiated under the auspices of the WHO.
- The **objective of this Convention** and its protocols is to **protect present and future generations** from the devastating health, social, environmental and economic consequences of tobacco consumption and exposure to tobacco smoke.
- India is a party to WHO FCTC.

Details of the Protocol

- One of the key **tobacco supply reduction strategies** contained in Article 15 of WHO FCTC envisages **elimination of all forms of illicit trade and tobacco products**, including smuggling, illicit manufacturing and counterfeiting through-
  - S**upply chain control measures** to be adopted by the parties viz. licensing of manufacture of tobacco products and machinery for manufacturing of tobacco products, due diligence to be kept by those engaged in production, tracking and tracing regime, record keeping, security, etc.
- The protocol **lists out offences**, enforcement measures such as **seizures and disposal** of seized products.
- It calls for **international cooperation in** information sharing, maintaining confidentiality, training, technical assistance and cooperation in scientific and technical and technological matters.

8. CULTURE

8.1. ADOPT A HERITAGE

Why in news?

Recently, the Red Fort has been leased out to Dalmia group.

More about such lease

- The monument has been adopted under 'Adopt a Heritage' Scheme of **Ministry of Tourism,** wherein a company utilises its **CSR** to develop and upkeep the monument.
- The **legal status of the monument does not change** after adoption.
- The company does not collect any money from the public unless allowed by the government, and profits, if any, are used to maintain and upgrade tourism facilities.

> **Archeological Survey of India (ASI)**
> - Founded in 1861, it is an attached office of the Ministry of Culture.
> - It is the premier organization for the archaeological research, scientific analysis, excavation of archaeological sites, etc.
> - Under the provisions of the Ancient Monuments and Archeological Sites Remains Act of 1958, the ASI administers more than 3650 ancient monuments, archaeological sites and remains of national importance.

Arguments for involving private enterprises

- The ASI is responsible for the upkeep of these monuments. However, it faces various issues like lack of funds and expertise, inability in policing entry and warding off encroachers, etc.
- **Outsourcing** is already being done to restore monuments e.g. The Agha Khan and the Dorabji Tata Trusts were recently involved in the restoration of the Humayun's Tomb.
- Corporates frequently sponsor the development and upkeep of **sites across the world**, especially in Europe e.g. in restoration of the Colosseum, Trevi Fountain, management in Angkorvat Temple, etc.
- Along with the government, corporates can be allowed to take some responsibility with proper **monitoring and safeguards.**

Arguments against their involvement

- The heritage of a country is national. It should be available to everybody and should not represent the agenda or interests of a private company.
- Many of the sites advertised for adoption are religious or of religious importance, pushing them further into the consumption-ruled private market can be seen questionable.

Adopt A Heritage: Apni Dharohar Apni Pehchan

- It is a **joint initiative** of Ministry of Tourism, Ministry of Culture, ASI and State/UT Governments.
- It aims to involve **public sector companies, private sector companies and corporate citizens/individuals** to take up the responsibility for making heritage and tourism more sustainable through development, operation and maintenance of world-class tourist infrastructure and amenities at the Indian heritage sites.
- The program **outlines concrete responsibilities** for the private companies, such as creating new infrastructure, new amenities and new levels of cleanliness, maintaining the existing operations, making the monument more popular, and taking better care of tourists.
- The firm will, among others, have a responsibility to better advertise the site but will also be able to advertise itself through the site.
- The companies are selected through **Vision Bidding** (i.e. company with best vision for the heritage site gets the opportunity), and are called **Monument Mitras.**
- The Project envisages **limited 'access'** to non-core areas and **'no handing over of monuments'** are involved.

To know more about the scheme, Please go through Government Schemes, 2018 of Vision IAS (under Ministry of Tourism).

8.2. SADHARAN BRAHMO SAMAJ

Why in News?

Recently, governing bodies of eight colleges of **Sadharan Brahmo Samaj (SBS),** has been dissolved by the West Bengal government.

More on News

- The government stated that SBS is not a "**separate minority religion",** the related colleges administered by it should be treated as "non-minority Government-aided Colleges.

About Sadharna Bhramo Samaj (SBS)

- It is a general community of worshipers of one God**,** formed in May 1878, trace back its roots to **The Brahmo Samaj.**
- It was formed by the followers of Keshav Chandra Sen (Brahmo Samaj India) after he violated the Brahmo Marriage Act by marrying his 13 year old daughter with Maharaja of Cooch-Bihar.
- Anandamohan Bose was its first President.
- In 1891, it opened the **Das Ashram**, a welfare institution of untouchables, and the Brahmo Girls School of Calcutta, and also founded small hospitals, orphanages, a leper asylum.
- Its basic **principles** are-
  - o It believes in the existence and personality of God,
  - o It believes in the immortality of the human soul.
  - o It does not **believe in** any **particular book** or collections of books as the one infallible revelation of divine truth, love, and final authority.
  - o It does not believe in **specific incarnation** the Deity.
  - o **It accepts, respects, and uses of** scriptures of the world, (not as infallible) as ancient records of the moral and spiritual experiences.
- It is involved in various educational, social, medical and other welfare activities.

> **About Brahmo Samaj**
> - **Founded** in 1828 as **Brahmo Sabha,** by Raja Ram Mohan Roy. Later it become Brahmo Samaj.
> - **Doctrine:** Believe in existence of one God,
>   - o No revelation, prophet or holy book is infallible or to be considered as authority.
>   - o Human being is created from Singularity
> - **Social and Religious reform:** abolition of caste system, child marriage and practice of Sati, opposed idolatry, condemned polygamy, and dowry system.

8.3. THOLU BOMMALATA

Why in news?

Tholu Bommalata', the shadow puppet theatre tradition of Andhra Pradesh, has been declining.

> **Other shadow puppets**
> - Ravanachhaya, Odisha
> - Chamadyache Bahulya, Maharashtra
> - Togalu Gombeyaata, Karnataka
> - Tolpava Kuthu Vellalachetti, Kerala

More about the Tholu Bommalatam

- It literally means "the dance of leather puppets" (tholu – leather and bommalata – puppet dance).
- The puppets are large in size and have jointed waist, shoulders, elbows and knees.
- The puppets are mostly made of skin of antelope, spotted deer and goat. Auspicious characters are made of antelope skin and deer skin.
- They are coloured on both sides. Hence, these puppets throw coloured shadows on the screen.

Puppeteers narrate stories from the twin-epics of Ramanayana and Mahabharata with animated movement of arms and hands to give a three-dimensional effect.

9. ETHICS

9.1. ANIMAL TESTING

- Animal Testing or Experimentation involves the use of animals to develop and test safety of new medicines, drugs, cosmetics, medical procedures and other industry products.
- Animals are subjected to pain, stress, ear-notching, genetic manipulation, physical restraint, food-and-water deprivation, asphyxiation and other manipulations.

Ethical questions and concerns involved:

- **What is the moral status of an animal?**
  - o Given the animals' capacity to suffer, to enjoy life etc., shall we equate their moral status to that of humans?
- **Do they have innate rights?**
  - o Animals lack cognitive abilities and full autonomy, unlike humans. Hence, humans have limited obligations towards them.
- **How does one distinguish between animals and infants or disabled humans?**
  - o It is **speciesism** (a concept akin to racism) to experiment on animals while refraining from human experiments.
- Inability of the animals to consent.
- Animals are subjected to unnatural state of existence.
- It is also argued that there is lack of proven benefits to humans, out of these methods.

> **Related Facts**
> - Supporters of animal testing, such as the British Royal Society, argue that virtually every medical achievement in the 20th century relied on the use of animals in some way.
> - It is estimated that more than 115 million animals worldwide are used in laboratory experiments every year.
> - Most animals are euthanized after being used in an experiment.
> - National Institutes of Health (US) has noted that 95% of all drugs that are shown to be safe and effective in animal tests fail in human trials because they do not work or are dangerous.

> **Speciesism:** It is about giving sanction to the idea that being human is a good enough reason for human animals to have greater moral rights than non-human animals.
>
> It legitimizes the principle of Homo-centrism or Anthropo-centrism.

The issue invokes the following two of the Seven Sins, outlined by Gandhi ji:

- Science without humanity
- Knowledge without Character

ETHICAL DILEMMA		
Using animals as scientific resources to further medical science and save lives	V E	Treating animals with due regard to their existence, pain and suffering as living beings, and avoiding unnecessary abuse
Ends i.e. benefits for human beings	R	Means i.e. use of 'lesser' living beings
Human rights	S	Animal rights
Religious traditions allow for human dominion over animals	U S	Religious traditions also tell us to be merciful to animals and refrain from cruelty against them

What can be done to overcome the ethical dilemma?

Using animals for research should evolve out of a strong sense of **ethical introspection**, which involves a careful self-analysis of one's own personal and scientific motives. Further, following would help in better treatment of animals:

- Deploying the Principle of 3Rs (see Box); this has also been adopted as a legal requirement in the European Union and other nations.
- Adopting standard guidelines for animal testing, such as:

> **PRINCIPLE OF 3Rs**
>
> **Reduction:**
> - Use less complex animals wherever possible e.g. bacteria over mammals
> - Minimize the number of animals used
> - Share the results with other researchers
>
> **Refinement:**
> - Use animal subjects/models only to obtain information not already available in the scientific community
> - Use less invasive techniques
>
> **Replacement:**
> - Use animal testing only in the absence or non-viability of alternative methods.

o   Monitor and improve the conditions of laboratory animals
o   Use anaesthesia appropriately
o   Deploy trained personnel to handle animals
*   **Alternatives to animal testing:**
    o   *In vitro* methods i.e. using human cell cultures and tissues e.g. organs-on-a-chip
    o   *In silico* methods i.e. advanced computer-modelling
    o   Engagement of human volunteers e.g. micro-dosing
    o   Use of human-patient simulators for medical training.

| Arguments for Animal testing	Arguments against Animal testing
• Leads to many life-saving cures and treatments	• Time- and resource-intensive
• No adequate alternative to testing on a living, whole-body system	• Provide little understanding of how chemicals behave in the body
• Overcome ethical considerations involved in the use of human subjects	• In many cases, do not correctly predict real-world human reactions and do not ensure safety
• Shorter life cycles make animals better research subjects	• Anatomic, metabolic, and cellular differences from humans, make animals poor models
• Benefits animals also, as animal treatments are developed during their experimentation	• Medical progress is, at times, held back by inadequate animal models or due to delays in requisite permissions/ licence to carry out animal testing.

9.2. SOCIAL LICENCE TO OPERATE (SLO)

Why in news?

Tamil Nadu government announced the closure of Sterlite copper plant in Thoothukudi post-violence that claimed 13 lives, in June 2018. The violence is a clear manifestation of loss of SLO by Sterlite Industries.

What is Social Licence (SLO)?

*   Acceptance of upcoming or ongoing business/ project within the pre-existing social contracts that bind communities.
*   SLO engages stakeholders, employees and the general public.
*   Its nature is dynamic and non-permanent, requiring constant maintenance.
*   It relates to the concepts of **sustainability** and **triple bottom line** (a measure of company's economic value, environmental impact and degree of social sustainability).
*   'Social' can be said to be derived from common law, while 'licence' is derived from civil law – thus SLO enjoys acceptance by a vast network.

KEY STAGES TO SOCIAL LICENCE

(note the difference between acceptance & approval)
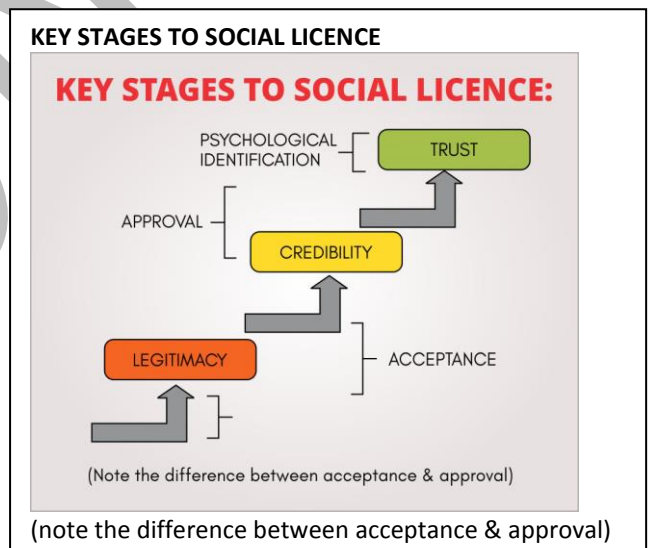
10. MISCELLANEOUS

10.1. CHANGE IN THE SHAREHOLDING PATTERN OF GSTN

Why in News?

The GST Council has approved a proposal to convert GST Network into a government owned entity.

Modification in the Shareholding Pattern

- The GST Network currently is **24.5 per cent owned by the Central government**, **24.5 per cent held by state governments** collectively, and the remaining 51 per cent is with HDFC Ltd, HDFC Bank Ltd, ICICI Bank Ltd, NSE Strategic Investment Co and LIC Housing Finance Ltd.
- After the proposed change in shareholding pattern, the **Centre will own a 50 per cent stake** and the rest will be held collectively by the states.

> **About GSTN (GST Network)**
> It is a **not for profit organization owned by the government and private sector jointly and** set up primarily to provide IT infrastructure and services to the Central & State Governments, tax payers & other stakeholders for GST implementation.

10.2. PRAAPTI

Why in News?

Recently, Ministry of state for power launched a Web portal and an App namely PRAAPTI (Payment Ratification and Analysis in Power procurement for bringing Transparency in Invoicing of generators).

About PRAAPTI

- It will capture the Invoicing and payment data for various long-term Power Purchase Agreement (PPAs) from the Generators.
- Thus, its significance includes-
  o It will also enable the consumers to evaluate financial performance of their Discoms in terms of payments being made to the generation companies.
  o It would also help DISCOMs and GENCOs to reconcile their outstanding payments and enhance **transparency** and encouraging best practices in Power Purchase transactions.
  o It would facilitate relative assessment of various State DISCOMs on Ease of making payments to various Generation Companies.

10.3. STATE SYMBOLS OF ANDHRA PRADESH AND TELANGANA

Why in news?

Recently, Andhra Pradesh and Telangana announced its state animal, tree, flower and bird.

More from the news

- Andhra Pradesh Government Order notified
  o **Black Buck** also known as Krishna Jinka - **State animal**
  o **Rose Ringed Parakeet** also known as Rama Chiluka - **State Bird**
  o **Neem (Vepa Chettu)** - **State Tree**
  o **Jasmine** (Malle Puvvu) - **State Flower**
- Telangana Government has retained **Palapitta (Blue Jay) as the state bird** and announced **Jinka (deer) as state animal**, **Jammi Chettu** as **state tree** and **Tangedu Puvvu** as the **state flower**.

10.4. WORLD'S FIRST FLOATING NUCLEAR PLANT

Why in News?

Russia has created world's first floating nuclear plant (FNPP) named as Academik Lomonosov.

About the Plant

- It is owned by the state-run nuclear energy corporation **Rosatom,** which is also the equipment suppliers and consultants for the **Kudankulam Nuclear Power Project** in Tamil Nadu.
- It has a capacity of 70MW and is equipped with two reactors of 35MW each having operational life span of 40 years.
- Upon its connection to the Power grid, Akademik Lomonosov will become the **northernmost nuclear installation in the world** and it is expected to be put into service in early 2019.
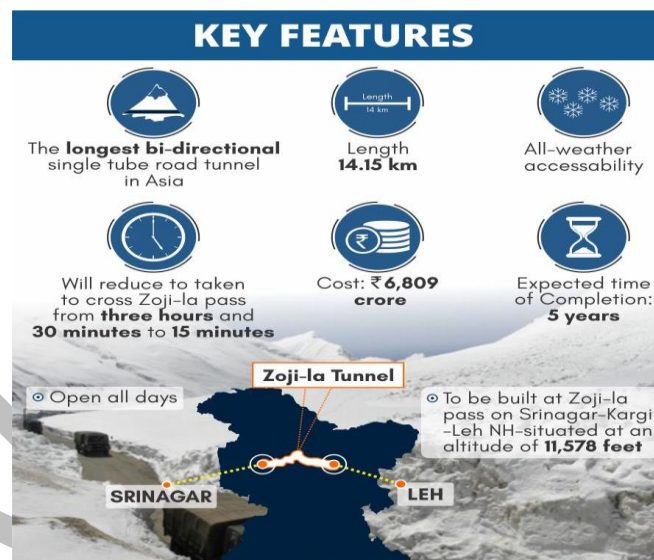
10.5. ZOJILA TUNNEL

Why in news?

- Recently, work was started on Zojila tunnel in the north-east of Srinagar in Jammu and Kashmir.

Importance of the tunnel

- It will provide all-weather connectivity between Srinagar, Kargil and Leh, which remain cut-off from rest of country for several months in the winter due to heavy snow.
- The project will make the travel free from threat of avalanches.
- The project is important from the strategic point of view as it will help the Leh-based 14 Corps, which is responsible for military developments in areas near the Pakistan and China borders.

KEY FEATURES

The **longest bi-directional** single tube road tunnel in Asia

Length **14.15 km**

All-weather accessability

Will reduce to taken to cross Zoji-la pass from **three hours and 30 minutes to 15 minutes**

Cost: ₹**6,809 crore**

Expected time of Completion: **5 years**

Open all days

To be built at Zoji-la pass on Srinagar-Kargil –Leh NH-situated at an altitude of **11,578 feet**

Zoji-la Tunnel

SRINAGAR   LEH

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