

IAS EXPRESS

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FOREST FIRES – THE GREY AREA

The National Institute of Disaster Management (NIDM), India defines forest fire as **an unclosed and freely spreading fire that consumes the natural fuels**. When a fire burns out of control it is known as Wild Fire. There are two types of forest fire:

- **Surface Fire**– A forest fire may burn primarily as a surface fire, spreading along the ground as the surface litter on the forest floor and is engulfed by the spreading flames.
- **Crown Fire**- The other type of forest fire is a crown fire in which the crown of trees and shrubs burn, often sustained by a surface fire.
- **Vulnerability:** According to 2015 Indian Forest Survey report, 64.3% of forests in India are prone to forest fires. Out of these, the fire prone areas that fall under heavy fire incidence class are 2.4%, moderate class are 7.49% and mild are 54.4%. Tropical thorn forests, tropical dry deciduous forests and sub-tropical broadleaved hill forests are more prone to forest fires

Overall Trend and Pattern of Forest Fire:

- According to the report titled Strengthening Forest Fire Management in India
- At least 60 per cent of districts in India are affected by forest fires each year
- Top 20 districts in terms of fire frequency are located mainly in the Northeast
- The top-20 districts in terms of burnt area are mainly in Central India.
- Districts experiencing widespread and frequent forest fires include areas of dry and moist deciduous forest in the borderlands of Chhattisgarh, Maharashtra, and Telangana that are affected by fire on a nearly annual basis
- According to Forest Survey of India,
- More than 95% of forest fires in India are man-made
- India has recorded a 46% increase in the number of forest fires from 2003-2019

Factors influencing the Behaviour

- **Weather:** Fire intensity and behaviour are intricately related to weather and climate. Seasonal weather patterns influence the onset, duration, and severity of the fire season. India's monsoons are largely responsible for the seasonal nature of forest fires in India. For most parts in India, forest fires peak during the dry months of March or April before the arrival of the monsoon.
- **Topography:** Local topography influences the difficulty of fire prevention and suppression and can raise the potential for out-of-control fires. Steep slopes and rugged terrain are more prone to fire and prevention is also difficult in such areas. States in which fires tend to occur in the most rugged terrain include Himachal Pradesh, Jammu and Kashmir, Manipur, Nagaland, Tamil Nadu, and Uttarakhand.

GREEN COVER IN INDIA

Total forest and tree cover **8,02,088** sq km
(% of geographical area: 24.39%)

YEAR
2017
Total forest cover
7,08,273
sq km (% of
geographical
area - 21.54%)

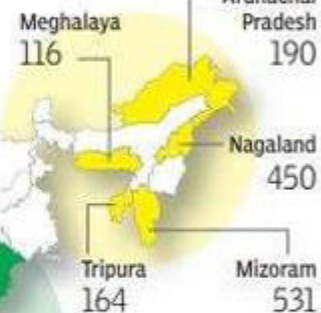
Tree cover
93,815
sq km

TOP FIVE STATES WHERE
MAXIMUM FOREST COVER
INCREASED in sq km

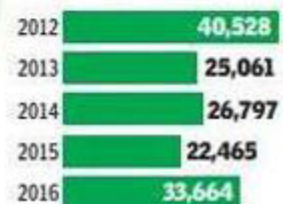
TOP FIVE STATES WHERE
FOREST COVER DECREASED
Forest cover in sq km

COMPARATIVE FIGURES

Total forest cover (% of total geographical area)



FOREST FIRE



- **Fuel:** Fuels determine the potential for fires to ignite, grow, intensify, and spread. Combustible material in forests includes grasses, ground litter, small shrubs, living and dead trees, and decomposing humus in soils.

Causes:

- **Natural:** Lightning and volcanic explosion are natural causes of forest fires.
 - For example: According to the report, a record number of wildfires in Canada's Northwest Territories in 2014, and in Alaska in 2015 were resulted due to lightning
- **Anthropogenic:**
 - **Negligence:** negligent use of fire (during agricultural burning of on farmlands near forests, clearing of paths through forests, burning weeds and bushes on privately-owned lands next to reserved forests) is one of the prime reason for forest fire. Further, accidental fires break out due to campfires and cigarette butts
 - **Collection of non-timber forest products (NTFPs):** According to the World bank report collection of NTFPs was the main cause of forest fire Chhattisgarh, Jharkhand, Madhya Pradesh, Odisha, and Telangana. People in Central India burn to aid in the collection of flowers from the mahua plant, during collection of tendua leaves for bidi making etc.
 - **Shifting Cultivation (Jhum):** Jhum cultivation is the primary reason for forest fires in north-eastern states of Assam, Meghalaya and Tripura, and also in Odisha.
 - **Burning to Deter wildlife:** People burn pine needles, cones, weeds, and so on during the dry season to keep away wild boars, birds, and leopards which may ignite forest fires.

Impact of Forest Fire:

- **Positive impacts:**
 - Cleaning up forests of dead and decaying matter and help forests to regenerate

- Maintaining ecosystem balance by removing diseased plants and harmful insects
- **Negative impacts:**
 - **Loss of forest cover, timber resources and associated economic cost:** According to FSI, the annual forest loss because of fires is estimated at Rs 440 crore. However, this estimate only account for the replacement cost of the seedlings and does not include the losses to biodiversity, timber, carbon sequestration capacity, soil moisture and nutrient loss.
 - **Degradation of water catchment areas:** Forest fires result in the chemical and physical changes in upper layer of soil and make it impervious thus reducing water infiltration. Further, the removal of litter decreases water holding capacity of soil and most of the rainwater is washed away removing top fertile soil of the forest resulting into loss of soil fertility.
 - **Loss of wildlife:** Forest fires lead to wildlife habitat destruction, decline in wildlife population and also post fire the food resources for the wildlife decreases. For example, in the 2012 forest fire in UltaPani Forest in Assam, the number of butterfly species declined to 30 from 200. Further, recurrent forest fires in the same area can lead to modifications in the ecosystem thus adversely affecting the biodiversity in the area
 - **Change in micro climate of the area:** Forest fires may change the micro climatic conditions by changing soil moisture balance; temperature increase. Further, smoke and dust in the area reduces visibility and also adversely affect the health of wildlife and human population inhabiting near the forest.
 - **Forest Fire and Climate Change:** The increased average annual temperatures due to change in land use (e.g. decrease in water resources) and **climate change** have resulted in below-average rainfall in many areas which has **elevated the risk and severity of forest fires.**
- According to a study, increased temperatures and resultant aridity have increased the number and spread of forest fires in USA in last 30 years.
- Further, **forest fires also impact climate change.** When a forest gets burnt, the stored carbon is released into the atmosphere which further aggravates warming of the atmosphere. Forest fires emit black and brown carbon which absorbs solar radiation and heats up the atmosphere. It further results in changes in rainfall pattern.
- Many scholars have advocated the concern over recurrent forest fires in Himalayan forest region and its impact on Himalayan glaciers. According to a 2010 study by Lawrence Berkeley National Laboratory, from 1990 to 2010 snow cover over the Himalayas decreased by 0.9% to aerosols and black carbon from different sources in India had been responsible for 30% of the decline
- MoEFCC and World Bank report states that forest fires in India threaten India's ambition to expand its forest and tree cover by 2030 to create an additional carbon sink of 2.5 to 3 billion tons of CO2 equivalent
- **Invasive species:** forest fragmentation, along with forest fire make forest ecosystems more vulnerable to invasion by alien species; e.g., lantana which in turn, fuel further fires
 - **Socio-economic impact:** Loss of livelihood for tribal people and the rural poor- In India, nearly 300 million people are directly dependent upon collection of non-timber forest products from forest areas for their livelihood.

Forest Fire Prevention and Management (FFPM) and Government Initiatives:

- National and state forestry policies provide the overall framework for fire prevention and management.

MoEFCC guidelines:

- MoEFCC issued a set of national guidelines for forest fire prevention and control in 2000. These guidelines call for:
- identification and mapping of all fire prone areas,
- compilation and analysis of database on forest fire damages,
- development and installation of Fire Damage Rating System and Fire Forecasting system,
- all preventive measures to be taken before the beginning of the fire season

National Master Plan for Forest Fire Control:

- The main objectives are:
- To strengthen the organizations responsible for forest fire management
- To coordinate international transfer of technology and training in the field of forest fire management
- Creation of a strong database for: number of fires, area burnt, damage to flora and fauna, effect of fire on land and soil and measures taken
- Assessment of ecological, social, and economic impact of fires
- Strong national extension strategy for people's awareness and their participation in forest fire management through Joint Forest Management and NGOs

Forest Fire Prevention and Management Scheme:

- In 2017, Intensification of Forest Management Scheme was revised and replaced as Forest Fire Prevention & Management Scheme. The main objectives of the scheme are as follows:
- Minimise forest fire incidences and help in restoring productivity of forests in affected areas
- Encourage partnership with forest fringe communities for forest protection
- Prepare fire danger rating system and devise forest fire forecasting system
- Forest Survey of India has developed **Pre Warning Alert System**. It gives alerts to state forest departments based on parameters like forest cover, forest types, climatic variables (temperature, rainfall) and recent fire incidences over the area

NDMA Guidelines:

- Incorporate Forest Fire Prevention and Management (FFPM) in existing policy and planning documents
- Establish **National Forest fire Knowledge Network**
- Capacity building of forest officials for better use of early warning systems
- Assess risk and prepare vulnerability and risk maps
- Document national and international good practices and utilise them for making forest fire management more effective and practical
- Increase community awareness
- **Draft National Forest Policy, 2018:** It calls for safeguarding ecosystems from forest fires, mapping the vulnerable areas and developing and strengthening early warning systems and methods to control fire, based on remote sensing technology and community participation.

Issues and Challenges:

- **Lack of appropriate policy:** In India there are no clear guidelines for forest fire management. In November 2017, National Green Tribunal (NGT) had asked the Environment Ministry to evolve a national policy for prevention and control of forest fires. However, no progress has been made so far.
- **Lack of funding:** the allocation of funds to the states for forest fire management is largely insufficient. Further, a large amount of the money allocated under the forest management schemes are not released

- **Early Warning:** Unlike western countries, forest fire in India is largely man-made which makes it difficult to predict
- **Emphasis on response only:** with regard to forest fire management in India, the emphasis has been predominantly on response after the disaster. There has been less focus mitigation, preparedness, human resource development and awareness generation. Also, Post-fire management is not being treated as part of the FFPM process
- **Lack of community participation:** In most of the Indian states, community participation in forest fire management has been poor
- **Lack of manpower:** Lack of manpower hinders clearing of fire lines and also affects the patrolling of forest areas.
- **Climate Change:** The forest fire management in India do not include climate change aspects in planning, policy formulations and implementation stages

Best Practices:

- **Canadian Forest fire Danger Rating System:** The system collects data on fuels, weather, topography, foliar moisture content (how much moisture is in the leaves and pine needles), and type and duration of prediction. The data helps managers of various fire agencies determine the areas that are most vulnerable to fires and allocate their resources accordingly. Further, the Canadian Forest Fire Behaviour Prediction (FBP) System helps managers assess how far a specific fire can spread and its severity.
- **Role of forest community:** Best Practice in India
- **Bilapaka village in Mayurbhanj District of Odhisa:** The villagers have set up the BilapakaJangalSurakshyaParichalana Committee (BJSPC). The villagers have developed an effective warning mechanism and a process to immediately stop small fire incidents

Road Ahead:

- **Policy:** At the national level, a cohesive policy or action plan should be formulated to set forth the guiding principles and framework for FFPM. The policy and programmes for forest fire management should incorporate the dimension of climate change
- **Management:** Forest fire prevention and management practices used by state forest departments also need to be strengthened
- **Funding and Human Resource:** Greater funding for construction of watchtowers and crew stations and for frontline officers and seasonal firewatchers to spot fires is needed. Further, adequate training should be provided to field officers, seasonal firewatchers, and community volunteers involved in firefighting.
- **Technology:** Modern firefighting techniques such as the radio-acoustic sound system for early fire detection and Doppler radar should be adopted.
- **Data and information:** There is a need to support forest fire management through improved data and research to fill critical knowledge gaps.
- **Awareness:** Awareness generation for forest communities and visitors is important to prevent loss of life and injuries. Further, regular drills on escape methods and routes based on forest types should be conducted.

ECONOMY

1.1 Capital Adequacy Ratio

- **National Housing Bank has proposed to increase the Capital Adequacy Ratio** of Housing Financing Companies (HFCs) to 15% as a precautionary measure against liquidity risk.
- The CAR is a measure of a bank's available capital expressed as a percentage of a bank's risk-weighted credit exposures.
- The Capital Adequacy Ratio, also known as capital-to-risk weighted assets ratio (CRAR), is used to protect depositors and promote the stability and efficiency of financial systems around the world.

1.2 Disinvestment of CPSEs

Context:

- The Union Cabinet has decided to authorize the **Finance Minister-led Alternative Mechanism (AM)** to decide on strategic disinvestments.
- Cabinet Committee on Economic Affairs (CCEA) has **empowered the AM — set up in 2017** to look into the strategic sale of Central Public Sector Enterprises (CPSEs).

AM has to decide on:

- The **quantum of shares to be transacted**,
- The mode of sale and the final pricing of the transaction, or lay down the principles/guidelines for such pricing,
- Selection of strategic partner/buyer, and the terms and conditions of sale,
- It can also decide on the timing of the sale and any other related issue regarding the transaction.

Disinvestment:

- Disinvestment **means selling of assets**. In the case of Public Sector Undertakings, disinvestment means Government selling/ diluting its stake (share) in PSUs in which it has a majority holding.
- Disinvestment is **carried out as a budgetary exercise**, under which the government announces yearly targets for disinvestment for selected PSUs.

1.3 Domestic systemically important bank (DSIBs)

What it is?

- D-SIB means that the **bank is too big to fail**. According to the RBI, some banks become systemically important due to their size, cross-jurisdictional activities, complexity and lack of substitute and interconnection. Banks whose assets exceed 2% of GDP are considered part of this group.

Importance of DSIBs:

- Should such a bank fail, there would be significant disruption to the essential services they provide to the banking system and the overall economy.
- The too-big-to-fail tag also indicates that in case of distress, the government is expected to support these banks.
- Due to this perception, these banks enjoy certain advantages in funding. It also means that these banks have a different set of policy measures regarding systemic risks and moral hazard issues.

Classification:

- RBI has to disclose names of banks designated as D-SIB. It classifies the banks under five buckets depending on order of importance.
- Based on the bucket in which a D-SIB is, an additional common equity requirement applies. Banks in bucket one need to maintain a 0.15% incremental tier-I capital from April 2018. Banks

in bucket three have to maintain an additional 0.45%.

- All the banks under D-SIB are required to maintain higher share of risk-weighted assets as tier-I equity.

Need for classification:

- It was observed during the global financial crisis that problems faced by certain large and highly interconnected financial institutions hampered the orderly functioning of the financial system, which in turn, negatively impacted the real economy.
- Government intervention was considered necessary to ensure financial stability in many jurisdictions. Cost of public sector intervention and consequential increase in moral hazard required that future regulatory policies should aim at reducing the probability of failure of SIBs and the impact of the failure of these banks.

1.4 Employee Stock Purchase Scheme

- Recently the Public Sector Banks have raised or are in the process of **raising around Rs 5,000 crore from employees** through the employee stock purchase scheme (ESPS).
- **An employee stock purchase scheme (ESPS) is a** company-run program in which participating employees can purchase company shares at a discounted price.
- Companies often reward their employees with their stock, either in the form of employee stock option plans (Esops) or employee stock purchase schemes (ESPSs).
- **Esops are stock options** granted to employees over a vesting period, where the employee is given the right to purchase the company's shares at a predetermined price or the exercise price.
- **ESPSs allow employees to use their salary to purchase the stock** of the company, usually at a discounted price.
- Unlike Esops, ESPS holders do not have any option, but are mandated to pay the exercise price usually by way of monthly deductions from their salary.

1.5 FSDC panel discusses ways to improve quality of credit ratings

Context:

- Recently the **Financial Stability and Development Council (FSDC)** panel has discussed ways to address challenges pertaining to the quality of credit ratings.
- It expressed concerns over the inability of rating agencies' to assess credit risk and take timely rating actions.
- **Example:** Recent IL&FS defaults crisis which had AAA rating just before it started defaulting.

Financial Stability and Development Council (FSDC):

- FSDC is a **non-statutory apex council** under **Ministry of Finance** constituted by Executive Order of Union Govt in 2010.
- The Chairman of the Council is the Finance Minister and its members include the heads of financial sector Regulators (RBI, SEBI, PFRDA, IRDA), Finance Secretary and/or Secretary, Department of Economic Affairs, Secretary, Department of Financial Services, and Chief Economic Adviser.
- In May, 2018 government reconstituted FSDC to include the Minister of State responsible for the Department of Economic Affairs (DEA), Secretary of Department of Electronics and Information Technology, Chairperson of the Insolvency and Bankruptcy Board of India (IBBI) and the Revenue Secretary.
- It aims strengthening and institutionalizing the mechanism of financial stability and development.
- It will monitor macro-prudential supervision of the economy. It will assess the functioning of the large financial conglomerates.

- It will address intra regulatory coordination issues.
- The Raghuram Rajan committee (2008) on financial sector reforms recommended for the creation of FSDC.

Credit Rating Agencies:

- A credit rating agency (CRA) is a company that assigns credit ratings, which rate a debtor's ability to pay back debt by making timely principal and interest payments and the likelihood of default.
- The assessed entities may be companies, special purpose entities, state governments, local governmental bodies, non-profit organisations and even countries.
- There are six credit rating agencies registered under SEBI namely, CRISIL, ICRA, CARE, SMERA, Fitch India and Brickwork Ratings.

1.6 Government clears scheme to rebate central, state embedded taxes for textiles sector

- The Union Cabinet has approved a scheme to rebate State and Central Embedded Taxes for apparels and made-ups exports.
- **At present, apparel and made-ups segments are supported under the Scheme for Rebate of State Levies (RoSL).**
- However, certain State, as well as Central Taxes, continued to be present in the cost of exports. Cabinet decision provides for a scheme to rebate all embedded State and Central Taxes/levies for apparel and made-ups which have a combined share of around 56% in India's textile export basket.
- It is applicable for apparel and made-ups now and will be extended to yarn in the future.

Benefits:

- The proposed measures are expected to make the textile sector competitive.
- Rebate of all Embedded State and Central taxes/levies for apparel and made-ups segments would make exports zero-rated, thereby boosting India's competitiveness in export markets and ensure equitable and inclusive growth of textile and apparel sector.

RoSL:

- It is to offset indirect taxes levied by states such as stamp duty, petroleum tax, electricity duty and mandi tax that were embedded in exports,
- It is provided to textiles exporters.

Made-ups:

- These are articles manufactured or stitched from any type of cloth, other than a garment such as bed-sheets, cushion covers, lamp-shades etc.

1.7 GST Council

- The GST council is the key **decision-making body** that will take all important decisions regarding the GST. The GST Council **dictates** tax rate, tax exemption, the due date of forms, tax laws, and tax deadlines, keeping in mind special rates and provisions for some states. The predominant responsibility of the GST Council is to **ensure** to have **one uniform tax rate for goods and services across the nation.**

Structure of GST Council

- The Goods and Services Tax (GST) is **governed** by the GST Council. **Article 279 (1)** of the amended Indian Constitution states that the GST Council has to be constituted by the **President within 60 days** of the commencement of the Article 279A.
- According to the article, GST Council will be a **joint forum** for the Centre and the States. It consists of the following members: The Union Finance Minister will be the **Chairperson, Member** – The Union Minister of State in charge of Revenue or Finance, The

Minister in charge of finance or taxation or any other Minister **nominated by each State government**, as members.

Recommendations of GST Council

- **Article 279A (4)** specifies that the Council will make **recommendations** to the Union and the States on the important issues related to GST, like the goods and services that may be subjected or exempted from GST, model GST Laws, principles that govern place of supply, threshold limits etc.

1.8 India says impact of US special trade status withdrawal limited

Context:

- The US has announced that it will terminate India's designation as a beneficiary of its **Generalized System of Preferences (GSP)**.
- Apart from India, US has also decided to withdraw Turkey from the list of GSP beneficiaries.

GSP:

- **The idea of granting developing countries preferential tariff rates in the markets of industrialized countries was originally presented at the first UNCTAD conference in 1964.**
- The GSP was adopted at UNCTAD in New Delhi in 1968 and was instituted in 1971.
- There are currently 13 national GSP schemes notified to the UNCTAD secretariat.
- **The following countries grant GSP preferences: Australia, Belarus, Canada, the European Union, Iceland, Japan, Kazakhstan, New Zealand, Norway, the Russian Federation, Switzerland, Turkey and the United States of America.**
- **GSP is the largest and oldest U.S. trade preference program. Established by the Trade Act of 1974, GSP promotes economic development by eliminating duties on thousands of products when imported from one of 120 designated beneficiary countries and territories.**

Benefits of GSP:

- **For India**
 - Indian **exporters benefit** indirectly - through the benefit that accrues to the importer by way of reduced tariff or duty-free entry of eligible Indian products.
 - It also allows India to **integrate with global value chains (GVC)** and hence, with global markets and furthers the development of the country's export base.
 - Reduction or removal of import duty on an Indian product makes it more competitive to the importer - other things (e.g. quality) being equal.
 - This tariff preference helps new exporters to penetrate a market and established exporters to increase their market share and to improve upon the profit margins, in the donor country.
- **For the US**
 - Indian exports to the **USA under GSP are less-expensive, high-quality alternatives that reduce the costs of final products**, this enables the U.S. economy to be more globally competitive.
 - GSP is **especially important to U.S. small businesses**, many of which rely on the programs' duty savings to stay competitive.
 - GSP supports U.S. jobs, moving GSP imports from the docks to U.S. consumers, farmers, and manufacturers support tens of thousands of jobs in the United States.
- **Globally**
 - GSP has promoted economic growth in a large number of developing countries by allowing increased exports of eligible products. This is of tremendous benefit to the global economy.

- At the same time it is a small aspect of the U.S. trade balance as of the total \$2.4 trillion U.S. imports in 2017, only \$21.2 billion arrived via GSP, amounting to less than 1% of total U.S. imports

Why the Revoke?

- Due to a series of decisions taken by the Indian government has led to trade friction between two countries:
- India's new e-commerce rules — which have impacted American companies like Amazon and Walmart (majority owner of Flipkart).
- **Price controls on medical devices (cardiac stents)**
- **Tariffs on products like smart watches** and high-end mobile phones and
- **Lack of greater market access for the U.S. dairy industry.**

Impact of revoke:

- **On India**
 - **India has been the biggest beneficiary of the GSP regime.**
 - Exports to the US from India under GSP — at \$5.58 billion — were over 12% of India's total goods exports of \$45.2 billion to the US in 2017.
 - However, India has said that **the impact is "minimal", given that Indian exporters were only receiving duty-free benefits of \$190 million on the country's overall GSP-related trade of \$5.6 billion.**
 - But this move **could hit Indian exporters** if it gives an edge to competitors in its top export categories to the US.
 - This could impact India's competitiveness in items groups such as raw materials in the organic chemicals sector and intermediary goods in the US market, alongside items such as iron or steel, furniture, aluminum and electrical machinery.
 - The **impact on small industries in the country could be significant** such industries would lose their market share in the U.S. without fiscal support to help them maintain their edge.
- **On US**
 - FICCI has said that the termination of the GSP would be contrary to the legislative objective and the history of the Trade Reform Act of 1974 of furthering the economic development of developing countries.
 - It would cause **significant distress to the export-oriented sector leading to increased cost for US** industries that use products under the GSP.

Road ahead

- The GSP remains a central aspect of the overall trade engagement and must remain for Indian exporters keen to address the U.S. markets.
- The U.S. should have considered continuing India's GSP eligibility as a gesture of goodwill that reaffirms its commitment to the mutually beneficial relationship between our two countries. The India-U.S. relationship has continued to grow stronger as India liberalizes along a positive and steady trajectory.
- Today, both the US and India engage in countless areas of mutual cooperation and have a convergence of views in a large number of global issues. The relationship must not be seen through transactional prism only. By doing this the broader strategic dimensions of the partnership could get impacted.

1.9 Nostro account

- Reserve Bank of India has fined Allahabad Bank for non-compliance of directions with regard to Nostro accounts.

- Nostros, a term derived from the Latin word for "ours," are frequently used to facilitate foreign exchange and trade transactions.
- **A nostro account is a bank account held in a foreign country by a domestic bank, denominated in the currency of that country.**

1.10 Open Market Operations (OMO)

Context:

- Recently a decline in the liquidity deficit in the banking system was reported on account of liquidity infusion through **Open Market Operations (OMO)** by the **Reserve Bank of India (RBI)**.

Open Market Operations (OMO):

- Open Market Operations (OMO) is **one of a quantitative (To regulate or control the total volume of money) monetary policy tool** which is employed by the central bank of a country to **control the money supply in the economy**.
- Open market operations are conducted by the RBI by **way of sale or purchase of government securities (g-secs) to adjust money supply conditions**.
- The central bank sells g-secs to remove liquidity from the system and buys back g-secs to infuse liquidity into the system.
- These operations are often **conducted on a day-to-day basis** in a manner that balances inflation while helping banks continue to lend.
- The RBI uses OMO along with other monetary policy tools such as repo rate, cash reserve ratio and statutory liquidity ratio to adjust the quantum and price of money in the system.

1.11 RBI again defers Ind AS implementation by banks

Context:

- RBI has again deferred the implementation of the Indian Accounting Standards (Ind AS) by banks as the requisite legislative amendments are still under consideration.
- **In 2006, ICAI initiated the process of shifting towards the International Financial Reporting Standards (IFRS).**
- The reason behind this step was to increase the acceptability and transparency of the financial statements of the Indian corporates on the global platform.
- For making the proper shift, Accounting Standards Board (ASB) of ICAI formulated the Ind AS in line with the IFRS.
- **In 2015, MCA notified Companies (Indian Accounting Standard) Rules 2015, which listed out the applicability and adoption of Ind AS.**
- As per initial plan, MCA was to implement Ind AS for banks, insurance companies and NBFCs from 1 April 2018 onwards but in April 2018, RBI deferred the implementation of Indian Accounting Standards by one year for banks.
- On March 22, 2019, RBI again deferred the implementation of Ind AS by banks till further notice.
- **The reason cited is that certain legislative amendments to the Third Schedule to the Banking Regulation Act 1949 are under consideration of the government.**
- It is expected that these amendments will help in making the current format of financial statements compatible with the requirements under Ind AS.

Ind AS:

- Indian Accounting Standards (Ind AS) are **set of accounting standards that govern the accounting and recording of financial transactions as well as the presentation of**

statements such as profit and loss account and balance sheet of a company.

- The standards were formulated by the **Accounting Standards Board (ASB)**, which was constituted as a body in the year 1977. ASB is a committee under ICAI which consists of representatives from government department, academicians, other professional bodies viz. ICAI, representatives from ASSOCHAM, CII, FICCI, etc.
- The Ind AS are named and numbered in the same way as the International Financial Reporting Standards (IFRS).

IFRS:

- The International Financial Reporting Standards (IFRS) are accounting standards that have been issued by the **International Accounting Standards Board (IASB)** with the objective of providing a common accounting language to increase transparency in the presentation of financial information.
- **IASB is an independent body that was formed in 2001** for establishing the IFRS. It succeeded the International Accounting Standards Committee (IASC), which was earlier given the responsibility of establishing the international accounting standards. It is based in London.

1.12 RBI forms task force on offshore rupee market

Context:

- The Reserve Bank of India (RBI) has formed a eight- member task force on the offshore rupee market.
- It will be headed by former Deputy Governor Usha Thorat and would submit its report by the end of June 2019.

Terms of Reference (TOR)

- Assess the causes behind the development of the offshore Rupee market.
- Study the effects of the offshore markets on the Rupee exchange rate and market liquidity in the domestic market.
- Recommend measures to address concerns, if any, arising out of offshore Rupee trading.
- Propose measures to generate incentives for non-residents to access the domestic market.
- Examine the role, if any, International Financial Services Centres (IFSCs) can play in addressing these concerns.
- Any other relevant issue(s) the Task Force considers relevant to the context.

1.13 Real Estate Investment Trusts (REITs)

Context:

- The recent **initial public offering (IPO)** of India's **first** Real Estate Investment Trust (**Embassy REIT**) was subscribed 2.5 times, with the share sale generating a demand of over Rs 5,300 crore.

Real Estate Investment Trusts (REITs)

- REITs are **similar** to mutual funds. While mutual funds provide for an **opportunity to invest** in equity stocks, REITs allow one to invest in **income-generating real estate assets**.
- They are **collective investment vehicles** that operate and manage property portfolios and give returns to investors. Securities and Exchange Board of India (SEBI) **mandated** that all REITs be listed on **exchanges** and make an initial public offer to raise money.
- There are **three types of REIT** available: **equity REITs** which purchase, own and manage income-generating properties; **mortgage REITs** which lend money directly or indirectly to real estate owners; and **hybrid REITs** which are a combination of the first two.

Working of REITs:

- REITs raise funds from a large number of investors and **directly** invest that sum in **income-generating real estate properties** (which could be offices, residential apartments, shopping centres, hotels and warehouses).
- The trusts are listed in stock exchanges so that investors can buy units in the trust. REITs are structured as **trusts**. Thus, the assets of an REIT are held by an **independent trustee** on behalf of **unit holders**.

Significance:

- The Indian real estate sector has been facing a **liquidity crunch** on account of unsold inventory and low demand. REITs can **help** cash-strapped developers to monetise their existing property.
- In real estate sector, both **rent and capital appreciation** from property depend on the location, infrastructure and industrial development around that area. REITs **juggle** these risks through a **diversified portfolio of properties**.
- REITs can **reduce the risk** related to your property investments as **80 per cent of the value** of the REIT should be in completed and rent-generating assets. They are **required** to be run by **professional managements** with specified years of experience notified by SEBI.

1.14 State-run MSTC Ltd gets SEBI nod for going public

Context:

- Recently, MSTC (Metal Scrap Trade Corporation Limited), a mini-Ratna under Ministry of steel has got Securities Exchange Board of India (SEBI) nod for **Initial Public Offering (IPO)**.
- The mini-Ratna company, under the Ministry of Steel, has three main business verticals -- e-commerce, trading, and recycling.

Initial Public Offering:

- The initial public offering is the process by which a **privately owned company (owned by the government in case of MSTC) can go public** by the sale of its **stocks** to the general public.
- It could be a new, young company or an old company which decides to be listed on an exchange and hence goes public.
- By IPO, companies can **raise capital with the help of an IPO by issuing new shares** to the public or the existing shareholders can sell their shares to the public without raising any fresh capital.
- The company that sells its shares are known as an 'issuer' and does so with the help of investment banks present in the market.
- After an initial public offering, the company's shares are traded in an open market.

1.15 Trade Receivables e-Discounting System (TReDS)

Context:

- In the recently concluded FinTech Conclave-2019, the Reserve Bank of India Governor termed Invoice trading as another nascent area of fintech application in India.
- **The RBI has set up the Trade Receivables Discounting System (TReDs), a financing arrangement** where technology is leveraged for discounting bills and invoices which assists Micro, Small, and Medium Enterprises (MSMEs) to deal with working capital and cash flow problems due to delayed payments.

Trade Receivables Discounting System (TReDs):

- It is an institutional setup for facilitating the **financing of trade receivables of MSMEs** from corporate and other buyers, including Government Departments and Public Sector Undertakings (PSUs), through multiple financiers.
- It has been set up under the **regulatory framework set up by RBI under Payment and**

Settlement Systems Act 2007.

1.16 Voluntary retention route (VRR)

- **Voluntary retention route (VRR)** is a new channel of investment available to **FPIs** to encourage them to **invest in debt markets in India over and above their investments** through the regular route.
- The **objective** is to attract **long-term and stable** FPI investments into debt markets while providing FPIs with operational flexibility to manage their investments.

Highlights

- This new investment route was **proposed by the central bank** in October 2018 at a time the rupee was weakening against the dollar very sharply. There were also talks of a **special NRI bond scheme** to attract more dollar funds into the economy and stabilise the rupee.
- Guidelines say that investments through VRR will be **free of the macro-prudential** and other regulatory prescriptions applicable to FPI investments in debt markets, provided FPIs voluntarily commit to retain a required minimum percentage of their investments in India for a period of their choice. But the **minimum retention period shall be three years, or as decided by RBI.**
- Investments under this route as of now shall be **capped at Rs 40,000 crore for VRR-GOVT and 35,000 crore per annum for VRR-COPR.** But the limit could be changed from time to time based on macro-prudential considerations and assessment of investment demand. There will be separate limits for investment in government securities and investment in corporate debt.
- FPIs investing through this route will be **eligible to participate in repos for their cash management**, provided that the amount borrowed or lent under repo were not to exceed 10 per cent of the investment under VRR. They will also be eligible to participate in any currency or interest rate derivative instrument, OTC or exchange-traded instrument to manage their interest rate risk or currency risk.

INDIA AND WORLD

2.1 AFINDEX-19

- The Africa-India Field Training Exercise-2019 called AFINDEX-19 started at Aundh Military Station, Pune.
- India and contingents of the 17 African Nations i.e. Benin, Botswana, Egypt, Ghana, Kenya, Mauritius, Mozambique, Namibia, Niger, Nigeria, Senegal, South Africa, Sudan, Tanzania, Uganda, Zambia and Zimbabwe are participating in the exercise.
- The aim of the exercise is to practice the participating nations in planning and conduct of Humanitarian Mine Assistance and Peacekeeping Operations.
- It is a positive step towards growing political and military ties between India and African nations and will boost the already strong strategic cooperation between the countries.

2.2 AL-NAGAH III 2019

- Exercise Al Nagah III is the bilateral joint exercise between **India and Oman**.
- The third in the series of the joint exercise will be held from 12 to 25 March 2019 at **Jabal Al Akhdar Mountains in Oman**.
- The exercise will see both the armies exchanging expertise and experience in tactics, weapon handling and firing, with an aim to enhance interoperability in counter terrorist operations in semi urban mountainous terrain.
- **Exercise Al Nagah III follows the first two joint exercises that were held in Oman in January 2015 and India in March 2017 respectively.**

2.3 Asia-Pacific Group on Money Laundering

Context:

- After Financial Action Task Force (FATF) grey-listed Pakistan, Asia-Pacific Group on Money Laundering is also **considering grey-listing Pakistan.**

Asia-Pacific Group (APG)

- The **APG is the FATF-style regional body for the Asia-Pacific region**. It is an inter-governmental organization founded in 1997.
- **The Asia/Pacific Group consists of 41 members including India**, focused on ensuring that its members effectively implement the international standards against money laundering, terrorist financing and proliferation financing related to weapons of mass destruction.
- **APG was founded in the Bangkok, Thailand on February 1997** as an autonomous regional anti-money laundering body by unanimous agreement among **13 original founding members**.

2.4 AUSINDEX- 2019

- India and Australia will participate in the **third edition of the biennial "AUSINDEX"** exercise that will be held from April 2 to 16 off the coast of **Visakhapatnam, Andhra Pradesh**.
- Focus of the AUSINDEX exercise will be **"anti-submarine warfare"**. This will be **Australia's largest display of its defence assets** since 1947.
- Another interesting feature of the exercise will be the **deployment of Australian personnel on Indian ships and vice versa**.
- The AUSINDEX-2019 will be held as a part of **Australia's Indo-Pacific Endeavour 2019** which will see Australia conducting naval exercises with **7 countries in south and southeast Asia** apparently to increase its profile as a **security provider in the Indian Ocean**.
- The **first edition of AUSINDEX was held in 2015 off the eastern coast of India**, while

the second edition was conducted off the Western coast of Australia in the year 2017.

2.5 Cabinet okays investment for Arun-3 Hydro Electric Project

Context:

- Recently the government has approved an investment proposal for transmission component in **Nepal portion of Arun-3 Hydro Electric Project**.
- The investment will be done by state-owned **Sutlej Jal Vikas Nigam (SJVN)** which has been carrying out the construction work at the plant.
- The power from the project will be **exported from Dhalkebar in Nepal to Muzaffarpur in India**. This will not only provide surplus power to India but also **strengthen the economic linkages with Nepal**.
- The Arun-3 Hydro Electric project (900 MW) is a **run-of-river located on Arun River in Eastern Nepal**.
- A Memorandum of understanding (MoU) was signed between Government of Nepal and SJVN Limited for the project in 2008 for execution on **Build Own Operate and Transfer (BOOT)** basis for a period of 30 years including five years of construction period.

Build Own Operate and Transfer (BOOT):

- **BOOT (build, own, operate, transfer)** is a **public-private partnership (PPP)** project model in which a private organization conducts a large development project under contract to a public-sector partner, such as a government agency.
- BOOT is sometimes known as **BOT (build, own, transfer)**.
- In this model, the public-sector partner contracts with a **private developer with specific expertise** - to design and implement a large project.
- The public-sector partner may **provide limited funding or some other benefit (such as tax exempt status)** but the private-sector partner assumes the risks associated with planning, constructing, operating and maintaining the project for a specified time period.
- During that time, the developer charges customers who use the infrastructure that's been built to realize a profit. At the end of the specified period, the **private-sector partner transfers ownership to the funding organization**, either freely or for an amount stipulated in the original contract.

Run-of-the-river Project:

- Run-of-the-river hydroelectric projects are hydroelectric systems that harvest the energy from **flowing water to generate electricity**.
- The primary difference between this type of hydroelectric generation compared to others is that **run-of-the-river primarily uses the natural flow rate of water to generate power—instead of the power of water falling from a height**.
- For a run-of-the-river system to be possible in a given location, there needs to be **two specific geographical features**:
 - A **substantial flow rate**, either from rainfall or a melting snowpack.
 - There must be **enough of a tilt to the river to speed** the water up significantly.
- **Features**:
 - These are **less expensive** to build and can be **built over a shorter period of time**.
 - They have a **smaller environmental footprint** when compared to dams with large amounts of water storage.
 - However, the **output from run-of-the-river system is significantly lower** than large scale hydro projects, which **increases the cost per kWh as compared to Dam based hydroelectric generation**.

- The manipulation of river flows can cause a significant number of environmental impacts **affecting the aquatic ecosystem.**

2.6 IND INDO CORPAT 2019

Context:

- The opening ceremony of 33rd Edition of India-Indonesia Coordinated Patrol (Ind-Indo Corpat) took place at Port Blair, Andaman & Nicobar Islands, India.
- The 33rd IND-INDO CORPAT, also coinciding with 70 of the establishment of India-Indonesia diplomatic ties.
- Under this exercise, the ship and aircraft from both the countries would undertake to patrol on the respective sides of 236 nautical miles long International Maritime Boundary line.
- As part of the Indian Government's vision of SAGAR (Security and Growth for All in the Region), the Indian Navy has also been involved in assisting countries in the Indian Ocean Region with Exclusive Economic Zone (EEZ) Surveillance, Search and Rescue, and other capacity-building and capability-enhancement activities.

SAGAR (Security and Growth for All in the Region):

- The vision of SAGAR was enunciated by Prime Minister in March 2015. It is an articulation of India's vision for the Indian Ocean.
- SAGAR has inter-related elements and underscores India's engagement in the Indian Ocean. These are enhancing capacities to safeguard land and maritime territories & interests; deepening economic and security cooperation in the littoral; action to deal with natural disasters and maritime threats like piracy, terrorism.
- It also includes engaging with countries beyond our shores with the aim of building greater trust and promoting respect for maritime rules, norms and peaceful resolution of disputes.

2.7 India ranks 78th on WEF energy transition index

Context:

- World Economic Forum has recently published **Fostering Effective Energy Transition 2019** - The report contains the Energy Transition Index (ETI), which compares the energy sectors of 115 countries and analyses their readiness for energy transition.

Highlights:

- **Global**
- Energy systems have globally become less affordable and less environmentally sustainable than they were five years ago.
- Access to energy has improved and currently, less than 1 billion people are living without access to electricity. On average, 135 million people gained access to electricity each year between 2014 and 2016.
- The biggest challenge facing attempts to future proof global energy demands is the lack of readiness among the world's largest emitters.
- In 2017, global CO2 emissions grew after remaining stagnant for three years. CO2 emissions from fuel combustion grew in more than half of the countries as demand increased from the residential and transportation sectors.
- Coal consumption increased in 2018, after declining for three years along with an increase in commodity prices and slower-than-needed improvements in energy intensity this has contributed to the slowdown in Energy Transition.
- Fossil fuels' share of total primary energy supply at 81 percent is constant over the past three decades.

- Environmental sustainability of energy production has improved marginally, indicating a general lack of substantive progress.
- **India**
- India is amongst the countries with high pollution levels and has a relatively high CO2 emission intensity in its energy system.
- Despite this, India has made significant progress in improving energy access in recent years.
- India has made fast progress towards universal electrification due to strong political commitment, a stable policy regime, use of grid expansion and decentralized generation sources, and a supportive environment for investment in infrastructure.
- Global coal consumption grew in 2017 due to an increase in demand in the Asia-Pacific region, including in India and China.

Energy Transition Index:

- Energy transition index ranks countries on how well they are able to balance energy security and access with environmental sustainability and affordability.
- ETI has ranked 115 economies covering 40 indicators.
- Sweden is at the top followed by Switzerland and Norway in the top three.
- Among major economies, the United Kingdom (UK) is ranked seventh. Singapore has been ranked thirteenth, while Germany, Japan, and the US have bagged the seventeenth, eighteenth and the twenty-seventh place respectively.
- India has moved up two places from last year to rank 76th on a global energy transition index.
- China is ranked lower than India at the 82nd position.
- India is the second best in the BRICS bloc of emerging economies, with Brazil being the best at 46th place globally.
- However, India is the only amongst the five economies to improve its rank since last year.

2.8 India, a key hub for illicit drug trade; use of darknet, cryptos rampant: UN body

Context:

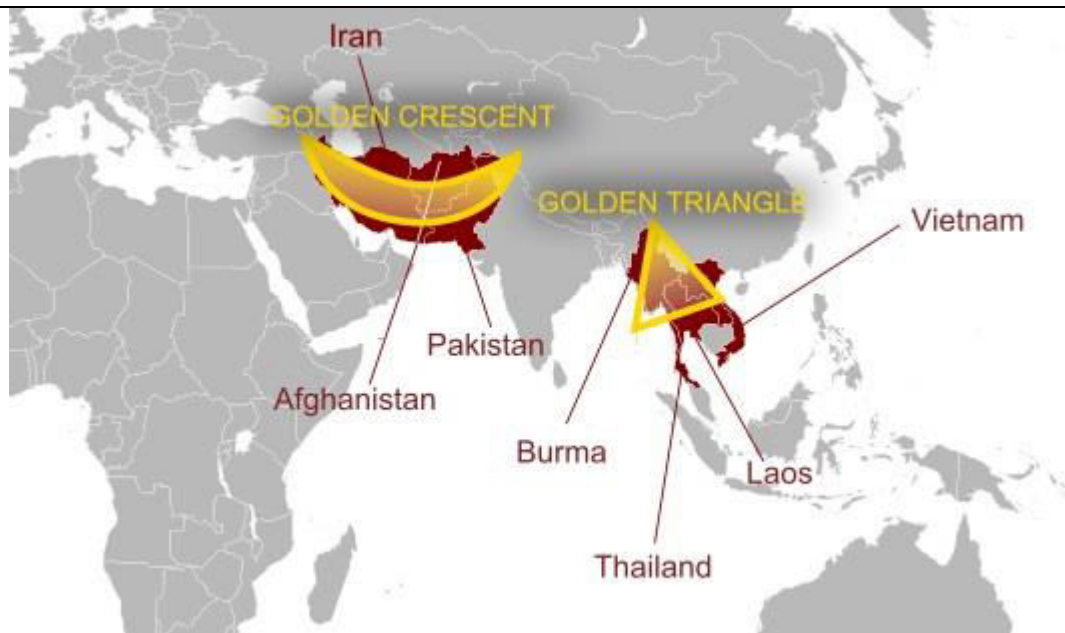
- According to a report by United Nation Office on Drugs and Crime (UNODC), India is one of the major hubs of illicit drug trade ranging from age-old cannabis to newer prescription drugs like tramadol, and designer drugs like methamphetamine.
- Report also says that the global trend of purchasing drugs over the internet, particularly on darknet trading platforms using cryptocurrencies has already spread across South Asia, it is particularly rampant in India.
- India is also a transit point for opiates produced illegally, in particular heroine.
- The report has identified more than 1,000 drug listings from India published across 50 online crypto-market platforms.

Drug Trafficking Routes:

- India is in the middle of two major illicit opium production region in the world the Golden Crescent (Iran-Afghanistan-Pakistan) in the west and the Golden Triangle (South-East Asia) in the east.

Gravity of issue in India:

- Recently, National Drug Dependence Treatment Centre (NDDTC) of the All India Institute of Medical Sciences (AIIMS), New Delhi submitted its Report “Magnitude of Substance Use in India”.
- Substance categories studied were: **Alcohol**, **Cannabis** (Bhang and Ganja/Charas), **Opioids** (Opium, Heroin and Pharmaceutical Opioids), **Cocaine**, **Amphetamine Type Stimulants** (ATS), **Sedatives**, **Inhalants** and **Hallucinogens**.



Highlights

- The survey found that, at the national level, about 14.6% of people (among 10-75 year old) are current users of alcohol.
- About 2.8% of Indians report having used any cannabis product within past 12 months.
- About 1.08% of 10-75 year old Indians are current users of sedatives (non-medical, non-prescription use).

Availability of Treatment

- The report finds that, access to treatment services for people affected by substance use disorders is grossly inadequate.
- Just about one in 38 people with alcohol dependence report getting any treatment.
- Only about one in 180 people with alcohol dependence report getting inpatient treatment / hospitalization for help with alcohol problems.
- Among people suffering from dependence on illicit drugs, one among 20 people has ever received inpatient treatment/ hospitalization for help with drug problems.

United Nations Office on Drugs and Crime

- The United Nations Office on Drugs and Crime is a United Nations office that was established in 1997.
- It acts as the Office for Drug Control and Crime Prevention by combining the United Nations International Drug Control Program (UNDCP) and the Crime Prevention and Criminal Justice Division in the United Nations Office at Vienna.
- It was named the United Nations Office on Drugs and Crime in 2002.
- UNODC also publishes World Drug Report.

2.9 India-US sign pact for exchange of reports to check tax evasion by MNCs

Context:

- India and the US can now exchange **country-by-country (CbC) reports** filed by the ultimate parent corporations based in either of the countries.
- That is, the Companies headquartered in the US but having operations and taxability in India **now need not file country-by-country (CbC) reports in India.**
- For such international companies, **filing CbC reports in the US would be sufficient.**

- This will **reduce the compliance burden** on their subsidiaries operating out of these countries.

Note:

- The Income-tax Act requires Indian subsidiaries of multinational companies to provide details of key financial statements from other jurisdictions where they operate.
- This provides the I-T Department with better operational view of such companies, primarily with regards to revenue and income tax paid.
- The provision was a **part of the Base Erosion and Profit Shifting (BEPS)** action plan, and **later incorporated in I-T Act also.**

Base Erosion and Profit Shifting (BEPS):

- BEPS is a term used to describe **tax planning strategies that exploit mismatches and gaps that exist between the tax rules of different jurisdictions.**
- It is done to **minimise the corporation tax** that is payable overall, by either making tax profits 'disappear' or **shift profits to low tax jurisdictions where there is little or no genuine activity.**
- In general BEPS strategies **are not illegal; rather they take advantage of different tax rules operating in different jurisdictions.**
- BEPS is of major significance for developing countries due to their heavy reliance on corporate income tax, particularly from multinational enterprises (MNEs).
- The BEPS initiative is an OECD initiative, approved by the G20, to identify ways of providing more standardised tax rules globally.

2.10 International Workshop on Disaster Resilient Infrastructure-2019 concludes successfully

Context:

- Recently an International Workshop on Disaster Resilient Infrastructure (IWDRI) was held in New Delhi.
- The two-day workshop was organised by the National Disaster Management Authority (NDMA) in collaboration with United Nations Office for Disaster Risk Reduction (UNISDR), and in partnership with the Global Commission on Adaptation, United Nations Development Programme and the World Bank.

The objective of workshop were to:

- **Identify good practices** of disaster risk management in key infrastructure sectors,
- **Identify specific areas and pathways** for collaborative research on DRI (Transport, Energy, Telecom and Water),
- Discuss and co-create the **broad contours of the Coalition for Disaster Resilient Infrastructure (CDRI)** as well as a notional roll-out plan for the next three years, and
- Build a forum for members to work on areas of common interest and make specific commitments.

United Nations Office for Disaster Risk Reduction (UNISDR):

- The UNISDR was **established in 1999** as a dedicated secretariat to facilitate the implementation of the **International Strategy for Disaster Reduction (ISDR).**
- It is headquartered in **Geneva, Switzerland.**
- It is mandated to serve as the focal point in the United Nations system for the coordination of disaster reduction and to ensure synergies among the disaster reduction activities.
- It is an **organisational unit of the UN Secretariat** and is led by the UN Special Representative of the Secretary General for Disaster Risk Reduction (SRSG).
- UNISDR's Strategic Framework 2016-2021 has a vision to substantially reduce disaster risk and losses for a sustainable future with the **mandate to act as the custodian of the Sendai**

Framework, supporting countries and societies in its implementation, monitoring and review of progress.

Note:

- The **first** International Workshop on Disaster Resilient Infrastructure (**IWDRI 2018**) was held in **January 2018 in India**.
- India announced the **creation of a Coalition for Disaster Resilient Infrastructure (CDRI)** soon after the Asian Ministerial Conference on Disaster Risk Reduction, which was held in New Delhi in 2016.
- The CDRI is envisaged as a **knowledge exchange and capacity development partnership**.
- **Various international agreements** have also reiterated the importance and long-term benefits of investing in resilient infrastructure.
- The **Sendai Framework for Disaster Risk Reduction (SFDRR), 2015-2030**, identifies investing in Disaster Risk Reduction (DRR) for resilience and to build back better in reconstruction as priorities for action towards reducing disaster risk.
- Similarly, **Goal 9 of the Sustainable Development Goals (SDGs)** recognizes disaster resilient infrastructure as a crucial driver of economic growth and development.
- Besides reducing infrastructure losses, disaster resilient infrastructure will also help achieve targets pertaining to **reduction in mortality**, number of affected people and economic losses due to disasters.

Sendai Framework for Disaster Risk Reduction :

- The SFDRR 2015-2030 outlines **seven clear targets** and **four priorities for action** to prevent new and reduce existing disaster risks:
- **Understanding** disaster risk;
- **Strengthening disaster risk governance** to manage disaster risk;
- **Investing in disaster reduction** for resilience and;
- **Enhancing disaster preparedness** for effective response, and to **"Build Back Better"** in recovery, rehabilitation and reconstruction.
- The Sendai Framework is a **15-year, voluntary, non-binding agreement** which recognizes that the State has the primary role to reduce disaster risk but that responsibility should be shared with other stakeholders including local government, the private sector and other stakeholders.
- It aims to achieve the **substantial reduction of disaster risk** and losses in lives, livelihoods and health and in the economic, physical, social, cultural and environmental assets of persons, businesses, communities and countries over the next 15 years.
- The Framework was adopted at the **third UN World Conference on Disaster Risk Reduction in Sendai, Japan, on March 18, 2015**.

2.11 ISRO, CNES ink agreement on maritime security

Context:

- Recently the Indian Space Research Organization (ISRO) and its French counterpart National Centre for Space Studies (CNES) signed an agreement to set up a joint maritime surveillance system in India by May 2019.
- The two nations will explore putting up a constellation of low-Earth orbiting satellites that will identify and track movement of ships globally – and in particular those moving in the Indian Ocean region where France has its Reunion Islands.
- It provides for a **maritime surveillance centre** to be set up in **India by May 2019**.
- For the next phase of the programme, studies for an orbital infrastructure to be operated jointly by the two countries are ongoing. CNES is working with its industry partners and with ISRO to

devise the most appropriate technical solution.

- Earlier the two agencies have already put up **two climate and ocean weather monitoring** satellites **Megha-Tropiques (of 2011)** and **SARAL-AltiKa (2013)**.
- This fleet will be augmented with the launch of **Oceansat-3-Argos mission in 2020** and a future **joint infrared Earth-observation satellite**.

National Centre for Space Studies (CNES):

- CNES is the **French government space agency**.
- Its **headquarters** are located in central **Paris** and it is under the supervision of the **French Ministries of Defence and Research**.
- It was **founded in 1961**.

2.12 Langkawi International Maritime Aero Expo (LIMA) 2019

- The **Indian Air Force** is going to participate in **Langkawi International Maritime Aero Expo (LIMA) 2019**.
- **Langkawi International Maritime Aero Expo (LIMA-2019)** is planned in Langkawi, Malaysia from 26 March 2019 to 30 March 2019.
- Indian Air Force is participating in the **Maritime Aero Expo for the first time**, during which it will showcase its **indigenously developed LCA Tejas fighter aircraft**.
Participation of IAF in LIMA-2019 will provide an opportunity to air-warriors to interact with their Royal Malaysian Air Force (RMAF) counterparts and foster a close relationship between the two services.

2.13 National Rural Economic Transformation Project (NRETP)

Context:

- The government of India and World Bank have signed \$250 Million Agreement for the **National Rural Economic Transformation Project (NRETP)** under the **Deendayal Antyodaya Yojana National Rural Livelihoods Mission (DAY-NRLM)**.
- A key focus of the project will be to **promote women-owned and women-led farm and non-farm enterprises across value chains; enable them to build businesses that help them access finance, markets and networks; and generate employment**.
- The other key component of the project includes developing financial products using digital financial services to help small producer collectives scale-up and engage with the market.
- It will also support youth skills development, in coordination with the Deen Dayal Upadhyaya Grameen Kaushalya Yojana.
- Peer-to-peer learning across states and across communities was a successful strategy under the NRLP and will also continue to be used in this project.

Deendayal Antyodaya Yojana - National Livelihoods Mission (NRLM):

- Deendayal Antyodaya Yojana - National Livelihoods Mission (NRLM) was **launched by the Ministry of Rural Development (MoRD), Government of India in 2011**.
- The Mission aims at creating efficient and effective institutional platforms of the rural poor enabling them to increase household income through sustainable livelihood enhancements and improved access to financial services.

Salient features:

- DAY-NRLM lays special emphasis on targeting the poorest of the poor and the most vulnerable communities and their financial inclusion.
- Innovative projects are to be undertaken under NRETP to pilot alternate channels of financial inclusion, creating value chains around rural products, introduce innovative models in livelihoods

promotion and access to finance and scale-up initiatives on digital finance and livelihoods interventions.

- DAY-NRLM provides for mutually beneficial working relationship and formal platforms for consultations between Panchayati Raj Institutions (PRIs) and Community Based Organizations (CBOs).
- NRLM has also developed activity map to facilitate convergence in different areas of interventions where NRLM institutions and PRIs could work together which has been disseminated to all state Rural Livelihood Missions.

Benefits:

- The technical assistance provided by NRETP and the higher level interventions facilitated by the project
- Enhances the livelihoods promotion and access to finance, and
- Scales-up initiatives on digital finance and livelihood interventions.
- Develops financial products using digital financial services to help small producer collectives scale-up and engage with the market.
- Gives technical assistance, skills building and investment support to strengthen women-owned and women-led producer collectives diversify into high value farm and non-farm commodities such as commercial crops and livestock products, and fisheries.

2.14 Nice Agreement, Vienna Agreement and Locarno Agreement of WIPO

Context:

- The Union Cabinet, chaired by the Prime Minister Narendra Modi has approved the proposal for accession of India to (i) The Nice Agreement (ii) The Vienna Agreement and (iii) The Locarno Agreement.

Highlights:

- Accession to the Nice, Vienna and Locarno Agreements will **help the Intellectual Property Office in India to harmonise the classification systems for examination of trademark and design applications, in line with the classification systems followed globally.**
- It would give an opportunity to include Indian designs, figurative elements and goods in the international classification systems.
- The accession is expected to instill confidence in foreign investors in relation to protection of IPs in India.
- The accession would also facilitate in exercising rights in decision making processes regarding review and revision of the classifications under the agreement.

Nice Classification:

- **International Classification of Goods and Services** also known as the Nice Classification was established by the Nice Agreement (1957).
- It is a system of classifying goods and services for the purpose of registering trademarks.
- It is updated every five years and its latest 11th version of the system groups products into 45 classes (classes 1-34 include goods and classes 35-45 embrace services), and allows users seeking to trademark a good or service to choose from these classes as appropriate.
- The system is recognized in numerous countries and this makes applying for trademarks internationally a more streamlined process.
- **The classification system is specified and administered by World Intellectual Property Organization (WIPO). It was consummated on 15 June 1957 in Nice, France.**
- The Nice Agreement is open to states who are parties to the "Paris Convention for the Protection of Industrial Property".

- The trademark offices of the nations signatory to the Nice Agreement agree to employ the designated classification codes in their official documents and publications.
- The Nice Classification consists of class headings, explanatory notes, and an alphabetical list of goods and services.
- The alphabetical list is an alphabetized enumeration of about 10,000 goods and about 1,000 services and it is updated regularly.

Vienna Agreement

- The Vienna Agreement, concluded in Vienna in 1973 and amended in 1985, establishes a classification (the Vienna Classification) for marks that consist of, or contain, figurative elements.
- The competent offices of Contracting States must indicate in official documents and in any publication they issue in respect of the registration of marks the numbers of the categories, divisions and sections of the Classification to which the figurative elements of those marks belong.
- The Vienna Agreement created a Union, which has an Assembly. Every State that is a member of the Union is a member of the Assembly. Among the most important tasks of the Assembly is the adoption of the biennial program and budget of the Union.
- The Agreement also set up a Committee of Experts in which all members of the Union are represented. The main task of the Committee is the periodical revision of the Classification.
- The Agreement is open to States party to the Paris Convention for the Protection of Industrial Property (1883). Instruments of ratification or accession must be deposited with the Director General of WIPO.

Locarno Agreement

- The Locarno Agreement, concluded at Locarno in 1968 and amended in 1979, establishes a classification for industrial designs (the Locarno Classification).
- The competent offices of the Contracting States must indicate in official documents and in any publication they issue in respect of the deposit or registration of industrial designs the numbers of the classes and subclasses of the Classification to which the goods incorporating the designs belong.
- The Locarno Agreement created a Union, which has an Assembly. Every State that is a member of the Union is a member of the Assembly. Among the most important tasks of the Assembly is the adoption of the biennial program and budget of the Union.
- The Agreement also set up a Committee of Experts in which all members of the Union are represented. The main task of the Committee is the periodical revision of the Classification.
- The Agreement is open to States party to the Paris Convention for the Protection of Industrial Property (1883). Instruments of ratification or accession must be deposited with the Director General of WIPO.

2.15 Sushma Swaraj at OIC meet: All you need to know

Context:

- Recently, India's External Affairs minister (EAM) attended **46th Session of the Council of Foreign Ministers of the Organisation of Islamic Cooperation (OIC)** held in Abu Dhabi, United Arab Emirates (UAE).
- India was invited by the host UAE as the "Guest of Honour" to attend the inaugural session of the OIC.
- Even though Pakistan is a founding member of OIC. It absented itself during the session.
- **2019 is the 50th anniversary of OIC.**

India's address :

- At the summit, EAM has said that the fight is against terrorism and not a confrontation with any religion.
- Without naming Pakistan, EAM said countries that provided shelter and funding to terrorists must be asked to dismantle the infrastructure of terrorist camps and stop providing funding and shelter to terror organizations based in their countries.
- EAM also said that India is home to more than 185 million Muslims and they practice their respective beliefs and live in harmony with each other and with their non-Muslim brethren.

Organisation of Islamic Cooperation (OIC):

- The OIC was formed in 1969 after a summit in Rabat, the Kingdom of Morocco on 25 September 1969 following the fire in Al-Aqsa Mosque in Jerusalem.
- The Organisation of Islamic Cooperation (OIC) is among the largest inter-governmental organizations in the world.
- The term **intergovernmental organization (IGO)** refers to an entity created by treaty, involving two or more nations, to work in good faith, on issues of common interest. In the absence of a treaty, an IGO does not exist in the legal sense.
- It has 57 member states and 12 observers including the United Nations.
- The Organization is the collective voice of the Muslim world. It endeavors to safeguard and protect the interests of the Muslim world in the spirit of promoting international peace and harmony among various people of the world.
- The OIC members constitute more than one-fourth of the members of the United Nations, and nearly a quarter of humanity. It is an organization, that has a key role in shaping our world.

Significance:

- The invitation to address the OIC can be seen as a **major diplomatic victory as this is the first time that an Indian EAM was invited.**
- This can be seen as a part of **India's efforts to isolate Pakistan diplomatically.**
- In 1969, the invite to then union minister Fakhruddin Ali Ahmed was withdrawn at Pakistan's insistence.
- The official announcement by the UAE mentioned, that the invitation to India was extended in recognition of India's global political stature as well as its time-honored and deep-rooted cultural and historical legacy and its important Islamic component.

Analysis:

- India is a secular country, regardless of all the religions here, **India does not prefer religion above nationality.** Thus, the government must carefully consider its engagement with OIC.
- The major basis of the OIC is of the **Muslim Brotherhood and that Muslims everywhere can be clubbed together because of their faith. But, India does not support such a philosophy of a collective identity based on religion.** Thus, if India decides to engage with OIC it should be on the basis of our national interest not on account of religion.
- There are issues with respect to OIC's stands on Kashmir in past. Recently, the OIC has condemned Indian Airforce strikes in Pakistan.

OIC stand on Kashmir:

- The 45th session had a very strong statement on Kashmir which "condemned" India and supported third-party intervention and self-determination. The statement also called the killing of terrorist Burhan Wani as "extra-judicial" and called the elections in Kashmir "farcical".
- In past decades, **India had to spend lots of diplomatic capital to counter OIC's stands at many international organizations.** By attending it, we are validating the same organization.
- **Diplomatic capital** refers to the trust, goodwill, and influence which a diplomat, or a state represented by its diplomats, has within international diplomacy.

2.16 Transports Internationaux Routiers (TIR) convention

Context:

- The first shipment under the United Nations ‘Transports Internationaux Routiers’ (TIR) convention arrived in India from Afghanistan through Iran’s Chabahar Port.

TIR convention:

- The Customs Convention on International Transport of Goods under cover of TIR Carnets, 1975 (TIR Convention), is an international transit system under the auspices of the United Nations Economic Commission for Europe (UNECE) to facilitate the seamless movement of goods within and amongst the Parties to the Convention.
- The 1975 convention replaced the TIR Convention of 1959, which itself replaced the 1949 TIR Agreement between a number of European countries.
- The TIR system not only covers customs transit by road but a combination is possible with other modes of transport (e.g., rail, inland waterway, and even maritime transport), as long as at least one part of the total transport is made by road.

Benefits of TIR for India

- It has far reaching benefits for trade and will save significant time and money by streamlining procedures at borders, reducing administration and cutting border waiting times.
- The TIR Convention will also facilitate India’s current national and multilateral connectivity-related initiatives to improve cross border road transport, facilitating overland trade integration with both eastern and western neighbours.
- It will also help India in implementing the World Trade Organization’s Trade Facilitation Agreement, which entered into force this year.
- The Convention will help Indian traders to have access to fast, easy, reliable and hassle free international system for movement of goods by road or multi-modal means across the territories of other contracting parties.
- With this convention, the need for inspection of goods at intermediate borders as well as physical escorts en route shall be obviated due to reciprocal recognition of Customs controls.

INTERNATIONAL

3.1 22nd March - World Water Day

- **World Water Day** is celebrated every year on **March 22nd**.

Highlights

- The **theme** for World Water Day 2019 is **'Leaving no one behind,'** which is the **central promise** of the **2030 Agenda** for Sustainable Development as sustainable development progresses, everyone must benefit.
- Sustainable Development Goal 6 (**SDG 6**) aims to **ensure availability and sustainable management of water for all by 2030**. By definition, this means leaving no one behind.
- World Water Day is coordinated by **UN-Water** – the UN's inter-agency collaboration mechanism for all freshwater related issues in collaboration with governments and partners.

World Water Day:

- In the year **1992**, March 22 was first officially added in the schedule 21 of **United Nations Conference on Environment and Development** as World Water Day in the Rio de Janeiro, Brazil.
- The celebrations to mark world water day started from the year 1993. The aim of the day is to increase awareness among people about the importance, need and conservation of water.
- The **World Water Development Report** is also released by the **UN every year** around World Water Day.

3.2 Aurora Supercomputer by 2021

Context:

- The United States has decided to build the fastest supercomputer – is named as **Aurora**.

Aurora:

- It is scheduled to be delivered to the **Argonne National Laboratory** near Chicago in **2021**.
- It will be the first machine to reach a milestone called **"exascale"** performance, i.e. **one billion billion calculations per second**.
- This speed is around seven times the speed of the most powerful system built to date, or **1,000 times faster than the first "petascale" systems built in 2008**.
- The new machines will let researchers create significantly **more accurate simulations** of phenomena such as **drug responses, climate changes, the inner workings of combustion engines and solar panels**.
- An **International Business Machines (IBM) Corporation** system called **Summit(OLCF-4)**, built for the Oak Ridge National Laboratory in the USA is the **fastest supercomputer in the world with a clocked speed of 143.5 petaflops**.

India:

- India's first supercomputer called **PARAM 8000** was launched in **1991**.
- At present, Indian Institute of Tropical Meteorology has **Pratyush supercomputer, which is the fastest supercomputer in India**, it has a speed of 4.0 Petaflops.
- National Centre for Medium-Range Weather Forecasting has **Mihir**, which has a speed of 2.8 petaflops.

Computing Speed:

- **Teraflops:** It is a unit of computing speed equal to **one million million (10^{12}) floating-point operations per second (FLOPS)**.
- **Petaflops:** It is a unit of computing speed equal to **one thousand million million (10^{15}) floating-point operations per second (FLOPS)**.
- **Exaflops:** It is a unit of computing speed equal to **one billion billion (10^{18}) floating-point**

operations per second (FLOPS).

3.3 Black Hole Coin

- The **British Royal Mint** has commemorated professor Stephen Hawking in a **new 50p coin**, which references the late physicist's pioneering work on **black holes**.

Highlights

- The **honorary coin**, which is available in **three metal finishes**, aims to celebrate the life and "ground-breaking" **achievements of Hawking**, who passed away in 2018.
- It features Hawking's name in capital letters above a **rippling drawing of concentric circles**, intended to represent a black hole.
- Also on the coin is the formula for arguably Hawking's most important scientific contribution. It references his discovery that **black holes are not completely black, and instead emit radiation, meaning they eventually evaporate and disappear**.

3.4 Cyclone Idai

- Recently the **Cyclone Idai** has hit the port city of **Beira in Mozambique**.
- Mozambique has been struck by **severe cyclones in the past**, including **Eline in 2000**, when 350 people died and 650,000 were displaced across the region.
- According to the **Global Facility for Disaster Reduction and Recovery (GFDRR)**, Mozambique is the **third most at-risk country in Africa** when it comes to extreme weather.
- The cyclone has been **named by Zimbabwe**.

Global Facility for Disaster Reduction and Recovery:

- GFDRR is a global partnership that helps developing countries better understand and **reduce** their vulnerability to natural hazards and climate change.
- GFDRR was **established in September 2006** as a global partnership of the **World Bank, UN agencies and bilateral donors**, located in World Bank headquarters in Washington, DC.

Its missions are:

- to mainstream disaster reduction and **climate change adaptation (CCA) in country development strategies**, and
- to foster and strengthen global and regional cooperation among various stakeholders under the International Strategy for Disaster Reduction (ISDR) system.
- GFDRR contributes to the implementation of the Sendai Framework for Disaster Risk Reduction by helping countries to integrate disaster risk management and climate change adaptation into development strategies and investment programs and recover from disasters quickly and effectively.

Tropical Cyclone:

- Cyclone is the formation of **very low-pressure system** with **very high-speed winds revolving** around it. Factors like wind speed, wind direction, temperature and humidity contribute to the development of cyclones.
- Before cloud formation, water takes up heat from the atmosphere to change into vapour. When water vapour changes back to liquid form as raindrops, this heat is released to the atmosphere.
- The heat released to the atmosphere warms the air around. The air tends to rise and causes a drop in pressure. More air rushes to the centre of the storm. This cycle is repeated.
- Since Hurricanes derive their energy from **heated seawater** which can be prevented by presence of upper-level-winds that disrupt the storm circulation forcing it to lose its strength.

3.5 Global Environment Outlook

Context:

- **Global Environment Outlook** report has been released. The report is the **sixth** and is the **UN's most comprehensive report** on the state of the global environment since the fifth edition in 2012.

GEO report

- The **GEO** is often referred to as UN Environment's **flagship** environmental assessment.
- The **first** publication was in **1997** and was originally requested by Member States.
- It is a flagship report because it fulfills the **core functions of the organization**, which date back to the UN General Assembly resolution that established the UNEP in 1972.

Highlights

- A quarter of all **premature deaths** and diseases worldwide are **due to manmade** pollution and environmental damage.
- Deadly emissions, chemicals polluting drinking water, and the accelerating destruction of ecosystems crucial to the livelihoods of billions of people are driving a worldwide epidemic that hampers the global economy.
- There is a growing chasm between **rich and poor countries** as rampant overconsumption, pollution and food waste in the developed world leads to hunger, poverty and disease elsewhere.

Impact:

- As greenhouse gas emissions continue to rise amid a preponderance of droughts, floods and super storms made worse by climbing sea levels, there is a growing political consensus that **climate change poses a future risk to billions**.
- But the health impacts of pollution, deforestation and the mechanised food-chain are less well understood. Nor is there any international agreement for the environment close to covering what the 2015 Paris accord does for climate.
- **Poor environmental conditions** “cause approximately **25% of global disease and mortality**” — around 9 million deaths in 2015 alone.
- Lacking access to clean drinking supplies, 1.4 million people die each year from preventable diseases such as diarrhoea and parasites linked to pathogen-riddled water and poor sanitation.
- **Chemicals** pumped into the seas cause “**potentially multi-generational**” adverse health effects, and land degradation through mega-farming and deforestation occurs in areas of Earth home to 3.2 billion people.
- **Species extinction** rates also continue to increase at a pace that could compromise Earth's ability to meet human needs, the report says.

Remedy:

- The report called for a **root-and-branch detoxifying of human behaviour** while insisting that the situation is not unassailable. **Food waste** for instance, which accounts for 9% of global greenhouse gas emissions, could be slashed. The world currently throws away a **third of all food** produced. In richer nations, **56% goes to waste**.
- It also called for a rapid drawdown in greenhouse gas emissions and pesticide use to improve air and water quality.

3.6 International Day for the Elimination of Racial Discrimination

Context:

- International Day for the Elimination of Racial Discrimination is observed on 21st March every year.
- The theme for 2019 is Mitigating and countering rising nationalist populism and extreme

supremacist ideologies.

Note:

- The UN General Assembly on 26 October 1966 proclaimed 21 March as the International Day for the Elimination of Racial Discrimination to be commemorated annually.
- On that day, in 1960, police opened fire and killed 69 people at a peaceful demonstration in Sharpeville, South Africa, against the apartheid "pass laws".
- Proclaiming the Day in 1966 which signifies the struggle to end the policy of apartheid in South Africa.

3.7 Italy joins Belt and Road bandwagon

- Italy has become the **first G7 country to join China's Belt & Road Initiative** (previously known as One Belt One Road (OBOR) Initiative).

Belt & Road Initiative



- **Belt & Road Initiative (BRI)** is an ambitious project that focuses on connectivity and cooperation among multiple countries spread across the continents of Asia, Africa, and Europe. BRI spans about 150 countries (China's Claim).
- Initially announced in the year 2013, the project involves **building networks of roadways, railways, maritime ports, power grids, oil and gas pipelines**, and associated infrastructure projects.
- The project covers two parts.
- **Silk Road Economic Belt:** It is land-based and is expected to connect China with Central Asia, Eastern Europe, and Western Europe.
- **21st Century Maritime Silk Road:** It is sea-based and is expected to connect China's southern coast to the Mediterranean, Africa, South-East Asia, and Central Asia.

Significance of BRI For China:

- The Belt and Road Initiative (BRI) is the most emblematic of **China's economic and industrial**

might, as of its ambitions for global, political and strategic influence.

- As infrastructure spending at home became less sustainable, **China has shifted the emphasis to boost the global competitiveness of domestic businesses.**
- The large infrastructure investments in the least developed and developing countries have **enabled China to leverage its influence around the world**, potentially altering the established rules of the global order and challenging western powers.
- BRI will **strengthen China's presence in the Eurasian region** and puts it in a commanding position over Asia's heartland.

Criticism :

- Western critics have attacked the initiative as **new colonialism, or Marshal Plan for the 21st century.**
- BRI is also being seen as a part of **China's debt trap policy**, wherein China intentionally extends excessive credit to another country with the intention of extracting economic or political concessions from the debtor country.

Significance of Italy joining:

- Italy's **endorsement of the BRI is a potential game changer** as it is one of the major economies in the world.
- **Other major economies may follow Italy's lead** in joining BRI.

India has not joined because:

- **China Pakistan Economic Corridor (CPEC)** is one of the flagship projects of BRI which is seen by **India as infringing its sovereignty.**
- China is building roads and infrastructure in the **disputed territory of Gilgit-Baltistan**, which is under Pakistan's control but which India claims as a part of Jammu and Kashmir.
- If the CPEC project gets implemented successfully, this would **hamper India's strategic interests in the South Asian region.** It will serve Beijing's strategic ambition to encircle India.
- **CPEC can aid Pakistan's legitimacy in the Kashmir dispute.**
- China's increasing footprints in the **South Asian region is detrimental to India's strategic hold e.g. construction of the Hambantota Port in Sri Lanka** provided China critical strategic location in the Indian Ocean.

G7

- The Group of Seven is a group consisting of **Canada, France, Germany, Italy, Japan, the United Kingdom, and the United States.**
- These countries, with the seven largest International Monetary Fund (IMF)-described advanced economies in the world, represent 58% of the global net wealth.

3.8 Karen Uhlenbeck first woman to win the Abel Prize

- Karen Uhlenbeck, a mathematician and professor at the University of Texas, has been awarded **Abel Prize for 2019.** It's the **first time the prize has gone to a woman.**
- She has been awarded the prize for her work in **geometric partial differential equations, gauge theory and integrable systems, and for the fundamental impact of her work on analysis, geometry and mathematical physics.**
- The **Abel Prize** was established by the **Norwegian government in 2002 on the occasion of the 200th birth anniversary of the 19th century Norwegian mathematician Niels Henrik Abel.** The Abel Prize recognizes contributions to the field of mathematics that are of extraordinary depth and influence.
- The Norwegian Academy of Science and Letters awards the Abel Prize based on a

recommendation from the Abel committee. The prize carries a **cash award of 6 million Norwegian kroner (\$7,03,000)** and has been awarded **annually since 2003**.

- In addition to honouring outstanding mathematicians, the Abel Prize also contributes towards raising the status of mathematics in society and stimulating the interest of children and young people in mathematics.
- There is no Nobel Prize in mathematics, and for decades, the most prestigious awards in math were the **Fields Medals**, awarded in small batches **every four years** to the most accomplished **mathematicians who are 40 or younger**. **Maryam Mirzakhani, in 2014, is the only woman to receive a Fields Medal**.
- Along with the Fields Medal, which is awarded every four years at the Congress of the International Mathematical Union (IMU), Abel Prize is one of the world's most prestigious maths prizes in the field of mathematics.

3.9 London Patient

- Recently a person suffering from HIV has been treated in London called as 'London Patient'.
- He becomes the second person to be free of the HIV virus after a bone marrow transplant.
- He has been cured with CCR5-delta 32 technique, which is based on a stem cell transplant involving CCR5-delta 32 homozygous donor cells.

The Berlin Patient:

- Timothy Ray Brown is considered to be the first person cured of HIV.
- He was treated in Berlin and to preserve his identity, later he came to be known as "The Berlin Patient".

3.10 Mercer Quality of Living Ranking 2019

Context:

- Global consulting firm **Mercer** has released its **annual quality of living survey** in which 231 cities across the globe were ranked based on various factors. This is the **21st edition**.

Factors Determining Quality of Living:

- These factors are evaluated in **Mercer's Quality of Living Reports**, which offer city-to-city comparisons for nearly 500 global assignment destinations.
- Recreation Public services and transport.
- Socio-cultural environment.
- School and education.
- Medical and health considerations.
- Political and social environment.
- Natural environment.
- Housing
- Economic environment.
- Consumer goods availability.

Highlights:

- Globally, **Vienna** tops the ranking for the 10th year running, closely **followed by Zurich**, the runner-up.
- This year, Mercer provides a separate ranking on **personal safety**. **Western Europe** dominates the ranking, with **Luxembourg** named as the safest city in the world.
- **London** has been named the **UK's best city** to live in.
- **Indian cities: Chennai**, the capital of Tamil Nadu is ranked at 105 in Mercer's Quality Of Living

Index and is the **number one city from India**. Bengaluru was the second best with the ranking of 149.

Key Findings:

- **Trade tensions and populist undercurrents** continue to dominate the global economic climate. Combined with the spectre of monetary policy tightening and volatility looming over markets, international businesses are under more pressure than ever to get their overseas operations right.
- The survey shows that many cities around the world still offer attractive environments in which to do business, and the best understand that the **quality of living is an essential component of a city's attractiveness** for businesses and mobile talent.
- Many cities had seen an improvement, but **terror attacks** in the last ten years have caused cities including Athens, Madrid and Paris to slide down the table.

3.11 Mitra-Shakti VI

- Annual joint military exercise **Mitra-Shakti 2019 between India India-Sri Lanka** will be conducted in Sri Lanka.
- The **aim of the exercise is to build and promote close relations between armies of both the countries** and to enhance the ability of joint exercise commander to take military contingents of both nations under command.
- This exercise is one of the **major bilateral defense cooperation initiatives between India and Sri Lanka since 2013**.

3.12 Sary-Arka-Antiterror 2019

Context:

- The **Shanghai Cooperation Organization's (SCO)** member states will hold a **joint anti-terrorism exercise "Sary-Arka-Antiterror 2019."** The decision to hold a joint exercise was announced during the 34th meeting of the **RATS council held in Tashkent, Uzbekistan**.

Outcomes

- Chaired by Russia, the meeting also declared plans to hold the first stage of the **joint border operation "Solidarity 2019-2021,"** the 7th meeting of the heads of the border services, and training workshops on identifying and preventing the use of the Internet for **terrorist, separatist and extremist purposes**.

Regional Anti-Terrorist Structure (RATS):

- RATS, established in **2004**, is a **permanent organ** of the **SCO** which serves to promote cooperation of member states against the three evils of terrorism, separatism and extremism.
- It is headquartered in **Tashkent**.

Shanghai Cooperation Organisation (SCO):

- The Shanghai Cooperation Organisation, also known as the **Shanghai Pact**, is a Eurasian **political, economic, and military** organisation which was founded in **2001** in Shanghai by the leaders of China, Kazakhstan, Kyrgyzstan, Russia, Tajikistan, and Uzbekistan.
- Apart from Uzbekistan, the other five countries have been a part of the **Shanghai 5** since 1996.
- The cooperation was **renamed** to Shanghai Cooperation Organisation after Uzbekistan joined the organisation in 2001.
- India and Pakistan joined SCO as full members in **June 2017** in Astana, Kazakhstan.

Goals of SCO:

- Strengthening mutual trust and neighbourliness among the member states.
- Promoting their effective cooperation in politics, trade, the economy, research, technology and culture, as well as in education, energy, transport, tourism, environmental protection, and other

areas

- Making joint efforts to maintain and ensure peace, security and stability in the region; and moving towards the establishment of a democratic, fair and rational new international political and economic order.

3.13 The Hanoi summit collapse reaffirms Trump's amateur hour in diplomacy

- Recently, the United States (US) and North Korea held a summit in **Hanoi, Vietnam**
- This was the **second summit** between the US and North Korea after the Singapore Summit in June 2018.
- The talks between the US and North Korea ended **abruptly without any conclusion and no declaration was signed.**
- Reason for failure of talks was that North Korea had demanded complete relief from economic sanctions in exchange for only partial denuclearization. But, the US wants North Korea to give up all its weapons.
- During the **Singapore Summit in 2018, the US and North Korea have signed an agreement committing to the complete denuclearisation of the Korean peninsula.**

3.14 Tropical cyclones Trevor and Veronica bear down on Australia

- **Two cyclonic storms, named Trevor and Veronica,** are expected to make landfall into Australia's coasts.
- Trevor is expected to make landfall in northeast Australia while Veronica will hit northwest Australia.
- Trevor and Veronica are no different from the hurricanes or cyclones except that they spin clockwise instead of counterclockwise.
- In the **Northern Hemisphere** the direction of the **cyclone is counterclockwise**, and in the **Southern Hemisphere, it is clockwise.**

3.15 Trump signs US recognition of Israeli sovereignty over Golan Heights

Context:

- U.S. President Donald Trump has announced that the US may recognize Israeli sovereignty over the Golan Heights.
- The U.S. will be the first country to recognize Israeli sovereignty over the Golan and marks a dramatic shift in U.S. policy.
- **The Golan Heights were captured by Israel from Syria in the 1967 conflict** and annexed in 1981 — a move not recognized internationally.

US Stand & Israel's Response:

- The U.S. has said that Israel could not give up the Golan Heights as doing so would endanger Israel's very existence.
- Israel has welcomed the US stand.

Other countries Reaction:

- **The Syrian government** said the Golan was an "indivisible" part of Syrian territory and recovering it "via all means guaranteed by international law is still a priority".
- **Russia, Iran, and Turkey** have condemned the US statement as illegal and unacceptable and said that the decisions will lead to a crisis in the region.

Impact:

- The formal recognition of Israel's sovereignty over the Golan doesn't change anything on the ground. Israel already has a considerable military presence in the region.

- It is not immediately clear how the U.N. peacekeeping force in the Golan might be affected by the U.S. move.



- **The Golan Heights** is a rocky plateau with an area of 1,800km² on the border between Israel and Syria in south-western Syria.

Dispute:

- Israel occupied the Golan Heights, West Bank, East Jerusalem, and the Gaza Strip in the 1967 Six-Day War. An armistice line was established and the region came under Israeli military control.
- Syria tried to retake the Golan Heights during the 1973 Middle East war. Syria was defeated in its attempt.
- Both countries signed an armistice in 1974 and a UN observer force has been in place on the ceasefire line since 1974.
- In 1981, Israel permanently acquired the territory of the Golan Heights and East Jerusalem in moves never recognized by most countries.
- The international community regards as disputed territory occupied by Israel whose status should be determined by negotiations between Israel and Syria.
- Attempts by the international community to bring Israel and Syria for negotiations have failed.

International Recognition:

- **The European Union** said its position on the status of the Golan Heights was unchanged and it did not recognize Israeli sovereignty over the area.
- **The Arab League**, which suspended Syria in 2011 after the start of its civil war has said the move is “completely beyond international law”.
- **Egypt**, which made peace with Israel in 1979, said it still considers the Golan as occupied Syrian territory.
- **India** has also not recognized Golan heights as Israel territory and has called for the return of Golan Heights to Syria.

Why Golan Heights significant?.

- The Golan Heights give Israel **an excellent point for monitoring Syrian movements**. The topography provides a **natural buffer against any military adventure from Syria**.

- The area is also a **key source of water for an arid region**. Rainwater from the Golan's catchment feeds into the Jordan River. **The area provides a third of Israel's water supply**.
- The land is fertile, and the volcanic soil is used to cultivate vineyards and orchards and raise cattle. **The Golan is also home to Israel's only ski resort**.

3.16 UN Environment - Global Chemical Outlook II

Context:

- The Global Chemicals Outlook II – From Legacies to Innovative Solutions: Implementing the 2030 Agenda for Sustainable Development, mandated by the UN Environment Assembly in 2016, seeks to alert policymakers and other stakeholders to the critical role of the sound management of chemicals and waste in sustainable development.
- It takes stock of global trends as well as progress made and gaps in achieving the global goal to minimize the adverse impacts from chemicals and waste by 2020.

Key Highlights:

- Countries will not meet the internationally agreed goal to minimize the adverse impacts of chemicals and waste by 2020, meaning that urgent action is required to reduce further damage to human health and economies.
- The current chemical production capacity of 2.3 billion tonnes, valued at US\$5 trillion annually, is projected to double by 2030.
- Despite commitments to maximize the benefits and minimize the impacts of this industry, hazardous chemicals continue to be released to the environment in large quantities. They are ubiquitous in air, water and soil, food and humans. The world must take advantage of the many solutions that already exist and are highlighted in the report.
- While international treaties and voluntary instruments have reduced the risks of some chemicals and wastes, progress has been uneven and implementation gaps remain. For example, as of 2018, more than 120 countries had not implemented the Globally Harmonized System of Classification and Labelling of Chemicals.
- The World Health Organization estimated the burden of disease from selected chemicals at 1.6 million lives in 2016, which is likely an underestimate. Chemical pollution also threatens a range of ecosystem services.
- From pharmaceuticals to plant protection, chemicals play an important role in modern society and in achieving the goals of the 2030 Agenda for Sustainable Development.
- Driven by economic development, population dynamics and other global megatrends, the chemicals market across a range of industry sectors is growing. For example, the chemicals market in the construction sector is expected to grow by 6.2 per cent annually, between 2018 and 2023.
- Meanwhile, chemical production and consumption is shifting to emerging economies, in particular China.
- Pesticides have been found to negatively impact pollinators, excess use of phosphorous and nitrogen in agriculture continues to contribute to ocean dead zone and chemicals used in sunscreens put pressure on coral reef ecosystems. Studies also indicate that releases of some antimicrobials, heavy metals and disinfectants contribute to antimicrobial resistance.

Moving Forward:

- Solutions exist, however. Governments are taking regulatory action on many chemicals. Frontrunner companies are advancing standards beyond compliance and sustainable supply chain management. Consumers are driving demand for safer products and production.
- Industry and entrepreneurs are developing green and sustainable chemistry innovations. Scientists are filling data gaps. Universities are reforming the way chemistry is taught. Management

approaches – from chemical hazard assessment to risk management and life cycle analysis – are advancing.

- Opportunities exist for key influencers such as investors, producers, retailers, academics and ministers to scale up these initiatives. This would not only protect human health and the environment, but also deliver economic benefits in the high tens of billions of United States dollars annually.
- The development of a future global platform for the sound management of chemicals and waste beyond 2020 provides a window of opportunity. As the report highlights, this framework needs to bring together all relevant sectors and stakeholders and foster collaborative, ambitious action.
- Given the critical role of the sound management of chemicals and waste in halting biodiversity loss, facilitating access to clean energy and achieving other Sustainable Development Goals and targets, opportunities exist to create synergies with these and other international policy agendas.

3.17 UNEA 4

Context:

- Recently, the fourth session of the UN Environment Assembly (UNEA-4) took place in Nairobi, Kenya.
- **The theme of UNEA-4** was 'Innovative Solutions for Environmental Challenges and Sustainable Consumption and Production'.
- During the assembly Nations agreed that they have **to speed up moves towards a new model of development in order to respect the vision laid out in the Sustainable Development Goals for 2030.**
- Nations unanimously agreed to significantly cut down on single-use plastic products like cups, cutlery, and bags by 2030.
- Along with the summit, **United Nation Environment Program has also launched the Global Environment Outlook Report.**

United Nations Environment Assembly (UNEA)

- The United Nations Environment Assembly is the governing body of UN Environment Program.
- The United Nations Environment Assembly is the world's highest-level decision-making body on the environment.
- It addresses the critical environmental challenges facing the world today.
- The Environment Assembly meets biennially to set priorities for global environmental policies and develop international environmental law.
- The United Nations Environment Assembly was created in June 2012, during the United Nations Conference on Sustainable Development, also referred to as RIO+20.

3.18 World Consumer Rights Day (WCRD)

Context:

- **15 March** is World Consumer Rights Day (WCRD), an annual occasion for celebration and solidarity within the international consumer movement. It marks the date in **1962 President John F Kennedy** first outlined the **definition of Consumer Rights**. It is an opportunity to promote the **basic rights** of all consumers, for demanding that those rights are respected and protected, and for **protesting the market abuses and social injustices** which undermine them. Theme of 2019 World Consumer Rights Day is '**Trusted Smart Products**'.

Highlights:

- WCRD was first observed on **15 March 1983**, and has since become an important occasion for

mobilising citizen action.

- **Consumers International (CI)**, which was founded in **1960** organises **WCRD**. It is the only independent and authoritative global voice for consumers and has over **220 member organisations** in **115 countries** around the world.
- Consumer Rights Day in India is celebrated on **December 24th**. On this day the Consumer Protection Act, 1986 had received the assent of the President.

Consumer Protection Act:

- India adopted the **Consumer Protection Act, later in 1986**, thus providing a **legal face** to the Indian consumers.
- One of the strongest campaigns for protection of consumer rights in India, is **“Jago Grahak Jago”** which literally translates into, **“wake up consumers”!**. This multimedia campaign from **Ministry of Consumer Affairs**, Government of India is aimed at creating an aware consumer.

3.19 World Food Programme (WFP)

Context:

- **Japan** has **donated** \$69 million to the **United Nations World Food Programme** to provide vital aid to 28 countries in the **Middle East, Africa, and Asia**, with the biggest shares of the money being earmarked for **Yemen and Iraq**.

World Food Programme (WFP)

- The World Food Programme (WFP) is the **food assistance branch of the United Nations** and the **world's largest humanitarian organization** addressing hunger and promoting food security.
- The WFP strives to **eradicate** hunger and malnutrition, with the **ultimate goal** in mind of eliminating the need for food aid itself.
- It is a **member of the United Nations Development Group** and part of its Executive Committee.
- Born in **1961**, WFP pursues a vision of the world in which every man, woman and child has access at all times to the food needed **for an active and healthy life**. The WFP is governed by an Executive Board which consists of representatives from member states.
- The WFP operations are **funded by voluntary donations from world governments, corporations and private donors**. WFP food aid is also directed to **fight micronutrient deficiencies**, reduce child mortality, improve maternal health, and combat disease, including HIV and AIDS.

Objectives of WFP

- Save **lives and protect livelihoods** in emergencies.
- Support **food security and nutrition** and (re)build livelihoods in fragile settings and following emergencies.
- Reduce **risk and enable people**, communities and countries to meet their own food and nutrition needs.
- Reduce **under-nutrition** and break the **inter-generational cycle** of hunger.
- **Zero Hunger in 2030**.

3.20 Worldwide Cost of Living 2019

Context:

- The **Economist Intelligence Unit** has released the report of the **Worldwide Cost of Living Survey 2019**. The Survey compares more than 400 individual prices across 160 products and

services in cities around the world.

Highlights:

- For the **first time three cities** share the title of the world's most expensive city – **Singapore, Hong Kong and Paris**. Living costs in all three cities are 7% higher than in **New York, the benchmark city**.
- In this year's top 10, **Singapore** represents the only city that has maintained its ranking from the previous year. Singapore marks its **sixth straight year** at the top of the rankings.
- Unsurprisingly, the cheapest cities to live in were largely made up of those experiencing well-documented political or economic disruption (or both in same cases).
- **Caracas, Venezuela's capital** was at the very bottom of the list this year, a position previously occupied by war-torn Syria in Damascus for obvious reasons.
- Deteriorating economic conditions in Venezuela and **hyperinflation** are at the root of its downward-trending position down the list.

NATIONAL

4.1 Border Area Development Programme (BADP)

Context:

- The Jammu and Kashmir government has released Rs 524.25 lakhs under **border area development programme (BADP)** for utilization during the current financial year 2018-19.

Border Area Development Programme (BADP)

- The Border Area Development Programme (BADP) has been **implemented through 17 States** (viz. Arunachal Pradesh, Assam, Bihar, Gujarat, Himachal Pradesh, Jammu & Kashmir, Manipur, Meghalaya, Mizoram, Nagaland, Punjab, Rajasthan, Sikkim, Tripura, Uttar Pradesh, Uttarakhand and West Bengal) which **constitute the International Land Borders**.
- The **main objective** of the BADP is to meet the **special developmental needs and wellbeing of the people** living in remote and inaccessible areas situated near the international border and to saturate the border areas with the entire essential infrastructure through convergence of Central/ State/ BADP/ Local schemes and participatory approach.

BADP Funding:

- The funds under BADP are **provided** to the States as a **100% non-lapsable Special Central Assistance**. The **programme is supplemental in nature** and the budget allocation for the financial year 2015-16 is Rs.990 crore.
- The BADP schemes include **construction of primary health centres, schools, supply of drinking water, community centres, connectivity, and drainage** to enable sustainable living in border areas.
- It also covers schemes or activities relating to **Swachhta Abhiyan**, skill development programmes, **promotion of sports activities** in border areas, promotion of **rural tourism, border tourism**, protection of **heritage sites**, and construction of **helipads** in remote and inaccessible hilly areas, which do not have road connectivity.

4.2 Cabinet approves flood management programme

Context:

- The Union Cabinet has approved the "Flood Management and Border Areas Programme (FMBAP)" for Flood Management Works in entire country and River Management Activities and works related to Border Areas (RMBA) for the period 2017-18 to 2019-20.
- The FMBAP Scheme will be implemented throughout the country for effective flood management, erosion control and anti-sea erosion.
- The proposal will benefit towns, villages, industrial establishments, communication links, agricultural fields, infrastructure etc. from floods and erosion in the country.
- The catchment area treatment works will help in reduction of sediment load into rivers.

Funding:

- The funding pattern for general category States will be 50% (Centre) : 50% (State) and for projects of North Eastern States, Sikkim, J&K, Himachal Pradesh and Uttarakhand, the funding pattern will to be 70% (Centre) : 30% (State).
- RMBA is funded as 100% grant-in-aid / central assistance, i.e. by the Central Government.

Highlights:

- The Scheme "FMBAP" has been framed by merging the components of two continuing XII Plan schemes titled "Flood Management Programme (FMP)" and "River Management Activities and Works related to Border Areas (RMBA)".
- The aim of the Scheme is to assist the State Governments to provide reasonable degree of protection against floods in critical areas by adopting optimum combination of structural and

non-structural measures and enhancing capabilities of State/Central Government officials in related fields.

- The works under the scheme will protect valuable land from erosion and flooding and help in maintaining peace along the border.
- The Scheme aims at completion of the on-going projects already approved under FMP. Further, the scheme also caters to Hydro-meteorological observations and Flood Forecasting on common rivers with the neighbouring countries.
- The Scheme also includes survey and investigations of water resources projects on the common rivers with neighbouring countries like Pancheshwar Multipurpose Project, Sapta Kosi-Sun Kosi Projects in Nepal which would benefit both countries.

4.3 Constitution Bench of Supreme Court

- Constitution benches of India's Supreme Court have delivered **landmark judgments**, especially in recent months.

Focus Points:

- Constitution benches **normally have five judges**, but there have been benches with **seven, nine and even 13 judges**.
- Article **145(3)** says at least **five judges** need to hear cases that involve “a **substantial question of law as to the interpretation**” of the Constitution, or any reference under **Article 143**, which deals with the power of the President of India to consult the Supreme Court.

4.4 Development scheme for knitwear sector launched

Context:

- The Union Minister of Textiles has launched a comprehensive scheme for development of Knitting and Knitwear Sector under PowerTex India.
- The Ministry has approved a combined Standing Finance Component (SFC) of PowerTex India Scheme and Knitwear Scheme with an outlay of Rs. 487.07 crores. Out of this, Rs. 47.72 crore is for Knitwear for the period of 2018-19 and 2019-20.
- **The main components of scheme** are as follow:
 1. Creation of new service centers on Public Private Partnership (PPP) model by industries and associations in the knitting and knitwear clusters.
 2. Modernization and upgradation of existing power loom service Centers (PSCs) and institutions run by Textile Research Associations (TRAs) and Export Promotion Councils (EPCs) Association in knitting and knitwear clusters.
 3. Facilitation, IT, awareness, studies, surveys, market development and publicity for knitting and knitwear units.

PowerTex India

- PowerTex India was launched in 2017 by the Ministry of Textile.
- It is a three-year all-inclusive scheme focused on the development of country's Powerloom Sector.
- The scheme embraces branding, subsidies, new markets, new research and development in power loom textiles, and also welfare schemes for the powerloom workers.
- **Key components include:**
 - In-situ Upgradation of Plain Powerlooms
 - Group Workshed Scheme (GWS)
 - Yarn Bank Scheme
 - Common Facility Centre (CFC)

- Pradhan Mantri Credit Scheme for Powerloom Weavers
- Solar Energy Scheme for Powerlooms
- Facilitation, IT, Awareness, Market Development and Publicity for Powerloom Schemes
- Tex Venture Capital Fund
- Grant-in-Aid and Modernisation & Upgradation of Powerloom Service Centres (PSCs).

4.5 DIPAM To Set Up Special Cell To Fast-Track Sale Of Non-Core Assets Of CPSEs

Context:

- The Ministry of Finance plans to set up a special cell in the Department of Investment and Public Asset Management (DIPAM) for the monetization of non-core assets of state-owned companies.
- **Non-core assets are assets that are either not essential or simply no longer used in a company's business operations.**
- The Asset Monetisation cell will also deal with cases related to the sale of immovable enemy property, which refers to the assets left behind by people who migrated to Pakistan or China and are no longer citizens of India.
- NITI Aayog has been tasked with drawing up a list of non-core assets of various CPSEs, both healthy and sick ones, as the first step towards finance ministry's plan to monetize such assets.

DIPAM:

- The Department of Disinvestment was one of the Departments under the Ministry of Finance.
- The Department of Disinvestment was renamed as Department of Investment and Public Asset Management (DIPAM) from 14th April 2016.
- The mandate of the Department is as follows:
- All matters relating to the management of Central Government investments in equity including disinvestment of equity in Central Public Sector Undertakings.
- All matters relating to the sale of Central Government equity through offer for sale or private placement or any other mode in the erstwhile Central Public Sector Undertakings.

4.6 Dongria Kondh Tribe

- The Dongria Kondh tribe live in Niyamgiri hill range of Odisha state.
- They derive their name from dongar, meaning 'hill' and worship the mountain god Niyam Raja.
- The Dongria have distinctive jewellery, tattoos and hairstyles. Women wear many rings through their ears and three through their noses, while boys wear two nose rings. Dongria girls wear clips in their hair and rings and beads around their necks.
- The Dongria Kondh have no overarching political or religious leader; clans and villages have their own leaders and individuals with specific ceremonial functions.
- The Dongria believe that animals, plants, mountains and other specific sites and streams have a life-force or soul, jela, which comes from the mother goddess.

4.7 Erode turmeric gets GI tag

- The Geographical Indication Registry of India has granted GI Tag to Erode manjal (Turmeric) under Spices Category (Class 30 of GI Classification).
- Erode Turmeric has been granted tag because of its **uniqueness in terms of its size, color, quality and its resistance to pests after boiling.**
- With the GI Tag, turmeric cultivated in some districts of Erode, parts of Coimbatore and whole of Tirupur (Tamil Nadu) will be recognised for its unique qualities derived from its place of origin.

- Erode turmeric is a rhizome, both finger and bulb obtained from the Erode local cultivar. It is grown in hot moist conditions with temperature ranging from 20 degrees to 37.9 degrees Celsius with an average of 600 to 800 mm rainfall in a year.
- It is a commercial spice crop which is sown in the months of June-July and is harvested in the months from January to March.



4.8 Festival of Innovation & Entrepreneurship (FINE)

Context:

- Festival of Innovation and Entrepreneurship is being held in Gandhinagar, Gujarat.

Festival of Innovation & Entrepreneurship (FINE):

- FINE is an initiative being organised by Rashtrapati Bhavan in association with the Department of Science and Technology, Government of India and the National Innovation Foundation-India.
- It will recognise, respect, showcase, reward innovations and to foster a supportive ecosystem for innovators.
- It will provide a platform for innovators for building linkages with potential stakeholders to develop their ideas into implementable projects for the larger social good.
- It will provide a window to showcase creative and innovative solutions for social development through innovation emerging from grassroots, student ideas and other technologies.

4.9 First Indian Army Mountaineering Expedition

- Indian Army has launched its maiden expedition to Mount Makalu in Mar-May 2019.
- Mt Makalu is considered amongst the most dangerous peaks and summiting the peak is considered extremely challenging due to inclement weather conditions and freezing temperatures.
- As a precursor to it, an expedition to Mount Kamet (7756m), Joshimath District Chamoli, Uttarakhand was conducted under the aegis of Army Adventure Wing in August-September 2018.
- Mt. Makalu is fifth highest Peak on the Earth with its height 8,463m. Mt. Makalu resides in the eastern Himalayas range just 19 Km southeast of the giant Mt. Everest on the border of Nepal and China.

4.10 First-Past-The-Post (FPTP) system

- The **First-Past-The-Post (FPTP)** system is also known as the **simple majority** system. In this voting method, the candidate with the **highest number of votes** in a constituency is declared the winner. This system is used in India in direct elections to the **Lok Sabha and State Legislative Assemblies**.

Issues with FPTP:

- While FPTP is **relatively simple**, it does **not always** allow for a truly representative mandate, as the candidate could win despite securing less than half the votes in a contest. Also, smaller parties representing specific groups have a lower chance of being elected in FPTP.
- Under the existing system, representatives may be elected by a **minority of votes**, but their party grabs the majority of seats in the legislature.
- Also the existing system also encourages parties to **target vote-banks**, enter divisive electoral strategies and field tainted candidates.

Proportional Representation (PR):

- PR system will allow parties to have their presence in the legislatures according to their vote share instead of being wiped out completely even after getting a sizeable vote share.
- PR systems would **allow for representation of minorities and smaller parties** in the legislatures which are not represented adequately now.
- PR would also bring the nation closer and will complete the total integration of India. It will put an **end to extreme regionalism and divisive caste and communal politics**.
- PR would also **put a stop to the exaggeration of regional differences** as it allows all of the parties with significant levels of support to gain seats across the country.
- It would also put a stop to the inflated seat count of the Blocs controlled by smaller parties who generally receive even less than 10% the total votes polled across India, but a much greater percentage of the seats and a disproportionate bargaining power at the Centre.

Drawbacks with PR system:

- PR system carries the **threat of further dividing society** on caste, religious and other lines. When parties are promised seats in proportion to their votes, politicians will find innovative ways means of forming newer parties.
- It would make our MPs and MLAs even **less responsive to people's needs**.
- PR would place India's democracy squarely in the hands of party bosses. When candidates win by being on the party's list, they must woo their bosses and represent their parties, not the people. This can only intensify partisanship in India's Parliament and state legislatures.
- PR would revive India's problem with unstable governments. When parties are guaranteed representation on the basis of percentage of votes received, they would have little interest in forming or sustaining coalitions. Their ideological or other vote-bank would be present even if a government falls.
- The constant politicking caused by PR would make it **impossible** for governments to **take bold or transformative decisions**. Corruption would grow, for people wouldn't be able to oust a dishonest representative individually.
- PR is a recipe for **instability** as exemplified by the **current political deadlock in Nepal, which has adopted the PR system**.

4.11 GI tag for 'Sirsi Supari'

Context:

- 'Sirsi Supari' grown in Uttara Kannada has received the Geographic Indication (GI) tag. It is the first variety in Arecanut sector to get the GI tag.

Highlights:

- It is cultivated in Yellapura, Siddapura and Sirsi taluks in Uttara Kannada district of Karnataka.
- Totgars' Cooperative Sale Society Ltd., Sirsi, is the registered proprietor of the GI.
- The Registrar of Geographical Indications under the Union government, Chennai issued the certificate to the society. Its GI number is 464.
- According to it, the particular arecanut "is medium in size, somewhat flat and rounded in shape, somewhat ash coloured, and has a hard seed."
- The arecanut grown in these taluks have unique features like a round and flattened coin shape, particular texture, size, cross-sectional views, taste, etc. These features are not seen in arecanut grown in any other regions. Its average dry weight is 7.5 g and average thickness is 16 mm.
- This particular variety has a unique taste due to differences in chemical composition. The total average flavonoids content in it is around 90 whereas in others it is around 80.
- The total carbohydrates in 'Sirsi Supari' are 23% to 26%, total arecoline is 0.11% to 0.13%, total tannin content is 14.5% to 17.5%.
- The process of obtaining the tag had begun in 2013 and it took about six years to get it owing to scientific research proof to be submitted to prove its uniqueness.
- 'Sirsi Supari' is used both as 'chali' (white arecanut) and red arecanut. The 'chali' variety is made by peeling the ripened nuts and sun drying them later. The red arecanut is produced by harvesting the tender nuts, then boiling and colouring them, then making them into different grades and finally sun drying them.

4.12 GI Tags

- According to the data from Department for Promotion of Industry and Internal Trade (DPIIT), 14 products have received a Geographical Indication (GI) tag from the government so far in 2019.
- Himachali Kala Zeera, Jeeraphool from Chhattisgarh, Kandhamal Haldi from Odisha, Coorg Arabica coffee from Karnataka, Wayanad Robusta coffee from Kerala, Araku Valley Arabica from Andhra Pradesh, Sirsi Supari from Karnataka and Himachali Chulli oil are among those 14 products.
- Once a product gets this tag, no person or company can sell a similar item under that name.
- This tag is **valid for a period of 10 years following** which it can be renewed. GI tags are covered under a law of the World Trade Organization.

4.13 IAF inducts Chinook helicopters

- Indian Air Force formally inducted the CH 47 F(I)- Chinook heavy lift helicopters into its inventory.
- **IAF had signed a contract with M/s Boeing Ltd** in September 2015 for 15 Chinook helicopters. These helicopters will be deployed in the Northern and Eastern regions of India.
- The addition of heavy-lift CH 47 F(I) helicopter is a significant step towards modernization of Indian Air Force's helicopter fleet.
- The helicopter has been customized to suit IAF's future requirements and capability roadmap. The helicopter has a fully integrated digital cockpit management system, advanced cargo handling capabilities and electronic warfare suite that complement the aircraft's performance.
- **The helicopter is capable of airlifting diverse military and non-military loads into remote locations.**

4.14 National portal to share research facilities - I-STEM

Context:

- The web portal “Indian Science, Technology and Engineering Facilities Map (I-STEM)” has been developed by the Centre for Nano Science and Engineering (CeNSE) at the Indian Institute of Science, Bengaluru.
- I-STEM portal will enable easy and timely access of resources to researchers working anywhere in the country.
- The portal is funded by Office of Principal Scientific Advisor to the Prime Minister Office also gives access to monitoring agencies including the Department of Science and Technology to evaluate how much the equipment funded by them are being used.
- In the future, private laboratories and universities will also be included in the database, which could also benefit start-ups.

Prime Minister’s Science, Technology and Innovation Advisory Council (PM-STIAC):

- The PM-STIAC (Science, Technology, Innovation Advisory Committee), was constituted in August, 2018 to advise the Prime Minister on all matters related to S&T, innovation and monitor the implementation as well.
- It is a 21-member committee, chaired by Principal Scientific Advisor (PSA) to the Government, presently K Vijay Raghavan.
- Dr. A. P. J. Abdul Kalam was the first PSA from 1999—2001 and Dr. R. Chidambaram from 2001-2018.
- Professor K. VijayRaghavan succeeded Dr. Chidambaram on April 3, 2018.
- PM-STIAC replaced the Scientific Advisory Committee (SAC) to PM and Cabinet.

4.15 Navroz

- **Navroz is New Year celebrations on March 21 every year for Parsis**, followers of Zoroastrianism and various sects of Muslim, both Shias and Sunnis.
- In 1079 AD, a Persian (Iranian) king named Jalaluddin Malekshah introduced the Navroz (New Year) festival to generate revenue and collect taxes from people.
- It was observed on March 21 to mark the beginning of spring and the day of equinox.
- **It is inscribed in the list of UNESCO Intangible Cultural Heritage of Humanity of India.** In India it is known as Jamshed Navroz.

Intangible Cultural Heritage of India:

- Kumbh Mela, Yoga, Traditional brass and copper craft of utensils among thatheras of Punjab, Sankirtana (ritual singing, dancing and drumming of Manipur), Buddhist chanting of Ladakh, Chhau Dance, Kalbelia (folk song and dance of Rajasthan), Kutiyattam (a Sanskrit theatre of Kerala), Tradition of Vedic Chanting, Ramlila, Novruz (Persian New Year), Ramman (religious festival and ritual theatre of the Garhwal Himalayas), Mudi yettu (ritual theatre and dance drama of Kerala).

4.16 PM Modi Launches National Common Mobility Card In Ahmedabad

Context:

- Recently the Prime Minister has launched the indigenously-developed National Common Mobility Card (NCMC) to enable people to pay multiple kinds of transport charges, including metro services and toll tax, across the country.
- Dubbed as 'One Nation One Card', the inter-operable transport card would allow the holders to pay for their bus travel, toll taxes, parking charges, retail shopping and even withdraw money.
- In December, 2018 the Delhi government had also launched a common mobility card for

travelling in Metro trains, Delhi Transport Corporation, and cluster buses. These cards, however, cannot be used for paying parking fees, at toll booths in the Capital, or for retail.

Features:

- This is **India's First Indigenously Developed Payment Eco-system for transport and consists of NCMC Card, SWEEKAR (Swachalit Kiraya: Automatic Fare Collection System) and SWAGAT (Swachalit Gate- a gate and card-reader system) which is based on NCMC Standards.**
- The three together will enable the use of the national mobility card across the country without a conflict with existing point-of-sale (PoS) machines.
- The cards can be issued by all public and private banks the same way credit, debit, and prepaid cards are issued.
- The Ministry of Housing & Urban Affairs brought to the fore the National Common Mobility Card (NCMC) to enable seamless travel by different metros and other transport systems across the country besides retail shopping and purchases.
- To ensure a seamless travel across metros and other transport systems in addition to retail shopping and purchases, the Ministry of Housing & Urban Affairs (MoHUA) came out with the National Common Mobility Card (NCMC) Program.
- The Union Ministry of Urban Affairs have been working on it since 2006, when it was envisaged as part of the National Urban Transport Policy (NUTP).
- The Ministry formed a committee in 2014 with representatives from National Informatics Centre (NIC), Centre for Development of Advance Computing (C-DAC), Bureau of Indian Standards (BIS), National Payment Corporation of India (NPCI) and the Ministry of finance to develop the NCFC ecosystem.
- NPCI was given the mandate to develop the specifications for card & terminal to support the NCMC ecosystem.
- CDAC was entrusted the task of finalization of NCMC specification for AFC system including the interface with Bank server. CDAC worked in collaboration with NPCI to complete this activity.
- Thereafter, Bharat Electronics Limited (BEL) was roped in for making Gates & Reader.
- This is the first gate and the reader which has been manufactured by an Indian company. This is also the first indigenous payment reader which has been certified as per International standards.
- With this, India joins the very few elite nations who have indigenous capacity on gate and reader production.
- Benefits
- This will help in higher digital payments penetration, savings on closed loop card lifecycle management cost and reduced operating cost. The rich data insights may be used by operators for business intelligence leading to efficient operation.
- NCMC Ecosystem will further help government in digitization of low value payments and reduced cost for the entire ecosystem.

Click here for more info - http://www.crackingias.com/uploads/media/media_161_concept-note-on-ncmc-implementationv1.pdf

4.17 Prayagraj Kumbh Mela 2019

Context:

- Prayagraj Kumbh Mela 2019 has been placed in the **Guinness World Records in three sectors.**
- The **three sectors are:**
 - Largest traffic and crowd management plan,
 - The biggest painting exercise of public sites under “Paint my City” scheme, and
 - The biggest sanitation and waste disposal mechanism.

Kumbh Mela

- Kumbh Mela is the **largest peaceful congregation of pilgrims on earth**, during which participants bathe or take a dip in a sacred river.
- Kumbh Mela comes under the **UNESCO's Representative List of Intangible Cultural Heritage of Humanity.**
- The festival is held at **Prayagraj (at the confluence of Ganga, Yamuna, and the mythical Saraswati), Haridwar (on the Ganges), Ujjain (on the Shipra) and Nasik (on the Godavari) every four years by rotation** and is attended by millions of people irrespective of caste, creed or gender.
- As it is held in four different cities in India, it involves different social and cultural activities, making this a **culturally diverse festival.**
- The event encapsulates the science of astronomy, astrology, spirituality, ritualistic traditions, and social and cultural customs and practices, making it extremely rich in knowledge.
- Knowledge and skills related to the tradition are transmitted through ancient religious manuscripts, oral traditions, historical travelogues and texts produced by eminent historians.
- The teacher-student relationship of the sadhus in the ashrams and akhadas remains the most important method of imparting and safeguarding knowledge and skills relating to Kumbh Mela.

4.18 Shanti Swarup Bhatnagar Prize

Context:

- Winners of Shanti Swarup Bhatnagar Prize for the years 2016, 2017, and 2018 were awarded in New Delhi on the occasion of National Science Day, 28th February.
- Out of total 34 winners, there was only one woman awardee Aditi Sen who got felicitated for her work in “quantum information and communication, including the formulation of a computable entanglement measure and a novel density-matrix recursion method”.
- Ganesan Venkatasubramanian was awarded for his work towards the psychiatric disorder Schizophrenia is among the winners.

Shanti Swarup Bhatnagar Prize

- The award is named after the Founder-Director of the Council of Scientific & Industrial Research (CSIR) India, the late Dr (Sir) Shanti Swarup Bhatnagar and is known as the ‘Shanti Swarup Bhatnagar (SSB) Prize for Science and Technology’.
- The Prize is given each year by CSIR in the fields namely, Biological Sciences, Chemical Sciences, Earth, Atmosphere, Engineering Sciences, Mathematical Sciences, Medical Sciences, and Physical Sciences.
- It is the most coveted national recognition bestowed upon young scientists and engineers to honour their research and developmental work in India.
- Any citizen of India engaged in research in any field of science and technology up to the age of 45 years is eligible for the prize. Overseas citizen of India (OCI) and Persons of Indian Origin (PIO) working in India are also eligible.
- The prize is awarded on the basis of contributions made through work done in India only during

the five years preceding the year of the prize.

- The prize comprises a citation, a plaque, and a cash award of Rs. 5 lakh. In addition, recipients also get Rs. 15,000 per month up to the age of 65 years.

4.19 Shri Rajnath Singh to inaugurate BOLD-QIT project along

Context:

- The Union Home Minister has inaugurated the **project BOLD-QIT (Border Electronically Dominated QRT Interception Technique)**.
- The project has been **constructed under the CIBMS (Comprehensive Integrated Border Management System) on India-Bangladesh border in Dhubri District of Assam.**
- Border Security Force (BSF) is responsible for the safeguarding of 4,096 Km long International Border with Bangladesh. At various places, it is not possible to erect Border Fence due to the geographical barriers.
- The 61 Kilometers of the Border area in District Dhubri, Assam where River Brahmaputra enters into Bangladesh is consisting of vast char lands and innumerable river channels thus making border guards in this area, a tough task especially during rainy season.
- To overcome this problem, in the year 2017, the Ministry of Home Affairs decided to go for a technological solution besides the physical presence of BSF.
- In January 2018, Information and Technology Wing of BSF undertook the project BOLD-QIT (Border Electronically Dominated QRT Interception Technique).

BOLD-QIT:

- BOLD-QIT is the project **to install technical systems which enable BSF to equip Indo-Bangla borders with different kind of sensors in the unfenced riverine area of the Brahmaputra and its tributaries.**
- Now, the entire span of River Brahmaputra is covered with data network generated by Microwave communication, Optical fibers cable (OFC), Digital Mobile Radio (DMR) Communication, day and night surveillance Cameras, and intrusion detection system.

Benefits:

- These modern gadgets provide feeds to BSF Control Rooms on the Border and enable BSF Quick Reaction Teams to thwart any possibility of Illegal Cross Border Crossing/ Crimes.
- The implementation of this project will not only help BSF to curb all type of cross border crimes but also provide respite to the troops from round the clock human surveillance.

Comprehensive Integrated Border Management System (CIBMS):

- The CIBMS is a robust and integrated system that is capable of addressing the gaps in the present system of border security by seamlessly integrating human resources, weapons, and high-tech surveillance equipment.
- CIBMS is being implemented since 2016.
- CIBMS has three components which are using a number of different devices for surveillance, efficient and dedicated communication network and data storage for a composite picture.
- Sensors like Thermal Imager, Unattended Ground Sensor(UGS), Fiber Optical Sensors, Radar, Sonar, satellite imagery are used in CIBMS.

4.20 Special Stamp on Ice Stupa

Context:

- The Indian **Department of Post** has released a 'special stamp cover on **Ice Stupa**'. The special stamps aim to create **awareness** about depleting glaciers and affect the **ecology** around the Himalayas.

Ice stupas:

- The idea behind artificial glaciers is to **freeze and hold the water** that keeps flowing and wasting away down the streams and into the rivers throughout the winter. Instead, this ice will melt in the **springtime**, just when the fields need watering.
- The idea was conceptualised by **HIAL founder Sonam Wangchuk** to reduce problems of **Ladakhi farmers** in spring.
- Ice stupas are constructed by freezing the stream water vertically in the form of **huge ice towers or cones of 30 to 50m** height that look very similar to the **local sacred mud** structures called **Stupa or Chorten**.
- These ice mountains can be built right next to the village itself where the water is needed. Very little effort or investment would be needed except for laying one **underground pipeline** from a higher point on the stream to the outskirts of the village.

Working:

- Water always maintains its level. Therefore, water piped from 60m upstream would easily rise close to 60m up from ground when it reaches the village.
- Water is made to fall from that height in **cold Ladakhi winter nights** when it is **-30 to -50°C** outside (with wind chill factor). The water would freeze by the time it reaches the ground and slowly form a **huge cone** or Ice Stupa roughly **30 to 50m high**.
- Since these ice cones extend **vertically** upwards towards the sun, they receive fewer of the sun's rays per the volume of water stored; hence, they will take **much longer to melt** compared to an artificial glacier of the same volume formed horizontally on a flat surface.

Significance:

- The Ice Stupa is a **survival technique** that has been developed over a period.
- Each stupa has the capacity to store at least **30-50 lakh litres of water**. This is apart from the naturally saved water in the slopes of mountains.

4.21 Star rating programme launched for Microwave Ovens and Washing Machines

Context:

- Recently, the Ministry of Power, Government of India has expanded its ambitious **Standards & Labelling (Star Rating) program for Energy Efficient for Appliances to cover the Microwave Ovens and Washing Machines (with revised parameters) in the country**.
- This program is expected to save over 3.0 Billion Units by 2030. This would be equivalent to Green House Gases (GHG) reduction of 2.4 Million-ton of CO₂ by the year 2030 through these initiatives.
- **The Star Labelling Programs has been formulated by the Bureau of Energy Efficiency (BEE)** for improving energy efficiency and lowering energy cost of appliances/equipment for the consumers.
- Initially, the program for the above two appliances will be implemented on a voluntary basis and will be valid up to 31st December 2020.
- This will create awareness amongst the domestic consumers to encourage the transition towards energy efficient microwave ovens and Washing machines.
- The manufacturers will be able to register products online, on a portal developed by BEE.
- Any model/brand of Washing Machine or a Microwave Oven can avail Star Rating on a scale of 1 to 5 based on test report from National Accreditation Board for Testing and Calibration Laboratories (NABL) or equivalent labs subsequent to scrutiny by BEE.

Bureau of Energy Efficiency (BEE):

- The BEE is a **statutory body under the Ministry of Power, Government of India**.

- It assists in developing policies and strategies with the primary objective of reducing the energy intensity of the Indian economy.
- BEE coordinates with designated consumers, designated agencies, and other organizations to identify and utilize the existing resources and infrastructure, in performing the functions assigned to it under the Energy Conservation Act, 2001.

National Accreditation Board for Testing and Calibration Laboratories (NABL):

- NABL is a **Constituent Board of Quality Council of India**.
- NABL has been established with the objective of providing Government, Industry Associations and Industry in general with a scheme of Conformity Assessment Body's accreditation which involves third-party assessment of the technical competence of testing including medical and calibration laboratories, proficiency testing providers and reference material producers.
- **Quality Council of India (QCI) as a non-profit autonomous society registered under Societies Registration Act, 1860.**
- The aim of QCI is to establish an accreditation structure in the country and to spread quality movement in India by undertaking a National Quality Campaign.

4.22 UNlocking NATional Energy Efficiency Potential (UNNATEE)

Context:

- **Bureau of Energy Efficiency (BEE)** has developed a **national strategy document - UNNATEE (Unlocking NATional Energy Efficiency potential)**– for accelerating energy efficiency in India.

Significance

- The strategy document describes a **plain framework and implementation strategy** to establish a clear linkage between energy supply-demand scenarios and energy efficiency opportunities.
- The document offers a **comprehensive roadmap** to address India's environmental and climate change mitigation action through energy efficiency measures.

Bureau of Energy Efficiency

- The BEE is a **statutory body** under the Ministry of Power, Government of India.
- It assists in **developing policies and strategies** with the primary objective of **reducing the energy intensity** of the Indian economy.
- It **coordinates** with designated consumers, designated agencies, and other organizations to identify and utilize the existing resources and infrastructure, in performing the functions assigned to it under the **Energy Conservation Act**.

POLITICAL ISSUES, HUMAN RIGHTS AND GOVERNANCE

5.1 Cabinet approves renewable status for large hydro power projects

- The government, under New Hydroelectricity Policy, has approved 'renewable energy status' for large hydel projects. Earlier, only smaller projects of less than 25 MW in capacity were categorised as renewable energy.
- Large hydro projects will now be included as a separate category under the non-solar renewable purchase obligation policy, mandating power purchasers to source a portion of electricity from such projects.
- The debt repayment period for hydro projects has been increased to 18 years from current 12 years with the provision to introduce an escalating tariff of 2%.
- The policy also provides for additional funds separately for infrastructure development as well as separate funds for the costs of flood moderation.
- These measures have been taken to reduce hydro power tariff and make the sector more competitive.

Renewable Purchase Obligation

- Renewable Purchase Obligation refers to the obligation imposed by law on some entities to either buy electricity generated by specified 'green' sources, or buy, in lieu of that, 'renewable energy certificates (RECs)' from the market.
- The 'obligated entities' are mostly electricity distribution companies and large consumers of power. RECs are issued to companies that produce green power, who opt not to sell it at a preferable tariff to distribution companies.
- According to the government, India has a hydro-power potential of 1,45,320 MW, of which only about 45,400 MW has been utilised so far. Only about 10,000 MW of hydro-power has been added in the last 10 years.
- Also, the share of hydro-power in the total generation capacity has declined from 50.36% in the 1960s to around 13% in 2018-19.

5.2 District Mineral Foundations

Context:

- **Chhattisgarh** has revised the composition of the governing council of **District Mineral Foundation Trusts (DMFTs)**, and placed the minister in-charge of the respective districts at the head of the governing bodies. Earlier, these were headed by the **District Collector (DC)**. The change has been brought about by introducing amendments to the **Chhattisgarh District Mineral Foundation Trust Rules (2015)**, through a notification.

Necessity:

- The move follows the Chhattisgarh government's observation that DMFTs have not been functioning optimally to benefit mining-affected people and the worst affected areas. The decision has been taken to improve participation of people through the representatives selected by them. This is to ensure that the needs of mining-affected areas are reflected well. The effort is to ensure that DMFs work in an accountable manner.
- **DMFTs** which have been set up in various **mining districts**, including all districts of Chhattisgarh, have a two-tier administrative structure, a Governing Council (GC) and a Managing Committee (MC) with differential responsibilities. The idea of a **two-tier structure** was to have appropriate checks and balances in decision-making.
- Both the GC and the MC were being headed by the DC. The other members of these bodies predominantly comprise officials and elected representatives. There is practically no representation of mining-affected people in the body to have their voice and representation in

decision-making.

- In order to have a more balanced structure, the Chhattisgarh government has now removed the DC as chairperson of the GC. Also, all members of legislative assembly (MLA) of the concerned mining district have been made GC members.

District Mineral Foundations (DMFs):

- DMFs were instituted under the **Mines and Minerals (Development and Regulation) (MMDR) Amendment Act 2015** as **non-profit trusts** to work for the interest and benefit of persons and areas affected by mining-related operations.
- The **objective** of District Mineral Foundation is to work for the interest of the benefit of the persons and areas affected mining related operations in such manner as may be prescribed by the State Government.
- Its manner of operation **comes under the jurisdiction** of the relevant **State Government**.
- The various state DMF rules and the Pradhan Mantri Khanij Khestra Kalyan Yojana (PMKKKY) guidelines stipulate some **“high priority” issues** for DMFs, including: **Drinking water, Health, Women and child welfare, Education, Livelihood and skill development, Welfare of aged and disabled and Sanitation.**

Pradhan Mantri Khanij Kshetra Kalyan Yojana (PMKKKY)

- The programme is meant to provide for the welfare of areas and people affected by mining related operations, using the funds generated by District Mineral Foundations (DMFs).
- To implement various **developmental and welfare projects/programs** in mining affected areas that complement the existing ongoing schemes/projects of State and Central Government.
- To **minimize/mitigate** the adverse impacts, during and after mining, on the **environment, health and socio-economics** of people in mining districts.
- To ensure **long-term sustainable livelihoods** for the affected people in mining areas.

5.3 New Hydro Policy

Context:

- The government, under New Hydroelectricity Policy, has approved ‘renewable energy status’ for large hydel projects.
- Earlier, **only smaller projects of less than 25 Megawatt (MW)** in capacity were categorised as renewable energy. Large hydro projects were treated as a separate source of energy.

Renewable Energy Sector:

- India’s renewable energy sector had an installed capacity of 75,055.92 MW as of February 2019, according to data with the Central Electricity Authority.
- This made up **about 21.4% of the overall energy mix**, with the rest coming from thermal, nuclear and large hydro sources.
- However, with the inclusion of large hydro in renewable energy, the energy mix will change drastically.
- Renewable energy capacity would now be 1,20,455.14 MW or 34.4% of the overall energy mix.
- This policy will also drastically change the **renewable energy mix as well**.
- Before February 2019, the wind energy contributed nearly 50% of all renewable energy capacity, it will now make up only 29.3%.
- Similarly, solar energy’s share will fall from 34.68% to 21.61%.
- The hydro sector, however, will see its share grow from just over 6% to over 41%.

Impact:

- Hydroelectric energy provides grid stability which a renewable source like wind and solar do not. The key reasoning seems to be providing grid stability and a **better energy mix**.

- There has been a huge imbalance in the thermal-hydro mix for the last few years because of a sharp growth in thermal and complete stagnation in hydro.
- This reclassification will **immediately help India** achieve its target of **175 GW by 2022**.
- Another benefit from the policy could be the **positive impact on the stock prices** of State-run hydroelectric companies such as Sutlej Jal Vikas Nigam (SJVN)
- This will help large hydel projects avail cheaper credit and increase demand from distribution companies for cleaner energy.
- State distribution companies will be obliged to purchase a certain percentage of hydropower—similar to renewable purchase obligations. This will create a market for hydropower, making the sector competitive.
- These projects will not only get the budgetary support for infrastructure, but will also be able to access “green finance”.

5.4 Nine Science and Technology Missions with Focus on Science for People and People for Science

Context:

- Prime Minister’s Science, Technology & Innovation Advisory Council (PM-STIAC) has identified nine national science missions aim to address major scientific challenges to ensure India’s sustainable development.
- Each mission will be led by a lead Ministry and will engage international and national institutional partners, young scientists and industry.

The Nine Missions:

1. **Mission 1: Natural Language Translation**
 - The Mission aims to make opportunities and progress science and technology accessible to all by removing the barrier that the requirement of high-level of facility in English poses today.
 - Using a combination of machine and human translation, the mission will eventually enable access to teaching and research material bilingually i.e. in English and one’s native Indian language.
 - **Lead Agencies:**
 - Ministry of Electronics and Information Technology
 - Ministry of Human Resource Development
 - Department of Science and Technology
2. **Mission 2: Quantum Frontier**
 - It aims to initiate work in control of the quantum mechanical systems, with a large number of degrees of freedom, as one of the great contemporary challenges in fundamental science and technology.
 - Building excellence in the quantum frontier will also be essential for national security and in the development of quantum computers, quantum chemistry, quantum communication, new materials, quantum sensors and quantum cryptography.
 - **Lead Agencies:**
 - Department of Science and Technology
 - Department of Space
 - Department of Atomic Energy
 - Defence Research and Development Organisation
 - Ministry of Electronics and Information Technology
3. **Mission 3: Artificial Intelligence (AI)**
 - It will focus on addressing societal needs in areas such as healthcare, education, agriculture, smart cities and infrastructure, including smart mobility and transportation.

- **Lead Agencies:**
- NITI Aayog
- Department of Science and Technology
- Ministry of Electronics and Information Technology
- Department of Biotechnology
- 4. **Mission 4: National Biodiversity Mission**
- It will include
- a comprehensive documentation of India's biodiversity with the potential for cataloguing and mapping all lifeforms in India including associated cultural and traditional practices,
- assessment of the distribution and conservation status of India's biodiversity,
- development of a cadre of professionals adept at handling large sets of environmental data for management and monitoring of biodiversity
- establishment of a vibrant biodiversity based economy on a solid foundation of reliable information
- engagement with the public
- enhanced options for agricultural production and livelihood security and the general well-being of society.
- **Lead Partners:**
- Ministry of Environment, Forests and Climate Change
- Department of Biotechnology
- 5. **Mission 5: Electric Vehicles (EVs)**
- It will develop vehicle sub-systems and components for Indian requirements including rare earth based 4 electric motors, Li-ion batteries, power electronics etc. using academia industry collaboration.
- This mission is critical for India to reduce fossil fuel consumption and mitigate emissions. For EVs to become economically viable and scalable, focused research, development and innovation are needed to build indigenous capability. Vehicles need to be energy efficient, use light and efficient batteries that function well in India specific conditions with materials that are recyclable.
- **Lead Agencies:**
- Department of Science and Technology
- Department of Heavy Industries
- Ministry of New and Renewable Energy
- Ministry of Power
- NITI Aayog
- 6. **Mission 6: BioScience for Human Health**
- It aims to construct comprehensive reference maps of genomes and to understand the dynamics of how exposure to different environments have impact on our bodies.
- The mission will focus on the genomic study of populations of humans to identify and unravel the genetic basis and prevalence of rare and inherited diseases.
- The outcome will help stimulate better diagnosis and treatment that can feed into the health care system of the country.
- The diversity of Indians and of its environment requires a large-scale study of human genomes specific to our lifestyle and how this impact health and disease patterns.
- **Lead Partners:**
- Department of Biotechnology
- Department of Health Research

- Department of Health
- Department of Science and Technology
- Department of Atomic Energy
- 7. **Mission 7: Waste to Wealth**
 - It aims to identify, develop and deploy technologies to treat waste to generate energy, recycle materials and extract worth.
 - The mission will also work to identify and support development of new technologies that hold promise in creating a clean and green environment.
 - The mission will assist and augment the Swachh Bharat and Smart Cities project by leveraging science, technology and innovation to create circular economic models that are financially viable for waste management to streamline waste handling in India.
- **Lead Agencies:**
 - Department of Biotechnology
 - Department of Science and Technology
 - Ministry of Environment, Forest and Climate Change
 - Ministry of Urban Development
 - Swachh Bharat Abhiyan
- 8. **Mission 8: Deep Ocean Exploration**
 - It aims to scientifically explore the deep oceans towards improving India's understanding of the blue frontier.
 - It will address issues arising from long term changes in the ocean due to climate change.
 - The focus areas cover:
 - the development of technologies for deep sea exploration and exploitation of living (biodiversity) and non-living (minerals) resources
 - development of underwater vehicles and underwater robotics
 - development of ocean climate change advisory services
 - technological innovations and conservational methods for sustainable utilisation of marine bio-resources
 - offshore based desalination techniques and renewable energy generation
 - **Lead Agencies:**
 - Ministry of Earth Sciences
 - Department of Biotechnology
 - Department of Space
 - Ministry of New and Renewable Energy
 - Oil and Natural Gas Corporation
 - Defence Research and Development Organisation
 - Geological Survey of India
 - National Hydrographic Office
 - National Biodiversity Authority
- 9. **Mission 9: AGNIi (Accelerating Growth of New India's Innovations)**
 - The mission aims to support the national efforts to boost the innovation ecosystem in the country by connecting innovators across industry, individuals and the grassroots to the market and helping commercialise innovative solutions.
 - It will provide a platform for innovators to bring their technology ready products and solutions to industry and the market thereby helping propel techno-entrepreneurship which can usher a new era of inclusive socio-economic growth.

- The mission includes services across the techno-commercialization chain required to support and upscale market-ready indigenous innovations.
- The initiative includes
- working with government R&D laboratories and academia to help commercialise their innovations;
- collaborate and value add to existing innovation programs;
- training and capacity building of scientists, innovators, technology transfer offices and technology license offices
- Linking specific needs of industry to research laboratories to enable development of cost-effective marketable solutions
- **Lead Partner: Invest India**
- Other major projects of the Office of the Principal Scientific Adviser
- **Earth Museum:** A state-of-the-art museum which will serve as a national repository for specimen fossil preservation and conservation.
- It will be also designed as a major centre for research in geological and other natural sciences.
- This will help to educate students and citizens about the exploration, conservation and preservation of India's natural heritage.
- **I-STEM-** Indian Science Technology, and Engineering Facilities Map: A regularly updated national portal of publicly funded R&D facilities and equipment, installed and working in R&D and academic institutions across the country.
- **Energy Security:** An expert Committee for exploration and procurement of critical minerals required for the National Mission of Electric Mobility has been set up in consultation with Ministry of Mining to examine the reserves of Lithium, Cobalt, etc. in the country as well as possible tie-up with mining sector of other countries for sourcing these.
- KABIL, a joint venture of MECL, NALCO and HCL has initiated preliminary discussions for possible agreement on sourcing Lithium and Cobalt from countries like Australia, Argentina and Bolivia.
- In February 2019, KABIL team visited Argentina to conduct a primary survey of different mines in Argentina.

NOTE

- The Prime Minister's Science, Technology and Innovation Council is an overarching body which assesses the status of specific S&T domains, comprehends challenges, formulates immediate, mid and long term interventions and presents a roadmap to the Prime Minister.
- The Principal Scientific Adviser coordinates to facilitate and ensure implementation of major interventions by concerned Government Departments, Agencies and Ministries.
- Amongst the terms of reference of the Council are to formulate, converge, collaborate, coordinate and implement multi-stakeholder policy initiatives, mechanisms, reforms and programmes aimed at:
- Synergizing S&T covering fundamental to applied research in collaboration with multiple stakeholders both in central and state governments
- Enabling future preparedness in emerging domains of science and technology
- Formulating and coordinating major inter-ministerial S&T missions
- Providing an enabling ecosystem for technology led innovations and techno entrepreneurship
- Driving innovation and technology delivery towards solving socio-economic challenges for sustainable growth
- Fostering effective public-private linkages for driving research and innovation
- Developing science, technology and innovation clusters with multiple stakeholders including

academia, industry and government

- Skilling in current and futuristic technologies

5.5 No clinical trials in India for new drugs approved in select developed markets

Context:

- Union Ministry of Health and Family Welfare has allowed waivers on conducting trials for new drugs in India in case the drug is approved and marketed in countries specified by — the Central Drugs Standard Control Organisation (CDSCO).

Regulation:

- New drugs approved for use in select developed markets will be automatically allowed in India provided global trials included Indian patients.
- This waiver would **also extend to drugs** that receive these marketing approvals even **while a trial is underway in India.**
- **Data generated (clinical trial) outside the country will be acceptable.**
- Providing post-trial access of the drugs to the patients that require it have been defined for the first time.
- It removed a clause in the clinical trials that mandated the sponsor (the entity initiating the trial) to pay 60% of compensation upfront in case of death or permanent disability of a patient.
- Now companies will pay the total amount once it is proven that the injury occurred because of the trial.
- Compensations in cases of death and permanent disability, or “other” injuries to a trial participant will be decided by Drug Controller General of India (DCGI).
- It removed regulations on tests conducted on animals in case of drugs approved and marketed for more than two years in well-regulated overseas drug markets.

Significance of New Rules:

- It will **end the unnecessary repetition of trials** and speed up the availability of new drugs in the country.
- It will **lower the cost of drugs.**
- It will improve the ease of doing business for drug makers.

Criticism of new regulations:

- India is a country of **vast ethnic diversity** and most of the trials are done in the West. There is need of bridging trials for ethnically diverse populations to check drug suitability population.
- Waiver should be only for drugs required **urgently for national emergency.**
- Proving injury due to the trial is problematic and it is prone to manipulation.

Central Drugs Standard Control Organisation (CDSCO):

- The CDSCO is the Central Drug Authority for discharging functions assigned to the Central Government under the **Drugs and Cosmetics Act.**

Major Functions:

- Regulatory control over the import of drugs, **approval of new drugs and clinical trials.**
- Approval of certain licences as Central Licence Approving Authority

Drug Controller General of India (DCGI):

- DCGI is responsible for **approval of licences of specified categories of drugs** such as blood and blood products, IV fluids, vaccines and sera in India.
- It comes **under the Ministry of Health & Family Welfare.**

5.6 Registration of political parties under Section 29A of the RP Act, 1951

Context:

- The commission has announced the elections for the Lok Sabha and Assemblies to Andhra Pradesh, Orissa, Arunachal Pradesh on 10th March, 2019. Therefore, in view of the current elections, the Commission has given one time relaxation and has **reduced the notice period from 30 days to 7 days** for the parties who have published their public notice by 10th March, 2019 i.e. date of announcement of election.
- As per existing guidelines, the applicant association is inter-alia asked to **publish proposed Name of the party in two national daily news papers and two local daily newspapers**, on two days in same news papers, for inviting objections, if any, with regard to the proposed registration of the party before the Commission within a **30 days** from such publication.

Registration of political parties:

- Registration of Political parties is governed by the provisions of **Section 29A of the Representation of the People Act, 1951**. A party seeking registration under the said Section with the Commission has to **submit an application to the Commission** within a period of **30 days** following the date of its formation as per guidelines prescribed by the **Election Commission of India** in exercise of the powers conferred by **Article 324 of the Commission of India and Section 29A of the Representation of the People Act, 1951**.

Criteria for declaring a National Political Party:

- It secures **at least six percent of the valid votes** polled in **any four or more states**, at a general election to the **House of the People or, to the State Legislative Assembly** and
- In addition, it wins **at least four seats in the House of the People from any State or States**. OR
- It wins **at least two percent seats in the House of the People** (i.e., 11 seats in the existing House having 543 members), and these members are elected from **at least three different States**.

Criteria for declaring a State Political Party:

- It secures **at least six percent of the valid votes** polled in the State at a general election, either to the **House of the People or to the Legislative Assembly of the State** concerned; and
- In addition, it wins **at least two seats in the Legislative Assembly of the State** concerned. OR
- It wins **at least three percent (3%) of the total number of seats in the Legislative Assembly of the State, or at least three seats in the Assembly, whichever is more**.

Benefits:

- If a party is **recognised** as a State Party, it is **entitled** for exclusive allotment of its **reserved symbol to the candidates** set up by it in the State in which it is so recognised, and if a party is recognised as a 'National Party' it is entitled for exclusive allotment of its reserved symbol to the candidates set up by it throughout India.
- Recognised 'State' and 'National' parties need only **one proposer** for filing the nomination and are also entitled for **two sets of electoral rolls free of cost** at the time of revision of rolls and their candidates get **one copy of electoral roll free of cost** during General Elections.
- They also get **broadcast/telecast** facilities over **Akashvani/Doordarshan** during general elections.
- Political parties are entitled to nominate **"Star Campaigners"** during General Elections. A **recognized National or State party** can have a maximum of **40 "Star campaigners"** and a **registered un-recognised party** can nominate a maximum of 20 'Star Campaigners'.
- The **travel expenses** of star campaigners are **not to be accounted** for in the election expense accounts of candidates of their party.

5.7 SC notice to EC on Opposition parties' plea for 50% EVM-VVPAT random verification

Context:

- The Supreme Court (SC) has issued a notice to the Election Commission (EC) on a plea by leaders from 21 political parties who wanted random verification of at least 50% Electronic Voting Machines (EVMs) using their Voter Verifiable Paper Audit Trail (VVPAT) slips in the upcoming general elections.
- There are **concerns** being raised by many political parties **regarding the functioning of EVMs**.
- To allay these fears, **EC has decided that it will verify VVPAT slips of only one randomly selected booth of a constituency**.
- Recently, the SC has directed the EC to respond to a plea that the counts from EVMs and VVPAT units should be cross-verified in at least 30% randomly chosen polling stations in each assembly and Lok Sabha constituency.

Argument of Petitioner:

- Randomly verifying at least 50% Electronic Voting Machines (EVMs) using their Voter Verifiable Paper Audit Trail (VVPAT) slips in the upcoming elections was in the interest of free and fair elections, which is part of the basic structure of the Constitution.
- The 50% randomized verification in each assembly constituency/assembly segment is a reasonable sample size to
 - allay the fears of the general public with regard to EVM tampering and;
 - be a statistically significant sample size to ensure that EVMs are working properly.
- The decision of ECI to verify VVPAT of only one randomly selected booth of a constituency will account only for 0.44% of the votes polled.
- This guideline defeats the entire purpose of VVPAT and makes the same "ornamental" without actual substance.
- The petition refers to the decision in **Dr. Subramanian Swamy v ECI (2013)** which held that VVPAT is an "indispensable requirement of free and fair elections". To give meaningful effect to this judgment, at least 50% of VVPAT should be verified.

Voter Verified Paper Audit Trail:

- VVPAT is an independent verification printer machine and is attached to electronic voting machines. It allows voters to verify if their vote has gone to the intended candidate.
- When a voter presses a button in the EVM, a paper slip is printed through the VVPAT. The slip contains the poll symbol and name of the candidate. It allows the voter to verify his/her choice.
- After being visible to the voter from a glass case in the VVPAT for seven seconds, the ballot slip will be cut and dropped into the drop box in the VVPAT machine and a beep will be heard.
- VVPAT machines can be accessed by polling officers only.

5.8 Section 33(7) of the Representation of People's Act

- **Section 33(7) of the Representation of People's Act** permits a candidate to contest any election (Parliamentary, State Assembly, Biennial Council, or bye-elections) from **up to two constituencies**. The provision was introduced in **1996** prior to which there was no bar on the number of constituencies from which a candidate could contest.

Reasons for barring the contestants

- One person, one vote & one candidate, one constituency is the **dictum** of democracy. However, as per the law, as it stands today, a person can contest the election for the same office from two constituencies simultaneously.
- When a candidate contests from two seats, it is **imperative** that he has to **vacate one of the two seats** if he wins both. This, apart from the consequent **unavoidable financial burden** on the

public exchequer, government manpower and other resources for holding bye-election is also an injustice to the voters of the constituency which the candidate is quitting from.

Alternative

- The ECI has **alternatively suggested** that if existing provisions are retained then the **candidate contesting from two seats should bear the cost of the bye-election to the seat** that the contestant decides to vacate in the event of his/her winning both seats.
- The amount in such an event could be **Rs 5 lakh for assembly election and Rs 10 lakh for parliament election.**

View's of Supreme Court:

- The Supreme Court had in December 2017 issued notices seeking replies from the Election Commission and the Centre on the issue.
- At the time, the **Supreme Court** had said the practice of **one candidate contesting multiple seats was a drain on the exchequer** since it necessitated bypolls.
- A **petition** has also been filed in the Supreme Court challenging **Section 33(7)**.

5.9 Septic tanks meet norms: Ministry

Context:

- Union Ministry of Drinking Water and Sanitation (MoDWS) has said that Septic tanks and single pits are safe sanitation technologies that meet the standards prescribed by the Sustainable Development Goals.
- Union Ministry was responding to a report on National Annual Rural Sanitation Survey (NARSS) 2018-19 on use of Septic Tanks.

Findings of the Survey:

- National Annual Rural Sanitation Survey (NARSS) 2018-19 has concluded that Only 26% of rural toilets use twin-leach pits and rural toilets [that do not use twin-leach pits] could create a new “sanitation nightmare.”
- Not using twin pit can be harmful to health and the environment, and can push a new generation into manual scavenging.
- Septic tanks are the most popular option, with 28% of toilets connected to a septic tank with a soak pit and 6% to a tank without a soak pit.

Union Ministry's Response:

- Ministry responded that Septic tanks and single pits are safe sanitation technologies that meet the standards prescribed by the Sustainable Development Goals (SDG).
- The twin-leach pit toilet is among the most economical and safe sanitation technologies, and has been promoted and extensively adopted.
- Ministry accepted, there is a manpower challenge to empty and clean such tanks, given the social context of the country and caste prejudices against such cleaning work.
- It is preparing technological and entrepreneurial solutions to the problem.

National Annual Rural Sanitation Survey(NARSS) 2018-19:

- It was conducted by an Independent Verification Agency under the World Bank support project to the Swachh Bharat Mission (Grameen).
- **Twin-pit and Single-pit system**
- Two pits are dug with honeycombed walls and earthen floors which allow liquid to percolate into the surrounding soil.
- When one pit is filled and closed off, waste flow is transferred to the second pit, allowing waste in the first pit to be converted into manure after a year or two.
- It is an in-situ sanitation system which claims to bypass thorny issues such as caste purity, as

owners will be dealing with manure, not excreta.

- In case of single pit system, once this single pit is filled, there is an immediate emergency to empty excreta not manure(it needs long time for conversion of excreta into manure).

5.10 Suresh Prabhu Launches GI Website & Tutorial Video on IPR

Context:

- The Union Minister of Commerce and Industry has launched a tutorial video on “Intellectual Property Rights (IPR)” for school students and the Geographical Indications (GI) website.
- **India is already a signatory to WTO’s TRIPS Agreement** and has enacted or amended the laws in harmony with the agreement.

GI Website:

- The website **showcases Indian GIs products**, classified state wise as well as product category wise.
- It includes specific and comprehensive details of geographical area, description of product, uniqueness, history, product process/ processing in addition to enlisting GI authorized users.
- The website **aims to promote creativity and motivate more of India’s skilled artisans to apply for GI registration.**

Tutorial Video on IPR:

- A **20-minute tutorial video** created by the Cell for IPR Promotion and Management (CIPAM), Department for Promotion of Industry and Internal Trade (DPIIT) in collaboration with Qualcomm deals with fundamentals of IPRs such as Patents, Copyrights and Trademarks.
- ‘IP Nani’, India’s first IP Mascot features in the video that **aims to spread awareness about the importance of IPRs amongst children.**
- The tutorial video can be used in schools without any external intervention from teachers or experts and will aid in reaching a large number of schools and students, thereby overcoming issues of bandwidth and limited resources.
- The video is available on CIPAM’s YouTube Channel and will form part of the existing resource pool on CIPAM’s official website www.cipam.gov.in which is freely available for public.

Intellectual Property Rights:

- These are the rights that are given to persons/agencies for their creativity/innovations.
- **The laws that govern IPRs in India are :** The Copyright Act, 1957, Patents Act, 1970, Trade Mark Act, 1999, The Designs Act, 2000, The Geographical Indications of Goods (Registration and Protection) Act, 1999, The Protection of Plant Varieties and Farmers’ Rights Act, 2001 and The Semiconductor Integrated Circuits Layout Design Act, 2000.

IP Nani:

- IP Nani was **launched by Ministry of Commerce and Industry in 2018.**
- It is a tech-savvy grandmother who helps the government and enforcement agencies in combating IP crimes with the help of her grandson “Chhotu” aka Aditya.
- The IP mascot will **spread awareness about the importance of Intellectual Property Rights (IPRs) among people, especially children, in an interesting manner.**

WTO’s TRIPS Agreement:

- The agreement that came into force from **January 1, 1995** lays down minimum standards for protection and enforcement of intellectual property rights in WTO member countries with a view to reduce distortions and impediments to international trade.
- The **Agreement provides for norms and standards** in respect of following areas of intellectual property: **Patents, Trademarks, Copyrights, Geographical Indications, and Industrial**

Designs.

Cell for IPR Promotion and Management:

- The Cell for IPR Promotion and Management (CIPAM) was **created in 2016 under the aegis of the Department of Industrial Policy & Promotion (DIPP), Ministry of Commerce & Industry to take forward the implementation of the National IPR Policy.**
- Since then, CIPAM is working towards creating public awareness about IPRs in the country, promoting the filing of IPRs through facilitation, providing inventors with a platform to commercialize their IP assets and coordinating the implementation of the National IPR Policy in collaboration with Government Ministries/Departments and other stakeholders.

• Trademark	• Patent	• Copyright
<ul style="list-style-type: none"> • A trademark is a word, phrase, symbol, and/or design that identifies and distinguishes the source of the goods of one party from those of others. • The term "trademark" is often used to refer to both trademarks and service marks. • Unlike patents and copyrights, trademarks do not expire after a set term of years. Instead, a trademark can last forever, so long as the owner continues to use the mark in commerce to indicate the source of goods and services. 	<ul style="list-style-type: none"> • A patent is a limited duration property right relating to an invention, granted by Trademark Office in exchange for public disclosure of the invention. Patentable materials include machines, manufactured articles, industrial processes, and chemical compositions. The duration of patent protection is 20 years in case of India. 	<ul style="list-style-type: none"> • A copyright protects works of authorship that have been tangibly expressed in a physical form. • Example - songs, books, movies, and works of art.

5.11 Swachh Survekshan Awards 2019

Highlights:

- New Delhi Municipal Council area was given the ‘Cleanest Small City’ award.
- Uttarakhand’s Gauchar was adjudged the ‘Best Ganga Town’ in the central government survey.
- The ‘Cleanest Big City’ award has been bagged by Ahmedabad.
- Raipur is the ‘Fastest Moving Big City’.
- Ujjain has been the adjudged the ‘Cleanest Medium City’.
- Mathura-Vrindavan bagged the tag of the ‘Fastest Moving Medium Cities’.

Swachh Survekshan awards(Urban):

- The Union Ministry of Housing and Urban Affairs (MoHUA) started ‘Swachh Survekshan-2016’ survey for the rating of 73 cities in January 2016.
- It was followed by ‘Swachh Survekshan-2017’ conducted in January ranking 434 cities.
- Swachh Survekshan 2018 for ranking 4,203 Cities.
- In a bid to scale up the coverage of the ranking exercise and encourage towns and cities to

actively implement mission initiatives in a timely and innovative manner, the 2019 survey included all cities, making it the largest such cleanliness survey in the world.

- The Quality Council of India (QCI) has been commissioned the responsibility of carrying out the assessment.
- Top-ranked cities received a statue of Mahatma Gandhi as a memento for their work towards cleanliness.

SCIENCE AND TECHNOLOGY

6.1 China's artificial sun to be completed this year

- China coming up with artificial sun made of electrons and ions by this year end.

Artificial Sun

- HL-2M Tokamak device is used in it to replicate the **nuclear fusion process** that occurs naturally in the sun.
- **The artificial sun's plasma is mainly composed of electrons and ions**, and the existing Tokamak devices have achieved an electron temperature of over 100 million degrees Celsius in its core plasma, and an ion temperature of 50 million degrees Celsius, and it is the ion that generates energy in the device.

Challenges

- Achieving an ion temperature above 100 million degrees Celsius is one challenge to reach the goal of harnessing the nuclear fusion.
- The other two challenges are containing the fusion within a limited space in the long term, and providing a sufficiently high-density profile.

6.2 GRAPES-3

- **GRAPES-3 muon telescope** has measured the electrical potential, size and height of a thundercloud that passed overhead on December 1, 2014.
- **GRAPES-3 (Gamma Ray Astronomy PeV Energies phase-3)** is designed to study cosmic rays with an array of **air shower detectors and a large area muon detector**.
- **Muon** is an elementary particle **similar to the electron**, with an **electric charge of $-1 e$** and a **spin of $1/2$** , but with a much greater mass.
- The GRAPES-3 experiment located at Ooty in India started as a collaboration of the **Tata Institute of Fundamental Research, Mumbai, India** and the **Osaka City University, Osaka, Japan**.

6.3 Hayabusa2

Context:

- **Japan's Hayabusa2 spacecraft** will follow up last month's touchdown on a distant asteroid with another risky mission, **dropping an explosive** on the asteroid to make a **crater and then collect underground samples** for possible clues to the origin of the solar system. Hayabusa2 made history on 22 February when it successfully touched down on the boulder-strewn asteroid and collected some surface fragments.
- In mid-September 2005, **Hayabusa** landed on the **asteroid Itokawa**, and managed to collect samples in the form of grains of asteroidal material. It returned to Earth with the samples in June 2010, thereby becoming the **first spacecraft** to return asteroid samples to Earth for analysis.

Hayabusa2:

- It is an **asteroid sample-return mission** operated by the Japanese space agency, **JAXA**.
- It was launched on 3 December 2014 and rendezvoused with **near-Earth asteroid 162173 Ryugu** on 27 June 2018.
- It is in the process of **surveying the asteroid for a year and a half, departing in December 2019, and returning to Earth in December 2020**.
- Hayabusa2 carries **multiple** science payloads for remote sensing, sampling, and four small rovers that will investigate the asteroid surface to inform the **environmental and geological context** of the samples collected.

Objectives:

- To characterize the asteroid from **remote sensing** observations (with multispectral cameras, near-infrared spectrometer, thermal infrared imager, laser altimeter) on a macroscopic scale
- To **analyse** the samples returned from the asteroid on a **microscopic scale**.

Significance:

- Ryugu is a **C-type asteroid** – a **relic** from the early days of the **Solar System**.
- Scientists think that **C-type asteroids** contain both **organic matter, and trapped water**, and might have been responsible for bringing both to Earth, thereby providing the planet with the materials necessary for life to originate.

6.4 India Energy Modelling Forum

Context:

- First Workshop on **India Energy Modelling Forum** was recently organised by **NITI Aayog and the United States Agency for International Development (USAID)** with the support of the Pacific Northwest National Laboratory (PNNL) under the Sustainable Growth Pillar of the India-U.S. Strategic Energy Partnership.

India Energy Modelling Forum (IEMF)

- IEMF has been envisaged as a **pan-stakeholder platform** for debating ideas, scenario-planning & discussing the India's energy future.
- It seeks to provide a **platform for leading experts and policy makers** to study important energy and environmental issues and ensure induction of modelling and analysis in informed decision making process.
- The Forum aims to **improve cooperation and coordination** between modeling teams, the Government of India, knowledge partners and think-tanks, build capacity of Indian institutions, and identify issues for joint modeling activities and future areas of research.

6.5 India's First Missile Tracking Ship

- Initial sea trials of **India's First Missile Tracking Ship (VC 11184)** has been successful.
- India's first Missile Tracking Ship (a kind of ocean surveillance ship) has **been built by Hindustan Shipyard Limited (HSL)**.
- The ship is being **built for the National Technical Research Organisation**, the technical intelligence agency working directly under the supervision of the Prime Minister's Office and the National Security Adviser.
- India will now be among the few countries to operate a ship such as this. It will be inducted in the Indian Navy once sea trials are completed.
- Other Countries that have a missile tracking ship are Russia, US, China, and France.
- It will be named after its induction into the Indian Navy. For now, it is simply called as VC 11184.
- A tracking ship also called a missile range instrumentation ship or range ship is a ship equipped with antennas and electronics to support the launching and tracking of missiles and rockets.

6.6 INS Khanderi

Context:

- Indian Navy will induct the **second Scorpene submarine Khanderi** by early May 2019.
- It is a part of **six Scorpene submarines manufactured by Mazagon Dock Limited (MDL)**.
- The other submarines in Scorpene Class are **INS Kalvari** joined service in December 2017.
- **Karanj** which is in advanced stage of trials and could be ready for induction by year end.

- **The remaining submarines (Vela, Vagir, and Vagsheer)** in the series are in advanced stages of manufacturing and trials.
- Indian Navy has two **Nuclear-powered submarines Arihant class**(India) & Chakra class(Russia); **14 Diesel-electric submarines** 4 German HDW(Howaldtswerke-Deutsche Werft) class, 9 Sindhughosh class(Kilo Class)(Indo-Russian), & 1 Kalvari class(Indo-French).

Scorpene-class submarine:

- The Scorpene-class submarines are a class of diesel-electric attack submarines jointly developed by Mazagon Dock Shipbuilders in collaboration with DCNS, France under Project-75.
- It features diesel propulsion and an additional air-independent propulsion (AIP).
- Mazagon Dock Shipbuilders Limited (MDL), Mumbai, is manufacturing six Scorpene submarines under technology transfer from Naval Group of France under a 2005 contract.

Mazagon Docks Shipbuilders Limited:

- MDL is one of the leading shipbuilding yard and only submarine builder in India.
- It was incorporated as a Public Limited Company in 1934.
- It was nationalised in 1960 and is now a Public Sector Undertaking of the Government of India.
- It manufactures warships and submarines for the Indian Navy and offshore platforms and associated support vessels for offshore oil drilling. It also builds tankers, cargo bulk carriers, passenger ships and ferries.

6.7 ISRO launches Yuva Vigyani Karyakram for school children

- Indian Space Research Organisation (ISRO) has launched a special programme for School Children called “Young Scientist Programme” “YUva VIgyani KAryakram” from 2019.
- The Program is primarily aimed at **imparting basic knowledge on Space Technology, Space Science and Space Applications to the younger ones with the intent of arousing their interest.**
- It is a residential training programme of around two weeks duration during summer holidays and it is proposed to select 3 students from each State/ Union Territory.

6.8 Lancet study on TB

Highlights of Lancet Study:

- Compared with 2015 data, 57% reduction in incidence and 72% reduction in mortality will be seen only by 2035 in three countries including India.
- Strengthening the care cascade could reduce cumulative TB incidence by 38% in the case of India.
- India has to adopt measures to prevent TB on a population level to eliminate the disease in the coming decades.
- Diagnosis and treatment for drug-sensitive and drug-resistant TB need improvement.
- Modelling suggests that lives of eight million (28%) people with TB can be saved over the next 30 years if tests are subsidised and patients are supported to complete the treatment.
- India should scale up access to TB services for all those seeking them, optimise engagement of private sector providers and guarantee universal access to drug susceptibility testing and second line TB drugs.

Background:

- Of the 10 million new tuberculosis (TB) cases reported globally in 2017 by the World Health Organisation, 74 million were from India, showing a marginal reduction from 2.79 million in 2016.
- Despite TB incidence in the country being 204 cases per 1,00,000 in 2017, the government has set

a highly ambitious target of “eliminating TB by 2025”, five years ahead of the Sustainable Development Goals (SDGs) target.

Challenges:

- India has set an ambitious goal of eliminating TB by 2025, but integration of TB services with the primary health system to reduce diagnostic delays is not happening.
- Patients are not diagnosed and treated at the primary level, which is the first point of contact. Only this will lead to early diagnosis and help cut the transmission cycle.

Tuberculosis - A major cause of concern

- TB is one of the leading causes of death worldwide and the leading cause from a single infectious agent, ranking above HIV/AIDS.
- TB is an infectious disease caused by the bacillus Mycobacterium tuberculosis.
- It typically affects the lungs (pulmonary TB) but can also affect other sites.
- The disease is spread when people who are sick with pulmonary TB expel bacteria into the air, for example by coughing.
- Broader influences on the TB epidemic include levels of poverty, HIV infection, under nutrition and smoking.
- Diagnostic tests for TB disease include – Rapid molecular test, Sputum smear microscopy, Culture-based methods
- Without treatment, the mortality rate from TB is high.

6.9 LightSail2

- The **LightSail 2** is a project to demonstrate controlled solar sailing using a miniature CubeSat satellite.
- It will be launched from the Kennedy Space Center, Florida, US in April 2019.
- LightSail 2 is the **second of three satellites** built to demonstrate the **feasibility of powering a spacecraft using solar radiation**.
- This mission is designed to see if LightSail can move into higher orbits around the Earth using **only photons from the sun to push it along**.

Solar Sailing:

- Solar sails (also called light sails or photon sails) are a proposed method of spacecraft propulsion using radiation pressure exerted by sunlight on large mirrors.

6.10 Man Portable Anti-Tank Guided Missile (MPATGM)

Context:

- In a major boost for Army, **Defence Research and Development Organisation (DRDO)** successfully test fired indigenously developed, low weight, fire and forget **Man Portable Anti-Tank Guided Missile (MPATGM)**.

MPATGM:

- MPATGM is **third-generation** anti-tank guided missile (ATGM) indigenously developed by **DRDO**.
- It has **strike range** of 2.5 km. It weighs around 14.5 kg to maintain **man portability**. It is capable of being **fired from shoulder** and can be used during day and night. It has minimum lateral centre and gravity offset.
- It works on **fire and forget principle** and is known for its top attack capabilities. It is effective against both stationary and moving targets. It will be deployed in **infantry and parachute battalions** of Indian Army.

6.11 National Supercomputing Mission (NSM)

Context:

- IIT Kharagpur has signed an MoU with Centre for Development of Advanced Computing (C-DAC) to set up a 1.3 Petaflop high-performance computing facility and data centre funded under the National Supercomputing Mission.
- The new supercomputing system would be used for specific challenge domains like cryptography, chemistry, molecular dynamics, drug discovery, artificial intelligence and data sciences where the new system would be utilized.

National Supercomputing Mission:

- National Supercomputing Mission, approved in 2016, is being implemented and steered jointly by the Department of Science and Technology (DST) and Department of Electronics and Information Technology (DeitY).
- The Mission envisages empowering national academic and R&D institutions spread over the country by installing a vast supercomputing grid comprising of more than 70 high-performance computing facilities.
- These supercomputers will also be networked on the National Supercomputing grid over the National Knowledge Network (NKN).
- The NKN is another programme of the government which connects academic institutions and R&D labs over a high speed network.
- The Mission includes development of highly professional High Performance Computing (HPC) aware human resource for meeting challenges of development of these applications.

Significance:

- World-wide supercomputing facilities have enabled countries in their S&T capabilities in areas such as designing vehicles, aeroplanes, massive structures like high rise buildings and bridges, infrastructure, discovery of new life saving drugs, discovery and extraction of new energy sources including oil, natural gas etc.
- Over the years, supercomputers have benefitted mankind in several ways. Weather prediction has reached accuracy of forecast as well as real time tracking of natural phenomenon. Timely warning of cyclones in the recent past have saved many lives and property. The Mission aims to further such capabilities beyond current levels.

6.12 Pinaka guided rocket system

Context:

- The indigenously developed Pinaka guided rocket system was successfully test fired on 11th March, 2019 at Pokhran desert in Rajasthan boosting the artillery capability of the Army. The weapon system is equipped with state-of-the-art guidance kit comprising of an advanced navigation and control system.

Pinaka Multibarrel Rocket Launch (MBRL) System:

- Pinaka is a multiple rocket launcher produced in India and developed by the Defence Research and Development Organisation (DRDO) for the Indian Army.
- The system has a maximum range of 40 km for Mark-I and 75 km for Mark-II and can fire a salvo of 12 HE rockets in 44 seconds.
- The system is mounted on a Tatra truck for mobility.
- Pinaka is a complete MBRL system, each Pinaka battery consists of: six launcher vehicles, each with 12 rockets, six loader-replenishment vehicles; three replenishment vehicles, two Command Post vehicle (one stand by) with a Fire Control computer, and the DIGICORA MET radar.
- Pinaka saw service during the Kargil War, where it was successful in neutralising enemy positions

on the mountain tops. It has since been inducted into the Indian Army in **large numbers**.

- As of 2014, about 5,000 missiles are being produced every year while an advanced variant is under development with enhanced range and accuracy.
- The Army generally deploys a battery that has a total of **72 rockets**. All the **72 rockets can be fired in 44 seconds**, taking out an area of **1 km²**.
- Each launcher has an individual computer, which enables it to function autonomously in case it gets separated from the other five vehicles in a war.
- The Pinaka will be operated in **conjunction** with the Indian Army's Firefinder radars and indigenously developed **Swathi Weapon Locating Radar**.
- The Pinaka is in the process of further improvement. **Israel Military Industries teamed up with DRDO** to implement its Trajectory Correction System (TCS).

6.13 Scientists confirm first report of egg parasitoid in Africa to fight fall armyworm

- **'Fall armyworms'** are **native to the Americas** but they have been moving eastwards since 2016, sweeping across Africa, where they caused \$1-3 billion in damage, before arriving in Asia.
- The flying insects **arrived in India** in July and have since spread to Sri Lanka, Bangladesh, Myanmar, Thailand and China's Yunnan province.
- Farming in several Asian countries is under threat from a type of crop-damaging insects that have munched their way from the Americas and across Africa
- They **feed mostly on maize, for which China is the world's second-largest producer**, and can feed on several species of crops, including rice and sugarcane.
- FAO meeting in Bangkok with officials from affected countries and experts for discussing ways to limit armyworm infestations amid a **"growing sense of alarm"**.
- FAO is working with local authorities and training farmers to manage the pests by crushing egg masses and using biopesticides.
- Chemical pesticides are an option but should be carefully considered due to environmental and health damages.

Food and Agriculture Organization (FAO):

- The Food and Agriculture Organization is an **agency of the United Nations** that leads international efforts to defeat hunger.
- FAO is also a source of knowledge and information and helps developing countries and countries in transition modernize and improve agriculture, forestry and fisheries practices, ensuring good nutrition and food security for all.
- **Formation: 16 October 1945, in Quebec City, Canada**
- **Headquarters: Rome, Italy**
- Every year, **World Food Day (Theme for 2018- Zero Hunger) is celebrated on October 16** to commemorate the founding of the Food and Agriculture Organisation (FAO) of United Nations in the year 1945.
- The **Sustainable Development Goal (SDG-2)** also aims to **"End hunger, achieve food security and improved nutrition and promote sustainable agriculture"** by 2030.

6.14 SpaceX launches its new Crew Dragon capsule for the first time, paving the way for passenger flights

- Space-X Dragon crew capsule, in a test flight, has successfully docked itself to International Space Station (ISS).
- This docking maneuver is something the capsule will have to do routinely in the future when it will start transporting astronauts to and from the ISS.

- **SpaceX has become the first company to design, build, launch, and now dock a commercial spaceship made for flying people to the International Space Station.**

6.15 Super Worm Equinox Moon

- The **last supermoon of the year has coincided with the Spring Equinox**. The phenomenon is generally known as 'Super Worm Equinox Moon'.
- **The full moon of the March is the third supermoon of the year**, following a super blood wolf moon on January 21st and a super snow moon on February 19th.
- **The full moon is also known as the worm moon** in some parts of the world. It is called so because, in cold climates, the ground begins to warm up at this point and earthworms appear.
- When the moon is at its closest point to the earth, it is called 'perigee' and when a full moon coincides with a perigee, it is called Supermoon.
- The **Equinox is the moment when the length of day and night become equal and the sun's rays fall directly on the earth's equator**. The phenomenon happens twice a year— once as autumn equinox in September and the other in March as spring equinox or vernal equinox.

6.16 Transcatheter Aortic Valve Replacement (TAVR)

Context:

- Recent trials of **Transcatheter Aortic Valve Replacement (TAVR)** have shown that it is just as **useful in younger and healthier patients** as it has been for old and sick patients.
- The procedure, TAVR, has been reserved mostly for patients **so old and sick** who might not survive open-heart surgery.
- **TAVR and an open heart surgery both can be done to replace failing Aortic Valves**. TAVR is also known as **Transcatheter Aortic Valve Implantation (TAVI)**.
- In an open heart surgery, the chest is surgically separated (open) for the procedure. While, the TAVR or TAVI procedures can be done through very small openings that leave all the chest bones in place.
- With TAVR, recovery time is less for patient and also has lower risks of disabling strokes and death, compared to open-heart surgery.

Aortic valve disease:

- Aortic valve disease is a condition in which the **valve between the main pumping chamber of the heart (left ventricle) and the main artery of the body (aorta)** doesn't work properly.
- Aortic valve disease may be a condition **present at birth (congenital heart disease), or it may result from other causes**.
- The aorta is the **largest artery in the body**. It begins at the top of the left ventricle, the heart's muscular pumping chamber. The heart pumps blood from the left ventricle into the aorta through the aortic valve.
- The **arteries are the blood vessels that deliver oxygen-rich blood** from the heart to the tissues of the body, with the **exception of Pulmonary Arteries** which carry oxygen-poor blood from the heart to the lungs under low pressure, making these arteries unique.

6.17 Triggering the Birth of New Cycle's Sunspots by Solar Tsunami

Context:

- The scientists have found that solar tsunamis are responsible for triggering an 11-year cycle of sunspots.
- It is believed that the "solar dynamo" is linked to the production of sunspots.

Solar Dynamo

- Solar Dynamo is a naturally occurring generator which **produces electric and magnetic fields in the sun.**

Sun Spot:

- Sunspots are areas **that appear dark on the surface of the Sun.** They appear dark because they are **cooler than other parts of the Sun's surface.**
- The temperature of a sunspot is still high around 6,500 degrees Fahrenheit.
- Sunspots are relatively cool. It's because they form at areas where magnetic fields are particularly strong. These magnetic fields are so strong that they keep some of the heat within the Sun from reaching the surface.
- The amount of magnetic flux that rises up to the Sun's surface varies with time in a cycle called the solar cycle. This cycle lasts 11 years on average. This cycle is sometimes referred to as the sunspot cycle.

Solar Tsunami:

- Solar tsunami is the waves of the magnetic field and hot, ionized gas moving across the Sun at about 400 km per second.
- Tsunamis are generated after a release of matter into space called a coronal mass ejection (CME).
- Solar tsunamis were discovered in 1997 by the SOHO (Solar and Heliospheric Observatory) of European Space Agency.

Coronal Mass Ejection:

- A coronal mass ejection (CME) is a significant release of plasma and accompanying magnetic field from the solar corona. They are often followed by solar flares.
- Solar Flares on reaching earth causes spectacular light shows by interacting with the earth's magnetic field called Aurora's.
- Solar Flares can also disrupt radio transmission and harm satellites in orbit.

How Solar Tsunami leads to Sunspot?

- The extreme temperature and pressure conditions that prevail some 20,000 km below the sun's surface cause its material to form a plasma consisting primarily of hydrogen and helium in a highly ionized state.
- The plasma is confined with huge magnetic fields inside the sun. Holding these fields in their place requires that there is extra mass (plasma mass) pushing at the bands from higher latitudes.
- Thus, a magnetic dam is formed which is storing a big mass of plasma. At the end of a solar cycle, this magnetic dam can break, releasing huge amounts of plasma cascading like a tsunami towards the poles.
- These tsunami waves travel at high speeds of about 1,000 km per hour carrying excess plasma to the mid-latitudes. There they give rise to magnetic flux eruptions. These are seen as the bright patches that signal the start of the next cycle of sunspots.

6.18 Virtual SIM cards

- Investigating agencies have found that **virtual SIM cards (Subscriber Identification Module Cards)** were used by the Jaish-e-Muhammad's terrorists for communications during the Pulwama attack.
- **In this technology, the computer generates a telephone number and the user downloads an application of the service provider on their smartphone.**
- It is a **cloud-based number that can be used from any device via an app.**
- All voice calls and SMS text messages directed from/to this virtual phone number are transferred to the Virtual SIM service provider's network over available data/Wi-Fi connection.

6.19 Water molecules discovered by LRO on day side of Moon

Context:

- NASA's **Lunar Reconnaissance Orbiter (LRO)** has observed water molecules moving around the dayside of Moon, an advance that could help us learn about the accessibility of water that can be used by humans in future lunar missions.
- **Lyman Alpha Mapping Project (LAMP)**, the instrument aboard LRO measured sparse layer of molecules temporarily stuck to the Moon's surface, which helped characterise lunar hydration changes over the course of a day.

Highlights:

- **Lunar water** can potentially be used by humans to make fuel or to use for radiation shielding or thermal management; if these materials do not need to be launched from Earth that makes these future missions more affordable.
- Scientists had hypothesised that **hydrogen ions in the solar wind** may be the source of most of the moon's surface water. As a result, when the moon passes behind the earth and is shielded from the solar wind, the **'water spigot'** should essentially turn off.
- The water observed by **LAMP** does not decrease when the moon is shielded by the earth and the region influenced by its magnetic field, suggesting water builds up over time, rather than 'raining' down directly from the solar wind.
- **Water** molecules remain **tightly bound to the regolith** until surface temperatures peak near lunar noon. Molecules thermally desorb and can bounce to a nearby location that is cold enough for the molecule to stick or populate the moon's extremely tenuous atmosphere or exosphere, until temperatures drop and the molecules return to the surface.

Lunar Reconnaissance Orbiter (LRO):

- LRO is a **NASA mission** to the moon within the **Lunar Precursor and Robotic Program (LPRP)** in preparation for future manned missions to the moon and beyond (Mars).
- LRO is the first mission of NASA's **'New Vision for Space Exploration'**, which President Bush announced on January 14, 2004, in sending more robot and human explorers beyond Earth orbit.

Objectives of LRO:

- Identify potential lunar resources.
- Gather detailed maps of the lunar surface.
- Collect data on the moon's radiation levels.
- Study the moon's polar regions for resources that could be used in future manned missions or robotic sample return missions.
- Provide measurements to characterize future robotic explorers, human lunar landing sites and to derive measurements that can be used directly in support of future Lunar Human Exploration Systems.

SOCIAL ISSUES AND DEVELOPMENT

7.1 India slips 7 spots in global list of happiest nations

Context:

- The Sustainable Development Solutions Network for the United Nations released the World Happiness Report on March 20, which was designated as the World Happiness Day by the UN General Assembly in 2012.
- This is UN's seventh annual World Happiness Report, which **ranks the world's 156 countries on "how happy their citizens perceive themselves to be"**.
- The focus of report was- "Happiness and Community: how happiness has been changing over the past dozen years, and how information technology, governance and social norms influence communities"
- The report ranks countries on **six key variables** that support well-being:
 1. Income,
 2. Freedom to make life choices,
 3. Trust,
 4. Healthy life expectancy,
 5. Social support and
 6. Generosity.
- The happiness study ranks the countries of the world on the basis of questions from the Gallup World Poll. The results are then correlated with other factors, including GDP and social security.

Findings:

- The overall world happiness has fallen over the past few years, which has mostly been fuelled by a sustained drop in India, which came in 140th place this year (2019) compared with 133rd in 2018.
- There has been an increase in negative emotions, including worry, sadness and anger.
- India featured in the five countries that had the largest drop since 2008 in the index, along with Yemen, Syria, Botswana and Venezuela.
- The list is topped by Finland for the second year in a row followed by Denmark, Norway, Iceland and the Netherlands.
- Among India's neighbouring countries, Pakistan is ranked 67th, Bangladesh 125th, Bhutan 95th, Sri Lanka 130th and China is placed at 93rd.
- People in war-torn South Sudan are the most unhappy with their lives, followed by Central African Republic (155), Afghanistan (154), Tanzania (153) and Rwanda (152).

Sustainable Development Solutions Network (SDSN):

- The Sustainable Development Solutions Network (SDSN), launched in 2012, mobilizes global scientific and technological expertise to promote practical problem solving for the Sustainable Development Goals (SDGs) and the Paris Climate Agreement.
- It was established under the auspices of the United Nations Secretary-General.
- The SDSN and the Bertelsmann Stiftung have been publishing the annual SDG Index & Dashboards Global Report since 2016.

7.2 Model Code of Conduct (MCC)

Context:

- With the announcement of elections to the 17th Lok Sabha, the Model Code of Conduct has come into effect immediately.

MCC:

- The MCC is a set of guidelines issued by the Election Commission (EC) to regulate political parties and candidates prior to elections. Basically, the code spells out the do's

and don'ts for elections.

- **This is in keeping with Article 324 of the Constitution**, which mandates EC to conduct free and fair elections to the Parliament and State Legislatures.
- **It is not statutory** but Political Parties, Candidates and Polling Agents are expected to observe the norms, on matters ranging from the content of election manifestos, speeches and processions, to general conduct etc.
- **The code comes into force on the announcement of the poll schedule and remains operational till the process is concluded.**
- The EC has devised several mechanisms to take note of the violation of the code, which include joint task forces of enforcement agencies and flying squads. The latest is the introduction of the cVIGIL mobile app through which audio-visual evidence of malpractices can be reported.
- The **cVIGIL App** provides **time-stamped, evidence-based proof of the Model Code of Conduct / Expenditure Violation, having live photo/video with auto location data.**
- Any citizen can lodge a complaint through the Mobile App. Flying Squads will then investigate the matter and the Returning Officer takes the decision.
- The status of cVIGIL can be shared with the cVIGIL complainant within a specified time limit.

MCC: Legal Enforcement

- Though MCC does not have any statutory backing, but the Code has come to acquire teeth in the past decade because of its strict enforcement by the EC.
- **Certain provisions of the MCC may be enforced through invoking corresponding provisions in other statutes such as the Indian Penal Code, 1860, Code of Criminal Procedure, 1973, and Representation of the People Act, 1951.**
- For Example; Inciting hatred through political speeches, Appealing to caste and community feelings of voters, Intimidating or bribing voters and distributing liquor or holding public meetings in the 48 hours preceding the close of polling, are all such offences for which candidates can be tried under the **Indian Penal Code** or the **Representation of the People Act 1951.**
- **In 2013, the Standing Committee on Personnel, Public Grievances, Law and Justice, recommended making the model code of conduct legally binding.** The committee observed in a report on electoral reforms that most provisions of the code are already enforceable through corresponding provisions in other statutes. It recommended that the MCC be made a part of the Representation of the People Act, 1951.
- **The EC argues against making it legally binding.** According to it, elections must be completed within a relatively short time or close to 45 days, and judicial proceedings typically take longer, therefore it is not feasible to make it enforceable by law.

7.3 Women map of Women in Politics

- Women's representation in political decision-making continues to rise slowly, with slight improvements since 2017, according to the data presented in the 2019 edition of the **biennial Inter-Parliamentary Union (IPU)-UN Women map of Women in Politics.** The map was launched at a press conference during the **Commission on the Status of Women (CSW 63)** at the **United Nations** headquarters in **New York.**

Key Features

- The map, which presents **global rankings for women in the executive and parliamentary government branches** as of 1 January 2019, shows the proportion of women ministers is at an all-time high at 20.7 per cent, 2.4 percentage points higher compared to 2017. It also shows that the types of portfolios women ministers hold are diversifying.
- The **global share** of women Members of Parliament (MPs) is 24.3 per cent and has increased by nearly one point compared with 2017. The share of women parliamentary speakers also increased

by 0.6 percentage points to 19.7 per cent, and the share of women deputy speakers increased by 1.6 percentage points to 28.2 per cent.

- However, **women's** representation in **top-level leadership** has **decreased** from 7.2 per cent of elected Heads of State to 6.6 per cent (10 out of 153), and from 5.7 per cent of Heads of Government to 5.2 per cent (10 out of 193).
- Among countries in Asia, **Pakistan progressed from having no women ministers** since 2012 to reaching its **highest-ever** share of women ministers at 12 per cent.
- In Europe, **Slovenia** dropped the most percentage points since 2017 from 50 per cent to 25 per cent women ministers. **Lithuania** no longer has women in ministerial positions, compared to 2017 when there were three out of 14, or 21.4 per cent.
- The number of countries with no women ministers decreased from 13 in 2017 to 11: Azerbaijan, Belize, Brunei Darussalam, Iraq, Kiribati, Lithuania, Papua New Guinea, Saint Vincent and the Grenadines, Saudi Arabia, Thailand and Vanuatu.
- The types of portfolios held by **women ministers are shifting**.
- Strikingly, more women are in charge of portfolios traditionally occupied by men compared to 2017: 30 per cent more women ministers cover Defence, 52.9 per cent more women cover Finance, and 13.6 per cent more women cover Foreign Affairs.

More gender-balanced governments

- **Nine countries**, up from six in 2017, have **50 per cent or more women** in ministerial positions.
- 64.7%: Spain
- 55.6%: Nicaragua
- 54.4%: Sweden
- 53.3%: Albania
- 52.9%: Colombia
- 51.9%: Costa Rica
- 51.9%: Rwanda
- 50%: Canada
- 50%: France



ECOLOGY

8.1 2015-16 El Nino and Disease outbreaks

Context:

- Global climatic disruptions due to the strong and extended **positive phase of the ENSO** conditions, or simply El Nino in 2015-16 **increased the outbreak of diseases** in the regions of its influence, according to a study published in the journal Nature.
- The scientists analysed certain disease outbreaks in the 2015-16 period and tried to correlate them with higher temperatures and erratic rainfall patterns characteristic of the El Nino.

Key Highlights:

- Major diseases like **chikungunya, dengue, malaria, hantavirus, rift valley fever, cholera, plague and zika** are affected by the weather events induced by El Nino.
- They found that in regions like **Southeast Asia, Tanzania, western United States and Brazil** — which are generally affected by the El Nino and the spread of diseases came after shifts in rainfall, temperature and vegetation.
- There was either **excess of droughts or floods** in this period which created the environmental conditions that favoured the growth and propagation of disease causing micro organisms and their carriers.
- The study's analysis indicates that the **intensity of disease activity** increased by 2.5-28 per cent during El Nino events than in other periods in the affected regions.
- Similarly, excess land surface temperatures in Brazil and Southeast Asia aided the **spread of dengue**. El Nino, in itself, is a difficult phenomenon to track and study, which makes its consequences even more difficult to understand.

El Nino Southern Oscillation (ENSO):

- ENSO is an irregular periodic variation of wind and sea surface temperature that occurs over the tropical eastern Pacific Ocean. ENSO affects the tropics (the regions surrounding the equator) and the subtropics (the regions adjacent to or bordering the tropics).
- The warming phase of ENSO is called El Nino, while the cooling phase is known as La Nina.

El Nino

- El Nino is a **climatic cycle** characterised by high air pressure in the Western Pacific and low air pressure in the eastern.
- In **normal conditions**, strong trade winds travel from east to west across the tropical Pacific, pushing the warm surface waters towards the western Pacific.
- The surface temperature could witness an **increase of 8 degrees Celsius** in Asian waters. At the same time, cooler waters rise up towards the surface in the eastern Pacific on the coasts of Ecuador, Peru, and Chile.
- This process called **upwelling** aids in the development of a rich ecosystem.

Causes of El Nino

- El Nino sets in when there is **anomaly in the pattern**. The westward-blowing trade winds weaken along the Equator and due to changes in air pressure, the surface water moves eastwards to the coast of northern South America.
- The central and eastern Pacific regions warm up for over **six months** and result in an El Nino condition. The temperature of the water could rise up to 10 degrees Fahrenheit above normal.
- Warmer surface waters **increase precipitation** and bring above-normal rainfall in South America, and **droughts** to Indonesia and Australia.

Effects of El Nino

- El Nino affects global weather. It **favours** eastern Pacific hurricanes and tropical storms. Record and **unusual rainfall** in Peru, Chile and Ecuador are linked to the climate pattern.

- El Nino **reduces** upwelling of cold water, decreasing the uplift of nutrients from the bottom of the ocean. This affects marine life and sea birds. The fishing industry is also affected.
- **Drought** caused by El Nino can be widespread, affecting southern Africa, India, Southeast Asia, Australia, and the Pacific Islands. Countries dependent on agriculture are affected. Australia and Southeast Asia gets hotter.
- A recent WHO report on the health consequences of El Nino forecasts a **rise in vector-borne diseases**, including those spread by mosquitoes, in Central and South America. Cycles of malaria in India are also linked to El Nino.

8.2 21st March - International Day of Forests

Context:

- The **United Nations General Assembly** proclaimed 21 March the **International Day of Forests (IDF) in 2012**. The Day celebrates and raises awareness of the importance of all types of forests.
- On each **International Day of Forests**, countries are encouraged to **undertake** local, national and international efforts to organize activities involving forests and trees, such as tree planting campaigns.
- The **theme for 2019** - 'Forests and Education: Learn to Love Forests'.

Significance

- Forests cover **one third** of the Earth's land mass, performing vital functions around the world. Around **1.6 billion people** including more than **2,000 indigenous cultures** depend on forests for their livelihoods, medicines, fuel, food and shelter.
- Forests are the **most biologically-diverse ecosystems** on land, home to more than **80 per cent** of the terrestrial species of animals, plants and insects.
- Despite all these **ecological, economic, social and health benefits**, **global deforestation** continues at an alarming rate with **13 million hectares** of forest destroyed annually.
- Deforestation accounts for **12 to 20 percent** of the **global greenhouse gas emissions** that contribute to climate change.

Sustainable management of forests:

- Forests, their sustainable management and use of resources, including in **fragile ecosystems**, are key to combating climate change and to contributing to the prosperity and well-being of current and future generations.
- Forests also play a **crucial role in poverty alleviation** and in the achievement of the Sustainable Development Goals (**SDGs**).
- Hence, sustainable management of all **types of forests** are at the heart of unlocking challenges of **conflict-affected, developing and developed countries**, for the benefit of current and future generations.

8.3 Asian rhino range countries commit to secure the future of Asian rhinos

Context:

- Recently, **2nd meeting of Asian Rhino Range Countries** took place in New Delhi.
- **2nd Asian Rhino Range Countries meeting** in New Delhi was organized by the Union Ministry of the Environment, Forests and Climate Change (MoEFCC), and International Union for Conservation of Nature(IUCN), Asian Rhino Specialist Group along with World Wildlife Fund-India (WWF), International Rhino Foundation and Aaranyak, an NGO.
- **1st Asian Rhino Range States meeting** was held at Bandar Lampung, Indonesia in October 2013.

- **Asian Rhino Range Countries include Bhutan, India, Indonesia, Malaysia, and Nepal.**

Highlights:

- The New Delhi Declaration was adopted at the second meeting of the Asian rhino range countries.

New Delhi Declaration:

- New Delhi Declaration underscored trans-boundary collaboration among India, Nepal, and Bhutan for the conservation and protection of the greater one-horned rhino.
- Emphasis was also laid on expanding rhino domains within a country or between rhino range countries.
- Making the best use of all available individuals and technologies to accelerate natural and conservation breeding of the critically endangered Sumatran rhino.

Emulating India:

- Part of the plan has been to replicate or develop upon the Kaziranga rhino conservation success story for Sumatran as well as the Javan rhino.
- Kaziranga had less than 10 rhinos when it was declared a protected area for the animal in 1905. Assam's Kaziranga National Park has around 2,938 rhinos in India.
- The Asian rhino range countries have also agreed to review the population of three Asian rhino species (greater one-horned, Javan and Sumatra) in every four years to secure its future.
- It has also agreed to strengthen protection regimes, intelligence gathering and real-time sharing of intelligence information on rhino crime and its horn trade to secure the rhino population within and between range countries. There were discussions on rhino trade in Asia in the meeting.
- It has said the possible opening of international trade of rhino horn and other derivatives will have a detrimental impact on rhino populations in the Asian rhino range countries.
- The countries have also decided to initiate research on various habitat parameters, including invasive species threatening the suitable habitats of Asian rhinos and take optimally manage the habitats.
- The meeting also decided to identify connectivity and corridors across international boundaries and keep them functional, safe and secure for free movement of Asian rhinos and other wildlife.

Status of Rhinoceros:

- There are three species of rhino in Asia—greater one-horned, Javan and Sumatran. **Javan and Sumatran Rhino are critically endangered but the greater one-horned (or Indian) rhino vulnerable.**
- Once ranging from China to Bangladesh, the Javan and Sumatran rhinos are nearing extinction.
- There are no rhinos in Bhutan, but some from the Manas National Park in adjoining Assam or Buxa Tiger Reserve in West Bengal are known to cross over occasionally.
- Indonesia and Malaysia are the other Asian countries where the last of the rhinos live.
- The current global population of the Indian one-horned rhinoceros is 3,584. Assam's Kaziranga National Park has the bulk of 2,938 rhinos in India while Nepal 646.
- The Sumatran rhino, the smallest of all rhino species and the only Asian rhino with two horns, became extinct in the wild in Malaysia.

National Rhino Conservation Strategy:

- Recently, the government of India has also launched the National Rhino Conservation Strategy for India.
- It called for active engagement between India and Nepal to protect the species.
- The plan said the single population of rhinos in Sukla-Phanta (Nepal), Valmiki Tiger Reserve (India) and Chitwan National Park (Nepal) and Dudhwa (India) is separated by the political boundary between the two countries.

- Instead of managing the two populations separately in the two countries, it needs to be managed with the same protocol.
- The strategy would pave the path for long-term conservation of rhinos.
- The plan calls for expanding distribution range as the occurrence of 90% of the rhino in one protected area is a cause of concern and conservation of existing and potential rhino habitats need to be made a national priority.
- It also calls for strengthening protection, having dedicated research and monitoring and strict enforcement.

8.4 Cloud seeding in Karnataka for two monsoons

Context:

- Karnataka government has decided to use cloud seeding operations to enhance rainfall during the monsoons of 2019 and 2020.
- Karnataka is currently facing a drought-like situation. Through cloud seeding, the State government is hoping to influence the upcoming monsoon and capture as much water as possible.

Cloud Seeding:

- Cloud seeding is the process of spreading either dry ice or more commonly, silver iodide aerosols, into the upper part of clouds to try to stimulate the precipitation process and form rain. Cloud seeding uses planes to spray clouds with chemicals to condense smaller particles into larger rain droplets.

Methods:

- **Hygroscopic cloud seeding** disperses salts through flares or explosives in the lower portions of clouds. The salts grow in size as water joins with them.
- **Static cloud seeding** involves spreading a chemical like silver iodide into clouds. The silver iodide provides a crystal around which moisture can condense.
- **Dynamic cloud seeding** aims to boost vertical air currents, which encourages more water to pass through the clouds, translating into more rain.

Advantages:

- **Agriculture:** It creates rain, providing relief to drought-stricken areas. E.g.: 'Project Varshadhari' in Karnataka in 2017.
- **Power Generation:** Cloud seeding experiments have shown to augment production of hydroelectric during the last 40 years in Tasmania, Australia.
- **Water Pollution Control:** Cloud seeding can help to maintain minimum summer flows of the rivers and dilute the impact of treated wastewater discharges from municipalities and industries.
- **Fog Dispersal, Hail Suppression, and Cyclone Modification:** During the winter the cloud seeding programme is used to increase the mountain snowpack so that additional runoff is received during the spring melt season.
- "Project Sky Water" of U.S.A. in 1962 for weather modification through cloud seeding aimed at fog dispersal, hail suppression, and cyclone modification.
- **Tackle Air Pollution:** Cloud seeding can potentially be used to settle down toxic air pollutants through the rain. E.g.: Recently, Central Pollution Control Board along with other researchers mulled the use of cloud seeding to tackle Delhi's air pollution.
- **Tourism:** Cloud seeding can transform typically dry areas much more hospitable to enhance tourism.

Disadvantages:

- **Potential Side-effects:** The chemicals used in cloud seeding might be potentially harmful to

plants, animals, and people, or the environment.

- **Abnormal Weather Patterns:** it might ultimately change climatic patterns on the planet. Places that normally receive moisture might start experiencing drought due to the artificial process of adding chemicals to the atmosphere to stimulate rain.
- **Costly:** It involves processes such as delivering chemicals to the sky and releasing them into the air by flare shots or airplanes, which involves huge costs and logistic preparation.
- **Pollution:** As the artificial rain falls, seeding agents like silver iodide, dry ice or salt will also fall. Residual silver discovered in places near cloud-seeding projects are considered toxic. As for dry ice, it can also be a source of greenhouse gas that contributes to global warming, as it is basically carbon dioxide.

8.5 Despite objections, Bannerghatta National Park's Eco-Sensitive Zone curtailed

Context:

- The Eco-Sensitive Zone (ESZ) Expert Committee of the Ministry of Environment and Forests (MOEF), has recommended the reduction of nearly 100 sq. km in the ESZ of Bannerghatta National Park.
- ESZ provides a **regulated buffer zone** around protected areas.
- The fear is that this reduction would lead to more quarrying in the area.
- However, there is a **Supreme Court ruling prohibiting quarrying and mining activities within 1km of protected areas irrespective of the ESZ distance.**
- Therefore, the **'safe zone' of 1 km** around protected areas is already in place across the country.
- Other **'development' activities** apart from mining and quarrying can take place, which can have an **adverse impact on forests.**
- **'Red list'** comprises villages that are adjacent to the forest and are highly eco-sensitive.

Bannerghatta National Park:

- The Bannerghatta National Park is located near **Bangalore in Karnataka.**
- Wildlife such as elephants, gaur, leopard, jackal, fox, wild boar, sloth bear, Sambar, Chital, spotted deer, barking deer, common langur, bonnet macaque, porcupine, and hares are found in abundance.
- The Bannerghatta Biological Park has been an integral part of Bannerghatta National Park.
- It emerged out as an **independent establishment during the year 2002.**
- Bannerghatta Biological Park is one among the few places in the world where wilderness is preserved so close to a big city. It is having different units such as Zoo, Safari, Butterfly Park and Rescue Center (Conservation of captive animals).

Ministry of Environment and Forests say about the buffer zone:

- The Ministry of Environment and Forests does allow for buffer zone to be reduced to 100 meters in densely populated areas, and this makes sense in the context of the northern edge where Bengaluru lies.
- But, there is no logical reason, apart from vested interests, to exclude villages with low built-up area in the central and southern boundaries of the park.
- Considering the reduction of the ESZ the buffer zone will do little in protecting the area, or the elephants that either uses it as a refuge or as a transit passage.
- However, the study is based on the initial draft that put the ESZ at 269 square km, which has been cut down by a third to just 181.57 square km.
- Bannerghatta National Park is the first of 21 urban forests to be looked at by the researcher.
- The findings will be presented to the Supreme Court, which is hearing the matter on eco-sensitive zones.

- Protecting this meager buffer zone may be more than a challenge, finds the study. While the BDA's master plan mentions the ESZ and recommends a status quo, major transit projects that are being planned or being implemented are threats.
- The four-laning of Kanakapura Road, the metro on Bannerghatta Road till Gottigere and suburban lines connecting Bidadi and Ramanagaram will see land prices shoot up and more real estate projects.

Ecologically Sensitive Zones:

- Eco-Sensitive Zones (ESZs) or Ecologically Fragile Areas (EFAs) are areas notified by the Ministry of Environment, Forests and Climate Change (MoEF&CC), Government of India around Protected Areas, National Parks and Wildlife Sanctuaries.
- The purpose of declaring ESZs is to create some kind of "shock absorbers" to the protected areas by regulating and managing the activities around such areas.
- They also act as a transition zone from areas of high protection to areas involving lesser protection.
- An ESZ could go up to 10 kilometers around a protected area as provided in the Wildlife Conservation Strategy, 2002.
- Moreover, in case where sensitive corridors, connectivity and ecologically important patches, crucial for landscape linkage, are beyond 10 kilometers width, these should be included in the Eco-Sensitive Zones.
- Further, even in the context of a particular Protected Area, the distribution of an area of ESZ and the extent of regulation may not be uniform all around and it could be of variable width and extent.

Buffer Zones:

- Buffer Zones are the areas peripheral to a national park or equivalent reserve, where restrictions are placed upon resource use or special development measures are undertaken to enhance the conservation values of the area.
- Many authors agree that the term buffer zone became widely used with the Man and the Biosphere (MAB) program and the Biosphere Reserves (BRs) in the 1970s.

8.6 'Do forest surveys separately'

Context:

- A high-power committee of Ministry of Environment, Forest and Climate Change (MoEF&CC) recommended that Forest Surveys should explicitly demarcate trees grown in forests from those grown outside, that is, in plantations and private lands.
- The government also includes substantial patches of trees outside areas designated as forests, such as plantations or Greenlands, in its assessment.
- Forest Surveys (the biennial exercise by the government to estimate forest cover) count both plantations and private lands towards estimating the portion of India's geographical area covered by forest.
- Including both is not ecologically sound.
- Getting India to have at least 33% of its area under forest is a long-standing goal of the government since 1988.
- Various editions of the SFR have over the years reported the area under forests as hovering around 21%.

India State of Forest Report (SFR) 2017:

- A marginal 0.21% rise in the area under forest between 2015 and 2017.
- India has about 7,08,273 sq. km. of forest(include Tree cover), which is 21.53% of the geographic

area of the country (32,87,569 sq. km.).

- The total tree cover, according to this assessment, was 93,815 sq. km. or a 2% rise from approximately 92,500 sq. km. in 2015.
- Tree Cover improved from 2.82%(2015) to 2.95%(2017) of India's geographic area.

Forest Survey of India (FSI):

- Forest Survey of India (FSI), is a premier national organization under the Union Ministry of Environment and Forests, responsible for assessment and monitoring of the forest resources of the country regularly.
- The Ministry of Environment, Forest & Climate Change defines - 'Forest cover' in India as "all lands, more than one hectare in area with a tree canopy density of more than 10%".
- 'Tree cover' is defined as "tree patches outside recorded forest areas exclusive of forest cover and less than the minimum mappable area of one hectare".

8.7 ENSO Diagnostic Discussion

Context:

- US weather agencies have forecasted that there is a **60% chance of El Nino this summer season.**
- The forecast if turn out to be true could negatively affect India's Monsoon season.

El Nino:

- **El Nino refers to the unusual warming of the central and east-central equatorial Pacific Ocean which affects global weather.** The warmer waters of the Pacific Ocean cause the winds in various regions to reverse, like the trade winds that come towards India.
- This **change of wind direction leads to warmer winters and summers and a decrease in rainfall during the monsoon.** Most of the time, it also leads to drought.
- **There is also an opposite of an El Niño, called La Niña means The Little Girl in Spanish.** This refers to times when waters of the tropical eastern Pacific are colder than normal and trade winds blow more strongly than usual.
- Collectively, El Niño and La Niña are parts of an oscillation in the ocean-atmosphere system called the El Niño-Southern Oscillation, or ENSO cycle.

Impact of El Nino

- El Nino affects global weather. It **favors eastern Pacific hurricanes and tropical storms.**
- Recorded **unusual rainfall in Peru, Chile, and Ecuador are linked to the climate pattern.**
- El Nino reduces the upwelling of cold water, decreasing the uplift of nutrients from the bottom of the ocean. This affects marine life and sea birds. The fishing industry is also affected.
- **Drought caused by El Nino can be widespread, affecting southern Africa, India, Southeast Asia, Australia, and the Pacific Islands.** Countries dependent on agriculture are affected.
- WHO report on the health consequences of **El Nino forecasts a rise in vector-borne diseases,** including those spread by mosquitoes, in Central and South America. Cycles of malaria in India are also linked to El Nino.

Over India, the El Nino has usually been the harbinger of drought and the La Nina of rain.

WHAT ARE EL NINO & LA NINA YEARS

El Nino year

An irregular event of abnormal warming of eastern Pacific waters. Occurs at intervals of two to seven years

How It Hits Indian Monsoon | Area of rising warm air/rain shifts towards central/east Pacific. This warm air current subsides over Indian Ocean/India's mainland, creating high pressure that keeps rain away



La Nina year

A cold episode that usually follows the warm El Nino phenomenon. The warm equatorial ridge cools, between coasts of South America and Oceania

How It Helps Indian Monsoon | Warm air/high rainfall region in west Pacific reinforces monsoon winds, invigorating rains over India

8.8 Global energy demands continue to rise at breathtaking pace

Context:

- Recently the International Energy Agency (IEA) has released its second **Global Energy and CO₂ Status Report** which provides a snapshot of global trends and developments across fuels, renewable sources, and energy efficiency and carbon emissions, in 2018.
- This is for the **first time** that the IEA assessed the **impact of fossil fuel use on global temperature increases**.
- It found that CO₂ emitted from coal combustion was responsible for over 0.3°C of the 1°C increase in global average annual surface temperatures above pre-industrial levels.
- This makes **coal the single largest source of global temperature increase**.
- The **first edition** of this report was **released in 2017**.

Global Findings:

- Global energy consumption in 2018 **increased at nearly twice the average rate of growth since 2010**, driven by a **robust global economy (expanded by 3.7% in 2018)** and **higher heating and cooling needs** in some parts of the world.
- **China, the United States, and India** together accounted for **nearly 70% of the rise in energy demand**. These countries also accounted for **85% of the net increase in emissions**.

- **Emissions declined** for Germany, Japan, Mexico, France and the United Kingdom.
- **Weather conditions in 2018** were also responsible for increase in global energy demand as average winter and summer temperatures in **some regions approached or exceeded historical records**.
- The **CO₂ emissions stagnated between 2014 and 2016**, even as the global economy continued to expand.
- This decoupling was primarily the result of strong energy efficiency improvements and low-carbon technology deployment, leading to a decline in coal demand.
- But the dynamics changed in 2017 and 2018. Higher **economic growth was not met by higher energy productivity**, lower-carbon options did not scale fast enough to meet the rise in demand.
- The **natural gas which emerged as the fuel of choice for the year 2018**, accounting for nearly 45% of the increase in total energy demand.
- Demand for all fuels rose, with fossil fuels meeting nearly 70% of the growth for the second year running.
- Renewables grew at double-digit pace, but still not fast enough to meet the increase in demand for electricity around the world.
- Nuclear also grew by 3.3% in 2018, mainly as a result of new capacity in China and the restart of reactors in Japan. Worldwide, nuclear generation met 7% of the increase in energy demand.

India Specific Findings:

- India's **energy demand outpaced global demand growth in 2018**.
- India emitted 2,299 million tonnes of carbon dioxide in 2018, a 4.8% rise from 2018 **led by coal (power generation) and oil (transport), the two biggest contributors to pollution**.
- Although the **nation's per capita release remained low at 40% of the global average**.
- India's emissions growth in 2018 was higher than that of the United States and China — the two biggest emitters in the world — and this was **primarily due to a rise in coal consumption**.
- India's energy intensity improvement declined 3% from 2018 even as its renewable energy installations increased 10.6% from 2018.
- It can be noted that as per its commitments to the United Nations Framework Convention on Climate Change, India has promised to reduce the emissions intensity of its economy by 2030, compared to 2005 levels.
- It has also **committed to having 40% of its energy from renewable sources by 2030** and, as part of this, install 100 GW of solar power by 2022.
- These findings raise **questions about the effectiveness of the global fight against climate change amid rising energy demand**.

8.9 Govt amends hazardous and other wastes rules

Context:

- In order to strengthen the implementation of environmentally sound management of hazardous waste in the country, the Ministry of Environment, Forest and Climate Change has amended the Hazardous and Other Wastes (Management & Transboundary Movement) Rules, 2016.

Salient features of the Hazardous and Other Wastes (Management & Transboundary Movement) Amendment Rules, 2019:

- Solid plastic waste has been prohibited from import into the country including in Special Economic Zones (SEZ) and by Export Oriented Units (EOU).
- Exporters of silk waste have now been given exemption from requiring permission from the Ministry of Environment, Forest and Climate Change.
- Electrical and electronic assemblies and components manufactured in and exported from India, if

found defective can now be imported back into the country, within a year of export, without obtaining permission from the Ministry of Environment, Forest and Climate Change.

- Industries which do not require consent under Water (Prevention and Control of Pollution) Act 1974 and Air (Prevention and Control of Pollution) Act 1981, are now exempted from requiring authorization also under the Hazardous and Other Wastes (Management & Transboundary Movement) Rules, 2016, provided that hazardous and other wastes generated by such industries are handed over to the authorized actual users, waste collectors or disposal facilities.

- India's imports of solid plastic waste quadrupled (increased fourfold) from 12,000 tonnes in the fiscal year 2016-17 to 48,000 tonnes in FY 2017-18.
- India banned the import of plastic waste – particularly PET bottles – in 2015 because of an inability to recycle them.
- Experts suggest that most of the plastic waste does not make it to the recycling centres due to lack of an efficient waste segregation and inadequate collection.
- However, the Centre allowed agencies in special economic zones (SEZ) to import them in 2016. This was the legal loophole which led to an influx of PET bottles into the country.

PET Bottles:

- PET, which stands for polyethylene terephthalate, is a form of polyester (just like the clothing fabric). It is extruded or molded into plastic bottles and containers for packaging foods and beverages, etc.
- It is highly valued packaging material because it is strong yet lightweight, non-reactive, economical, and shatterproof.
- Moreover, China, which was once a major global importer of plastic waste for recycling, had recently banned imports and therefore plastic wastes could be making their way to India instead.
- Plastic unsuitable for recycling is burnt, which releases toxic chemicals into the atmosphere. Or it ends up in landfill, potentially contaminating soil and water sources.
- Plastic Waste in India
- Before China banned the import of plastic waste, India was the 10th largest importer of plastic scrap. However, there was a “substantial increase” in import which shows that India has emerged as one of the alternatives for recycling plastic waste.
- India recycles a higher percentage of plastic waste internally than other, richer countries.
- A 2012 study found that 56% of plastic waste produced in India is recycled.
- The process of collecting and separating plastic waste is largely an informal sector activity, providing employment to many.
- However, concerns remain regarding the widespread usage of plastic. Experts say while recycling is a good practice, the focus must remain on reducing usage.
- While several states have indeed banned the usage of plastic bags, the regulations soon come undone.
- Maharashtra's ban on plastic items failed because of intense lobbying, lack of alternatives and also damage to the livelihood of those depending on manufacturing plastic and collecting plastic waste.

8.10 Govt Approves A National Mission On E-Mobility To Boost EV Manufacturing

Context:

- Union Cabinet has approved setting up of a National Mission on Transformative Mobility and Battery Storage.
- The objective is to promote clean, connected, shared, sustainable and holistic mobility initiatives; Phased Manufacturing Programme (PMP) valid for 5 years until 2024.
- The multi-disciplinary “National Mission on Transformative Mobility and Battery Storage” with an Inter-Ministerial Steering Committee will be chaired by CEO NITI Aayog.
- The Mission will recommend and drive the strategies for transformative mobility and Phased Manufacturing Programmes for Electric Vehicles, EV Components and Batteries.
- A Phased Manufacturing Program (PMP) will be launched to localize production across the entire EV value chain.
- The National Mission on Transformative Mobility and Battery Storage will determine the PMP and will finalize the details of such a program.
- The details of the value addition that can be achieved with each phase of localization will be finalized by the Mission with a clear Make in India strategy for the electric vehicle components as well as battery.
- The Mission will coordinate with key stakeholders in Ministries/ Departments and the states to integrate various initiatives to transform mobility in India.

Roadmap:

- A phased roadmap to implement battery manufacturing at Giga-scale will be considered with an initial focus on the large-scale module and pack assembly plants by 2019-20, followed by integrated cell manufacturing by 2021-22.
- Details of the PMP for Batteries shall be formulated by the Mission. The Mission will ensure holistic and comprehensive growth of the battery manufacturing industry in India.
- The Mission will prepare the roadmap that will enable India to leverage upon its size and scale to produce innovative, competitive multi-modal mobility solutions that can be deployed globally in diverse contexts.
- The Mission will define the roadmap for transformative mobility in “New India” by introducing a sustainable mobility ecosystem and fostering Make-in-India to boost domestic manufacturing and employment generation in the country.

Impact:s

- The Mission will drive mobility solutions that will bring in significant benefits to the industry, economy, and country.
- These solutions will help improve air quality in cities along with reducing India’s oil import dependence and enhance the uptake of renewable energy and storage solutions.
- The Mission will lay down the strategy and roadmap which will enable India to leverage upon its size and scale to develop a competitive domestic manufacturing ecosystem for electric mobility.
- The actions in this regard will benefit all citizens as the aim is to promote ‘Ease of Living’ and enhance the quality of life of our citizens and also provide employment opportunities through ‘Make-in-India’ across a range of skillsets.

- Mobility has the potential to drive the economy forward and positively impact the lives of citizens both in urban and rural areas.
- Affordable, accessible, inclusive and safe mobility solutions are primary strategic levers for rapid economic development and improving ‘Ease of Living’.
- Given its commitment to climate goals, India needs to adopt effective

strategies to place itself as a key driver of the mobility revolution in the world.

Need for EVs in India:

- Rapid urbanization has increased the demand for energy and transport infrastructure.
- India's commitment to addressing the issue of climate change necessitates the adoption of alternative fuels for environmental sustainability.
- The shift towards renewable energy sources has led to cost reduction from better electricity generating technologies.
- Advances in battery technology have led to higher energy densities, faster charging and reduced battery degradation from charging.
- High expenses on oil import in the changing geopolitical conditions require India to ensure its energy security by moving towards alternative energy sources.
- Factors hindering the development of the EV industry in India
- Lack of a stable policy for EV production: Profit determination becomes uncertain considering the high capital costs and the uncertainty in policies related to EV production. This discourages investment in the industry.
- Lack of associated infrastructural support: The lack of clarity over AC versus DC charging stations, grid stability and range anxiety (fear that battery will soon run out of power) are other factors that hinder the growth of EV industry.
- Domestic factors affecting EV production: India does not have any known reserve of lithium and cobalt, it is dependent on countries like Japan and China for the import of lithium-ion batteries. Rupee depreciation has also negatively affected such imports.
- Lack of skilled workers: EVs have higher servicing costs and higher levels of skills is needed for servicing. India lacks dedicated training courses for such skill development.

8.11 New island rules make green activists worried

Context:

- The Union Ministry of Environment, Forest and Climate Change has notified Island Protection Zone (IPZ) 2019 for Andaman and Nicobar.

Purpose:

- Changes in the IPZ are aligned with the Niti Aayog's proposal for holistic development in the Islands.
- The government's planning to open up the blue economy and sustainable harnessing of ocean resources.

IPZ 2019:

- It allows eco-tourism projects 20 meters from the high tide line (HTL) in smaller islands like Baratang, Havelock, and Car Nicobar.
- In case of larger islands, 50 meters from the HTL is permitted.
- It allows for eco-tourism activities like mangrove walks, tree huts and nature trails in island coastal regulation zone(ICRZ) IA (ICRZ 2018: ICRZ IA, provides areas classified as the most eco-sensitive region of the islands which includes turtle nesting grounds, marshes, coral reefs etc)
- The notification also allows for construction of roads, roads on stilts by reclaiming land in exceptional cases for defense installations, public utilities or strategic purposes in eco-sensitive zones.
- In case construction of such roads pass through mangroves, a minimum three times the mangrove area destroyed during the construction process shall be taken up for compensatory plantation of mangroves elsewhere.

Concerns:

- It brings the norms for Andaman and Nicobar at par with Coastal Regulation Zone (CRZ) 2018 norms for other islands close to the mainland and backwater islands where a No Development Zone (NDZ) is only 20 meters from HTL.
- Previously, IPZ 2011 stipulated **an NDZ of 200 meters** from the HTL for all islands.
- **Only pipelines, transmission lines, trans-harbor links** to be laid in the eco-sensitive zone were permitted. **Now road construction is allowed.**

- **High tide line (HTL)** is defined as line up to which highest high tide reaches in spring tides.
- It is delineated by walking over or remote sensing data or by helicopter survey.
- The **Low Tide Line (LTL)** is the limit up to which the lowest low tide recedes during spring tide.

8.12 Orang National Park

- The Orang National Park also known as **Rajiv Gandhi Orang National Park** is located on the north bank of the Brahmaputra River in the Darrang and Sonitpur districts of Assam and covers an area of 78.81 square kilometers.
- It was established as a wildlife sanctuary in 1985 but was declared as National Park in 1999. **It is also 49th Tiger Reserve of the country**, being notified in 2016.
- It is **also known as the mini Kaziranga National Park (IUCN site)** since the two parks have a similar landscape made up of marshes, streams, and grasslands.
- It is the only stronghold of rhinoceros on the north bank of the Brahmaputra river.
- As per the latest round of Tiger estimation carried by the National Tiger Conservation Authority (NTCA) between January to March 2017, Orang's tiger density is 35.44 tigers per 100 sq km and thus can replace 'Kaziranga National Park' as a park with highest Tiger density in the country.
- Kaziranga has the highest Tiger density of 12.72 per 100 sq km in 2014.
- **Kamlang Tiger Reserve in Arunachal Pradesh is the 50th latest Tiger Reserve that has been notified.**

8.13 Rare brown mongoose found in tiger reserve

- An Indian brown mongoose (*Herpestes fuscus*) has been seen at the **Biligiri ranganabetta tiger reserve (BRT) in Chamarajanagar district, Karnataka.**
- This is the first time this species has been seen outside Virajpet Taluk in Karnataka.
- Indian brown mongoose has a dark brown coat with fine strips and black legs.
- **All mongoose species found in India are protected under Schedule II (Part II) of the Indian Wildlife (Protection) Act, 1972**, which prohibits all trade of animals listed in it. IUCN Status is the **least concern.**
- Chamarajanagar district is the only district in India which has three Tiger Reserves-Bandipur Tiger Reserve, Biligiri ranganabetta Tiger Reserve (BRT) and Malai Mahadeshwara Tiger Reserve.

8.14 Starry dwarf frog

Context:

- Starry dwarf frog- a **thumbnail-sized** species was recently discovered in India's **Western Ghats**, one of the world's "hottest" biodiversity hotspots.

Spotlight

- Scientists have named the frog **Astrobatrachus kurichiyana** for its constellation-like markings

and the indigenous people of **Kurichiyarmala, the hill range** where it was found.

- **Kurichiyana** is not only a new species to science. It's the sole member of an **ancient lineage**, a long branch on the frog tree of life that researchers have classified as a new subfamily, **Astrobatrachinae**.
- Dark brown with a bright orange underbelly and speckled with pale blue dots, the frog camouflages well in wet leaf litter, and only a few individuals have been found.

Cool-spots

- 'Cool-spots' are the **world's last refuges** where high numbers of **threatened species** still persist. Cool-spots could be the result of protection or because of **intact habitat** that has not been cleared yet.

8.15 Stubble burning

- Only by **educating** farmers about the **monetary costs of burning stubble** can address the environmental crisis triggered every year in Punjab, says a team of **Swiss and Indian researchers** who interviewed 600 farmers over two years.

Observations

- **According to the team**, the government's efforts earmarking funds for specialised farming equipment (for straw management) or enforcing the state-led ban on the practice are **unlikely** to solve the problem.
- **Farmer cooperative groups** - a key link between government and farmers, ought to be playing a more active role in educating farmers.

Stubble burning:

- **Stubble burning** is a common practice followed by farmers in the neighboring states of **Haryana and Punjab** to prepare fields for sowing of wheat in November as there is **little time left** between the harvesting of paddy and sowing of wheat.
- Stubble burning results in emission of **harmful gases** such carbon dioxide, sulphur dioxide, nitrogen dioxide along with particulate matter.

Advantages of stubble burning:

- It **quickly** clears the field and is the cheapest alternative.
- **Kills weeds**, including those resistant to herbicide.
- **Kills slugs** and other pests.
- Can **reduce** nitrogen tie-up.

Issues related to stubble burning:

- Stubble burning is **adversely** affecting environment and public health.
- The problem has **not been fully tackled** and the adverse impacts on the **air quality and consequent impacts** on the citizens' health and lives are undisputed.

Observations of Supreme Court

- The problem is required to be resolved by taking all such measures as are possible in the interest of public health and environment protection.
- **Incentives could be provided to those who are not burning the stubble and disincentives for those who continue the practice.**
- The existing Minimum Support Price (MSP) Scheme must be so interpreted as to enable the States concerned to **wholly or partly deny** the benefit of MSP to those who continue to burn the crop residue.
- Secretary, Union Ministry of Agriculture and Farmers' Welfare has also been directed to be present to **"find a lasting solution."**
- The Central government should convene a meeting with the States.

8.16 Vaquita Porpoise

- Recently a dead **Vaquita Porpoise** was found in a fishnet off the **coast of Mexico**.
- It is **critically endangered (IUCN) marine animal** of which only about 10 remain in the world.
- It is also known as "**the panda of the sea**" for the **distinctive black circles around its eyes**.
- Vaquita Porpoises are among the **ocean's smallest cetaceans** and they only **reside in the northern Gulf of California**.
- The Cetaceans are one of the most **distinctive and highly specialized aquatic mammals**. They include **blue whale, dolphins, blind river dolphins, Porpoise, etc**.
- The vaquitas are threatened primarily by **gillnet fishing for the totoaba fish**, another endangered species in the area that is hunted for its swim bladder, considered a delicacy in China. Dried totoaba bladders are often smuggled through the United States to China.
- Therefore, the **conservation of Vaquita primarily rests with US, China and Mexico**.

8.17 West Nile Virus (WNV)

Context:

- Health Ministry takes stock of the public health measures for controlling **West Nile Virus**. A section of the media has reported that a seven year old boy from **Malappuram District of Kerala** is suffering from a West Nile Virus (WNV).

West Nile Virus (WNV):

- West Nile Virus (WNV) is a member of the **flavivirus genus** and belongs to the **Japanese encephalitis antigenic complex** of the family **Flaviviridae**.
- West Nile Virus (WNV) can cause **neurological disease and death in people**. WNV is commonly found in **Africa, Europe, the Middle East, North America and West Asia**.
- WNV is maintained in nature in a cycle involving transmission between **birds and mosquitoes**. **Humans, horses and other mammals** can be infected.

Mode of Transmission:

- Human infection is most often the **result of bites from infected mosquitoes**. Mosquitoes become infected when they feed on infected birds, which circulate the virus in their blood for a few days. The virus eventually gets into the **mosquito's salivary glands**. During later blood meals (when mosquitoes bite), the virus may be **injected into humans and animals**, where it can multiply and possibly cause illness.
- The virus may also be transmitted through contact with other **infected animals, their blood, or other tissues**. A very small proportion of human infections have occurred through **organ transplant, blood transfusions and breast milk**. There is one reported case of transplacental (**mother-to-child**) WNV transmission.
- **Horses**, just like humans, are "**dead-end**" hosts, meaning that while they become infected, they **do not spread the infection**. Symptomatic infections in horses are also **rare and generally mild**, but can cause **neurologic disease**, including **fatal encephalomyelitis**.

Symptoms:

- Infection with WNV is **either asymptomatic (no symptoms) in around 80% of infected people**, or can lead to **West Nile fever** or severe **West Nile disease**.
- About **20% of people who become infected** with WNV will develop West Nile fever. Symptoms include fever, headache, tiredness, and body aches, nausea, vomiting, occasionally with a skin rash (on the trunk of the body) and **swollen lymph glands**.
- The symptoms of severe disease (also called **neuroinvasive disease**, such as West Nile encephalitis or meningitis or West Nile poliomyelitis) include headache, high fever, neck stiffness,

stupor, disorientation, coma, tremors, convulsions, muscle weakness, and paralysis.

Treatment and Vaccination:

- Treatment is supportive for patients with **neuro-invasive West Nile virus**, often involving hospitalization, intravenous fluids, respiratory support, and prevention of secondary infections.
- **No vaccine is available for humans.**

8.18 Why are fires frequent at the Bandipur reserve?

- There are concerns about the long-term damage to the ecosystem, which is a part of the Nilgiri Biosphere that hosts the world's largest tiger population, at more than 575 (2014 census).
- The **country's forest policy encourages a zero forest fire approach for its protected landscapes** — whether it is Bandipur or the rainforests of the upper Western Ghats.
- However, Scientist has shown that this blanket approach of zero fire may be doing harm to dry, deciduous forests where trees have evolved to co-exist with fire.

Causes:

- The 2018 monsoon was particularly strong, but the year-end northeast monsoon has failed.
- The **monsoon led to dense growth**, while the blistering **heat since September has turned vegetation brittle and dry.**
- As with most forest fires, it is assumed that **Bandipur's ignition was also man-made.**

+ve Impact of forest fire:

- **Healthy Ecosystem**
- Scientists have said that, **when fires are relatively frequent, adult tree mortality in these systems is very low.**
- Many saplings sprout shortly after the fire from underground reserves, and the system returns to its original state in a few years.
- Conversely, when fires are suppressed — including by curbing the tribal practices of controlled fire burning — greater biomass builds up that can lead to high-intensity fires which affect the ecosystem negatively.
- Moreover, there might be a correlation between fire suppression and growth of forest fire incidents.
- **Curbing Invasive Species**
- **Forest fires also help in suppressing invasive species.**
- Scientists have said that that the exclusion of tribal communities from the tiger reserves in Karnataka had, in turn, stopped their traditional use of small “litter fires” just before the dry season set in.
- **This has led to the abundance of invasive *lantana camara* plant which is native to America.**
- **Hairy mistletoe** — a parasitic shrub that affects mature trees — has also thrived due to fire suppression.