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EPIC!

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of ForumIAS Academy*

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PREPARATION

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The Eight Edition

Dear Forumites,

What you are about to read is the eight edition (December edition) of EPIC! Magazine. As we end the Mains 2020 exams and enter the 2021 examination phase, every aspirant must understand the importance of this transitional period. Ceasing this crucial moment will help us to move closer to our target of clearing this exam. For maximizing the opportunities, the two-part format of EPIC! i.e. the Mains Magazine and the Factly, provides a segregated yet complete coverage of current affairs for civil services preparations.

Aggregating the various view points from our 9PM and 7PM initiatives, this edition contains interesting analysis of recently held SCO meeting, idea of horizontal reservations, the vaccine policy of India etc. The Factly section contains all the relevant information/facts of current affairs required for the preliminary examination 2021.

Our community and student engagement are the source of inspiration in our relentless pursuit of simplifying civil services preparations. You can contribute to the topic list/provide your feedback by writing to us at feedback@forumias.academy.

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SHOWCASE ARTICLE

Fiscal Federalism

Syllabus: GS II: Separation of Powers between various organs Dispute Redressal Mechanisms and Institutions.

In News: Centre-state friction over GST compensation payments issue under the Goods and Services Tax (GST) has brought the issue of fiscal federalism to the fore.

Fiscal federalism:

- Fiscal federalism refers to the **financial relations between the country's federal government system and other units of government**. It is the study of how expenditure and revenue are allocated across different vertical layers of the government administration.
- The Government of India Act 1919 and 1935 formalized the tenet of fiscal federalism and revenue sharing between the Centre and the states.
- Article 246 and Seventh Schedule of the Indian Constitution distributes powers and allots subjects to the Union and the states with a threefold classification type:
- **List I:** The Union is responsible for functions of national importance, including but not limited to communications, constitution, defense, elections, external affairs and organization of the Supreme Court and the High Courts.
- **List II:** States are responsible for touching on the life and welfare of the people, for instance, through public order, police force, agriculture, local government, public health, water land, etc.
- **List III:** The Concurrent list includes the administration of justice, economic and social planning, and more.

Changes in Fiscal Federalism in recent years:

- The abolition of the Planning Commission in January 2015 and the subsequent creation of the NITI Aayog.
- Fundamental changes in the system of revenue transfers from the centre to the states by providing higher tax devolution to the states from the fiscal year 2015-16 onwards based on the recommendations of the Fourteenth Finance Commission (14th FC)
- The Constitutional amendment to introduce the Goods and Services Tax (GST) and the establishment of the GST Council for the central and state governments to deliberate and jointly take decisions.
- **15th Finance Commission** has recommended 41% share for states from Centre's divisible pool in 2020-21 while making a special provision of 1% for the new Union territories of Jammu & Kashmir and Ladakh.
- It has recommended an allocation of Rs 28,983 crore for disaster risk management in 2020-21, in addition to disaster response funds through setting up of mitigation funds at both state and national level.
- However, the Commission has not yet set aside funds separately for defence spending needs. It said that a special committee will be set up to examine the same.

About Finance commission:

- The Finance Commission is constituted by the President under Article 280 of the Constitution mainly to give its recommendations on distribution of tax revenues between the Union and the States and amongst the States themselves.
- The Commission is appointed every five years. It consists of a Chairman and four other members.

Functions of Finance Commission

- It shall be the duty of the Commission to make recommendations to the President as to
- The distribution between the Union and the States of the net proceeds of taxes which are to be, or may be, divided between them under this Chapter and the allocation between the States of the respective shares of such proceeds.
- The principles which should govern the grants in aid of the revenues of the States out of the Consolidated Fund of India.
- Any other matter referred to the Commission by the President in the interests of sound finance.
- The Commission shall determine their procedure and shall have such powers in the performance of their functions as Parliament may by law confer on them.

Issues Under the Current Fiscal Federalism Structure:**Horizontal Imbalances:**

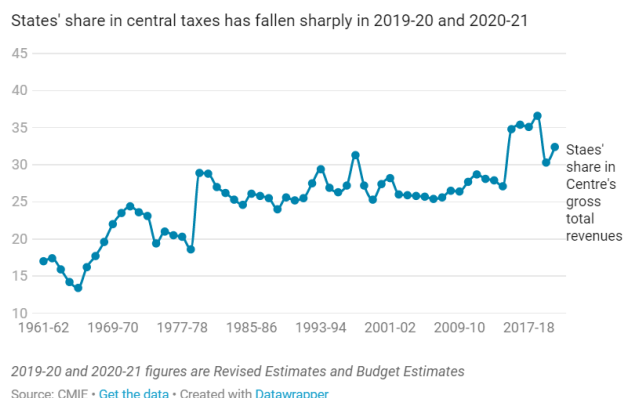
- Finance commissions, post 1990s, have essentially grown to become a vehicle for coercing states to implement fiscal reforms as part of economic liberalisation.
- The Terms of Reference of the 15th FC has exacerbated the imbalance process which, if implemented along with the Fiscal Responsibility and Budget Management Bill (henceforth, "FRBM") review committee recommendations, may potentially reduce the states' capacity to intervene in economic and social sectors.
- Abolition of Planning commission leave states solely reliable on the finance commission, which in turn, leads to a serious problem of increasing regional and sub-regional inequities.
- Also, **approximately 40% of the total transfers are still linked to conditional transfers**, which are largely linked to the Centrally Sponsored Schemes (CSS"). However, transfers made under the CSS are outside the Finance Commission's purview.
- The implementation of central flagship schemes is incentivized, whereas the state schemes are being controlled by classifying them as populist. This approach goes against the federal spirit and fails to abide by the Directive Principles of State Policy enshrined by the Indian Constitution.
- For example, the 7th provision of the ToR mandates the 15th FC to assess and monitor the performance of GST implementation and various other governance indicators. The added functionality of the Finance Commission as a **monitoring agency of the states' performance** goes against its constitutional role.

Vertical imbalances:

- The central government is given a much greater domain of taxation, with a collection of 60% of the total taxes, despite their expenditure responsibility only amounting to 40% of the total public expenditure.
- These imbalances are further exacerbated in cases of third tiers, comprising elected local bodies and panchayats.
- Vertical imbalances can have a hostile impact on India's urbanisation, the quality of local public goods, which thereby, would further aggravate the negative externalities for climate change and the environment.
- The introduction of the GST (Goods and Service Taxes) is a demonstrative example of the working of cooperative federalism.
- However, it is questionable as under article 279A of the Indian Constitution, **two-thirds of the voting rights belong to the states while the centre has one-third voting rights** at the GST Council.
- Also, almost 44% of the states' own tax revenue was subsumed under the GST as compared to 28% for the centre.

Issues related to 15th Finance commission:

- The Commission has reduced the vertical devolution the share of tax revenues that the Centre shares with the states from 42% to 41%.
- For example, Shares of the southern states, except Tamil Nadu, have fallen — with Karnataka losing the most.
- The population parameter used by the Commission has been criticised by the governments of the southern states.
- The use of 2011 population figures has resulted in states with larger populations like UP and Bihar getting larger shares, while smaller states with lower fertility rates have lost out.
- The previous FC used both the 1971 and the 2011 populations to calculate the states' shares, giving greater weight to the 1971 population (17.5%) as compared to the 2011 population (10%).
- The terms decided by the Commission are loaded against the more progressive (and prosperous) southern states.

**Falling tax buoyancy:**

- Data from Controller General of Accounts (CGA), which works under the ministry of finance, shows that tax buoyancy in India went into negative territory in 2019-20. This is a first since 1962-63.

- Tax buoyancy is the ratio of change in centre's gross total revenue and change in GDP. So, a negative tax buoyancy in a period of positive GDP growth implies that taxes actually fell even though GDP was rising.
- Tax buoyancy has fallen sharply between 2017-18 and 2019-20. It was 0.16 in 2016-17, 0.12 in 2017-18, 0.09 in 2018-19 and -0.05 in 2019-20.

Issue related to compensation cess:

- As per the GST (Compensation to States) Act, 2017, states are guaranteed compensation for revenue loss on account of implementation of GST for a transition period of five years (2017-2022).
- The compensation is calculated based on the difference between the current states' GST revenue and the protected revenue after estimating an annualised 14% growth rate from the base year of 2015-16.
- Any shortfall has to be compensated from the receipts of Compensation Cess imposed on selected commodities that attract a GST of 28 per cent.
- The Centre contends that only ₹97,000 crore of the revenue shortfall is from implementation of the GST, while ₹1.38-lakh crore is due to extraordinary circumstances posed by an 'Act of God' (The Covid-19 pandemic).
- Not compensating is **against cooperative federalism** as presenting a fait accompli to the States instead of negotiating a transition to a new compensation arrangement (the GST Council's meetings were initially based on a spirit of consensus creation), the Centre has jeopardised the future of the GST system.

Overuse and misutilization of Cess:

- It is a form of tax levied or collected by the government for the development or welfare of a particular service or sector.
- Cess is different from taxes such as income tax, GST, and excise duty etc as it is charged over and above the existing taxes. While all taxes go to the Consolidated Fund of India (CFI), cess may initially go to the CFI but has to be used for the purpose for which it was collected.
- Recently, the Comptroller and Auditor General of India (CAG) told Parliament that the **Centre has only transferred 60% of the proceeds from cess/levies in Fiscal Year 2018-19** to the relevant Reserve Funds and retained the balance in the Consolidated Fund of India (CFI).
- As per CAG, ₹1,24,399 crore collected as cess on crude oil over the last decade had not been transferred to the designated Reserve Fund i.e; the Oil Industry Development Board.
- The Goods and Services Tax (GST) Compensation Cess, which has become a bone of contention between the States and the Centre, was also 'short-credited' to the relevant reserve fund to the extent of ₹40,806 crore in 2018-19.
- **Article 270** of the Constitution allows cess to be excluded from the purview of the divisible pool of taxes that the Union government must share with the States.

Does India need a Fiscal council?

Fiscal Council: It is a proposed independent fiscal institution (IFI) promoting stable and sustainable public finance. It must be composed of non-elected professionals to ensure bipartisan support.

Functions:

- Unbiased reporting to parliament.
- Promoting accountability and transparency
- **Costing of budget, policies and programmes.** This discourages populist measures and raises awareness of people about their viability
- Developing **macroeconomic and budgetary projections**
- **Raising public awareness on budgetary constraints.**
- **Monitoring rules-based policies** and this improves the quality of legislative checks on executives. Extra budgetary financing and such practices will be discouraged due to this.
- Presenting **alternative policy options.**

Need of fiscal Council:

- **Lack of transparency and accountability in existing budgeting:** Fiscal deficit of 2019-20 as per CAG is 4.6% compared to revised estimate of 3.8%.
- Unrealistic targets of tax revenue and capital receipts.
- **Extra budgetary financing** not shown in deficit calculations. Example, Railways financing by borrowing from IRFC (Indian Railway Finance Corporation) and Irrigation financing by borrowing from LTIF (Long term Irrigation Fund) in NABARD
- **Tax Maladministration:** A 2017 CAG report found that the tax department had resorted to 'irregular' and 'unwarranted' methods to meet their tax targets.
- **Coordination between GST Council and Finance Commission:** currently there is no mechanism for such coordination.
- **To Limit the borrowings by the Central Government:** Article 293 provides a constitutional check over the borrowings by the State government but there is no such restriction on the Central government.
- To address these fiscal council is recommended by the **13th FC (Finance Commission), 14th FC and N.K. Singh panel** of FRBM review. 14th FC suggested such a council should report to parliament and must be autonomous.

Way forward:

- **Cooperative fiscal federalism instead of combative federalism:** Greater fiscal devolution to states.
- **Bring more clarity in relation to the treatment of grants outside the Commission's purview:** States need to be able to fulfill their promises upon which they were democratically elected, otherwise this can have detrimental effects not just on the fiscal federalism principles, but on the social and economic state by and large.
- **Address trust deficit:** The Centre needs to deliberate with the states and bridge the alarming trust deficit.
- **Reconsider FRBM limit:** The centre should allow the states to exceed the FRBM limit by more than 0.5 per cent of the SGDP, as a temporary relief.

- **Facilitate borrowing** by the states without affecting their debt to GDP ratios.
- **Fiscal decentralisation:** Of the 12% GST, 10% should be equally shared between the States and the Centre, and 2% must be earmarked exclusively for the urban and rural local bodies, which ensures some basic revenue autonomy to them.
- **Single rate GST:** There was an original recommendation of a standard rate of 12%, to be fixed for at least a five-year period. It reduces the need to do arbitrary classification and discretion, reduces litigation and will lead to buoyancy in collection. For example; Australia's GST rate which has been constant at 10%.
- **Widen the tax base:** GST should progressively include all goods (petroleum and alcohol) and services with very few exceptions, such as food and medicine.
- **Abolish inefficient cesses:** Cesses garnering collections below Rs.50 crore in a financial year are economically inefficient, add to the multiplicity of taxes and fuel cascading effects.
- **Recommendation by Punchi commission:**
 - A comprehensive review of all transfers to States with a view to minimizing the component of discretionary transfers, particularly those channelled through CSS.
 - The ToR of future Finance Commissions should be formulated in such a way that the additional commitments of States on account of pay revision are fully considered.

GENERAL STUDIES-1

Caste and the Count

Syllabus: Social Empowerment, Communalism, Regionalism & Secularism

In News: The idea of a caste census is back in the realm of public debate, following the Tamil Nadu government's decision to establish a commission to collect caste-wise data.

More in news:

- Caste census is in response to the restive pre-election agitation organised by the **Pattali Makkal Katchi** demanding 20% exclusive reservation in education and government jobs for the Vanniyar community which is main electoral base.
- The Commission will examine the **methodologies** being adopted for collecting caste-wise data.
- It would conduct a **survey** to collect such data and submit a report to the government.

Need of such step:

- To **reduce crowding out and bring clarity on exclusive reservation** as some caste that have either electoral or numerical importance across India have been restive about the manner in which affirmative action programmes based on classes and communities have been implemented so far.
- Social and legal necessity for compiling caste-wise data.
- To present the correct picture of socio-economic status of various castes in any particular state.

- To ensure that the **benefits of reservation** is reaching to any given caste.
- Comprehensive caste-based data will help to figure out the economic status of various castes in different states.
- For **better planning of welfare schemes** for the most backward castes based on their need and socio-economic conditions.
- To fulfil **people's aspiration** and ensure social justice. For example, in Tamil Nadu, sections of the Vanniyars, whose violent 1987-88 agitation resulted in the creation of a 'most backward classes' category entitled to 20% reservation, are apparently dissatisfied about being clubbed with over a hundred other castes.
- Political system and courts are still **using caste data from 1931 census**. This does not address the change and requirement of present time.
- To make available **authentic information** regarding the socio-economic condition and education status of various castes and sections of the population.
- It would help to identify hundreds of nomadic and excluded castes in India.
- At administrative level, it would help to manage **caste conflict**.

Caste census in India

In India, Caste is a social reality which determines one's social status and the limits of the social relations and opportunities for advancement in the life of an individual.

History of caste census

- The **first census of 1872** collected information about caste. The 1872 and 1881 censuses attempted to classify people fundamentally according to the varna system.
- In 1891 census, subdivision of major caste was introduced.
- In 1901 census, caste of only Hindus and Jains were recorded and in case of other religion name of tribe or race were recorded.
- In 1921 census, **the category of depressed classes** was used first time.
- In 1931 census, Column eight in the general schedule provided for an entry of 'caste tribe or race '.
- **Mandal commission** uses the data to 1931 census to define the criteria for OBC caste in India.
- The commission adopted 11 criteria which could be grouped under three major headings: social, educational and economic in order to identify OBCs.
- In 1941, **Second World War** starts so census was not fully done and data was not released.
- From the outset of 1872, there was never a formal definition of the census for caste, race or tribe. The recorded details changed in every census from 1872 to 1941.
- In post-independence India, caste was considered irrelevant. It was assumed that caste counting would further create divisions, so caste census was stopped since 1951.
- But Caste census of SC/STs continues as there were provisions in the constitution to give reservation
- In **2011 census, caste was not included due to logistical reason** despite of huge demand.
- Although, caste information was collected later through Socio-Economic and Caste Census, 2011.

SECC, 2011

- The Ministry of Rural Development commenced the Socio Economic and Caste Census (SECC) in June 2011 through a comprehensive door to door enumeration across the country.
- It has generated information on a large number of social and economic indicators relating to households across the country.
- The announcement for Caste count during 2011 Census has given rise to a big row among its supporters and opponents.

Challenges:

- It will give impetus to **Caste divisions** and its perpetuation in society.
- The other objection is regarding the **operational difficulty** in ascertaining the correctness of the caste claimed by a person as there is no such final list available with the Census authorities.
- Labelling persons as belonging to a caste tends to perpetuate the system.

Problem with SECC data on caste

- **Lack of reliability:** SECC 2011 data was criticized by few experts as it was not reliable. The methodology is not full proof and there are many errors and omissions in the draft data.
- **Poor preparedness:** Question about caste was included in BPL census (later SECC) without much preparation. **Hasty inclusion** of caste question has resulted in largely unusable data. The procedure of claim and objections are not properly followed.
- **Repetition:** The SECC asked interviewer to write down the name of the caste exactly as articulated by the respondent. This led to repetition of various castes as sometimes same caste is spelt in different ways.
- **Lack of focus on consolidation:** As per some reports, **SECC** has come out with 46 lakh categories of caste, sub-caste, synonyms, different surnames, gotras in the caste and clan names.
- **No confidentiality:** As far as reliability is concerned, it is not confidential like the census, so respondents could have skewed their answers to be eligible for schemes or due to several social reasons.

Way forward

- Government should **include the caste question in Census 2021**.
- Government should include advice from various corners to collect a flawless data on caste.
- The data and experience of SECC can be used to **develop a methodology** to collect desirable caste data.
- Government should make a **comprehensive list of castes** and condense them into meaningful categories via machine learning tools.
- These categories should be **validated by domain experts** such as Indian Council of Social Science Research (ICSSR)

WHAT HAPPENED TO 2011 CASTE CENSUS?

<ul style="list-style-type: none"> ➤ Following all-party consensus, UPA govt in 2011 decided to conduct a Caste Census, the first since 1931 ➤ Nearly ₹4,900 crore was spent on the Socio-Economic and Caste Census (SECC) ➤ In 2015, expert group was set up under then Niti Aayog vice-chairman to decide on classification and categorisation of SECC data ➤ In 2016, all data from SECC barring caste numbers was put in public domain. The caste data still remains unreleased ➤ In July 2017, the govt told 	<p>Parliament that raw caste data from SECC had been given to the social justice ministry, "who is to form the expert group for classification and categorisation of data"</p> <ul style="list-style-type: none"> ➤ One problem with the SECC data cited by experts is that it has thrown up 46 lakh castes, sub-castes, clan names and so on. Categorising these is a mammoth task ➤ To avoid this pitfall, enumerators in 2021 will be given a pre-decided list of castes so that they can ask households which of them they fall under
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- The accurate caste data is need of time to rationalize reservation policy and targeted distribution of welfare schemes and policies.

Collecting caste-wise data should seek to rationalise and deepen its **social justice** policy. A casteless and equal society should be government's goal along with knowing the true socio-economic status of each caste in India.

Arctic Sea Ice At Record Low

Syllabus: Physical Geography

In News: This year's Arctic sea ice cover shrank to the second lowest extent since modern record-keeping began in the late 1970s.

More in News

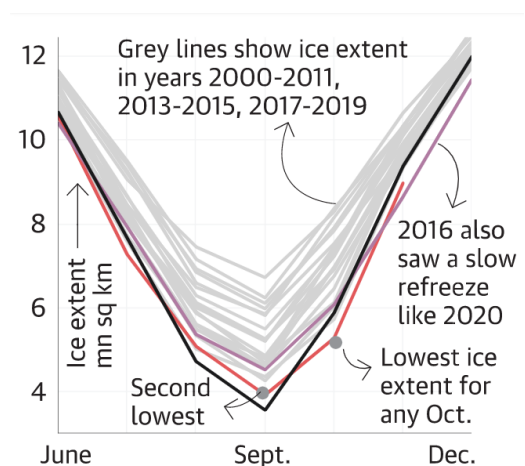
- After reaching the minimum extent on September 15, the ice grew back at a slower pace than usual due to the Arctic region's unusually warm October.
- Due to the slow refreeze after mid-September, the Arctic sea ice extent in October was the lowest on record for any October.

The Arctic region

The Arctic is a polar region located at the northernmost part of Earth. The Arctic consists of the Arctic Ocean, adjacent seas, and parts of Alaska (United States), Canada, Finland, Greenland (Denmark), Iceland, Norway, Russia, and Sweden.

State of Arctic melting

- Arctic sea ice has seen a decline in extent, volume and age since 1979.
- Arctic sea ice melt season has extended by 3 days per decade since 1979 due to earlier melt onset, and 7 days per decade due to later freeze-up.
- Arctic sea ice is also generally younger. Ice "at least five years old" declined from 30% to 2% between 1979 and 2018.
- **Arctic amplification:** Arctic surface air temperatures over the past two decades have increased at more than double the global average. This rapid phenomenon is known as "Arctic amplification". In part, it stems from the rapid loss of sea ice cover in the region resulting into decreasing albedo.
- **Greenland ice sheet** is currently losing mass at around twice the rate of its Antarctic counterpart. Melting in Greenland has increased up to five times greater than the level seen in preindustrial times becoming the largest terrestrial contributor to global sea level rise between 2005 and 2016.



Causes of higher melting

- **Siberian heat wave:** A Siberian heat wave in spring 2020 began this year's Arctic sea ice melt season early, and with Arctic temperatures being 14 to 18 degrees Fahrenheit (8 to 10 degrees Celsius) warmer than average, the ice extent kept declining.
- **Warm Atlantic water:** A recent study showed that warmer water from the Atlantic Ocean, which is typically deep below the colder Arctic waters, is creeping up closer to the bottom of the sea ice and warming it from below.
- **Early melting:** Melt early in the season results in more open water, which absorbs heat from the Sun and increases water temperatures. Warmer ocean temperatures eat away at the thicker multiyear ice, and also result in thinner ice to start the spring melt season.
- **Thinner ice:** Thin ice also melts quicker than thicker floes. Dramatic drops in sea ice extent in 2007 and 2012, along with generally declining summer extent, has led to fewer regions of thick, multi-year ice that has built up over multiple winters.

Effect of arctic melting

- **Change in the region's albedo:** The amount of solar radiation reflected off a surface is called as albedo.
 - Sea ice, in summer, reflects roughly 50 percent of incoming radiation back into space. Its replacement with open water (which reflects roughly 10 percent of incoming solar radiation) is causing a high albedo driven warming across the Arctic.
- **Increased wave actions:** With more of the Arctic Ocean becoming ice-free in summer, more waves are being generated. In summer, this increased wave action breaks up large ice floes into smaller fragments and hastens their melt.
- **Feeding larger storms:** In autumn, larger storms fed by open water cause wave-induced mixing of the Arctic Ocean, which brings up heat absorbed during the summer. This warms the water, making it harder for ice to form in the fall.
- **Increased melting of snow in Arctic terrestrial regions:** As ice-free Arctic waters have warmed, in turn warming the air above them, these rising temperatures have spread over land. This is an important factor in the increased melting of snow in Arctic terrestrial regions.
- **Run-off of north flowing rivers:** As the tundra and boreal forests heat up, runoff from snowmelt and waterways runs through warmer land, increasing the temperature of the great Arctic rivers such as the Mackenzie in Canada and the Ob, Lena, and Yenisei in Siberia. The warmer waters of these north-flowing rivers discharge into the Arctic basin, injecting more heat into the polar ocean.
- **More greenhouse in atmosphere:** As ocean and air temperatures in the Arctic rise, this adds more water vapor to the atmosphere, since warmer air holds more moisture. Water vapor is itself a greenhouse gas, trapping outgoing long-wave radiation and holding heat closer to the surface of the earth.
- **Release of seabed methane:** Warmer Arctic thaws the offshore permafrost that has been in place since the last Ice Age. Underneath it is a thick layer of sediment containing large amounts of methane in the form of solid methane hydrates; these have a cage-like crystal

structure in which methane molecules are surrounded by ice. Rising air temperatures over open Arctic waters in summer are also heating up the Greenland ice sheet.

- **Glacial advance:** The meltwater does not just remain on the surface to refreeze in autumn. It plunges down into the ice sheet through large holes called moulins, lubricating the ice sheet bed and causing glacial advance to accelerate.
- **Loss of biodiversity:** Locally, there's a high probability that ice-dependent species like polar bears and reindeer will experience a population decline as their food options disappear.
- **Alteration in regional weather:** In recent times, high temperatures have been recorded in the Siberian region, causing a prolonged heatwave, which have been attributed to absence of sea ice among other factors.
- **Mountain Slopes:** Retreating glaciers and thawing permafrost have already destabilized mountain slopes and there has been an increase in "wet snow" avalanches (water saturated snow).

Opportunities due to Arctic melting

- **Opening routes:** The melting of the ice is making the Northwest Passage, the shipping routes through the northernmost latitudes, more accessible. This will make the Arctic region a prime trade route.
 - The Northwest Passage (NWP) is the sea route between the Atlantic and Pacific oceans through the Arctic Ocean, along the northern coast of North America via waterways through the Canadian Arctic Archipelago. The eastern route along the Arctic coasts of Norway and Siberia is accordingly called the Northeast Passage (NEP).
- **Mineral resources:** The Arctic harbours a rich reserve of minerals, including nickel, copper, platinum, diamonds, gold, lead, zinc and many others. An accessible arctic region would increase the scope of exploration of these minerals.
- **Tourism boost:** Tourism will benefit from improved access to ports and longer seasons, while remaining highly dependent on attractions that are endangered by climate change.
- **Energy resources:** Arctic contains approximately 13% of the world's undiscovered oil resources, 30% of its undiscovered natural gas resources, and 20% of its undiscovered natural gas.
- India, being the fourth-largest energy consumer in the world, can explore the hydrocarbon potential of this region.
- **Polar research:** By involvement in the research in the region, countries like India will be able to understand the dynamics of glaciers melting, which it will be able to use in the regional problem of glaciers melting in Himalayas.
- **Political impact:** Increased access to natural resources will require all levels of Arctic governance to readjust and cope with new challenges.
- Developing countries like India, which has been accorded with the permanent observer status in the Arctic Council, could play a decisive role in shaping the policies for the future of the ecologically fragile Arctic region.

Way Forward

Sustained long-term monitoring, sharing of data, information and knowledge and improved context specific forecasts would help in proper Arctic governance. Issues like oil spill pollution prevention, shipping regulation in the Northern Sea Route, and fisheries management will be paramount for the future of the Arctic and will require unprecedented effort of the global community.

GENERAL STUDIES-2

Reserving Horizontally

Syllabus: Indian Constitution—historical underpinnings, evolution, features

In News: Supreme Court in its recent judgement Saurav Yadav versus State of Uttar Pradesh, has cleared the Issue of eligibility of candidates belong to Horizontal reservation to compete for the open category seats.

Background of the News

- The issues arise due to the difference in the implementation of horizontal reservation among different states in the open category states.
- **Reservation:** Reservation in India is provided as a form of affirmative action acting as a positive discrimination, which means reserving access to seats in the government jobs, educational institutions, and even legislatures to certain sections of the population such as Scheduled Castes, Scheduled Tribes and Other Backward Classes.
- There are 2 types of reservations:
 - **Vertical reservation:** It is a class of reservation which provide reservation in terms of caste i.e., SC, ST, OBC and General Category.
 - **Horizontal reservation:** It is a class of reservations under Article 15(3) and 16(1), which cuts across all the caste-based categories including reservation for women, differently abled persons, freedom fighters, army veterans and other categories.

Issues with horizontal reservation

- **Compromising efficiency:** Basic issue is the assumption of critics of reservation that reservations per se are opposed to merit and compromise efficiency in public service. Therefore, open category seats must be available only to the candidates belong to non-reserved categories.
 - Upholding the assumption above, few state governments excluded reserved category women from consideration in the general category. This policy in effect declares the open category as a reserved category for upper castes.
- **High Court judgements:** Further, matter was worsened by the contrary judgments of High Courts:
 - Rajasthan, Bombay, Uttarakhand and Gujarat high courts approved the eligibility of horizontal reservation against 'open or general category'.

- Allahabad and Madhya Pradesh High Courts held that candidates from reserved categories can be adjusted only against their own categories and not against the 'open or general category'.
- Reservation is an instrument for identifying merit in individuals from historically marginalised communities. By excluding OBC women against general category seats, government is excluding a meritorious candidate.

Judgements of courts

- **Indra Sawhney case:** In Indra Sawhney case 1992, Supreme Court held that in case a reservation has been made under Article 16 (4) for the backward class and the candidate belonging to such backward caste can compete for non-reserved post. As such candidates are appointed on the basis of their own merit, their number will not be adjusted against the quota to their backward category i.e., the entire reservation quota will be intact and available in addition to those selected under open competition category.
- **Saurav Yadav versus State of Uttar Pradesh:** In this case, there were 3,295 constable posts in UP in the General Category (GC) of which 188 went to women. 21 applicants in the OBC female category scored more than the last female candidate selected in General Category. But in filling up of 188 GC women seats, OBC women (who scored higher) were not considered.
- **Judgment:** In this case three judge bench led by Justice Uday U Lalit, ruled against the government order that candidates belonging to reserved categories like SCs, STs, and OBCs can be appointed under open or general category, if they qualified on their own merit.
- **Justice Ravindra Bhat's judgment:** Justice Bhat also made a concurring judgment, in a similar case. Justice Bhat in his judgment held that there is no rule, or direction which prohibits the adjustment of socially reserved categories of women in the general category or "open category". Therefore, the open category is not a 'quota', but rather available to all women and men alike.
- **Anil Kumar Gupta v/s State of Uttar Pradesh:** In its judgment, the Court had made it clear that horizontal reservation ought to be generally understood in compartmentalized terms, as a nod to recognition of inequalities within each vertical category.
- Vertical and horizontal reservations are methods of ensuring representation in public services. It should not be used as a tool to close the doors to open general category, even for the meritorious candidates, for which she would have been eligible without reservation.

Constitutional Provisions:

- **Article 15 (4):** It allows the State to make any special provision for the advancement of any socially and educationally backward classes of citizens or for the Scheduled Castes and the Scheduled Tribes.
- **Article 16 (4):** It allows the State to make any provision for the reservation of appointments or posts in favour of any backward class of citizens which, in the opinion of the State, is not adequately represented in the services under the State.
- **Article 16 (4A):** It allows State to make any provision for reservation in matters of promotion, with consequential seniority, to any class or classes of posts in the services

under the State in favour of the Scheduled Castes and the Scheduled Tribes which, in the opinion of the State, are not adequately represented in the services under the State.

- **Article 335:** It recognises that special measures need to be adopted for considering the claims of SCs and STs in order to bring them to a level-playing field.

Benefits of Reservation

- **To correct historical injustice:** The underlying theory for the reservation by the state is the under-representation of the identifiable groups as a legacy of the Indian caste system. The framers of the Constitution believed that, due to the caste system, SCs and the STs were historically oppressed and denied respect and equal opportunity in Indian society and were thus under-represented in nation-building activities.
- **Scheduled Castes:** In the Central Administrative Services, SCs reached 14% of the Class C in 1984, 14.3% of the Class B in 2003 and 13.3% of the Class A in 2015.
 - In the Central Public Sector Enterprises (CPSEs), their proportion rose from 14.6% in 2004 to 18.1% in 2014.
 - SCs' literacy rate increased from 21.38% in 1981 to 66.1% in 2011.
- **Other Backward Classes:**
 - In 2013, OBCs represented 8.37% of the Class A in the Central Government Services, 10.01% of Class B and 17.98% of Class C. Their percentage in the CPSEs increased from 16.6% in 2004 to 28.5% in 2014.
- **For weaker section:** The Constitution (103rd Amendment) Act provides for 10% reservation in government jobs and educational institutions for the economically weaker section in the unreserved category.

Limits of reservation:

- **Indira Sawhney case (1992):** The SC upheld that a backward class cannot be determined only and exclusively with reference to economic criterion.
- **Limit:** Further, the Court had set the limit for reservations at 50%. It is only for extraordinary reasons that this percentage may be exceeded.
- **To reduce Oppression on weaker sections of the society:** The oppression of the weaker section of society (Including lower and backward castes and tribes) by the stronger (upper castes) section has not ended. In fact, it has been aggravated. A new era of social justice and equality still remains a dream to be achieved. Reservations help in reducing this oppression.
- **Social Justice:** It establishes a new social order that would secure to the underprivileged sectors of our society justice in social relations and equality of opportunity to rise in society.

How has the reservation policy been undermined recently?

- **Employment in Government jobs:** The total number of employees has dropped so dramatically between 2003 and 2012, from 32.69 lakh to 26.30 lakh in the Central Government Services that the number of Dalits benefiting from reservations has been reduced by 16% from 5.40 lakh to 4.55 lakh.
 - In CPSEs the number of OBCs benefiting from reservations had increased from 14.89 lakh in 2008 to 23.55 lakh in 2012, however, it has dropped to 23.38 lakh in

2013. There are concerns that new Public Sector Enterprises Policy (PSEP) and consequent privatization would further undermine reservation for SC, ST and OBCs.

- **Lateral Entry in Bureaucracy:** Reservations have also been undermined by lateral entry into the bureaucracy. In February 2019, 89 applicants were short listed (out of 6,000 candidates from the private sector) for filling 10 posts of Joint Secretary; however, quotas did not apply.
- **Supreme Court judgements:**
 - **Reservation in Universities:** The Supreme Court upheld Allahabad high Court judgement under which, the University Grants Commission (UGC) was allowed to issue a notification in 2018, which sought to shift the unit of provision of reservations from a university as a whole to the departmental level. This reduced the quantum of reserved seats and restricted the entry of lower castes in smaller departments.
 - **Reservation in job promotion as a Fundamental Right:** In February 2020, the Supreme Court overturned a 2012 Uttarakhand High Court verdict in Mukesh Kumar case, 2020, and ruled that reservation in job promotions was not a fundamental right.
 - **Educational Fund cuts:** Funds earmarked for Dalit education in the Indian budgets were reduced in 2014-2019. As a result, scholarship funds were cut drastically. According to S K Thorat, nearly five million Dalit students have been affected by this reduction and delays in payment.

Conclusion:

The implementation of reservation policy has been a function of the political clout of Dalits and OBCs. The backward castes and classes gained when caste-based parties were in a position to put pressure on the governments. Socio – economic empowerment of backward classes is crucial to realize EQUALITY, a constitutional value.

Farm Laws and the Importance of Parliamentary Process

Syllabus: Parliament and State Legislatures—Structure, Functioning, Conduct of Business, Powers & Privileges and Issues Arising out of these

In News: Recent controversy on recent farm laws highlights the importance of following parliamentary procedure not just in letter but in spirit as well.

Background of the News

- There are many benefits attached to the new farm laws for farmers and economy as well, still farm bills are facing heavy opposition. This situation could have been avoided by using parliamentary processes properly.
- Even though request for an actual vote was made, 3 bills were passed by Voice vote, without any discussion with the opposition.

What are the benefits attached to farm laws?

There are strong indications that the new law is desirable and will bring in much-needed market reforms in the overregulated farm sector.

- **Role of market forces:** The benefits of relaxing the non-agricultural sector of the economy in 1991 established that, in the end, market forces cannot be ignored.
- **No contrary evidence:** There is no contrary evidence that the new proposals will adversely affect farmers in the long run.
- **No justification for MSP:** There is no justification for a minimum support price regardless of demand and supply.
 - For instance, A pharmaceutical company doesn't need to be assured of a minimum price for essential medicines that it produces, irrespective of whether the quantity produced far exceeds the demand.
- **Experience with over-regulation:** Under the Essential Commodities Act, 1955, several control orders were passed on products such as cement and steel, and these were planned to ensure their availability at fair prices.
- The result was just the opposite: Severe shortages, a huge black market and massive corruption.

How the parliamentary process is being neglected?

- Even though a request for an actual vote was made, 3 bills were passed by Voice vote, without any discussion with the opposition.
- **Participation of opposition:** Though government has a clear majority in Parliament, the Opposition is also a part of parliament. Its involvement is necessary for parliamentary procedures.
- **Bypassing the select committee:** Laws are supposed to represent the “wisdom of the legislature” that involves a careful examination of their provision by select committee and members. But In fact, fewer and fewer bills are being referred to as Select Committees.
- While 71 percent of the bills were referred to a Select Committee in the 15th Lok Sabha (2009-14), only 25 percent were so referred in the 16th Lok Sabha (2014-19).

Significance of Parliamentary Process

Parliament is at the heart of a constitutional democracy based on the Westminster model and following parliamentary procedures builds trust among the different stakeholders, other than the following benefits:

- **Expertise of Select Committee:** Referring the bills to a Select Committee provides assurance of scrutiny to citizens and serves the following purposes:
 - A detailed deliberation on the Bill, it remains aloof from the sometimes, surcharged atmosphere prevailing in both Houses of Parliament.
 - The Select Committee can, and often does, get the views of experts on the impact, particularly economic, of a proposed law.
- **Preserves Constitutional morality:** As per Dr. B.R.Ambedkar, the essence of constitutional morality is respect and adherence to constitutional conventions.

- **Consensus building:** Committees provide a forum for building consensus across political parties. The proceedings of the House during sessions are televised, and MPs are likely to stick to their party positions on most matters. Committees have closed door meetings, which allows them to freely question and discuss issues and arrive at a consensus.
- **Tackle the vested interests:** Following constitutional conventions always pays dividends. It benefits the nation and preserves the dignity of Parliament.
 - The delay that arises by following parliamentary procedures acts as a proof that the new law is apt and those opposing it have placed their short-term vested interests ahead of the national interest.
- **Law formation and implementation:** Parliament's scrutiny of the government is crucial not only for upholding the accountability of the government to people of India but also for improving the quality of laws drafted. Strengthening the instruments of Parliamentary Scrutiny can go a long way in minimizing the potential implementation challenges.
- **Inter-Ministerial Coordination:** They are envisaged to be the face of Parliament in a set of interrelated departments and ministries.
- They are assigned the task of looking into the demands for grants of the ministries/departments concerned, to examine Bills pertaining to them, to consider their annual reports, and to investigate their long-term plans and report to Parliament.
- **Government Accountability:** Parliamentary standing committees ensure executive accountability through scrutiny of public spending and various laws.
 - For example, the public accounts committee is concerned with the manner and results of spending public funds. It scrutinizes the accounts and the report of the Comptroller and Auditor-General of India, thereby ensuring accountability of any misspending.

What are the steps should be taken?

- The best way to demonstrate the beneficial effects of the laws is to **implement them in select states or districts for a year, before countrywide implementation.**
- It is worthwhile considering the **implementation of a controversial law on a trial basis.** The feedback can finally prove whether the new law can achieve its objects and is beneficial to the nation.
- **It can also reveal flaws in the new law.** For instance, if GST had been implemented on a trial basis for select products, it would have revealed the serious technological deficiencies and the nation would have benefitted by delaying its implementation.

PM-WANI : Digital India to Digital Bharat

Syllabus: Government Policies and Interventions for Development in various sectors

In News: PM-WANI has the potential to revolutionise the way India accesses the internet.

The need for PM-WANI

- To quickly reach countrymen in the remotest areas. To deliver a resilient and reliable connection to every Indian and reliable access everywhere.

Current scenario

- India's tele-density of landlines never exceeded 7 per 100 people but due to mobile it exceeded to 90 per 100 people.
- India grew from 302 million internet subscribers to 750 million.
- India is one of the fastest growing internet markets in the world.
- Despite excellent advances in 4G technology, wired connections still offer superior quality, reliability and throughput.

The internet penetration in India

- **People with internet access:** According to the latest Telecom Regulatory Authority of India (TRAI) data, around 54 per cent of India's population has the access to the Internet.
- **People with ability to use internet:** Only 20% of the population has the ability to use internet as suggested by the 75th round of the National Statistical Organisation survey.
- **Rural- urban drive:** The India Internet 2019 report shows that rural India has half the Internet penetration as urban, and twice as many users who access the Internet less than once a week.
- **Digital poverty:** The country is frightening to leave behind a large part of the population to suffer in digital poverty as it moves towards digitisation.
 - For example, the Umang App (Unified Mobile Application for New-age Governance) allows access to 2,084 services, across 194 government departments.
 - The ability to access and utilise the app improves an individual's skills to take advantage of the services that they are authorised to. Those who cannot access are left behind.

The key features of Pradhan Mantri Wireless Access Network Interface (PM-WANI)

- **Improving digital access:** Bring large scale deployment of Wi-Fi hotspots through the country to drive up connectivity options and improve digital access.
- **Vision of the scheme:** The scheme envisions setting up of public Wi-Fi networks and access points by local Kirana and neighbourhood shops through public data offices (PDO will be set up on the lines of Public Call Offices (PCOs)) that will not involve any licence, fee or registration.
- **Stakeholders:** PM-WANI will be operated by different players as described herein under:
- **Public Data Office (PDO):** It will establish, maintain, and operate only WANI compliant Wi-Fi Access Points and deliver broadband services to subscribers.
- **Public Data Office Aggregator (PDOA):** It will be an aggregator of PDOs and perform the functions relating to Authorization and Accounting.
- **App Provider:** It will develop an App to register users and discover WANI compliant Wi-Fi hotspots in the nearby area and display the same within the App for accessing the internet service.
- **Central Registry:** It will maintain the details of App Providers, PDOAs and PDOs. To begin with, the Central Registry will be maintained by the Centre for Development of Telematic (C-DOT).
- **Other Features:** There would be no license fee for providing broadband internet through these public Wi-Fi networks.
- **Security Conditions:**

- PDOA shall make necessary provisions for storage of user data for one year to ensure compliance with legal provisions, as required.
- The user data privacy will be ensured by App Providers and PDOAs. Complete user data and usage logs will be stored within India.
- Subject to terms and conditions of the Registration, the App Provider, PDOA and Central Registry Provider will take all necessary steps to safeguard the privacy and confidentiality of any information about a third party to whom it provides the service.
- **Interoperability:** The first is interoperability, where the user will be required to login only once and stay connected across access points.
 - The requirement of authentication through a one-time password for each instance of access may be cumbersome.
 - So, automatic authentication through stored e-know your customer (KYC) is encouraged.
 - This inevitably means a linking with Aadhaar.
- **Several payment options:** The second is multiple payment options, allowing the user to pay both online and offline.

How PM-Wani can revolutionise access to internet?

- UPI created common payments infrastructure that unbundled whose app you use to pay from which bank your money was in.
- This resulted in 3 Cs — **greater convenience, higher confidence and lower costs.**
- PM-WANI unbundles whose wired connection you use from who you pay to use that connection.
- It allows them to interoperate and focus on connecting the last user. It is built on unbundling three as — access, authorisation and accounting.
 - The TRAI report on the details of the project show how products should start from low denominations, starting with Rs. 2.

The dimensions along which PM-WANI has broken away from the past

- PM-WANI has liberalised the resale of bandwidth. Earlier only licensed players could become Internet Service Providers and resell bandwidth.
- This has led to the top 5 ISPs owning 75 per cent of the volume of all wired subscribers.
- PM-WANI allows anyone — a kirana shop owner, a tea-stall vendor, or a Common Service Centre to resell internet to its customers without a licence and without fees.
- By installing a wireless router, they can get on the PM-WANI network and start selling connectivity.
- These small vendors will be called Public Data Offices (PDOs), in a deliberate hark back to the Public Call Offices of yore.
- Due to this deregulation, the distribution of endpoints of PM-WANI will be selected by entrepreneurs rather than being decided top-down.

Significance of PM-WANI

- **Potential:** India might create \$1 trillion of economic value with the help of digital technology by 2025.
- **Impact on economy and GDP:**
- **Strengthen digital media:** The scheme would enable our small shopkeepers to provide Wi-Fi service. This will boost incomes as well as ensure our youth gets seamless internet connectivity. It will also strengthen our Digital India mission.
- **Improve ease of doing business:** It will entirely revolutionise the tech sphere and will also significantly improve the wireless connectivity of the country.
- **Improves accessibility:** PM-WANI will provide public Wi-Fi hot posts and anyone in vicinity of its range can access it.
 - The initiative would mean the ability to connect to a Wi-Fi broadband connection almost anywhere.
- **Bridging digital divide:** This can help in reducing the increasing digital divide in India.
- **Pressure on mobile internet:** It will also help in reducing the pressure on mobile Internet in India.
 - 99% of all users in India access the Internet on mobile and about 88% are connected on the 4G network, shows the India internet report.
 - This leads to a network overload as everyone is using the limited network. This results in bad speed and quality of Internet access.
- **Digital literacy:** Digital literacy allows people to access information and services, collaborate, and navigate socio-cultural networks.
- **Accounting:** The network operators then settle accounting between them, much like how telecom operators settle call termination charges.
- **Access to all available Wi-Fi networks:** Indians can log in once and enjoy access on all available Wi-Fi networks.
- **International travellers:** It also allows international travellers to take advantage of India's connectivity, without paying exorbitant roaming charges to their home networks.

Flow Chart under WANI Eco-System:

As it is a novel concept, based on unbundled and distributed model, for delivery of Internet services, a typical usage flow is described below:

- A new User will download the App from App store and install the same on its mobile device.
- Thereafter this User will create its own profile in the App and register with the App provider after verifying own mobile number through One Time Password (OTP) to be received from the App Provider.
- To access Internet service, the User will open the App in which it is already registered.
- The App will discover the WANI compliant Wi-Fi Access Points in the nearby area and display the same in the App.
- The user will choose one Wi-Fi Access Point to connect with Internet.
- The chosen Wi-Fi Access Point will request the Captive Portal of PDOA for Authorization.
- The Captive Portal will initiate user authentication with backend infrastructure of the App Provider using the token passed from the App.
- App Provider will return a signed user profile token back to the PDOA.
- If the user is a new customer of the PDOA, then the PDOA will display the available data packs with tariff plans to the user. User will select the desired data pack. The PDOA will send request for payment to the user through its payment gateway.
- User will complete the payment.
- After receiving the payment, PDOA will register the user as its subscriber and activates the data pack for the registered user and allows it to connect to the Internet session.
- Now User can access the Internet.

Challenges

- **Security challenge:** Most Wi-Fi hotspots don't encode information that is sent over the Internet and thus aren't secured. This could possibly lead to hacking or unapproved access to personal information on the device.
- **The practicality of public Wi-Fi networks in India:** Several tech-giants already having tried and failed. Facebook had launched Express Wi-Fi in 2017 which made little impact.
 - Google's Station project, to provide free wi-fi in more than 400 railway stations across India and "thousands" of other public places, which was launched in 2015, was shut down earlier this year.

Way forward:

- **Data protection bill:** The Bill regulates personal data related to individuals, and the processing, collection and storage of such data.
- **Improving health of telecom sector:** The government should work on measures to improve the health of the telecom sector, including "reforms" in spectrum pricing.
- **Transparency in spectrum auction:** Spectrum auction is a transparent process of spectrum consignment to successful bidders. Adequate spectrum availability increases the quality of telecom services for the consumers.
- **Strengthening cyber security:** Presence of robust identity infrastructure in the form of Aadhaar and Digi Locker. It will help to authenticate its users.

- This architecture also allows a central data balance and central KYC, that users can use inter-operably across all PDOs.

Maharashtra's Shakti Bill

Syllabus: Government Policies and Interventions for Development in various sectors and Issues arising out of their Design and Implementation

In News: The Maharashtra Shakti Bill, 2020, and the Special Court and Machinery for Implementation of Maharashtra Shakti Criminal Law, 2020 have been criticized by prominent women's rights advocates for being draconian.

More in news: The two interconnected bills are the **Maharashtra Shakti Criminal Law (Maharashtra Amendment) Act 2020** and the Special Court and Machinery for Implementation of Maharashtra Shakti Criminal Law 2020.

- As per the National Crime Records Bureau data, Maharashtra topped the country in the "heinous category—gang rape with murder" with 47 cases in 2019 and is one of the top five States in crimes against women.
- The Bill is proposed to be enacted as Shakti Act, 2020.

What is the reason given by Maharashtra to get a new law?

- **Increase in violence:** The main reason given by the government for introducing the new law is an increase in the number of cases of violence, especially sexual violence against women and children.
- **The statement of items and reason of the bill:** In order to successfully control the sexual offences against women and children, it is obligatory to complete the investigation and the trial of these cases within a time frame, which may stop the criminals from committing such offences.
 - Harsh punishment, including hefty fines and death penalty, needs to be given.

What does the draft bill propose?

- **Changes in Indian penal code:** The draft Bill proposes to make changes to the Indian Penal Code, the Code of Criminal Procedure and the Protection of Children from Sexual Offences Act.
 - The changes are proposed in existing sections of rape, sexual harassment, acid attack and child sexual abuse.
- **Proposal of death penalty:** The death penalty is proposed in cases which are dreadful in nature and where adequate conclusive evidence is available and circumstances warrant standard punishment.
- **Increased fine:** The bill also intends to add a hefty fine amount of up to Rs 10 lakh on those found guilty. The existing law had provisions for a fine but did not specify the amount in most sections. The fine is also to be paid to acid attack victims to cover the costs of plastic surgeries.
- **Increasing punishment:** The Bill has also planned to increase punishment in the current law, increasing punishment in some sections from five years to seven and from seven to ten years in serious cases of sexual violence.

- **Amendments to criminal procedure code:** The Bill also suggests amendments to the Criminal Procedure Code, aiming for an investigation in these cases to be completed within 15 days after an FIR is filed, which can only be extended by seven days.
 - If it is not completed within this time frame, the investigating officer will have to explain the reasons in a written report to the commissioner of police or special inspector general.
- **Timely procedure:** The Bill also states that a trial has to be completed within 30 days after the charge sheet is filed against an accused. An appeal filed before a higher court is proposed to be disposed of within 45 days. The Bill proposes setting up exclusive courts for this purpose.
 - While such provisions for speedy disposal of cases and setting of special courts are also present in the POCSO Act, the disproportionate ratio between cases filed and the existing infrastructure including in forensics, judiciary leads to higher pendency.

Are there any specific provisions related to social media?

- **Abuse of women on social media:** The draft Bill proposes an additional law to deal with abuse of women on social media.
 - Section 354E is added to include deliberate acts creating “a sense of danger, intimidation, fear to a woman” apart from insulting her decorum by any act, deed or words including offensive communication will be an offence with a maximum punishment of two years and a Rs 1 lakh fine.
 - This also includes uploading morphed videos of women or threatening them with uploading of photos, videos which could defame, cause disrespect to them or violate their privacy.
- **Providing electronic data:** The Bill also makes it mandatory for Internet, telephone providers and social media platforms to share electronic records, data for investigations in cases of sexual violence against women and children within seven days or a punishment of simple imprisonment for one month and fine up to Rs 5 lakh can be imposed.

Provisions for “false” information and “implied consent”

- **Provisions for “false” information:** The Bill proposes punishment in cases of false complaints and acts of providing false information regarding sexual and other offences against women with the intention to humiliate, extort and defame. The offender will face imprisonment for a term up to one year or fine or both.
- **Explanation for section 375 of IPC:** The Bill also proposes to add an explanation to Section 375 (rape) of the IPC. “Rape committed in state of affairs including but not limited to some form of assurance including promise of marriage or understanding between the parties, where they are consenting adults, and from conduct it appears that act has been committed with consent or ‘implied consent’ may be presumed that valid consent is given.”
 - The existing law does not have a blanket assumption of consent being implied in such cases.

Other provisions

- **Women and Children Offenders Registry:** The Bill also proposes setting up of a “Women and Children Offenders Registry” linked to the National Registry of Sexual Offenders and will be made available to law enforcement agencies with details of persons convicted of specified offences of sexual violence against women and children.
 - A separate police team will also be set up in each district to probe such cases.

What are the concerns related to new laws?

- **Patriarchal conception [Control by men]:** The new law will punish the filing of false complaints. This, according to the signatories, “perpetuates the patriarchal notions of viewing women with suspicion, as unworthy of being believed”.
 - This will only deter victims from reporting sexual offences.
- **Improper investigation and trial:** The 15 days’ time-frame will not be sufficient for gathering all evidence and will become an excuse for police to not conduct a proper investigation.
 - A hurried investigation and trial, the Maharashtra government said, is likely to lead to miscarriage of justice.
- **Lacking in infrastructure required for effective implementation:** Neither the police nor the courts have the infrastructure to comply with these timeframes. There are not enough prosecutors at trial courts and in high courts.
- **Attempt of destroying evidence:** The general perception is that since the laws have been made more stringent, so the rapists resort to extreme measures in a bid to destroy the evidence.
- **Less reporting of crimes:** The death penalty in the new law reduces both the reporting of sexual offences and of conviction rates.
- **No clarity of ‘heinous in nature’ cases:** The proposed bills does not define what cases would qualify as being “heinous in nature”, thus leaving it open to the interpretation of courts.

Way forward-

- The Bills’ content reflects the absence of a larger consultative process and lack of understanding of existing criminal laws.
- The Maharashtra government should focus on improving infrastructure.
- The two Bills should have been discussed with lawyers, activists, and academics working on women’s issues before they were passed by the state Cabinet.
- The Bill also states that the government will set up institutions like the One Stop Centre for providing victims rehabilitation, legal aid, counselling, medical support. Many of these are already proposed under various schemes like Manodhairya in the state.
- Justice Verma Committee was constituted to recommend amendments to the Criminal Law and to provide for quicker trial and enhanced punishment for criminals accused of committing sexual assault against women.
 - Domestic workers should be included within the purview of the Bill.
 - Under the Bill the complainant and the respondent are first required to attempt conciliation. This is contrary to the Supreme Court judgment in Vishakha vs. State of Rajasthan which aimed to secure a safe workplace to women.

- The employer should pay compensation to the woman who has suffered sexual harassment.
- The Bill requires the employer to institute an internal complaints committee to which complaints must be filed. Such an internal committee defeats the purpose of the Bill and instead, there should be an Employment Tribunal to receive and adjudicate all complaints.

Rights of persons with disabilities : The Law of Equality

Syllabus: Welfare Schemes for Vulnerable Sections of the population by the Centre and States.

In News: 3rd Dec is the annual International Day of Persons with Disabilities, established by the United Nations in 1992.

More on news:

- **International Day of Persons with Disabilities:** Promote the rights and well-being of persons with disabilities in all spheres of society and development.
- Increase awareness of the situation of persons with disabilities in every aspect of political, social, economic and cultural life.

Definition of disability:

- The WHO defines disability as “any restriction or lack (resulting from an impairment) of ability to perform in a manner or within the range considered normal for a human being”
- Disability is a complex concept and is difficult to define since it varies in type, form and intensity. The World Report on Disability, 2011 sums up various definitions of disability by stating “Disability is complex, dynamic, multidimensional, and contested”.

Disability in India-Fast Facts:

- As per Census 2011, in India, out of the total population of 121 crore, about 2.68 Cr persons are ‘Disabled’ (2.21% of the total population)
- Out of 2.68 crore, 1.5 crore are males, and 1.18 crore are females
- Majority (69%) of the disabled population resided in rural areas
- Among the State/ UTs, Sikkim has the highest prevalence of disability (2.98). Daman and Diu has the lowest prevalence of disability (0.9%)

Legislations

1. Persons with Disabilities (Equal Opportunities, Protection of Rights and Full Participation) Act, 1995

Salient features:

The Act defines “person with disability” as a person suffering from not less than forty per cent of any disability as certified by a medical authority. There are 7 recognized disability conditions:

- Blindness
- Low vision
- Leprosy-cured
- Hearing impairment
- Loco motor disability
- Mental retardation
- Mental illness

The aims and objectives of the Act were:

- To spell out the responsibility of the state towards the prevention of disabilities, protection of rights, provision of medical care, education, training, employment and rehabilitation of persons with disabilities.
- To create a barrier free environment for person with disabilities in the sharing of development benefits, viz-a-viz non-disabled persons.
- To counteract any situation of abuse and exploitation of persons with disabilities; and
- To make special provision of the integration of persons with disabilities into the social mainstream.

2. Rights of Persons with Disabilities Act, 2016

Addition in types of disability:

- The types of disabilities increased from 7 (in 1995 Act) to 21.
- Further, the Central Government has been empowered to add more types of disabilities.

Salient features of this act:

- **Infrastructure:** An important distinguishing feature of the 2016 Act is that it provides for time limits within which existing infrastructure and premises should be made disabled friendly.
 - The obligations laid down in the Act are mandatory for both government and private establishments.
- **Fund:** Creation of National and State Fund will be created to provide financial support to the persons with disabilities.
 - The existing National Fund for Persons with Disabilities and the Trust Fund for Empowerment of Persons with Disabilities will be subsumed with the National Fund.
- **Grant of guardianship:** The Bill provides for grant of guardianship by District Court, under which there will be joint decision, making between the guardian and the persons with disabilities.

Benefits of the act:

- **Education:** Every child with benchmark disability to get free education from 6 to 18 years of the age.
- **Reservation:** Reservation to the differently-abled person in the education and government jobs has been increased from 3% to 4%.
- **Strict enforcement:** Special Courts will be designated in each district to handle cases concerning violation of rights of PwDs.
- **Additional Benefits Persons with benchmark disabilities:** Additional benefits such as reservation in higher education, government jobs, reservation in allocation of land, poverty alleviation schemes etc. have been provided for persons with benchmark disabilities and those with high support needs.

Criticism:

- **The term “legitimate aim” is not clearly defined:** Section 3(3) of the Act states that discrimination against a disabled person can be allowed if it is “a proportionate means of achieving a legitimate aim”.
 - This term gives power to the implementing agencies to discriminate against persons with disabilities as it leaves open the interpretation to the bureaucracy.
- **Inadequate representation:** The Act has been criticised on the grounds that there has been inadequate representation of persons with disabilities while formulating the Act.
 - The UN Convention on Rights of Persons with Disabilities mandates that a decision which affects the lives of persons with disabilities cannot be taken without consulting their representative organisations.
- **The Act has not completely incorporated private sector:** Under the Act, the establishments have been defined as government establishments and just establishments. But the rule has not legislated anything on private employers.

Disability movement

- **Disability as a social rights issue:** The disability rights movement gained momentum in the 1970s when disability was started to be seen as a human rights issue. This is when the UN General Assembly proclaimed in 1976 that 1981 would be the International Year of Disabled Persons
 - **UN Decade of Disabled Persons:** Later, 1983-1992 was marked as the United Nations Decade of Disabled Persons
 - **The UN Convention on the Rights of Persons with Disabilities (UNCRPD), 2006** was a big step towards viewing persons as “subjects with rights” and not “objects of charity”. (India is a signatory to the UNCRPD and ratified it in 2007)
 - **SDG:** The 2030 Agenda for Sustainable Development pledges to “leave no one behind”. It states that persons with disabilities must be both “beneficiaries and agents of change”.
 - However, attitudinal, institutional, and infrastructural barriers remain, with the World Bank stating that 15% of the world’s population experience some form of disability and that they “on average, as a group, are more likely to experience adverse socioeconomic outcomes than persons without disabilities”
 - **The World Health Organisation** came up with a world report on disability for the first time. Its introduction showed how disabled persons aren’t “other people”, but that all of us at some point will be “temporarily or permanently impaired” and those “who survive to old age will experience increasing difficulties in functioning.”
-
- **Poor enforcement mechanism:** study conducted by the Disability Rights India Foundation (DRIF) on the implementation of the Rights of Persons with Disabilities (RPWD) Act, across 24 States, has revealed that more than half have not notified the State rules.

Government Schemes/ Initiatives:

- **Assistance to Disabled Persons for Purchase / fitting of Aids and Appliances (ADIP):** The Scheme aims at helping the disabled persons by bringing suitable, durable, scientifically manufactured, modern, standard aids and appliances within their reach.
- **Deen Dayal Disabled Rehabilitation Scheme:** Under the scheme financial assistance is provided to NGOs for providing various services to Persons with Disabilities, like special schools, vocational training centres, community-based rehabilitation, pre-school and early intervention etc.
- **Accessible India Campaign- Sugamaya Bharat Abhiyan:** The aim of the Campaign is to make a barrier free and conducive environment for the differently abled persons.
 - The campaign is based on the principles of the Social Model of Disability which states that disability is caused by the way society is organised, and not the person's limitations and impairments. The physical, social, structural and attitudinal barriers prevent People with Disabilities from participating equally in the socio-cultural and economic activities.
 - Therefore, it is important to ensure a barrier free environment to facilitate active participation of the PwDs.
- **National Fellowship for Students with Disabilities (RGMF):** The scheme aims to increase opportunities to students with disabilities for pursuing higher education.
- Under the Scheme, 200 Fellowships per year are granted to students with disability.
- **Schemes of the National Trust:** This scheme is for the Welfare of Persons with Autism, Cerebral Palsy, Mental Retardation and Multiple Disabilities
- **DISHA:** Early intervention and school readiness scheme for children in the age group of 0-10 years with disabilities viz. Autism, Cerebral Palsy, Mental Retardation and Multiple Disabilities
- **BADHTE KADAM:** Aims at community awareness, sensitisation, social integration and mainstreaming of Persons with Disabilities.
- **GHARAUNDA:** Aims to provide an assured home and minimum quality of care services throughout the life of the person with Autism, Cerebral Palsy, Mental Retardation and Multiple Disabilities.
- **NIRAMAYA:** Health Insurance Scheme for persons with Autism, Cerebral Palsy, Mental Retardation and Multiple Disabilities.
- **SAMBHAV -Aids and Assisted Device:** Aims to create additional resource centres.
- **SAHYOGI Caregiver training scheme:** Aims to provide training and create a skilled workforce of caregivers to provide adequate and nurturing care for Person with Disabilities (PwD) and their families who require it.
- **GYAN PRABHA:** Scheme to provide educational support.
- **PRERNA:** Aims to provide funds to participate in events such as exhibitions, fairs, etc. to sell the products made by PwDs.
- **SAMARTH -Respite Care:** Aims to provide respite home for orphans or abandoned, families in crisis and for Persons with Disabilities (PwD) from BPL & LIG families.

- **VIKAAS -Day Care Scheme:** Aims to expand the range of opportunities available to a person with disability for enhancing interpersonal and vocational skills as they are on a transition to higher age groups.
- **Mental health care act:** In 2017, the Mental Healthcare Act recognised and respected the agency of persons with mental-health conditions.
 - Expanding the presence of mental-health establishments across the country.
 - Restricted the harmful use of electroshock therapy.
 - Clarified the mental-health responsibilities of state agencies such as the police.
 - Effectively decriminalised attempted suicide.
- **Media representation:** Mainstream media has increasingly started showing positive representations of people with disabilities, from Taare Zameen Par to Barfi.
- **Representation in sports:** Athletes with disabilities have reached the pinnacles of sport and done us proud repeatedly, most recently winning four athletics medals at the 2016 Paralympics in Rio de Janeiro.

Issues and Challenges

- **Health:** Many disabilities are preventable, including those arising from medical issues during birth, maternal conditions, malnutrition, as well as accidents and injuries.
 - The health sector especially in rural India has failed to react proactively to disability.
 - There is a lack of affordable access to proper health care, aids and appliances.
 - Health care and poorly trained health-workers in rehabilitation centres is another concern.
- **Education:** The education system is not inclusive. Inclusion of children with mild to moderate disabilities in regular schools has remains a major challenge.
 - There are various issues such as availability special schools, access to schools, trained teachers, and availability of educational material for the disabled.
 - Further, reservations for the disabled in higher educational institutions has not been fulfilled in many instances
- **Employment:** Many disabled adults are capable of productive work; disabled adults have far lower employment rates than the general population. The situation is even worse in private sectors, where much less disabled are employed.
- **Discrimination/Social Exclusion:** Negative attitudes held by the families of the disabled, and often the disabled themselves, hinder disabled persons from taking an active part in the family, community or workforce.
 - Differently abled people face discrimination in everyday life. People suffering from mental illness or mental retardation face the worst stigma and are subject to severe social exclusion.
- **Inadequate data and statistics:** The lack of rigorous and comparable data and statics further hinders inclusion of persons with disabilities. The major issues with collection of data and measuring disability are:
 - Difficult to define disability.
 - Coverage: Different purposes require different disability data.

- Reluctance in reporting disability as disability is considered to be stigma in many places/societies.
- **Poor implementation of policies and schemes:** this hinders the inclusion of disabled persons. Though various acts and schemes have been laid down with an aim to empower the disabled, their enforcement face many challenges.
- **Huge numbers:** About a billion people internationally live with a disability, with 80 per cent of these being residents of the developing world. In 2007, the UN passed the Convention on the Rights of Persons with Disabilities.
 - India is a state party to the convention, and the World Bank estimates that there may be well over 40 million Indians living with disabilities.
- **Shortage of ramps:** The Rights of Persons with Disabilities Act was passed in 2016 but our country is still largely devoid of ramps on its footpaths or government buildings.
- **Poor development:** Indians with disabilities are far more likely to suffer from poor social and economic development. Shockingly, 45 per cent of this population is illiterate.
- **Community's lack of political representation:** Despite the vast population of people with disabilities in India, in our seven decades of independence we have had just four parliamentarians and six state assembly members who suffer from visible disabilities.

Way forward

- **Preventive health programs:** for example, Kerala has already started an early prevention programme. Comprehensive Newborn Screening (CNS) programme seeks early identification of deficits in infants and reduce state's burden of disability.
- **Awareness:** People with disabilities need to be better integrated into society by overcoming stigma. There should be awareness campaigns to educate and aware people about different kinds of disability.
- **Employment:** Disabled adults need to be empowered with employable skills and the private sector needs to be encouraged to employ them.
- **Better measurement:** The scale of disability in India needs to be better understood by improving the measurement of disability.
- **Education:** State-wise strategies on education for children with special needs need to be devised. There should be proper teacher training to address to the needs of differently abled children and facilitate their inclusion in regular schools.
 - There should be more special schools and ensure educational material for differently abled children.
- **Access:** Safety measures like road safety, safety in residential areas, public transport system etc, should be taken up. Further, it should be made legally binding to make buildings disabled-friendly.
- **Policy Interventions:** More budgetary allocation for welfare of the disabled. There should be a disability budgeting on the lines of gender budgeting.
- Proper implementation of schemes should be ensured: There should be proper monitoring mechanisms and accountability of public funds.

India – Nepal: Relationship In Transition

Syllabus: India and its Neighbourhood- Relations.

In News: The recent decision of Nepal Prime Minister dissolving the lower house has created a new political crisis altogether.

Background: India-Nepal relationship

India and Nepal share a unique relationship, both share friendship and cooperation underpinned by linguistic, cultural and civilizational links, along with a wide range of commercial and economic ties, and above they are linked with extensive people-to-people contacts.

- **Nepal treaty of Peace and Friendship 1950**
 - Under this treaty, Nepal became the only country whose nationals required no passports to cross into India.
 - India-Nepal Treaty was signed after Nepal feared the **Chinese threat** as the Chinese occupied Tibet.
 - The treaty has **an explicit reference** to threats from third countries, which both countries would tackle by cooperation.
- The treaty extended rights to residence, employment and purchase of property to each other's citizens reciprocally – in other words, it extended '**national treatment**' by each country to the other's citizens.
- **Religious connect:** Buddha's birthplace is in Nepal and also Nepal is the only other Hindu majority country in the world. So cultural and religious visits between India-Nepal is so strong.
- **Roti-Beti ka Rishta:** The Ministry of External Affairs termed India-Nepal relations as **Roti-Beti ka Rishta (Relationship of food and marriage)** as the open border enabled kinship, familial ties in the terai region. There are **six million to eight million** Nepalis who live and work in India, according to Indian home ministry estimates.
- **Trade treaty:** The 1996 trade treaty resulted in the phenomenal growth of bilateral trade, which witnessed a sevenfold increase in a decade (Nepal's exports to India increased eleven times and Indian exports to Nepal increased six times).
 - **The 2009 revised trade treaty** has retained the positive features of the 1996 treaty and further enhanced bilateral trade between India-Nepal.
- **Defence and Humanitarian relations:** Defence and Humanitarian relations were provided greatly by India, as Nepal is landlocked and geographically prone to disasters being situated in the Himalayan region.

What are the challenges in India-Nepal relations?

India-Nepal relations often swung between two extremes much quickly. There are a few underlying reasons for it:

- **Constitutional question on Madhesi's:** In general, Madhesi's section of people live throughout the southern part of the Terai region and has much closer ties with India. The challenges in this regard are:
 - The political rights of Madhesi's section of people were diluted in their new Constitution promulgated in 2015 which led to wider protests and blockade in Nepal led to the blocking of oil and other essential supplies.

- Nepal government accused India of supporting Madhesi's, and stated India is interfering in the internal matters of Nepal.
- Nepal raised the issue in a **"trade blockade" at the UN in October 2015**. But Madhesi's protest was a spontaneous movement and it had nothing to do with India.
- **Challenges with the Nepal government:** One of the foremost scholars, Professor S.D. Muni pointed out major challenges with the Nepal government as:
 - India's fears that a Constitution drafted under assertive Maoist leadership may not be compatible with the democratic profile of Nepal.
 - India's also fears that the Maoists were inclined to and capable of changing Nepal's domestic power equations.
- **China's closeness with Nepal:** The Influence of China in India-Nepal relations is a cause of concern.
 - Nepal is a landlocked state that has relied much on India for major supplies, transit and transport. India-Nepal Blockade changed the perception completely.
 - The Nepal earthquake in 2015 was the perfect time for China to make massive investments in infrastructure like **Tibet Railway, many highway projects, access to Chinese ports etc.** By the end of 2016, China became the major assistance provider of Nepal.
 - **Hydel co-operation, Fuel and Humanitarian assistance** from China has increased many folds. For example, China pledged to provide **1.4 million litres of fuel and planned to construct 750 MW West-Seti Dam project.**
 - Nepal also supports China's Belt and Road Initiative and the China-Nepal relations so far is stable to some extent.
- **The boundary dispute between India-Nepal:** About 1850 km boundary line between India-Nepal faces two major boundary disputes.
 - **Kalapani dispute:** Kalapani is the disputed territory in the Uttarakhand state of India. The British government has set the origin of River Kali as the western border of Nepal. But the origin of the river Kali is disputed between India-Nepal. While India uses the newer British survey, Nepal wants the area to be demarcated based on the older British survey. New map of Nepal was notified **in June 2020** with Kalapani in Nepal.
 - **Susta Dispute:** Susta is another disputed territory located in the Terai regions of India.
- **The challenges relating to the open border:** The border is notoriously porous. Being provided special status to Nepal, India's internal security faced many challenges such as:
 - The **Pakistani militants using Nepalese territory** as a hideout and base for infiltration into India. The Ministry of Home Affairs in its Annual Report 1999–2000 highlighted this Pakistani involvement in Nepal and its security implications in India.

- The Nepalese Maoists have extended support and cooperation to the Indian Maoists and carving out a **Compact Revolutionary Zone**, a 'Revolutionary Corridor' spreading from Nepal through Bihar and up to Andhra Pradesh.
- Apart from these the open borders have also created challenges such as **pumping fake Indian currency notes, human trafficking** especially young girls and women, **cattle smuggling**, etc.
- Thus, India's external and internal challenges converge, and make ties with Nepal of extreme importance and swung between extremes.

What are the solutions to improve India-Nepal relations?

- **Focus based approach:** It is necessary not only in India-Nepal relations but also for other countries in the region by giving more focus towards **Neighbourhood first policy**.
 - India should **leverage the strategic influence, faster and effective implementation of infrastructure and development projects** in Nepal. For Ex. Finalising the projects such as Pancheshwar multipurpose project and faster completion of cross-border rail projects such as Jayanagar-Bijalpur-Bardibas, Jogbani-Biratnagar.
 - In 2018 Indian PM asked to shift focus on 5T's (Tradition, Trade, Tourism, Technology and Transport) to boost the relations.
- **Aid diplomacy: India** can focus on "**aid diplomacy**" to reduce the trust deficit and also has to continue with post-earthquake reconstruction assistance. Later deepening co-operation in areas like trade, water resources, energy co-operation, etc.
- **Moving Himalayas southward:** Regarding China's influence, experts believe that **Nepal's nearest ports will always be in India and the Gangetic plain will remain its largest market**. This is because,
 - The economic feasibility of Chinese trans-Himalayan trade and the infrastructure projects are low, especially when the Himalayan state Bhutan supports India and Nepal is the only other Himalayan state.
 - Though China provides access to Nepal for its seaports, they are situated more than 3,000 km away.
- All this can be sum up by the words of geostrategist, Brahma Chellany. He said, "China can replace India as Nepal's main provider of essential supplies **only by moving the Himalayas southward**". But the ability of the Chinese in project implementation and financial assistance cannot be underestimated.
- **Humanitarian relations:** Establishing a permeant mechanism to reduce the disasters caused by floods in the regions of India-Nepal.
- **Mutual respect is the key:** The Nepal government must move away from narrow terms and shift focus towards broadening and inclusion of demands from all sections of society in the Constitution. Nepal also must stop the rhetoric on territorial nationalism and pulling out China card whenever they negotiate with India.

Way forward:

India-Nepal relations have all the potential to move ahead and become mutually reliable commercial and economic ties, and extensive people-to-people ties only when India and Nepal forget the avoid past mistakes and move ahead to become sustainable.

India Bangladesh Relations

Syllabus: India and its Neighbourhood Relations.

In News: Recently PM of Bangladesh invited Indian PM to visit Bangladesh for celebrations on the occasion of the 50th anniversary of Bangladesh's Independence and 50 years of Bangladesh-India diplomatic relations in March next year.

Background:

- The South Asian democracies, India and Bangladesh have the longest common border of over 4,000 km with each other.
- India was the first country to recognize Bangladesh as a separate and independent state and established diplomatic relations with the country immediately after its independence in December 1971.
- India and Bangladesh not only have economic and political ties but a strong socio-cultural connection.
- However, India and Bangladesh bilateral relationship is very complex.

Recent Trends in India Bangladesh Relations

- The two Prime Ministers jointly inaugurated bilateral developmental projects in 2019:
 - Supply of 500 trucks, 300 double decker buses and 200 AC buses under the second Line of Credit.
 - Extension of National Knowledge Network to Bangladesh.
 - Establishment of 36 community clinics in five districts of Bangladesh.
 - Establishment of 11 water treatment plants in Bangladesh.
 - Inauguration of Vivekananda Bhaban at Rama Krishna Mission in Dhaka.
 - Import of bulk LPG from Bangladesh.
 - Inauguration of Bangladesh-India Professional Skill Development Institute (BIPSDI) at the Institution of Diploma Engineers, Bangladesh (IDEB), Khulna.
- Bangladesh-India engagement has intensified in the areas of Cooperation in connectivity, energy, security and intelligence matters in last decade.
- India's '**neighbourhood policy**' has focused on Bangladesh, through India's '**Act East Policy**' and **sub-regional groupings like BIMSTEC** (Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation) and the **BBIN** (Bangladesh, Bhutan, India, Nepal) Initiative.
- Bangladesh too with denial of support to Indian insurgent groups and insurgent leaders handed over to India, has established the deep trust with India.
- The Padma multipurpose bridge and the **Akhaura-Agartala rail link** will change enhance connectivity within Bangladesh and with India.
- Bangladesh has provided cyber connectivity between the international gateway at **Cox's Bazar to Agartala** for faster Internet connectivity in India's northeastern States.

- India has also become a partner in Bangladesh's nuclear power programme, with the beginning of construction at the **Rooppur nuclear power plant**.
- To promote more Bangladeshi exports to flow into India, duty free entry was granted in 2011 under the South Asian Free Trade Area.
- An SEZ in Bangladesh for Indian manufacturing companies has been mooted and notified.
- India has granted Bangladesh generous lines of credit (LoCs) and grants mainly for infrastructure and connectivity projects, grants flow into social sector development.
- The visa regime and norms has been liberalized to enhance people to people engagement.
- India has launched **Dhaka-Khulna-Kolkata bus and Khulna-Kolkata Bandhan Express** services in 2017 and end-to-end customs and immigration services for Dhaka-Kolkata Maitree Express to ease people to people movement.

Areas of cooperation:

- **Connectivity:**
 - The Padma multipurpose bridge and the Akhaura-Agartala rail link will dramatically change connectivity within Bangladesh and with India.
 - Both the governments are undertaking various measures to restore the pre 1965 rail links and other connectivity links that existed between India and Bangladesh.
 - To enhance people to people contacts, it has been decided to increase the frequency of two passenger trains, i.e., Maitree Express and Bandhan Express
- **Cyberspace:** Bangladesh has provided cyber connectivity between the international gateway at Cox's Bazar to Agartala for faster Internet connectivity in India's northeastern States.
- **Energy:** India has also become a partner in Bangladesh's nuclear power programme, with the beginning of construction at the Rooppur nuclear power plant. India is poised to export around 1100 MW of power to meet the energy deficit in Bangladesh. Bangladesh is currently importing 1160 MW of power from India
- **Trade:** Bangladesh is India's largest trading partner in South Asia with an annual turnover of around \$9 billion plus an estimated informal trade of around \$8-9 billion. To enable more Bangladeshi exports to flow into India, duty free entry was granted in 2011 under the South Asian Free Trade Area (SAFTA).
- **Credit:** Indian investment in Bangladesh has reached \$3 billion. To offset the economic asymmetry, India has granted Bangladesh generous lines of credit (LOCs) and grants, with commitments reaching \$8 billion. While LOCs flow into infrastructure and connectivity projects, grants flow into social sector development.
- **Tourism:** Over a million visas are issued to Bangladeshi citizens by India annually. Both countries have signed Revised Travel Arrangement 2018 (RTA 2018) for further liberalising the visa regime, including enhanced duration for employment and student visas.
- **Development Partnership:**
 - Government of India has been providing grant assistance to Bangladesh for various infrastructure projects including construction of Akhaura-Agartala rail link,

dredging of inland waterways in Bangladesh and construction of India-Bangladesh Friendship Pipeline.

- India has extended 3 Lines of Credits (LOC) to Bangladesh in the last 8 years amounting to US\$ 8 billion for development of infrastructure in various sectors including roads, railways, shipping and ports.
- **Capacity Building and Human Resource Development:** India has been training 1800 Bangladesh Civil Service officials from 2019 at National Centre for Good Governance (NCGG), Mussoorie. Bangladesh is also an important ITEC partner country and annually around 800 participants from Bangladesh avail the ITEC training courses. The Indira Gandhi Cultural Centre (IGCC) in Dhaka plays an important role in celebration of common cultural links between the two countries.

Areas of contention:

- **Water dispute:** Teesta river water sharing agreement has not been signed due to opposition from West Bengal. India and Bangladesh share 54 trans-border rivers, varying in sizes. There is major dispute and a bone of contention over India's plans to construct and operate the Farakka Barrage.
- **Illegal migration:** India shares a porous border with Bangladesh and as a result illegal immigration from Bangladesh to Indian territories like West Bengal and North Eastern states have become a source of conflicts in these areas
- **Domestic challenges:** Bangladesh recently suffers from political and social crisis due to communal violence and increase in terrorist activities. The Rohingya issue has imposed a huge economic and security burden on Bangladesh.
- **Illegal trade:** The porous borders are often used as a route for smuggling food items, livestock, drugs and medicines from India to Bangladesh.
- **Security Concerns:** Over the years, insurgency has strained the relations between India and Bangladesh. Since 1956, Northeast India has been the worst hit region facing insurgency due to growing ethnic separatism among the inhabitants. Liberation Front of Assam (ULFA), National Liberation of Tripura (NLFT) and National Democratic Front of Bodoland (NDFM) are major insurgent groups that have created an atmosphere of terror in Northeast India.
- **Increasing China's dominance:** China is strengthening its strategic, defence, economic and trade cooperation with Bangladesh. Among other defence hardware, Bangladesh also received its first ever submarines from China and to balance momentum move India's announced \$500 million line of credit for military hardware purchase.
- **Implementation of NRC (National Register of Citizens):** There are worries that almost 1.9 million people in Assam, whose citizenship is seen as questionable, may be deemed illegal migrants from Bangladesh and pushed into the country. However, India has assured Bangladesh that process to identify illegal migrants in the border state of Assam will not impact Bangladesh.
- **Amendments in Citizenship act:** Bangladesh is also miffed with India due its Citizenship (Amendment) Act, which aims to fast-track citizenship for religious minorities from Afghanistan, Bangladesh and Pakistan.

How economic dissociation started in the Indian subcontinent?

- The political Partition in 1947, which created Pakistan, did not immediately lead to economic dissociation.
- After the 1965 war, dissociation begun when the borders between India and Pakistan were closed.
- It made increasingly hard for the movement of goods and people.
- The subcontinent turned inward in its economic orientation.
- Countries in the region **de-emphasized transborder connectivity**.
- Political difficulties in both capitals also prevented Delhi and Dhaka from restoring the lost connectivity, even after they recognized its economic importance.

How India-Bangladesh relations evolved amidst dissociation in the subcontinent?

- Over the last decade, **political ties between India and Bangladesh** have improved due to systematic effort which helped in restoring the **natural connectivity** between West Bengal, Bangladesh and India's Northeast.
- The recent joint statement issued after Prime Ministers and Sheikh Hasina met virtually outlines a list of initiatives to deepen cooperation.
- **Bilateral Comprehensive Economic Partnership Agreement** outlines a host of areas for cooperation, from strengthening river water transport to managing a transboundary elephant corridor and from trade liberalisation to the setting up of a CEO forum.
- Both countries are also raising their ambitions for **regional connectivity** with Nepal, Bhutan, and Myanmar and Thailand.

Way forward:

- India needs to be careful in addressing the challenges posed by migration as India prepares to implement the **Citizenship Amendment Act**.
- Insensitivity towards illegal migration and migrants will derail ties between India and its most important regional partner, Bangladesh.
- Avoid making migration a political issue during elections in West Bengal because it can threaten bilateral relations.
- India need to revive and increase investments in the BBIN (Bangladesh Bhutan India Nepal Corridor) that can be competitive to Belt and Road Initiative of China
- Concluding the Teesta river water agreement by building consensus with West Bengal Government
- Steps to improve border management by improving the border infrastructure to reduce illegal migration
- Establishing more **border haats** for improving the trade among the locals residing along the borders of both the countries.

Speak for all religion: India tells the UN

Syllabus: Important International Institutions, agencies and fora - their Structure, Mandate

In News: In a strong statement at the UN General Assembly, India criticized the world body for what it called "selectivity" in seeking to protecting specific religions.

More in News

- India presented its criticism while discussing resolutions of the UN Alliance of Civilizations (UNAOC) on the 'Culture of Peace'.
- It criticized the world body for protecting Abrahamic religions — Islam, Christianity and Judaism — over others including Hindus, Sikhs, Buddhist & Jains.

About UNAOC

- UNAOC is the premier global platform for intercultural dialogue, understanding and cooperation among member states.
- It was established in 2005, as the **political initiative of Mr. Kofi Annan**, former UN Secretary-General and co-sponsored by the Governments of Spain and Turkey.
- **Formation:** A High-Level Group of experts was formed by Mr. Annan to explore the roots of polarization between societies and cultures and to recommend a practical programme of action to address the issue.
- The Report of the High-Level Group put forward practical recommendations that form the basis for the implementation plan of the **United Nations Alliance of Civilizations**.
- The United Nations Alliance of Civilizations High Representative and Secretariat are based and **operating from New York**.
- The Alliance maintains a global network of partners including states, international and regional organizations, civil society groups, foundations, and the private sector to improve cross-cultural relations between diverse nations and communities.
- **Priority areas for action:** Education, Youth, Migration, Media.
- **Additional Pillar:** In 2019, Mr. Moratinos announced that he intends to propose adding "Women as peace mediators" as an additional pillar of UNAOC.

Backdrop to the event

- **Adoption of Pakistan's resolution by UNGA:** UN General Assembly (UNGA) approved a Pakistan-led resolution on "Promotion of interreligious and intercultural dialogue, understanding and cooperation for peace".
 - Adoption of the resolution by the UNGA is part of Pakistan's diplomatic efforts inter alia for raising awareness about Islamophobia and countering the defamation of sacred religious personalities and symbols.
- **A Call for Mutual Respect:** Pakistan's Islamophobia resolution comes in the wake of a recent statement – A Call for Mutual Respect – given by the High Representative for the United Nations Alliance of Civilizations (UNAOC) Miguel Ángel Moratinos.
- **Stance of P5:** The UN resolution, which was co-sponsored by Pakistan and the Philippines, was adopted because among the P5 Nations, France, US & UK abstained from voting whereas Russia and China voted in favour of the resolution.
- **Press Statement by Spokesperson for the High Representative for the United Nations Alliance of Civilizations on the sectarian violence in New Delhi, India:** The High

Islamophobia can be referred as an exaggerated fear, hatred, and hostility toward Islam and Muslims that is perpetuated by negative stereotypes resulting in bias, discrimination, and the marginalization and exclusion of Muslims from social, political, and civic life.

Representative for the United Nations Alliance of Civilizations (UNAOC), Mr. Miguel Moratinos expressed his grave concern over the violent sectarian clashes that took place between Hindus and Muslims throughout the week in the capital New Delhi.

- The deadly violence resulted in the death of approximately 40 people and injuring 300 mostly Muslims as well as setting fire on shops and mosques.
- At the centre of these confrontations was the Citizenship Amendment Act (CAA) which triggered many protests by the Muslim community in India who are nearly 170 million.
- The High Representative for UNAOC noted that India is the world's largest democracy enriched by its multi-ethnic, multireligious society. He reiterated that inclusive societies where equal citizenship rights prevail are essential to building peaceful societies.

What did India highlight?

- **Not taking sides:** India's Ambassador to the UN called on the UN not to take sides when it comes to religion. It called on the countries not to divide the member states by bringing in a one-sided discourse or resolutions on religion, thereby politicizing it.
- **Misuse of Kashmir agenda:** According to Indian officials, Pakistan's agenda to badger India over the issue of Kashmir by using such resolutions that tacitly support Islamophobia. India is also concerned that this will weaken the country's counterterrorism efforts and cross-border terrorism.
- **Avoiding selectivity:** Addressing the UNGA session on 'Culture of Peace', First Secretary in India's Permanent Mission to the UN said, "The United Nations is not a body which should take sides when it comes to religion."
 - India particularly pointed out that UN did not condemn attacks on other religious groups including Hindus, Sikhs and Buddhists, who have suffered terror strikes and seen their shrines destroyed in Afghanistan and Pakistan.
- **Equality of religions:** India has said that as a multilateral body, the UN needs to "recognize all religions equally" according to contemporary times, or else the focus on attacks to religions such as Hinduism, Sikhism, Buddhism and Jainism will get diminished by the international community.
- **Pakistan's misdoings:** India's delegate also accused Pakistan of a "culture of hatred" against "religions in India" and fostering cross-border terrorism and said a culture of peace cannot exist until that is changed.

Constitutional Secularism in India:

Secularism as a principle is that religion cannot be a basis for discrimination of citizens. This is incorporated in Indian constitution through various provisions like

- Preamble promising secular state
- Right to equality (Articles 14, 15, 16)
- Right to religious freedom (Articles 25, 26, 27, 28)
- No religious restrictions for any secular executive posts like President, Vice president etc.

Principled distance to all religions is a unique feature of Indian secularism.

- Critical respect for all religions.
- Criticality ensures that practices which do not promote social equality, liberty and fraternity are not tolerated.
- Intervention when needed to promote constitutional values. Untouchability abolition, Triple Talaq abolition are examples. But such intervention cannot be discriminatory.
- In the case of western concept of secularism, there is a strict separation of state and religion. State cannot interfere in matters of religion.

Significance of India's Response

- **Backdrop of CAA, 2019:** India's response to UNAOOC is appreciable but there are chances that the world body may see it in the backdrop of passing the Citizenship (Amendment) Act, 2019 by India amid huge protest especially by Muslims in India.
 - CAA has been criticized for offering fast-track citizenship to only a select group of religions, leaving out Muslims.
- **Anti-conversion laws:** Many states in India are planning to pass anti-conversion law which can be said to be violative right to privacy and right to freedom of religion and conscience as highlighted in Article 25 of the Indian Constitution.

Way Forward:

In the larger analysis, the force of India's argument against the UN's selective resolutions and non-inclusive language as well as the international efforts of adversaries such as Pakistan remains its own secular credentials enshrined in the Constitution and its pluralistic ethos. India's pluralist traditions of social harmony will ensure that constitutional secularism will remain alive despite opportunistic politics.

Steps to promote secularism in right spirit are:

- Shift to a socially driven movement for secularism from a politically driven movement.
- Shift of focus from inter religious issues to intra religious issues.
- All religious practices must be tested against constitutional values of equality, liberty and justice.
- Gender and caste-based oppression must be addressed in all religions. This was the objective of 19th century socio-religious movements and must be pursued now.

Reform must come from within for effectiveness. Sole outside critique will not yield results when communities perceive it as threat to their way of life

- These will ensure a bottom-up building of peaceful and democratic secularism.

- More focus on intra religious issues will ensure that inter religious issues won't worsen further. It will give breathing space for evolving new forms of socio-religious tolerance which promote secularism, inclusion and democracy

WTO rulebook: need for Reform

Syllabus: Important International institutions, agencies and fora - their structure, mandate.

In News: WTO rulebook must evolve to support food security and rural livelihoods in developing countries.

The World Trade Organization (WTO) is the principal forum for setting the rules of international trade. In its two decades, it has helped reduce barriers to trade in both goods and services and created a dispute resolution system that has reduced the threat of trade wars. However, the institution is under considerable pressure. Disagreements over agricultural subsidies and intellectual property rights, separate bilateral and regional free trade agreements have reduced its effectiveness.

Functions of the World Trade Organization (WTO)

- **Administers signed agreements:** It administers existing multilateral trade agreements, for example Trade Related Aspects of Intellectual Property Rights (TRIPS) Agreement.
- **Settles disputes and prevents trade wars:** It settles disputes among its members through its Dispute Settlement Mechanism.
- **Manages new negotiations:** It serves as a platform and manager for negotiations on new global trade agreements like Doha Round.
- **Rules-based multilateral trading system:** WTO ensures that global trade is based on universal rules suited to and accepted across the world.
- **Stimulates global growth:** By removing trade barriers it provides more markets to world's resources thus stimulating global growth.
- **A global arbitrator:** WTO functions as an arbitrator between warring countries and aims at building commonality in policies and practices.
- **Promotes standardisation:** WTO and its members set standards of trade in goods, services and IP governance which reduces gaps between the quality produced and quality in demand.

The rules of WTO

- **Current WTO rules are codified in three agreements:** The General Agreement on Tariffs and Trade (GATT), covering international trade in goods; the General Agreement on Trade in Services (GATS); and the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS).

How does Indian subsidies doesn't distort market?

- India's support turns out to be negative for the years since 2000-01, **if domestic market prices are compared with international market prices** using the Producer Support Estimate methodology applied by the Organisation for Economic Cooperation and Development (OECD).
- Even after accounting for input subsidies, which represent a significant share of India's non-product-specific support using the WTO system for calculating farm support.

The issues in WTO's rules

WTO rules on domestic support to agriculture, at present looks tilted in favour of developed countries. In 2018, during global trade war escalation US claimed India's market price support (MPS) was above the permitted 10 per cent limit as per 'de minimis provision'. US Economist Franck Galtier also pointed out 3 biases in the WTO rules;

- **Firstly, using external reference price" (ERP) instead of present data.** WTOs External Reference Price or ERP, for calculation of market price support (MPS) limit is set at 1986-88 level, even after global price hikes of 2007-08 and 2010-11.
- **Secondly, using procurement (administered) price,** instead of domestic market price for calculation of support received by farmers.
- **Third, using total production instead of actual procurement.** There is no clarity on whether to country's food grain production or the amount that has been procured by government. While India uses just the number of grains procured by the government, US using total production of rice and wheat to raise its objections. Other than above biases, there are other concerns of India as well.
- **Fourth, US computes the MPS using the rupee as the currency** while India calculates the value in dollar terms.
- **Fifth, Majority of the agri. Subsidies by developed countries have been listed in the green box, as non-distorting.** For Ex, 88% of farm subsidies by US has been listed in green box, resulting into increase in its farm subsidies from around \$61 billion in 1995 to \$139 billion in 2015.
- **Sixth, the delays** as many countries pursuing improved market access and closer economic integration through bilateral and regional talks.
- **Seventh, paralysed dispute settlement function:** Donald Trump administration's decision to veto new appointments to the WTO's appellate body leaving many to question the future of the rules-based multilateral trading system.
- **Eighth, method of calculation:** Market price support levels are calculated by taking the gap between applied administered prices and an external reference price or ERP, set at 1986-88 levels, and multiplying this by the volume of eligible production.
- **Ninth, divergent views on benchmark:** WTO members could usefully consider whether the fixed ERP of 1986-88 is still a relevant benchmark, especially in the wake of the global price hikes of 2007-08 and 2010-11.
- **Tenth, current scenario:** food security disruption caused by US-China trade tensions and the inconclusive outcome of the WTO's 2018 ministerial conference in Buenos Aires.

Market price support for a product = (administered price at the farm gate – fixed external reference price) x eligible production

Suggestions for updating rules

If domestic market prices are compared with international market prices using the Producer Support Estimate methodology applied by the Organisation for Economic Cooperation and Development (OECD), India's support, turns out to be negative for the years since 2000-01.

Thus, there is a need for updating the rules so that it becomes more relevant considering the present global realities and requirements by incorporating following suggestions;

- **Firstly**, the reference period for price calculation should be updated to an average of 2014-16 or 2016-18 price levels.
- **Secondly**, support consumed by subsistence farmers themselves, instead of selling in the market MSP, should be excluded from the calculations.
- **Third**, India has recently pitched for a new criterion based on the “**support per farmer**”, instead of **Aggregate Measurement of Support (AMS)**.
- **Fourth**, a differential criterion should be developed for the countries having deteriorated social and health conditions so that they do not have to choose between the health of their people and export ban on them.

What are the existing issues related to India?

- Whether the current farm subsidy rules provide enough room for developing countries to buy food at government-set **minimum support prices** as part of their public stockholding programmes.
- To negotiate a permanent solution.
- India's farm subsidy notification this year to the WTO's committee on agriculture brought the topic of procurement under public stockholding programmes.
- It indicated that India had breached its agreed ceiling on product-specific support to rice during marketing year 2018-19.
- For example, India's wheat support was close to breaching product-specific support ceilings, with administered prices at \$263.15/tonne.

Problems facing the WTO:

- **Unilateralism and protectionism:** For years, the multilateral system for the settlement of trade dispute has been under intense scrutiny and constant criticism. The U.S. has systematically blocked the appointment of new Appellate Body members and de facto impeded the work of the WTO appeal mechanism. This unilateralism has raised questions about the authenticity of WTO.
- **Dispute's settlement:** Dispute settlement cases continue to be filed for the time being and are being litigated. A dispute over trade issues persists and has not reached a consensus. This has led to continuous violation of WTO principles.
- **Trade distortion:** Many WTO members bear responsibility for the use of trade-distorting domestic subsidies. Agricultural and industrial subsidies have caused blockages in the system and prompted protectionist reactions in several WTO members. Blockage and deadlock in the Appellate Body stage of the WTO dispute settlement system triggered the present crisis.
- **Tariff manipulation:** The US and the EU have not been able to counter China's tariff manipulation. They are also bound by the commitments made under the WTO rules so they cannot raise import duties without violating WTO rules. But they do not want to meet the WTO obligations such as reducing agriculture subsidies.
- **Lack of consensus:** The developed nations game plan is to put the old obligations on the backburner and push the WTO to form rules on e-commerce, an area where the US firms

have a clear edge. Most WTO member countries want them to first deliver on the agreed issues like reduction in agriculture subsidies.

- **China's State Capitalism:** the rulebook of the WTO is inadequate for addressing the challenges that China presents in respect of intellectual property, state-owned enterprises and industrial subsidies.

The key areas of reforms are:

- **Reforming the voting process:** Majority of negotiations are usually blocked by dissenting countries. Therefore, guidelines should spell out clear criteria for when a country may use its veto power. Veto usage needs to be weighed against the interests of all, and in light of the WTO's mandate.
- **Independent panel as arbiter:** An independent panel could play the role of arbiter, evaluating the competing claims and helping to overcome the political deadlock.
- **Framing New rules:** GATT/WTO rules in several areas are outdated. New rules are required to keep pace with changes in the market and technology. Rules and disciplines on topics ranging from trade-distorting industrial subsidies to digital trade require updates.
- **Appointment process:** The appointment process to dispute settlement body should be made independent of political control.
- **Plurilateral negotiations:** Plurilateral negotiations should be promoted as they allow like-minded members to come together to deliberate on a specific issue. This makes it easier and faster to negotiate than multilateral accord like passage of Trade Facilitation Agreement in 2013.
- **Dispute settlement reform:** This includes expanding the Appellate Body panel from seven to nine judges, redefining membership of the Appellate Body from part-time to full-time and allocating more resources to the Appellate Body Secretariat.
- **Increasing transparency:** WTO members should proactively disclose their subsidies to develop trust and transparency among WTO members.

Way forward:

- **Updating the reference prices** to average 2014-16 or 2016-18 levels or using a rolling average instead flattening out volatility by excluding the highest and lowest years from a five-year period.
- **Exempt support from counting towards maximum limits** when administered prices are set below international market price levels.
- Members could also **discount support consumed by subsistence farmers** themselves from the calculation of the volume of eligible production or **exempting procurement** that only equates to a small share of domestic output.
- WTO members need to agree on a **shared framework for action on farm subsidy reform** and set a clear direction and a timeframe for reaching a rational conclusion.
- Minimise disruption in food supply chain.
- The December meeting of the General Council that is mulling over WFP food aid issues offers India (with G-20) an opportunity to demonstrate its commitment to WFP food aid and help **rebuild confidence in WTO's ability**.

- An agreement under WTO could also lay the groundwork for long-overdue progress on the wider trade and food security agenda at the WTO.

SCO Summit

Syllabus: Important International Institutions, agencies and fora - their Structure, Mandate.

In News: Three years after joining the eight-nation Shanghai Cooperation Organisation (SCO), India hosted the SCO heads of governments (HoG) meeting for the first time.

About the SCO

- It is a permanent intergovernmental political, economic and military organization founded in Shanghai in 2001.
- **Working Languages:** Russian and Mandarin.
- **Shanghai Spirit:** Working of the SCO is underpinned by the “SHANGHAI SPIRIT” which is about mutual trust, mutual benefit, equality, consultation, respect for cultural diversity and pursuit of common development.
- **Working structure**
 - **The Heads of State Council (HSC):** It is the highest decision-making body in the SCO.
 - **The Heads of Government Council (HGC):** It is SCO’s second-highest body that deals with the grouping’s trade and economic agenda besides approving its annual budget.
 - **It has two permanent bodies:**
 - **The Secretariat** coordinates the activity of the SCO and provides informational, analytical, legal, organizational and technical support.
 - **The Regional Anti-Terrorist Structure (RATS)** works for combating regional terrorism, separatism and extremism.
 - **The SCO Business Council and SCO Interbank Consortium** also work for increasing the cooperation among members for expanding economic cooperation and bank services respectively.

Global influence

- SCO represents around 42% of the world's population and 20% of the global GDP.
- Four of its members (India, Russia, China and Pakistan) are nuclear powers and 2 (Russia and China) are permanent members of the UN Security Council (UNSC).
- The SCO is considered a counterweight to the North Atlantic Treaty Organization (NATO).
 - Both the organizations have geopolitical interests in Central Asia and the Gulf.
 - The SCO holds a degree of influence that is greater (in terms of land-mass) than NATO.

Relevance of the SCO for India

- **The focus:** The focus of the 66-point joint statement was in developing a “Plan of Priority Practical Measures for 2021-2022 to overcome the socio-economic, financial and food consequences of COVID-19 in the region”.
- **Tackling Pakistan:** India made strong observations on cross-border terrorism; Our Vice president called it the SCO region’s “biggest challenge”, in comments aimed at Pakistan.

- **Controlling regional terrorism:** SCO's defence-centric structures and activities of RATS have achieved considerable successes in curbing regional terrorism.
- **Political dynamics of Afghanistan:** It is likely that after the withdrawal of US and NATO forces from Afghanistan SCO will start playing a more prominent role.
 - The SCO-Afghanistan Contact Group which was suspended in 2009 has also resumed working since 2017. Thus, SCO would provide a platform to India for engaging in the Afghanistan's political dynamics.
- **Political relevance:** At annual summit of the SCO India gets opportunity to renew bilateral ties with regional countries.
 - **Eurasian region:** The forum also provides India greater visibility in the affairs of the Eurasian region.
 - **Central Asia:** SCO also makes India an active key stakeholder in shaping the dynamics of politically fragile, Central Asian Region (CAR) which is also seen as a fertile ground for terrorism and drug trafficking.
- **Economic relevance:** CAR is rich in iron-ore, coal, oil, gas, gold, lead, zinc, molybdenum, uranium, gold, gas and energy gas etc. India's economic diplomacy in SCO is focused less on Russia, China and Pakistan and more on CARs.
- **Connectivity:** SCO is also a potential platform to advance India's Connect Central Asia policy - through trade, people to people contact and cultural connect.
- **Energy interests:** India's pending energy projects like the TAPI (Turkmenistan-Afghanistan-Pakistan-India) pipeline, IPI (Iran-Pakistan-India) pipeline, and CASA (Central Asia-South Asia) all of which are blocked due to Pakistan may get a much-needed push through the SCO.
 - **SCO Energy Club** can facilitate deeper interactions between producers (Russia, Kazakhstan, Uzbekistan and Iran) and consumers (China, Tajikistan, Kyrgyzstan, India, Pakistan and Mongolia)
- **Security:** SCO's main objective of working cooperatively against "three evils" of terrorism, separatism, and extremism is in consonance with India's interests.
 - Regular participation in Regional Antiterrorist Structure (RATS) and joint military exercises (India participated in 2018) will help enhance combat capabilities and intelligence sharing.
 - The SCO is a rare forum under which India-Pakistan troops take part in joint exercises under the Regional Anti-Terror Structure, although it would seem the two countries have come no closer on the issue.
 - Both Central Asian Region countries & India face serious threat from illegal drug trade emanating from 'Golden Crescent' of opium production (Iran-Pak-Afghan) and are also victims of illegal arms trade. SCO provides a platform for multilateral cooperation.

Challenges for India

- **China's BRI:** SCO is a China dominated organization. The Belt and Road Initiative (BRI) has been endorsed by all the members except India.
 - BRI is a concern for India as China-Pakistan Economic Corridor (CPEC) grossly violates India's sovereignty. China may try to limit and balance India's influence in the region by supporting Pakistan.
- **Controlling Pakistan Sponsored terrorism:** China has always condoned Pakistan's link with terrorist activities in India. SCO may not prove very effective in controlling Pakistan sponsored terrorism.
- **Trust deficit:** Trust Deficit between members like India & Pakistan and India & China can be major drag on the effectiveness of the organization.
 - Growing closeness of Russia and China adds to the difficulties that India faces due to China Pakistan axis in the SCO.
- **Definition of terrorism:** India's definition of terrorism is different from the definition of SCO under RATS.
 - For SCO, terrorism coincides with regime destabilization; whereas for India it is related to state sponsored cross border terrorism.
- **Lack of connectivity with Central Asia and beyond:** A major impediment in connectivity with Central Asia and Eurasia remains the strategic denial of direct land connectivity between India and Afghanistan and beyond by Pakistan.

Way Forward

The SCO has been seen as a grouping worth pursuing as it retains India's geopolitical balance, a useful counterpoint to New Delhi's otherwise much more robust relations with the western world and hosting the SCO meeting was one more step towards developing that engagement.

- **Consistent efforts** should be made by SCO mutual trust among the member states. India's concerns over violations of 'sovereignty and territorial integrity' must be adequately addressed by China.
- **There should be consensus** over issues like terrorism and extremism and RATS-SCO should be tasked to identify and assess the presence of major terrorist groups throughout the SCO region

GENERAL STUDIES 3

The Perpetual MSP Issue

Syllabus- Issues related to direct and indirect farm subsidies and minimum support prices

Synopsis - present market structure is not favourable for marginal farmers; government should adopt a balanced approach to reach a solution on farm bills.

In News: While the farmers demand a repeal of the three new farm laws, the government insists the reforms are "farmer-friendly".

Background

- A set of three laws passed in September aims to deregulate India's enormous agriculture sector aimed at "liberating" farmers from the tyranny of middlemen.
- But many farmers fear that they stand to lose more than they could gain from the new regulations and these are the following concerns of farmers-
 - **End of MSP-** Their main worry is about a possible withdrawal of the MSP and a dismantling of the public procurement of grains.
 - **Promote corporate control-** The farmers contend the federal government is making ready to withdraw from the procurement of food grain and hand it over to the company gamers.

The issues in present Agri. Market structure

Present Agri. Market structure which suffers from the lacunas of MSP system, restrictive Mandi system and APMC market structures, is doing more harm than benefits to the marginalized farmers.

- **First, CRIER-OECD study on agricultural policies** showed that over the period 2000-01 to 2016-17, Indian agriculture was implicitly taxed to the tune of almost 14 per cent of its value.
 - What this implies is that Indian farmers have been implicitly taxed heavily through restrictive marketing and trade policies [export controls, stocking limits and restrictive mandi system]
- **Second, the procurement system and MSP mechanism** are beneficial particularly for the rich farmers of Punjab and Haryana
 - The NSSO's Situation Assessment Survey [2012-13] revealed that Only 6 per cent of the farmers in India are fully covered and benefitted by the MSP, and 84 per cent are in the states of Punjab and Haryana.
 - The MSP and APMC system primarily help those who have large surpluses, mainly the large farmers.

How is MSP determined?

- **The Swaminathan Committee** set three variables to regulate the production cost. These three variables are:
 - **A2:** These are the out-of-pocket expenses incurred by farmers including loans for fertilisers, fuel, machinery, irrigation, etc. and cost of leasing land.
 - **A2+FL:** This is the estimated value of the unpaid labour for harvesting crops such as contribution of family members and others. It is in addition to paid-out cost.
 - **C2:** Comprehensive Cost (C2) is the actual cost of production as it takes into account for rent and interest foregone on the land and machinery owned by farmers, in addition to the A2+FL rate.

- **The ideal formula:** According to the Committee, the ideal formula to calculate the MSP would be $MSP = C_2 + 50\% \text{ of } C_2$

How India achieved self-sufficiency in food grain production mainly in wheat and rice?

- **Ship-to-mouth situation in India:** In the early 1960s, near-famine conditions prevailed in India and some 10 million tonnes of wheat had to be imported from the US under the PL480 programme.
- **Green Revolution:** With the efforts of M S Swaminathan seeds of high-yielding dwarf wheat varieties were procured from Norman Borlaug wheat-improvement programme and were distributed to the Indian Agricultural Research Institutes. These high yielding seeds ushered the era of Green revolution in India.
- **Self-sufficiency:** With favourable government policies, efforts of agricultural scientists and due to the immense contributions of farmers of Punjab, Haryana and western UP, India achieved self-sufficiency in food grain production mainly in wheat and rice.

Reasons for farmers from “food bowl” region protest against the new farm bills

- **MSP not guaranteed:** The Farmers of the “food-bowl” states have been selling food grains (mainly wheat and rice) at Minimum Support Price (MSP) since the mid-1960s.
- This has helped the central government create a central pool of food grains and the Public Distribution System (PDS) to help the poor.
- However, MSP has not been guaranteed in the newly enacted farm laws, which is the major bone of contention.
- **APMC under threat:** The Agriculture Produce Marketing Committees (APMCs) are under threat from the new farm laws. Many experts feel that MSP and APMC go together. This has created uncertainty in the minds of farmers about the continuation of MSP.
- **Dealing with lawyers:** Though the new farm laws are meant to eliminate the “middlemen” (arhtiyas), farmers feel that a new class of middlemen, that is, lawyers belonging to big companies, will emerge leaving small farmers at a distinct disadvantage. (more than 80 per cent of farmers own less than five acres of land).
- **Exploitation of farmers:** According to the central government, the new laws will ensure contract farming. However, the farmers feel that the big companies might become monopolies and exploit both farmers and consumers. Farmers fear being made into labourers.
- **Lack of discussions:** The way the bills are passed without consultation of stakeholders and lack of discussion in the parliament has provoked a reactionary response from farmers.

Is it feasible to accept demand of MSP guarantee?

- **Not economical:** India has about 14 crore farmers (as per PM-KISAN enumeration). Cost of procuring all 23 crops is 50 per cent of India's annual expenditure
- **Unsustainable burden:** The cost of MSP and subsidised food supplies are being met by heavy borrowings from the National Small Savings Fund (NSSF).
- **Rising subsidies:** In 2019-20, 11 per cent of the country's total budget was spent on farmer welfare schemes. Subsidies on food and fertiliser and expenses on irrigation schemes in 2019-20 noticed a 65 per cent jump from 2017-18.
- **Direct benefit:** introduction of the PM-KISAN scheme resulted in leap in food subsidy.
- **Rise in procurement:** Procurement of food crops including paddy, wheat, pulses and oilseeds under MSP has seen a dramatic increase. For example, compared to 1,395 lakh tonnes of wheat procured between 2009 and 2014, 1,627 lakh tonne of wheat have been procured in the last five years.

What are the other issues?

- **Disparities:** MSP's poor implementation has created problems of equity with large farmers of just two States Punjab and Haryana.
- **Faulty policy:** As per CACP, more than 95 per cent paddy farmers in Punjab and about 70 per cent farmers in Haryana are covered under MSP operations. States such as Uttar Pradesh (3.6 per cent), West Bengal (7.3 per cent), Odisha (20.6 per cent) and Bihar (1.7 per cent), have only a minuscule number of farmers benefit from procurement.

The steps to be taken by the government

- **First, MSP to be continued-** The government need to assure farmers in writing that the new laws discontinue APMC and MSP system.
- **Second,** Government needs to **clarify about the contract farming** that that the contract will be for the produce, not the farmer's land.
- **Third, farmers can take disputes to district courts.**
- **Forth,** Government can also approve **Rs.25,000 Crore alternate fund under the Price Stabilization Scheme** to support market prices in case when prices fall below 10 percent the MSP. However, The Food Corporation of India is already overloaded with grain stocks that are more than 2.5 times the buffer stock norms.
 - To deal with such situation, Government can either limit the quantity of procurement or go for Price deficiency Payment system for those who buy "put options" at MSP to address the gaps in MSP based procurement of crops.
 - An expert committee will have to be set up to investigate its operational guidelines and further announcement of a diversification package for the Punjab-Haryana region can be done.

Are MSPs irrelevant for the welfare of the farmers?

- According to the supporters of the farm bills the MSPs are irrelevant for most of the farmers in the country as it benefits only a small fraction of farmers (Punjab and Haryana) and procurement has remained confined to only a few crops.
- However, it has indirectly benefited all food grain producers in the country.
- For example, the procurement through MSP significantly exceeds the PDS requirement, this creates additional demand in the food grain market, pushing up the prices especially when the international prices have remained low.
- The RBI's annual report of 2017-18 on the impact of MSP-based procurement on the food prices conclusively shows that MSP is a leading factor influencing the output prices of the farm produce in the entire country.
- Also, for rain-fed agriculturists, the only state supports these farmers (primarily cotton and pulse producers) have is that of MSPs as they are deprived of irrigation and they don't benefit from subsidies on electricity and fertiliser.

The way forward

- **Guarantee MSP:** A clause should be added in the law to the effect that no matter who buys the produce government or a private entity, the farmer must be given MSP.
- **Implementation of MS Swaminathan committee recommendation:** The National Farmers' Commission recommended to provide an MSP of 50 per cent over and above a farmer's input expenses must be implemented.
- **Need for Special MSP:** MSP should be determined on the basis of grain quality. For example, wheat varieties grown in the "food bowl" states contain 11 per cent protein compared to 7 per cent protein grown elsewhere.
- **Promote crop diversification:** Government need to purchase crops produced other than wheat and rice at MSP. This could help conserve the underground water and soil fertility.
- **Encourage farmers to grow high-value crops:** For this to happen the government should set up adequate cold-chain infrastructure so that perishable produce can be kept longer and sold at an appropriate time.
- **Discussion, Deliberation, Debate:** Including intellectuals like M S Swaminathan, Gurdev S Khush, Surinder K Vasal, and Rattan Lal in the "Agricultural Think Tank" and they should be consulted by Niti Aayog
- **Farmer Producer's Organizations can be helpful for small and marginal farmers:** In India, 86 per cent of farmers are small and marginal (less than 2 ha), who do not get the benefit of MSP system.
 - Farmer's Producer's organizations (FPOs) at village level, consisting of small farmers, supplemented by the mechanism of new farm laws will benefit them.
 - The creation of an additional 10,000 FPOs and the promised Agri-infra Fund of Rs. 1,00,000 Crore will aid this process.

Conclusion

- On the one hand, repealing of new farmer's law would be unfair for small and marginal farmers as they never got any benefit from the MSP system. On another hand, High price to farmers also mean high food prices for consumer.
- Thus, there is a requirement to strike a balance between the interest of various stakeholders of Indian farming system and its consumers.

The Honey Adulteration In India

Syllabus: Issues related to Food Processing and Related Industries in India.

In News: The Centre for Science and Environment (CSE) has released results of an investigation it had conducted into the quality of honey being produced in India.

Findings of the investigation

- **Big brands:** Out of 13 big brands including Dabur, Patanjali, Baidyanath, Zandu, Hitkari, and Apis Himalaya etc., only 3 brands passed all the tests. The level of adulteration in big brands is such that tests carried out by an Indian laboratory were unable to detect the contamination in top brands and could only be caught after the use of an advanced laboratory test called nuclear magnetic resonance spectroscopy (NMR) in Germany.
- **Use of added sugar:** CSE has reported that products by many popular brands were not honey. The brands had been using rice and sugar syrups to adulterate honey.
- **Adulteration technology:** The CSE also showed that advanced adulteration technology was used which went undetected under testing protocols mandated by the Food Safety and Standards Authority of India (FSSAI).
- **Chinese Sugar:** The investigation reported that manufacturers in China were openly selling high fructose syrups, which they claimed could pass C3 and C4 tests mandated by India's FSSAI. Companies could mix at least 50 percent sugar in their honey. It would go undetected under the FSSAI testing guidelines.
- **Indian law:** The new modified 'Chinese sugar' can only be detected by a test called Nuclear Magnetic Resonance (NMR). However, NMR test is not required by Indian law for honey that is being marketed locally but is needed for export.

Laws against food adulteration in India

- **Food Safety and Standards Act, 2006 (FSS Act, 2006):** Government enacted the FSS Act, which repealed all other laws governing food quality in India at that time (including Prevention of Food Adulteration Act, 1954).
 - **Role of central government:** The act empowered the central government to frame rules under the act to deal with several aspects with respect to the regulation of food safety.
 - Following are some of the rules framed by the government:
 - Food Safety and Standards (Licensing and Registration of Food Businesses) Regulation, 2011.
 - Food Safety and Standards (Packaging and Labelling) Regulation, 2011.
 - Food Safety and Standards (Laboratory and Sampling Analysis) Regulation, 2011.

- Food Safety and Standards (Food Product Standards and Food Additives) Regulation, 2011.
- **FSSAI:** Act established the **Food Safety and Standard Authority of India** (FSSAI) to supervise and regulate food safety and standards.
 - FSSAI is empowered to establish various other authorities like the Central Advisory Committee, Scientific Panels, and committees for consultation and opinions in the matters of food safety.
- **Food Commissioners:** The Act empowered the State Government to appoint a Commissioner of Food Safety for the State for effective implementation of the provisions at the State level.
- **Food Safety officers:** Food Commissioner is authorized to appoint Food Safety officers for each district.
 - A food safety officer is the authorized person to inspect the safety and security of food that is being served in restaurants or street food stalls.
- **Licensing:** Act prohibits any person to operate any food business without a license from the designated officers.
- **Penalties:** It provides for the punishment for the Import, manufacture, storage, sale or distribution of any food article which is adulterated and compensation to the victims.
- **Indian Penal Code, 1860:** According to Section 272 and 273, food or drink adulteration or sale of such food or drink is an offense punishable with imprisonment which may extend to six months or fine or both.
- **Consumer Protection Act, 2019:** The Act provides for punishment by a competent court for the manufacture or sale of adulterant/spurious goods.
- **Codex Alimentarius commission:** It adopts international food standards, guidelines and codes of practice which contribute to the safety, quality and fairness of this international food trade.
- **Harmonised system (HS) code:** It describes the type of good that is shipped, so certain items that are used for adulteration can be scrutinized well during custom clearance.
- **Initiatives by FSSAI:**
 - **DART:** FSSAI has set up an online platform named DART (Detect Adulteration with Rapid Test) for checking the quality of various food articles like milk, dairy products, oils, grains, fruits, vegetables, sugar, beverages, etc.
 - **Food Safety Compliance System (FoSCoS)** to replace existing Food Licensing and Registration System.
 - **RUCO (Repurpose Used Cooking Oil) initiative:** Under this Total Polar Compounds (TPC) of Vegetable oil is limited to 25 percent. Beyond which the vegetable oil shall be collected and converted into Bio Diesel
 - **InfoLnet (Indian Food Library Network):** It is a network of Indian Food laboratories connected to a centralized network for effective management.
 - Apart from these FSSAI also launched initiatives such as **Eat Right India, Save food Share food etc.**

- **Jaivik Bharat Portal:** It is the regulatory portal on Organic Food in India. It was jointly developed by FSSAI, APEDA and PGS-India.
- **Food Fortification Resource Centre** has been established by FSSAI with the help of TATA trusts.
- FSSAI is the **National Codex Contact Point of India (NCCP)**, which maintains Codex Alimentarius Commission 's (CAC) standard in India.

Common food adulterants

- Corn starch, sawdust, and flour are used as 'fillers' in spices.
- Khoya is adulterated with paper, refined oil, and skimmed milk powder
- Milk has been adulterated with diluted water, detergent, fat, and even urea.
- Tea leaves are usually adulterated with the same-colored leaves, some of which might not even be edible and cause liver infection.
- Wheat is very commonly adulterated with ergot, a fungus containing poisonous substances, and is extremely injurious to health.
- Oxytocin saccharin, wax, calcium carbide, and copper sulphate are very common adulterants in fruits and vegetables.
- Arhar dal is mostly adulterated with metanil yellow. Long-term consumption of metanil yellow on the developing and adult brain causes neurotoxicity.
- Consumption of adulterated food items leads to the accumulation of a toxic substance in the body, which may further lead to heart failure, liver and kidney disorders.

Causes of adulteration

- **Profit motive:** Big and small business owners are adulterating the products to maximize their profits by reducing the cost of producing them.
 - For example, in the case of honey, producers have been allegedly using sugar syrup which is less costly compared to raw honey.
- **Lack of technology:** India is lacking the technology to detect the adulteration of high levels. Such as in the present case of adulteration in honey, Indian tests could not be able to detect the adulteration in the samples provided by the big brands.
- **Lesser Punishment:** Punishment for adulteration, which may cause grievous injury to the human system and cause the disease like cancer, is not stringent.
- **Increasing food demand:** With the growth of the population together with their purchasing power, demand for food products is also increasing at a fast pace. To meet this increasing demand, adulteration becomes a common phenomenon.
- **Lack of manpower:** FSSAI has cited a shortage of food safety officers and laboratories as reasons for increasing the production of unsafe food products.

Impacts of Food Adulteration

- **Livelihood:** With falling food prices and reduced production of raw food due to food adulteration, threatens the livelihood of food producers.
 - For example, Adulteration in honey affects the beekeepers due to less demand of raw honey.
- **Production and cost:** Adulteration can directly reduce production of raw food items, which also increases the production cost and less market price for raw food.

- **Nutritional value:** Adulterated food is of low quality and has no or very fewer nutritional values, which can create problem of malnutrition.
- For example, Milk with water have less calcium and protein content.
- **Human health:** Food adulteration increases the impurity in the food items thus making them imperfect to consume, which can cause various diseases chronic diseases like Liver Disorder, Diarrhea, etc.

Way forward

- **Public awareness**
 - The most important component for ensuring food safety is the people themselves. If people are aware of the on-the-spot quality assessment techniques of the products they might be able to avoid low-quality or harmful products.
 - Thus, awareness must be spread on a wider scale among people for ensuring food safety through various social media platforms.
 - One of the most potential post-purchase ways to check adulteration is by performing simple tests at homes. Consumers should also be aware of their rights and report the seller who has sold them adulterated food.
 - People need to be very cautious when they buy products from stores and malls. They should check for standards like ISI standard mark, Agmark for quality products, FSSAI standard mark, date of packing and date of expiry, etc.
- **Increasing punishment**
 - One way of doing this is by hiking the penalty, including making it analogous to attempt to murder in some extreme cases of adulteration.
- **Testing**
 - Authentic testing of food and adulterant detection of various food products is required for value assessment.
 - The government can set up more testing laboratories with acceptable charging fees, where the purity of food can be analyzed by sending a sample of food by the public.
- **FSSAI proposal:** The government should consider the following amendments proposed by FSSAI to FSS act, 2006:
 - In extreme cases like deaths due to adulteration, Punishment for a term which shall not be less than 7 years, but which may extend to imprisonment for life and fine which shall not be less than Rs. 10 lakhs.
 - Increasing the punishment for obstructing, impersonating, intimidating, and threatening, and assaulting a food safety officer to the imprisonment of not less than 6 months and up to two years, besides a penalty of up to Rs 5 lakh.

Pharma Sector Overview

Syllabus: Awareness in the field of Bio-technology

In News: Recently PM followed up his 3 cities visit by a virtual meeting with 3 more vaccine developers based in Pune and Hyderabad.

More in News

- Ambassadors of 100 countries are scheduled to arrive in Pune on December 4, to visit Serum Institute of India and Genov Biopharma.
- Sweden has already acknowledged India's role as the 'pharmacy of the world' and is focusing on expanding bilateral cooperation in the areas of health and life sciences in view of the Coronavirus pandemic.

State of India's pharma sector

- From **2000-2019 Pharma sector alone contributed for FDI inflows worth \$16.2bn** and it is expected to rise during COVID pandemic.
- **Economic Survey 2019-20** acclaimed Pharma sector as one of the top 5 sector which reduce trade deficit of India.
- More than **80% worlds Anti Retro-viral drugs** depend on India.
- India is the **largest producer of vaccines** even before COVID pandemic and controlled more than 50% of global supplies.
- **Biopharma is the largest sector** contributing to 62% of the total revenue.
- It is estimated that medical tourism in the country can grow and become a 9 billion dollars industry this year.
- India is the **largest provider of generic medicines globally**, occupying a 20% share in global supply by volume, and supplies 50% of global demand for vaccines. (Leader in Global Supply of DPT (Diphtheria, Tetanus, Pertussis), BCG (Bacillus Calmette-Guérin) and Measles Vaccine)

Growth drivers of the Industry

Demand-side	Supply-side
<ul style="list-style-type: none"> • According to a recent report from the India Brand Equity Foundation (IBEF): • Accessibility: Over \$200 Billion to be spent on medical infrastructure in the next decade. • Affordability: Rising income could drive 73 million households to the middle class over the next 10 years. • Epidemiological Factors: Patient pool expected to increase over 20% in the next 10 years, mainly due to the rise in population, New diseases & lifestyle changes. 	<ul style="list-style-type: none"> • Patented Drugs: Following the introduction of product patents, several multinational companies are expected to launch patented drugs in India. • Medical Infrastructure: Pharma companies have increased spending to tap rural markets and develop better medical infrastructure. Hospitals' market size is expected to increase by 2024. • Cost Efficiency: India's cost of production is nearly 33 % lower than that of the US and almost half of that of Europe.

Regulation of India's pharma sector

- **Drugs and Cosmetics Act 1940**
 - It is a central legislation that regulates India's drug and cosmetic import, manufacture, distribution and sale.
 - The Act clearly defines the spurious drugs, adulterated drugs and mis branded drugs.
 - This also established the Central Drugs Standard Control Organization (CDSCO)
 - The Act establishes the regulatory control over the manufacture and sale of drugs
 - State Health department has to regulate the manufacturing, sales and distribution of drugs
 - Drug Inspectors will control the implementation at ground level.
- **Central Drugs Standard Control Organization (CDSCO)**
 - Central Drug Authority for discharging functions assigned under the Drugs and Cosmetics Act
 - The CDSCO works in the Directorate General of Health services, is a division in Ministry of Health and Family welfare
 - The CDSCO is headed by Drug Controller General of India (DCGI).
 - It was advised by Drug Technical Advisory Board and Drug Consultative Committee.

Challenges in the pharma sector

- **From regulator side:**
 - Doing a post-mortem kind of work by inspecting the drugs after getting into market.
 - Low data collection on drugs coupled with insufficient training to drug inspector leading to huge malpractice among drug sellers.
- **From Marketing side**
 - Medical representatives and drug sellers inefficient training to meet the manpower along with prevalence of Quack (fake doctor) increases risk of life of patients.
 - Pharma companies' unethical practice of providing freebies and gifts to doctors to promote their drugs.
- **Quality is getting compromised** due to high demand for drugs among people. This is evident by wide scale recall of drugs in India.
- **Low R&D investment:** India only invests 0.7% of its GDP for research and investment. This is very low compare to the demand in the sector
- **International Challenges**
 - Global Pharma companies accuse Indian pharma companies as an abuser of Patent laws and criticise India's Compulsory Licensing Policies.
 - India nearly 90% depend on China for its Active Pharmaceutical Ingredients

- **Import dependency**

- India continues to rely on imports of key starting materials, intermediates and API's for, China. This potentially exposes us to raw material supply disruptions and pricing volatility.
- The industry should therefore, also explore alternate sourcing locations (such as Vietnam, Indonesia) while indigenous capabilities & capabilities ramp up.
- Recent lockdown in China due to COVID 19 had caused disruption in Indian pharmaceutical industry.

Active pharmaceutical ingredient (API):

It is biologically active component of a drug product (e.g., tablet, capsule).

Drug products are usually composed of several components. The aforementioned API is the primary ingredient.

70% of India's API imports are imported from China.

Government Initiatives

- The Department of Pharmaceuticals aims to make the country a hub for end-to-end drug discovery under its 'Pharma Vision 2020'.
- **Promotion of Bulk Drug Parks:** Under this scheme, decision is to develop 3 mega Bulk Drug parks in India in partnership with States.
 - Government of India will give Grants-in-Aid to States with a maximum limit of Rs. 1000 Crore per Bulk Drug Park. Parks will have common facilities such as solvent recovery plant, distillation plant, power & steam units, common effluent treatment plant etc.
 - A sum of Rs. 3,000 crores have been approved for this scheme for next 5 years. It will be implemented by State Implementing Agencies (SIA) to be set up by the respective State Governments.
- **Production Linked Incentive Scheme for promotion of domestic manufacturing of critical KSMs/Drug Intermediates and APIs**
 - Financial incentive will be given only to eligible manufacturers of identified 53 critical bulk drugs on their incremental sales over the base year (2019-20) for a period of 6 years.
 - The scheme will be implemented through a Project Management Agency (PMA) to be nominated by the Department of Pharmaceuticals.

Way Forward

- **Implementing the recommendation of Malshekar committee** on drug regulation:
 - Recommend a new structure for the Drug Regulatory System in the country including the setting up of a National Drug Authority
 - Recommended that the State Drug Control Organisations should be urgently strengthened.
- **Creating a Digital Database** for patients, drug usage and risk associated with the intake of drug
- **Revise the ethical code for Pharma companies** to discontinue freebies and gifts
- Government needs to **Upgrade the quality standards** and qualities of Medical representatives and drug sellers.

- **Promote country specific research** for R&D and increasing the R&D spending
- **Rework with the IPR policies** to make Indian Pharma companies for encouraging more patents.
- Government needs to frame a **National Plan** on self-sustaining in API's and avoid over dependence on China.
- Government needs to frame a policy to **Utilize the traditional Knowledge** in drug manufacturing

Though the sector is highly capital intensive, the sector developed into a global leader in Pharma products. Now It is time to implement better policies in regulation and encourage the sector to produce more API's in India to avoid over dependence.

Vaccine policy: Injecting Confidence

Syllabus: Awareness in the field of Bio-technology

In News: Recently unveiled India's COVID-19 vaccine policy, should make adequate allowances for ground realities.

Background

- The World Health Organisation (WHO) declared the COVID-19 a pandemic in march 2020 and the most optimistic prediction for a vaccine to be available was by the middle of 2021.
- Now, the labs around the world are working faster than anticipated and the first vials of a vaccine are likely to roll out in the next two months.

India's plan on vaccinating people

- **Strategy to slow the virus spread:** With a definitive cure not yet available for COVID-19, vaccines present the world with the best strategy to slow the virus down.
- **Expert committee on vaccine distribution is created:** The committee will prepare a strategy on inventory management, distribution, and administration.
- **India's plan:** The U.K. and the U.S. began vaccinating their people, India has announced its plan and proposed line-up for COVID-19 vaccination.
 - **Priority population:** As per the government's strategy, the vaccination is to be given first to health-care workers and then to people over the age of 50, with those over 60 given priority, based on the situation. This will amount to about 30 crore people.
 - **Verifying document:** The voters' list for the Lok Sabha and Assembly election polls has been set as the verifying document for the process.
 - **Co-WIN:** A new digital platform, Co-WIN, will be used for COVID-19 vaccination delivery, and about 1.54 lakh Auxiliary Nurse Midwives working on Universal Immunisation Programmes will be roped in as vaccinators, with more such field staff to be mobilised in collaboration with the States.
 - **Cold chain systems:** Cold chain systems are to be strengthened across the country to deliver multiple doses.

Role of vaccine in eradicating a disease

- **Preventive medicines:** Vaccines play a major role in human mastery over infectious diseases by inducing immunity in individuals.
- **Herd immunity:** When a vaccine is rolled out as a national programme and increasing proportions of people are vaccinated, 'herd immunity' level increases and disease frequency decreases in the vaccinated population.
 - **The 'herd effect' of vaccination:** That decelerates transmission of the microbe in the whole community, resulting in decreasing disease frequency even in the unvaccinated segment of population.
 - Herd immunity plus herd effect reduces the overall disease burden in the community.
- **Control:** In epidemiology, the common word 'control' has a specific meaning: 'deliberate reduction of disease frequency to a desired level, validated with evidence'.
 - For evidence, disease frequencies must be documented both at baseline and on an on-going basis, through systematic surveillance. So, control interventions include vaccination programme and disease surveillance.
- **Elimination:** The extreme form of control is 'elimination' of transmission of the microbe in a whole country.
 - For example, measles and rubella have been eliminated in Sri Lanka through sustained vaccination achieving high coverage.
- **Diseases eradicated using vaccine:** Eradication is global elimination of an infectious disease. So far, smallpox and cattle plague have been eradicated using their respective vaccines.
 - Severe Acute Respiratory Syndrome (SARS) was eradicated in 2003 without a vaccine, using 'non-pharmacological interventions', or NPI, systematic case detection, contact tracing and quarantine.

The statuses of vaccine candidates in India

- **Protective efficacies:** Three COVID-19 vaccines have claims of about 90-95% protective efficacy are BNT162b2 (Pfizer-BioNTech), mRNA-1273 (Moderna) and Sputnik-V (Gamaleya Institute).
- **Trial phases:** Sputnik-V is under phase 2-phase 3 vaccine trials in India, by Dr. Reddy's Laboratories. Another vaccine, ChAdOx1 nCoV-19 (OxfordAstraZeneca), manufactured under licence by Serum Institute of India as Covishield, is undergoing phase 2-phase 3 trials in India.
 - An indigenous vaccine candidate, Covaxin (Bharat Biotech), found safe and immunogenic in phase 1 and phase 2 trials, is now under phase 3 trial.
- **Policy development:** In India's national Universal Immunisation Programme (UIP), vaccines are procured and supplied by the Union government and vaccination is implemented by State governments.
 - States have the freedom to surpass policy limits if no fund is sought.
 - For example, Delhi used the Measles Mumps-Rubella vaccine when the central government policy was only for Measles vaccine and Sikkim unilaterally used human papillomavirus vaccine to prevent cervical cancer in women.

The challenges to vaccine distribution

- **Largest number of unvaccinated children:** India produces 60 per cent of the world's vaccines and is home to the largest manufacturer, the Pune-based Serum Institute. Yet, the country also has the largest number of unvaccinated children in the world.
 - NSO data shows that less than 60 per cent children receive the entire basket of vaccines.
 - Delay in acceptance or refusal of vaccines despite availability of vaccination services in more than 90 per cent countries in the world is another hurdle in immunisation programmes.
- **Priority:** Within the country, it is certainly not clear who should be treated first or it should be determined by need, affordability, vulnerability or some other criterion or a combination of all.
- **Vaccines nationalism:** Pre-purchase contracts between a government and a vaccine manufacturer to secure vaccine for own country people before it is provided to any other country is called vaccine nationalism.
- **Issues with emergency use approval:** The emergency authorizations can help quicken the availability of treatments, but they can also put medications into the health system before they've been fully tested.
- **Disclosure of efficacy data:** limited knowledge on the efficacy and safety of vaccines increase the risks of the vaccine.
- **Need for proper policy:** The need of a policy regarding how much of the vaccine produced should go to other countries and at what cost. It must ensure whether agencies funding the research or the researchers or government authorities or citizens decide on a global policy of distribution.

- **Distributive hierarchy:** The cost of the vaccine and its possible loss will have to be borne by the last receiver which likely to be more needy people of the society.
- **Vulnerable section:** If open market forces determine the cost of the vaccine and affordability then, the section of society most vulnerable to the disease would get left out.

The proceedings of Discussions held by Union health minister

- **Doses count-** The Centre is working on plans for building capacities in human resources, training, and supervision on a massive scale and roughly estimates to receive and utilize 400-500 million doses covering approximately 20-25 crore people by July.
- **Risk group identification-** The Centre has asked states to send list of priority population who will be receiving the vaccine shots first. This includes all doctors, nurses, health care staff, ASHA workers etc.
- **Prioritization of groups for the COVID-19 vaccine shall be based on two considerations-**
 - Occupational hazards
 - The risk of developing severe disease and increased mortality.
- **Directions-** States have been asked not to sign any deal with manufacturers as Centre is monitoring the entire process.
 - States were also asked to submit details of cold chain facilities and related infrastructure required down to the block level.
 - Centre may also allow corporates to get vaccines directly from manufacturers.
- **Vaccine tracking and black market-** The government also keeping an eye on immunity data regarding COVID-19 disease while finalizing plans on vaccine distribution. Vaccine procurement was being done centrally and each consignment would be tracked real time until delivery to ensure it reached those who needed it most.
 - Vaccines will be distributed as per pre-decided priority and in a programmed manner. To ensure transparency and accountability.

The Issues and dilemmas in the triage scheme

- **First,** government's strategy of prioritizing the elderly people need to be re-examined because,
 - Vaccination drive should have two distinct objectives, one, providing protection to those vaccinated, and two to slow down the speed and spread of the viral transmission.
 - Providing vaccination to healthcare professionals is not in conflict with the above objective because these are individuals who have high levels of exposure and they also act as active disease vectors since they interact with large numbers of people.
 - The elderly is **less mobile** and have a **lower level of social interaction**, they are less likely to spread the virus. So, in the long run, prioritising the elderly people may not actually minimise the total **social and economic cost** inflicted by the virus.
 - This suggests that densely populated areas for instance, the **Dharavi slum** should receive far more attention than they are likely to get under the current strategy.
- **Second,** the government should permit private suppliers to import and distribute the vaccine in India because,

- Currently, government's procurement strategy relies entirely on public resources for distribution and the government plans to bear the entire cost of vaccination without involving private hospitals.
- But allowing the private sector to provide additional supplies of the vaccine would not really be a bad policy decision if it would not decrease the availability of the vaccine to the poor.
- With more and more vaccines getting approval such as the **Moderna vaccine** in US, there will be a significant boost in the global supply of COVID-19 vaccines which mandates the need for involving private suppliers.
- Benefits that accrue owing to such decisions are, less waiting time for the less affluent as some of the richer individuals in the target group will opt out of the government distribution system and prefer to get vaccinated at some private outlet owing to increase in supply.
- Another potential benefit accruing to the entire population is that the larger the numbers who get vaccinated, the lower will be the speed of **virus transmission** amongst the non-vaccinated.
- Also, there are some **cost benefits**, for example, Belgian Minister has revealed that the European Union has agreed to pay for leading COVID-19 vaccines is substantially lower than the prices of **Moderna and Pfizer**. Given the large size of India's market India has the **bargaining power advantage** too.

How early research in Corona virus family is helping now?

- The epidemics caused by pathogens of the coronavirus family in the past 20 years, SARS and MERS, have pushed scientists to study the varied interactions between the human immune system and contagions.
- These studies have illustrated that, unlike other flu viruses, coronaviruses make use of various biological pathways in the human body. For example-opting enzymes of the host's cells.
- Knowledge of the spike protein has made the scientific community to understand the ways in which the immune system behaves when a person contracts the novel coronavirus.
- The recent approaches targeting the spike protein whether through genetic material as in the case of the vaccines developed by Moderna and Pfizer or through a viral vector from chimpanzees as in the Oxford-AstraZeneca vaccine, have benefitted from earlier research with coronaviruses.

The steps to be taken

- **Perception management:** They need to clear the fog on vaccine safety and efficacy among the people.
- **Detailed plan:** A detailed plan must be prepared for vaccinating children and a breakdown of tasks to the lowest governance step, as counties in the U.S. have been doing.

- A proper estimate of the true challenges of administering vaccines in the field will not be available, unless this is not done.
- **Tackling vaccine hesitancy:** one must be open and honest about adverse effects and make available relevant information in the public to counter vaccine hesitancy.
- In the past, in some States, vaccination programmes have suffered temporarily because of misinformation about adverse events following shots.
- **Policy issue:** An important policy issue is whether vaccination should be confined to only uninfected individuals or should it be for all people. All test results of infected subjects are available on a computer data base and that is one way to identify those who were already infected.
- **Trained staff:** The vaccination stations should be staffed with trained personnel and supervised by medical doctors.
- **Infrastructure:** The site must have a waiting area and a post-vaccination staying area to manage any untoward reaction during the first hour.
- **Digital list:** A computerised master list with details and mobile numbers of all vaccinated subjects needs to be maintained for the purpose of post-vaccination follow up to document rare side-effects.
- **Data management:** Data management has to be meticulously planned and executed.

Way forward

- This is a huge opportunity to eliminate the novel coronavirus from India, setting an example to the rest of the world. With will and wisdom we can, and should, accomplish this.
- Immunizing a billion people will be a staggering operational challenge for the country. It is important, that the government opens the conversation to a variety of specialists like epidemiologists, ethicists, economists, patient groups, social scientists.
- Post-marketing surveillance is important to ensure vaccine safety, once the product is approved.
- If planning for vaccine delivery starts now, India will have a well-thought-through playbook to execute from when a vaccine is ready.
- Securing 1.3 billion people will require a massive public policy effort at improving the country's public health infrastructure.
- Partnership with the private sector in immunisation programme.
- Controlling the growth of black markets.
- Checking the diversion of resources from regular immunisation programmes.
- Institute transparent mechanisms at points where science and research meet public policy.
- The novel coronavirus forces us to do things differently, it demands a different conception of herd from science and public policy.

Impact of Facial Recognition Technology (FRT) on the rights of people

Syllabus: S&T - developments and their applications and effects in everyday life **In News:** The rapid use of Facial Recognition Technology (FRT) by law enforcement without proper guidelines and regulation, will have many negative impacts on people.

Introduction-

- In recent times the facial recognition tracking (FRT) systems has seen rapid development. **Central and State governments across India are using 16 different facial recognition tracking (FRT) systems** for surveillance, security or authentication of identity.
- FRT uses algorithms to **extract data points from a face** to create its digital signature. This **signature is compared with an existing database** to find possible matches.
- Still there are no specific laws or guidelines to regulate the use of this potentially invasive technology.
 - As facial recognition technology use grows, so do privacy fears. As a result, the FRT system poses a huge threat to the fundamental rights to privacy and freedom of speech and expression.

Applications of FRT

- **Authentication:** For instance, the NCRB's Crime and Criminal Tracking Network & Systems (CCTNS) managing crime data for police, uses automated facial recognition to identify criminals, missing people, and unidentified dead bodies, as well as for "crime prevention".

FRT invades the fundamental rights to privacy and freedom of speech and expression

- **Personal data:** These systems need a huge amount of sensitive personal data and biometric information, and their existence is at odds with user's privacy
- **The FRT system violates right to privacy-** As per the Puttaswamy judgment, Privacy is a fundamental right, even on public spaces.
 - Large-scale recordings, storing and analyzing of images undermines this right because it means it won't be possible to anything in public without the state knowing about it.
- **It operates without a clear legal or regulatory framework-** There is a lack of detailed and specific information as to how facial recognition is actually used.
 - The system has no legal backing, claims Internet Freedom Foundation [IFF], which has recently issued notices to the Union home ministry and NCRB over the legality of the system.
 - If the police has detained or arrested any person with the use of the FRT system, then there is not proper guidelines/set of SOP of what to do.
- **Function creep surveillance-** Function creep" occurs when information is used for a purpose that is not the original intended.
 - Use of facial recognition software in India began benevolently for identify missing children. Now it is being used for all kinds of surveillance. This shift from locating missing children to identifying rioters happened without any legal sanction or due planning and procedure which it a function creep.
- **It has a chilling effect on our democratic rights**

- Blanket surveillance can deter individuals from attending public protests. It can stifle participation in political protests and campaigns for change. And it can discourage nonconformist behavior.
- This chilling effect is a serious infringement on the **right to freedom of assembly, association, and expression**.
- **It is often inaccurate**- It is not 100% accurate and there can be “misidentification (false positive) and failure to identify (false negative).
 - In case of a false positive- the algorithm said photos of two different people showed the same person.
 - In case of a false negative- the algorithm failed to correctly detect that two photos showed the same person.

The International experience on Facial Recognition Technology

US has taken steps to prevent The Facial Recognition Technology's weaponization by law enforcement against a section of people.

- Many US cities and states have banned public agencies from using facial recognition and passed legislation to demand more transparency on how police use surveillance tools.
- Microsoft followed Amazon and IBM, have decided to limit the use of its facial-recognition systems and not to sell it to police departments until there is a federal law regulating it.

Issues associated with facial recognition technology:

- **Infringement of Privacy:** The privacy of users' data is at stake with the technology. In absence of regulations, it would expose data to cyber criminals. Companies are not regulated; thus they may sell facial data which can be misused for political purposes.
- **State surveillance:** The most significant risk with the use of the technology is state surveillance. China's reported use of facial recognition technologies for surveillance in Xinjiang is such an example. This raises concerns as it might be misused for political purposes.
- **Inaccuracy:** Facial recognition technology is inaccurate. Evidence shows that the technology is not flawless. For example, the technology has been proven in multiple studies to be inaccurate at identifying people of colour, especially black women.
- **Predatory marketing:** Software which analyses facial expressions could potentially be used by some companies to prey on vulnerable customers. This could be done by segmenting extreme emotions such as distress and tailoring their products and services to these individuals.
- **Stalking:** Tools like reverse image searches can provide stalkers with more data about their victims. This is unsafe especially for women, who can be tracked and stalked and maybe assaulted by misusing information obtained.
- **Identity fraud:** Criminals who have collected enough personal information on an individual could commit identity fraud. This could have a significant effect on your personal life, including on finances. For example, fake id can be created by exploiting information obtained from persons' associated facial information. Crime like photo morphing can threaten the identity of an individual.

- **Dark activities:** There is possibility of misusing facial information for illicit activities and markets like drug selling, weapons etc. By using stolen ids, Aadhar information, it also increases risk for being used in various terrorist activities across the border.

Need for Data Protection law in India:

- **Data management:** For efficient management of data in the age of digitisation, a data protection law is needed. One of the major challenges to big data is information privacy which necessitates robust data protection.
- **Check frauds:** To check unauthorised leaks, hacking, cyber-crimes, and frauds. Economic cost of data loss/theft is high. Recent rise of crimes like WhatsApp Pegasus scam demands a data protection law in place.
- **No comprehensive framework:** Until now, the only legal framework for the information technology in India is the Information Technology Act, 2000. However, it doesn't provide guidelines or norms for data collection, storage, and processing.
- **Right to privacy:** The need for legislation also got attention particularly after the landmark judgement of Supreme Court (SC) in Justice K.S Puttaswamy vs Union of India case, that maintained the right to privacy as an inherent part of the fundamental right under Article 21 of the constitution.
- **Protecting personal data:** With a billion population, India has the second highest internet user base in the world. India has 450 million internet users and expected to increase up to 730 million by 2020. Therefore, a strong data protection law is needed to protect their personal data.
- **Consent:** Without consent of the owner no data should be used for any purpose. It is important that data protection law must include the consent of an individual before its use for various purposes.

The steps to be taken

- The state must work to prevent misuse of data and encourage data security through legislation.
- A framework regulating the use and that too with individuals' consent is necessary.
- It is important to examine and put into place a robust regime for data protection. The creation of such a regime requires a careful and sensitive balance between individual interests and legitimate concerns of the state.
- The data protection bill covers mechanisms for protection of personal data and proposes the setting up of a Data Protection Authority of India.
- Recommendations of B. N Srikrishna panel which are as follows should be implemented:
 - Personal data shall be used only for purposes that are clear, specific and lawful.
 - All firms and agencies will have to appoint data protection officers.
 - Individuals will have the right to withdraw consent.
 - Firms will have to ensure at least one copy of personal data to be stored in India etc.

Conclusion

- With so many concerns about facial recognition technology and desperately need a more prominent conversation on its impact on people's rights and civil liberties. Without proper regulation such systems of mass surveillance will erode democratic liberties and threaten the rights of lakhs of Indians.
- Facial recognition software has become increasingly popular in the past several years. It is used everywhere from unlocking phones, airports, shopping centres and even by law enforcement. While there are a few potential benefits to using the technology to prevent and solve crimes, there are many concerns about privacy, safety regarding the use of the technology in the absence of legislation privacy and data security laws.

Hazardous ideas for Himalayas

Syllabus: Conservation, Environmental Pollution and Degradation, Environmental Impact Assessment.

In News: China's major hydropower project as a part of its 14th Five-Year Plan (2021-25), on the Yarlung Zangbo River, in Mêdog County in Tibet.

More on news:

- The hydropower generation station is expected to provide 300 billion kWh of electricity annually. The Chinese authorities say the project will help the country realise its goal of reaching a carbon emission peak before 2030 and carbon neutrality before 2060.
- Indians were quick to restate their plans to dam the Himalayas on this side of the border. India is reportedly considering a 10-GW hydropower project in an eastern State.

Introduction

- The increased demand for electricity has led to the construction of a large number of hydro power projects (HPPs) upstream near glacial lakes in the Himalayan region. But the melting glaciers pose an increased risk to HPPs.
 - For instance, 2013 Uttarakhand tragedy has shown how torrential rains raised the water level of the Chorabari Lake in Uttarakhand, breaching the water levels in dams, leading to damaging of downstream HPPs.
- It is important to factor in the large number of glacial lakes, the volume of water, flooding and distance between a dam and a glacial lake while constructing HPPs in the Himalayan region.

Wadia Institute of Himalayan Geology (WIHG) has conducted a study pertaining to the Arunachal Himalaya which has revealed that the area is generating moderate earthquakes at two different crustal depths.

Facts:

Important Terms Related to the Study:

- **Tuting-Tidding Suture Zone (TTSZ):** It is a major part of the Eastern Himalaya where the Himalaya takes a sharp southward bend and connects with the Indo-Burma Range.
- This part has gained importance due to growing need of constructing roads and hydropower projects emphasising the need for understanding the pattern of seismicity in this region.
- **Mohorovicic or Moho Discontinuity:** It is the boundary between the crust and the mantle. In geology, the word discontinuity is used for a surface at which seismic waves change velocity.

The various misadventures that can happen due to building of hydropower dams

- **Unviability of dams:** Both countries ignore how unviable such 'super' dams' projects are, given that they are being planned in an area that is geologically unstable.
- **Competing dams:** Over the past 20 years, both China and India have been competing to build hydroelectric dams in this ecologically fragile and seismically vulnerable area.
 - There are two hydropower projects in the works in Arunachal Pradesh on the tributaries of the Brahmaputra: the 600 MW Kameng project on the Bichom and Tenga Rivers and the 2,000 MW Subansiri Lower Hydroelectricity Project.
 - China has already completed 11 out of 55 projects that are planned for the Tibetan region.
- **Overestimating economic potential:** In executing these hydroelectric projects, the two countries have overestimated their economic potential and grossly underestimated the earthquake vulnerability of the region.
- **Earthquakes in the region:** High seismic zones coincide with areas of high population concentration in the Himalayan region where landslides and glacial lake outburst floods are common.
 - About 15% of the great earthquakes of the 20th century occurred in the Himalayan region. The northeast Himalayan bend has experienced several large earthquakes of magnitude 7 and above in the last 100 years, more than the share from other parts of the Himalayas.
 - The 2015 Gorkha earthquake of magnitude 7.8 in central Nepal resulted in huge losses in the hydropower sector. Nepal lost about 20% of its hydropower capacity consequent to the earthquake.
- **Landslides:** The main mechanisms that contributed to the vulnerability of hydropower projects were found to be landslides, which depend on the intensity of seismic ground shaking and slope gradients.

- Heavy siltation from giant landslides expected in the project sites will severely reduce the water-holding capacity and life expectancy of such dams.
- Even without earthquakes, the steep slopes made of soft rocks are bound to slide due to deforestation and roadbuilding.

Significance of Himalaya for ecosystem and biodiversity

- **Role in food security:** Some parts of the region produce rice, corn (maize), wheat, and millet. Central Himalayas region also produces large crops of corn, wheat, potatoes, and sugarcane.
- **Role in water security:** Major river-streams of India like Brahmaputra, Indus and Satluj originate here and further descend to the plains and provide water to the native men.
- **Chief driver of the Asian climate:** Himalayas prevent chilly, dry winds from blowing south into the subcontinent, which keeps South Asia much warmer than parallel temperate regions in the other continents.
- **Biodiversity:** for example, Himalayas form about 12% of the country's landmass and is home to about 30.16% of its fauna and 31.6% of its flora.
- **Role in internal security:** Himalayas divides India from central Asia and by this means it protects India from their direct attack through this route.
- **Role in tourism:** Himalaya has a huge role to play in India's tourism as major pilgrimage destinations such as Vaishno Devi and Amarnath Cave are in the Himalayas. Himalayan region is perfect for different levels of trekking, skiing, paragliding, river-rafting and camping, among several activities.
- **Forest wealth and source of minerals:** Himalayas include pockets of rich arable land, widespread grasslands and forests, effective mineral deposits, easy-to-harness waterpower, and great natural beauty.

Causes of floods in Himalayan region:

- **Natural causes:**
 - **Intense rainfall:** Its topography is prone to cloud burst in the catchment's region of the river that results in heavy rain and flash floods.
 - **Himalayas as a barrier:** Himalaya's act as barrier to monsoon prolonging its stay and intensity.
 - **Clogging:** Melting of snow in Himalayan natural channel causes clogging & shifting the courses resulting in flooding.
 - **Topography:** Its topography is prone to tectonic movement leading to slope failure and landslides leading to obstruction of flow and change in the river course.
- **Man-made/anthropogenic:**
 - **Unplanned infrastructure:** Unsafe and unplanned infrastructure development along local rivers. Eg: development of a large number of hydropower projects built in the fragile zone without proper checks and balances.
 - **Unsustainable agriculture practices:** Practices as Jhumming in NE Himalayas has caused floods.
 - **Climate change:** Climate change and global warming

- **Ecological destruction by unplanned development:** Encroachment of riverbeds and failure to preserve wetlands that acts as sponge leads to increased disasters due to flooding.

Thus as the region is prone to flash floods and increased melting of glaciers has to be factored in and incorporate extra design and safety features in the construction of hydro power projects in the Himalayan region.

Mediterranean Black Carbon may be polluting Himalayas

- Wadia Institute of Himalayan Geology (WIHG) has studied the impact of black carbon on Himalayas recently.

Important facts

- The study revealed that black carbon coming from Mediterranean countries during the western disturbance may be one of the factors in diminishing snowfall in the region.
- **Black Carbon**
 - It is formed through the incomplete combustion of fossil fuels, Bio-fuel etc.
 - It has an adverse effect on human health and decreases the Earth's ability to reflect the warming rays of the Sun.
- **Western disturbance**
 - It is an extra tropical storm originating from the Mediterranean region that brings sudden winter rain to the north western parts of the Indian subcontinent.
- **Study**
 - Data of carbon concentration between January to December 2016 has been taken from Gangotri glacier valley shows high even in winter months.
 - In the month of January and February, there are no human interventions and absence of local factor in this region due to cold, but the study shows, during this time, data of carbon concentration is 4th and 5th highest in 12 months.
 - This shows that black carbon aerosols were being transported during Western Disturbances and wind projections.
- **Effects in region**
 - Aerosols like black carbon have been recognized as the second most important anthropogenic agent for climate change.
 - The primary factor for adverse health effects is air pollution.
 - Decreased snow covers area in the region, resulting in lowered albedo which enhances warming in the region. Decreased snow has also led to disappearance of valuable medical herbs in the region.

Steps taken to protect Himalayas:

- **At global level:** WWF has worked in the Himalayan region since the start of the conservation movement and the founding of our organization in 1961. It joined hands with governments, local communities and supporters around the world.
- **At national level:** A new programme in the high altitude Himalayas entitled "SECURE Himalayas - Securing livelihoods, conservation, sustainable use and restoration of high range Himalayan ecosystems", to ensure conservation of locally and globally significant

biodiversity, land and forest resources in the high Himalayan ecosystem, while enhancing the lives and livelihoods of local communities.

- It is implemented by the Government of India and United Nations Development Programme, with support from the Global Environment Facility.
- **National Mission for Sustaining the Himalayan Ecosystem (NMSHE):** The mission attempts to address some important issues concerning:
 - Himalayan Glaciers and the associated hydrological consequences.
 - Biodiversity conservation and protection.
 - Wild life conservation and protection.
 - Traditional knowledge societies and their livelihood.
 - Planning for sustaining of the Himalayan Ecosystem.

The steps to be taken

- **Nature reserve:** In recent years, the Himalayas have seen the highest rate of deforestation and land use changes. The upper Himalayas should be converted into a nature reserve by an international agreement.
- **Himalayan river commission:** The possibility of a Himalayan River Commission involving all the headwater and downstream countries needs to be explored.

Way forward

India and China, the major players in the region, would be well advised to disengage from military adventurism and seek ways of transforming this 'roof of the world' into a natural reserve for the sake of humanity. Carbon neutrality should not be at the expense of the environment.

Planning for Electric Mobility

Syllabus: Infrastructure: Energy, Ports, Roads, Airports, Railways etc.

In News: The government drive towards electric vehicles for a sustainable future.

More in news:

- **Niti Aayog's mobility plan:** India has set a target of making a complete shift to electric mobility by 2030. It seeks to achieve national fuel security by promoting hybrid and electric vehicles in the country. It sets an ambitious target to achieve 6-7 million sales of hybrid and electric vehicles every year from 2020 onwards
- **Economic survey:** Infrastructure over incentive to promote electric vehicle.

Introduction

- Transportation is backbone for growth of an economy. India is one of the fastest growing economies in world and would continue growing in coming future.
- At present, transportation contributes 14% of GDP but at the same time, it is second largest contributor of pollution. So, for a sustainable future, India should move towards promoting electric vehicles in transportation sector.

India's deteriorating air quality: as per Lancet medical journal

- In 2014, the World Health Organisation's urban air quality database had found four Indian cities to be among the world's 10 most polluted.
- The database also placed 10 Indian cities in the 20 worst list.
- In urban India, emissions from motor vehicles are among the prime reasons.

- The challenge of rising vehicular pollution in Indian cities is push for using electric vehicles in India.

Electric vehicle

- All electric vehicle run on electricity only. An electric vehicle uses one or more electric motors or traction motors for propulsion.
- An electric vehicle may be powered through a collector system by electricity from off-vehicle sources, or may be self-contained with a battery, solar panels or an electric generator to convert fuel to electricity.
- EVs include road and rail vehicles, surface and underwater vessels, and electric spacecraft.

There is need for electric vehicles in India

- **Push for electric mobility:** NITI Aayog has estimated that the nation can save up to ₹4 lakh crore by rapidly adopting EVs.
 - It will help in achieving India's ambitious renewable energy plan.
 - From 2030, India would completely shift to using electric vehicles (EVs).
 - It will help in addressing vehicular pollution in India.
 - It will help in curbing green houses. Hence, will reduce global warming.
 - It will promote clean and green energy. Hence, environment friendly.
 - It will help in achieving the target of "Paris climate agreements".
- **Air Pollution:** A new study by 'IQ Air Visual' and 'Green Peace' has identified the cities where air pollution is highest. This list is dominated by India, with 7 of the worst 10 cities, and 22 of the worst 30 cities. A Green Peace India report indicates that 47 million children under the age of 5 years are residing in areas hazardous pollution, especially in urban areas.
- **Disposable Income:** According to the Economic Survey (2017-18) of India, an increase in available disposable income among citizens has led to an increase in the purchase of vehicles and a reduction in the use of public transport.
 - With over 3 million vehicles sold in 2016-17 in the four-wheeler segment alone, the total number of vehicles burning petrol and diesel, and spewing dangerous fumes into the air is over 230 million.
- **Oil imports:** Speaking at the 'Urja Sangam Conference' in March 2015, the Prime Minister has said that India needs to bring down its oil import dependence from 77% in 2013-14 to 67% by 2022.
- **Energy Demand:** Electric vehicles are also expected to help generate fresh demand for electricity. The lack of which is weighing down the entire power sector and also help in resolving the stress assets challenge.
 - Any uptake in demand for power will help improve the financial viability of these stressed power sector projects. This in turn would improve the per capita power consumption of around 1,200 kWh, one of the lowest among the large economies.
- **Paris Commitments:** With the government of India targeting 100 GW of solar by 2022, electric vehicle can improve reliability and utilization of renewable by acting as storage.
- **Global Studies:** There are several studies that suggest overall positive impact on GDP on introduction of EVs in fuel importing service dominated economies. One study has

estimated that driving the shift to electric vehicles would lead to a 1% increase in EU GDP. In another study, net private and social benefits are estimated between \$300 and \$400 per EV.

Impact of electric vehicles:

- **Impact on oil industry:** A large volume of oil will go unused. Prices of petroleum will reduce. Hence, less profit for auto makers this will affect employment in this sector.
- It could be a disaster for many oil exporting and OPEC countries. May lead to financial crisis.
- Less demand of oil will result in fall in domestic exploration and fall in investment to oil sector.
- **Other loop holes in electric vehicles:** Most of the electric vehicles especially car need to be recharge again. Electric cars are however silent and can lead to accidents in some cases. Limited seating capability.
- **Jobs and economic impact:** India is the world's fourth largest fifth auto market, where over 25 million motor vehicles are produced. **The sector is estimated to provide direct and indirect employment to about three crore people and accounts for 7.1% of the nation's GDP.**
- The industry is estimated to grow to \$300 billion in annual revenue by 2026, creating **65 million additional jobs, and contributing over 12% to the GDP.**

Challenges faced by Electric Vehicles sector:

- **Capital Investment:** The move to electric vehicles (EVs) will need a considerable investment of ₹1.8 lakh crore in setting up charging stations and other infrastructure in the country, according to a report by Feedback Consulting.
- **Lithium reserves:** The battery is the most important part of the electric vehicle. Electric vehicles are mostly run by lithium-ion batteries. 65% of the lithium reserves are in Chile and Bolivia, India accounts for 7% of lithium reserves. Along with that Chinese firms command over 60% of the global battery market share. Thereby India is dependent of import of lithium reserves.
- **Charging infrastructure:** Even in major cities, residential areas, offices or pay and park locations offer no support for electric vehicle charging. Additionally, actual charging stations are far and few in between.
 - The choice of LPG vs CNG is common in India and a major deciding factor is fuel availability. Until people can be assured that they won't find themselves struggling for a charge up, the push for a purchase will never arrive.
- **Dealer reluctance:** Electric vehicles are very cheap to run. They don't have as many moving parts and don't have requirements like engine oil, injector clean ups, or tuning.
 - Wear and tear components like brake pads and tyres will still need replacement, but electric power trains are far less complicated and far more efficiently designed than their internal combustion engine-equipped counterparts. Given the drop in service costs, dealers will expect an alternative revenue source.
- **Policy conundrums:** An effective charging infrastructure is required the necessary regulations around creating the ecosystem for electrical vehicles to operate smoothly.

- Given the number of regulators involved, it makes sense for a pan-India license but that would require a lot of heavy lifting including a comprehensive review of existing laws and regulations.

Government Initiatives with respect to Electric Vehicles:

- **National electricity mobility mission plan:** Government of India launched the National Electric Mobility Mission Plan (NEMMP) 2020 in 2013. It aims to achieve national fuel security by promoting hybrid and electric vehicles in the country. There is an ambitious target to achieve 6-7 million sales of hybrid and electric vehicles year on year from 2020 onwards
- **Electric Vehicle Policy 2020:** The Policy aims to achieve the overarching objective to improve Delhi's air quality and create an entire supply-chain ecosystem for this new segment of vehicles. In order to significantly benefit Delhi's air quality, the policy intends to deploy 25% of all new vehicles to be battery-operated vehicles by 2024.
- **Fame India scheme:** Government has launched the scheme namely Faster Adoption and Manufacturing of (Hybrid &) Electric Vehicles (FAME India) under NEMMP 2020 in the Union Budget for 2015-16 with an initial outlay of Rs. 75 Cr.
- The scheme will provide a major push for early adoption and market creation of both hybrid and electric technologies vehicles in the country.
- This scheme will allow hybrid and electric vehicles to become the first choice for the purchasers so that these vehicles can replace the conventional vehicles and thus reduce liquid fuel consumption in the country from the automobile sector.
- **State initiatives: a handful of states have managed to put a policy in place in order to give some certainty to electric vehicle manufacturers. These states are in sync with the Centre coming out with a specific policy to promote EVs with a mix of incentives, fiscal sops, and encouragement to expand this ecosystem.**

The steps to be taken

India needs to address the following fundamental issues in order to move towards electric mobility:

- **Lead actor:** EVs, involve several actors at the national, State and city levels, respectively. It needs multiple ministries as well as national institutes such as NITI Aayog.
 - Since the initial EV revolution would predominantly be an urban one, State and city-level players need to be involved so as to address several technical and infrastructural needs.
 - Coordination between all three is crucial in driving the EV agenda.
- **Figuring out the best mode forward: China** has focussed on the use of electric buses as a catalyst for EV penetration. It is the largest electric bus manufacturer in the world, with most in use in the country. In 2016 about 80,000 electric buses were added to China's roads.
 - The **Netherlands**, has captured the EV market using a simple yet well-crafted strategy of creating charging infrastructure and encouraging investment in charging technology by providing incentives to EV buyers.

- Netherlands has the densest charging infrastructure in the world and is a major exporter of this technology.
- These two case studies show that sustained growth is possible only due to positive economic impacts of EVs.
- India is today the largest manufacturer and exporter of two-wheelers and auto-rickshaws.
- **Battery conundrum:** India does not produce **lithium-ion (Li-ion) batteries** currently, and companies making battery packs are dependent almost exclusively on imports from China.
 - This is a **cost-saving strategy** as setting up a cell manufacturing unit in India would be expensive.
 - Accelerating EV use in India should be linked to the “Make in India” goal and domestic battery production.
 - Investment is required for **research and development** in battery-making and **exploring alternative technologies**.
- **Charging infrastructure:** EV charging is more than just using electricity. It involves exchange of information requiring a communication protocol. There is no unique or single-charging technology for EVs.
 - The three major EV users, China, Japan and the European Union, have their own charging technologies which are often conflicting and not interchangeable.
 - The absence of a standard global infrastructure is a major deterrent for EV penetration in India, as creating infrastructure can be cost-intensive. For this, the government needs to select or develop appropriate charging technology that avoids multiplicity and reduces the cost of infrastructure, while making it convenient and safe for users.
- **Long term agreement with other countries:** Lithium and cobalt are critical elements in batteries that power mobile phones, laptops and electric vehicles, the centerpiece of future transport solutions. The Indian government should direct private and public sector companies to ink long term agreement with resource rich countries like Bolivia and Chile.
- **Policy push:** NITI Aayog and government of India is pushing towards all electric vehicles by 2030. The government has been actively taking steps to create an ecosystem for EVs.
 - These include fiscal and non-fiscal measures to create demand for such vehicles as well as adequate supplies.
 - The tax on lithium-ion batteries used by EVs was reduced to 18% last year. The Goods and Services Tax (GST) Council set up a committee to discuss cutting tax on EVs and battery chargers and leasing of such vehicles.
 - The road ministry proposed an exemption of registration fees for battery-operated vehicles. Government should expedite above incentives for sustained growth electric vehicles sector.

Conclusion:

India has a lot to gain by converting its ICE vehicles to EVs at the earliest. Its oil-import bill would considerably reduce. ICE vehicles are a major contributor to pollution in cities and their

replacement with EVs will definitely improve air quality. There is a real possibility of getting this done in the next five to seven years.

Converting waste to energy

Syllabus: Environmental Pollution and Degradation, Science and Technology- Developments and their Applications and Effects in Everyday Life

In News: Recently Karnataka Chief Minister B.S. Yediyurappa laid the foundation stone for a 11.5 MW waste-to-energy plant near Bidadi.

Facts:

- Waste to energy plants process municipal solid waste to generate electricity through ignition.
- This plant is expected to process 600 tonnes per day of inorganic waste.
- There are 5 municipal WtE plants operational in India with a total capacity of 66.4MW electricity per day, of which 52MW per day is generated in Delhi by its three existing plants.
- As per the Union Ministry of Environment and Forests, MSW generation will reach 4.5 lakh TPD by 2031 and 11.9 lakh TPD by 2050.

The significance of Waste to Energy Plants

- **Organic composting:** The waste-to-energy plants usually accept the RDF material generated in organic composting plants.
- **Inorganic waste to energy:** They also separate out the wet and inorganic material near the plant, convert organic waste to compost, and inorganic waste to energy.
- **Reducing emission and pollution:** Waste To Energy plants plays an important role in minimizing methane and CO₂ emissions from landfills, deferring the global warming issue.
- **Swachh Bharat Abhiyan:** 6 waste to energy plants setup under the swachh bharat abhiyan.

Need of Waste to energy plants:

- **Lot of waste generation:** Bengaluru generates close to 5,000 tonnes of waste daily, of which about 2,500 tonnes is organic, about 1,000 tonnes inert material (sweeping waste) and 1,500 tonnes inorganic.
 - This inorganic material, which consists of bad quality plastics and used cloth pieces, can be processed as **Refuse Derived Fuel (RDF)**.
- **Generation of electricity:** This material has a calorific value of more than 2,500 kJ/kg, and can be used to generate steam energy, which can be converted into electric energy instead of burning coal and other materials used in traditional waste-to-energy plants.
 - **Ample power can be generated:** The proposed plant can source 600 tonnes per day of this RDF and generate 11.5 MW of power equivalent to 2.4 lakh units of power per day.
- **Inorganic waste cause fire accidents:** At present, Inorganic waste that is not fit for recycling are landfilled or left unhandled in waste plants and cause fire accidents. Attempts to send this material to cement kilns have not fructified.

- **A permanent solution to waste:** This will reduce the city's dependency on unscientific landfills, reduce fire accidents, and provide a permanent solution to recover value from inorganic waste.

What are the challenges faced by Waste to Energy plants in India?

- **Poor quality of waste:** The Waste to Energy plants require fine inorganic material with less than 5% moisture and less than 5% silt and soil contents, whereas the moisture and inert content in the mixed waste generated in the city is more than 15%-20%.
- **Lack of segregation at source:** Since segregation at source doesn't happen in the city, the collected waste material needs to be sieved using 80mm-100 mm sieving machines, which lets through organic material with more than 80mm-100 mm particle sizes into the inorganic waste. In addition, the sticky silt and soil particles will also reduce the calorific value.
- **Cost of Power is high:** Generally, the tariff at which the power is purchased by to energy plants across the country is around ₹7-8 Kwh which is higher than the ₹3-4 per Kwh generated through coal and other means. This could be a serious challenge, as the selling price of power cannot be increased corresponding to the purchasing price.
- **Unsegregated waste is burnt:** WtE plants in India burn mixed unsegregated waste. About 1.43 lakh tonnes per day of (TPD) municipal solid waste (MSW) is generated across the country. Of this, 1.11 lakh TPD (77.6%) is collected and 35,602 TPD (24.8%) processed.
- **Risk of emission of harmful gases:** The presence of chlorinated hydrocarbons, like PVC, in burnt waste results in the release of dioxins and furans when the waste is burnt at less than 850 degree C.
- **Health threats:** Dioxins and furans are known to be carcinogenic and can lead to impairment of immune, endocrine, nervous and reproductive systems.
- **Residue pollutants:** Even when incineration takes place under optimal conditions, large amounts of flue gases, mercury vapour and lead compounds are released and 30% residue is slag (bottom ash) and fly ash (particulate matter), which are serious pollutants of air and water.
- **PVC is not removed:** Solid Waste Management Rules 2016 require phasing out of PVC in incinerators by April 2018. But it is impossible to identify and remove PVC beverage labels, for example, from mixed waste streams.
- **Inefficient in generating energy:** WtE plants in India are also inefficient in generating energy due to very high biodegradable (wet) waste content (up to 60 and 70%), compared with 30% in the West. This gives our waste a high moisture content and low calorific value.
- **Gross segregation is difficult:** Municipal governments use compactors to reduce the transport cost of the waste which compresses the waste and makes even gross segregation at the plant site impossible.

Bio-energy role in meeting India's energy demands:

- **Energy demand:** Bioenergy can help to meet the growing demand for energy within the country, especially in rural areas. Nearly 25% of its primary energy comes from biomass resources and close to 70% of rural population depend on biomass to meet their daily energy needs. Biomass can further help in meeting rural energy demands.
- **Climate change mitigation:** Bioenergy provides important benefits compared to fossil fuels, in particular regarding GHG emissions. Biomass recycles carbon from the air and spares the use of fossil fuels, reducing the additional fossil carbon from the ground into the atmosphere.
- **Market growth:** The market for renewable energy systems in rural and urban markets in India is set to grow exponentially. Despite this, bioenergy does not figure in most energy studies and is classified as 'non-commercial' energy. Plants like Jatropha, Neem and other wild plants are identified as the potential sources for biodiesel production in India.
- **Waste to energy:** Biofuels can augment waste to wealth creation. Being a derivative of renewable biomass resources such as plastic, municipal solid waste, forestry residues, agricultural wastes, surplus food grains etc. it has huge potential to help the country achieve the renewable energy goal of 175 GW.
- **Income generation:** Adopting biofuels as an alternative source of energy can significantly improve farmers' income, generate employment opportunities etc.
- **Reduce imports:** India's energy demands met by imports are about 46.13% of total primary energy consumption. Bioenergy can help in reducing these imports and boost India's energy security and self-reliance.

The steps to be taken

- **Wet and dry waste should be kept separate:** Wet and dry wastes should not be mixed so that only non-compostable and non-recyclable wastes with at least 1,500 kcal/kg should reach WtE plants. Such waste comprises only 10 to 15 per cent of the total waste.
- **Waste should pass the SWM rules:** Municipal authorities should be made aware of the harmful effects of Waste to Energy technologies and should not be allowed unless the waste offered meets the criterion specified by the SWM Rules.
- **Use of activated charcoal:** There should be adequate use of activated charcoal to filter out dioxins, furans and mercury from the emissions in plants.
- **Penalties should be imposed:** For ensuring that waste is not mixed at the source of generation and handling of waste is in unmixed streams, there should be strict penalties for non-compliance.
- **Exploring low cost options:** Exploration of low cost options such as composting and bio-methanation should be done.

Various government efforts in obtaining bioenergy:

- **10 GW national target:** Ministry of New and Renewable Energy (MNRE) has set the national target is to achieve 10 GW of installed biomass power by 2022.
- **National Policy on Biofuels:** The policy is aimed at taking forward the indicative target of achieving 20% blending of biofuels with fossil-based fuels by 2030.

- **Galvanizing Organic Bio-Agro Resources Dhan (GOBAR-DHAN) scheme:** This initiative shall support biodegradable waste recovery and conversion of waste into resources. This shall provide economic and resource benefits to farmers and households. It will also support in creating clean villages which is the objective of Swachh Bharat Mission.
- **Solid waste management rules:** The new rules have mandated the source segregation of waste in order to channelise the waste to wealth by recovery, reuse and recycle. Waste generators would now have to now segregate waste into three streams- Biodegradables, Dry (Plastic, Paper, metal, Wood, etc.) and Domestic Hazardous waste (diapers, napkins, mosquito repellants, cleaning agents etc.) before handing it over to the collector.
- **Policy for biomass and bagasse cogeneration:** MNRE has further developed a policy for biomass and bagasse cogeneration that will help in meeting India's energy demands. It includes financial incentives and subsidies, both for biomass projects and sugar mills that use this technology.
- **Fiscal Incentives:** Government gives 10 years Income tax holidays. Concessional customs and excise duty exemption for machinery and components for initial setting up of Biomass power projects. General sales tax exemption is available in certain States.
- **Waste to energy projects:** Waste to energy projects are also being set up for generation of energy from urban, industrial and agricultural waste such as vegetable and other market wastes, slaughterhouse waste, agricultural residues and industrial wastes & effluents.
- **National Biomass Repository:** MNRE also plans on creating a 'National Biomass Repository' through a nation-wide appraisal program which will help ensure availability of biofuels produced from domestic feedstock

Way forward:

- **Utilising wastelands:** There are about 63 million ha waste land in the country, out of which about 40 million ha area can be developed by undertaking plantations of Jatropha.
- **Reducing capital costs:** Efforts must be made for reduction in the capital cost of biogas plants, development of materials and techniques.
- **Institutional support:** Establishing institutional support for programme formulation and implementation is important to utilise established energy mechanisms.
- **Development of second-generation bi-fuels:** Government must support and promote development of second-generation bio-fuels and related applications.
- **Establishing standards:** It is important to lay down standards for various bio-energy components, products and systems.

Conclusion

Biomass in Indian energy matrix is very important for remote villages. Even with decades of experience in managing biomass power, still there exists lots of gaps in the supply chain. The main scope for interventions are in collection, improving design and engineering aspects, conducting feasibility studies and focused research and development.

Climate Mitigation

Syllabus: Conservation, Environmental Pollution and Degradation, Environmental Impact Assessment.

In News: The fifth anniversary of the Paris accord provided the scope of a virtual global meeting. Adaptation and mitigation measures are required to address some of the challenges on energy systems presented by climate change.

Climate Change – a reality

- **Temperature rise:** The planet's average surface temperature has risen about 1.62 degrees Fahrenheit (0.9 degrees Celsius) since the late 19th century. According to climate scientists, this change has largely been driven by increased carbon dioxide and other human-made emissions into the atmosphere.
- **Acidity of oceans:** There has been warming of oceans by 0.302 degrees Fahrenheit since 1969. Further, since the beginning of the Industrial Revolution, the acidity of surface ocean waters has increased by about 30 per cent.
- **Melting ice:** According to data from NASA's Gravity Recovery and Climate Experiment Greenland lost 281 billion tons of ice per year between 1993 and 2016 and Antarctica lost about 119 billion tons during the same time period.
- **Rise in water levels:** Global sea level rose about 8 inches in the last century and rate of rise has increased significantly in last 20 years.
- **Natural calamities:** There has been a rise in number and intensity of extreme events. For example, scientists attribute the rise in number of high intensity hurricanes in USA to climate change.
 - In its Fifth Assessment Report, the Intergovernmental Panel on Climate Change (IPCC) detailed current and projected impacts of anthropogenic activity on climate changes and extreme weather events.
- **Coral bleaching:** With rising global temperatures, mass coral bleaching events and infectious disease outbreaks have become more frequent. For example: In 2016-17, the Great Barrier Reef of Australia suffered extreme coral bleaching which killed around 50% of its corals.
- **Wildlife extinction:** for example, Australian rodent, Bramble Cay Melomys has been declared extinct due to human-induced climate change.

Factors affecting climate changed

- **Natural Factors:** Climate change is a normal part of the Earth's natural variability.
 - It is related to interactions among the atmosphere, ocean, and land.
- **Variation in Solar energy:** It is also related to changes in the amount of solar radiation reaching the earth-As the stream of solar energy reaches earth, the character of the Earth's orbit and of its rotation plays a major role in causing long-term climate change.
- **Volcanic eruptions:** Explosive volcanic eruptions can inject large quantities of dust and the gas, sulphur dioxide, high into the atmosphere.
 - Whereas volcanic debris in the lower atmosphere falls out or is rained out within days, the veil of pollution in the upper atmosphere is above the weather and may remain for several years, gradually spreading to cover much of the globe.

- The volcanic pollution results in a substantial reduction in the stream of solar energy as it passes through the upper layers of the atmosphere, reflecting a significant amount back out to space.
- **Anthropogenic Causes:** Humans are increasingly influencing the climate and the earth's temperature.

Various problems caused

- **The solar industry:** The Central Energy Authority (CEA) published a report on “Under Construction Renewable Energy Projects” which listed 90 renewable projects amounting to 39.4 GW that were facing delays due to several reasons.
 - Out of these, 20 GW worth of projects are facing delays and have been granted extensions of five months due to the impact of the COVID-19 lockdowns on global supply chains.
- **The market for rooftop solar:** It was expected to grow to 40 GW by 2022 but has fallen flat with an installed capacity of only 6 GW. The primary reason is once again a poor regulatory environment.
- **Renewables have to compete with the coal industry:** Despite significant gains in total installed capacity for renewable power in terms of actual power generation, coal still powers close to 72 per cent of India's electricity requirement.
- **Financial distress:** Another problem is the financial distress of the discoms, which prevents them from modernising plants, as the thermal industry is plagued by inefficient tariff setting, expensive PPAs and unsustainable cross-subsidies.
- **Carbon sequestration:** It is mainly done through forest cover and other plant resources. The target of 33 per cent of forest cover remains to be achieved, as Indian forests currently stand at 21 per cent of total geographical area (TGA).
 - Forests are classified in three categories: “Very dense forests” represent 3 per cent of the TGA, whereas “moderately dense forests” and “open forests” represent 9 per cent each.
 - Commercial plantations and farms are sometimes classified as open forests conceals the true extent of the damage that forests are suffering.
- **Biodiversity loss:** The Western Ghats has seen a significant loss in biodiversity with an expected third already lost due to human expansion in the region.
 - It is the Northeast that has witnessed the most damage in the past decade. Of the eight states in the region, only Assam and Tripura have not seen a decline in forest cover.

Issues and challenges

- **Poverty:** According to multidimensional poverty index, 53% of Indians are multidimensional poor. Lack of inclusive policies and unresolved debate between environment and development would make poor and tribal people more vulnerable to climate change related activities.
- **Absence of debt markets:** Absence of well-established green equity and debt markets in India along with USA pulling out of Paris Agreement has further complicated the funding mechanisms.

- **Lack of power efficient technology:** India lacks poorly in power efficient technologies like solar technologies and efficient thermal power plants. Low budgetary allocations towards research and development especially in the field of climate change makes India dependent on developed nations for technology transfer.
- **Lack of timely data availability:** India has inadequate mechanisms to collect data on climate change in India. Example: the changing flowering pattern of plants, breeding seasons of migratory birds, etc.
- **Lack of awareness:** Despite numerous government initiatives, the solution to climate change lies with the people themselves. However, the lack of awareness among people hinders the success of various initiatives aiming at combating climate change.

Impact of Climate Change in India:

- **Rise in Energy Demand:** Climate change has already started influencing energy demand in most sectors.
 - Air conditioning, urbanisation, increased demand for goods etc is among daily life processes that have increased energy demand to cope with increasingly extreme temperature variations. Energy supply will be affected as the global climate is altered.
 - Also, countries are forced to rely more on energy-intensive methods of providing sufficient water supplies. This effect of climate change drives increasing energy demand and elevates costs.
 - Agricultural practices are affected by temperature changes as farmers become more dependent on more energy-intensive methods in order to maintain productivity levels.
 - Higher temperatures decrease the ability of laborers to work healthily in open-air conditions. Hours of operation for some businesses are therefore changing, for example to earlier or later hours in the day. This change in productivity hours may lead to growing overall energy consumption.
- **Impact on energy Infrastructure:** The existing energy infrastructure in India is not designed to cope with the effects of climate change and as a result risks of system failures are revealing themselves through increasing numbers of energy outages.
- **Impact on the Transportation sector:** The existing transportation infrastructure is currently not designed to address the challenges of climate change and is not adequate for meeting the expected increasing needs of its societies.
- **Impact on the construction sector:** Climate change is also resulting in important changes in the housing sector as increasing temperatures, particularly in summer months, are also increasing the demand for air conditioning. In the phase of expanding urbanization, with large numbers of new construction projects, it is tough to meet energy demands.
- **Impact on water Resources:** Change in climate is expected to have long-term implications on the quality and quantity of water. According to NATCOM there will be decline in runoff in all river basins in India except Narmada and Tapi.

- **Impact on agriculture and Food resources:** According to Indian Agricultural Research Institute, climate change will have adverse impact on Rabi crop- for every 1°C rise in temperature, the estimated loss of wheat is 4-5 million tonnes.
- **Rise in extreme weather events:** Climate change has increased India's vulnerability of extreme events. The 2017 high intensity Ockhi cyclone and 2018 dust storms in north India was attributed to climate change.
- **Impact on Human Health:** Changes in climate may alter distribution of vector species (malaria mosquitoes) and may increase vulnerability to diseases. Further rising heat waves and cold waves have adversely affected human health.
- **Impact on Forest Cover:** According to studies, large areas of forest in India are likely to experience shift in forest types due to climate change. For example: xeric scrublands will increase
- **Impact on Coastal Areas:** A sea-level rise of 46-59cm in India by 21000 is estimated by NATCOM. Rising sea level and increasing tropical cyclone events pose great threat to coastal areas in India

The steps to be taken

- **Infrastructure management:** Governments should pay special attention to improving energy infrastructure management and improving planning to cope with the impacts of climate change. This will also require appropriate policies and regulatory frameworks that incentivise energy efficiency and behavioural change.
- **Supporting small businesses:** Governments will need to encourage small businesses' activities in the energy sector, for example by enacting policies that support local-level development of renewable energy sources.
- **Planning for long term impact:** Planning and budgeting for the immediate and long-term impacts of climate change should become a priority for the energy sector.
- **Renewable energy targets:** Initially, India had set a target of 175 GW of installed renewables capacity by 2020 and a guarantee that by 2030, 40 per cent of its energy needs will come from renewables.
- **In 2018, at the Global Climate Action Summit:** PM announced an ambitious plan to make India less dependent on coal and natural gas by aiming for 450-500 GW of installed capacity by 2030 through renewable energy.
 - The target was five times the amount of existing installed renewables capacity of 81 GW. Over the last six years, there has been a 72 per cent increase in installed renewables capacity.
- **Electrification of transportation:** This seems to be the most promising sector as transportation systems around the country look set to go electric, including local transportation in big cities.
 - The Indian railways, too, is expected to go fully electric by 2024 with completion of electric lines by 2023, according to the ministry of railways.

Initiatives taken by India to combat climate change:

- **UNFCCC:** The United Nations Framework Convention on Climate Change is an international environmental treaty addressing climate change, negotiated and signed by 154 states at the United Nations Conference on Environment and Development.
- **International solar alliance:** The primary objective of the alliance is to work for efficient consumption of solar energy to reduce dependence on fossil fuels.
- **Green climate fund:** The objective of the Green Climate Fund is to "support projects, programmes, policies and other activities in developing country Parties using thematic funding windows".
- **Reducing Emissions from Deforestation and Forest Degradation:** It is encouraging developing countries to reduce emissions and enhance removals of greenhouse gases through a variety of forest management options, and to provide technical and financial support for these efforts.
- **Kigali:** The Kigali Amendment to the Montreal Protocol is an international agreement to gradually reduce the consumption and production of hydrofluorocarbons (HFCs).

Commitment to Paris Agreement on Climate Change, 2015

Under the Paris Agreement, –India stated its proposed commitments to address climate change as part of its Nationally Determined Contributions (NDCs), which was submitted for 2015–30:

- Reduce emissions intensity of its GDP by 33-35% by 2030 from 2005 levels;
- Increase the share of non-fossil fuel-based electricity to 40% by 2030;
- Increase renewable energy generation to 175 GW by 2022;
- Enhance its forest cover which will absorb 2.5 to 3 billion tonnes of carbon dioxide by 2030.

National Action Plan for Climate Change

- **National Solar Mission:** Aims to promote the use of solar energy in India.
 - India along with France launched the International Solar Alliance at the UN climate Change Conference in Paris.
- **National Mission for Enhanced Energy Efficiency:** Aims to improve energy efficiency of domestic, commercial and industrial sectors in India.
- Perform Achieve and Trade (PAT) Scheme, Energy Conservation Building Code, India's Zero Defect, Zero Effect policy aims to enhance energy and resource efficiency.
- **National Mission for Sustainable Habitat:** Aims at encouraging sustainable urban planning in India.
- **National Water Mission:** Aims to ensure sustainable water supply by conserving water, minimizing waste and ensuring equitable distribution of water resources.
- **National Mission for Strategic Knowledge on Climate Change:** Aims to create a comprehensive knowledge system that informs and supports climate change action in India.
- **National Mission for Sustainable Agriculture:** Aims at improving sustainability, productivity, remuneration and climate resilience of agriculture in India.
- **National Mission for Green India:** Aims to protect enhance and restore forests and respond to climate change.

- **National Mission for Sustaining the Himalayan Ecosystem:** Aims to enhance understanding of climate change impacts and adaptations required in the Himalayas.

Draft National Forest Policy, 2017:

The draft National Forest Policy calls for integration of climate change mitigation and adaptation measures in forest management through the mechanism of REDD+ (Reducing Emissions from Deforestation and Forest Degradation plus) so that the impacts of the climate change is minimised.

Promotion of Bio fuels

The Indian government has been promoting Biofuel through various policy interventions. Recently, the Union Cabinet approved the National policy on Biofuel, 2018. The policy aims at contributing to energy security and climate change mitigation by achieving a target of 20% blending of ethanol in petrol and 5% blending of biodiesel in diesel by 2030.

Clean Air Initiatives- Reducing Vehicular Emissions:

- The Indian government has decided to skip BS-V and directly move to BS-VI from 2020. It has further agreed to advance the proposed date for Euro-VI from 2026 to 2020
- FAME (Faster Adoption & Manufacturing go Hybrid and Electric Vehicles) India Scheme: The scheme aims at in creating infrastructure and promoting the use of environment-friendly electric vehicles.
- The National Urban Transport Policy has implemented measures to increase public transport. For example: Expansion of Metro Rail Transportation System in Delhi, Metro Bus Project in Bangalore
- The Global New Car Assessment Programme (Global NCAP) works with an aspiration for a world free from road fatalities and serious injuries.

Way Forward

- **Public policy:** A public policy for corporate social responsibility should be formulated at national level considering disaster risk reduction and climate change adaptation.
- **Research:** Research and development backed with adequate funding should be encouraged to develop and promote green technologies.
- **Smart solar meters:** The installation of smart solar meters with more expensive metering during peak hours, which could then incentivise the consumer and the discoms to actively push more affluent Indians to adopt rooftop solar.
- **Green accounting:** Green accounting is a type of accounting that attempts to include factor environmental costs into the financial results of operations.

APPENDIX 1 | FACTLY MAGAZINE

POLITY

Explained: A look at how Parliament sessions are convened?

News: Government has decided to cancel the Winter session of Parliament, citing fears over a surge in cases due to covid-19 pandemic.

Facts:

- **Constitution on Summoning of Parliament:** The summoning of Parliament is specified in Article 85 of the Constitution. Like many other articles, it is based on the provision of Government of India Act, 1935.
- **Power to convene Session:** The power to convene a session of Parliament rests with the Government. The decision is taken by the Cabinet Committee on Parliamentary Affairs which is formalised by the President, in whose name MPs are summoned to meet for a session.
- **Parliamentary Calendar:** India does not have a fixed parliamentary calendar. By convention (i.e. not provided by the Constitution), Parliament meets for three sessions in a year.
 - The longest, Budget Session (1st session) starts towards the end of January and concludes by the end of April or first week of May. The session has a recess so that Parliamentary Committees can discuss the budgetary proposals.
 - The second session is the three-week Monsoon Session, which usually begins in July and finishes in August.
 - Winter Session (3rd session) is held from November to December.

‘Any exploitation of Sentinel Island will wipe out tribals’

News: Anthropological Survey of India (AnSI) has said that any exploitation of the North Sentinel Island of the Andamans for commercial and strategic gain would spell the death knell for its occupants, the Sentinelese, a most secluded, particularly vulnerable tribal group (PVTG).

Facts:

- **Sentinelese** also known as the Sentineli are a negrito tribe who live on the North Sentinel Island of the Andaman.
- **Occupation:** Sentinelese are hunter-gatherers, likely using bows and arrows to hunt and more rudimentary methods to catch local seafood.
- **Language:** It is known that the Sentinelese speak their own language, the Sentinelese language.
- **Population:** Currently, their numbers are believed to be less than 150 and as low as 40.
- **How are they protected?** The Govt. of India has issued the Andaman and Nicobar Islands (Protection of Aboriginal Tribes) Regulation, 1956 to declare the traditional areas occupied by the tribes as reserves and prohibited entry of all persons except those with authorisation.



Additional Facts:

Anthropological Survey of India (AnSI): It was founded in 1945 as the apex Indian government organisation involved in anthropological studies and field data research for human and cultural aspects. It is operating under the Ministry of Culture and is headquartered in Kolkata.

Tribes of Andaman and Nicobar: The Andaman Islands are home to four 'Negrito' tribes namely the Great Andamanese, Onge, Jarawa and Sentinelese. Nicobar Islands are home to two 'Mongoloid' tribes – the Shompen and Nicobarese.

Pointly for Polity

- **Supreme Court on Right To Protest:** The Supreme Court has stated that it is the fundamental right of the farmers to protest as long as the protest is constitutional and does not destroy property or endanger life. This ruling came during the hearing of a batch of petitions seeking removal of protesting farmers from the Delhi borders.
- **Article 164(1B):** It states that any member of the Legislative Assembly either the house or the council, belonging to any political party, if disqualified as a member of the Assembly, shall also be disqualified to be appointed as a Minister for the period of their disqualification.
- **Article 361B-** It states that a member of a House belonging to any political party who is disqualified for being a member of the House under Tenth Schedule shall also be disqualified to hold any remunerative political post for duration of the period commencing from the date of his disqualification till the date on which the term of his office as such member would expire or till the date on which he contests an election to a House and is declared elected whichever is earlier.

POLICY**Four States begin dry run for roll-out of vaccine**

News: The dry run to test preparedness for the nationwide roll-out of a COVID-19 vaccine kicked off in four States – Assam, Andhra Pradesh, Gujarat and Punjab.

Facts:

- **What is a dry run?** A dry run is aimed at testing the planned operations and the laid out mechanisms for Covid-19 vaccination in the state. It will provide insights into any gaps or bottlenecks so that those could be addressed before the commencement of the actual drive.
- **Will actual vaccines be used in the dry run?** No, the dry run process will include all the steps except for the vaccination part.
- **What will the dry run include?** The mock drill will include:
 - Registration of the beneficiary on Co-Win, the platform that will facilitate vaccination
 - Testing the allocation of vaccination site
 - Process to be followed at the site of vaccination

- Testing cold storage and transportation arrangements.

Additional Facts:

CoWIN: It is a digitalised platform launched by the Ministry of Health and Family Welfare (MoHFW) to help agencies keep a track of Covid-19 vaccination programme and allow Indian citizens to apply for a Covid-19 vaccine shot.

Prime Minister Formalisation of Micro food processing Enterprises (PM-FME) Scheme

News: Tribal Cooperative Marketing Federation of India (TRIFED) has signed an MoU with Ministry of Food Processing Industries (MOFPI) For Upliftment of Tribal Lives Through the Implementation of PM- FME Scheme.

Facts:

- **PM-FME Scheme:** It is a centrally sponsored scheme launched by the Ministry of Food Processing Industries (MOFPI).
- **Aim:**
 - To modernize and enhance the competitiveness of the existing individual micro enterprises and ensure their transition to formal sector
 - To provide support to Farmer Producer Organizations, Self Help Groups, and Producers Cooperatives along their entire value chain.
- **Duration:** The scheme will be implemented over a period of five years from 2020-21 to 2024-25 with an outlay of Rs 10,000 crore.
- **Funding:** The expenditure under the scheme would be shared in 60:40 ratio between Central and State Governments, in 90:10 ratio with North Eastern and Himalayan States, 60:40 ratio with UTs with legislature and 100% by Centre for other UTs.
- **Coverage:** Under the scheme, 2,00,000 micro food processing units will be directly assisted with credit linked subsidy. Adequate supportive common infrastructure and institutional architecture will be supported to accelerate growth of the sector.
- **Key Features:**
- **One District One Product:**
 - The Scheme adopts One District One Product (ODOP) approach to reap the benefit of scale in terms of procurement of inputs, availing common services and marketing of products.
 - The States would identify food products for a district keeping in view the existing clusters and availability of raw material.
 - The ODOP product could be a perishable produce based product or cereal based products or a food product widely produced in a district and their allied sectors.
- **Other Focus Areas:**
 - The scheme focuses on Waste to wealth products, minor forest products and Aspirational Districts.
 - The Scheme also places special focus on capacity building and research. NIFTEM and IIFPT, two academic and research institutions under MOFPI along with State Level Technical Institutions selected by the States would be provided support for

training of units, product development, appropriate packaging and machinery for micro units.

- **Financial Support:**

- Existing individual micro food processing units desirous of upgrading their units can avail credit-linked capital subsidy at 35% of the eligible project cost with a maximum ceiling of Rs.10 lakh per unit.
- Support would be provided through credit linked grants at 35% for development of common infrastructure including common processing facility, lab, warehouse through FPOs/SHGs/cooperatives or state owned agencies or private enterprise.
- A seed capital (initial funding) of Rs. 40,000- per Self Help Group (SHG) member would be provided for working capital and purchase of small tools.

India drops two ranks in Human Development Index

News: United Nations Development Program (UNDP) has released the Human Development Index (HDI) 2020.

Facts:

- **HDI:** It measures the average achievements in a country in three basic dimensions of human development:
 - A long and healthy life- measured by Life expectancy at birth
 - Access to knowledge: measured by Mean years of schooling and Expected years of schooling
 - A decent standard of living- measured by Gross National Income (GNI) per capita (PPP US\$).
- **Note:** UNDP has introduced a new metric this year called Planetary Pressures-adjusted HDI (PHDI). PHDI reflects the impact caused by each country's per-capita carbon emissions and its material footprint which measures the amount of fossil fuels, metals and other resources used to make the goods and services it consumes.

Key Takeaways:

- **Topped by:** Norway has topped the index followed by Ireland, Switzerland, Hong Kong and Iceland.
- **India:** India has dropped two ranks in the index standing at 131 out of 189 countries. India's HDI value for 2019 is 0.645— which put the country in the medium human development category
- **BRICS:** In the BRICS grouping, Russia was 52 in the human development index, Brazil 84, and China 85.
- **Neighboring Countries:** Bhutan (129), Bangladesh (133), Nepal (142), and Pakistan (154).

Other Takeaways from the index:

- Life expectancy of Indians at birth in 2019 was 69.7 years. This is worse than Bangladesh which has a life expectancy of 72.6 years. The life expectancy in Pakistan is 67.3 years.

- India's gross national income per capita fell to \$6,681 in 2019 from \$6,829 in 2018 on purchasing power parity (PPP) basis.
- Purchasing power parity or PPP is a measurement of prices in different countries that uses the prices of specific goods to compare the absolute purchasing power of the countries' currencies.
- Solar capacity in India has increased from 2.6 gigawatts in March 2014 to 30 gigawatts in July 2019 achieving its target of 20 gigawatts four years ahead of schedule. In 2019, India ranked fifth for installed solar capacity.

NITI Aayog releases 'Vision 2035: Public Health Surveillance in India'

News: NITI Aayog has released a white paper: Vision 2035: Public Health Surveillance in India.

Facts:

- The document is a joint effort of Health Vertical, NITI Aayog and Institute for Global Public Health, University of Manitoba, Canada.

Vision of the Paper:

- To make India's public health surveillance system more responsive and predictive to enhance preparedness for action at all levels.
- Citizen-friendly public health surveillance systems will ensure individual privacy and confidentiality, enabled with a client feedback mechanism.
- Improved data-sharing mechanism between Centre and states for better disease detection, prevention, and control.
- India aims to provide regional and global leadership in managing events that constitute a public health emergency of international concern.

Key Features of the Vision:

- The white paper lays out India's vision 2035 for public health surveillance through the integration of the three-tiered public health system into Ayushman Bharat.
- The building blocks for this vision are an interdependent governance between the Centre and states, a new data-sharing mechanism that involves the use of new analytics, health informatics, and data science including innovative ways of disseminating 'information for action'.

Gwalior, Orchha on UNESCO World Heritage City List

News: The historical fort cities of Gwalior and Orchha in Madhya Pradesh have been included in the list of UNESCO's world heritage cities urban landscape city programme.

Facts:

- **Gwalior:** It was established in the 9th century and ruled by Gurjar Pratihara Rajvansh, Tomar, Baghel Kachvaha and Scindias. The city is known for its palaces and temples, including the intricately carved Sas Bahu Ka Mandir temple.
 - The Gwalior Fort occupies a sandstone plateau overlooking the city and is accessed via a winding road lined with sacred Jain statues. Within the fort's high walls is the 15th-century Gujari Mahal Palace, now an archaeological museum.

- **Orchha:** It is popular for its temples and palaces and was the capital of the Bundela kingdom in the 16th century. The famous spots in the town are Raj Mahal, Jehangir Mahal, Ramraja Temple, Rai Praveen Mahal, and Laxminarayan Mandir.

Additional Facts:

UNESCO World Heritage Cities Programme: It is one of six thematic programmes formally approved and monitored by the UNESCO World Heritage Committee.

Aim: To assist States Parties in the challenges of protecting and managing their urban heritage.

Urban Landscape City Programme: It was adopted in 2011 at UNESCO's General Conference. This programme approach to managing historic urban landscapes is holistic by integrating the goals of urban heritage conservation and those of social and economic development.

Energy Efficiency Report 2020

News: International Energy Agency (IEA) has released the annual Energy Efficiency Report 2020.

Facts:

Key Takeaways:

- The slow pace of global progress on energy efficiency is set to slow further in 2020 as a result of the economic impacts of the COVID-19 crisis.
- Global primary energy intensity – a key indicator of how efficiently the world's economic activity uses energy – is expected to improve by less than 1% in 2020, the weakest rate since 2010
- Investments in energy-efficient buildings, equipment and vehicles are also expected to decline by 9% in 2020.
- Shifts in urban transport from public transport to cars were also witnessed due to pandemic as people remained fearful of infection risk.

Additional Facts:

International Energy Agency (IEA): It was established in 1974 as an autonomous intergovernmental organization under the OECD framework.

Headquarters: Paris, France.

Members: It has 30 member countries and eight association countries. India became an associate member in 2017.

Pointly for Policy

- **e-Sampada:** It is a mobile application launched by Directorate of Estates, Ministry of Housing and Urban Affairs. It provides a single window for all services including allotment for over one lakh government residential accommodations, office space allotment to government organizations among others.
- **PM-JAY SEHAT:** It aims to ensure Universal Health Coverage by providing free of cost insurance cover to all the residents of the UT of Jammu and Kashmir. The scheme will cover the remaining population which has not been covered under the Ayushman Bharat Scheme.
- **Swachhata Abhiyan:** It is a mobile application developed by Ministry of Social Justice and Empowerment to identify and geotag the data of insanitary latrines and manual scavengers so

that the insanitary latrines can be replaced with sanitary latrines and rehabilitate all the manual scavengers to provide dignity of life to them.

- **FDI in Direct to Home (DTH):** Union Cabinet has approved 100% Foreign direct Investment (FDI) in the direct-to-home (DTH) broadcasting services sector. Currently, FDI was limited to 49%.
- **Grand Challenge for strengthening the CoWIN system:** It has been launched by the Ministry of Health and Family Welfare (MoHFW) and the Ministry of Electronics and Information Technology (MeitY). It aims to strengthen the COVID-19 Vaccine Intelligence Network (CoWIN) system.
- **Human Freedom Index 2020:** It has been jointly released by Fraser Institute in Canada and the Cato Institute in the United States. The index presents a broad measure of human freedom, understood as the absence of coercive constraints. New Zealand has topped the index India has been placed at the 111th spot out of 162 countries.
- **State of the Education Report for India: Vocational Education First:** The report has been released by UNESCO. It is the second edition of the report and it focuses on technical and vocational education and training (TVET).
- **Urban Governance Index 2020:** The index has been released by Praja Foundation, a Mumbai-based think tank. The index ranks states to indicate where they stand in terms of real empowerment of grassroots democracy and local self government. Odisha has been ranked first in the index.
- **Urban Quality of Life Index:** It has been released by IIT-Bombay researchers. The index has compared the quality of life in various cities in India and ranked them on the basis of various categories such as water, power, electricity, literacy rate, employment rate among others. For the first time, the index has factored in gender parity. Mumbai has topped the index followed by Delhi, Kolkata and Chennai.
- **AYUSH Export Promotion Council:** It has been set up by the Ministry of Commerce and Industry and Ministry of AYUSH to work together to facilitate more exports of AYUSH products by standardising their HS (Harmonised System) codes for global trade.
- **Global Wage Report 2020:** It has been released by the International Labour Organization (ILO). The report looks at recent trends in wages, the global economic and labour market context and the impact that the pandemic has had on wages.

INTERNATIONAL RELATIONS

U.K., EU reach post-Brexit trade agreement

News: Britain and the European Union have struck a free-trade deal on that should avert economic chaos on New Year's and bring a measure of certainty for businesses after years of Brexit turmoil.

Facts:

Brexit: It is the withdrawal of the United Kingdom from the European Union and the European Atomic Energy Community.

Key Features of the Brexit Deal:

- **Trade in Goods:** The agreement ensures that most goods traded between the EU and U.K. won't face new tariffs or quotas. However, British exporters will face an array of new regulatory hurdles that will make it more costly and burdensome to do business in Europe.
- **Level Playing Field:** The deal commits both sides to upholding their environmental, social, labor and tax transparency standards to make sure they don't undercut each other. The British say the deal doesn't include a ratchet mechanism that would force it to stiffen its rule in lockstep with the EU.
- **Customs:** Both sides pledge to limit customs red tape, including through programs for trusted traders known as authorized economic operators (AEOs have benefits including fewer controls).
- **Dispute Settlement:** Disputes on the deal must be negotiated between the EU and the U.K. with no role for the EU courts.
- **Professional Services:** There will no longer be automatic mutual recognition of professional qualifications.
- **Mobility – freedom of movement:** UK nationals no longer have the freedom to work, study, start a business or live in the EU. Visas will be required for stays over 90 days.

ASEAN Defence Ministers Meeting-Plus (ADMM-Plus)

News: India's defence minister attended the 14th ASEAN Defence Ministers' Meeting (ADMM) Plus organized online at Hanoi, Vietnam.

Facts:

- **ADMM-Plus:** It is a platform for ASEAN countries and its eight Dialogue Partners. It was held for the first time in Hanoi, Vietnam in 2010.
- **Eight Dialogue Partners:** Australia, New Zealand, India, China, Russia, the US, Japan and South Korea.
- **Aim:** To promote mutual trust and confidence between defence establishments of ASEAN and its eight partner countries through greater dialogue and transparency.



- **Areas of Cooperation:** Maritime security, counter-terrorism, humanitarian assistance and disaster relief, peacekeeping operations military medicine and humanitarian mine action.

Additional Facts:

ASEAN: It is a regional grouping which was established in 1967 with the signing of the Bangkok Declaration.

Members: Indonesia, Thailand, Singapore, Malaysia, The Philippines, Vietnam, Myanmar, Cambodia, Brunei, and Laos.

Headquarters: Jakarta, Indonesia.

US designates Pak, China as countries of particular concern

News: US State Department has designated Pakistan and China among eight other countries that are of particular concern for violation of religious freedom.

Facts:

- **Countries of Particular Concern (CPC):** It is a designation by the United States Secretary of State under the International Religious Freedom Act enacted by USA in 1998.
- **Why is it given?** It is given to countries which engage in or tolerate systematic, ongoing, egregious violations of religious freedom.
- **Countries on the CPC list:** The nations on the CPC list are Pakistan, China, Myanmar, Eritrea, Iran, Nigeria, North Korea, Saudi Arabia, Tajikistan and Turkmenistan.
 - **Note:** The US State Department did not accept the US Commission on International Religious Freedom (USCIRF) recommendation that India, Russia, Syria and Vietnam be also designated as CPCs.

Additional Facts:

- **Special Watch List country:** It is one that is deemed not to meet all of the CPC criteria but engages in or tolerates severe violations of religious freedom.
- **USCIRF:** It is an independent, bipartisan U.S. federal government commission which seeks to defend the universal right to freedom of religion or belief abroad.

Explained: What is Havana Syndrome?

News: National Academies of Sciences (NAS) has found microwave radiation to be the cause for the “Havana syndrome”.

Facts:

- **Havana Syndrome:** In 2016, US diplomats in Havana reported feeling ill after hearing strange sounds and experiencing odd physical sensations in their hotel rooms or homes. The symptoms included nausea, severe headaches, fatigue, dizziness, sleep problems, and hearing loss which have since come to be known as “Havana Syndrome”.
- **Microwave weapons:** These are supposed to be a type of direct energy weapons which aim highly focused energy in the form of sonic, laser, or microwaves, at a target.
 - **Effects:** People exposed to high-intensity microwave pulses have reported a clicking or buzzing sound, as if seeming to be coming from within your head. It can have both acute and long-term effects without leaving signs of physical damage.

Pointly for International Relations

- **Global Alliance for Vaccines and Immunisation (GAVI):** It is an international organisation - a global Vaccine Alliance created in 2000. It brings together public and private sectors with the shared goal of creating equal access to new and underused vaccines for children living in the world's poorest countries. GAVI has observer status at the World Health Assembly.
- **COVID-19 Vaccine Market Dashboard:** It was launched by UNICEF. It is an interactive tool for countries, partners and industry to follow the developments of the rapidly evolving COVID-19 vaccine market and the efforts of the COVAX Facility to ensure fair and equitable access for every country in the world.
- **Legion of Merit Award:** It is a military award of the United States Armed Forces given for exceptionally meritorious conduct in performance of outstanding services and achievements. It is awarded to members of the seven uniformed services of the United States as well as to military and political figures of foreign governments.
- **Pratas Islands** also known as Dongsha Island is located in the northern part of the South China Sea under the jurisdiction of the Republic of China (Taiwan), closer to China's mainland coast than to the island of Taiwan.
- **Virtual Vaccines Hub:** It was launched by India and UK Government. It aims to distribute vaccines for Covid-19 and other deadly viruses by sharing knowledge on clinical trials and regulatory approvals and get vaccines to people who need them most in a safe, secure and energy-efficient way.
- **Asia Pacific Vaccine Access Facility (APVAX):** It was launched by Asian Development Bank (ADB). It aims to offer rapid and equitable support to its developing members as they procure and deliver effective and safe coronavirus disease (COVID-19) vaccines.
- **Partners in Population and Development (PPD):** It is an Intergovernmental alliance formed during the International Conference on Population and Development (ICPD) held in Cairo in 1994. It aims to expand and strengthen South-South collaboration between and among the developing countries in the field of reproductive health, population and development. Its Secretariat is in Dhaka, Bangladesh.
- **United Nations Investment Promotion Award:** It is the most coveted award for Investment Promotion Agencies given by the United Nations Conference on Trade and Development (UNCTAD). The award recognizes and celebrates the outstanding achievements and best practices of Investment Promotion Agencies (IPAs) across the globe.

ECONOMY

What is Positive Pay Mechanism?

News: From January 1, 2021, the Reserve Bank of India (RBI) will introduce the 'Positive Pay System' for cheque transactions above Rs 50,000 in a bid to enhance safety and eliminate frauds.

Facts:

- **Positive Pay Mechanism:** It involves a process of reconfirming key details of large-value cheques.
- **Process:** Under this, the issuer of the cheque submits electronically through channels like SMS, mobile app and Internet banking, certain minimum details of cheque to the drawee bank, details of which are cross-checked with the presented cheque by Cheque Truncation System (CTS). Any discrepancy is flagged by CTS to the drawee bank and presenting bank who then take redressal measures.
- **Cheque Limits:** Banks will enable the new system for all account holders issuing cheques for amounts of Rs 50,000 and above. It is mandatory in case of cheques for amounts of Rs 5,00,000 and above.
- **Developed by:** National Payments Corporation of India (NPCI) will develop the facility of Positive Pay in CTS and make it available to participant banks.

Zero coupon bonds: Innovative govt tool to fund PSBs, keep deficit in check

News: The government has used Zero Coupon Bonds to recapitalise Punjab & Sind Bank by issuing the lender Rs 5,500-crore worth of non-interest bearing bonds valued at par.

Facts:

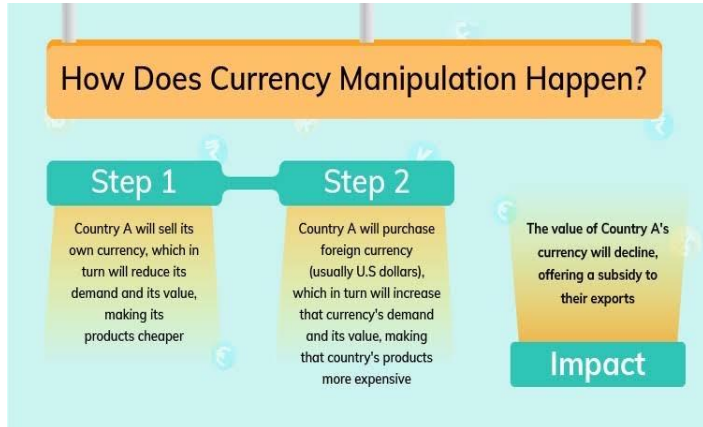
- **What are Traditional Zero Coupon Bonds?** These are debt security that does not pay interest but instead trades at a deep discount, rendering a profit at maturity, when the bond is redeemed for its full face value. The difference between the purchase price of a zero-coupon bond and the par value, indicates the investor's return.
- **What kind of Bonds are issued to Punjab & Sind Bank?** These are non-interest bearing, non-transferable special Government of India (GOI) securities having a maturity of 10-15 years and issued specifically to Punjab & Sind Bank.
- **How are they different from traditional Zero Coupon Bonds?** Though zero coupon, these bonds are different from traditional zero coupon bonds on one account – as they are being issued at par, there is no interest; in previous cases, since they were issued at discount, they technically were interest bearing.

U.S. puts India on 'currency manipulators' monitoring list

News: The United States has added India along with Taiwan and Thailand to the 'monitoring list' of currency manipulating countries that includes major trading partners like China and six others.

Facts:

- **Currency Manipulator:** The US Treasury department defines currency manipulation as when countries deliberately influence the exchange rate between their currency and the US dollar to gain unfair competitive advantage in international trade.
- **Criteria:** To be labeled a manipulator by the U.S. Treasury, countries must
 - At least have a \$20 billion-plus bilateral trade surplus with the U.S.
 - Foreign currency intervention exceeding 2% of gross domestic product and
 - Global current account surplus exceeding 2% of GDP.
- **Implications:** Once a country is designated as a currency manipulator by the U.S., the next step taken by the US government is to seek negotiations with the government accused of manipulation.



RBI allows RRBs to access LAF, MSF windows

News: Reserve Bank of India (RBI) has allowed regional rural banks (RRBs) to access the liquidity adjustment facility (LAF), marginal standing facility (MSF) and call or notice money markets with the aim to facilitate better liquidity management for these lenders.

Facts:

- **Liquidity Adjustment Facility(LAF):** It is a facility extended by the Reserve Bank of India to the banks to avail liquidity in case of requirement or park excess funds with the RBI in case of excess liquidity on an overnight basis against the collateral of Government securities including State Government securities.
- **Marginal standing facility (MSF):** It is a window for banks to borrow from the Reserve Bank of India in an emergency situation when interbank liquidity dries up completely. MSF rate is generally higher than Repo rate.
- **Call or Notice Market:** The call/notice money market forms an important segment of the Indian Money Market. Under call money market, funds are transacted on an overnight basis and under notice money market funds are transacted for a period between 2 days and 14 days.

Additional Facts:

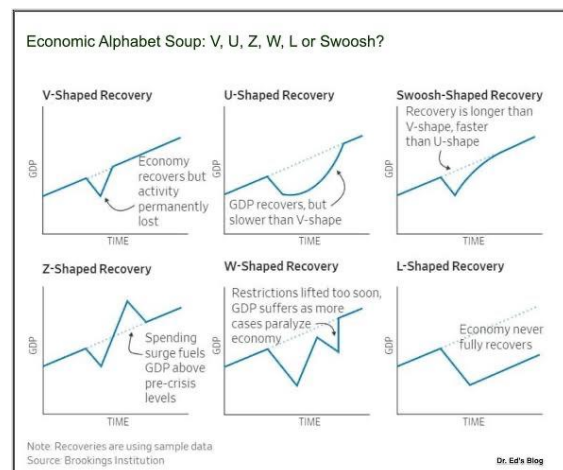
- **Regional Rural Banks:** These are financial institutions which ensure adequate credit for agriculture and other rural sectors. They were set up on the basis of the recommendations of the Narasimham Working Group (1975), and after the legislation of the Regional Rural Banks Act, 1976.
- **First RRB:** The first Regional Rural Bank “Prathama Grameen Bank” was set up on 2nd October, 1975.
- **Stakeholders:** The equity of a regional rural bank is held by the Central Government, concerned State Government and the Sponsor Bank in the proportion of 50:15:35.
- **PSL:** The RRBs are required to provide 75% of their total credit as priority sector lending (PSL).

Indian economy witnessing V-shaped recovery: Finance Ministry report

News: Finance Ministry’s Monthly Economic Review report has stated that the Indian Economy is witnessing a V-shaped recovery as the decline in the GDP has narrowed to 7.5% in the second quarter of 2020-21 from 23.9% in April-June quarter.

Facts:

- **V-shaped recovery:** It is characterized by a quick and sustained recovery in measures of economic performance after a sharp economic decline.
- **Significance:** Because of the speed of economic adjustment and recovery in macroeconomic performance, a V-shaped recovery is a best case scenario given the recession.
- **Example:** The recoveries that followed the recessions of 1920-21 and 1953 in the U.S. are examples of V-shaped recoveries.

**Pointly for Economy**

- **Municipal Bonds:** It is a kind of debt instrument where investors offer loans to local governments. They are issued by civic bodies for specific projects and usually have a 10-year tenure. The ULB pays the annual interest on the bonds to the investor at the decided rate. Ahmedabad was the first city in South Asia to launch a municipal bond in 1998.
- **Bharatskills Portal:** It is an online training platform launched by the Directorate General of Training (DGT) in 2019. It is a Central Repository for skills providing easy access for the trainees and trainers of the ITI ecosystem to access updated curriculums and course content of all courses.
- **World Trade Report 2020:** It has been released by the World Trade Organization (WTO). It is an annual report published since 2003 by the World Trade Organization to deepen

understanding about trends in trade, trade policy issues, and the multilateral trading system (MTS).

ENVIRONMENT

Status of leopards in India, 2018 Report

News: Union Environment Minister has released the Status of Leopards in India 2018 Report.

Facts:

Key Takeaways from the report:

- **Method Used:** The leopard population has been estimated using camera trapping method apart from satellite imaging and field work by teams of forest officers.
- **Leopards in India:** There are 12,852 leopards in India as of 2018 as compared to the previous estimate of 7910 conducted 2014, an increase of 60% in 4 years.
- **Highest Number of Leopards:** The highest concentration of the leopard in India is estimated to be in Madhya Pradesh (3,421) followed by Karnataka (1,783) and Maharashtra (1,690).
- **Region Wise Distribution:** As for region-wise distribution, the highest number of 8,071 leopards were found in central India and eastern ghats. In the northeast hills, there are just 141 leopards.
- **Concerns:**
 - **Fragmentation of forests** as well as the quality of forests
 - **Human-Leopard conflict:** Leopards are not like tigers who don't like humans and therefore don't venture out. Leopards are far more adaptable and when loss of habitat takes place, they move closer to human settlements and that's when the conflict takes place.
 - **Poaching**
 - Depletion of natural prey among others.

International Blue Flag hoisted at 8 beaches across the Country

News: Minister for Environment, Forest and Climate Change has virtually hoisted the international blue flags in 8 beaches across the country.

Facts:

- During October 2020; Eight beaches of India spread across five states and two union territories have been awarded the Blue Flag Certification. These eight beaches are:
 - Shivrajpur (Dwarka-Gujarat)
 - Ghoghla (Diu)
 - Kasarkod and Padubidri (Karnataka)
 - Kappad (Kerala)



- Rushikonda (AP)
- Golden (Puri-Odisha) and
- Radhanagar (A&N Islands).
- India has also set up an ambitious target of getting the Blue Certification tag for 100 more beaches in the next 3 years.

Additional Facts:

- **Blue flag certification:** It is an international recognition conferred on beaches that meet certain criteria of cleanliness and environmental propriety.
 - The certification programme is run by the international, non-governmental, non-profit organisation FEE (the Foundation for Environmental Education).
 - **Criteria:** The certification is based on 33 stringent criteria in four major heads (i) Environmental Education and Information (ii) Bathing Water Quality, (iii) Environment Management and Conservation and (iv) Safety and Services in the beaches.
 - **Headquarters:** Copenhagen, Denmark.
- **BEAMS (Beach Environment & Aesthetics Management Services):** It was launched by the Society of Integrated Coastal Management (SICOM) and the Union Ministry of Environment, Forest and Climate Change (MoEFCC) in 10 coastal states under ICZM (Integrated Coastal Zone Management) project.
- **Objectives:** The objectives of BEAMS program is to:
 - Abate pollution in coastal waters,
 - Promote sustainable development of beach facilities,
 - Protect & conserve coastal ecosystems & natural resources,
 - Strive and maintain high standards of cleanliness,
 - Hygiene & safety for beachgoers in accordance with coastal environment & regulations.

Himalayan trillium

News: Himalayan trillium (*Trillium govanianum*), a common herb of the Himalayas was declared 'endangered' by the International Union for Conservation of Nature(IUCN).

Facts:

- **Himalayan Trillium:** It is a common herb of the Himalayas. It is often locally called as Nagchatri.
- **Vegetation:** It is found in temperate and sub-alpine zones of the Himalayas at an altitude from 2,400–4,000 metres above sea level.
- **Uses:** The herb has been used in traditional medicine to cure diseases like dysentery, wounds, skin boils, inflammation, sepsis, as well as menstrual and sexual disorders.
- **Found in:** India, Afghanistan, Pakistan, China, Nepal, Bhutan have been home to this species.

- **India:** In India, it is found in four states only- Himachal Pradesh, Jammu and Kashmir, Sikkim, and Uttarakhand.
- **Concerns:** In recent years, the plant has become one of the most traded commercial plants of the Himalayan region, due to its high medicinal quality.

12th GRIHA summit

News: The Vice President of India has virtually inaugurated the 12th GRIHA (Green Rating for Integrated Habitat Assessment) Summit.

Facts:

- **GRIHA Summit:** It is the annual flagship event organized by GRIHA Council in association with key stakeholders in the construction industry to discuss and deliberate on furtherance of Sustainable Habitat Development in India.
- **Theme:** "Rejuvenating Resilient Habitats"

Additional Facts:

- **Building Fitness Indicator (BFI):** It is a self-assessment online tool launched by GRIHA Council to assess safety and hygiene standards for workplaces in India.
- **Global Housing Technology Challenge India (GHTC-India):** It was organised by the Ministry of Housing and Urban Affairs in 2019 with an aim to identify and mainstream best available and proven construction technologies that are sustainable, green and disaster-resilient to enable a paradigm shift in housing construction.
- **GRIHA:** It is an independent, not-for-profit society jointly setup by The Energy and Resources Institute (TERI) and the Ministry of New and Renewable Energy (MNRE).
- **Purpose:** It evaluates the environmental performance of a building holistically over its entire life cycle, based on quantitative and qualitative criteria, thereby providing a definitive standard for green buildings and sustainable habitats.

5th India Water Impact Summit (IWIS)

News: The 5th India Water Impact Summit (IWIS) has commenced in a virtual mode.

Facts:

- **Organized by:** The summit has been organised by the National Mission for Clean Ganga and Center for Ganga River Basin Management and Studies (cGanga).
- **Objective:** To bring together various stakeholders to discuss, debate and develop model solutions to some of the biggest water related issues in the country.
- **Theme:** "Arth Ganga: River Conservation Synchronised Development"

Additional Facts:

NMCG: It is the implementation wing of National Council for Rejuvenation, Protection and Management of River Ganga (referred as National Ganga Council). It was established in the year 2011 as a registered society under Societies Registration Act, 1860.

Sustainable Mountain Development Summit

News: The 9th edition of Sustainable Mountain Development summit commenced in virtual mode on the occasion of International Mountain Day.

Facts:

- **Sustainable Mountain Development Summit(SMDS):** The summit was organized by Indian Mountain Initiative(IMI)
- **Aim:** To deliberate on issues such as migration, water security, climate resilience and innovative solutions for the farm sector and disaster risk reduction in the Indian Himalayas.
- **Theme:** Emerging Pathways for Building a Resilient Post COVID-19 Mountain Economy, Adaptation, Innovation and Acceleration.

Additional Facts:

Integrated Mountain Initiative (former Indian Mountain Initiative): It is a civil society led network formed in 2011 with the objective of providing stakeholders from the states of the Indian Himalayan Region a platform to come together to discuss issues related to the development of the Himalayan region.

Climate Ambition Summit 2020

News: Indian Prime Minister has addressed the Climate Ambition Summit 2020.

Facts:

- **Climate Ambition Summit:** It has been organized virtually to mark the five years of the adoption of the Paris Agreement on Climate Change.
- **Hosted by:** The summit was co-hosted by the United Nations, United Kingdom and France.

Key Takeaways from the summit:

- India has reduced its emission by 21% over 2005 levels.
- India's Renewable energy capacity is the fourth largest in the world.It will reach 175 GigaWatts before 2020.
- India has also managed to grow its solar capacity from 2.63 GigaWatts in 2014 to 36 GigaWatts in 2020.

Additional Facts:

Paris agreement: It was adopted at the UNFCCC COP21 held in Paris in 2015.It aims to keep global temperature rise in the 21st century well below 2 degrees Celsius above pre-industrial levels and pursue efforts to limit the temperature increase even further to 1.5 degrees Celsius.

New species of ecologically vital plant found in Western Ghats

News: A new species of Indian Muraingrasses (Genus Ischaemum) have been spotted by scientists in Goa in the Western Ghats.

Facts:

- **Ischaemum Janarthanamii:** It is a species of Muraingrass which is known for their ecological and economic importance such as fodder.
- **Named after:** It was named in the honour of Prof. M. K. Janarthanam, Professor of Botany, Goa University.
- **Vegetation:** The species grows on low altitude lateritic plateaus in the outskirts of Bhagwan Mahavir National Park, Goa.
- **Significance:** The species has adapted to survive harsh conditions and blossom every monsoon.

Declare exotic pets, avoid prosecution: how one-time scheme works

News: The Ministry of Environment, Forest and Climate Change (MoEFCC) has come out with an advisory on a one-time voluntary disclosure scheme that allows owners of exotic live species that have been acquired illegally or without documents to declare their stock to the government.

Facts:

- **Aim of the scheme:** To address the challenge of zoonotic diseases, develop an inventory of exotic live species for better compliance under the CITES and regulate their import. In its current form, the amnesty scheme is just an advisory and not a law.
- **Exotic wildlife covered under scheme:** The advisory has defined exotic live species as animals named under the Appendices I, II and III of the CITES. It does not include species from the Schedules of the Wild Life (Protection) Act 1972. The advisory excludes exotic birds from the amnesty scheme.
- **Process for disclosure:** The disclosure has to be done online through MoEFCC's Parivesh portal. The owner of the animal(s) will have to declare the stock to the Chief Wildlife Warden (CWLW) of the concerned state or Union Territory. This will be followed by a physical verification of the animals.

Additional Facts

- **Exotics Animals:** These are those species that are mentioned under the Appendices of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) but not under the schedules of the Wildlife (Protection) Act, 1972.
- **Pro Active Responsive facilitation by Interactive and Virtuous Environmental Single window Hub (PARIVESH) Portal:** It is a Ministry of Environment, Forests and Climate Change initiative for single window clearances of Environment, Forests and Wildlife and Coastal Regulation Zone (CRZ) Clearances.
- **CITES:** It is an international agreement between governments to ensure that international trade in wild animals, birds and plants does not endanger them. India is a member. Appendices I, II and III of CITES list 5,950 species as protected against over-exploitation through international trade.

Emissions Gap Report 2020

News: United Nations Environment Programme (UNEP) has released the Emissions Gap Report, 2020.

Facts:

- **Emissions gap report:** The report assesses the gap between anticipated emissions and levels consistent with the Paris Agreement goals of limiting global warming this century to well below 2°C and pursuing 1.5°C.

Key Takeaways:

- **Temperature Rise:** World is still heading for a temperature rise in excess of 3°C this century – far beyond the Paris Agreement goals of limiting global warming to well below 2°C and pursuing 1.5°C.
- **Record GHG Emissions:** In 2019, the total greenhouse gas emissions, including land-use change reached a new high of 59.1 gigatonnes of CO₂ equivalent (GtCO₂e).
- **Record carbon emission:** Fossil carbon dioxide (CO₂) emissions (from fossil fuels and carbonates) dominate total GHG emissions.
- **Forest fires increasing GHG emissions:** Global greenhouse gas emissions have grown 1.4% per year since 2010 on average, with a more rapid increase of 2.6% in 2019 due to a large increase in forest fires.
- **G20 countries account for the bulk of emissions:** Over the last decade, the four emitters (China, the United States of America, EU27+UK and India) have contributed to 55% of the total GHG emissions.
- **Did the COVID-19 pandemic impact the emission level?** Due to the pandemic, carbon dioxide emissions are predicted to fall up to 7% in 2020. However, this dip only translates to a 0.01°C reduction of global warming by 2050.
- **Which sector reported the lowest dip in emission due to pandemic?** Studies indicate that the biggest changes have occurred in transport, as COVID-19 restrictions were targeted to limit mobility, though reductions have also occurred in other sectors.

Recommendations:

- **Green Pandemic Recovery:** Governments can invest in climate action as part of pandemic recovery and solidify emerging net-zero commitments with strengthened pledges so that they can bring emissions to levels broadly consistent with the 2°C goal.
- **Change in Consumption Behaviour:** The report finds that stronger climate action must include changes in consumption behaviour by the private sector and individuals. Around two-thirds of global emissions are linked to private households when using consumption-based accounting.
- **Responsibility on Wealthy:** The wealthy bear the greatest responsibility as the emissions of the richest 1% of the global population account for more than twice the combined share of the poorest 50%. This group will need to reduce its footprint by a factor of 30 to stay in line with the Paris Agreement targets.
- **Lower Carbon Consumption:** Possible actions to support and enable lower carbon consumption include replacing domestic short haul flights with rail, incentives and

infrastructure to enable cycling and car-sharing, improving the energy efficiency of housing and policies to reduce food waste.

Climate Change Performance Index (CCPI)

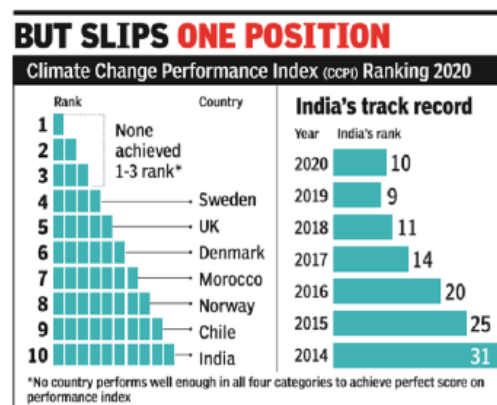
News: Climate Change Performance Index (CCPI) 2021 has been released.

Facts:

- **Released by:** The index has been developed by not-for-profit organisations Germanwatch and NewClimate Institute (Germany) together with the Climate Action Network (CAN International).
- **Objective:** It is an important tool to enhance transparency in international climate politics and enables comparison of climate protection efforts and progress made by individual countries.
- **Parameters:** The index is prepared by assessing performances of 57 countries and European Union in four categories - GHG emissions (40%), renewable energy (20%), energy use (20%) and climate policy (20%).

Key Takeaways:

- **Top ranking:** Sweden (4th place) remains an international frontrunner in climate protection for the fourth year in a row.
- **India:** India has dropped by one position from ninth in 2019 to 10th in 2020. However, India's journey towards climate protection has been consistent with it improving its ranking from 31st in 2014.
- **China and US:** The biggest current emitter of greenhouse gases (GHG) China figures at 33rd rank while the largest historical polluter USA appears at the bottom (61st) on the list.
- **G20:** Only two G20 countries - the UK and India - are among the high rankers while six others - the USA, Saudi Arabia, Canada, Australia, South Korea and Russia (52nd) - are at the bottom of the index.



Nagaland's Hornbill Festival to be celebrated virtually

News: Nagaland will be taking its 21st edition of the Hornbill Festival to a virtual platform from December 1 to 5, 2020.

Facts:

- **Hornbill Festival:** It is a celebration held every year in Nagaland. The festival is also called the 'Festival of Festivals'.
- **Organized by:** Nagaland State Tourism and Art & Culture Departments.
- **Aim:** To encourage inter-tribal interaction and to promote culture through colourful performances, crafts, sports, food fairs, games and ceremonies.



- **Named after:** The festival is named after the Great Indian hornbill, the large and colourful forest bird which is displayed in the folklore of most of the state's tribes.

Additional Facts:

- **Great Indian Hornbill:** It is one of the larger members of the hornbill family. It is found in the Indian subcontinent and Southeast Asia.
- **State Bird:** It is the state bird of Kerala and Arunachal Pradesh. But it is not a state bird of Nagaland.
- **IUCN Status:** Vulnerable
- **CITES:** Appendix I
- **Threats:** Logging, Forest clearance for agriculture, susceptible to hunting pressure among others.

What are Eco-ducts or Eco-bridges?

News: Ramnagar Forest Division in Nainital district, Uttarakhand has recently built its first eco-bridge for reptiles and smaller mammals.

Facts:

- **Eco-ducts or Eco-bridges:** These are areas of wildlife habitat that aim to enhance wildlife connectivity that can be disrupted because of highways or logging. Usually these bridges are overlaid with planting from the area to give it a contiguous look with the landscape.
- **Types of Eco-bridges:** It includes canopy bridges (usually for monkeys, squirrels and other arboreal species); concrete underpasses or overpass tunnels or viaducts (usually for larger animals); and amphibian tunnels or culverts.
- **Significance:** Eco-bridges play a very important role in maintaining connections between animal and plant populations that would otherwise be isolated and therefore at greater risk of local extinction.



Pointly for Environment

- **Digital Ocean:** It is a first of its kind digital platform for ocean data management developed by Indian National Centre for Ocean Information Services (INCOIS) to share information on marine data and forecast services.
- **Tso Kar Wetland Complex:** It is a high-altitude wetland complex situated in Union Territory (UT) of Ladakh. It is also called Tso Kar meaning white lake because of the white salt efflorescence found on the margins due to the evaporation of highly saline water. The wetland has been added as the 42nd Ramsar site which is a second one in the Union Territory (UT) of Ladakh.
- **Global Status Report for Building and Construction, 2020:** The report has been released by United Nations Environment Programme (UNEP). It provides a snapshot of the progress of the buildings and construction sector globally towards the achievement of the goals of the Paris Agreement on Climate Change and particularly on the drivers of CO2 emissions.

- **Jim Corbett National Park:** It was established in 1936 as Hailey National Park- the first national park in India. It is located in the Nainital district of Uttarakhand. The park was declared a Tiger Reserve in 1973- the first to come under the Project Tiger initiative.
- **Rajaji National Park:** It is a national park and tiger reserve that encompasses the Shivaliks, near the foothills of the Himalayas. It was declared as a tiger reserve in 2015 and is the second tiger reserve in the Uttarakhand and 48th Tiger Reserve of India. The park extends over the Shivalik Range in the north-west to the Rawan River in the southeast with the Ganges dividing it into two parts.
- **E20 Fuel:** It means blending 20% of ethanol with gasoline as an automotive fuel. The current permissible level of blending is 10% of ethanol though India has reached only 5.6% of blending in 2019. The blending helps in reducing emissions of carbon dioxide, hydrocarbons and will also help in reducing the oil import bill, thereby saving foreign exchange and boosting energy security.
- **State of the Global Climate Report:** It has been released by the World Meteorological Organization (WMO). It is published annually to keep a track of global warming. According to the report, 2020 is set to be among the third warmest years behind 2016 and 2019. The 2011-2020 would also be the warmest decade ever.

SCIENCE and TECHNOLOGY

Union Minister inaugurates Country's First Pneumococcal Conjugate Vaccine

News: Union Minister for Health and Family Welfare has inaugurated India's first pneumococcal conjugate vaccine (PCV) named "Pneumosil".

Facts:

- **Pneumosil:** It has been developed by the Serum Institute of India Private Limited (SIPL) in collaboration with partners like the Bill and Melinda Gates Foundation.

What is Pneumococcal conjugate vaccine (PCV)?

- It is a pneumococcal and a conjugate vaccine used to protect infants, young children and adults against disease caused by the bacterium *Streptococcus pneumoniae* (pneumococcus).
- **Conjugate:** It is a type of vaccine that joins a protein to an antigen in order to improve the protection the vaccine provides.
- It contains purified capsular polysaccharide of pneumococcal serotypes conjugated to a carrier protein to improve antibody response.
- The unique feature of the PCV is its composition which is specially tailored to the prevailing serotype prevalence of *S. Pneumoniae* in India and other regions of the world.

What is Pneumococcal disease?

- **Pneumococcal disease** is the name given to a group of diseases caused by a bacterium called *Streptococcus pneumoniae*, (also known as pneumococcus).
- **Diseases caused** by pneumococcus include 1) severe diseases such as pneumonia, meningitis and bacteraemia (presence of bacteria in the blood) and 2) milder diseases such as middle ear infection (otitis media), sinusitis and bronchitis.

- **Cases:** Pneumococcal disease is a significant contributor to the under-five mortality rate worldwide. Annually India witnesses an estimated 71% of pneumonia deaths and 57% of severe pneumonia cases. Every year, nearly 67,800 children under five years of age die from pneumococcal diseases.
- **Vaccine:** Hence, recognising its widespread fatality, WHO recommended the inclusion of PCV in routine childhood immunisation programmes in all countries.

Government launches Indian SARS-CoV-2 Genomic Consortia (INSACOG) Group

News: Government of India has launched the Indian SARS-CoV-2 Genomic Consortia Group (INSACOG).

Facts:

- **INSACOG:** It has been established to monitor the genomic variations in the SARS-CoV-2 on a regular basis through a multi-laboratory network.
- **Composition:** It comprises 10 labs (NIBMG Kolkata, ILS Bhubaneswar, NIV Pune, CCS Pune, CCMB Hyderabad, CDFD Hyderabad, InSTEM Bengaluru, NIMHANS Bengaluru, IGIB Delhi and NCDC Delhi).
- **Coordinated by:** The group is coordinated by the Department of Biotechnology (DBT) along with the Ministry of Health and Family Welfare (MoH&FW), ICMR and CSIR.
- **Nodal Unit for Maintaining Database:** National Centre for Disease Control (NCDC) will be the nodal unit for maintaining a database of all samples of the new variants of public health significance. The data will be epidemiologically analysed, interpreted and shared with states for investigation, contact tracing and planning response strategies.
- **Other key Functions of the INSACOG:**
 - It will establish sentinel surveillance for early detection of genomic variants with public health implications and to determine genomic variants in unusual events or trends such as super-spreader events.
 - Knowledge generated through this vital research consortium will also assist in developing diagnostics and potential therapeutics and vaccines in the future.
 - The group will also closely work with NCDC on activities like SOPs, data annotation, data analysis, data release among others.

IFFCO gas leak: How dangerous is ammonia?

News: A major ammonia gas leakage at the Indian Farmers Fertilizer Cooperative Limited (IFFCO) unit at Prayagraj has occurred.

Facts:

- **What is Ammonia?** A tri-hydroid of nitrogen (NH_3), ammonia is a building block for ammonium nitrate (NH_4NO_3) that is used in agriculture as a high-nitrogen fertiliser.
- **Source of Ammonia:** It is highly soluble in water, is found in soil, air, and water; it is naturally present in the body and secreted by the kidneys to neutralise excess acid. However, it is highly diluted when in the environment and does not affect the human body to a noticeable level.

- **Acceptable Limit:** The acceptable maximum limit of ammonia in drinking water as per the Bureau of Indian Standards is 0.5 ppm.
- **Uses:**
 - Ammonia is stored for industrial use in liquid form under high pressure or in gaseous form at low temperature.
 - Ammonia is critical in the manufacturing of fertilizers, and is one of the largest-volume synthetic chemicals produced in the world. More than 80% of ammonia made is consumed in the manufacturing of fertilizer and most of the remainder goes into the production of formaldehyde.
- **How is it harmful on Human Body?**
- Ammonia interacts immediately upon contact with moisture present in the skin, eyes, oral cavity, respiratory tract to form ammonium hydroxide which is very caustic and disrupts the cell membrane lipids ultimately leading to cellular destruction.
- If Ammonia is inhaled in excess, the gas is toxic and affects the lungs with a possibility of causing chemical pneumonitis – inflammation of the lung caused by aspirating or inhaling irritants.

First set of data from Chandrayaan-2 released: ISRO

News: Indian Space Research Organisation (ISRO) has released the first set of data from Chandrayaan-2 Mission for the general public.

Facts:

- **Nodal Centre for Planetary Data:** The Indian Space Science Data Centre (ISSDC) is the nodal centre of planetary data archive for the planetary missions of the ISRO.
- **Chandrayaan-2 data:** The Chandrayaan-2 data are required to be in the Planetary Data System-4(PDS4) standard and required to be peer reviewed scientifically and technically before acceptance as PDS archives and declared ready for sharing with the global scientific community and the general public.
 - This activity has been completed and hence the first set of data from the Chandrayaan-2 mission is now being released for the wider public use through the PRADAN portal hosted by the ISSDC.
- **What does the data provide?** The Orbiter, which carried eight experiments/payloads, all of which have been performing well and sending data received.

Additional Facts:

- **Chandrayaan-2:** It is the second lunar exploration mission developed by the Indian Space Research Organisation (ISRO) after Chandrayaan-1.
- **Main Objective:** To map and study the variations in lunar surface composition, as well as the location and abundance of lunar water.
- **Launch Vehicle:** The mission was launched onboard India's most powerful launcher – GSLV MK-III M1.
- **Modules:** The Chandrayaan-2 mission consisted of three main modules:
- **Orbiter** carried eight scientific payloads for mapping the lunar surface and studying the exosphere (outer atmosphere) of the Moon.
- **Vikram lander** carried three scientific payloads to conduct surface and subsurface science experiments.
- **A Lunar Rover** named Pragyan carried two payloads to enhance our understanding of the lunar surface.
- **Note:** The lander and rover were destroyed during the attempted landing in September, 2019.

Mutated coronavirus strain in UK

News: A mutated variant of the novel Coronavirus has been associated with recent Covid infections in the United Kingdom.

Facts:

- **What is Mutation?** It is simply a change in the virus' genome: the set of genetic instructions that contain all the information that the virus needs to function.
- When the virus replicates, this set of instructions needs to be copied but errors can creep in during this process.
- Depending on where in the genome mistakes occur, they can have a negative or positive impact on the virus' ability to survive and replicate. Or, as is the case the majority of the time, they may have no impact at all.
- **Where has this variant come from?** The variant is unusually highly mutated. The most likely explanation is the variant has emerged in a patient with a weakened immune system that was unable to beat the virus. Instead their body became a breeding ground for the virus to mutate.
- **Why is this variant causing concern?**
 - It is rapidly replacing other versions of the virus
 - It has mutations that affect part of the virus likely to be important
 - Some of those mutations have already been shown in the lab to increase the ability of the virus to infect cells.
- **Will the new coronavirus strain make the new vaccines ineffective?** The presumption is that current vaccines would still be effective against the variant as vaccines induce broad immune system responses besides just prompting the immune system to make antibodies to the virus, so they are expected to still work
- **New Mutant Coronavirus:** The mutant virus has been identified as N501Y and is likely to be a mutation in the spike protein.

- **Spike Protein:** Coronaviruses including SARS-CoV-2 which causes Covid-19, get their name from the “corona” or crown shape created by the protein “spikes” on their surface. These spike proteins bind with human proteins to initiate the process of infection.

What is SolarWinds Hack

News: The ‘SolarWinds hack’, a cyberattack discovered in the United States, has emerged as one of the biggest ever targeted against the US government. In fact, it is likely a global cyberattack.

Facts:

- **SolarWinds Hack** also called the Supply Chain attack is a cyberattack discovered in the United States.
- Instead of directly attacking the federal government or a private organisation’s network, the hackers target a third-party vendor which supplies software to them.

Mucormycosis Fungal Infection

News: Doctors have witnessed more than 12 cases of Covid-19 triggered Mucormycosis fungus.

Facts:

- **Black Fungus or Mucormycosis:** It is a serious but rare fungal infection caused by a group of molds called mucormycetes which exist in the environment.
- **Symptoms:** The symptoms are face numbness, one-side nose obstructions or swelling of eyes or pain.
- **Vulnerable Group:** Mucormycosis mainly affects people who have health problems or take medicines that lower the body’s ability to fight germs and sickness.
- **Transmission:** It is acquired when spores produced by the mold are inhaled or much less commonly when they enter the body through a cut or other break in the skin. It does not spread between people or between people and animals.
- **Diagnosis:** Healthcare providers consider medical history, symptoms, physical examinations, and laboratory tests when diagnosing mucormycosis.
- **Treatment:** It needs to be treated with prescription antifungal medicine. Often, mucormycosis also requires surgery to cut away the infected tissue.

What is the Great conjunction of Saturn and Jupiter?

News: After nearly 400 years, Saturn and Jupiter will be brought closest in the night sky by an astronomical event called the “great conjunction” and popularly referred to as the “Christmas Star”.

Facts:

- **Conjunction:** It is the name given to any event where planets or asteroids appear to be very close together in the sky when viewed from the Earth.
- **Great Conjunction:** Astronomers use the term great conjunction to describe meetings of the two biggest worlds in the solar system, Jupiter and Saturn.
 - The Great Conjunction happens once in about 20 years because of the time each of the planets take to orbit around the Sun.

- **Time taken to orbit around the sun:** Jupiter takes roughly 12 years to complete one lap around the Sun and Saturn takes 30 years (Saturn has a larger orbit and moves more slowly because it is not as strongly influenced by the Sun's gravitational force as planets that are closer to the Sun).

Additional Facts:

Jupiter: It is the fifth planet from the Sun and the largest in the Solar System. Jupiter's iconic Great Red Spot is a giant storm bigger than Earth that has raged for hundreds of years.

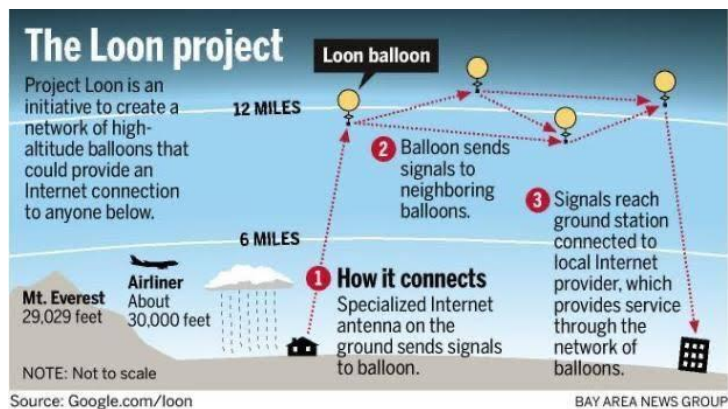
Saturn: It is the sixth planet from the Sun and the second largest planet in the solar system. Adorned with thousands of beautiful ringlets, Saturn is unique among the planets.

Project Loon

News: Project Loon has set a new record for the longest stratospheric flight by staying in air for 312 days.

Facts:

- **Project Loon:** It is a project under a Google subsidiary. It consists of a network of stratospheric balloons designed to bring Internet connectivity to rural and remote communities worldwide.



Additional Facts:

- **Whitespace Internet:** It uses a part of the radio spectrum known as White spaces. White Space refers to the unused broadcasting frequencies in the wireless spectrum. These spaces can provide broadband internet access that is similar to that of 4G mobile. Microsoft is providing whitespace internet to unserved areas of several countries.
- **Starlink:** It is a satellite internet constellation being constructed by SpaceX with the aim to bring internet access to rural and underserved areas around the world.

BSNL launches world's first satellite-based narrowband IoT network

News: BSNL has launched the world's first Satellite-Based Narrowband IoT (Internet of Things) Network in partnership with Skylotec India.

Facts:

- **Narrowband Internet of Things (IoT):** It is a standards-based low power wide area (LPWA) technology developed to enable a wide range of new IoT devices and services.
- **Advantages:**
 - very low power consumption
 - excellent extended range in buildings and underground
 - easy deployment into existing cellular network architecture

- network security & reliability
- lower component cost.

Additional Facts:

Internet of Things (IoT): It describes the network of physical objects – “things”—that are embedded with sensors, software and other technologies for the purpose of connecting and exchanging data with other devices and systems over the internet.

DRDO successfully demonstrates quantum communication between two labs

News: Defence Research and Development Organisation (DRDO) has successfully demonstrated communication between its two labs using Quantum Key Distribution (QKD) technology.

Facts:

- **Quantum Key Distribution (QKD):** It is primarily a mechanism to undertake secure communication which utilises a cryptographic protocol involving various components of quantum mechanics.
- **Process:** The technology enables two communicating sides to come up with random secret keys shared by both of them and known exclusively to them so only they can use it to encrypt and decrypt messages, thus achieving highly-secure communication.
- **Developed by:** The technology has been developed by two DRDO facilities, Centre for Artificial Intelligence and Robotics (CAIR), Bengaluru and DRDO Young Scientists' Laboratory – Quantum Technology (DYSL-QT), Mumbai.

Singapore clears Lab-grown meat

News: Singapore Food Agency (SFA) has approved the sale of a lab-grown meat product. This is the first time cultured meat has been cleared for sale anywhere in the world.

Facts:

- **What is Lab Grown Meat?** Lab Grown Meat or Cultured meat is meat produced by in vitro cell culture of animal cells instead of from slaughtered animals.
- **How is lab-grown different from plant-based meat?**
 - The plant based meat is made from plant sources such as soy or pea protein while cultured meat is grown directly from cells in a laboratory.
 - In terms of cellular structure, cultured or cultivated meat is the same as conventional meat – except that cultured meat does not come directly from animals.
- **Advantages of Lab Grown Meat:**
 - The lab grown meat could reduce land use by more than 95%, climate change emissions by 74-87% and nutrient pollution by 94%.
 - As meat is created in clean facilities, the risk of contamination by pathogens such as salmonella and E coli is significantly reduced thereby reducing the threat posed to public health by growing antibiotic resistance.

China turns on 'artificial sun'

News: China has successfully powered up its artificial sun nuclear fusion reactor named "HL-2M Tokamak reactor".

Facts:

- **HL-2M Tokamak reactor:** It is China's largest and most advanced nuclear fusion experimental research device that can potentially unlock a powerful clean energy source.
- It uses a powerful magnetic field to fuse hot plasma and can reach temperatures of over 150 million degrees Celsius approximately ten times hotter than the core of the sun.
- Hence, the reactor is often called an "artificial sun" on account of the enormous heat and power it produces.

Additional Facts:

- **Nuclear Fusion:** It is considered the Holy Grail of energy and is what powers our sun. It merges atomic nuclei to create massive amounts of energy -- the opposite of the fission process used in atomic weapons and nuclear power plants which splits them into fragments.
- **Advantages of Fusion:** Unlike fission, fusion emits no greenhouse gases and carries less risk of accidents or the theft of atomic material. But achieving fusion is both extremely difficult and prohibitively expensive.

SHINE trial offers shorter course of TB treatment for children

News: The preliminary findings of the SHINE Trial have been released.

Facts:

- **SHINE Trial:** It stands for Shorter treatment for minimal tuberculosis (TB) in children (SHINE).
- **Purpose:** It is the first randomised-controlled clinical trial designed specifically to test the efficacy of shortened treatments for children diagnosed with tuberculosis (TB).
- **Conducted by:** The trial was sponsored by University College London (UCL) and funded by the UK Department of Health, Wellcome Trust with additional support from the TB Alliance.
- **What were the results?** The trial has found no significant differences between children who received the shortened four-month long treatment compared to those who received the standard six-month treatment plan.

Additional Facts:

Tuberculosis (TB): It is an infectious airborne bacterial disease caused by *Mycobacterium tuberculosis*.

TB Alliance: It is a not-for-profit product development partnership (PDP), uniquely positioned to leverage a global network of public and private partners to most efficiently advance TB drug development.

Pointly for Science and Technology

- **Digiboxx:** It was launched by Nitu Aayog. It is India's first indigenous cloud storage device that provides an easy and secure way to store all the files in one centralised location.
- **BBX11:** It is a gene that was identified by the researchers at the Indian Institute of Science Education and Research(IISER).The gene facilitates in the greening of plants by playing a crucial role in regulating the levels of protochlorophyllide – an intermediate in the biosynthesis of the green pigment chlorophyll.
- **Shigella Infection (shigellosis):** It is an intestinal infection caused by a family of bacteria known as shigella. It is transmitted through contaminated food and water. Symptoms include diarrhoea, fever, stomach cramps which can last for seven days. It is generally done through antibiotics which can shorten the duration of the illness.
- **Geospatial Practices for Sustainable Development in Asia and the Pacific 2020 Report:** It has been released by the United Nations Economic and Social Commission for Asia and the Pacific(UNESCAP).The report showcases examples from the region's countries employing applications of space technology to advance sustainable development.

SOCIAL

Fifth Edition of National Family Health Survey

News: The Ministry of Health and Family Welfare has released the fifth edition of the National Family Health Survey (NFHS).

Facts:

- **NFHS:** It was conducted after a gap of three years. It contains detailed information on population, health, and nutrition for India and its states and Union Territories.
- This is the Phase 1 of the survey conducted in 17 States and 5 Union

SHARP REVERSALS IN CHILD HEALTH						
	Wasted children 2019-20*	Wasted children 2015-16*	Underweight children 2019-20*	Underweight children 2015-16*	IMR 2019-20#	IMR 2015-16#
Andhra Pradesh	16.1%	17.2%	29.6%	31.9%	30.3	34.9
Telangana	21.7%	18%	31.8%	28.4%	26.4	27.7
Assam	21.7%	17%	32.8%	29.8%	31.9	47.6
Bihar	22.9%	20.8%	41%	43.9%	46.8	48.1
Gujarat	25.1%	26.4%	39.7%	39.3%	31.2	34.2
Karnataka	19.5%	26.1%	32.9%	35.2%	25.4	26.9
Kerala	15.8%	15.7%	19.7%	16.1%	4.4	5.6
Maharashtra	25.6%	25.6%	36.1%	36%	23.2	23.7
West Bengal	20.3%	20.3%	32.2%	31.6%	22	27.5
J&K	19%	12.2%	21%	16.6%	16.3	32.4

*Data are for children under 5; #per 1,000 live births

Territories (UTs).Phase 2 of the survey will cover other states such as Uttar Pradesh, Punjab and Madhya Pradesh.

Key Highlights:

- **Increased malnutrition among children:** Several States have reversed course and recorded worsening levels of child (under 5 years of age) malnutrition parameters such as child stunting; child wasting; share of children underweight and child mortality rate.

- **More Indians are obese and anaemic:** The survey has reported an increased share of men and women who were overweight or obese and anaemic (condition in which a person lacks enough healthy red blood cells to carry adequate oxygen to the body tissues).
- **Jump in Vaccination:** The survey has found considerable improvement in vaccination coverage among children aged 12-23 months across all States/UTs.
- **Better household amenities** The share of households having access to some basic amenities has increased in most of the states.
- **Urban-Rural gender gaps in Internet use:** There is an urban-rural gap as well as gender divide with respect to the use of the Internet. On an average, less than 3 out of 10 women in rural India and 4 out of 10 women in urban India ever used the Internet.
- **Increase in bank accounts operated by women:** The number of bank accounts that women not only hold but also operate themselves has increased dramatically over the past five years.

Explained: Who are the Tharu tribals?

News: Uttar Pradesh government has embarked upon a scheme to take the unique culture of its ethnic Tharu tribe across the world. The intention is to put Tharu villages on the tourism map and to create jobs and bring economic independence to the tribal population.

Facts:

- **Tharu:** They are an ethnic group indigenous to the Terai in southern Nepal and northern India.
- **Origin:** The word tharu is believed to be derived from sthavir, meaning followers of Theravada Buddhism.
- **Worship:** They worship Lord Shiva as Mahadev, and call their supreme being “Narayan”, who they believe is the provider of sunshine, rain, and harvests.
- **Occupation:** Most of them are forest dwellers and some practice agriculture.
- **Language:** They speak various dialects of Tharu, a language of the Indo-Aryan subgroup, and variants of Hindi, Urdu and Awadhi. In central Nepal, they speak a variant of Bhojpuri, while in eastern Nepal, they speak a variant of Maithili.

Additional Facts:

Theravada Buddhism: The name means 'the doctrine of the elders' - the elders being the senior Buddhist monks. It is strongest in Sri Lanka, Cambodia, Thailand, Laos and Myanmar. It is sometimes called 'Southern Buddhism'.

Pointly for Social

- **Monpa Handmade Paper:** It is an heritage hand paper artform of Arunachal Pradesh. It is also called as Mon Shugu in the local dialect and is integral to the vibrant culture of the local tribes in Tawang. The paper is made from the bark of a local tree called Shugu Sheng, which has medicinal values too. Hence availability of raw material will not be a problem.

- **India Workplace Equality Index:** It is the country's first comprehensive benchmarking tool for employers to measure their progress on LGBT+ inclusion at the workplace. It was launched by non-profit Keshav Suri Foundation, partnered with Pride Circle, Stonewall UK and FICCI.
- **World Malaria Report 2020:** It has been released by the World Health Organization (WHO). It aims to look at the 20 years of global progress and challenges in the fight against Malaria.

INTERNAL SECURITY

Maiden Flight Trial of Sahayak-NG, Air Droppable Container

News: Defence Research and Development Organisation (DRDO) along with Indian Navy has conducted the successful maiden test trial of 'SAHAYAK-NG'.

Facts:

- **Sahayak-NG:** It is India's first indigenously designed and developed Air Dropped Container from IL 38SD aircraft (Indian Navy) off the coast of Goa.
- **Developed by:** It has been developed by two DRDO laboratories i.e. NSTL, Visakhapatnam and ADRDE, Agra along with industry partner M/s Avantel for GPS integration.
- **Key Features:**
 - The container can enhance Indian Navy's operational logistics capabilities and provide critical engineering stores to ships which are deployed more than 2000 km from the coast.
 - It also reduces the requirement of ships to come close to the coast to collect spares and stores.
 - The GPS aided container also has the capability to carry a payload that weighs upto 50 kg and can be dropped from heavy aircraft.

India looks at integrating more countries into coastal radar network

News: India is in talks with Maldives, Myanmar and Bangladesh to set up coastal radar stations as part of efforts to further expand the coastal radar chain network meant to enable real-time monitoring of the high seas for threats.

Facts:

- **Countries already integrated in the Coastal Radar Network:** Mauritius, Seychelles and Sri Lanka have been integrated into the country's coastal radar chain network.

Other Developments:

- **Information Management and Analysis Centre (IMAC):** It was established in 2014 and is the nodal centre for maritime security information collation and dissemination.
- **Location:** Gurgaon, Haryana
- **Operated by:** It is jointly operated by the Navy and Coast Guard.
- **White Shipping agreements:** It refers to exchange of relevant advance information on the identity and movement of commercial non-military merchant vessels.

- Indian Navy has been authorised to conclude white shipping agreements with 36 countries and three multilateral constructs. So far agreements have been concluded with 22 countries and one multilateral construct.
- **Information Fusion Centre – Indian Ocean region (IFC-IOR):** It was set up in 2018 within the premises of the IMAC to coordinate with regional countries on maritime safety and security and act as a regional repository of maritime data.

Super Hornet fighter jets being tested for Navy use

News: Boeing has announced the successful demonstration of the compatibility of its F/A-18 Super Hornet fighter jets with the Indian Navy's aircraft carriers as part of its pitch for the Navy's fighter procurement.

Facts:

- **Super Hornet Fighter Jet:** It is the world's most lethal, advanced, combat-proven, multi-role frontline fighter-jet.
- **Developed by:** The jet has been developed by US Aerospace Company, Boeing.
- **Key Features**
 - **Multi-role Superiority:** Capable of tactical strikes, air reconnaissance, air defense, and maritime roles.
 - **Cutting-edge Technologies:** Enhanced computing and data link, advanced cockpit system, signature improvements
 - **Lifecycle Affordability:** Lowest cost per flight hour among all U.S. tactical fighters in production.

GRSE-built stealth frigate 'INS Himgiri' launched

News: INS Himgiri, the first of the three Project 17A ships was launched by the Indian Navy.

Facts:

- **INS Himgiri:** It is an indigenous stealth frigate being built by the Garden Reach Shipbuilders and Engineers Limited (GRSE) under Project 17A for the Navy.

Additional Facts:

- **Project 17A or Nilgiri-class frigate:** It is a follow-on of the Project 17 Shivalik-class frigate for the Indian Navy. A total of seven ships are being built, four at Mazagon Dock Shipbuilders Limited (MDL) and three ships at GRSE.
- **Significance:** P17A ships are the first gas turbine propulsion and largest combat platforms ever built at GRSE.

Indian Navy's MARCOS deployed near Ladakh's Pangong lake

News: Indian Navy has deployed Marine Commandos (MARCOS) in the Pangong lake area in eastern Ladakh amid India-China standoff.

Facts:

- **MARCOS** also known as the Marine Commando Force (MCF) is the special forces unit of the Indian Navy founded in 1987 responsible for conducting special operations.

- **Role:** They are trained to conduct amphibious warfare, counter terrorism, special reconnaissance, hostage rescue and asymmetric warfare operations.

MISCELLANEOUS

Asia-Pacific Broadcast Union (ABU)

News: Prasar Bharati CEO Shashi Sekhar Vempati has been elected as Vice President of Asia-Pacific Broadcasting Union (ABU).

Facts:

- **ABU:** It was established in 1964 as a non-profit, non-governmental, non-political, professional association with a mandate to assist the development of broadcasting in the region.
- **Objective:** To promote the collective interests of television and radio broadcasters as well as key industry players and facilitate regional and international media co-operation.
- **Headquarters:** Kuala Lumpur, Malaysia

Vigyan Yatra

News: Indian Association of the Cultivation of Science (IACS), Kolkata has organised the Vigyan Yatra.

Facts:

- **Vigyan Yatra:** It is a promotional activity undertaken as part of India International Science Festival (IISF) to promote scientific temper and inculcate the culture of science among the masses.

Additional Facts:

- **IISF:** It is a festival launched in 2015 to promote Science and Technology and demonstrate how science could lead India towards a developed nation within a short span of time.
- **Organized by:** Ministry of Science & Technology and Ministry of Earth Sciences in association with Vijnana Bharati (VIBHA) organizes IISF every year.
- **Theme for 2020:** Science for Self Reliant India and Global Welfare”.

Union Minister inaugurates Koilwar Bridge

News: Union Minister for Road Transport and Highways has inaugurated the three-lane Koilwar bridge.

Facts:

- **Koilwar Bridge:** It is a bridge constructed over the Sone river in Bihar. This rail-cum-road bridge connects Arrah with Patna, the capital of Bihar state in India.

Additional Facts:

Son River: It is the second largest of the Ganges southern tributaries after Yamuna River. Its chief tributaries are the Rihand, Kanhar and the North Koel.

UN makes December 27 'Epidemic Preparedness' day

News: The United Nations General Assembly has approved a resolution proclaiming December 27 as the International Day of Epidemic Preparedness.

Facts:

- **Aim:** To ensure the transmission and exchange of information, scientific knowledge and best practices on preventing and responding to epidemics locally, nationally, regionally and internationally.

Additional Facts:

- **Epidemic:** It is an event in which a disease is actively spreading. Usually, this is an outbreak that has grown out of control but is often within one country or location.
- **Endemic:** It refers to the constant presence and/or usual prevalence of a disease or infectious agent in a population within a geographic area.
- **Pandemic:** It is an epidemic occurring worldwide or over a very wide area crossing international boundaries and usually affecting a large number of people.

CO-WIN mobile app for COVID vaccine delivery

News: Union Health Ministry has developed a digital platform and mobile app called CO-WIN.

Facts:

- **Aim:** To monitor the entire vaccination process by providing real-time monitoring of COVID-19 vaccine delivery, recording data and to enable people to get themselves registered for vaccination.

Smuggling in India Report 2019-20

News: Union Finance Minister released the Smuggling in India Report 2019-20.

Facts:

- **Prepared by:** The report has been compiled by the Directorate of Revenue Intelligence (DRI).
- **Aim:** To analyse organised smuggling trends on Gold and Foreign Currency, Narcotic Drugs, Security, Environment and Commercial Frauds.

Key Takeaways:

- The Directorate of Revenue Intelligence detected 412 cases of smuggling resulting in the seizure worth ₹1,949 crore in 2019-20. It arrested 837 economic offenders and also unearthed 761 complex cases of Customs duty evasion amounting to ₹2,183 crore.

Additional Facts:

- **Directorate of Revenue Intelligence (DRI):** It is the apex anti-smuggling agency of India working under the Central Board of Indirect Taxes & Customs, Ministry of Finance, Government of India.

Operation Trident

News: Every year, India celebrates December 4 as Navy Day to commemorate Operation Trident.

Facts:

- **Operation Trident:** It was an offensive operation launched by the Indian Navy on Pakistan's port city of Karachi during the Indo-Pakistani War of 1971. Operation Trident saw the first use of anti-ship missiles in combat in the region.

Additional Facts:

- **Operation Desert Chase:** It was the name of the Anti-espionage operation started by Military Intelligence (MI) in early 2019. It successfully culminated in 2020 with the arrest of two civil defence employees that they had been passing on sensitive information to Pakistan's spy agency ISI.
- **Operation Bandar:** It was the code-name given by Indian Air Force (IAF) to the air strikes conducted by its Mirage-2000 fighters against the major Jaish-e-Mohammed training facility at Balakot in Pakistan in response to the Pulwama terror attack.

Green Charcoal Hackathon

News: NVVN (NTPC Vidyut Vyapar Nigam), a wholly-owned subsidiary company of NTPC Ltd in partnership with Energy Efficiency Services Limited (EESL) has launched Green Charcoal Hackathon.

Facts:

- **Aim:** To leverage the innovative Indian mind to bridge the technology gap with the prime objective to clean the air by eliminating farm fire, producing renewable energy out of the agro residue, to promote local entrepreneurship, and to increase the income of the farmers.

Additional Facts:

Torrefaction Technology: It involves heating up straw, grass, saw mill residue and wood biomass to 250 degrees Celsius-350 degrees Celsius. This changes the elements of the biomass into 'coal-like' pellets. These pellets can be used for combustion along with coal for industrial applications like steel and cement production.

ARTPARK to Promote Tech Innovations in AI & Robotics

News: An AI & Robotics Technologies Park (ARTPARK) has been set up in Bengaluru, Karnataka.

Facts:

- **ARTPARK:** It is a unique not-for-profit foundation established by Indian Institute of Science (IISc), Bengaluru with support from AI Foundry in a public-private model.
- **Aim:** To promote technology innovations in artificial intelligence (AI) and robotics leading to societal impact by executing mission mode R&D projects in healthcare, education, infrastructure, agriculture focusing on problems unique to India.

Additional Facts:

- **Artificial Intelligence:** It refers to the ability of machines to perform cognitive tasks like thinking, perceiving, learning, problem-solving and decision making. (NITI Aayog).

Technology Summit 2020

News: Department of Science and Technology (DST) in association with Confederation of Indian Industry (CII) announced the 26th edition of Technology Summit 2020.

Facts:

- **Aim:** To provide benefit to the Indian industry and academic & research institutions by forging partnerships, stimulating innovation, investment & trade and facilitating technology transfers, joint projects and market access.
- **Partner Country:** Portugal is the partner country this year.
- **Focus Sectors:** The focus sectors of the summit are Watertech, Agritech, Healthtech, Energy, Climate change, Cleantech, IT, ICT, Advanced technologies, and Space- Ocean Interactions.

Union Minister E-Inaugurates The First Ever Virtual Aadi Mahotsav

News: Union Minister for Tribal Affairs has launched the virtual edition of Aadi Mahotsav in Madhya Pradesh.

Facts:

- **Adi Mahotsav:** is a National Tribal Festival launched in 2017 by the Ministry of Tribal Affairs and Tribal Cooperative Marketing Development Federation of India (TRIFED).
- **Objective:** To familiarise the people with the rich and diverse craft, culture of the tribal communities across the country in one place.

Additional Facts:

- **TRIFED:** It was established in 1987 under the administrative control of the Ministry of Tribal affairs. It aims to provide good price to the products made or collected from the forest by the tribal people.
- **Tribes India e-market place:** It is a TRIFED initiative that aims to showcase the produce and handicrafts of tribal enterprises from across the country and helps them market their produce/products directly.

Pointly for Miscellaneous

- **3RF Framework:** United Nations, European Union and World Bank have jointly launched the Reform, Recovery and Reconstruction Framework (3RF). The plan focuses on the immediate humanitarian response and the medium-term recovery and reconstruction efforts to put Lebanon on a path of sustainable development.