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EPIC!

*Supplementary reading material for MGP and Current Affairs classes
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The Thirteen edition

Dear Forumiites,

The 13th edition of EPIC magazine comes when the Civil Services Preliminary Examination, 2021 has been postponed. As it is the perfect time to reorient your preparation, the EPIC team has tried to bring you the most relevant content to give you an edge in the preparation. This edition of EPIC showcases the role of intellectual property rights, a researched article on the in-news Medical oxygen and many more.

A special shoutout to the students who diligently write to us and provide feedback. Your opinion is important to us. Also, topics are regularly included in the subsequent editions of EPIC based on students demand. Keep writing to us.

Stay safe and Happy reading!

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IPR protection and Healthcare

SYLLABUS- GS3 - Awareness in the fields of IT, Space, Computers, Robotics, Nano-technology, Bio-technology and issues relating to Intellectual Property Rights.

IN NEWS - Joe Biden-led administration in United-States has recently come out in support of waiving the Trade-Related Aspects of Intellectual Property Rights (TRIPS) on Covid-19 vaccines. Earlier India-South Africa had proposed to sought a waiver of patent protection for technologies needed to combat and contain COVID-19.

INTRODUCTION - The world faces a fundamental dilemma. In recent years there has been a rapid increase in the technological and economic potential, implying an enhanced ability to overcome problems related to poverty and poor health. But there has also been an actual deterioration in health status in many developing countries, largely as a result of HIV/AIDS. This has been compounded by a resurgence in other infectious diseases and a growing burden of non-communicable diseases.

Amidst the COVID-19 pandemic, the universal call of the hour has been for access to and the production of efficacious vaccines, essential equipment such as ventilators, and technology such as copyright-protected virus-tracing software. The race to produce such vaccines, equipment, and technology has brought light to tensions between holistic public health interests and intellectual property rights (IPRs). Public health as a phrase inherently implies that health is a public good that may be provided via collective action and the initiative of social and policy planners. IPRs, on the other hand, have a distinctly private flavour as they act as an innovator-friendly solution to problems posed by presenting innovation exclusively as a public good.

About Intellectual property rights (IPR)

Intellectual property rights are the rights given to persons over the creations of their minds. Creators can be given the right to prevent others from using their inventions, designs or other creations and to use that right to negotiate payment in return for others using them.

IPRs in India are administered by the **Department for Promotion of Industry and Internal Trade (DPIIT)**, a central government department under the Ministry of Commerce & Industry. These rights motivate the people for new innovations and research. These rights can take various forms.

- **Copyright:** Copyright protects the " expression of ideas " . Copyright is a right given by the law to creators of literary, dramatic, musical and artistic works and producers of cinematograph films and sound recordings.Copyrights in India are governed by "The Copyright Act, 1957".

- **Patent:** A patent is a right, granted by the government, to exclude others from making, using, or selling your invention. Patents protect inventions such as new processes,

machines, or chemicals. Patents in India are governed by "The patent Act 1970" which was amended in 2005 to make it compliant with TRIPS.

- **Trademark:** A Trade Mark can be a device, brand, heading, label ticket name, packaging, sign, word, letter, number, drawing, picture, emblem, colour or combination of colours, shape of goods, signature or a combination thereof. Trade marks in India are governed by Trade Marks Act 1999.

- **Geographical Indications:** A geographical indication is a sign used on products that have a specific geographical origin and possess qualities or a reputation that are due to that origin. In order to function as a GI, a sign must identify a product as originating in a given place. Geographical Indicators in India are governed by "The Geographical Indications of Goods (Registration & Protection) Act, 1999".

- **Industrial Design:** An industrial design consists of the creation of a shape, configuration or composition of pattern or colour, or combination of pattern and colour in three-dimensional form containing aesthetic value. An industrial design can be a two- or three-dimensional pattern used to produce a product, industrial commodity or handicraft. Designs in India are governed by "The Designs Act 2000".

- **Plant Variety Protection:** It refers to the protection granted for plant varieties. These rights are given to the farmers and plant breeders to encourage the development of new varieties of plants. Plant variety protection in India is governed by "The Protection of Plant Varieties and Farmers' Rights (PPV&FR) Act, 2001".

- **Trade secrets:** Trade secrets encompass manufacturing or industrial secrets and commercial secrets. The unauthorized use of such information by persons other than the holder is regarded as an unfair practice and a violation of the trade secret. Contrary to patents, trade secrets are protected without registration or procedural formalities. Consequently, a trade secret can be protected for an unlimited period of time.

WTO *and Trade-Related Aspects of Intellectual Property Rights (TRIPS) Agreement*

The **World Trade Organization (WTO)** is an intergovernmental organisation that regulates and facilitates international trade between nations. It officially commenced operations on 1 January 1995, pursuant to the 1994 Marrakesh Agreement, thus replacing the General Agreement on Tariffs and Trade (GATT) that had been established in 1948.

Ideas and knowledge are an important part of trade. Accordingly, WTO's TRIPS establishes minimum level of protection that each member country has to give to the intellectual property of fellow WTO members. **Negotiated during the Uruguay round**, TRIPS came into effect on 1st Jan 1995.

As a result, The Patents Act, 1970 (of India) was amended twice in 2002 and 2005 to make it fully TRIPS compliant by 2005. Through **the Patents (Amendment) Act of 2002**, the provisions related to compulsory license were added. And by **the Patents (Amendment) Act, 2005** product patents were allowed to be granted for drugs, which were not allowed under the 1970 Act. As per the 1970 Act only process patenting was allowed which means patenting of the method of manufacturing a product.

In 2001, developing countries, concerned that developed countries were insisting on an overly narrow reading of TRIPS, initiated a round of talks that resulted in **the Doha Declaration**. The Doha declaration is **a WTO statement that clarifies the scope of TRIPS,** stating for example that TRIPS can and should be interpreted in light of the goal "to promote access to medicines for all.

The following are some of the important features of TRIPS :

- **Technology Transfer**: Developing countries in particular see technology transfer as part of the bargain in which they have agreed to protect intellectual property rights. TRIPS requires developed country governments to provide incentives to their companies to transfer technologies to least developed countries.
- **Protection of IPR**: The starting point for TRIPS is the obligations of the main international agreements of the World Intellectual Property Organization (WIPO) that existed before the WTO was created like **Paris Convention** for protection of Industrial Property (Patents, Industrial Designs) **and Berne Convention** for the protection of literary and artistic works (copyrights). The TRIPS agreement added a significant number of new or higher standards for the protection of the IPRs in addition to the above.
- **Enforcement (tough and fair):** The agreement says governments have to ensure that intellectual property rights can be enforced under their laws, and that the penalties for infringement are tough enough to deter further violations. The procedure must be fair, equitable and without any unreasonable delay.

USA's proposed waiver of TRIPS
Background:

- **US's support:** US government stated that "The administration believes strongly in intellectual property protections, but in service of ending this pandemic, supports the waiver of those protections for Covid-19 vaccines," and " Extraordinary measures are needed to deal with extraordinary circumstances".
- **EU stance:** EU which is negotiating a deal with Pfizer to lock in 1.8 billion doses — has said that it is ready for a "pragmatic discussion" on the Biden administration's plea for intellectual property rights flexibility on Covid vaccines.
- **India's stance:** In October 2020, India and South Africa, at the WTO, proposed waiving Sections 1,4, 5, and 7 of Part II of the TRIPS agreement (covering copyrights, industrial designs, patents, and undisclosed trade information) related to the prevention, containment, or treatment of COVID19.
  - Relaxing the TRIPS regime would enable Third World countries to scale up production of vaccines. The proposal received the support of at least 120 countries but was blocked by the US, UK and the EU which argued that the ban would stifle innovation.
- **Vaccine manufacturers' stance:** Pharmaceutical companies reacted with anger to the US decision, and shares of Chinese and American vaccine manufacturers tumbled.

- **Other noted opposition:** It includes right wing political groups in developed countries and concerns raised by Microsoft co-founder and billionaire Bill Gates to name a few.
- **Legal backing:** Article IX of the WTO Agreement allows for waiving obligations in 'exceptional circumstances' which the COVID19 pandemic undoubtedly is.
- **Impact:** This may cause other holdouts like the U.K., Switzerland, Australia, Japan, Norway, Canada and European Union to give up their opposition. It would give immunity to member countries from a legal challenge at the WTO if their domestic IPR laws suspend or do not enforce IP protection on COVID19 medical products.

Arguments supporting waiver of patent protection

- **It is Safe to develop vaccines in developing nations:** Developing countries are an attractive destination for big pharmaceutical companies owing to their low labour costs. This is a common occurrence in cases where the patents are licensed indicating that as long as patents and profits are protected the question of quality can be taken care of.
- **Licensing Limitations:** Allowing manufacturing to only a select few (while retaining patent rights) restricts the opportunity for production for others involved. Also, the terms of those agreements are often opaque and offer no assurances with respect to the dimension of affordable access for all.
- **Supply chain issues:** COVAX (COVAX coordinates international resources to enable low- and middle-income countries equitable access to COVID-19 tests, therapies and vaccines) facility is restrictive and based on flawed trickle-down theory in global vaccine supply. Consider for example the fact that some states of U.S.A have received more vaccines than the entire African continent put together.
- **Limited global supply of intermediate inputs, rather than access to patent, is the real constraint:** However, once the waiver makes it feasible for new manufacturers to enter vaccine production, input suppliers would see an opportunity to expand their supplies.
- **Capacity concerns are ill-founded:** The critics often argue that there is no evidence that extra capacity exists outside of the already existing ones. In fact, manufacturers from many countries such as Canada and South Korea have expressed interest in vaccine production if opportunity arises. Similarly
  - o India built up capacity and gained reputation as " pharmacy of the world " by moving from product patenting to process patenting between 1970 and 2005.
  - o World Health Organisation's mRNA vaccine technology transfer hub has already drawn interest from over 50 firms from all over the world.
  - o A recent Foreign Policy article, and a former director of chemistry at Moderna on the other hand, suggests that there are facilities in low- and middle-income countries that can easily be re-tooled to make mRNA vaccines.
- **Additional benefits of Technology transfer:** Technology transfer will speed up the process of vaccine development. Patent waivers will lead to increased access to vaccines as well as essential drugs and diagnostics.

- **Countering concerns related to reverse engineering:** The idea that manufacturers will steal vaccine technology is also devoid of any sound reasoning. Original genomic sequence openly shared by China, which gave firms a head start in developing vaccines. Also, most of the foundational science and ideas with respect to vaccine has anyway came from public-funded universities and research institutes.
- **Innovation is still rewarding:** This is due to the fact that even if compulsory licenses are issued by over-ruling patent restrictions, royalties are still paid to the patent holders. Consider for example Pfizer's vaccine generated $3.5 billion in revenue in the first quarter of 2021 itself.

CASE STUDY -- AIDS *fight in African Continent.*

There are recognised ways to overcome the patents hurdle, ensuring social justice and boosting the COVID19 battle. A useful reminder from two decades back helps put the issue in perspective. While provisions of TRIPS concerned public health officials all over the world due to its potential to raise the cost of essential medicines, voluntary licensing agreements between pharma producers were able to bring down the cost of medications. In the backdrop of anti-TRIPS activism by low- and middle-income countries (12 million HIV patients had lost lives in Africa), the pharma giants soon realized that they won't be able to profit off of these countries anyways owing to low per capita income among other things. These giants then placed their licensing agreement in the UN affiliated Medicines Patent Pool (they still owned the patent rights). In return they asked for a ' Royalty ' payment and conditions such as limiting sales to only low-income countries. Several India based companies used these Voluntary licences to manufacture these drugs on a large scale and sold them at cheaper prices.

A brilliant documentary, Fire in the Blood, captures the utter destruction of disease and the heroic efforts of Yusuf Hamied, chairman of Cipla, to make generic antiretroviral (ARV) drugs available and accessible to dying millions of Africa. As a result, for example, ' Tenofovir ' a first line treatment for HIV/AIDS, has come down from 200-500$ per person per year to almost 39$ per person per year in low-income countries.

From then on, India has lived up to its reputation of being the "pharmacy of the world", supplying affordable and generic drugs to poor nations. Nearly 70 per cent of medicines produced in India are exported to developing countries; 75-80 per cent of all medicines distributed by the International Dispensary Association (IDA) to developing countries are manufactured here. India ranks second on the list of countries from which UNICEF purchases medical supplies. Eighty per cent of ARVs used by Médecins Sans Frontieres (MSF) are purchased in India and are distributed in treatment projects in over 30 countries. Globally, 70 per cent of the treatment for patients in more than 80 developing countries has come from Indian suppliers. The US President's Emergency Plan for AIDS (PEPFAR), also purchases ARVs from India for distribution in developing countries, resulting in cost-savings of up to 90 per cent.

Arguments against waiver of patent protection

- **Concerns with respect to Quality:** "The protection of intellectual property is a source of innovation and must remain so in the future. The limiting factor in vaccine manufacturing is production capacity and high-quality standards, not patents," a spokesperson for German Chancellor Angela Merkel said. Allowing manufacturers in low- and middle-income countries to play with technologies they cannot handle might prove hazardous.

- **Capacity concerns:** Bill Gates believe that the bottleneck in vaccine production is not IP laws but the **manufacturing capacities.**
  - Our global vaccine production capacity is about 3.5 billion doses a year. In order to cover even 70% of the global population, we need to increase that to 10 billion doses.
  - Since mRNA vaccines are particularly difficult to manufacture, the developing world would not be able to use this to produce the required amount of vaccines.

- **Issue of time taken to manufacture:** It might take too long anyways even before new firms are able to utilize the vaccine production technology. The reasons range from lack of familiarity to lack of capacity among others. A counter to this idea is the fact that given the current low vaccination rates and emerging new variants, it is almost impossible to predict when will the pandemic end.

- **Concerns of stealing of technology:** A breach in the patent will allow countries such as China (which already has a dubious record of patent stealing) to steal the original technologies of the patent holders. This will result in loss of revenue and discouragement in future endeavours.

- **Investments needs to be rewarded suitably:** The industry needs to be rewarded for their innovation and investment so as to incentivise them to develop newer products. For example, Moderna expects sales of $18.4 billion in the year 2021.

Concerns with the announcement of IP waiver by the US:

- **IP waiver is Limited to vaccines:** Covid related technologies also includes diagnostics and treatments such as remdesivir apart from vaccines which anyway is preventive in nature only.

- **Present roadblocks in vaccine supply:** Because of the following 3 reasons –
  - **IP is not a barrier to access Covid vaccines technology** because out of the eight Covid vaccines approved in various countries; five are already licensed or produced in India.
    - AstraZeneca, Novavax, Johnson & Johnson and Gamaleya Institute-Russian Direct Investment Fund have been licensed for manufacture to Indian companies such as Serum Institute of India (SII), Biological E, Dr Reddy's and Hetero.
  - **Reverse engineering is not easy:** A waiver under TRIPs does not compel any of the patent-owning vaccine manufacturers to actively share their 'knowhow', like cell

lines. Vaccines are exceptionally difficult to reverse engineer without the 'knowhow' and trade secrets being actively shared by the inventor company.

- o **Challenges in scaling up:** It depends on access to material inputs, cheap capital and availability of time and expertise to set up high-end production facilities.
  - ▪ For e.g., when the Indian government directed the state-owned Haffkine Institute to manufacture Covaxin, the institute claimed it would take it close to a year to get the vaccines out, as it currently does not possess the required Biosafety Level-3 quality-controlled production facilities to manufacture the vaccine.

Challenges associated with the waiver

- **Previous trysts with TRIPS:** While dealing with the HIV/AIDS epidemic in African continent, WTO waived certain obligations under article 31(providing for export of compulsory licenced products to countries that lacked manufacturing capacity) of TRIPS so as to increase the accessibility of drugs to the poor. However, certain conditions on technical and export control were such as –
  - o The drugs so manufactured are to be exported to that nation only;
  - o The medicines should be easily identifiable through different colour or shape;
  - o Only the amount necessary to meet the requirements of the importing country are to be manufactured;
  - o The importing country has to notify the WTO's TRIPS Council, etc.
  - o Given these cumbersome requirements, hardly any country,   in the last 17 years, made effective use of this waiver.
- **Procedural complexities and delays:** Despite the waiver it is almost certain that the developed countries will defend the interest of their pharma corporations in the WTO negotiations. Considering the nature of WTO negotiations which is consensus based, it could take quite a while before a solution is found.
- **Restrictions under Trade-Related aspects of Intellectual Properties (TRIPs):**
  - o Nations despite having the capabilities to manufacture vaccines can't do so before securing the right from the holders of the intellectual property rights.
  - o **compulsory licensing solves just one part of the problem:** Practically it would be very difficult to function as:
    - ▪ The production of mRNA vaccines also requires access to over 100 key components that are themselves manufactured across over a dozen countries.
    - ▪ In addition, we will need access to various other non-chemical intellectual properties—such as algorithms, software and training materials.
    - ▪ This implies we would have to negotiate with a number of entities who then have to establish a large number of patents around all the information which is to be shared.

- o **Restrictions under World Trade Organisation (WTO):** WTO restrictions on production-for-export means that certain restriction on exports of vaccine manufactured might apply.
- **Issues of interpretation:** US interprets the waiver to apply only to vaccines whereas India and South Africa proposed it for medicines, therapeutics and related technologies also.
- **Technology transfer not part of waiver:** Waiving IP protection does not impose a legal requirement on pharmaceutical companies to transfer or share technology.

Challenges with respect to India

- **Contradictions in Government's stand:** The Central Government, in an affidavit before Supreme Court, suggests that issuance of compulsory licences will not be effective. This is at a time when it is pursuing patent waiver proposal in WTO.
  - o According to government the unavailability of raw materials and essential inputs are the major issues in ramping up vaccine production. It also stated that patent waiver only serves to overcome legal hurdles and not the supply side issues. This begs the question as to why then is India pushing for a TRIPS waiver at the WTO?
  - o The Government believes tha**t voluntary licences**, **not compulsory licences,** are the way forward to address shortage of COVID-19 medical products.
- **Uncertainties and the resulting delays:** Regarding the time of adoption and conditions the waiver will be subjected to.
- **Withholding of compulsory licensing:** This stance is a bit difficult to digest as historically India has played a key role in mainstreaming flexibilities like Compulsory licensing at the WTO (e.g., Bayer's anti-cancer drug Nexavar). Government says that the main constraint in increasing production of drugs like remdesivir is the unavailability of raw materials and essential inputs.
  - o Despite the nudging by the judiciary and others, the Government inexplicably hasn't made use of compulsory licences in the pandemic.

Suggested solutions:

- **Provide for compulsory licensing:** The Doha declaration on TRIPS flexibilities permits their use in a public health emergency.
- **Provide financial and technical support:** High-income countries and multilateral agencies should provide financial and technical support to enable expansion of global production capacity.
- **Leverage existing flexibilities:** To make the TRIPS waiver stand convincing, Government needs to make aggressive use of the **Patents Act 1970**
  - o **Sections 92 and 100** of the Act allows for licensing of all patents necessary to make COVID-19 medical products without waiting for a private party to apply for a licence.

- o For example, Natco has requested for a compulsory licence for 'Baricitinib' a Covid-19 drug. Similar demands are rising for drugs such as 'Remdesivir' so as to increase its supply.
  - o Such an assertive posture may also nudge several pharmaceutical companies to offer voluntary licenses on their own.
- **Licensing Covaxin:** Government should think about transferring Covaxin's technology to domestic as well as foreign pharmaceutical companies to boost national supplies, making itself truly the 'pharmacy of the world'. This will also send a strong signal towards our commitment to access of affordable drugs during WTO negotiations.
- **Effective use of COVAX facility:** It was established to purchase vaccine doses and donate them to low-income countries. It does not involve modifying patent rights. Issues such as Underfunding and delays needs to be sorted out on war footing.
- **Effective and efficient use of Brownfield production capacity**: It is estimated that there already exists an unused Brownfield production capacity of up to 1.5 billion vaccine shots a year.
  - o With its well-developed vaccine manufacturing ecosystem, India is well-positioned to ramp up its production of Covaxin at speed.
- **Role of governments**: Governments needs to incentivize pharmaceutical companies during negotiations using various legal and financial tools.
- **Initiate reforms in domestic IP legal framework**: A highly committed team of lawyers should be constituted to study the various scenarios and accordingly recommend the changes to be made in the Indian legal framework. This will help in smoothly operationalising and enforcing TRIPS waiver.
- **Identifying the obligations of manufacturers**: The billions of dollars in government aid given to companies to help develop CO VID19 treatments should entail an obligation to enable the mass production of vaccines. This is in line with the idea that Patents are not ironclad ownership rights but temporary contracts that balance public interest with claims of the innovator.

Conclusion

The scale of the problem is mammoth. Before the pandemic, the demand for vaccines was around 5.5 billion doses a year; it has now gone up to three times that figure. An individual country will remain unsafe even if it vaccinates 70-80% of its population. For India the goal should be to reach a total of 300 million units a month by July, and 500 million units by the end of the year. Unless we can put in place a broad TRIPs waiver that will allow a swathe of countries to temporarily suspend the intellectual property restrictions that currently restrict the ramping up of vaccine manufacture, we will simply not be able to increase vaccine production to the levels that we need. Temporarily suspending the intellectual property restrictions remains the key to expanding Covid vaccine production. Another key element to this issue is that the TRIPS waiver would work well only if countries simultaneously address non-IP bottlenecks such as technology transfer, production constraints, and other logistical challenges. Vaccine waiver is not just a question of

social justice but also to prevent deadlier, more contagious and possibly vaccine-resistant variants. The fact that intellectual property rights are important for innovation is for all of us to see. Yet, once in a while, there comes a time when we have to set aside commercial imperatives in the larger interests of all mankind. This is one such moment.

GENERAL STUDIES - 1

The New Cyclonic Hotbed
Syllabus: Important Geophysical Phenomena - cyclone
In News:

- Cyclone Tauktae raised into a very severe cyclonic storm, dumping huge volumes of water all along the west coast. It caused loss of life in Kerala, Karnataka, Goa, Maharashtra, and Gujarat, before fading overland.

Cyclone Tauktae

- **About Cyclone Tauktae:**
  - Cyclone Tauktae's **name was suggested by Myanmar.** Tauktae means a highly vocal lizard gecko.
  - This cyclone has been classified as a **very severe cyclonic storm (VSCS).** The Cyclone developed in the Arabian Sea.
  - Approximately **1.4 lakh people died** from cyclones, floods, and other weather extremes during the past **five decades**.
- **The uniqueness of Cyclone Tauktae:** It will be the first cyclonic storm along the Indian coast in the year 2021. This will also be the fourth cyclone in consecutive years to have developed in the Arabian Sea, that too in the pre-monsoon period (April to June).
  - All these cyclones since 2018 have been categorized as either 'Severe Cyclone' or above. Many coastal residents would have gone through a similar experience last year, when the severe cyclonic storm, Nisarga, moved landwards from the Arabian Sea.

NAMING OF CYCLONES

- **Cyclone's name:** Cyclones are officially named by one of the World Meteorological Organizations' (WMO) warning centres based across the globe.
- **Naming cyclones in the Bay of Bengal and the Arabian Sea:** The **WMO**/United Nations Economic and Social Commission for Asia and the Pacific **(ESCAP)** Panel on Tropical Cyclones (PTC) names the cyclones for this region since 2000.
- The panel includes **13 countries** –– India, Bangladesh, Myanmar, Pakistan, Maldives, Oman, Sri Lanka, Thailand, Iran, Qatar, Saudi Arabia, United Arab Emirates, and Yemen.
- Each country sent in suggestions to the WMO/ESCAP Panel. After this, the panel finalizes the list alphabetically country-wise starting with Bangladesh followed by India, Iran, Maldives, and so on.
- **Significance of Naming of a cyclone:** It helps in the **quick identification** of storms in warning messages. Names are presumed to be far easier to remember than numbers and technical terms. Giving names to cyclones makes it easier for the media to report on tropical cyclones. It heightens the interest in warnings and increases community preparedness.

Past Trend of Cyclonic Activities

- The Arabian Sea has been comparatively less prone to cyclonic storms than the Bay of Bengal. In the usual course, there was an occurrence of one extremely severe cyclone every four-five years in the Arabian Sea.
- During the period 1891-2000, nearly 308 tropical cyclones crossed the east coast, of which 103 were severe in intensity. Similarly, 48 cyclones crossed the west coast of which 24 were severe.

Fig. Frequency of cyclones

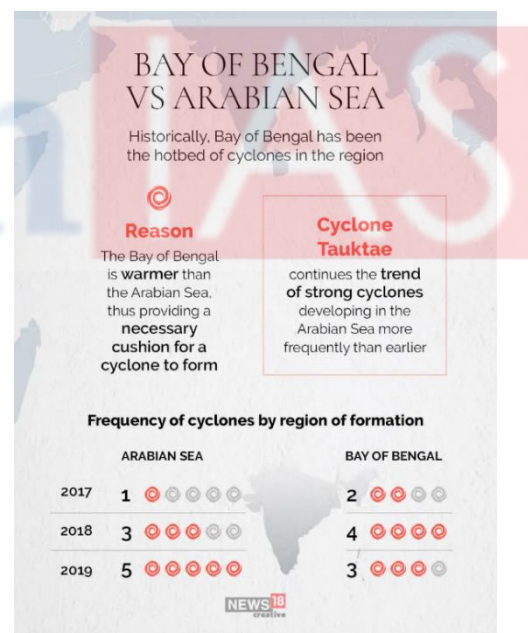*Reasons behind past trends*

- **High sea surface temperatures along with high humidity** in the Bay of Bengal triggers extremely strong cyclones.
- **Sluggish winds along with warm air currents** in the Bay of Bengal keep temperatures relatively high.
- The **constant inflow of freshwater** from the Ganga and Brahmaputra rivers makes it impossible for the warm water to mix with the cooler water below.

- Cyclonic winds easily move into the Bay of Bengal due to the **presence of moisture sources from rivers** and the absence of any large landmass.
- The Arabian Sea receives **stronger winds** that help dissipate the heat, and the lack of constant freshwater supply helps the warm water mix with the cool water thereby reducing the temperature.
- Almost 50% of the storms don't sustain as the west-central and the north Arabian Sea have a **colder sea temperature** than other adjacent regions.

However, this trend is changing, with a greater number of cyclones being developed in the Arabian Sea.

Reasons behind changing trends

- **Global warming: Sea surface temperatures** in the Arabian Sea have **increased** rapidly during the past century due to global warming.
  - Temperature now is **1.2–1.4 °C higher** than the temperature witnessed four decades ago. These warmer temperatures support active convection, heavy rainfall, and intense cyclones.
- **Energy for the intensification of cyclones**: The rising temperature is also enabling the Arabian Sea to supply **ample energy** for the intensification of cyclones. Currently, seawater up to depths of 50 meters has been very warm that allowed Cyclone Tauktae to become a VSCS in only 2 days.
- **Conducive wind shear:** The Arabian Sea is also providing **conducive wind shear** for cyclones. For instance, a higher-level easterly wind drove the depression of Cyclone Ockhi from the Bay of Bengal to the Arabian Sea.
- **El Niño Modoki**: Greater occurrence of El Niño Modoki. It is a climate phenomenon that means 'pseudo El Niño' and creates conditions that are not conducive for cyclogenesis in the Bay of Bengal. However, this condition is **conducive to the formation of cyclones** in the **Arabian Sea.**
  - El Nino is associated with suppressing cyclone formation in the Arabian Sea.

Why the Arabian Sea is transforming into a cyclonic hotbed?

- **Average cyclones**: Annually, **five cyclones** on average used to form in the Bay of Bengal and the Arabian Sea combined. Among these, four developments in the Bay of Bengal and one in the Arabian Sea.
- **Places vulnerable to cyclones:** Previously, tropical cyclones in the Arabian Sea were restricted to Gujarat. However, now even Kerala and Karnataka have also become more vulnerable to cyclones. A recent example is 'Ockhi'.
- **Tauktae:** Tauktae is the fourth cyclone in consecutive years to have developed in the Arabian Sea. Cyclone Mekanu hit Oman in 2018, Cyclone Vayu struck Gujarat in 2019 and Cyclone Nisarga hit Maharashtra in 2020.

- **The rise in the intensification rate**: Apart from frequency, **a** rise in the intensification rate is also observed. All these cyclones since 2018 have been categorized as either 'Severe Cyclone' or above.
  - o Tauktae took only 2 days to become VSCS while Cyclone Mekanu and Cyclone Nisarga had developed slower, taking 4 and 5 days respectively.

Concerns associated with changing trends

- **Covid-19 management:** There is a concern about the **impact of the cyclonic storm** on the battle against Covid-19. The rain and flooding may set back social distancing and other necessary measures at evacuation centers and relief camps.
- **Delay in Monsoon**: The cyclone Tauktae is expected to **interfere with** the normal progression of the **Indian Monsoon** by sucking all the moisture from the monsoon winds towards itself. The strong low-pressure areas at their core induce the surrounding winds to rush towards them.
- **Rise in Extreme Rainfall events**: Widespread **extreme rainfall events** that cause floods have also increased threefold over India, in response to Arabian Sea warming. This has deeply impacted the lives, livelihood, infrastructure, and ecology of the region.
- **Forecasting Challenge:** The new trend is encouraging more and more **rapid intensification** of cyclones. State-of-the-art cyclone models are unable to pick this rapid intensification because they do not incorporate the ocean dynamics accurately.

Initiatives towards Cyclones

- **NCRMP:** Government is carrying out a **National Cyclone Risk Mitigation Project (NCRMP)** with the help of the World Bank to upgrade cyclone forecasting, tracking, and warning systems in India
- **ICZMP**: The government is also implementing the **Integrated Coastal Zone Management Project (ICZMP)** to improve national capacity for the implementation of comprehensive coastal management in India.
- **Structural and non-structural measures:** The government also separated **Structural (includes construction) and non-structural measures** for effective disaster management of cyclones.
- **The India Meteorological Department (IMD):** Introduced an **impact-based** cyclone warning system from the October-December season aimed to reduce economic losses last year.
  - o It focused on districts and specific locations. It also incorporated factors such as population, infrastructure, land use, and settlements.
  - o The IMD claimed that its **accuracy of forecasts** is now better. For instance, in plotting landfall location. This is a promising approach (along with ground mapping of vulnerabilities) to avoid loss of life and destruction of property.

Way Forward

- **Close monitoring**: The cyclones **must be closely monitored** at higher resolution and accuracy using on-site platforms such as buoys and moorings.
  - **A buoy** is a type of object that floats in water and is used in the middle of the seas as locators or as warning points for ships.
  - **A mooring** is any permanent structure to which a vessel may be secured.
- **INCOIS:** The Indian National Centre for Ocean Information Services (INCOIS) must be **provided with greater autonomy, finance, and human resources**. This would improve the collection and dissemination of data on cyclonic events.
- **Global warming signals:** There must be an **incorporation of the global warming signals** in the weather models that can help tackle the challenges of intense cyclones in the future.
- **Climate-proofing lives and dwellings is a high priority now**: It is a task that permits a multi-sectoral approach:
  - To build durable homes of suitable design.
  - Create adequate storm shelters.
  - Provide accurate early warnings.
  - Ensure financial protection against calamities through insurance for property and assets. Governments must rise to this challenge.

Social Media and Women Empowerment
Syllabus - Effects of globalization on Indian society
In News - In the face of the pandemic and resultant anxieties, **social media offered a free virtual space for women to connect, create and share posts. The** Hindu **reported** on how women-only communities on social media are helping women deal better with the stress of the lockdown in Kerala.

Introduction

- **About social media** - It is an umbrella term for electronic communication in real-time. It provides an electronic platform to create, communicate, share, discuss and exchange information, opinions, thoughts, ideas, experiences, insights and perspectives through different applications in real-time for the users.
  - The users are prosumers who create, produce and consume the content which includes informat021ion, audio-visual, photos, documents etc through various web-based software or application.
- Different forms/types of Social media
  - **Social Networking Sites-** Facebook, Instagram, WeChat, WhatsApp, Skype, Snapchat, Telegram
  - **Microblogs and blogs-** Twitter, Tumblr, Pinterest
  - **Collaborative projects-** Wikipedia and Social Bookmarking
  - **Content Communities-** YouTube, Daily Motion, TikTok and Flickr

- **Social Media and Women** - In 1995, the **Beijing Platform for Action** recognised and predicted the media's **"potential to make a far greater contribution to the advancement of women"**. Social media has proved to be a powerful vehicle for bringing women's rights issues to the attention of a wider public, galvanising action on the streets of cities around the world and encouraging policymakers to step up commitments to gender equality.

Social Media - Platform for women empowerment

- **From consumers to creators** - Social media platforms are distinct from traditional media in that they give power to the user. Historically, women were solely consumers of media, but social media allows women to be creators.
  - o Indian female YouTubers are creating content on various aspects. For example, Nisha Madhulika who is 60 years old and garnered 7.97 million subscribers on her **YouTube channel, Nisha Madhulika #SeeSomethingNew,** has become a sensation among home chefs. Her programme is about vegetarian Indian recipes.
- **Hashtag activism bringing women's issues to the forefront of political agendas** - Hashtag activism has helped to mobilise public attention on women's rights, increasing the visibility of issues that are under-reported in mainstream media.
- **UN Women's successful and high-profile #HeForShe campaign** highlights the potential of social media to attract new and larger audiences. The campaign engaged with more than 1.2 billion people, putting the global spotlight on the need to engage men and boys to achieve gender equality.
- **Tackling violence against women through social media tools** - Social media tools have helped female victims to share their experiences of violence with other victims, creating a space to exchange knowledge and information on their rights, legal processes and welfare services.
  - o In 2018, the **#MeToo movement** shook India as prominent and renowned journalists, actors, and artists were accused of sexual assault and harassment. It has spread across the world irrespective of race, culture, economic or linguistic boundaries.
- **Public accountability towards gender equality** - Social media has been increasingly used by women's grassroots organisations to call for greater public accountability towards gender equality.
  - o Following the 2012 gang rape of a young woman in Delhi, the **#DelhiGangRape hashtag campaign** brought the scale of gender-based violence in India into the spotlight. The hashtag campaign supported the street mobilisation of the public and led the government to introduce specific anti-rape provisions in the Criminal code.
  - o Women launched a campaign on Twitter in 2017, with the help of the **hashtag "LahuKaLagaan"**, against the 12 percent tax on sanitary napkins and the so-called "period tax" was scrapped the following year.

- **Promoting entrepreneurship** – Social media is becoming one of the most powerful tools where women **can start new companies, ventures or start-ups** as they can contact and converse with customers and consumers directly. Female entrepreneurs can do marketing through social media which is very cost-effective and can be easily channelized

  o For example, **Aditi Gupta, Co-Founder, Managing Partner at Menstrupedia**, a friendly guide for healthy periods. She is from a small place in Jharkhand and it's her brainchild that provides a friendly guide to girls and women to maintain health and hygiene and stay active and healthy during menstruation.

Benefits of social media use for women

- Seek redressal for online harassment and domestic abuse
- Maintain social capital and interpersonal relationships
- Increase their business's growth and access to formal financial services
- Use the Social commerce or 's-commerce' platform for personalised engagement between buyers and sellers
- Increase discourse around sexual harassment
- Participate in public discourse around policy implementation, facilitate the access to government information and services, and increase their civic engagement

Challenges that prevent women empowerment

- **Women's limited access to new technologies-** Fully taking advantage of social media for political advocacy is restricted for many women by **illiteracy, language barriers and the digital divide in infrastructure between rural and urban areas.** These factors affect in particular rural and indigenous women's online advocacy and opportunities to connect with other activists.
- **Limited networking with institutional actors -** Lower networking opportunities with cross-institutional partners, including decision-makers and public figures, and disconnection from local women's movements can negatively affect the success of women's online activism.
- **Information overload and scaling up-** A plethora of small online campaigns on specific issues can overwhelm and lead to **activism fatigue**. This affects the ability to scale up a campaign to a global level and attract new audiences.
- **Censorship and harassment** - Female-written blogs and websites have also been subject to censorship by governments. Sexual harassment of female activists has been reported in online discussions and websites providing information on subjects related to sexual health and reproductive rights have been taken offline. **Negative gender stereotypes and lower representation of women** in both traditional and new media organisations also silence women's online voices.
- **Objectification of women** - social media can perpetuate rape culture offline via the online celebration of male sexual conquests, slut-shaming, and sexualisation of women. Social media sites are also encouraging amateur pornography through user-submitted photos.

- **Caste Discrimination** - Social media is not exempt from caste discrimination. According to a study by Lokniti-CSDS, social media is largely dominated by upper castes in urban areas. Dalit women are **subjected to 'double marginality'**, making them the most disadvantaged group in terms of access to social media. While there has been a gradual rise in the use of social media by Dalits, tribals and OBCs, the process of democratisation has been slow.
- **Patriarchal value-system** - Cultural mores play an important role in this, especially in rural India. In 2017, for example, a **village council in Uttar Pradesh's Madora village** banned women from using mobile phones. It was also found that most women were being denied smartphones, not due to their cost, but because their male family members thought it was "indecent" for women to use them.

- **Cyber-crime and harassment** - A study by **Amnesty International India** found that through the 2019 elections, 95 female politicians received nearly 1 million **hateful mentions** on Twitter between March and May, one in five of which was **sexist or misogynistic**. Indian women politicians also experienced substantially higher abuse than their UK and US counterparts.

Reasons preventing women's full participation in social media

Lack of digital access and literacy → Language barriers that prevent wider access → Abuse, harassment, bullying → Stalking, morphing, misuse of social media details → Mistrust in authorities to provide adequate redressal → Lack of coordination between social media companies and governments to provide safer and better access

Suggestions to increase women participation on social media platforms

- **Training women to make greater use of information technology for communication and the media** - Ensuring equal access to and use of new technologies is critical for maximising social media's advocacy role. Training gender advocates on strategic means for organising an online campaign (e.g., use of hashtags, monitoring impact, identifying target audiences and developing strong messaging) could optimise women's social media use.
- **Internet Saathi** - For bridging the online gender divide in rural India Google India and Tata Trusts took initiative in 2015 as partners to improve digital literacy among women especially in the rural community.
- **Increasing women's capacity to participate in decision making and leadership** - Increasing female leadership in media organisations as well as in decision-making processes can help the success of online advocacy campaigns focusing on women's rights. Strategic partners can ensure that the policy loop is complete and that advocacy can influence both decision-making processes and public awareness on key women's rights issues.

- **Involving a cross-sector of actors, including grassroots women's networks, traditional media and men**- Social media campaigns need to build on and collaborate with local women's movements in order to strengthen advocacy efforts. In particular, linking social media with traditional media can scale up campaigns. Moreover, involving men and other non-traditional partners can reinforce messaging and help campaigns attract greater attention both locally and globally.

Conclusion

Social media platforms in India must represent the v**oices of marginalised women** fairly. To improve women's representation on social media, it is crucial to create a safe and trustworthy virtual environment that ensures **privacy and freedom from online abuse**. **Governments, corporations, and other public institutions must step up and assist in building the legislative and social structures** required to recognise and deal with misogyny online. There is a need to build strong redressal mechanisms with female-friendly cyber laws against online harassment. Gender-disaggregated data and opinion polls indicating the extent of meaningful access to social media and freedom from online abuse can aid authorities in creating targeted digital policies.

'My body is My Own'
Syllabus: Social empowerment

In news: The United Nations Population Fund (UNFPA) has released its flagship report "State of World Population Report 2021" titled '**My Body is My Own'.**

About the report

- **The State of World Population** is an annual report. The United Nations Population Fund (UNFPA) publishes it.
- **The focus of the Report:** 'B**odily autonomy'** is the focus of the report for the first time. Bodily autonomy is defined as the power and agency to make choices about your body without fear of violence or having someone else decide for you.
- **Bodily autonomy**: Bodily autonomy is the right for a person to govern what happens to their body without external influence or coercion.
  - The notion of autonomy in the context of women's empowerment emerged in the 1970s and was later taken up by the sexual and reproductive health and rights movement.
- **Implications**: A serious lack of bodily autonomy has had far-reaching implications much beyond the profound harm to individual women and girls that include potentially depressing economic productivity, undercutting skills, and extra costs to health care and judicial systems.
- **Examples of Violation of Bodily Autonomy:** Some examples of violation of bodily autonomy include:
  - Child marriage
  - Female genital mutilation

- o Lack of contraceptive choices leading to unplanned pregnancy,
- o Unwanted sex exchanged for a home and food
- o When people with diverse sexual orientations and gender identities cannot walk down a street without fear of assault or humiliation.

State of bodily autonomy in India

India's National Family Health Survey (NFHS) Report: According to NFHS-4 Report (2015-2016):

- **Decisions on Healthcare:** Only about 12% of currently married women (15-49 years of age) independently make decisions about their healthcare. While 63% decide in consultation with their spouse.
- **Use of Contraception:** Only 8% of currently married women (15-49 years) take decisions on the use of contraception independently. While 83% decide jointly with their spouse. For nearly 1 in 10 women, it is the husband who largely takes decisions about the use of contraception.
- **Access to Information:** There is limited information provided to women about the use of contraception. Only 47% of women who use a contraceptive were informed about the side effects of the method. Further, only 54% of women were provided information about other contraceptives.

Key findings of the report

- **Links between decision making and education:** Through this ground-breaking report, UNFPA measures women's power to make their own decisions about their bodies and the extent to which the laws of the countries support or interfere with a woman's right to make these decisions.
- The data shows a strong link between decision-making power and higher levels of education.
- **Deprived of the right to make decisions:** Nearly half the women from 57 developing countries do not have the right to make decisions regarding their bodies. Decisions including using contraception, seeking healthcare, or even on their sexuality.
- The fact that nearly half of women still cannot make their own decisions about whether or not to have sex, use contraception or seek health care is outrageous. In essence, hundreds of millions of women and girls do not own their bodies. Their lives are governed by others.
- **Choices over Health Care:** Only 55% of women are fully empowered to make choices over health care, contraception, and the ability to say yes or no to sex.
- **Maternity Care:** Only 71% of countries guarantee access to overall maternity care.
- **Access to Contraception:** Only 75% of countries legally ensure full, equal access to contraception.
- **Sexual health:** Only about 80% of countries have laws supporting sexual health and well-being.
- **Sexuality Education:** Only about 56% of countries have laws and policies supporting comprehensive sexuality education.
- **Problematic laws:** Twenty countries or territories have marry-your-rapist laws, where a man can escape criminal prosecution if he marries the woman or girl he has raped.
- **Absence of laws:** Forty-three countries have no legislation addressing the issue of marital rape (rape by a spouse).
- **Restrictions on women:** More than 30 countries restrict women's right to move around outside the home.
- **Disabled persons:** Girls and boys with disabilities are nearly three times more likely to be subjected to sexual violence, with girls at the greatest risk.
- **Further violations of bodily autonomy:** The report shows how efforts to address abuses can lead to further violations of bodily autonomy. For example, to prosecute a case of rape, a criminal justice system might require a survivor to undergo an invasive so-called virginity test.

Barriers to reproductive health

- **Social Stigma:** There exists a social stigma related to abortion and contraception and sex education are taboo topics in India. Unmarried women have limited access to birth control due to such pressures.

- **Patriarchal structure:** It affects women's agency to make free reproductive choices and also leads to women undergoing unsafe abortions and sterilizations to avoid unwanted pregnancies.
- **Insensitive treatment of women**: The treatment of women, especially those from marginalised sections, at public health facilities is often inadequate, indifferent, and callous, stripping them of their dignity and agency. This results in women's reluctance to seek treatment at public health facilities, thus impacting access and reach.
- **Accessibility of quality healthcare:** India has only one doctor for roughly 10,200 people in the public sector (National Health Profile, 2017). In places like Arunachal Pradesh, Meghalaya, Mizoram and Sikkim, there is a glaring 100% shortfall in the availability of pediatricians.
- **Distress financing:** High out-of pocket medical expenditure results in distress financing of medical care by selling off personal or ancestral assets like land and livestock, borrowing from predatory moneylenders, etc. For instance, About 17.4% of the women from the lowest quintile in Mumbai slums financed their maternal care expenditure by borrowing money.

Solutions

- **Considering the needs of affected people:** The report finds that real solutions must take into account the needs and experiences of those affected.
  - For example, in Mongolia, persons with disabilities are organized to give direct input to the government about their sexual and reproductive health needs.
  - In Angola, young people educated about their bodies, health, and rights have been able to seek health care, use family planning, and petition for justice after sexual violence.
- **Sexuality education and promoting measures**: Through the new international **Action Coalition on Bodily Autonomy and Sexual and Reproductive Health and Rights,** UNFPA is championing access to contraception and comprehensive sexuality education and promoting measures that will empower women and adolescents to make autonomous decisions about their bodies.
- **Uprooting gender inequality:** Each one of us can help by uprooting gender inequality and all forms of discrimination, and transforming the social and economic structures that maintain them.

Deprivation of bodily autonomy is rooted in the social norms and law making it difficult or impossible for them to make their own informed decisions about sex, health and reproduction.

Justice as a fine balance

Syllabus: Structure, organization and functioning of the Executive and the Judiciary

In news: The Supreme Court has said that the media cannot be stopped from reporting the oral observations made by the judges during a case.

What was the case?

- A petition was filed by the Election Commission of India (ECI) in the Supreme Court against the oral remarks made by Madras High Court.
- The Madras High Court had said that the ECI was singularly responsible for COVID second wave. And ECI officers should probably be booked for murder.
- The EC said that these oral remarks would impact or lower the faith of the masses in the poll body and democratic process.
- **Further, the EC** had also asked the SC to stop the media from reporting on oral observations of the court.

What did the court say?

On Madras High Court Observations:

- The Supreme Court has asked the EC to take criticism of Madras HC constructively. Because discussions are in the public interest and faith in institutions is vital to democracy.
- Further, according to the apex court, High Courts are also a constitutional body. Thus, the SC will not demoralize the high court judges by issuing any kind of restraint on them.
- It emphasised the need for judges to exercise caution in remarks in open court, which may be susceptible to misinterpretation. Language, both on the Bench and in Judgments, must confirm with 'Judicial Propriety'.

On Media Reporting:

- The Court observed that the media is the watchdog of the sanctity of the judicial process.
- Hence, no one can stop media from reporting oral remarks made by judges during a court hearing.
- Further, an honest and full report of the comments in courts by the media gives the public insight. Thus, they can see whether judges are genuinely applying their minds to resolve their crises.

The Supreme Court's verdict in the Election Commission of India case is an example of judicial statesmanship.

However, **as per some experts, many orders have been passed by courts that extend beyond the boundary of activism and can be called Judicial governance.**

- The **Allahabad High Court ordered** to fix a "minimum" ex gratia of ₹1 crore for every official who succumbed to the pandemic because of panchayat election duty. Although, the state government had fixed an amount of 30 lakhs.
- The **Kerala High Court** ordered a ceiling on charges in private hospitals for Covid-19 treatment.
- The **Delhi High Court** has been almost micromanaging pandemic management, fixing oxygen quota and distribution. It even issued a contempt notice to the Centre on the oxygen issue, which the Supreme Court dismissed.
- The **Uttarakhand High Court** pulled up the state government for allowing the Kumbh Mela to go ahead against scientific advice, and then, for not following standard operating procedures.

Understanding Judicial Activism and Judicial Governance:

- **Judicial Activism**: It is a judicial philosophy that motivates judges to depart from the traditional precedents in favour of progressive and new social policies. It empowers judges to use their powers to correct injustices.
  - It happens especially when the other branches of government do not act to do so.
- **Judicial Governance**: It is when the judiciary assumes the role and functions of the executive and manages governance. Unrestrained activism on the part of the judiciary often leads to judicial governance.

Provisions/ Tools allowing the judiciary to do Activism

- **Article 13:** Article 13 of the Indian Constitution read with **Article 32 and 226** allows the higher judiciary to review and declare void any law which is inconsistent with the fundamental rights.
- **Article 142:** Article 142 provides that the Supreme Court in the exercise of its jurisdiction may pass such a decree or order as is necessary for doing complete justice.
- **Public interest litigation:** The introduction of PIL (Public interest litigation) has broadened the scope of the judiciary for doing activism.
- **International statutes:** Similarly, there are international statutes like the Universal Declaration of Human Rights that are used by courts for doing judicial activism.

Factors demanding judicial governance

- **Using judge's wisdom when the law fails:** Many sensitive issues need a different perspective and care which laws don't allow. Judicial activism allows a judge to use his judgment in situations where the law fails. This was seen in the **triple talaq case**.
- **Filling the legal vacuum**: It gives judges a personal voice to fight unjust issues which though important but evade the eye of the legislature. For example, SC

formulated **Vishakha Guidelines** for countering harassment against women at the workplace.

- **Check on Legislative and executive**: It provides a system of checks and balances to the other government branches. For example, SC laid **conditions for the imposition of Governor Rule in states in the S.R. Bommai case**. This was aimed to bring objectivity in the application of the rule.

- **Social Engineering**: Judicial governance allows judges to adjudicate in favour of progressive and new social policies helping in social engineering.
    - For instance, in Indian Council for Enviro-Legal Action Case 1999, the SC adopted **the polluter pays principle for environment** conservation.
    - It meant that financial costs of preventing or remedying damage caused by pollution should lie with the undertakings which cause the pollution. However, activism must be done cautiously or else it may get converted into judicial governance.

Why Judicial Governance is not good?

- **Against Separation of Power (SOP):** Judicial governance destroys the spirit of 'separation of powers' between Legislative, Executive, and Judiciary as enshrined in the constitution.
    - SOP is a model that divides the government into separate branches, each of which has separate and independent powers.
- **Expertise in a particular field**: The courts don't have expertise in the field of administration, unlike the administrative authorities. Hence, unnecessary intervention should be avoided.
    - For instance, in one of the orders, a high court insisted on the controlled re-opening of the city. And this was without even telling what constitutes controlled re-opening.
- **Impracticable Solutions**: The courts lack the machinery to deal with highly sensitive and technical issues. Due to this, they end up giving impracticable solutions.
    - For instance, the Allahabad High Court's order to the UP government to consider a state lockdown was returned with the answer that yes, it was considered, but it was not needed.
- **Dis incentivization**: **Severely critical observations** over administrative actions act as a disincentive to honest and dutiful officials. They have been working day and night to fight the unpredictable pandemic whose characteristics are not yet fully known to science.
- **Undemocratic Nature**: Judicial governance appears as an act of 'tyranny of unelected' in a democracy. The executive remains "accountable" to the people through a 5-year election process, but judges exercise self-regulation and are accountable only to themselves.
- **Wastage of court's time:** It is a wastage of the court's time, which can otherwise be used for adjudicating other important matters relating to public importance pending before the court.

o For instance, in National Anthem Case 2016, the SC mandated all cinema halls to play the National Anthem before a film starts in movie halls. However, this decision was reversed later on, and it consumed a significant portion of judicial time.

Way Forward

- **Historically validated restraints**: The adjudication must be done within the system of historically validated restraints and conscious minimization of the judge's preferences.
- **Expert medical opinion**: The decision of the administrators should not be interfered with unless it is violative of some statute or is shockingly arbitrary.
  - o In times of pandemic, the response and strategy of the nation should be driven by expert medical and scientific opinion; not by judicial interference.
- **Self-imposed discipline**: The judiciary must resort to self-imposed discipline and self-restraint to prevent judicial governance.
- **Courts need to be cautious:** The courts have to be cautious that they do not knowingly or unknowingly become a source of obstruction in the performance of states' obligations.
- Judiciary should prevent interference in the domain and work of the executive as mandated by the concept of separation of powers.

Restructuring The Tribunals System

Syllabus - Statutory, regulatory and various quasi-judicial bodies

In News - The Government of India introduced the T**ribunals Reforms (Rationalisation and Conditions of Service) Bill, in the Parliament of India**. The bill got assent of the President of India and came into existence as an Ordinance on 4th April 2021. It aims to dissolve certain appellate bodies and direct their roles and duties to other judicial bodies.

Introduction

- **Definition** - Tribunals are s**tatutory adjudicatory bodies that address disputes that fall within the ambit of their parent statutes**. It is a quasi-judicial institution and performs functions like adjudicating disputes, determining rights between contesting parties, making an administrative decision, reviewing an existing administrative decision and so on.
- The **42nd Amendment in 1976**, which inserted **Article 323-A and 323-B in to the Constitution,** empowered both the Parliament and state legislatures to establish administrative and other tribunals. With this insertion, tribunals, as an alternate method of adjudication, received constitutional legitimacy.
- For example, there are tribunals for settling various administrative and tax-related disputes, including **Central Administrative Tribunal (CAT), Income Tax Appellate Tribunal (ITAT), Customs, Excise and Service Tax Appellate Tribunal (CESTAT), National Green Tribunal (NGT), Competition Appellate Tribunal (COMPAT) and Securities Appellate Tribunal (SAT)**, among others.

Difference between Article 323A and 323B

- **Purpose of establishment of tribunals -** While Article 323 A contemplates establishment of tribunals for public service matters only, Article 323 B contemplates establishment of tribunals for certain other matters such as taxation, foreign exchange, industrial and labour, land reforms etc.
- **Authority to establish tribunal -** While tribunals under Article 323 A can be established only by Parliament, tribunals under Article 323 B can be established both by Parliament and state legislatures with respect to matters falling within their legislative competence.
- **Hierarchy of tribunals -** Under Article 323 A, only one tribunal for the Centre and one for each state or two or more states may be established. There is no question of hierarchy of tribunals, whereas under Article 323 B a hierarchy of tribunals may be created.

Characteristics of Tribunals

- **Statutory body** - It is a creation of a statute and required to act **openly, fairly and impartially.**
- **Principles of Natural justice** - It is bound to act judicially and follow the principles of natural justice. An administrative Tribunal is **not bound by the strict rules of procedure and evidence prescribed by the civil procedure court.**
- **Quasi-Judicial functions** - An Administrative Tribunal is vested in the **judicial power of the State** and thereby performs quasi-judicial functions as distinguished from pure administrative functions.
- **Credibility due to** s**pecialisation** - Tribunals denotes s**pecialisation of the subject**, they are based on.

Issues with tribunals

- **Independence of Tribunals** - In the **NCLT Case**, a constitution bench of the Supreme Court had to deal with the constitutional validity of the NCLT and the NCLAT. The court observed that the independence of the tribunals was compromised by the inclusion of the secretary of the 'sponsoring department' in the selection committee.
  - Additionally, tribunals were dependent on these departments for funding, infrastructure, working space, etc., which created a scope for interference by the department.
  - Civil servants who became members of tribunals often retained lien with their parent cadre, leading to further executive interference.
- **Efficiency of Tribunals** - From **R.K. Jain to L. Chandra Kumar case**, the courts have tried to shed light on the issue of malfunctioning of tribunals and have offered recommendations.
  - Non-uniformity in relation to appointment process, qualifications required, service conditions, removal procedure etc., was highlighted as a cause for malfunction.

- **Pendency of cases** - The **272nd Law Commission Report** highlighted worrying pendency figures for the CAT (44,333 cases), CESTAT (90,592 cases), ITAT (90,538 cases). The high pendency figures exist despite a high disposal rate. These figures are often high due to systemic issues.
    - For instance, it was observed that the DRT had 58% failed hearings (avoidable adjournments that are not penalised) and condonations were often given on account of filing delays and absenteeism.
- **High Vacancy** - The problem of vacancies with regard to the judiciary in India is neither new nor exclusive to the courts. Tribunals in particular, also suffer from the same problems of shortage of personnel. The **74th Parliamentary Standing Committee Report** highlighted its concern over vacancy being a cause of the dysfunctional nature of tribunals.
    - The apathy of central government in filling up the vacancies in the NGT has compromised the functioning of the tribunal severely. For example, since 2017, t**he lack of adequate judicial and expert members in the principal and zonal benches of the NGT has either resulted in those benches being shut down, or has rendered them incapable of passing decisions.**
- **Bypassing Jurisdiction of the High Courts** - While dealing with the constitutionality of exclusion of jurisdiction of High Courts in service matters against the orders of the CAT, the apex court highlighted two primary issues with statutory appeals directly to the Supreme Court. Firstly, a **direct appeal to the Supreme Court was too costly and inaccessible for litigants; and secondly, such a provision of appeal would lead to congestion of the docket of the Supreme Court**.

Suggested solutions to reform tribunals
- **Ensuring Independence of tribunals**
    - **Madras Bar association judgment** had discouraged inclusion of secretaries due to c**onflict of interest**. In addition, primacy of judicial members in selection committees was ordered by the supreme court.
    - **Chandra Kumar (1997) and R. Gandhi (2010)** judgments ordered that **tribunals should not be under ministries against which orders have to be passed**. It leads to conflict of interest where ministries control infrastructure, finances and staffing of tribunals under them. Complaints against tribunal members are also received by ministries which can be misused for quid pro quo.
    - **In R. Gandhi judgment (2010), vague qualification criteria for Members** such as experience in economics, business, commerce, nance, management etc was struck down.
    - **National tribunals commission** was suggested in Rojer Mathew judgment as an overarching body to regulate appointments, tenure and terms of employment.
- **Reducing tribunalisation** - Instead of more tribunals, **stable rosters to High court judges can promote specialization**. Economic survey 2017-18 pointed out taxation benches in supreme court led to reduced pendency due to specialization.

- **Recommendations of Law commission** - The **272nd Law Commission Report (2017)** proposed certain imperative changes which were made keeping in mind the objective of establishments and procedure of the Tribunals in India. Ensuing are the proposed imperative changes formulated by the Commission:
    - o In order to provide easy **Access to Justice** to citizens belonging to diversified geographical areas, Tribunals must have benches in different parts of the country.
    - o **Qualification of Judges** of the Tribunals should be akin to the Judges of High Court.
    - o Appointment, service conditions, and tenure of the Judges, Chairman, Vice Chairman, and **Members should be in a uniform and independent manner**.
    - o With the aim to ensure uniformity in affairs of all the Tribunals, the Ministry of Law and Justice, **a single nodal agency**, should be made responsible to monitor the working of the Tribunals.

Tribunals Reforms (Rationalisation and Conditions of Service) Ordinance, 2021

About - The Ordinance has amended the Finance Act 2017 to include provisions related to the composition of search-cum-selection committees, and term of office of members in the Act itself.

Key Provisions

- **Search-cum-selection committees -** The Chairperson and Members of the Tribunals will be appointed by the central government on the recommendation of a **Search-cum-Selection Committee.** The Committee will consist of:
- Chief Justice of India, or a Supreme Court Judge nominated by him, as the Chairperson (with casting vote),
- Secretaries nominated by the central government,
- The sitting or outgoing Chairperson, or a retired Supreme Court Judge, or a retired Chief Justice of a High Court.
- The Secretary of the Ministry under which the Tribunal is constituted (with no voting right).
- **Term of Office -** The term of office for the Chairperson of the tribunals will be of four years or till the attainment of the age of seventy years, whichever is earlier. For other members of the tribunals, the term will be of four years or till the age of sixty-seven years, whichever is earlier.

- **The Nine Laws** (Replacement of Appellate Authorities/Tribunals)
  - The Cinematograph Act, 1952.
  - The Trade Marks Act, 1999.
  - The Copyright Act, 1957.
  - The Customs Act, 1962.
  - The Patents Act, 1970.
  - The Airports Authority of India Act, 1994.
  - The Control of National Highways (Land and Traffic) Act, 2002.
  - The Geographical Indications of Goods (Registration and Protection) Act, 1999

It is believed this would help in reducing delays and improve the overall quality of adjudication process.

Conclusion

The Supreme Court has held that the Tribunals are not an end in themselves but a means to an end; even if the laudable objectives of speedy justice, uniformity of approach, predictability of decisions and specialist justice are to be achieved, the framework of the Tribunals intended to be set up. To attain them, it is essential to retain the basic judicial character so as to inspire public confidence.

Securing Election Commission's Independence

Syllabus - Appointment to various Constitutional posts, powers, functions, and responsibilities of various Constitutional Bodies

In News During the recent state elections in West Bengal, Election Commission (EC) barred Mamta Banerjee from campaigning for 24 hours over her remarks against Central forces and a statement which had alleged religious overtones. Although the actions were also taken against BJP representatives for incendiary remarks, a perception of bias for Election Commission has hung over the conduct of the Bengal polls.

More in News

- A letter signed by 64 former civil servants and over 80 academics and veteran army personnel submitted to the President of India in 2019, stated, **"So blatant has been the acts of omission and commission by the Election Commission of India that even former Election Commissioners and (Chief Election Commissioners) CECs have been compelled, albeit reluctantly, to question the decisions of their successors in office."**

Introduction

- The Election Commission of India (ECI) is a self-governing constitutional body that oversees the election process in India as per the Constitution of India. The ECI was set up on **January 25, 1950**, to define and control the multi-tiered election process in our country.
- **Article 324** of the Indian Constitution, ECI has the supervisory and directional control of the complete process election to Parliament and Legislature of every State.

Issues with Election Commission's Independence

- **Political appointment of Election Commissioners** - CEC and Election Commissioners are appointed by the president on the advice of the Cabinet which provides advice under **Transaction of Business Rules, 1961 of the Union cabinet.**
  - Election Commissioners, thus, become politically vulnerable which, in turn, affects the functioning of the EC if both the Election Commissioners unite on an issue, they can overrule the CEC and effectively pass anything at EC. Thus, they can **sufficiently sway decisions in favor of the ruling party.**

- **Poor Enforcement of the Model Code of Conduct (MCC)** - Enforcement of the MCC entails the cancellation of candidature, criminal action if required, and in some cases, action against parties including the ruling party itself where recognition to them can be suspended or withdrawn. Such **strict actions seem rather improbable as the effective power to regulate the terms of the service conditions of Election Commissioners remains in the hand of the ruling party**. Though violations occur frequently, the ECI has rarely taken recourse to its extraordinary powers apart from warning and reprimands.

- **Lack of adequate mechanisms for internal accountability**-Dinesh Goswami Committee recommended that the Election Commission should be empowered to take strong action on the report of returning officers, election observers, or civil society in regards to booth capture or the intimidation of voters.

- **Lack of adequate mechanisms to ensure decriminalization** - For example, to ensure compliance with recent SC directions, extensive human resources, and robust digital systems are essential.
  - **No power to disqualify candidates before conviction**- Even if a candidate is facing several serious charges. **Section 8 of the Representation of People's Act (RPA), 1951** deals with disqualification only after a person is convicted for certain offenses.
  - **Insufficient grounds for disqualification**- F**alse affidavit or suspension of material information** in the affidavit is not included as grounds for challenging the election or for rejection of nomination papers section under RPA, 1951.
  - **Misuse of religion for electoral gain** - While such practices are qualified as corrupt practices, they can be questioned only by way of an e**lection petition and cannot be a subject of inquiry before the Election Commission** when the election is in progress.

- **Inadequate protection to Election Commissioner (EC) - According** to Article 324(5) of the Constitution, the chief election commissioner can be removed from office the same way in which a Supreme Court judge is removed. The removal of any top court judge needs an impeachment motion — a requirement so tough that no Supreme Court judge has ever been impeached in India.
  - According to the clause, the two other election commissioners, along with other regional commissioners, can be removed on the "recommendation of the Chief Election Commissioner", thus not extending the constitutional protection to them.

- **Lack of financial independence** – The budget of the Election Commission is voted through Parliament and subsequently not charged upon Consolidated Fund of India.

IMPLICATIONS OF LACK OF ECI'S INDEPENDENCE

- **Breakdown of democratic principles** - The ECI is responsible for India's long-standing record of uncontested, free and fair elections. Lack of independence with ECI presents that these elections are not fairly conducted and thus the elected government does not represent the choice of the majority of citizens in the democratic nation.
- **Loss of people's trust in elections** - Steps taken by the ECI have ensured that the poor and marginalized have been enthusiastic voters and have participated in elections in increasing numbers, without fear of intimidation by higher-ranked, more powerful groups. The security provided to poor voters has also enabled the rise of marginalized groups' political parties. People eventually lose trust in elections and the government of the day of the ECI is not able to conduct elections fairly.
- **Degradation of political discourse**- The popularity of the ECI is not restricted to citizens alone; political parties have also come to view it as a neutral referee. When elections are rigged and when barriers of civility and decency are not respected by the politicians, then abuse of power becomes a norm. This leads to the degradation of political discourse in the nation.
- **The politicization of the Election Commission**- Since the Chief Election Commissioner is not barred from post-service posts, the critics allege CEC's independence is prone to be compromised.

Way Forward

- **Kihoto Hollohan vs. Zachillhu and others** -Apex court held that **"Democracy is the basic feature of the Constitution. Elections conducted at regular, prescribed intervals are essential to the democratic setup as envisaged in the Constitution. So, it is the basic need to protect and sustain the purity of electoral process that may take the quality, efficacy, and adequacy of the machinery for resolving electoral disputes."**
- **The broad-based selection committee** - The independence of the EC can be assured only if the appointment and term of office of the Chief Election Commissioner and Election Commissioners are insulated from the influence of the political executive.
  - o **The Dinesh Goswami Committee recommended** that the election commission should be a three-member body. The appointment of the Chief Election Commissioner should be done in consultation with the Chief Justice of India and the leader of the opposition and the Chief Election Commissioner should be consulted.
  - o Institutionalize the convention where the senior-most EC should be automatically elevated as CEC to instil a feeling of security in the minds of the ECs and that they are insulated from executive interference in the same manner as CEC

- **Security of tenure for Election Commissioners** - In 2015, the **Law Commission** said in a report that the election commissioners are "superior" to regional commissioners, and thus, Article 324 be amended to reflect the same which involved giving constitutional protection to **Election Commissioners**.
- **Reducing the ECI's dependence on Executive**- The ECI should have an independent secretariat for itself and frame its own recruitment rules and shortlist and appoint officers on its own. Its expenditures must be charged upon the Consolidated Fund of India similar to other constitutional bodies such as the UPSC.

It is essential for a robust democracy that i**nstitutional protection is accorded to the EC** and it is empowered to take adequate actions against poll code violators. This would ensure that public faith in the EC is strengthened. This bolsters the case for the removal of any political bias in the appointment of the CEC and ECs and the same should be channeled in a manner ensuring **adequate participation** of all the relevant stakeholders.

The virus gnaws at federalism

Syllabus: Issues and challenges pertaining to the federal structure

In news:

- Tamil Nadu made a forceful case of discrimination in the distribution of vaccines.
- On May 11, Rajasthan with a population of 7.9 crores was allotted close to 1.5 crore doses of vaccines. Tamil Nadu with 7.6 crore people and almost double the number of infections in Rajasthan, was given a little more than 76 lakh doses.

Introduction

- The second wave of Covid-19 has created havoc in the country. The country is facing challenges in overcoming the medical Oxygen crisis, lockdown associated losses to the economy, etc. All this required coordination between the centre and the states.
- This situation highlights the need for functioning federalism in the country, where both the centre and the states take responsibility for their respective domains. The forms of Federalism during the pandemic changed a lot in India.

What is Federalism? It is a system of government in which powers have been divided between the centre and its constituent parts such as states. It is an institutional mechanism to accommodate two sets of politics, one at the centre and the second at the regional level.

Federalism in India:

- **Holding Together Federation**: In India powers are shared between various constituent parts to accommodate the diversity in the whole entity.
- **Centralised federalism**: The Indian Constitution has structurally made the Union government more powerful than the states, called centralised federalism. The members of the Assembly demanded a stronger Union government. They believed that a strong centre is necessary for India's survival and political stability.
- Especially when considering India's vast diversity based on religion, language, caste, and ethnicity.
- The final Constitution did not completely favour centralization. India's Constitution provides for the separation of powers between the centre and the state through union and state subjects.
- **Division of revenue**: The Finance Commission recommended the division of revenue between the centre and the States.
- Because of the above reasons along with few others Australian Constitutional expert K.C. Wheare called the Indian constitution "quasi-federal". He stated, "Indian Union as a unitary state with subsidiary federal features rather than a federal state with subsidiary unitary features."
- Article 1 of the Indian Constitution states, 'India, that is Bharat, shall be a union of states.' The word federation is not mentioned in the constitution.
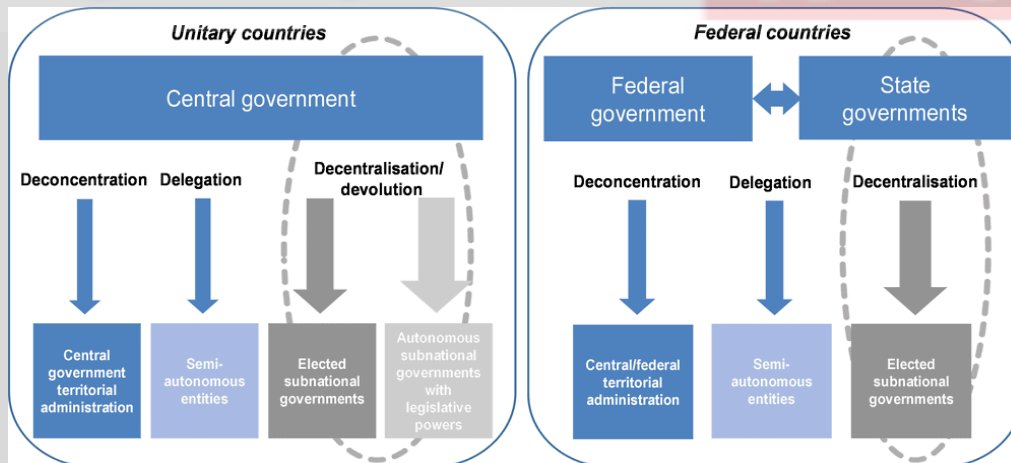
Federalism during Initial phase of Covid-19 Pandemic

- **Unitary tilt:** The initial stages of the Covid-19 response highlighted the unitary tilt in the Indian federal structure. For example, implementing a national lockdown using the powers under Disaster Management Act.

- o The Ministry of Home Affairs also issued extensive guidelines to states for controlling the pandemic. Although the States have independent powers under the Epidemic Diseases Act, 1897, State governments followed the Centre's orders.
  - o State governments also requested the central government to continue its administration of the national lockdown. States ceded considerable decision-making power to the central government.
- **Increased dependence on Centre:** Since the national lockdown required shutting down almost all economic activity, there was a drastic reduction in revenue for state governments. This increased state's dependence on the centre.
  - o India's finance minister announced a series of reforms to facilitate India's post-lockdown economic recovery.
  - o The borrowing limit for states increased but certain conditions were needed to be met.
  - o No foreign aids were allowed as it is on the discretion of the Centre. States lack the power to accept foreign aids. For instance, During the Kerala Floods, the centre turned down the foreign aid despite the Kerala government's request for approval of aid.

Federalism at present

- **High decentralisation**: The Union government provided adequate autonomy to the states to **strengthen their healthcare facilities.** For example, the New Vaccination policy vests 50 per cent of the purchasing of vaccines to the State governments.
- **Imposition of localised lockdowns:** The central government permitted the State government to impose local lockdowns to control the spread of the pandemic. For example, Lockdowns by Delhi and Tamil Nadu government.
- **Social security measures:** Implement social security measures to mitigate the impact of the pandemic. Many state governments have introduced local health policies, welfare measures for vulnerable sections, etc. Thus, the functional role of the states increased.

Initiatives taken to strengthen Federalism during the pandemic

- **The concept of Fiscal Federalism:** As the national lockdown impacted the State's revenue, the centre implemented many measures to strengthen "Fiscal Federalism." Such as
  - o **Enhancement of Borrowing Limit of States:** Union Government permitted the State Governments to borrow within the Net Borrowing Ceiling of 3% of their GSDP in a financial year.
  - o **Ways and Means Advances:** The Reserve Bank of India (RBI) provides Ways and Means Advances (WMA) to the States. This is to help them tide over temporary mismatches in the cash flow of their receipts and payments. During the pandemic, the RBI increased the WMA limit of States. This gave immediate liquidity to States

to borrow short-term funds from RBI at a lower rate of interest. It provided them greater comfort to undertake Covid-19 containment and mitigation efforts.

- o **Financial Assistance to States:** The central government announced the **Scheme of Financial Assistance to States for Capital Expenditure** in October 2020. The Scheme contains total funding of ₹12,000 crores. A part of the ₹12,000 crore scheme was set aside for the states.
- o **Maintaining Tax Devolution to States:** The 15th Finance Commission recommended 41% tax devolution. The centre accepted the devolution. Despite the pandemic, the Centre empowered the States fiscally well-equipped to fight the pandemic.
- **More active collaboration with states in policymaking:** While drafting new legislation or trying to amend any existing legislation the Central Government consults all State Governments. Today, the draft legislations are shared online on websites for larger outreach and stakeholder consultations.
    - o For example, the drafting of the Model Tenancy Act has involved all State Governments and stakeholders
- **State's ability to perform foreign economic policy:** The Centre encouraging states to negotiate loans / FDI directly with overseas banks/institutions. Such initiatives have helped some states in their economic development and reduced their financial dependence on the Centre. So, at present, the **State not only relies on the Centre's grants in aid**. But still, the approval for FDIs is centralised.
    - o At present, the States also start overseas facilities to attract FDI directly. For example, Gujarat Government in 2014 set up international desks independently in the USA, China, Japan for facilitating "INVEST IN VIBRANT GUJARAT".

Conclusion

- India's response to the Covid-19 pandemic has shifted the balance of its federal structure. The most important moment for federalism during the pandemic is the **role of state governments on the ground level in managing the Covid-19 crisis**. The Centre also provided more power and autonomy to states to tackle the pandemic.
- The Centre and States have to ensure the right balance between extreme political centralisation or chaotic political decentralisation. As right balance will protect the States from threatening the national unity and providing adequate autonomy to states.

Amendment at loggerheads

Syllabus: Development processes and the development industry —the role of NGOs, SHGs, various groups and associations, donors, charities, institutional and other stakeholders.

In News The FCRA (Foreign Contribution Regulation Amendment) Act, 2020 has affected the work of many NGOs. They are facing difficulties in receiving foreign funds.

FCRA Amendment Act, 2020:
- The amendment has made it compulsory for the NGOs to open an exclusive Bank account with the State Bank of India in New Delhi to receive foreign donations.
- The Ministry of Home Affairs had given the deadline of March 31st, 2021 to open this bank account.

About the petition

A petition filed in the Delhi High Court seeking exemption from the Union Home Ministry's March 31 deadline to open an FCRA account with the SBI branch in New Delhi.
- The petitioner argued that it had applied to open the account before the March 31 deadline.
- The administrative delays in approval by the bank and Ministry are severely causing many troubles for them. It restricted activities of NGOs including providing COVID-19 relief and paying urgent salaries of staff, and also affected its charitable and educational activities.
- **Hence**, the Delhi High Court has now issued a notice to Union Home Ministry for a reply.

What is FCRA (Foreign Contribution Regulation Act)?
- **Foreign Contribution (Regulation) Act**: It is an act of Parliament enacted in 1976 and amended in 2010 to regulate foreign donations and to ensure that such contributions do not adversely affect internal security.
- **Coverage**: It is applicable to all associations, groups, and NGOs which intend to receive foreign donations.

Who cannot receive foreign donations?
- Members of the legislature and political parties, government officials, judges, and media persons are prohibited from receiving any foreign contribution.
- However, in 2017 the FCRA was amended through the Finance Bill to allow political parties to receive funds from the Indian subsidiary of a foreign company or a foreign company in which an Indian holds 50% or more shares.
- **Registration:** It is mandatory for all such NGOs to register themselves under the FCRA. The registration is initially valid for five years and it can be renewed subsequently if they comply with all norms.
- **Purpose of Foreign contribution**: Registered associations can receive foreign contributions for social, educational, religious, economic, and cultural purposes. The filing of annual returns on the lines of Income Tax is compulsory.

Key provisions of FCR(Amendment), Act 2020:
- **Prohibition to accept foreign contribution:**
  - Include certain public servants in the prohibited category for accepting foreign contribution. These include: election candidates, editor or publisher of a newspaper, judges, government servants, members of any legislature, and political parties.

- o The Bill adds public servants to this list. Public servant includes any person who is in service or pay of the government or remunerated by the government for the performance of any public duty.
- **Transfer of foreign contribution**: Under the Act, foreign contribution cannot be transferred to any other person unless such person is also registered to accept foreign contribution.
- **FCRA account:** The Bill states that foreign contribution must be received only in an account designated by the bank as FCRA account in such branches of the State Bank of India, New Delhi. No funds other than the foreign contribution should be received or deposited in this account.
- **Definition of persons**: The FCRA 2010 allows the transfer of foreign contributions to persons registered to accept foreign contributions. The term 'person' under the Bill includes an individual, an association, or a registered company.
- **Regulation:** The Act states that a person may accept foreign contributions if they have obtained a certificate of registration from the central government or obtained prior permission from the government to accept foreign contribution. **The bill makes Aadhaar mandatory for registration**.
- **Restriction in utilisation of foreign contribution:** The Bill gives government powers to stop utilisation of foreign funds by an organization through a "summary enquiry".
- **Reduction in use of foreign contribution for administrative purposes**: The bill decreases administrative expenses through foreign funds by an organisation to 20% from 50% earlier.
- Surrender **of certificate**: The Bill allows the central government to permit a person to

Need for such amendments:
- **To monitor Misuse of funds**: In Parliament, the government alleged that foreign money was being used for religious conversions. For instance, in 2017, the government barred American Christian charity, Compassion International.
- **To prevent loss to the GDP**: An official report quantifying the GDP losses allegedly caused by environmental NGOs was prepared during the NPA period, indicating a foreign conspiracy against India.
- **To enhance transparency and accountability**: The annual inflow of foreign contribution has almost doubled between the years 2010 and 2019, but many recipients of foreign contribution have not utilised the same for the purpose for which they were registered or granted prior permission under the said Act.
- **To regulate NGO's**: Many persons were not adhering to statutory compliances such as submission of annual returns and maintenance of proper accounts.

Concerns associated with the recent amendments

- **Over-regulation of NGO**: New regulations put excessive conditions on civil society organizations, and educational and research institutions that have partnerships with foreign entities.
- **Lack of Consensus**: The amendments were not discussed with the stakeholder and passed with limited discussion in Parliament.
- **Against Constitutional rights:** According to the International Commission of Jurists, the new law is incompatible with international obligations and India's own constitutional provisions on rights.
- **Incompatible with international laws**: The United Nations Human Rights Council resolution on protecting human rights defenders says that no law should criminalize or delegitimize activities in defense of human rights on account of the origin of funding.
- **Discourage social work**: Thousands of NGOs serve extremely disadvantaged sections. Only presumption of guilt against them all, followed by control, restricts their scope of voluntary actions.
- **Selective barriers**: The over-regulation appears to be towards selected categories of global ideas and ideals such as environmentalism, human rights, and civil liberties.
- **Reduce investments and technology flow**: As a growing economy, India has been proactive in seeking global capital and technology. Strict rules governing FCRA will impact investments.
- **Against Indian cultural ethos**: Prime Minister has often cited the ancient Indian ethos of '*Vasudhaiva Kutumbakam*' as the framework for its global engagement. New rules do not go well with India's legitimate ambitions to be a global player.
- **Additional cost of compliance**: Every FCRA-registered NGO will have to open an FCRA-marked bank account with a designated branch of State Bank of India in New Delhi. Around 93% of FCRA NGOs are registered outside Delhi, and will now have to open a bank account in the capital.
- **Lowering the cap on administrative expenses**: The micro-management and cost structures vary from project to project. It is difficult for NGOs whose work revolves around advocacy rather than projects. In 2018-19, there were 1,328 NGOs whose administrative expenses exceeded 20% of their total foreign funds.

Way forward

- **Delink** religious propagation and conversions from the question of foreign funding.
- **Seamless sharing of ideas and resources** across national boundaries is essential to the functioning of a global community.
- The government must commit itself to the ancient Indian ethos of **Vasudhaiva Kutumbakam** as the framework for its global engagement and should not be hostile against the NGOs who criticize the government for their work.

Civil society's supplements government works and works at the grass-root level. Civil societies should not be discouraged unless there is reason to believe the funds are being used to aid illegal activities.

Bad to Worse

Syllabus: GS2: Welfare Schemes for Vulnerable Sections of the population by the Centre and States and the Performance of these Schemes.

In news: The burden on Women during the Pandemic increased disproportionately due to Societal norms, a male-dominated job market, and a lack of gender-sensitive policymaking.

Background

- **Gender inequality:** Gender inequality in terms of employment is high in India. For instance, only 18% of working-age women were employed as compared to 75% of men.
- **Reasons:** Lack of good jobs, restrictive social norms, and the burden of household work are the main reasons for this widening Gender divide in employment.
- **The gender gap in employment**: Even before 2020, the gender employment gap was large. After the Pandemic, the Gender gap in employment has further widened. Women workers, in particular, have borne a disproportionate burden.
- **Data from the Centre for Monitoring Indian Economy Pvt. Ltd:** It shows that 61% of male workers were unaffected during the lockdown while only 19% of women experienced this kind of security.

The unpaid care and domestic work performed by women is critical for sustaining societies, has immense economic value and needs to be supported through adequate policies.

- **World Bank data:** According to World Bank data released in June 2020, India's female labour force participation rate fell to 20.3 per cent in 2020.
- **Gender Gap Index:** India also slipped 28 places in the 2021 Gender Gap Index to rank 140th out of 156 countries.

The factors that are affecting Women's participation in the labour market

- **Job losses:** The data from the Centre **for Monitoring Indian Economy** has revealed that job losses during the lockdown were disproportionately high for women as compared to men. The reasons were,
  - o **Job security for men is high**: 61% of male workers were unaffected during the lockdown while only 19% of women experienced this kind of security.

- o **Male-dominated work culture**: 47% of employed women who had lost jobs during the lockdown, had not returned to work whereas it was only 7%, in the case of Men.
  - o **Further,** despite the nature of Industry, Women lost a greater number of Jobs compared to Men. For instance, in the education and health industry.
  - o **More fallback options for men**: Between 2019-2020, 33% of formal salaried men moved into self-employment and 9% into daily wage work. In contrast, only 4% and 3% of formal salaried women moved into self-employment and daily wage work.
  - o **The burden of care**: This is one of the major reasons for poor employment recovery among Women.
- **Increase in domestic work:** During the lockdown, women's domestic work increased manifold. According to the **India Working Survey 2020,** among employed men, the number of hours spent on paid work remained more or less unchanged after the pandemic.
  - o But for women, the number of hours spent in domestic work increased manifold. This increase in hours came without any accompanying relief in the hours spent on paid work.
  - o The Organisation for Economic Co-operation and Development figures from 2019 show that women in India spend up to 352 minutes per day on domestic work. That is 577 per cent more than men of the household, who typically spend an average of 52 minutes on household chores each day.
- **Invisible work:** According to Oxfam's 2020 India inequality report "On Women's backs", women and girls put in 3.26 billion hours of unpaid care work every day in India, equivalent to contributing ₹19 lakh crore a year to the Indian economy.

Other major areas of impact:

- **Care needs of elderly:** Increased care needs of elderly, family members and children due to home quarantines, school closures and work from homes.
- **Increased domestic violence:** (up to 33% rise) The lockdown exacerbated the factors contributing to domestic violence, severely limited survivors' ability to seek help and redress, and placed severe burdens on providers seeking to intervene and respond to survivors.
- **The problem in receiving health services:** Disruption in Sexual and Reproductive Health Services (SRHS) of pregnancy services, family planning services and menstrual health services.
- **Education and nutritional needs**: Education and nutrition are impacted due to reduced incomes of households. Lower priority of girl child education and nutrition will lead to reduced investments in

Seven issues affecting women and girls during Covid-19 pandemic
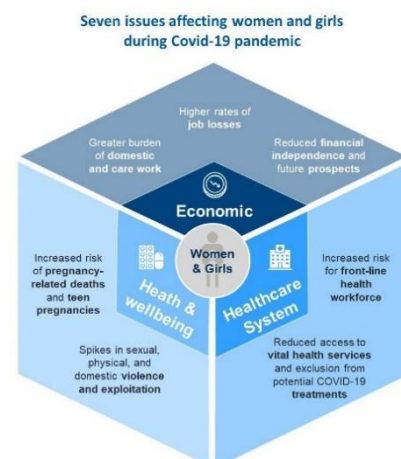
these. Further, lower incomes will increase child marriages when girls are seen as a burden.

Way Forward

- **Increasing employment opportunities: It can be done by,**
  o Expanding the Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA)
  o Introduction of an urban employment guarantee targeted towards women.
  o Setting up of community kitchens.
  o Prioritizing the opening of schools and Anganwadi centres
  o Engagement with self-help groups for the production of personal protective equipment kits
- **Direct income support:** A COVID-19 hardship allowance of ₹5,000 per month for six months can be announced for 2.5 million **accredited social health activists** and Anganwadi workers, most of whom are women.
- **Policy support to address issues related to the Women workforce:**
  o **The National Employment Policy** should systematically address the issues related to the availability of work and household responsibilities.
  o Envisioning **universal basic services Programme**. It not only fills existing vacancies in the social sector but also expands public investments in health, education, child and elderly care.
  o It can also alleviate Women's problems such as nutritional and educational deficits and domestic work burdens.
- **Sarvodaya – Leaving no women/girl behind:** Inequalities in race, religion, caste, class, age, MDP, rural/urban etc aggravate gender inequalities. Hence all must be addressed holistically by universal social protection to address gender inequalities.
- **Gender-inclusive economic rebuilding:** Women's skills, labour, entrepreneurship and leadership must be integrated into post-pandemic economic rebuilding (Atmanirbhar Bharat).
  o Incentives, policies and investments must be made to ensure this economic inclusivity.
- **Technological empowerment:** Women must be enabled to benefit from the 4th industrial revolution and digital technologies like 5G, AI, robotics, digital payments etc.

As the country meets the challenge of the second wave of the pandemic, it is crucial to learn lessons from the first wave to chart the policy path ahead. Gender equality is a recognized public good. It can add a trillion dollars to India's GDP by 2025. Hence a gender-equal society must be promoted in the world.

Democratising Education in Pandemic

Syllabus- Issues relating to development and management of Social Sector/Services relating to Health, Education, Human Resources

In News - The pandemic has highlighted the gaping education crises India as a country is witnessing.

Introduction

Education is a tool which provides people with knowledge, skill, technique, information, enables them to know their rights and duties toward their family, society as well as the nation. It expands vision and outlook to see the world. It develops the capabilities to fight against injustice, violence, corruption and many other bad elements in the society.

Issues in Indian Education System

- **Rote learning process –** Students in our education system are compelled to rote learn in order to score high marks. The system sadly does not focus on strengthening and clearing the concepts.
  - For example, According to ASER, about 50% students in 5th standard attending rural schools are not capable of reading a text meant for junior classes.
- **Infrastructure—** Poor infrastructure & lack of facilities are reasons for the low turnout of students in schools. Students, especially girls, do not prefer to go to schools. Basic necessities, such as clean and hygienic drinking water and separate toilets for boys and girls are not available in many of the school, even in urban India. This leads to poor quality of education being imparted.
- **Financing -** India barely spends 2.5% of its budgetary allocations on education. This is far below the required amount needed to upgrade the infrastructure at public institutes. Nearly 65% of the University Grants Commission (UGC) budget is utilised by the central universities when the share of state universities in student enrolments is much higher.
- **Poor Teacher-student ratio –** Huge no. of students in a class are tackled by a single teacher leads to less focus on each child. In addition, students are not encouraged to ask questions or clarify their doubts.
- **Lack of emphasis on creativity—** Our education system focuses on quantity rather than quality. Getting high marks by hook or crook is the only aim of the students; they are not bothered about conceptual understanding or developing critical and creative thinking. This restricts the growth of their mind.
- **Rural-Urban gap -** Various studies have demonstrated a wide gap between rural and urban education. In urban areas, the number of schools per person is higher, as is the quality of education delivery—due to relative lack of infrastructure, including reliable electricity. Also, it has been seen that schools in rural India have numerous non-academic issues to deal with, including staff and infrastructure, and thus are not fully capable of focusing on student development.

What is Online Learning?

Online education is electronically supported learning that relies on the Internet for teacher/student interaction and the distribution of class materials.

The pandemic has created a mammoth crisis in education. Going digital is a solution that can also solve long-term problems of quality.

Technology as a Saviour

- **Innovative Learning environment:** With the development of ICT in education, online video-based micro-courses, e-books, simulations, models, graphics, animations, quizzes, games, and e-notes are making learning more accessible, engaging, and contextualized.
- **Flexibility and continuous learning:** To ensure that learning never stops, the online education sector, and mobile networks have become the preferred platform. Teachers are preparing lessons using distance learning tools, and parents are learning new teaching techniques at home. Providing aid are the entrepreneurs offering online learning apps like BYJU's, Adda24x7, Duolingo, Khan Academy, Witkali and several others.
- **Inclusive**: Online education, a result of the digital world has brought a lot to the learning table at all levels of education, beginning from preschool up to higher level institutions.
- **Wide Range of Courses**: Universities like World University of Design, Jawahar Lal Nehru University, Jamia Millia Islamia, Amity, IP University, Lovely Professional University and Mumbai University are offering online classes across different subjects.

Use of technology and associated challenges –

- **Lack of social interaction –** Online learning courses are self-paced courses. It makes the learners difficult to develop a relationship with their peers. Limited social interaction and no face-to-face interaction.
- **The chance to get distracted –** The learners who are less determined and lacks self-motivation the chance of them to get detracted is very high. The learners lose track of their studies and end up doing something else.
- **Learners get isolated –** The learners don't have any interaction with the outside world, this makes a high chance to make a learner feel lonely and isolated.
- **Technical Issues –** Many students are not well equipped with a high internet connection that is required for online learning. Due to this, they face problems in going live for virtual learning and other platforms that require internet connection.
- **Teacher Training –** Online learning requires teachers to have a basic understanding of using digital forms of learning. However, this is not the case always. Very often, teachers have a very basic understanding of technology. Sometimes, they don't even have the necessary resources and tools to conducts online classes.
- **Privacy risk associated with technology-** The latest mobile phones and hand-held devices have a range of sensors like GPS, gyroscope, accelerometer, magnetometer and biometric sensors apart from the camera and microphones. These provide data about the learner's

surroundings along with intimate data like the emotions and attitudes experienced and expressed via facial expressions and body temperature changes. The app and device have access to the private spaces of the learner that one would not normally have access to.

- **Mismatch with Industrial requirements** - India Skills Report 2021 estimates that only 45.9% of Indian youth possess sufficient employability skills. Online learning will further affect the employability of students. This shows lacunae in the quality of the higher education curriculum.
- **Appeasement Tools –** Imparting education through a digital medium is just an appeasement policy that doesn't cure the real problem in the education system.
- **Minimal safeguards in EdTech –** The safeguards that traditional researchers are subject to are either missing or minimal in research that the EdTech industry promotes. The concept of informed consent is not meaningful since there are no proper primers to explain to stakeholders the intricacies in layperson terms.

Way Forward

- **Reopening schools –** Getting students back into the physical school, even for a few days a week, is of paramount importance given the practical gaps in online education that our schools currently face. The majority of the world has opened their educational institutions in some format or the other.
  - o For example, use of outdoor locations, teaching in smaller groups in local community centres can be an innovative solution. Increase in the duration of the academic year, to give the system more time to make up for the last year, and facilitate widespread teacher vaccinations drives is another solution for same
- **Redefining who is the "teacher" –** Traditional definition of teacher can be expanded to include parents, volunteers and older children in the community. These people can support the traditional teacher and create continuity in the learning process.
  - o For example, local authorities can work with their communities to create new localised learning solutions. This will also provide great opportunities for smaller experimental public-private partnerships.
- **New mediums to promote education** - Bridging the digital divide to enable online learning will take time. But accessing and creating free standardised content that can be easily disseminated through existing widespread mediums like television, radio and telephone can be done immediately.
- **Provide equal access to the best quality of education to all – To** resolve quality-education problem, we first need to bridge the "infrastructure divide" and create access as funding and creating access to infrastructure of devices is the real gap.
- **Adequate financing** - To implement all these measures we need to support the education sector with **adequate budgetary resources**. Hence, it is important to increase the share of education to 6% of GDP as envisaged by NEP 2020
- **Ethics policy for edtech companies** - Given the issues associated with online education, **it is necessary to formulate an ethics policy for EdTech companies.** Such a policy draft

should be circulated both online and offline for discussions and criticism. Issues of fairness, safety, confidentiality and anonymity of the user would have to be dealt holistically in the policy.

Healthcare and brain drain

Syllabus: Issues relating to development and management of Social Sector/Services relating to Health, Education, Human Resources.

In news: India is facing a shortage of health workers at this crucial point in time. The present workforce is overburdened with their work for more than a year. A part of this problem is due to a large-scale brain drain in the health sector.

> **What is Brain drain?** The term originated back in the 1960s when people from poor countries would move to rich countries in search of a better livelihood, has gained immense popularity these days.

Status of brain drain in the health sector in India:

Major exporter of healthcare workers: For several decades, India has been a major exporter of healthcare workers to developed nations. Indian health care workers are highly prevalent in the Gulf Cooperation Council (GCC) countries, Europe, and other English-speaking countries.

- As per OECD data, around 69,000 Indian-trained doctors and 56,000 Indian-trained nurses worked in the UK, US, Canada, and Australia in 2017.
- There is also a large-scale migration of health workers from India to the GCC countries. But there is no credible data available.
- The British Association of Physicians of Indian Origin (BAPIO) estimates that the UK alone has more than 40,000 Indian doctors.
- According to the FICCI, The UK and the US are the top two destinations for foreign-trained doctors. Canada and Australia are other preferred destinations. Many developed and Gulf countries provide the red carpet for the best Indian doctors and nurses.

Concerns in Healthcare Sector:

- **Doctor to patient ratio below the norms**: Government report shows that India has 1.7 nurses per 1,000 people and a doctor to patient ratio of 1:1404. These numbers are below the WHO norms. The WHO recommends three nurses per 1,000 people and a doctor to patient ratio of 1:1100.
- **Skewed Distribution:** The distribution of doctors and nurses is also heavily tilted in favour of some regions. Higher concentration present in some urban pockets. Brain drain in the health sector is also the reason for this.
- **Low Government spending**: Public expenditure on health accounts for only 1.13% of the total health expenditure which is abysmally low when compared to WHO recommendation of 5%.
- **Malpractices in the healthcare sector:** Selling substandard and counterfeit medicines, unnecessary hospital admissions and exploitation.

The impact of brain drain was seen during the pandemic: India is facing a health emergency due to Covid-19 Pandemic. India is also undertaking one of the largest vaccination programs in the world. Management of this huge task would not have been possible without the contribution of health workers. The contribution of Indian health care workers amid the pandemic is extremely commendable. However, **if India was able to retain its workforce,** India's health sector would have been in a better position now.

Countries with a critical shortage of health service providers (doctors, nurses and midwives)

Countries with critical shortage
Countries without critical shortage
Data source: (3).
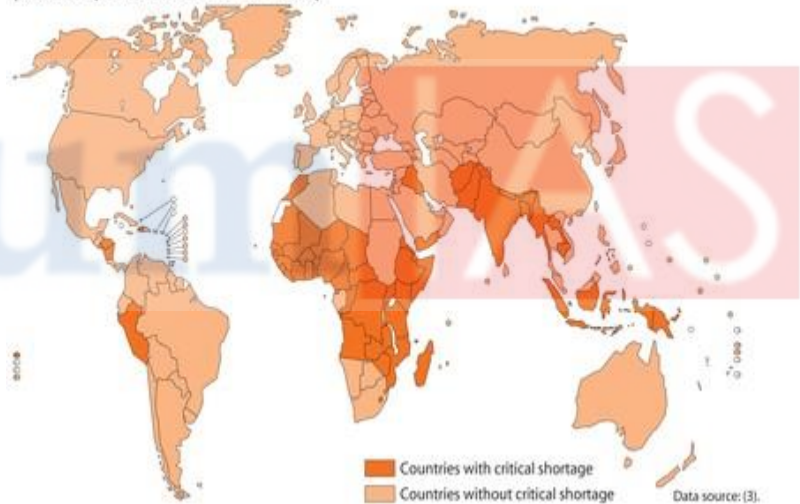
Reasons for brain drain in the health sector

Push factors

- **Low Wages:** Developed countries offer better wages compare to India. For example, nurses in India receive low wages in private sector outfits. Also, they have only less opportunity in the public sector (Low employment due to lower hospitals in the public sector). So, they generally migrate to developed countries that offer better wages.
- **Lack of government investment in health care:** India's health care investment to GDP ratio is just 1.2 per cent. This is the lowest figure if we compare spending by OECD and BRICS nations. This reduces better employment opportunities for health professionals.

- **Lack of health care educational Institutions:** India only has around 550 institutions for MBBS education. So, Many Indian students prefer to study abroad due to high course fees, limited seats in government medical colleges, etc. Once they study abroad, they prefer to pursue higher studies or practice abroad alone. China is attracting a lot of Indian students in this regard.

- **Competition in India:** The competition in India has reached the topmost level. In recent years, the cut-offs for admissions in India have been close to 100% in the best universities. The students who fail to meet these irrational demands start looking for options abroad.
    - The Value of Education report 2017, more than 55% of the parent's eye universities abroad for their children.

- **Other factors:** This includes unethical practices of some Indian private hospitals, lack of government policy to protect the vulnerable is also a reason for a health care worker to move abroad.

Pull factors
- **Access to advanced technology:** Developed countries offer better opportunities to pursue research in health care. Health care professionals also get access to advance technology, research facilities and even get higher scholarship amounts for their research.

- **Better standard of living and life quality:** Many developed and GCCs offer a higher salary, tax benefits, higher standard of living, etc. These act as a pull factor for Indian health care professionals.

- **Policies of developed countries:** Developed countries adopted **migrant-friendly policies towards health care professionals.** For example, with the onset of the pandemic, there is a greater demand for healthcare workers across the world. The developed countries implemented various policies to retain health care employees. Such as,
    - OECD countries **exempted travel bans** for the health professionals with job offers.
    - Some countries **processed visa applications** of healthcare workers even during the lockdown period.
    - The UK has granted **free one-year visa extensions** to healthcare workers and their dependents.
    - France has **offered citizenship** to frontline immigrant healthcare workers during the pandemic.

Government measures to tackle the brain drain in the health sector
- **Stopped issuing NORI certificates:** In 2014, India stopped issuing No Objection to Return to India (NORI) certificates to doctors migrating to the US.
    - The US government requires a NORI certificate for doctors who seek to extend their stay beyond three years. As India stopped issuing these certificates, the **Indian doctors will have to return to India** after three years.

- **Inclusion of nurses in the Emigration Check Required (ECR) category:** This policy requires nurses' recruitment from other countries to be done only through the six state-related employment agencies.
  - o This also makes it mandatory for the nurses to accept international contracts that are approved by the government. This increases the transparency in nursing recruitment and reduces the exploitation of nurses in the destination countries.

Way Forward

National level practices:

- **Adequate investment in the health sector:** Indian Budget 2021 aims to increase the health sector spending from 1.2 per cent to 2.5 per cent in three years. This will increase adequate health infrastructure, adequate employment opportunities, etc.
- **Creating adequate health care institutions:** The government has to allow private medical educational institutes to open up medical colleges along with capping the maximum fee per seat. Further, the government can ease land requirement norms for medical and nursing colleges and ease the teachers per student ratio for post-graduate medical courses.
- **Bringing in cutting-edge technology labs:** The government has to create more cutting-edge research facilities to bring back health care professionals to India. For example, about 20 NRI doctors from the US and Europe relocated to Kolkata to set up the West bank Hospital as it has high-tech equipment and facilities.
- **Regulate any unethical practices**: The government also has to regulate any unethical practices, exploitation of nurses in private hospitals in India.
- **Engage in bilateral agreements:** The government can sign bilateral agreements with countries like the US, the UK, Canada, Australia towards working on a policy of "brain-share". For example, destination countries would be obliged to supply healthcare workers to India in times of need, crises like a pandemic, etc.

Global level changes

- **Creating a code of conduct for ethical recruitment:** The global countries have to come together and create a consensus code for ethically recruiting health care professionals. This will reduce the exploitation of health care worker abroad.
- **Facilitating circular migration:** Almost 37 per cent of health care workers are concentrated in North and South American countries. But they share only 10% of the global disease burden.
  - o On the other hand, countries in Africa and Asia share more disease burden and less health care worker presence. So, the world nations have to come together and facilitate circular migration of health care professionals in terms of crises.

Israel-Palestine Conflict

Syllabus - Effect of policies and politics of developed and developing countries on India's interests, Indian diaspora

In News Clashes between Palestinians and Israeli police in the contested city of Jerusalem escalated into a broader conflict, with Israel striking targets in Gaza in response to rockets launched by Palestinian militants.

Introduction

- **Foreign control over Palestine** - Britain took control of the area known as Palestine after the ruler of that part of the Middle East, the Ottoman Empire, was defeated in WW1.
  - The land was inhabited by a Jewish minority and Arab majority.
  - Tensions between the two peoples grew when the international community gave Britain the task of establishing a "national home" in Palestine for Jewish section.
  - For Jews, it was their ancestral home, but Palestinian Arabs also claimed the land and opposed the move.
  - Between the 1920s and 40s, the number of Jews arriving there grew, with many fleeing from persecution in Europe and seeking a homeland after the Holocaust of WWII.
  - Violence between Jews and Arabs, and against British rule, also grew.
- **UN Partition Plan for Palestine** - In 1947, the UN voted for Palestine to be split into separate Jewish and Arab states, with Jerusalem becoming an international city.
  - That plan was accepted by Jewish leaders but rejected by the Arab side and hence never implemented.
- **The creation of Israel and the 'Catastrophe'** - In 1948, unable to solve the problem, British rulers left and Jewish leaders declared the creation of the state of Israel. Many Palestinians objected and a war followed. Troops from neighbouring Arab countries invaded the newly demarcated Jewish state.
  - Hundreds of thousands of Palestinians fled or were forced out of their homes in what they call Al Nakba, or **the "Catastrophe".** By the time the fighting ended in a ceasefire the following year, Israel controlled most of the territory.
  - Jordan occupied land which became known as the West Bank, and Egypt occupied Gaza.
  - Jerusalem was divided between Israeli forces in the West, and Jordanian forces in the East.
  - Because there was never a peace agreement - each side blamed the other - there were more wars and fighting in the decades which followed.
- **Six-Days were that changed West-Asia** - The most significant one among the wars was fought in 1967, when Israel occupied East Jerusalem and the West Bank, as well as most of the Syrian Golan Heights, and Gaza and the Egyptian Sinai Peninsula.

Current scenario

- **For Palestinians**
    - Most Palestinian refugees and their descendants live in Gaza and the West Bank, Jordan, Lebanon and Syria.
    - Neither they nor their descendants have been allowed to return to their homes by Israel
    - Palestinians claim East Jerusalem as the capital of a future Palestinian state.
    - Gaza is ruled by a Palestinian militant group called Hamas, which has fought Israel many times.

- **For Israel**
    - Israel says allowing Palestinians to return to their homes would overwhelmingly threaten its existence as a Jewish state.
    - It still occupies the West Bank, and although it pulled out of Gaza, the United Nations still regards it as part of occupied territory.
    - Israel claims the whole of Jerusalem as its capital.

Impact of Conflict on India

- **Change in Foreign Policy** – In the decades that followed UN Partition of Palestine, the Indian political leadership actively supported the Palestinian cause and withheld full diplomatic relations with

Israel in the hope that this position might earn Arab states' support for its claims to Kashmir
    - Following the 9/11 terrorist attacks against the United States and in the context of the US-led 'global war on terror,' **Indian and Israeli leaders found common cause against Islamic militancy,** and extended their bilateral cooperation to the defence, intelligence and security-related spheres.

- **Impact on Increasing India-Israel bonhomie - The** grounds of cooperation between India and Israel have been increasing over the years. From **defence, counterterrorism to technology Israel** has proven to be a solid partner to India. As a result, any strong stance or reaction in favour of the Palestinian cause might not be well received by Tel-Aviv.
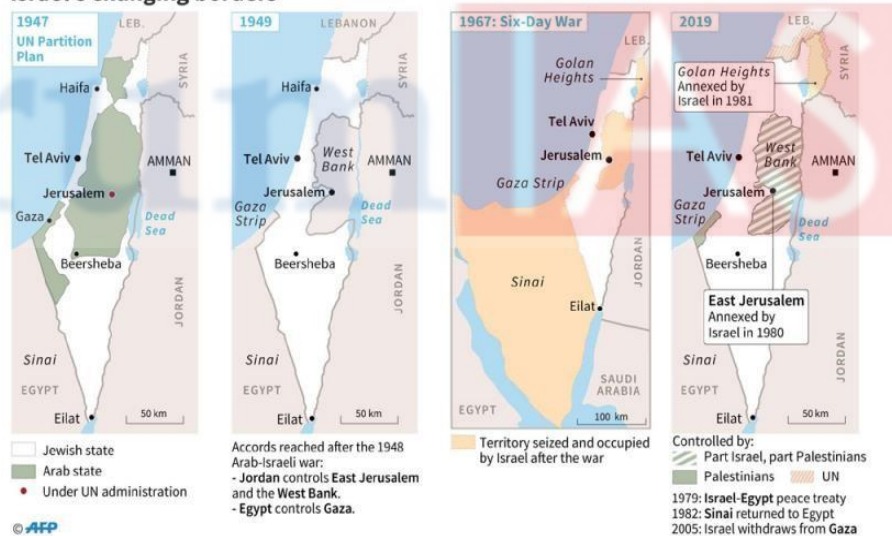
- **Effect on Indian Diaspora** - Given the fact that the Indian Diaspora is well dispersed in west Asia, the imminent danger of violence and the resulting loss of lives and livelihood is always a cause of concern for India.
- **Impact on domestic electoral politics** - **De-hyphenated policy regarding the Israeli-Palestinian conflic**t has encountered some opposition within Indian society. The most visible sources of discontent can be found among those social movements and groups which identify with the Palestinian cause, and especially those who are aligned with the **Boycott, Divestment and Sanctions (BDS) movement.**
  - o In India several networks have emerged which identify with the BDS. Closely associated with the political left and the Muslim minority which form as considerable vote bank for electoral politics.

Suggested Solutions to ensure peace in West Asia

- **One-State Solution** -A one-state solution is based on the premise that it is highly unlikely that today's 400,000 Jewish settlers in the West Bank will leave voluntarily or be evacuated forcibly.
- **Autonomy to Palestine** - Former Israeli Prime Minister Menachem Begin proposed the idea of administrative autonomy in the West Bank and Gaza shortly after coming to power in 1977.
  - o **Self-rule for the Palestinians** meant that Israel would be responsible for security and foreign policy while ideologically retaining a claim to Judea and Samaria (West Bank).
- **Three-state confederation -** The idea of a confederation between **Israel, Palestine (West Bank/Gaza) and Jordan** has been debated ever since 1948. The Israeli Labour government after the Six Day War adopted variations of a solution known as the **Allon Plan,** which effectively partitioned the West Bank between Israel and Jordan with remaining territory under local Palestinian autonomy.
  - o However, it was the rise of a Palestinian national identity in the 1970s which prevented this idea from succeeding in favour of a Palestinian state. Ever since, both Jordan and Egypt have shown little enthusiasm for reassuming responsibility for the West Bank and Gaza.
- **Trump's Middle East Peace Plan**
  - o Israel keeps the vast majority of Jerusalem as its sovereign capital;
  - o Palestinians get no right of return - The plan lays out three options for these refugees:
  - o Absorption into the State of Palestine (subject to the limitations provided below);
  - o Local integration in current host countries (subject to those countries consent); or
  - o The acceptance of 5,000 refugees each year, for up to ten years (50,000 total refugees), in individual Organization of Islamic Cooperation member countries who agree to participate in Palestinian refugee resettlement.

- **Redraw borders mainly between Israel and the West Bank** - The proposal redraws borders to effectively give Israel more land in the Palestinian-controlled West Bank, in exchange for "land swaps" that include two areas in the Negev Desert.
  - o Doesn't allow for Palestine to create a fighting force to defend itself.
- **Two-State solution** - The solution would establish an independent Palestinian state alongside Israel — two states for two peoples. In theory, this would win Israel's security and allow it to retain a Jewish demographic majority while granting the Palestinians a state.
  - o The two-state solution calls for dividing Jerusalem into an Israeli west and a Palestinian east part.
- **India on Israel-Palestine Conflict** - India follows what is called a **"de-hyphenation policy".** It maintains an independent relationship with Israel and an independent relationship with Palestine - both are separate and both stand on their own merit.
  - o Thus, India has adopted a **balanced approach** on the current Israeli-Palestine conflict. While calling for a two-state solution to the crisis and announcing strong support to the 'just Palestinian cause', India has condemned firing of rockets into Israel and described Israeli actions as retaliatory.

Conclusion

The **two-state solution** is the short-term solution to ensure long lasting peace between Palestine and Israel. For Israel, it could mean an end to continuous worry of a full-blown takeover of the West Bank by Hamas, and for Palestine, it could end foreign military occupation. India needs to limits its current policy of humanitarian assistance to the Palestinian people and political support in international institutions for the promotion of a two-state solution while continuing to improve strategic and economic relations with Israel as there are limited resources and lack of leverages with major stake holders. India should leverage its growing influence in the world to **counsel Israel to exercise restraint** and move towards a two-state solution.

Exploring India Russia ties
Syllabus - Bilateral, regional and global groupings and agreements involving India and/or affecting India's interests
In News
Prime Minister Narendra Modi announced that he and Russian President Vladimir Putin had agreed to set a **two-plus-two meeting** between the two countries' foreign and defence ministers.

- **About 2+2 Dialogue - A 'two plus two dialogues' is a term —** adopted in foreign parleys — used for the installation of a dialogue mechanism between two countries' defence and external affairs ministries to discuss security and strategic interests.
- **The goal is to establish a diplomatic**, yet fruitful conversation between the two countries' respective heads of defence and external affairs.
- Currently, India holds such talks with Australia, Japan and the USA (All QUAD members)

Background of India-Russia Relations

- India and Russia have enjoyed **good relations since 1947** wherein Russia helped India in attaining its goal of economic self-sufficiency through investment in areas of heavy machine-building, mining, energy production and steel plants.
- Later India and the Soviet Union signed the **Treaty of Peace and Friendship in August 1971** which was the manifestation of shared goals of the two nations as well as a blueprint for the strengthening of regional and global peace and security.
- After the dissolution of the Soviet Union, India and Russia entered into a **new Treaty of Friendship and Cooperation in January 1993 and a bilateral Military-Technical Cooperation agreement in 1994.**
- In **2000** both countries established a **Strategic Partnership**.
- In **2010** strategic partnership was elevated to the **status of special and privileged partnership.**
- The year 2017 marked the 70th anniversary of the establishment of diplomatic relations.
- India and Russia also organize **institutionalized exchanges** at the highest levels including the annual summits between the Russian president and the Indian Prime Minister. They also meet in multilateral forums annually at the platforms of SCO, BRICS and East Asia Summit.

Key Pillars of India Russia relations

- **Economic relations**
  - **Improving economic ties** - In 2017 trade between both countries increased by 20%. Two countries decided to **reach USD 30 billion investment goal by 2025**. In this direction, **India Russia Strategic Economic** Dialogue was started in 2018.
  - **Russian Investment in Indian Projects** - Russian firms showed interests in investing in India especially in construction, major infrastructure projects, make in India projects, smart city projects, etc.
  - **Indian investment in Far East Region** - Indian companies also invest in Russia. Especially in natural resources such as coal, fertilizers, hydrocarbons, minerals, rare earth metals, etc. India extended $1 billion as a line of credit for the development of the Russian Far East.

- **Political relations**:
  - This includes Russia's support for India's permanent seat in the UNSC.
  - Russia supports India on the Kashmir Issue.
  - It has been favouring Indian entry into the Nuclear Supplier Group.
  - Engagement of India and Russia in regional forums like BRICS, SCO, G20 etc.
  - India voted in favour of a Russian led UN resolution to set up **a separate convention on cybercrime.**

- **Defence relations**
  - o **The first-ever Tri-Services** Joint Exercise between Indian and Russian Armed Forces Exercise INDRA2017 was successfully conducted.
  - o **Make in India** - Two sides agreed that the **Kamov 226 helicopter will be manufactured** in India.
  - o **Balancing USA and Russia** - Indian government has already moved ahead to **purchase the S-400 supersonic air defence systems**. This is significant as the US threatened to impose Countering America's Adversaries through the Sanctions Act on India.

- **Energy diplomacy**
  - o In the energy sector, Russia has built **nuclear reactors in India (Kudankulam reactors) and has** adopted a strategic vision in nuclear energy. It has also offered oil, gas and investment opportunities in the fuel sector of Russia e.g., Sakhalin Island etc.
  - o Both the countries are together extending civil nuclear cooperation to 3rd countries, e.g., Bangladesh.

- **Space relations:**
  - o The former Soviet Union launched India's first two satellites, Aryabhata and Bhaskar. It has provided India with cryogenic technology to build heavy rockets.
  - o Both C-DAC and GLONASS signed the agreement for cooperation in technologies based on **satellite navigation**.
  - o 2015 was the **40th Anniversary** of the launch of India's first satellite 'Aryabhata' on a Russian launch vehicle 'Soyuz.'
  - o Russia also signed an agreement to train **Indian astronauts for** India's first manned space mission (Gaganyaan Project).

- **Cultural Relations**
  - o From **people-to-people contacts** (through programs like **'Namaste Russia'**) to sharing **educational brilliance** of both the countries through institutes like Jawaharlal Nehru Cultural Centre, both the countries have had good cultural links.
  - o Apart from Hindi, languages such as Tamil, Marathi, Gujarati, Bengali, Urdu, Sanskrit and Pali are also taught in **Russian Institutions**.

- **Other relations:**
  - o Recently India approved **Russian Vaccine Sputnik V** under emergency use authorisation.
  - o Both countries strongly condemn terrorism in all its forms and all terrorist "safe havens".

- o **Sochi Informal Summit 2018 -** The strategic partnership between the two has been elevated into a **"special privileged strategic partnership".** The Summit provided an occasion for both nations to deepen their friendship and to exchange views on international and regional issues.

Challenges in India Russia Relationships

- **Russia's alignment with China -**
  - o **China-Russian ties are growing due to their shared interest in opposing the US**. There is intense geostrategic rivalry between China and the US in the region. Russia which opposes the US has joined hands with China. This is evident as Russia joined the Chinese One Belt One Road initiative.

- **Changing dynamics of India-US relations -** This is one of the most cited reasons for strain in India-Russia relations. The development of India US cooperation in political, economic, energy and defence aspect has been rapid since 2008.
  - o **India-US nuclear deal in 2008** facilitated closer India-US relations.
  - o In 2014, **US emerged as the top arms supplier to India by** overtaking Russia.
  - o In 2016, India became a **major defence partner of the US**.
  - o Further, India also signed all the Foundational agreements with the US. Such as LEMOA, COMCASA and BECA.
  - o Due to these developments, Russia changed their decades-old policy and started supplying **China** with weapon systems like **Sukhoi 35** and the **S-400 missile defence system**.

- **The difference in perception of Indo-Pacific -** Both India and Russia have a difference of opinion in understanding the concept of the Indo-Pacific. Russia opposes the term Indo-Pacific because of the following reasons:
  - o As the term is primarily a US-led initiative aimed to contain China and Russia.
  - o The concept undermines ASEAN centrality in the development of the region.
  - o This will increase the US presence in the region. Further, it will reduce Russia's involvement as Russia has maintained a cordial relationship with Asian countries in the region. For this reason, Russia **does not accept the concept of QUAD.**
  - o Instead, Russia supports the **concept of Asia Pacific**.
- Other reasons
  - o **Russia's increased engagement with Pakistan-** Russia is involved in few projects in Pakistan and has also increased its military cooperation by bilateral exercises (Friendship), arms deal, etc.

Way Forward

- **Promoting common interests - Both India and Russia have to identify their strengths and common concerns like developing joint projects in third countries. For example, the involvement of India and Russia in the Rooppur nuclear plant project in Bangladesh.**
- **Focus on Eurasia - India** and Russia have to explore their opportunities in the Eurasian region. India can study the possibility of expanding Russia's idea of an "**extensive Eurasian partnership"** involving the EAEU (Eurasian Economic Union) and China, India, Pakistan, and Iran.
- **Balancing ties with major powers** - India needs to balance its relationship between Russia, China and the US. This is essential after the US conducted a Freedom of Navigation operation (FONOP) in India's Exclusive Economic Zone.

Looking at the broader context of Indian foreign policy and pragmatically assessing the bilateral ties, India has a chance to focus on promoting mutual interests with Russia. While there is no denying about the divergences in the relationship, both sides still have significant areas of cooperation — in the bilateral, regional and global arenas — which must be harnessed. Thus, taking a long-term view of the situation, as India develops ties with other like-minded powers to deal with the rise of China, it must also strengthen its special, privileged and strategic partnership with Russia.

GENERAL STUDIES - 3

Universal Social Welfare

Syllabus - Inclusive growth and issues arising from it.

In News The Covid-19 pandemic struck the country in 2020 and 2021. It has impacted the lives of the Indian masses especially the marginalized community. The pandemic followed a series of crises including mass inter and intra-migration, food insecurity, and crumbling health infrastructure. This has led to some experts demanding universal social welfare from the government.

Introduction

- **Definition** - According to **International Labour Organization**, Social security/welfare is a human right that responds to the universal need for protection against certain life risks and social needs. Universal social welfare ensures that anyone who needs social protection can access it at any time.
- **Objective** - Effective social security systems guarantee **income security and health protection**, thereby contributing to the **prevention and reduction of poverty and inequality**, and the **promotion of social inclusion and human dignity.**

- **Methods to achieve** - They do so through the provision of benefits, in cash or in-kind, intended to ensure access to medical care and health services, as well as income security throughout the life cycle, particularly.

The rationale for Universal Social Welfare

- **Provides insurance against risks** - In the event of illness, unemployment, employment injury, maternity, family responsibilities, invalidity, loss of the family breadwinner, as well as during retirement and old age, protection against life risks are provided.
- **Economic Growth** - Universal social security contributes to improving **productivity and employability**, and to economic development. For employers and enterprises, social security helps to maintain a **stable workforce** that can adapt to changes.
- **Creates care society** - Universal Social Welfare services enable families to care for and sustain their members and reduce both the costs and time involved in work and other daily activities.
- **Complementarities or multiplier effects among social services** - **Universal access to healthcare**, for example, **enhances an investment in education** by ensuring that school enrolment and outcomes are not constrained by illness. Similarly, **universal access to education enhances an investment in health** by increasing access to information about health practices, hygiene, nutrition and sanitation. The use of reproductive health care facilities, for example, tends to increase with education.
- **Avoiding Inclusion/Exclusion errors**: Universal system will encompass every individual and household in the country thereby tackling the problem of inclusion/exclusion.
- **For instance**, PDS can be linked to a universal identification card such as the Aadhaar or voter card, in the absence of a ration card.

- This would allow anyone who is in need of food grains to access these schemes especially the migrant populations.
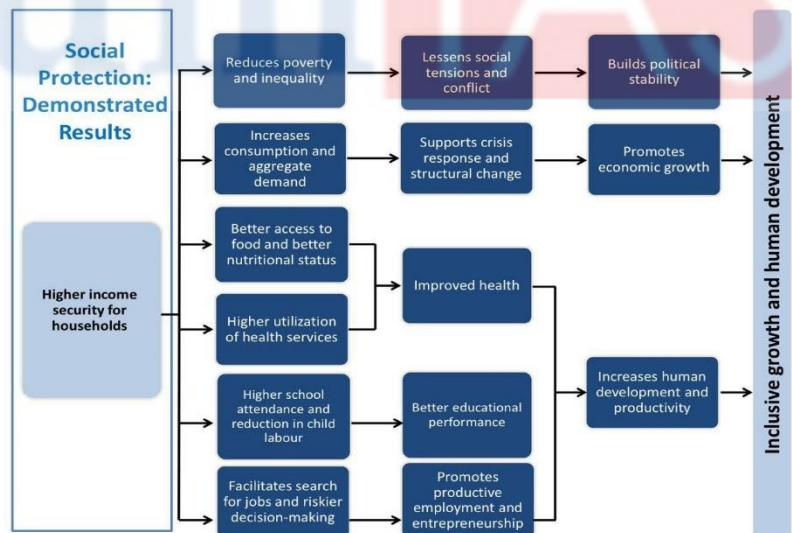
Challenges to implement Universal Social Welfare

- **Absence of willingness and capability -** Lack of long-term willingness and capability (resources) of governments to invest in the expansion of social protection to all, including

informal and gig economy workers and women who may work their whole lives but receive no pension is the foremost challenge to achieve Universal Social welfare.

- **Issue of securing sustainable and equitable financing for social protection** - According to the **Organization for Economic Co-operation and Development (OECD)**, developing countries spend just 7 per cent of GDP on social protection whereas OECD countries spend nearly three times that.

- **Large share of informal workers** - The organised sector workers constitute less than 10% of all workers in India. This leaves more than 90% of the workforce without job security, labour rights and post-retirement provisions. The workforce of the informal sector suffers from two sets of problems-
    - Capability Deprivation
    - Adversity - No fallback mechanism to meet contingencies such as ill-health, accident, death and old age.

- **Vulnerability of masses-** The pandemic has enhanced the vulnerability of masses as:
    - It has pushed an estimated 75 million people into poverty.
    - The second wave has shown even money is not enough to access health care services. It has brought even the middle and upper-class citizens to their knees.

- **Lack of Convergence of Social Security Schemes** - While there is a multiplicity of social welfare scheme run by different government units at the central and state level, there is bound to be some amount of confusion at the level of beneficiaries as to what exactly they are entitled to. This involves the problem of duplication of efforts, record keeping and there is also a possibility of double or multiple benefits reaching the same person under different schemes by way of manipulation. The administration of each scheme involves huge administrative cost.

Suggested Solutions to achieve Universal Social Welfare

- **Strengthening and consolidating Policies -** The Pradhan Mantri Garib Kalyan Yojana (PMGKY) is one scheme that can be strengthened into universal social security. It already consolidates the public distribution system (PDS), the provision of gas cylinders, and wages for the MGNREGA.

- **Ensuring Universal HealthCare -** There is a need to establish the **Ayushman Bharat-National Health Agency at** all levels of governance for management of the **Pradhan Mantri Jan Aarogya Yojana (PM-JAY).** Further, there is a need to review and solve the challenges with the business model of **Jan Aushadhi stores** to ensure that they can function as self-sustaining entities and scale up rapidly across the country.

- **Replicating MGNREGA in Urban Areas- MGNREGA** has employed millions of workers who have reverse migrated. Thus, the argument for extending this programme to urban areas with municipal bodies being given the responsibility for providing a fixed number of days of work to all those seeking it is being promoted.

- **Data-driven policy making** - There must be a focus **on data digitization**, data-driven decision-making, and collaboration across government departments. This would improve the implementation potential.

Case Study
- The country can learn from successful global models like **Ireland's Poor Law System**.
- The system was introduced in the 19th century to provide relief to the masses. It was financed by local property taxes.
- The system was built keeping in mind the future economic crisis and dignity of the masses.
- It has now evolved into a four-fold apparatus. It promises social insurance, social

Conclusion

The pandemic has reiterated the need for a more robust welfare state in India in order to mitigate the vagaries of an unequal society, albeit in a limited manner. It has also delineated the need for simultaneous development of both dimensions of the welfare state in India. On one hand, the urgent need for rapid development of better public health infrastructure is the need of the hour. Only then will the economically weaker sections be able to battle health challenges in a better way. On the other hand, the more inclusive nature of redistributive universal social welfare measures will enable India's vulnerable sections to sustain and survive through such catastrophic circumstances.

Boosting Oilseeds Production

Syllabus: Major Crops - Cropping Patterns in various parts of the country

In news: The government is now planning to work on a mission mode to reduce the dependence of the country on edible oil imports. It would be increasing production of edible oil from various sources along with spreading public awareness for economical consumption of oil.

More on news:
- According to experts, the objective of this new mission of the Modi government is not only to bring **self-reliance ('Aatmanirbharta')** in edible oils but also to transfer money to farmers on the expenses incurred on the oil imports.
- Prime Minister Narendra Modi during the meeting of the sixth governing council of the NITI Aayog mentioned that despite being an agricultural country, **India imports edible oil** worth nearly ₹ **65,000-70,000 crore annually.**
- The Prime Minister said this **money spent on imports** could be transferred to the bank **accounts of farmers** in the country.

Oilseeds production in India

- **Import and production:** India **imports** nearly **150 lakh tonnes** of edible oil every year while domestic production is nearly 70 to 80 lakh tonnes. With the growing population of the country, **consumption of edible oil would also increase** moving ahead.
    - India cultivated oilseeds on **25 million hectares of land**, producing **32 million tons** of oilseeds in 2018-19, with soybean, rapeseed and mustard and groundnut accounting for almost 90 per cent share in the area.
    - Assuming a country-wide average of 28 per cent oil recovery, 32 million tons of oilseeds will yield around 8.4 million tons of edible oil. Domestic production can only meet a little over 30 per cent of the total demand for edible oils, necessitating its import.
- **Consumption in India:** According to the latest data, each **Indian consumed 19.5 kg** of edible oil every year on an average during 2015-16, up from 15.8 kg in 2012-13. This amounts to the aggregate demand of around 26 million tons of edible oils per year.
- **National Conference on Agriculture:** The Ministry has pegged the country's total vegetable oil requirement at 33.2 million tonnes by 2022 as per the agenda note of the National Conference on Agriculture for Rabi Campaign 2018-19.
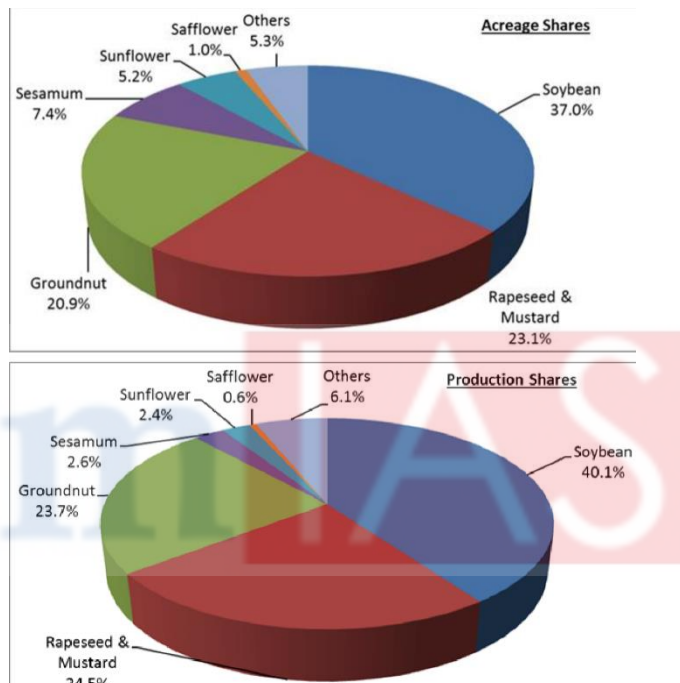
Fig. Shares of different oilseeds in India

Challenges in Oilseeds production:

- **Climatic stresses** and unfavourable farming conditions.
- Oilseed's cultivation is mainly undertaken on **marginal land by resource-poor farmers**, who are generally reluctant to use nutrients on the field.
- Nearly **82 per** cent of the oilseeds area fall under **rainfed farming** where climatic vagaries cause severe damage to crops.
- Studies have indicated the **emergence of biotic threats (diseases)** which have the potential to disrupt the production patterns and regional crop preferences in a significant manner.
- The **overall efficiency of the procurement sector** is also the low affecting yield of edible oils from oilseeds crops.
- **Market conditions** are also not very encouraging for farmers and entrepreneurs.

Challenges with oilseeds imports

- **A large inventory:** Vegetable oil imports are excessive and speculatively driven. Due to this, importers build a large inventory of low-priced imported oils within the country, which depresses domestic oilseeds prices and discourages oilseed growers.
- **Never-ending import cycle:** Overseas suppliers grant 90 to 150 days credit to Indian importers, but the cargo reaches Indian shores in about 10 days (palm oil) or 30 days (soft oils). The Indian importer sells the material immediately and enjoys liquidity for several months during which he indulges in rampant speculation and over-trading before he is required to remit payment. This is leading to a never-ending import cycle.
- **Ineffective policy measures:** Today, the government lacks commercial intelligence and is clueless about forwarding inbound shipments. As a result, the government has resorted to a hike in import duty to reduce imports of vegetable oils. This has proved to be an ineffective policy instrument.
- **Stagnant Production:** Despite huge demand, oilseed production in India has got trapped at 31-32 million tonnes. We need to break this stagnation and aim to increase the output by at least two million tonnes a year, if not more.

Need for enhancing oilseed production:

- **Increasing population and Income levels:** The per capita consumption of oilseeds is **expected to grow about 22 kg by 2022** from the level of 19 kg per person per annum during 2015-16.
- **Increasing import dependence:** Domestic production of edible oils has **not kept pace** with the growing demand, necessitating huge imports of around 70 per cent (14 million tonnes) in 2016-17. Also, edible oil is among the largest items in India's import basket after crude oil and gold.
- **Decrease in the area under oilseeds:** This is due to their relatively **lower profitability** against competing crops such as maize, cotton and chickpea under the prevailing crop growing and marketing situations.
- **The traditional area of cultivation:** The majority of the oilseeds, around 70 per cent are cultivated in **rain-fed areas.**
- **Price volatility:** Apart from a significant burden on the government's exchequer, dependence on the international market for edible oils causes price volatility affecting both the consumers and the producers.
  - For instance, **labour shortage** in palm oil plantations of Indonesia and Malaysia, drought in Argentina affecting soya bean production, lower production of sunflower crops in Ukraine and rigorous buying of edible oils by China, impacted the price of edible oils in domestic as well as international markets in later part of the pandemic year.
  - Subsequently, the government has to reduce the import tariff of palm oil by 10 per cent in November to ease the domestic price.

Government initiatives:

- **Technology Mission on Oilseeds:** The government of India is also taking many measures to increase the domestic production of edible oil seeds.
  - o For instance, Technology Mission on Oilseeds and other policy initiatives have helped India to **increase the area** under oilseeds in India from 9 million tons in 1986 to 32 million tons in 2018-19, though not sufficient to meet the domestic demand.
- **Oil Palm Area Expansion under Rashtriya Krishi Vikas Yojana:** Several other initiatives like Oil Palm Area Expansion under Rashtriya Krishi Vikas Yojana, increasing the minimum support prices of oilseed crops, creation of buffer stock for oilseeds, cluster demonstration of oilseed crops, etc are being implemented by the government to boost the domestic production.
- **National Mission on Oilseeds:** There is a plan to spend nearly Rs 19,000 crore in the next five years. A senior official of the Union Ministry of Agriculture and Farmers Welfare said the preparations for the mission are fool proof and would be implemented from April 1 in the upcoming financial year.

Way Forward

- **Different oilseeds crop in different zones:** Introducing different oilseeds crops in different zones and non-traditional areas like sunflower and groundnut during the spring season in the Indo-Gangetic plains and Uttar Pradesh; sunflower in Gujarat; mustard in Andhra Pradesh, Karnataka, soybean in Jharkhand etc.
  - o **Improved varieties** like Pusa 12, JS 20-34 of soybean, Pusa double zero 30 and 31 of mustard which is low erucic acid as well as high yielding, newer, location-specific improved varieties like Kadiri-6, Chhattisgarh Mungfali 1 (CGM 1) are released for cultivation.
- **Access to good quality seeds:** Farmers need to be **made aware** of these newer varieties and provided with access to good quality seeds. Cluster demonstrations and other extension activities in this line can be promoted.
- **Stable trade policy:** A stable and equitable trade policy with a clear direction will provide **effective price signals** for different market stakeholders and boost the domestic production of oilseed crops.
- **Expanding** the scheme of '**Targeting Rice Fallow Areas'** (TRFA) for the cultivation of oilseeds such as soya bean and groundnut in States such as Andhra Pradesh, Tamil Nadu, Karnataka, Maharashtra, Gujarat, and the North East and the Himalayan States, where a large area of rice fallows are available.

A policy long awaited

Syllabus: Infrastructure- energy, ports, roads, airports, railways etc.

In news: The government has finally decided to revise the National Electricity Policy (NEP) by invoking Section 3 of the Electricity Act, 2003. The Electricity Act allows the Union government to review and revise the electricity policy from time to time.

About the policy

- **Aim of the policy**: Draft National Electricity Policy 2021 has been released by the Ministry of Power. The policy aims to make **electricity available to all households in the next five years**.
  - NEP 2021 will help to supply reliable and quality power of specified standards in an efficient manner at reasonable rates.
- **Expert committee:** Ministry of Power has created a committee of experts to submit suggestions to the draft NEP 2021 within two months of the release of the draft.
  - The members of the committee include members from state governments, the Ministry of New and Renewable Energy (MNRE), NITI Aayog, and the Central Electricity Authority.

Need of the policy

- **Paradigm shift in the sector:** The first NEP was framed in 2005. With a paradigm shift taking place in the power sector not only in India but across the world, especially towards decarbonisation, revision of the electricity policy was a long-standing reform.
- **Changing Indian scenario:** The Electricity Act orders that the central government shall prepare the NEP in consultation with the state governments and the Central Electricity Authority. The first NEP was formulated in 2005.
  - For instance, between 2005 and 2021, **generation capacity** (inclusive of renewable capacity) has gone up by about 251 GW, renewable generating capacity has gone up to 94 GW (from wind, solar, small hydro and biomass) from almost nothing to leading about 10% of generation from renewable sources.
  - An additional 2.5 lakh circuit **km of transmission lines** (above 220 kV) added, **per capita consumption** has almost doubled from 630 units to approximately 1,200 units today.
  - **Peak and energy shortages have come down** from double-digit figures to about half a percentage point, and rural electrification is almost complete with near 100% electricity access to households.
- **Section 3 of the Electricity Act 2003:** According to the section 3 of the electricity act, Central Electricity Authority (CEA) has been entrusted with the responsibility of preparing the National Electricity Plan in accordance with the National Electricity Policy and notify such plan once in five years.

- **Transmission planning**: Transmission planning is a continuous process of identification of transmission system addition requirements, their timing and need. The transmission requirements could arise from:
  - New generation additions in the system.
  - Increase in demand.
  - System strengthening that may become necessary to achieve reliability as per the planning criteria under the change load generation scenario.
  - These transmission addition requirements are identified, studied and firmed through the transmission planning process.

Major Provisions of the policy

- **Thermal Generation:** Coal-based generation capacity continues to be the cheapest source of generation. However, all future coal-based plants should only use fewer polluting technologies or other more efficient technologies.
- **Renewable Energy Sources and Cogeneration:** It recommends that a two-part tariff mechanism should be adopted for certain renewable sources of energy (such as wind and solar).

Two-part tariff mechanism refers to tariffs having fixed and variable charge components. It may be helpful particularly in medium or long-term procurement of renewable energy for hybrid operations.

- **Microgrids:** Microgrids have been used to supply electricity in areas where it is not feasible or cost-effective to provide electricity to the consumers through the main grid. Local renewable energy generation for enhancing the reliability of power supply, such micro grids need to be strengthened.
- **Transmission:** The draft Policy recommends that the transmission projects must be classified into two categories:
  - the generator or drawing customer-specific projects (for catering to their specific needs), and
  - system strengthening projects. The system strengthening projects may be used for supporting transmission of power from a region with high availability of power and low demand to a region with a high demand of power and low supply.
- **Distribution:** The Policy recommends that public-private partnership model (such as franchisee and sub-licensee) should be adopted in the distribution sector.
- **Automation and smart-metering**: It can play a pivotal role in bringing a positive transformation in distribution.
- **Electric Vehicle (EV) charging infrastructure:** It recommends that the tariff and rules of EV charging should be fixed by the concerned state electricity regulatory commission.

Issues overlooked

- **No excess supply:** The situation of excess supply of electricity is false because our demand has not grown at the rate it should have because of the economic downturn since the last couple of years, even before the pandemic.

- **The problem of discoms:** Distribution companies (discoms) have collected a debt amount of over 6 lakh crore and this seems to be going up year after year despite all government programmes aimed at improving distribution infrastructure and restructuring of loans.

- **Relying on imports for solar power:** There are other areas too where we have failed. For example, India could not become world leader in the area of solar power despite having the advantage of geography and continues to rely on imports for our capital equipment.
  - India has been slow in adopting more stringent environmental norms for our power stations and we have done practically nothing on carbon capture and sequestration.

- **Hydro capacity issues:** India has not been able to add to its hydro capacity, which could play a crucial role in balancing the grid with increasing thrust on renewable generation.

- **Fuel supply issues:** India has fuel supply issues (coal) and is unable to meet our domestic demand through indigenous mining.

- **The effectiveness of the policy**: The draft policy has a lot to say on renewable generation but there is no guarantee that it would be followed.
  - While the central government may fix targets on renewable generation capacity, the implementation will mainly be done by private enterprises. The private enterprises will move according to the investment climate as it exists in states.
  - Unfortunately, some states completely shake off investor sentiments by reopening PPAs, or by not paying renewable generators. Such actions would ensure that the objectives of the policy remain unfulfilled.
  - For example, similar problems have arisen in the case of the National Tariff Policy (NTP) in the past, where certain states have expressed unwillingness to comply with certain sections of this document. Incidentally, both the NEP and the NTP come from Section 3 of the Act.

- **Different policy statement:** The most fundamental issue is whether we should have two separate policy statements, the NEP and the NTP. The first NTP was formulated in 2006 with some minor amendments carried out in 2008, 2011 and 2016. Both these documents exist simultaneously, but they practically run into each other's domain.

Way forward

- **Including NTP into NEP:** It would be appropriate to include the NTP into the NEP, and tariff would be one of the several issues which would be a matter of electricity policy.
  - At first, this will not need an amendment to the Act and we would have the benefit of a single holistic policy statement that would take into account all the inter-linkages.

- **Clear language in policy statements:** Policy statements should be crisp and pithy, and should be able to hold on to readers' interest. The main policy document should only cite the direction we intend to take and the reasons for doing so should go as explanatory notes as an addition to the policy.
- **Treating NEP as compulsory:** All stakeholders should treat the NEP as mandatory and act accordingly.

Handling methane

Syllabus: Conservation, environmental pollution and degradation, environmental impact assessment.

In News: Climate and Clean Air Coalition (CCAC) and the United Nations Environment Programme (UNEP) has released a report titled "Global Methane Assessment: Benefits and Costs of Mitigating Methane Emissions".

From the report

Objective: The report has suggested that the world needs to dramatically cut methane emissions to avoid the worst of climate change.

Key Findings of the Global Methane Assessment Report:

Increase in Methane Emissions:

- Currently, **Human-caused methane emissions** are increasing faster at any other time (since record keeping began in the 1980s).
- **Carbon dioxide levels** have dropped during the novel coronavirus disease (COVID-19) pandemic. However, methane in the atmosphere reached record levels last year.
- **This was a cause of concern as methane** was an extremely powerful greenhouse gas. It was responsible for about 30% of global warming since pre-industrial times.

Source of Methane Emissions:

- **More than half of** global methane emissions stem from human activities in three sectors: fossil fuels (35%), waste (20%) and agriculture (40%).
- **Fossil fuel sector:** Oil and gas extraction, processing and distribution account for 23%. Coal mining alone accounts for 12% of emissions.
- **Waste sector:** Landfills and wastewater make up about 20% of global anthropogenic emissions.
- **Agricultural sector:** Livestock emissions from manure and fermentation represent roughly 32%. Further, rice cultivation accounts for 8% of global anthropogenic emissions.

Methane Mitigation according to Global Methane Assessment Report:

- The mitigation potential in different sectors varies between countries and regions:
- **Europe had the greatest potential** to curb methane emissions from farming, fossil fuel operations and waste management.
- **India had the greatest potential** to reduce methane emissions in the waste sector.
- **China's mitigation potential** was best in coal production and livestock.
- Africa's mitigation potential was best in livestock, followed by oil and gas.

Need to mitigate emissions from methane

- **Climate Impact:** Methane is a very effective greenhouse gas. While its atmospheric concentration is much less than that of carbon dioxide, methane is 28 times more effective (averaged over 100 years) at trapping infrared radiation.
- **Health Impact:** Methane is a key precursor gas of the harmful air pollutant, tropospheric ozone. When inhaled tropospheric ozone can permanently damage lung tissue. It worsens diseases like bronchitis, emphysema, and triggers asthma.
- **Increasing faster:** The atmospheric concentration of methane is increasing faster now than at any time since the 1980s. In the absence of additional policies, methane emissions are projected to continue rising through at least 2040.
- **Crop productivity:** Tropospheric ozone reduces the health of plants by reducing their ability to photosynthesize and absorb carbon. This impacts crop productivity.

- **Collateral benefits:** Methane's short atmospheric lifetime means taking action now can quickly reduce atmospheric concentrations and result in similarly rapid reductions in climate forcing and ozone pollution.

Indian initiatives to tackle pollution from methane
- **Seaweed-Based Animal Feed:** Central Salt & Marine Chemical Research Institute (CSMCRI) in collaboration with the country's three leading institutes developed a seaweed-based animal feed additive formulation that **aims to reduce methane emissions from cattle and also boost immunity of cattle and poultry.**
- **India Greenhouse Gas Program:** The India GHG Program led by WRI India (non-profit organization), Confederation of Indian Industry (CII) and **The Energy and Resources Institute (TERI)** is an industry-led voluntary framework to **measure and manage greenhouse gas emissions.** The programme **builds comprehensive measurement and management strategies to reduce emissions** and drive more profitable, competitive and sustainable businesses and organisations in India.
- **National Action Plan on Climate Change:** The **National Action Plan on Climate Change (NAPCC)** was launched in 2008 which aims at creating awareness among the representatives of the public, different agencies of the government, scientists, industry and the communities on the threat posed by climate change and the steps to counter it.
- **Bharat Stage-VI Norms:** India shifted from **Bharat Stage-IV (BS-IV) to Bharat Stage-VI (BS-VI)** emission norms.

About Climate and Clean Air Coalition (CCAC)
- **Climate and Clean Air Coalition** is a voluntary partnership of governments, intergovernmental organizations, businesses, scientific institutions and civil society organizations.
- **Aim**: The coalition aims to protect the climate and improve air quality through actions to reduce short-lived climate pollutants.
- **India** is a member of the coalition.

What are Short-lived Climate Pollutants?
- **Short-lived climate pollutants** are climate pollutants that remain in the atmosphere for a much shorter period of time than carbon dioxide (CO2). Though short-lived they have the potential to warm the atmosphere many times greater than CO2.
- **Several short-lived climate pollutants** like black carbon, methane, tropospheric ozone, and hydrofluorocarbons are responsible for up to 45% of current global warming.

About Methane:

- **Firstly, Methane (CH4)** is a colourless, odourless, and highly flammable gas composed of one carbon atom and four hydrogen atoms.
- **Secondly, Methane is found** in small quantities in Earth's atmosphere. Methane is also a powerful greenhouse gas.
- **Thirdly, Major natural sources of methane** include emissions from wetlands and oceans, and from the digestive processes of termites.
- **Fourthly, Methane sources related to human activities** include rice production, landfills, raising cattle and other ruminant animals, and energy generation.

Way Forward

- **Human-caused methane emissions** must be cut by 45% to avoid the worst effects of climate change. **Such a cut** would prevent a rise in global warming by up to 0.3 degrees Celsius by 2045. **It would also prevent** 26 lakh premature deaths, 77 lakh asthma-related hospital visits annually as well as 25 million tonnes of crop losses.
- **Further, three human behavioural changes** could reduce methane emissions by 65–80 million tonnes per year over the next few decades. The behavioural changes are:
  - Reducing food waste and loss
  - Improving livestock management and
  - Adopting healthy diets (vegetarian or with a lower meat and dairy content).

Fly Ash Management

Syllabus: Conservation, environmental pollution and degradation, environmental impact assessment.

In news: The Union environment ministry has extended the deadline for thermal power plants to ensure 100% utilisation of fly ash by 3 to 5 years, according to a new draft notification issued by the ministry.

About the new draft notification on fly utilisation:

- **Provided time:** It gives 10 years to thermal power plants to utilise the unutilised fly ash or legacy ash that is stored. For the first time, the notification has a provision of imposing fines on thermal power plants that don't comply with the new timelines.
  - As per the new draft notification, thermal power plants (TPP) with fly ash utilisation of 60% to 80% will get 4 years while those with fly ash utilisation of less than 60% will get 5 years to ensure 100% fly ash utilisation.
- **Fines imposed:** Non-compliant power plants will be slapped a fine of ₹1,000 per tonne on unutilised ash during the end of the deadline.
  - Coal or lignite plants which are not able to utilise 100% of ash in the third year of the next three-year cycle, would be liable to pay a fine of ₹1,000 per tonne on the unutilised quantity.

- **Polluter pays principle:** The new deadlines have been decided based on the current utilisation of fly ash at thermal power plants. The provision of fines has been made under the polluter pays principle.
- **Safe disposal:** The fine collected by Central Pollution Control Board (CPCB) from the thermal power plants and other defaulters shall be used towards the safe disposal of the unutilised ash.

Fly ash and concerns relating to it:

- **Fly ash ingredients:** It is a fine powder, which is the by-product of burning coal in thermal power plants. It includes substantial amounts of oxides of silica, aluminium and calcium. Elements like Arsenic, Boron, Chromium, lead etc. are also found in trace concentrations.
- **Source of pollution:** Owing to large-scale dependence on thermal power generation and high ash content in Indian coal, a large quantity of ash is generated in the country (nearly 200 million tons).
  - o It not only requires a large area of precious land for its disposal but is also one of the sources of air and water pollution.
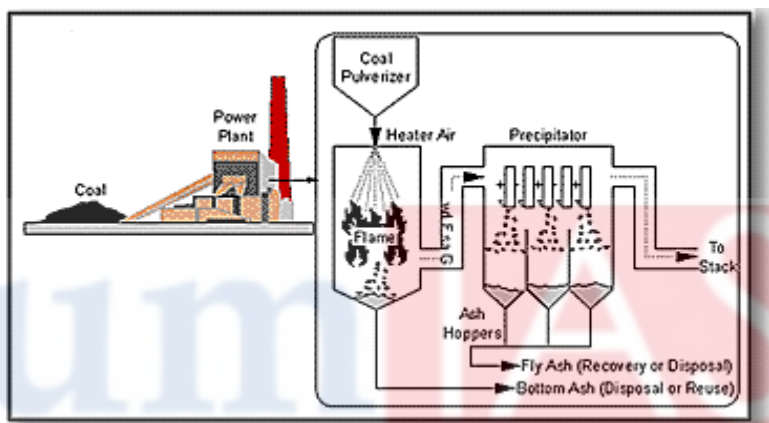
Fig. Process of obtaining fly ash and bottom ash

Advantages of fly ash utilisation

- **In agriculture:** It improves water holding capacity, works as a soil conditioner and contains micronutrients like phosphorus, potassium and calcium thus increasing the crop yield.
- **In Construction works:** Fly ash is a proven resource material for many applications of construction industries and currently is being utilized in manufacturing of portland cement, bricks/blocks/tiles manufacturing, road embankment construction and low-lying area development, etc. Concrete made with fly ash is stronger and more durable than traditional concrete made with Portland cement.
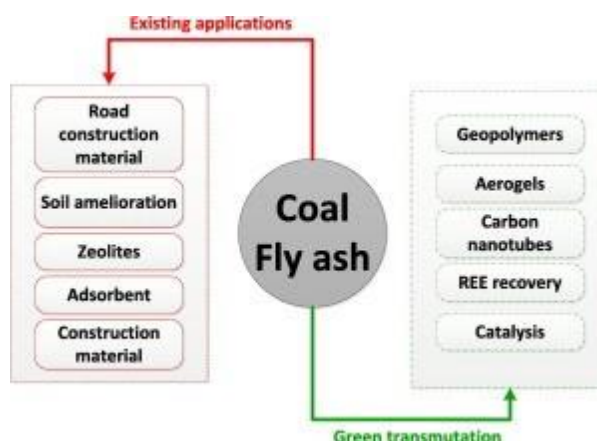
o Fly ash is a lightweight material and therefore it undergoes lesser settlement and hence can be used for embankment construction over a weak substrate such as alluvial clay or silt where excessive weight could cause failure.

- **In the manufacturing of Absorbents**: Absorbents that are suitable for purification of waste gases, drinking water purification, wastewater treatment etc.
- **In preventing contamination of Water Resources**: By preventing contamination of surface water through erosion, runoff, airborne particles landing on the water surface etc.

Two methods of scientific fly ash disposal

- **Dry Fly Ash Disposal system**: Electrostatic precipitation (ESP) enables the collection of dry Fly Ash which is then transported by trucks or conveyors at a site and disposed of by constructing a dry embankment.
- **Wet Fly Ash Disposal System:** Fly Ash is mixed with water and transported as slurry through the pipe and disposed of in ash ponds or dumping areas near the plants.

Government Measures to promote Fly Ash Utilization

- **Role of CEA:** Central Electricity Authority (CEA) has been monitoring fly ash generation and its utilization in the country at coal/ lignite based thermal power stations since 1996-97.
- **The Ministry of Environment, Forests and Climate Change (MoEFCC)**: It issued notifications on Fly Ash Utilization in 2016 that had the following features:
  o Mandatory uploading of details of fly ash available on Thermal Power Station's (TPS) website
  o Increase in mandatory jurisdiction of the area of application from 100 km to 300 km;
  o Cost of transportation of fly ash to be borne entirely by TPS up to 100 km.
  o Mandatory use of fly ash-based products in all Government schemes or programmes e.g., Pradhan Mantri Gramin Sadak Yojana, Mahatma Gandhi National Rural Employment Guarantee Act, 2005, Swachh Bharat Abhiyan, etc.
- **Government notification, 2019:** The existing red clay brick kilns located within 300 km shall be converted into fly ash-based bricks or blocks or tiles manufacturing unit within one year.
- **GST reduction:** The GST rate on fly ash and fly ash aggregate with 90% or more of fly ash content was reduced from 18% to 5%.
- **A mobile app for ash management:** ASH TRACK was created to help establish a link between fly ash users and power plant executives.
- **Pre-stressed railway concrete sleepers:** NTPC in collaboration with Institutes like IIT-Delhi and IIT-Kanpur has initiated manufacturing of pre-stressed railway concrete sleepers. With the above measures in place, at present, 63% of the fly ash is being utilised in India.

- **State level initiatives:**
  - o **Maharashtra** became the 1st state to adopt the fly ash utilization policy.
  - o **Odisha** has ordered the plants to subsidize the transport costs.

Way Forward

- **State-level initiatives:** Renovation and modernization of coal/ lignite based Thermal Power Stations need to include state-level initiatives.
  - o Maharashtra- became the 1st state to adopt the fly ash utilization policy.
- **Odisha has ordered the plants to subsidize the transport costs:**
  - o Technological advancement required to ensure the development of dry fly ash collection, storage and disposal facilities so that fly ash in dry form could be made available to its users.
  - o Marketing strategy for the development of fly ash-based industries and making available fly ash and fly ash-based building products in the nearby markets.
- **Identifying prospective users:** Areas having a large prospective of fly ash utilization needs to be discovered for increasing the overall utilization of fly ash in India.
  - o New emerging areas include Light Weight Aggregates and Geo-polymers, Coal Beneficiation Blending and Washing, etc.
- **Materials should be standardized:** Specifications for Fly Ash based building materials should be standardized and their use must be promoted.
- **Encouraging Industry-Academia Partnership**: Interactions regarding scientific disposal of fly ash for entrepreneur development, creating awareness and organizing training programmes.
  - o Because of the large quantity of fly ash generation, Induction of 'Fly Ash' as a subject in the academic curriculum of Engineering and Architecture may be introduced.

5G Tech Trials

Syllabus: Awareness in the fields of IT, Space, Computers, robotics, nano-technology, biotechnology and issues relating to intellectual property rights.

In News: The Department of Telecommunications (DoT) has given permission to conduct trials for the use and application of 5G technology. The DoT permitted few Telecom Service Providers (TSPs) to conduct such 5G Technology trials.

Objectives of 5G Technology Trials:

The objective behind the trials is to:

- Test 5G spectrum propagation characteristics especially in the Indian context;
- Model tune and evaluate chosen equipment and vendors;
- Test indigenous technology;

- Test applications such as telemedicine, Tele-education, augmented/virtual reality, drone-based agricultural monitoring, among others
- Test 5G phones and devices.

Key Features of the 5G Technology Trials:
- **The Telecom Service Providers (TSP)** permitted for the trials include Bharti Airtel Ltd, Reliance Jio Infocomm Ltd, Vodafone Idea Ltd and MTNL. This means that the Chinese Telecom Providers such as Huawei will not be part of the 5G trials in India.
- **Areas**: The trials will take place in rural, semi-urban and urban areas. So that the benefit of 5G technology proliferates across the country.
- **Duration**: The duration of the trials is for a period of six months. This includes a time period of two months for procurement and setting up of equipment.
- **5Gi Technology:** The Telecom service providers would be encouraged to conduct the trials using 5Gi technology. This is an addition to the already known 5G technology.

About 5G Technology:
- 5G or fifth generation is the latest upgrade in the long-term evolution (LTE) mobile broadband networks.
- **5G mainly works** in 3 bands, namely low, mid and high-frequency spectrum. All of them have their own uses as well as limitations.
- It promises to provide seamless coverage, high data rate, ultra-low latency and as a result highly reliable communication.

Comparing 4G and 5G

4G		5G
10 ms	Latency	<1 ms
7.2 Exabytes/Month	Data Traffic	50 Exabytes/Month (2021)
1 Gb/s	Peak Data Rates	20 Gb/s
3 GHz	Available Spectrum	30 GHz
100 Thousand Connections/Km²	Connection Density	1 Million Connections/Km²
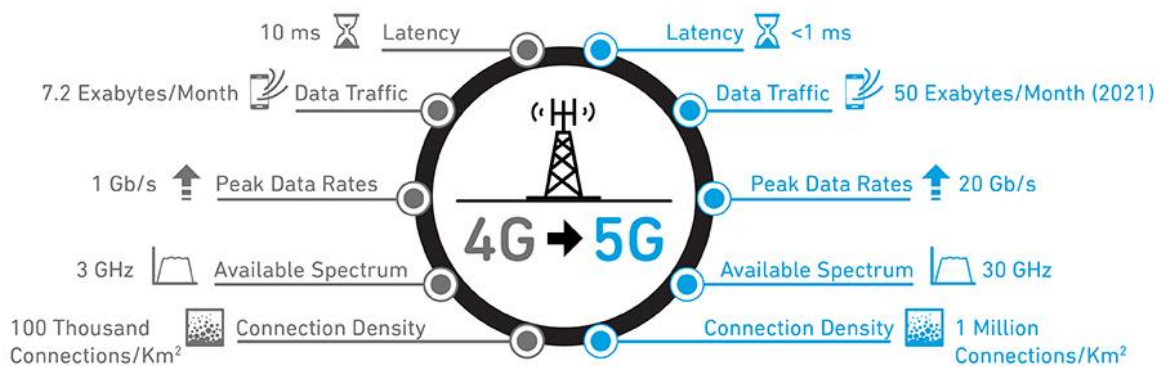
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About 5Gi Technology:
- **5Gi stands for** 5G Radio Interface Technology. It has been developed by the Indian Institute of Technology-Madras, Centre of Excellence in Wireless Technology and the IIT-Hyderabad.

- **Purpose**: 5Gi technology is primarily meant to enhance rural coverage. It facilitates much larger reach of the 5G towers and radio networks. Hence, it is a major breakthrough for bridging the rural-urban digital divide in 5G deployment.
- **Approved by:** 5Gi standard has also been approved by the International Telecommunications Union.

Advantages of 5G networks

- **High speed:** 5G will revolutionise the mobile experience with supercharged wireless network, which can support up to **10 to 20 GBPS of data download speed.** It is equivalent to a fibre optic Internet connection accessed wirelessly. Compared to conventional mobile transmission technologies, voice and high-speed data can be simultaneously transferred efficiently in 5G. This will further enhance and support government's effort to promote **digital India.**
- **Better Governance:** Better speed and connectivity can reduce redtapism. It will enhance speedy completion of projects and better implementation of policies. It will enable accountability in the system through a better monitoring system and will reduce corruption.
- **Low latency:** It is one of the most important features of 5G technology which is significant for **autonomous driving and mission critical applications.** 5G networks are capable of latency less than a millisecond.
- **Internet of Things – Connecting everything–** Internet of Things (IoT) is another broad area for development using supercharged 5G wireless network. Internet of Things will connect every objects, appliances, sensors, devices and applications into Internet. 5G wireless network will be utilised by **smart appliances** which can be configured and accessed from remote locations, closed circuit cameras will provide high quality real-time video for security purposes.
- **Employment generation-** 5G wireless technology will open greater opportunity for new device manufactures and application developers. New VoIP devices and smart devices will be introduced in the market and thus **more job opportunities** as well.
- **Security and surveillance-** 5G wireless technology is one the best solution for security and surveillance due to higher bandwidth and unlicensed spectrum. It will enhance better coordination among various agencies.
- **Less energy efficient-** Device-to-device communication techniques are suggested to further enhance network performance and support during limited access or absence of mobile networks. Small cell concept used in 5G will have multiple advantages of better cell coverage, maximum data transfer, **low power consumption** and cloud access network etc.
- **Applications across sectors:**
  - o **Entertainment and multimedia industry-** Analysts found that 55 percentage of mobile Internet traffic has been used for video downloads globally in 2015. This trend will increase in future and high-definition video streaming will be common in future.

- o **Logistics and shipping–** Logistic and shipping industry can make use of smart 5G technology for goods tracking, fleet management, centralized database management, staff scheduling and real-time delivery tracking and reporting.
- o **Smart cities-** Smart city application like traffic management, instant weather update, local area broadcasting, energy management, smart power grid, smart lighting of street, water resource management, crowd management, emergency response etc. can use reliable 5G wireless network for its functioning.
- o **Industrial Growth-** Future industries will depend on smart wireless technologies like 5G and LTE advanced for efficient automation of equipment, predictive maintenance, safety, process tracking, smart packing, shipping, logistics and energy management.
- o **Smart farming-** 5g technology will be used for agriculture and smart farming in future. Using smart RFID sensors and GPS technology, farmers can track location of livestock and manage them easily. Smart sensors can be used for irrigation control, access control and energy management.
- o **Healthcare and mission critical applications-** 5G technology will support medical practitioners to perform advanced medical procedures with reliable wireless network connected to another side of the globe.

Challenges of 5G network

- **Frequency allocation:** Indian operators have far less spectrum in comparison to international operators. The high investment cost which makes telecom companies unsure about Return on Investment. Though 4G LTE already operates on established frequency bands below 6GHz, 5G requires frequencies up to 300GHz.
- **Low optical fibre penetration:** India lacks a strong backhaul to transition to 5G. Backhaul is a network that connects cells sites to central exchange. As of now 80% of cell sites are connected through microwave backhaul, while under 20% sites are connected through fibre.
- **Cost to build and buy:** Building a network is expensive, and carriers will raise the money to do it by increasing customer revenue. Much like LTE plans incurred a higher initial cost, 5G will probably follow a similar path. And it's not just building a layer on top of an existing network, it's laying the groundwork for something new altogether.
- **Expensive Devices:** 5G-enabled smartphones and other devices, availability and affordability will depend on how expensive they are for manufacturers to make, as well as how quickly ubiquitous the network becomes. Thus, in a price conscious market like India deploying 5g at such an early stage is a challenge.
- **Security and privacy:** 5g rollout will have to contend with both standard and sophisticated cybersecurity threats.
  - o Though 5g falls under the **Authentication and Key Agreement (AKA)**, a system designed to establish trust between networks, it would currently be possible to

track people nearby using their phones. They could even eavesdrop on live phone calls.

- o The onus will be on the carriers and network consortiums to provide a digital safety net for customers, except user complacency could be equally problematic.
- **Network investment:** In India, the telecom sector is facing capital investment issues which need to be resolved. Non-availability of funds for investment is an issue. Many of the Indian operators are also under debt. Thus, funding will be an issue.

Steps already taken by Government to kick-start 5G

- **5G High Level Forum** was set up by the Government in 2017 to articulate the Vision for 5G in India and to recommend policy initiatives and action plans to realize this vision.
- The Government has launched a program titled **'Building an End-to-End 5G Test Bed'. The programme** envisages close collaboration between the universities and startups and create an ecosystem that closely resembles a real-world 5G deployment.
- **National Digital Communication Policy-2018 (NDCP-2018)** also lays out the following objectives with respect to 5G services in India: Enabling Hi-speed internet, Internet of Things and M2M (Machine to machine) by rollout of several 5G technologies; Enhancing the backhaul capacity to support the development of next generation networks.

Way Forward

- Building India's capacity in **core technology development (Design and IP)** and manufacturing for 5G and more broadly for all Information Technologies needs a deep and long- term effort.
- **Securing data center and cloud components** becomes critical as mobile network components are virtualized and potentially deployed on virtualized software infrastructure.
- **Creating a strong data protection policy and law** to provide a legal framework which supports adoption of 5G technology.
- Funds should be allocated and **local technology and telecom firms** should be incentivised to develop their internal capacities which would in turn help 5G technology succeed in the country.
- **5g start-ups** that enable this design and manufacturing capabilities should be promoted.
- **Coverage, reliability, and scalability** must be optimised and seamless mobile networks will require a unified management policy to ensure consistent standards.

Digital Public goods

Syllabus - Science and Technology- developments and their applications and effects in everyday life

In News - As the world grapples with the COVID-19 pandemic, it is witnessing first-hand how digital technologies help to confront the threat and keep people connected. Hence, experts are arguing to make digital space a public good.

More in News - According to the 75th round of the National Sample Survey (NSS) conducted between July 2017 and June 2018, just 4.4 rural households have a computer, against 14.4 percent in urban areas, with just 14.9 percent of rural households having access to the internet against 42 percent households in urban areas.

About Digital Public Goods

- **Definition** - It means public provisioning of digital infrastructure – that is, treating these resources as a public good that **anyone can use without charge (non-excludable)** and **without preventing others from using it (non-rivalrous).**
- **Constituent elements of a foundational digital infrastructure-**
  - Connectivity architecture involves physical hardware like smart phones, optical fibre, sensors etc needed for digital connection.
  - **Software and application programming interfaces (APIs)**, open web technologies, standards, and protocols for platform and data interoperability are essential to maintain a cross-cutting applications layer that supports digital interactions.
  - **Platforms** that facilitate everyday social and economic transactions and perform the role of essential modern-day public utilities.
  - **Privacy-centric** personal data architectures that generate public value.
  - Non-personal data pools that are publicly owned, such as data about natural resources, infrastructural artifacts that are valuable for economic and social development initiatives

Need for Digital Public goods

- **Reducing digital inequality -** Digital technology has enormous **potential for positive change**, but can also reinforce and magnify existing fault lines and worsen economic and other inequalities.
  - For example, in 2019, close to 87 percent of individuals in developed countries used the Internet, compared with only 19 percent in the least developed countries.
- **To reduce the high cost of digital infrastructure -** Installing traditional broadband connections is costly, and countries often face difficulties in financing the fibre-optic cables required.
- **To achieve Sustainable Development Goals (SDGs) -** Digital public goods are essential in unlocking the full potential of digital technologies and data to attain the Sustainable Development Goals, in particular for low- and middle-income countries.

- **Tackle health crises -** Improved digital cooperation on a data-driven approach to public health has the potential to lower costs, build new partnerships among hospitals, technology companies, insurance providers, and research institutes and support the shift from treating diseases to improving wellness.
  - o For example, during the 2014–2015 outbreak of Ebola in West Africa, insights drawn from aggregated data, which were made public and shareable, played a crucial role in containing the virus.

Challenges

- **Issue of accessibility** - Access to digital solutions is often limited through copyright regimes and proprietary systems. Most existing digital public goods are not easily accessible because they are often unevenly distributed in terms of the language, content, and infrastructure required to access them. Even when the relevant digital public good or open-source solution is found, support and additional investment are still required to scale them up and successfully implement them.
- **Slow digital capacity-building -** One of the primary challenges to date is that a large part of digital capacity-building has been supply-driven as opposed to needs-based. Insufficient investment also remains a significant limiting factor. Moreover, digital capacity-building has to be tailored to individual and national circumstances.
- **Lack of defined digital human rights -** Existing human rights treaties were signed in a pre-digital era. In today's world, where online violations can lead to offline abuses, the Internet cannot be an ungoverned or ungovernable space – human rights exist online as they do offline and have to be respected in full.
- **Absence of Data protection and privacy -** Data protection has failed to keep up with advances in hacking and espionage. In 2019, more than 7,000 data breaches were recorded worldwide, exposing more than 15 billion records.
- **Unlawful or unnecessary surveillance** - There are reports of targeted communications surveillance and facial recognition software that could result in human rights violations and lead to arbitrary arrests or detentions and violation of the right to peaceful protest. These technologies may also misidentify certain minority groups and cement existing social biases.
- **Lack of representation and inclusiveness in global discussions -** Developing countries are largely absent from or not well-represented in most prominent forums on artificial intelligence, despite having a significant opportunity to benefit from it for their economic and social development.

Digital Public Goods Alliance
- **About** - Digital Public Goods Alliance is a multi-stakeholder initiative with a mission to accelerate the attainment of sustainable development goals in low- and middle-income countries by facilitating the discovery, development, use of, and investment in digital public goods.
- **DPGA defines digital public goods** as "open-source software, open data, open AI models, open standards and open content that adhere to privacy and other applicable laws and best practices, do no harm, and help attain the SDGs."
- **India Stack:** The India Stack is an example of how a unified, multi-layered software platform with clear standards, provided by public entities, can give government agencies and entrepreneurs the technological building blocks to improve service delivery and develop new business models which promote economic inclusion.

Steps taken by the government
- **Bharat Net project** - In 2011, the Bharat Net project was launched to connect 2.5 Lakh panchayats through an optical fibre and connect India's villages to provide digital infrastructure as a public good.
- **National Digital Literacy Mission and the Digital Saksharta Abhiyan –** In 2014, the government launched the National Digital Literacy Mission and the Digital Saksharta Abhiyan to reduce digital inequality.
- **Digital India Mission** - In 2015, the government launched several schemes under its Digital India campaign to connect the entire country and make digital space public good.
- **DIKSHA (Digital Infrastructure for Knowledge Sharing) platform-** DIKSHA is the national platform for school education available for all for grades 1 to 12. As part of PM eVidya announced under the Atma Nirbhar Bharat program, DIKSHA is the **'one nation; one digital platform'** to make school education in India a digital public good.
- **Internet Saathi Program –** The Internet Saathi Program was launched in 2015 by Google India and Tata Trusts. This project aims to facilitate digital literacy among rural Indian women to increase their participation in digital media.
- **Online Massive Open Online Course (MOOC)** courses relating to NIOS (grades 9 to 12 of open schooling) are available on the SWAYAM portal; and 1.5 crore students are enrolled which makes education accessible and affordable.

Conclusion

To avail the maximum benefits of increased internet connectivity, it is important that all actors, including States, the private sector, promote open-source software, and content while adhering to privacy, domestic and international laws. **UN Secretary-General's Roadmap on digital cooperation report** lays out a roadmap in which all stakeholders play a role in advancing a safer, more equitable digital world, one which will lead to a brighter and more prosperous future for all.

Anti-Microbial Resistance

Syllabus: Science and Technology- developments and their applications and effects in everyday life.

In news: The challenge posed by the pandemic is pushing doctors to prescribe a cocktail of over a dozen drugs. It may drive the world into the hidden pandemic of Anti-Microbial resistance.

More in news:

- An investigational antibody cocktail, from Switzerland-based drug-maker Roche, has got approval from India's Central Drugs Standards Control Organisation (CDSCO) for use in emergency situations for treatment of Covid-19.
- Former US President Donald Trump had taken the drug when he contracted Covid-19 in October last year.

- **Antibiotics:** Antibiotics are drugs that inhibit the growth of or kill microorganisms such as bacteria or fungi by damaging important cellular structures or blocking processes that microbes require to survive.
- **Antibiotic resistance:** Antibiotic resistance is the ability of microorganisms to evade the effects of antibiotics. Specific changes in a microbe, such as gaining the skill to pump an antibiotic out of the cell, destroy the antibiotic, or modify the target of the antibiotic, can make the microbe insusceptible to the harmful effects of the antibiotic.

State of Antimicrobial Resistance (AR):

- **Global health concern:** This is no more a local problem and has to be looked at as a global health concern. Annually, 700,000 deaths occur worldwide due to the AR bacteria, says a report titled "anti-microbial resistance benchmark".

- **Increased antibiotic consumption**: India has witnessed an increase in antibiotic consumption- about 65 per cent in 2015 compared to 2000, while the rate of consumption increased from 3.2 to 6.5 billion daily defined doses (DDDs) in the same period, according to a new study in the Proceedings of the National Academy of Sciences (PNAS).

- **Covid-19 increasing antibiotic resistance:** The use of antibiotic has risen drastically across the globe, largely tied to changes in medical practices due to SARS-CoV-2. Some studies estimate that 70-97% of hospitalized patients with COVID-19 receive antibiotic therapy.
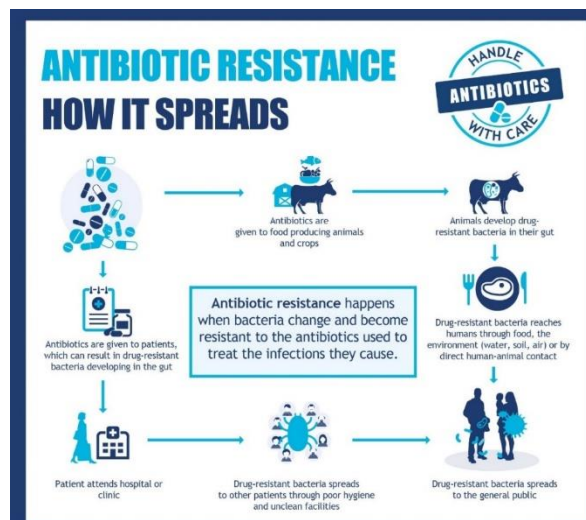
How the response to Covid-19 is Shaping Antibiotic Resistance or AMR?

- **Increased standard antibiotic usage:** Doctors follow the clinical-management protocols, but the high flow of patients who may get critical and need hospital admissions, is forcing doctors to use antibiotics against the virus.
- **Precautionary measure:** Several studies estimate that 70-97% of hospitalized patients with COVID-19 receive antibiotic therapy. Early and precautionary antibiotic treatment is a standard of care and is beneficial in the case of bacterial or fungal infections. However, during the COVID-19 pandemic, many patients have these symptoms and thus receive the standard antibiotic therapy.
- **Misguided antibiotic usage:** Early in the pandemic, in the absence of well-defined treatments, doctors tried to use drugs that were already clinically approved for use in patients for other diseases.
- **Tele-health services:** The increase in telehealth appointments during the pandemic has also increased antibiotic prescriptions. The higher frequency of antibiotic prescriptions during virtual healthcare was well-documented before the pandemic.

Various Causes of antibiotic resistance:

- **Microbial behaviour:** Microbes can become resistant to drugs for both biological and social reasons. As soon as scientists introduce a new antimicrobial drug, there is a good chance that it will become ineffective at some point in time. This is primarily due to changes occurring within the microbes.
- **People's behaviour:** Not following recommendations for the use of some drugs can increase the risk of antimicrobial resistance. How people use antimicrobial drugs is a significant contributing factor. Some individualistic reasons are:
  - **Wrong diagnosis**: Doctors sometimes prescribe antimicrobials "just in case," or they prescribe broad-spectrum antimicrobials when a specific drug would be more suitable. Using these medications in this way increases the risk of AMR.
  - **Inappropriate use**: If a person does not complete a course of antimicrobial drugs, some microbes may

CAUSES OF
ANTIBIOTIC RESISTANCE

HANDLE
ANTIBIOTICS
WITH CARE

Antibiotic resistance happens when bacteria change and become resistant to the antibiotics used to treat the infections they cause.

Over-prescribing of antibiotics

Patients not finishing their treatment

Over-use of antibiotics in livestock and fish farming

Poor infection control in hospitals and clinics

Lack of hygiene and poor sanitation

Lack of new antibiotics being developed

www.who.int/drugresistance
#AntibioticResistance

World Health Organization

survive and develop resistance to the drug. Also, antibiotics recommended by quacks or pharmacist contribute to magnify the issue.

- **Agricultural use:** Using antibiotics in farm animals can promote drug resistance. Scientists have found drug-resistant bacteria in meat and food crops that have exposure to fertilisers or contaminated water. In this way, diseases that affect animals can pass to humans.
- **Hospital use:** People who are critically ill often receive high doses of antimicrobials. This encourages the spread of AMR microbes, particularly in an environment where various diseases are present.

Initiatives to tackle AMR

- **Initiatives by WHO:**
  - o **World Antimicrobial Awareness Week (WAAW):** WAAW is a global campaign that aims to increase awareness of antimicrobial resistance worldwide. It encourages best practices among the general public, health workers and policymakers to avoid the further emergence and spread of drug-resistant infections.
  - o **The Global Antimicrobial Resistance Surveillance System (GLASS):** The WHO-supported system supports a standardized approach to the collection, analysis and sharing of data related to antimicrobial resistance at a global level to inform decision-making and drive local, national and regional action.
  - o **Global Antibiotic Research and Development Partnership (GARDP):** A joint initiative of WHO and Drugs for Neglected Diseases initiative (DNDi), GARDP encourages research and development through public-private partnerships. By 2023, the partnership aims to develop and deliver up to four new treatments, through the improvement of existing antibiotics and acceleration of the entry of new antibiotic drugs.
  - o **Inter-agency Coordination Group on Antimicrobial Resistance (IACG):** The United Nations Secretary-General has established IACG to improve coordination between international organizations and to ensure effective global action against this threat to health security.
- **National Action Plan on AMR:** India announced its National Action Plan on AMR and has since established a surveillance system for tracking AMR.
- **Red line campaign:** India's Red Line campaign began marking prescription-only antibiotics with a red line to curb their irrational use and create awareness on the dangers of taking antibiotics without being prescribed.

Prevention and control measures:

- **Individuals:** To prevent and control the spread of antibiotic resistance, individuals should:
  - o Only use antibiotics when prescribed by a certified health professional.
  - o One component of infection prevention is general hygiene, which reduces the chances of contracting infections and the potential to spread the causative microbes.

- o Immunization can prevent illnesses that might require antibiotic treatment like whooping cough (pertussis), tetanus, and meningitis. However, vaccine hesitancy and refusal leave many people susceptible to these infections.
- **Policymakers:** To prevent and control the spread of antibiotic resistance, policymakers should:
  - o Ensure a robust national action plan to tackle antibiotic resistance is in place.
  - o Improve surveillance of antibiotic-resistant infections.
  - o Regulate and promote the appropriate use and disposal of quality medicines.
  - o Make information available on the impact of antibiotic resistance.
- **Health professionals:** To prevent and control the spread of antibiotic resistance, health professionals should:
  - o Prevent infections by ensuring that their hands, instruments, and environment are clean.
  - o Only prescribe antibiotics when they are needed, according to relevant guidelines.
  - o Report antibiotic-resistant infections to surveillance teams.
- **Agriculture sector:** To prevent and control the spread of antibiotic resistance, the agriculture sector should:
  - o Vaccinate animals to reduce the need for antibiotics and use alternatives to antibiotics when available.
  - o Promote and apply good practices at all steps of production and processing of foods from animal and plant sources.
  - o Improve biosecurity on farms and prevent infections through improved hygiene and animal welfare.

Conclusion

- There is a need to urgently address antimicrobial resistance through the lens of one (human, animal and environmental) health. All countries need to work together to limit the spread of Antibiotic Resistant Genes and antibiotics between humans, animals and the environment in the globalised world where we live.
- Even though national action plans have been laid down by most countries, these plans have yet to move from paper to the ground as antibiotics continue to be freely used.

Medical Oxygen

Syllabus: Science and Technology- developments and their applications and effects in everyday life.

In News: Oxygen Concentrators have emerged as a sought-after device as the demand for medical oxygen continues unabated and several states struggle to keep pace with the demand.

What are Oxygen Concentrators?

- **Oxygen Concentrator** is a medical device that takes in air and separates the oxygen and delivers it into a person via a nasal cannula.

When is an oxygen concentrator needed?

- **Oxygen Concentrator** could help those whose saturation levels range between 88 and 92.
- **Any lower would require** more intensive oxygenation and any higher would mean that an improvement in lung function can obviate the need for such a device.

Working:

- **Atmospheric air** has about 78% nitrogen and 21% oxygen with other gases making up the remaining 1%.
- **The concentrator takes** in this atmospheric air, filters out the nitrogen and concentrates all the oxygen.
- **The oxygen that is concentrated** in this device holds about 90 to 95% purity.

Components:

- Firstly, an Oxygen Concentrator consists of a compressor and sieve bed filter.
- Secondly, the compressor squeezes atmospheric air and also adjusts the pressure at which it is delivered.
- Thirdly, the sieve bed is made of a material called Zeolite that separates the nitrogen.
- Fourthly, there are two sieve beds that work to both release oxygen into a tank that's connected to the cannula as well as release the separated nitrogen and form a continuous loop that keeps producing fresh oxygen.
- *Are all concentrators the same?*
- The Oxygen Concentrator comes with a variety of specifications. There are those with varying oxygen outputs.
- For COVID-19 patients, a device with a 5L-10 L output is recommended.
- *Types of Oxygen Concentrators: There are two types of oxygen concentrators namely:*
- **Continuous flow:** It provides the same flow of oxygen in a minute until it's been turned off.
- **Pulse dose**: It identifies the patient's breathing pattern and gives out oxygen when it detects inhalation.
- *How is it different from oxygen cylinders and Liquid Medical Oxygen (LMO)?*
- **The oxygen cylinder** gives you a finite amount of oxygen. When the cylinder is empty, it needs to be refilled. Whereas the concentrator pulls oxygen from the air. So, it can provide a consistent supply of oxygen, and it only needs a power source to draw in Atmospheric air.
- **Oxygen Concentrators** are portable and need no special temperature. On the other hand, Liquid Medical Oxygen (LMO) needs to be stored and transported in cryogenic tankers.
- **Oxygen from Concentrators** is not as pure as Liquid Medical Oxygen (LMO) which is 99% pure oxygen. But it is good enough for mild and moderate Covid-19 patients with oxygen saturation levels of 85% or above. However, it is not advisable for ICU patients.

- **Oxygen concentrators** are the easiest alternatives to cylinders but can only supply 5-10 liters of oxygen per minute (critical patients may need 40-50 liters per minute).
- **Oxygen Concentrators are more expensive** than Oxygen cylinders. But it is largely a one-time investment. Apart from electricity and routine maintenance, there is a little operational cost. While oxygen cylinders incur refilling and transportation costs.

About Medical oxygen

- The term 'medical oxygen' means high purity oxygen, which is used by hospitals and clinics in the treatment of various illnesses that cause oxygen saturation levels in the body to drop.
- It generally comprises of minimum 90% oxygen (O_2) with 5% nitrogen and 5% argon.
- **Applications in healthcare:**
  - Provide a basis for virtually all modern anaesthetic techniques.
  - Restore tissue oxygen tension by improving oxygen availability. This is used for a wide range of conditions such as shock, severe haemorrhage, carbon monoxide poisoning, major trauma, cardiac/respiratory arrest.
  - Provide life support for artificially ventilated patients.
  - Aid cardiovascular stability of patients.
  - To aid heartbeat stability in an acutely ill patient
- **Side effects of Medical Oxygen include:**

Why there is a shortage of medical oxygen in India?

- **Lack of cylinder and cryogenic tankers:** India does not have enough cryogenic tankers to ensure 24×7 road transport of oxygen. Similarly, smaller suppliers do not have enough jumbo and dura cylinders to supply medical oxygen to remote locations. This results in higher prices for an oxygen cylinder. Thus, raising the cost of oxygen.
- **Setting up a medical oxygen plant is a time-consuming process:** It is not feasible to set up new oxygen manufacturing plants or expanding existing plants within a month. For example, A private company that starts to install a new oxygen-producing facility in the past took almost 24 months to properly install one manufacturing plant.
- **Oxygen wastage and unnecessary use in hospitals:** In the past, the Health Ministry repeatedly demanded hospitals to reduce wastage and unnecessary oxygen use in Hospitals. But the hospitals not yet take any decision on this. Industrial experts also **raised concerns over possible leakages** in hospital pipelines that supply oxygen.
- **Heavy reliance on private players:** Of the total medical oxygen supply **nearly 60%** is manufactured by only one private firm.

Regulatory provisions of medical oxygen in India

- According to the Drug Prices Control Order, 2013, Medical oxygen is placed under the National List of Essential Medicines (NLEM).
- The National Pharmaceutical Pricing Authority will monitor and control the prices of the National List of Essential Medicines (NLEM).
- So, the NPPA controls and monitors the medical oxygen prices in India.
- NPPA: It is an independent body set up in 1997. It is under the Department of Pharmaceuticals, Ministry of Chemicals and Fertilizers.
- Mandate: To fix/revise controlled bulk drug prices and formulations, enforce prices and availability of medicines under the Drug (Price Control) order, 2013.

Government initiatives to increase the availability of medical oxygen

During the Covid-19 pandemic, the government initiated various steps to increase the production of oxygen and also maintaining the prices. This includes,

- Under the **Disaster Management Act, 2005,** the Ministry of Health & Family Welfare (MOHFW) delegated its powers to the NPPA Specially to take all necessary steps to regulate the availability and pricing of liquid medical oxygen (LMO) and oxygen cylinders.
- Further, to ensure the availability of oxygen at a reasonable price **the NPPA capped the price of medical oxygen cylinders** and LMO for six months (in September).
- **Temporarily restricting industrial usage of oxygen:** Union government has restricted the use of liquid oxygen for non-medical purposes, with certain exemptions such as Ampoules & Vials, Pharmaceutical, Petroleum refineries, steel plants, nuclear energy facilities, Oxygen cylinder manufacturers, Waste water treatment plants, etc.
- Recently, Central Mechanical Engineering Research Institute (CMERI) develops **an oxygen enrichment unit (OEU)** that could provide crucial support to COVID-19 patients. An oxygen enrichment unit is a device that concentrates the oxygen from the surrounding air.
- **Mapping of oxygen sources for 12 high burden state:** The Centre-appointed Empowered Group-2 mapped the medical oxygen capability in 12 States having high disease burden. Such as Maharashtra, Tamil Nadu, Kerala, Gujarat, Delhi, etc.
- **Identification of hospitals for installing PSA plants:** Recently the MOHFW sanctioned the installation of 162 Pressure Swing Adsorption plants at hospitals to augment oxygen capacity by over 154 Metric Tonnes.
- **Setting up of EG-II:** The Empowered Group-II (EG-II) headed by Secretary, Department for Promotion of Industry & Internal Trade (DPIIT) is mandated by Govt. of India to manage requisite supplies of medical equipments, drugs including medical oxygen across the country.

Way Forward

- **Fixing the PSA Plants in remote locations:** This will make hospitals manufacture their own oxygen and make the hospitals self-reliant. Further, it will reduce transportation costs and delays in oxygen supply.
- **Exploring alternate mode of oxygen transportation:** At present, oxygen transportation relies primarily on road transport. Industry **experts suggest using trains to transport oxygen faster**.
- **Converting surplus industrial oxygen into medical oxygen:** Empowered Group-2 suggested using argon and nitrogen tankers in oxygen transport to fulfil the demand. It also suggested using industrial cylinders for refilling. The government can implement the suggestions.

"Emergency Financial Powers" to Armed Forces to tackle pandemic

What is the News?

The Union defence ministry has granted **emergency financial powers** to the country's armed forces. This is to empower their efforts against the Covid-19 pandemic.

About Emergency Financial Powers to Armed Forces:

- **The Emergency Financial Powers** will allow armed forces to establish and operate quarantine facilities and hospitals.
- **Besides,** it will also help them to operate and procure equipment and resources to perform any required urgent tasks.
- **The armed forces** will be able to perform all these operations without the usual clearances.

Who has these powers?

- **Vice Chiefs of the armed forces** including the Chief Of Integrated Defence Staff, Chairman Chiefs of Staff Committee(CISC) and General Officer Commanding-in-Chiefs(GOC-in-Cs) have these powers. Further, similar equivalents of all three Services have been given full powers.
- **Further, Corps Commanders and Area Commanders** have been delegated powers up to ₹50 lakh per case
- Also, Division Commanders, Sub Area Commanders and equivalents have been delegated powers up to ₹20 lakh per case.

Duration:

- **These powers** have been devolved initially for three months from May 1 to July 31, 2021.
- **These are in addition** to the emergency powers delegated to the medical officers of the armed forces.

Other Organizations contribution during the pandemic:

- **Defence Research and Development Organisation (DRDO)** is arranging big size oxygen cylinders for fulfilling requirements of different hospitals.
- **The Navy** has sent a 76-member medical contingent from five Naval hospitals to the 900-bed COVID hospital in Ahmedabad. This is to bolster the availability of trained manpower.
- **The** Cantonment Boards have extended support to civil administration in various parts of the country to fight over the increase in Covid-19 cases.

"Foreign Aid to India" - Centre faces Questions Over its Use

What is the News?

The Indian Government is at present accepting gifts, donations, and aid from foreign nations. This is because, India is facing a massive shortage of oxygen, drugs and related equipment amid a surge in Covid cases.

Foreign Aid to India:

- India is accepting foreign aid for the first time in 16 years. State Governments are also free to procure life-saving devices and medicines from foreign agencies.
- Earlier, India accepted aid from foreign governments several times. It includes the Uttarkashi earthquake (1991), Latur earthquake (1993), Gujarat earthquake (2001), Bengal cyclone (2002) and Bihar floods (July 2004).
- However, the policy changed 16 years ago. India refused to accept foreign aid after the Kashmir earthquake in 2005. It also didn't accept foreign aid after the Uttarakhand floods in 2013, Kashmir floods in 2014 and Kerala Floods in 2018.

Process:

- The Indian government is asking all foreign governments and agencies to donate through the **Indian Red Cross Society** to the Ministry of Health.
- It is being coordinated by an Empowered Group of Ministers and officials. They will then send it to the states based upon the requests.

What is the issue?

- Countries have raised questions over the lack of a website or transparent system on the Central Government's use of foreign aid.
- They are asking the Government of India to provide information about the deployment and use of these materials after their transfer.

Supreme Court observations on "seeking medical help for COVID-19"

What is the News?

The Supreme Court has said that there should not be any coercive action against any citizen. This is especially for citizens who are putting out emergency calls on social media for seeking medical help for COVID-19.

Background:

- Uttar Pradesh government had recently ordered strict civil and criminal action against citizens. This is for making false appeals on social media for seeking help for COVID-19
- But against the UP-government order, the Supreme Court recently issued the following observations.

Key observations on seeking medical help for COVID-19:

- **The Supreme Court** has warned the State governments and the police against taking any action on the spread of information from the citizens affected by Covid-19.
- Further, the court also warned the government and police for taking actions on the request of help through social media from citizens affected by COVID-19.
- **The court has said** that any move to punish citizens actions on social media to seek help for oxygen cylinders, COVID-19 drugs, beds and hospitals would attract contempt of court action.
- **Further, the court has also referred** that the free flow of information during the 1970 famine enabled the government to tackle problems effectively. But the restriction of information during the 1918 pandemic created troubles for the government.
- **Lastly, the court has also told the States** that this was a time of great crisis. Hence, empathy and action should be the rule of the day.

What is the Process to Create New District in India?

What is the News? Punjab Chief Minister has declared Malerkotla as the 23rd district of the Punjab State. Let's have look at the process to create new district in India.

What is the process to create a new district in India?

- The power to create new districts or alter or abolish existing districts rests with the **State governments**. This can either be done through an executive order or by passing a law in the State Assembly.
- Many States prefer the executive route by simply issuing a notification in the official gazette.

What is the role of Central government to play here?

- Firstly, the **Centre has no role to play** in the alteration of districts or creation of new ones. States are free to decide.
- Secondly, the Home Ministry comes into the picture when a State wants to change the name of a district or a railway station.
- Thirdly, the departments such as the Ministry of Earth Sciences, Intelligence Bureau, Department of Posts, Geographical Survey of India Sciences, and the Railway Ministry, provides their clearance to the proposal of state government.
- Fourthly, after examination of their replies, state government receives a no-objection certificate.

What is the rationale behind creating a new district in India?

- States argue that smaller districts lead to better administration and governance.
- For example, in 2016, the Assam government issued a notification to upgrade the Majuli sub-division to the Majuli district for "administrative expediency".

What has been the trend?
- According to the 2011 Census, there were 593 districts in the country. The Census results show that between 2001-2011, as many as 46 districts were created by States.
- The 2021 Census is yet to happen. However, Know India, a website run by the Government of India, says currently there are 718 districts in the country.
  - The surge in a number of districts is mostly due to the bifurcation of Andhra Pradesh into A.P. and Telangana in 2014. Telangana at present has 33 districts and A.P. has 13 districts.

Environment

Saudi Arabia joins "Net Zero Producers Forum" on climate change
What is the News?

Saudi Arabia has announced that it will be joining Canada, the US, Qatar and Norway in the formation of the Net Zero Producers Forum.

About Net Zero Producers Forum:
- **The Net Zero Producers Forum** has been formed for the oil and gas producing countries. The Forum aims to discuss the ways to achieve **net zero carbon emission** targets to limit global warming.
- **The countries will also** discuss ways to support the implementation of the Paris Agreement on Climate Change.
- **Strategies**: The Forum will consider strategies and technologies which include
  - Methane abatement
  - Advancing the **circular carbon economy approach**
  - Development and deployment of clean energy **and carbon capture and storage technologies,**
  - Diversification from reliance on hydrocarbon revenues and
  - Other measures in line with each country's national circumstances.

Note: Qatar, the US, Saudi Arabia, Canada and Norway are collectively responsible for 40% of global oil and gas production.

Targets of Countries under Paris Climate Agreement:
- **US:** It has pledged to reduce greenhouse gas (GHG) emissions 50-52 per cent below 2005 levels by 2030.
- **Canada:** It has pledged to cut emissions by 40-45 per cent from 2005 levels by 2030.
- **Saudi Arabia** has pledged to reduce its carbon emissions by generating 50% of its energy requirements from renewable sources by 2030.
- **EU**: It has shown a commitment to reduce emissions by 55 per cent from 1990 levels by 2030.

What is Net-Zero?

- **Firstly, net-zero** is also referred to as carbon-neutrality.
- **Secondly, i**t does not mean that a country would bring down its emissions to zero.
- **Thirdly, net-zero,** rather is a state in which a country's emissions are compensated by absorption and removal of greenhouse gases from the atmosphere.
- **Fourthly, absorption of the emissions** can be increased by <u>creating more carbon sinks</u> such as forests
- **Fifthly,** the **removal of gases** from the atmosphere <u>requires futuristic technologies</u> such as carbon capture and storage.

"White-Bellied Heron" spotted in Arunachal Pradesh

What is the News?

The white-bellied heron was spotted at Walong in the Anjaw district of Arunachal Pradesh. This is the first time the white-bellied heron was sighted at a height of 1,200 meters above sea level in India.

About White-Bellied Heron:

Source: eBird

- The White-bellied Heron is a rare and elusive bird. It is the second-largest living species of heron.
- **Characteristics:** The White-bellied Heron is extremely shy to human presence. It is plain dark grey in colour except for the white belly part. It has a long neck.
- **Habitat:**
  - It is one of the rarest birds in the world. At present, it is found only in Bhutan, Myanmar and the Namdapha Tiger Reserve in Arunachal Pradesh, India.
  - But the bird has also recorded in the Kamlang Tiger Reserve in Lohit district in Arunachal Pradesh through camera trap images.
- **Conservation Status:**
  - **IUCN Status:** Critically Endangered

o **Indian Wildlife Protection Act,1972:** Schedule IV
- **Threats:**
  o Loss and degradation of lowland forests and wetlands through direct exploitation and disturbance by humans
  o Natural forest fires have destroyed nests of Heron

"Red Eared Slider Turtles" Threaten Native Indian turtles across Northeast
What is the News?

Red Eared Slider Turtles are threatening to invade the natural water bodies across the Northeast region in India.

About Red-eared slider:

- **Firstly, the red-eared slider** is a semi-aquatic turtle belonging to the family Emydidae.
- **Secondly, Origin:** They are native to the Southern United States and northern Mexico. But they are found in other countries as well because they are famous as pets.
  o People keep the Red-Eared slider turtle as pets. They release them in natural water bodies after they outgrow an aquarium, tank, or pool at home.
- **Thirdly, Invasive Species:** These turtles are considered one of the world's worst invasive species. This is because they grow fast and virtually leave nothing for the native species to eat.

"Beema Bamboo": A clone of "Bambusa balcooa" can mitigate climate change
What is the News?

Tamil Nadu Agricultural University (TNAU) has designed an 'oxygen park' within its premises at Coimbatore with Beema Bamboo.

About Beema Bamboo:

- **Beema or Bheema Bamboo** is a superior clone selected from Bambusa balcooa. It is a higher biomass yielding bamboo species.
  o **A clone** is an animal or plant that has been produced artificially. For example, It may be produced in a laboratory, from the cells of another animal or plant. A clone is exactly the same as the original animal or plant.
- **Developed by:** It has been developed by N Bharathi of Growmore Biotech Ltd, the agri-technology company based at Hosur, Tamil Nadu.
- **The method used**: Beema Bamboo has been developed by the conventional breeding method. It is not a product of genetically modified organisms.

About Bambusa balcooa bamboo:
- **Bambusa balcooa** is also known as Female Bamboo is a tropical clumping bamboo. It is native to Northeastern India. It is also spread in the regions of Indo-China.
- **Uses:**
  - **This bamboo species** is often used as a food source in scaffolding, for paper pulp or wood chips.
  - **The length and strength** of Bambusa balcooa make it a useful material for the construction industry.
  - **Furthermore, it is a drought-resistant species** with low rainfall requirements. It can reach yields upwards of 100 metric tons per hectare.

How Whiteflies are Damaging Crops in India?

What is the News?

According to a study by [ICAR](#)- National Bureau of Agricultural Insect Resources, Invasive Whiteflies Species are increasing in India.

Whiteflies:
- **Whiteflies** are sap-sucking insects. They are members of the insect family Aleyrodidae (order Homoptera). These insects become abundant during warm climates and are found on houseplants and in greenhouses.
- **Origin:** Most of the whitefly species are native to the Caribbean islands or Central America.
- **India:** Around eight types of whitefly species are found in India. The first invasive whitefly was reported from Kerala in 1995. These species are now distributed throughout India except Jammu & Kashmir.
- **Invasive Species:** Whitefly species **reduce the yield** and also damage crops. Hence, they are considered as invasive species. These insects **excrete sticky honeydew** and cause the yellowing or death of leaves.

Key Findings of the study:
- **Expanding host range:** Whitefly species are expanding their host range (Species on which they feed) on valuable plant species like coconut, banana, mango, sapota, guava, cashew, oil palm, and important medicinal plants.
- **Reason for expanding host range:** The host range of all the whiteflies is increasing due to their polyphagous nature (ability to feed on various kinds of food) and prolific breeding.
- **Resistance to available insecticides:** Whiteflies have also been difficult to control by using available synthetic insecticides.

Suggestions:
- **Monitoring of Whitefly Species:** The administration should ensure continuous monitoring of the whitefly species, their host plants, and geographical expansion.

- **Phytosanitary Measures:** States should ensure stricter phytosanitary measures at relevant places to reduce the chances of incoming exotic species.
- **Awareness among citizens:** The state should work towards increasing awareness among the public about the threat posed by invasive species. This will help reduce the chances of the public indulging in illegal or unintentional import of invasive species.
- **Biological Control Methods:** As the whiteflies are getting difficult to control by using synthetic insecticides. Therefore, naturally occurring insect predators, parasitoids and entomopathogenic fungi (fungi that can kill insects) could be used as novel biological control of the invasive whiteflies.

International Day for Biological Diversity
What is the News?
International Day for Biological Diversity (IDB) is observed every year on 22nd May.

About International Day for Biological Diversity(IDB):
- **The United Nations** has proclaimed May 22 as the International Day for Biological Diversity (IDB) to increase understanding and awareness of biodiversity issues.
  - Earlier, December 29 was designated as the International Day for Biological Diversity. But in 2000, the UN General Assembly chose May 22 to mark the day.
- **The Secretariat** of the Convention on Biological Diversity (CBD) announces the theme each year.
- **Theme for 2021:**
  - The theme is "We're part of the solution". It is a continuation of the 2020 theme- Our solutions are in nature.
  - The theme serves as a reminder that biodiversity remains the answer to several sustainable development challenges.

POINTLY

Network for Greening the Financial System: Reserve Bank of India (RBI) has joined the Network for Greening the Financial System **(NGFS)** as a Member. **NGFS** was launched at the Paris One Planet Summit in December 2017. It is a group of Central banks and financial supervisors. The NGFS **aims** to accelerate the scaling up of green finance and develop recommendations for central banks' role in climate change.

WWF Report on Snow Leopards: The **World Wildlife Fund** for Nature (WWF) has released a report. Its title is "Over 100 Years of Snow Leopards Research — A spatially explicit review of the state of knowledge in the snow leopard range". **The report** provides a comprehensive overview of research carried out across the snow leopard range. **It also identifies gaps** that need to be addressed to ensure effective snow leopard conservation.

"Nature in a Globalised World": International Union for Conservation of Nature (IUCN) has released a report titled "**Nature in a Globalised World: Conflict and Conservation". The report** focuses on complex relationships between nature and the armed conflict.

"Immunisation Agenda 2030 or IA2030" launched on World Immunisation Week.

What is the News?

Global agencies like the World Health Organization (WHO), UNICEF, GAVI and others have launched the **Immunisation Agenda 2030** or IA2030 during World Immunisation Week.

World Immunisation Week:

- It is celebrated every year in the last week of April. It aims to promote the use of vaccines to protect people of all ages against disease.
- **The theme for 2021:** Vaccines bring us closer.

About Immunisation Agenda 2030(IA2030):

- **The Immunisation Agenda 2030(IA2030)** sets an ambitious, overarching global vision and strategy for vaccines and immunisation for the decade 2021–2030.
- **Vision: IA2030 envisions** "A world where everyone, everywhere, at every age, fully benefits from vaccines for good health and well-being."
- **Based on:** The IA2030 is based on the learnings from **Global Vaccine Action Plan (GVAP).** IA2030 has a target to address the unmet targets of the GVAP.
  - The GVAP was developed to help realize the vision of the "Decade of Vaccines (2011–2020)".
  - **GVAP** was launched in 2012 with the aim to prevent millions of deaths by 2020. The GVAP aims to achieve this through more equitable access to vaccines for people in all communities.

U.S. Clears Sale of "P-8I Patrol Aircraft" to India

What is the News?

The US State Department has approved the proposal for the sale of six P-8I patrol aircraft and related equipment to India. According to the estimations, the deal have cost India around $2.42 billion.

About P-8I patrol aircraft:

- **P-8I** is a long-range, multi-mission maritime patrol aircraft. US-based manufacturer Boeing developed this aircraft.
- **The aircraft** is based on the Boeing 737 commercial aircraft and India is its first international customer.
- **Features:** The design of the aircraft is such, it protects the vast coastline and territorial waters of India. It can also conduct anti-submarine warfare (ASW), anti-surface warfare (AsuW), intelligence, maritime patrol and surveillance, and reconnaissance missions.

- **Significance:** As India has signed the **Communications Compatibility and Security Agreement (COMCASA)** foundational agreement with the US, the aircraft will come fitted with encrypted systems.

"India-UK Virtual Summit"

What is the News?

Indian Prime Minister and the Prime Minister of the United Kingdom has held a Virtual Summit.

Initiatives launched during the India-UK Virtual Summit:

Comprehensive Roadmap 2030:

- **The Roadmap 2030** was launched during the summit. The Road map aims to elevate India-UK ties to a 'Comprehensive Strategic Partnership' by 2030.
  - Currently, India and the UK enjoy a Strategic Partnership since 2004.
- **Key Areas**: The Roadmap will pave the way for expanding and deepening India-UK cooperation over the next decade. The road map focuses on five key areas. Such as people-to-people relationship, trade and prosperity, defence and security, climate action and healthcare.

Enhanced Trade Partnership (ETP):

- **Enhanced Trade Partnership (ETP)** was launched to bring out the true trade potential between India and UK. It has also set an ambitious target of more than doubling bilateral trade by 2030.
  - **Currently**, India and the UK are the fifth and sixth-largest economies of the World respectively.
- **As part of the ETP,** India and the UK agreed on a roadmap to negotiate a comprehensive and balanced FTA. Both governments will also consider an Interim Trade Agreement for delivering early gains.

India-UK 'Global Innovation Partnership':

- It was launched with the aim to support the transfer of <u>inclusive Indian innovations to select developing countries</u>, starting with Africa.
  - **UK** is India's second-largest partner in research and innovation collaborations

Comprehensive Partnership for Migration and Mobility:

- Both countries also initiated a **comprehensive partnership on migration and mobility.** The partnership aims to facilitate the mobility of students and professionals between the two countries.
- The agreement allows young Indian and British nationals to work and live in each other's countries.
- Further, it will also enhance and facilitate the processes of returning Indian nationals who stayed in the UK illegally and vice versa.

- The agreement also ensures greater <u>cooperation around organised immigration crime</u>.

Other Cooperation Areas:
- The two countries have agreed to <u>enhance cooperation on new and emerging technologies</u>. This includes Digital and ICT products, and work on supply chain resilience.
- They also agreed to strengthen defence and security ties. This includes the maritime, counter-terrorism and cyberspace domains.

India participates in the "3rd Arctic Science Ministerial"
What is the News?
India is participating in the **3rd Arctic Science Ministerial** (ASM3) meeting.

About Arctic Science Ministerial(ASM):
- **Arctic Science Ministerial (ASM)** is a global platform for discussing research and cooperation in the Arctic region.
- The USA and Germany held **the first two** Arctic Science Ministerial (ASM) meetings in 2016 and in 2018 respectively.

3rd Arctic Science Ministerial (ASM3):
- Iceland and Japan have jointly organised **The 3rd Arctic Science Ministerial (ASM3)**. It is the first Ministerial meeting being held in Asia.
- **Purpose**: The meeting is designed to provide opportunities to various stakeholders to enhance collective understanding of the Arctic region. The meeting also emphasizes the constant engagement in monitoring and strengthen Arctic observations.
- **Theme**: '<u>Knowledge for a Sustainable Arctic</u>'.

India's Engagement in the Arctic Region:
- **Firstly, India's engagement with the Arctic** dates back to 1920 with the signing of the <u>Svalbard Treaty</u> in Paris.
- **Secondly, since July 2008,** India has had a permanent research station in the Arctic called **Himadri** at NyAlesund, Svalbard Area in Norway.
- **Thirdly,** India has also deployed a multi-sensor moored(anchored) observatory called **IndARC** in the Kongsfjorden fjord since July 2014.
- **Fourthly,** the **National Centre for Polar and Ocean Research (NCPOR)**, Goa, coordinates the research in the Arctic region from India. The NCPOR falls under the Ministry of Earth Sciences, Government of India.

Arctic Council:
- **The Arctic Council** was formally established in 1996 by the **Ottawa Declaration**.

- **Purpose**: It is an intergovernmental forum for promoting cooperation, coordination and interaction among the Arctic States.
- **Members**: The members of the Arctic Council include Canada, Denmark, Finland, Iceland, Norway, Russia, Sweden and the United States.
- **Observer Status:** Since 2013, India enjoys 'Observer' status in the Arctic Council. Twelve other observer countries are Japan, China, France, Germany, UK, Italy, Switzerland, Poland, Spain, Netherlands, Singapore, and South Korea.

"Volcanic eruption" occurs in Indonesia's "Mount Sinabung"

What is the News?

Indonesia's Mount Sinabung has erupted releasing a massive column of volcanic ash and smoke up to 3,000 metres (3 km) into the sky.

About Mount Sinabung:

- **Mount Sinabung** is located in North Sumatra in Indonesia. It is among more than 130 active volcanoes in Indonesia. (Indonesia is prone to seismic upheaval due to its location on the Pacific's Ring of Fire).
- **The volcano was dormant for 400 years** before exploding in 2010. It exploded again in 2014 and 2016.

Taliban captures "Dahla dam" in Afghanistan

What is the News?

Taliban has captured Afghanistan's second-biggest dam named Dahla Dam.

About Dahla Dam:

- **Firstly, Dahla dam** is also known as Arghandab Dam. It is located in the Kandahar Province in Afghanistan.
- **Secondly, the dam was built** by the United States nearly 70 years ago (1952).
- **Thirdly, the dam** is built on the Arghandab River. It provides irrigation to farmers via a network of canals as well as drinking water for the provincial capital.

Dams built by India in Afghanistan:

- **Shahtoot Dam:** It is a proposed dam to be built by India in the Kabul river basin in Afghanistan.
- **Salma Dam**: It is a dam located on the Hari River in Herat Province in Afghanistan. Since this dam is constructed by the Government of India, the Afghan cabinet has renamed the Salma Dam as the Afghan-India Friendship Dam.

Indian Navy hosts "Goa Maritime Symposium-2021"

What is the News?

Recently, the Indian Navy virtually hosted the Goa Maritime Symposium-2021.

About Goa Maritime Symposium:
- **Firstly,** the Indian Navy, under the aegis of Naval War College, Goa, hosted the **Maritime Symposium-2021.**
- **Secondly, Objective:** It aims to build capacity amongst the **Indian Ocean Region** (IOR) Navies to tackle emerging common maritime threats.
- **Thirdly, Participating countries:** Naval representatives from 13 Indian Ocean Littoral countries participated.
  - **These include** India, Bangladesh, Comoros, Indonesia, Madagascar, Malaysia, Maldives, Mauritius, Myanmar, Seychelles, Singapore, Sri Lanka and Thailand.
- **Fourthly, Theme:** Maritime Security and Emerging Non-Traditional Threats: A Case for Proactive Role for IOR Navies.

India loses "Farzad B gas field" project as Iran decides to develop it domestically
What is the News?

Iran has given the Farzad B gas field to a domestic gas producer. This is a setback for India's energy ties with Iran. As **ONGC** has been part of the ongoing cooperation of the Gas field.

Farzad B Gas Field:
- **Farzad-B is an offshore natural gas field** located on the Iranian side of the Persian Gulf.
- **The gas field was discovered in 2008** by a consortium of three Indian companies led by the state-owned ONGC Videsh, Indian Oil Corporation and Oil India.
- **The gas field** holds 23 trillion cubic feet of in-place reserves. Of these about 60% is recoverable. It also holds gas condensates of about 5,000 barrels per billion cubic feet of gas.

Sequence of Events:
- **In 2010,** negotiations between the consortium led by ONGC and the National Iranian Oil Company(NIOC) to develop the gas field stalled due to sanctions against Iran by the US and EU.
- **However,** the sanctions were lifted after the **Joint Comprehensive Plan of Action** was signed in 2015. The consortium was close to signing an agreement with Iran to develop the gas field.
- **In 2018,** again after the US withdrawal from the JCPOA and the reinstatement of U.S. sanctions against Iran, the negotiations broke down.
- **India also froze energy ties** with Iran because of the US threat in 2018.
  - **In 2020,** Iran has said that it would develop the field on its own, and it might allow Indian involvement later.
- **Further, in May 2021,** the Iranian oil ministry said that a contract had been signed with a domestic company in Iran to develop the gas field.

India's Response:
- **The Ministry of External Affairs** has said that there is a possibility of India becoming a part of the projects in the Farzad B gas field in Iran at a later stage.
- **This statement indicates that India** is planning to re-energise ties with Iran in the gas and oil sector. Especially in the second half of the year as the US administration has held indirect talks with Iran on reviving the nuclear deal of 2015.

UK's Electronic Travel Authorisation Scheme
What is the News?

The United Kingdom (UK) has announced plans for a fully digital border with the launch of Electronic Travel Authorisation Scheme.

About Electronic Travel Authorisation(ETA) Scheme:
- **The scheme** is similar to the U.S.-style electronic travel authorization. It will pre-check the travellers coming to the U.K.
- **Under this,** visitors without a visa or immigration status have to apply for an electronic permit before coming to the UK.
- **Among those** who would need the **Electronic Travel Authorisation** (ETA) would be people arriving for short holidays or changing flights in the UK.
- **However**, people who wish to stay in the country for a long period of time - for example over six months - would need to obtain a visa rather than an ETA.

Significance of this new scheme:
- **The system** would allow automated and early security checks. It will stop foreign criminals from arriving in the country, with applicants only allowed to travel once they have been cleared.
- **The scheme** will also make it easier for the officials to count the numbers coming into the country.

"Global Electric Vehicles Outlook 2021": **International Energy Agency (IEA)** has released a report titled "Global Electric Vehicle Outlook Report,2021".**The Global EV Outlook(GEVO)** is an annual report published by IEA. The report looks at the latest EV trends. Apart from that, it also looks at the drivers for road transport sector electrification around the world.

"World Food Prize": Dr Shakuntala Haraksingh, a global nutrition expert of Indian descent has won the prestigious **2021 World Food Prize.** She was awarded for her research in developing holistic, nutrition-sensitive approaches to aquaculture and food systems.

India is the top receiver of remittances: The World Bank has released a report titled "**Migration and Development Brief, 2020".India** has received the highest amount of remittances in 2020. This was followed by China, Mexico, the Philippines, Egypt, Pakistan, France and Bangladesh.

Global Report on Food Crises 2021: Global Network Against Food Crises(GNAFC) has released the "**Global Report on Food Crises 2021".** The report focuses on 55 countries that account for 97% of the humanitarian assistance. Also, the report depicts the **acute food insecurity and malnutrition**

situation in countries chronically vulnerable to food crises. These countries often affected by fragile agri-food systems.

<div style="background-color:red; color:white; text-align:center; font-weight:bold">Science and Technology</div>

What are "Variants of Concern" (VoC)?

What is the News?

The **Variants of concern(VOC)** together with widespread relaxation of COVID-19 appropriate behavior resulted in the 2nd wave of Covid-19 in India.

What is a Variant of Concern?
- **The term variant of concern (VOC)** is a category assigned to a newly emerged variant of a virus with an increased ability of transmission.

Properties of VOC: The VOC is characterized by three sinister properties:
- **Firstly, Increased Transmission Efficiency:** In many countries, including India the VOC, by virtue of increased transmissibility, has started off a new wave(s) of epidemic transmission.
- **Secondly, Virulence:** It is the ability to cause severe/life-threatening disease. The UK variant has the worse virulence. The South Africa and Brazil variants do not seem to have higher virulence.
- **Thirdly, Immune to antibodies generated by previous vaccination or infection:** Most vaccines were made using antigens made from D614G variant. However, these vaccines show low efficacy on the South African, Brazil and UK variants. Hence, reinfection can occur in spite of immunity provided by earlier D614G infection or vaccination.

How does a new variant emerge?
- If a manuscript is copied by hand repeatedly, there are high chances of spelling errors.
- Similarly, when 'genetic scripts' encoded in DNA or RNA are copied repeatedly in virus replication, errors do occur.
- Further, RNA viruses are more error-prone than DNA viruses.SARS-CoV-2 genome is single-stranded RNA and mutations or different variants of a virus occur frequently.

Who detects these variants?
- The ability to detect and track new variants is on the laboratory capacity in whole genome sequencing of viruses.
- In India, the Indian SARS CoV-2 Genomic Consortium (INSACOG), a network of ten competent public-sector laboratories for genomic surveillance was established to detect and track variants.

Nomenclature of SARS-CoV-2 Variants:
- There are three different schemes of nomenclature of SARS-CoV-2 variants.
- The widely used one is the 'Phylogenetic Assignment of Global Outbreak Lineages'(PANGOLIN) that uses a hierarchical system based on genetic relatedness – an invaluable tool for genomic surveillance.
- It uses alphabets (A, B, C, P) and numerals starting with 1. Variant lineages are at the emerging edge of the pandemic in different geographies. Lineage B is the most prolific.

SARS Cov-2 Variants:
- The three most frequent Variant of Concern(VOC) are named by their geography of origin:
  - 'U.K. variant' for B.1.1.7;
  - 'South Africa variant' for B.1.351;
  - and 'Brazil variant' for P.1.

Note: The original pandemic virus (founder variant) was Wu.Hu.1 (Wuhan virus). In a few months, variant D614G emerged and became globally dominant.

A Mystery Behind "Positron Excess Phenomenon" Solved by Researchers

What is the News?

High energy particles are generally lower in the cosmic universe. But the high number of high-energy particles of the antimatter called positrons was a mystery for scientists.

But the researchers from the Raman Research Institute (RRI), Bengaluru have resolved a mystery called the "Positron Excess Phenomenon".

What is Antimatter?
- **Antimatter** is the opposite of normal matter. More specifically, the sub-atomic particles of antimatter have properties opposite those of normal matter. For example, the electrical charge of antimatter particles is reversed.
- The creation of antimatter happened along with matter after the Big Bang. But in today's universe, antimatter is rare.
- For example, Positron

What is Positron or anti-electron?
- A Positron is an antimatter counterpart to an electron.
- A positron has the equal or same mass as an electron.
- But the electron has a Negative Electric Charge whereas Positron has a Positive electric Charge.

What is Positron Excess?
- Over the years scientists observed excess of positron having the energy of more than 10 GeV

- But Positrons having an energy of more than 300 GeV are lower in comparison to astronomers' expectations.
- **This behavior of positrons** between 10 and 300 GeV is called as the 'positron excess'.

Reason for Positron Excess:
- **The Milky Way** consists of giant clouds of molecular hydrogen. They are the seats of the formation of new stars. These clouds can be as massive as 10 million times of the Sun's mass. Further, these clouds can extend up to 600 light-years.
  - ○ **The Milky Way** is a huge collection of stars, dust, and gas. It is called a spiral galaxy because if viewed from the top or bottom, it will look like a spinning pinwheel.
- **Cosmic rays** are produced in supernovae explosions. These waves propagate through these giant clouds before they reach the Earth.
- **Cosmic rays interact with** molecular hydrogen and can give rise to other cosmic rays primarily electrons and positrons.
- Further, cosmic rays propagate through these clouds and decay from their original forms and lose their wave energy by energising the clouds. Some may also get re-energised.
- Researchers from the Raman Research Institute (RRI) found out that Cosmic rays interaction with giant clouds is a viable contributor to the origin of **positron excess phenomenon.**

What are Cosmic Rays?
- **Cosmic rays** are one of the very few direct samples of matter from outside the solar system. They are high energy particles that move through space at nearly the speed of light.
- **They originate** from the sun, from outside the solar system in our own galaxy, and from distant galaxies.
- **Furthermore, they are tp blame** for electronics problems in satellites and other machinery.

"Mayflower 400" - World's First Artificial Intelligence Ship
What is the News?
A team of researchers from the marine research organization ProMare in collaboration with IBM built the world's first **Artificial Intelligence** (AI) ship named 'Mayflower 400'.

About MayFlower-400:
- **Mayflower 400** is an unmanned and completely autonomous ship. It is powered by Artificial Intelligence and the Sun's energy via **solar panels**.
- **Purpose:** Main aim of this ship is to study marine pollution and analyze plastics in the water. It will also track the aquatic animals. The ship is ready to sail on a transatlantic voyage.

- **Contributions:** Various nations such as **India**, the United States, and Switzerland have contributed a variety of technology to the project.
- **Significance**: 80% of the underwater world remains unexplored. Hence, the ship will help in exploring this unexplored area.

DCGI approves "2-deoxy-D-glucose (2-DG)" - an anti-COVID drug developed by DRDO
What is the News?

Defence Research and Development Organization (DRDO) has developed an anti-COVID drug named 2-deoxy-D-glucose(2-DG). Recently, the Drugs Controller General of India (DCGI) has approved this drug for emergency use.

About 2-deoxy-D-glucose (2-DG):

- **2-deoxy-D-glucose (2-DG)** is an anti-Covid oral drug. It has been developed by the Institute of Nuclear Medicine and Allied Sciences (INMAS), a lab of DRDO in collaboration with Dr Reddy's Laboratories (DRL).

How does a 2-DG drug work?

- The 2-DG comes in powder form in the sachet. One has to take it orally by dissolving the powder in water.
- The drug accumulates in the virus-infected cells. It, thereby, prevents virus growth by stopping viral synthesis and energy production.
- The selective accumulation of the drug in virally infected cells makes this drug unique.

Significance of this drug:

- The drug helps in the faster recovery of hospitalised patients. Further, it also reduces supplemental oxygen dependence.
- A higher proportion of patients treated with 2-DG also showed RT-PCR negative conversion in Covid-19 patients.

"CSIR-CMERI" Celebrates the National Technology Day- 2021
What is the News?

CSIR-CMERI has celebrated National Technology Day- 2021 by interacting with the MSME Representatives.

About CSIR-CMERI:

- **Central Mechanical Engineering Research Institute** (also known as CSIR-CMERI) is a public engineering research and development institution. It was founded in 1959.
- **Part of:** The institute is a constituent laboratory of the Indian Council of Scientific and Industrial Research (CSIR).
- **Purpose**: The aim of the institute is to develop national mechanical engineering technology, particularly in order to help Indian industries.

o **Currently, the Institute** is making R&D efforts in areas such as Robotics, Mechatronics, Cybernetics, Manufacturing, Precision agriculture, embedded system.

- **Located at:** Durgapur, West Bengal
- **Significance:** This institute is the only national-level research institute in the field of mechanical engineering in India.

National Technology Day:

- **National Technology Day** has been celebrated every year on May 11 since 1999.
- **Aim**: The day aims to commemorate the scientific and technological achievements of Indian scientists and engineers.
- **Theme:** Technology Development Board (TDB) selects a theme for each year's event. The theme of 2021 is "Science and Technology for a Sustainable Future".
- **Significance of this day:**
    o **Firstly,** on this day, on May 11, 1998, India conducted 3 successful nuclear tests at the Indian Army's Pokhran Test Range in Rajasthan under Operation Shakti.
    o **Secondly,** the day also commemorates the flight of "Hansa-3″. It was India's first-ever indigenous aircraft. The National Aerospace Laboratories had developed it.
    o **Lastly,** the Defense Research and Development Organisation (DRDO) test-fired the Trishul missile on this day. Further, it is a surface-to-air short-range missile.

Israel's "Iron Dome" is successful in intercepting rockets
What is the News?
Israel's '**Iron Dome**' System has been successful in intercepting the continuous barrage of rockets targeting Israel.

About Iron Dome:

- **Iron Dome** is a short-range, ground-to-air, air defence system. Israeli manufacturer Rafael Advanced Defense Systems developed it with support from the United States.
- **Purpose:** It is used for countering rockets, artillery & mortars (C-RAM). It will also counter aircraft, helicopters and unmanned aerial vehicles fired from distances of up to 70 kilometres.

How does Iron Dome work? The Iron Dome has three main systems. These systems will work together to provide a shield over the area where it is deployed, handling multiple threats:

- **Firstly,** it has detection and tracking radar. It tracks any incoming threat into Israel
- **Secondly,** it has a battle management and weapon control system (BMC). It predicts the incoming rocket's trajectory
- **Lastly,** the information picked by the system is then used to guide Tamir interceptor missiles. These missiles are fired vertically either from mobile units or a static launch site. This will detonate the incoming rocket in the air by producing explosions in the sky.

Other key Features of Iron Dome:
- The missile can be used in all weather conditions, including during the day and night.
- Israel claims the system has stopped thousands of enemy launches from hitting targets, with a success rate of more than 90%.

Biodegradable "Moorhen Yoga Mat" developed from "Water Hyacinth"
What is the News?

Six young girls from Assam have developed a biodegradable and compostable yoga mat called 'Moorhen Yoga Mat'.

Note: The Mat was developed with the support of the North East Centre for Technology Application and Reach (NECTAR). NECTAR is an autonomous body under the Department of Science & Technology (DST).

About Moorhen Yoga Mat:
- **Firstly, the 'Moorhen Yoga mat'** is named after Kam Sorai or Purple moorhen (a resident bird of Deepor Beel Wildlife sanctuary).
- **Secondly, the mat has been developed** from Water Hyacinth. The mat is 100% biodegradable and 100% compostable mat.
- **Thirdly, the mat** comes in a cotton canvas cloth bag. So that no zip or metal closures are used.
- **Benefits of the Mat:** The Moorhen Yoga mat has the following benefits:
  - The Mat can improve the aquatic ecosystem of the wetland through the removal of water hyacinth
  - It can provide sustainable production of utility products with community engagement
  - The mat can generate livelihood for indigenous communities to become completely 'Atma Nirbhar'.

About Water Hyacinth:
- **Water hyacinth** is a free-floating and flowering invasive aquatic plant that originated from Amazon Basin, South America.

Why is Water Hyacinth considered invasive?
- It grows rapidly and can form thick layers over the water. So Water hyacinth is considered invasive throughout the world.
- These mats shade out the other aquatic plants. Eventually, these shaded plants die and decay.
- The decaying process depletes the amount of dissolved oxygen in the water. As oxygen levels decline, many fish are unable to survive.
- Hence, often the waters below water hyacinth masses witness the absence of life.

Water Hyacinth in India:
- **States like Assam and Kerala** are highly affected by the Water Hyacinth.
- **Water Hyacinth is also referred to as the Bengal terror.** This is because of its effect on the local ecology and lives of the people.

Cabinet approves PLI scheme 'National Programme on Advanced Chemistry Cell Battery Storage'

What is the News?

Cabinet approves the Production Linked Incentive(PLI) Scheme 'National Programme on Advanced Chemistry Cell (ACC) Battery Storage'.

PLI Scheme For Advanced Chemistry Cell (ACC) Battery Storage':
- **Nodal Ministry:** Ministry of Heavy Industries & Public Enterprises
- **Aim**: The programme aims to set up facilities capable of manufacturing a cumulative 50GWh of Advanced Chemistry Cell (ACC) batteries.

Key Features of the Scheme:
- **Firstly,** the government will select the ACC battery storage manufacturers through a transparent competitive bidding process.
- **Secondly**, the selected ACC manufacturer will have to set up the ACC facility within a period of two years.
- **Thirdly,** there will be disbursement of the incentive to the manufacturer over a period of five years. The incentive amount will rise with the following,
    - Increased specific energy density and cycles,
    - Increased local value addition.
- **Fourthly,** the ACC firms will also have to achieve a domestic value addition of at least 25%. They should also incur the mandatory investment of Rs 225 crore /GWh within 2 years.
- **Lastly,** each selected ACC battery Storage manufacturer would have to commit to set up an ACC manufacturing facility of minimum 5GWh capacity. Further, they should also ensure a minimum 60% domestic value addition at the project level within five years.

Benefits of the Scheme:
- **Currently,** all the demand for the ACCs is satisfied through imports in India. Hence, the programme on ACC will decrease import dependence.
- **The manufacturing of ACCs** will also increase the demand for Electric Vehicles (EV).
- India can increase **net savings** of around Rs 2 lakh crore on account of oil import bill due to Electric Vehicles (EV) adoption.
- **Facilitate demand creation** for battery storage in India.
- **The impetus in R&D** can achieve higher specific energy density and cycles in ACC.
- **Promote newer** and niche cell technologies.

What are Advanced Chemistry Cell(ACC) batteries?

- **ACCs** are the new generation of advanced storage technologies. They can store electric energy either as electrochemical or as chemical energy. The cells then can convert it back to electric energy as and when required.
- **Sectors**: Consumer electronics, electric vehicles, advanced electricity grids and solar rooftops are major battery consuming sectors.

China launches Classified "Yaogan Satellites" Into Orbit

What is the News?

China has successfully launched the eighth group of three Yaogan-30 satellites into orbit on a Long March 2C rocket.

The eighth group of three Yaogan-30 satellites will join the seven previous groups in the orbit that had been launched earlier.

About Yaogan Satellites:

- **Firstly, Yaogan** is a series of Chinese reconnaissance satellites launched in the early 21st century.
  - A reconnaissance satellite or intelligence satellite is an Earth observation satellite or a communications satellite. It is deployed for military or intelligence applications.
- **Secondly, Purpose**: The satellites will be used for electromagnetic environment surveys and other related technology tests.
- **Thirdly, First Launched in:** The first Yaogan 1 satellite was launched in the year 2006.
- **Fourthly, Concerns**: Western analysts suspect that these Yaogan satellites are equipped with synthetic aperture radar (SAR) for military reconnaissance purposes.
  - **SAR refers to a technique** for producing high-resolution images. The radar can penetrate clouds and darkness and produce precise images. This means that it can collect data day and night in any weather.

"Winchcombe Meteorite" - To be Displayed in the UK

What is the News?

A piece of **Winchcombe meteorite** will be displayed at the National History Museum, Gloucestershire (UK).

About Winchcombe meteorite:

- The Winchcombe meteorite is also known as carbonaceous meteorite. These meteorites have high proportion of carbon.
- It was discovered after it landed in the driveway of a house located in Gloucestershire in the UK and considered "astonishingly rare".

- It is named after the place, where it fell down i.e. the town of Winchcombe in Gloucestershire in the UK. Furthermore, its weight is 103 grams, and it resembles coal in looks

Significance of meteorites:
- **Meteorites** date back to the birth of the solar system nearly 4.5 billion years ago. Hence, examining it may offer scientists and researchers clues about the beginning of the solar system and maybe even the Earth.
- **Moreover, this meteorite** is also significant because it has fallen and recovered from the UK in about 30 years.

What are Meteoroids, Meteors, and Meteorites?
- **Meteoroids**: These are objects in space that range in size from dust grains to small asteroids. Think of them as "space rocks."
- **Meteors**: When meteoroids enter Earth's atmosphere (or that of another planet, like Mars) at high speed and burn up, the fireballs or "shooting stars" are called meteors.
- **Meteorite**: When a meteoroid survives a trip through the atmosphere and hits the ground, it's called a meteorite.

Specific Missions launched to study Asteroid:
- **OSIRIS-REx mission:** NASA launched it in 2018, with the aim to reach asteroid Bennu and get back a sample from the ancient asteroid.
- **Hayabusa2 mission:** It was launched by Japan Space Agency in 2014 with the aim to study the asteroid Ryugu and to collect samples to bring to Earth for analysis. It returned to Earth in 2020.

New Naming System for Virus Variants
What is the News?
The **World Health Organization**(WHO) has announced that it would unveil a new naming system for Virus Variants. The system would be similar to the way tropical storms are named.

What is the current method of naming Virus Strains?
- **Currently, WHO and other agencies across the world** refer to viruses and their variants by formal lineage names. It is a combination of letters and names that point to the relationships between different variants.
   o **Example:** Variants such as B.1.1.7 and B.1.617 are named after mutations in common and as well clues to their evolutionary history.
- **Geographical tag:** The virus names and their associated diseases have also been frequently named after geographical places where outbreaks were first reported or samples first isolated.

o **Example**: West Nile virus, Ebola, U.K Strain (B.1.1.7) and South African Strain (B.1.351).

What is the problem with this method of naming strains?
- **The current method is stigmatizing** and disincentivizing countries from making their sequencing results public as the virus strains are associated with the geographical tag.
- **Moreover, the current naming of** virus variants is also difficult to remember for the public due to complicated lineage numbers.

What will the new method be like?
- **The new method of naming virus strains** would be similar to the way tropical storms are named.
- For the naming of tropical storms, the World Meteorological Organisation (WMO) leaves it to countries that surround a particular ocean basin to come up with names.

POINTLY

"Project Pyrasol" - **Project Pyrasol** is a part of the Indo-German Science & Technology Centre (IGSTC) flagship program 2+2 Project(2+2 project of Indo-German Science & Technology Centre). The aim is to transform urban organic waste into biochar (charcoal produced by pyrolysis) and energy in smart cities.

Blocktrack app: Researchers at the Indian Institute of Technology-Madras have developed a mobile app named "**Blocktrack app**". **Blocktrack** is a blockchain-based secure medical data and information exchange system for mobile phone applications.

Project MediCAB: IIT Madras supported start-up Modulus Housing has developed a portable hospital unit called 'MediCAB'. **Project MediCAB** is an initiative of the Office of principal scientific advisor and IIT Madras. It is a portable hospital unit that has been developed to boost healthcare infrastructure by assisting states to set up COVID-19 extension hospitals.

Miscellaneous

"Large Area Certification Scheme"
What is the News?

The Ministry of Agriculture and Farmer Welfare has conferred a land area in the Andaman and Nicobar with organic certification. This is the first large contiguous territory conferred with the organic certification under the 'Large Area Certification' (LAC) scheme.

This is a scheme of the PGS-India (Participatory Guarantee System) certification program.

Note: PGS is a process of certifying organic products. It ensures that their production takes place in accordance with laid-down quality standards for organics.

About Large Area Certification Scheme:
- <u>The Department of Agriculture and Farmers Welfare</u> under its flagship scheme of Paramparagat Krishi Vikas Yojna (PKVY) has launched the Large Area Certification Scheme.
  - **Paramparagat Krishi Vikas Yojana (PKVY)** was launched in 2015 with the aim to support and promote organic farming. This in turn results in the improvement of soil health.
- **Purpose:** The purpose is to provide a unique and quick organic certification to harness the potential land areas for organic products.

Process for Large Area Certification:
- **Firstly, under the LAC,** each village in the area is considered as one cluster/group. Documentations are simple and maintained village-wise.
- **Secondly, all farmers** with their farmland and livestock need to adhere to the standard requirements. After verification, they will get certified as a group. Once issued they don't need to go under conversion period.
- **Thirdly, certification is renewed** on annual basis through annual verification. Annual verification is a process of peer appraisals as per the process of PGS-India.

Benefits of Large Area Certification:
- As per the established norm of organic production systems, the areas having chemical input usage history will undergo a transition period of a minimum of 2-3 years to qualify as organic.
- On the other hand, the LAC requirements are simple. The area can be certified as organic almost immediately. Further, the LAC is a Quick certification process that is cost-effective. Apart from that, the farmers do not have to wait for 2-3 years for marketing PGS organic certified products.

Puducherry becomes 'Har Ghar Jal' UT under "Jal Jeevan Mission"
What is the News?
Puducherry has become the '<u>Har Ghar Jal</u>' Union Territory by ensuring that every rural home gets a household tap connection.
Note: Puducherry has become the fourth state or UT after <u>Goa, Telangana and Andaman and Nicobar Islands</u> to provide assured tap water supply to every rural home under **<u>Jal Jeevan Mission</u>** (JJM).

About Jal Jeevan Mission(JJM):
- **Jal Jeevan Mission (JJM)** was launched by the Ministry of Jal Shakti in 2019.
- **Objective:** The aim is to provide safe and adequate drinking water through individual household tap connections by 2024 to all households in rural India.
- **The goal of the mission**: The goal is to have 'Har Ghar Jal'- every house in the village is to be provided with a Functional tap connection.

Fund Sharing Pattern under the mission:

- The fund sharing pattern between Center and State under the mission is as follow:
  - ○ 90:10 for Himalayan (Uttarakhand, Himachal Pradesh) and North-Eastern States
  - ○ Total fund for UTs will be provided by Center.
  - ○ 50:50 for the rest of the States.

Key Features of the mission:

- **Firstly, the mission is a decentralized,** demand-driven and community-managed programme. The Gram Panchayat will play a key role in planning and implementation.
- **Secondly, the mission** includes extensive Information, Education and communication as a key component of the mission.
- **Thirdly, the mission will also implement source sustainability measures** as mandatory elements. This includes measures such as recharge and reuse through greywater management, water conservation, rainwater harvesting.
- **Further,** States will give priority to
  - ○ Water quality-affected areas,
  - ○ Villages in drought-prone and desert areas,
  - ○ Scheduled caste/scheduled tribe majority villages,
  - ○ Aspirational districts and Sansad Adarsh Gram Yojana villages.

"Mission for Integrated Development of Horticulture"(MIDH) Scheme
What is the News?
The Ministry of Agriculture and Farmers Welfare has provided an enhanced allocation of Rs. 2250 Crore for the year 2021-22 for 'Mission for Integrated Development of Horticulture'(MIDH).

Mission for Integrated Development of Horticulture(MIDH):

- **The mission for Integrated Development of Horticulture (MIDH)** is a Centrally Sponsored Scheme for the holistic growth of the horticulture sector.
- **Nodal Ministry:** Ministry of Agriculture & Farmers Welfare is implementing the MIDH scheme since 2014-15.
- **Part of:** The scheme is being implemented as a part of the **Green Revolution - Krishonnati Yojana.**
- **Coverage**: The scheme covers fruits, vegetables, root and tuber crops. The scheme also covers mushrooms, spices, flowers, aromatic plants, coconut, cashew and cocoa.

Sub Schemes under MIDH: The mission has the following sub-schemes as its component:

- National Horticulture Mission (NHM)
- Horticulture Mission for North East & Himalayan States (HMNEH)
- National Horticulture Board (NHB)
- Coconut Development Board (CDB)
- Central Institute for Horticulture (CIH), Nagaland.

Funding: *Under the scheme,*

- **The government of India (GOI)** contributes 60% of the total outlay for developmental programmes in all the states except states in the North East and the Himalayas.
- **In the case of the** North-Eastern States and the Himalayan States, GOI contributes 90%.
- **In the case of** the following the GOI contributes 100%.
  - National Horticulture Board(NHB),
  - Coconut Development Board(CDB),
  - Central Institute for Horticulture(CIH)
  - The National Level Agencies(NLA)
- **Further, the scheme also provides** for technical and administrative support to State Governments/ State Horticulture Missions (SHMs). It also provides technical and administrative support for the Saffron Mission and other horticulture-related activities.

Performance of the scheme: MIDH scheme has played a significant role in increasing the area under horticulture crops such as:

- **Area and production** under horticulture crops during the years 2014 – 15 to 2019 – 20 has increased by 9% and 14% respectively.
- **During the year 2019-20,** the country recorded its highest ever horticulture production of 320.77 million tonnes from an area of 25.66 million hectares.
- **However, the sector** is still facing a lot of challenges. Such as,
  - High post-harvest loss
  - Gaps in post-harvest management
  - Supply chain infrastructure.

"SAMVEDNA Helpline"- Tele Counselling of Children Impacted by Covid-19

What is the News?

Children impacted by the Covid-19 pandemic are being provided telecounseling through SAMVEDNA.

About **SAMVEDNA:**

- **Firstly, SAMVEDNA** stands for Sensitizing Action on Mental Health Vulnerability through Emotional Development and Necessary Acceptance.
- **Secondly, i**t is a toll-free helpline number that **aims** to provide psychological first-aid and emotional support to the COVID-19 affected children
- **Thirdly,** the **National Commission of Child Rights** (NCPCR) **provides** the tele-counseling.
- **Fourthly,** this tele-counselling service is available on a t**oll-free number 1800-121-2830.** It is exclusive for children who are willing to talk and are in need of counselling.
- **Categories:** Tele-counselling is provided to children under three categories:
  - children who are in quarantine/isolation/COVID care centres,
  - children who have COVID positive parents or family members and
  - Lastly, children who have lost their parents due to the pandemic.

About National Commission for Protection of Child Rights(NCPCR)

- **NCPCR** is a statutory body. It was established in 2007 under the Protection of Child Rights Act (CPCR), 2005.
- **Ministry:** It is under the administrative control of the Ministry of Women & Child Development.
- **Mandate:** It aims to ensure that all laws, policies, programmes and administrative mechanisms are in accordance with the child rights perspective as put forward in the Constitution of India and also the UN Convention on the Rights of the Child.

Govt signs MoU with Microsoft for the "Digital Transformation of Tribal Schools"

What is the News?

The Ministry of Tribal Affairs(MTA) has signed a **Memorandum of Understanding** (MOU) with Microsoft. The MOU aims to support the digital transformation of Tribal schools such as Eklavya Model Residential Schools (EMRS).

About the MoU for Digital Transformation of Tribal Schools:

- **As part of the MoU,** Microsoft will make **Artificial Intelligence** (AI) curriculum. This will be available to tribal students in both English and Hindi at all EMRS schools.
- **Teachers across the states** will also be trained in a phased manner for using productivity technologies like Office 365 and AI applications in teaching.

Significance of this initiative:

- **This program will ensure** that tribal students get a chance to change their future, their environment, their village, and the overall community.
- **The initiative will also enable** the professional development of educators and also enable them to use technology in classrooms.
- **It will also be able to bridge the gap** between the tribal students and others.

About Eklavya Model Residential Schools(EMRS):

- **Eklavya Model Residential Schools (EMRS)** is a Government of India scheme for model residential schools for Scheduled Tribes across India.
- **Nodal Ministry:** The scheme was launched by the Ministry of Tribal Affairs in the year 1997-98.
- **Aim:** To impart quality education to ST children in remote areas. It will also enable them to avail themselves of opportunities in high and professional educational courses and get employment in various sectors.
  - o The schools focus not only on academic education but on the all-around development of the students.
- **Grants: The government** of India provides grants for the construction of schools and recurring expenses to the State Governments under Article 275 (1) of the Constitution.

- **Target**: Every block with more than 50% ST population and at least 20,000 tribal persons, will have an Eklavya Model Residential School by the year 2022.
- **Significance**: The schools will be on par with Navodaya Vidyalayas. It will have special facilities for preserving local art and culture besides providing training in sports and skill development.

Eklavya Model Day Boarding Schools (EMDBS)

- **Eklavya Model Day Boarding School (EMDBS)** is being set up wherever the density of ST population is higher in identified Sub-Districts (90% or more).
- **Objective:** These schools will be set up for providing additional scope for ST Students seeking to avail school education without residential facility.

Government launches "CBID Program" on Rehabilitation of Divyangjan
What is the News?

The Union Minister of Social Justice & Empowerment has virtually launched a 6-month CBID (Community Based Inclusive Development) Program on rehabilitation of Divyangjan (Persons with Disabilities).

About CBID (Community Based Inclusive Development) programme:

- **Developed by:** The programme has been co-designed by the Rehabilitation Council of India and the University of Melbourne.
- **Aim:** The programme aims to create a pool of Grassroot rehabilitation workers at the community level. These workers will be trained for successfully discharging their duties.
- **After training,** the workers can then work alongside the ASHA and Anganwadi workers. They can handle cross-disability issues and facilitate the inclusion of persons with disabilities in society. The workers will be called 'Divyang Mitra' i.e. friends of persons with disabilities.
- **Nodal Body:** National Board of Examination in Rehabilitation under the Rehabilitation Council of India will conduct examinations. The board will also award certificates to pass-out candidates.

About Rehabilitation Council of India(RCI):

- **RCI was initially** set up as a registered society in 1986. In 1992, the Rehabilitation Council of India Act was enacted by Parliament, and it became a Statutory Body in 1993.
- Mandate:
    - To develop, standardize and regulate training programmes/ courses at various levels in the field of Rehabilitation and Special Education.
    - To maintain the Central Rehabilitation Register for qualified Professionals/ Personnel and promote Research in Special Education.
    - It will also take punitive action against unqualified persons delivering services to persons with disability.