



VISION IAS

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TURN YOUR ROOM INTO A CLASSROOM

1. POLITY AND CONSTITUTION

1.1. ELECTIONS DURING COVID TIMES

Why in News?

Several countries, including India, have successfully conducted polls during COVID-19 with safety measures in place.

COVID-19 and elections

- One of the cascading effects of the COVID-19 pandemic has been its impact on conducting elections. Some countries have pushed ahead with elections.
- Elections during COVID-19 presents certain challenges. However, postponing elections may not be the appropriate option as it has following risks:
 - **Political risks:** disturbing the level playing field and undermining the incumbent or opposition;
 - **Reputational risks,** for an organization that makes decisions, for trust in democratic processes and institutions
 - **Financial risks:** budgetary implications, e.g. money invested that cannot be recovered;
 - **Operational risks:** alternative dates are not feasible because of other risks, e.g. extension of term, other events;
 - **Legal risks:** the decision can be legally challenged.
- **Challenges faced in elections during COVID-19:**
 - **Campaigning:** large rallies can spread the virus. Virtual campaigning through social and print media and radio will have to suffice. This will raise the cost of campaigning, exclude the poor and indigent, further favoring those with access to finance and technology.
 - **Polling stations:** These will be impacted as it becomes increasingly more difficult to find workers to man them and also need to provide protective gear and sanitizer at such a large scale.
 - **Preparedness of electoral management bodies (EMBs):** preparing for elections will be infinitely more difficult where movement and contact is constrained. Most EMBs will face increased administrative and logistical work necessary to hold elections during COVID-19.
 - **Effect on turnout:** Elections are characterised by high turnout and equal levels of participation across different groups in a society. Holding an election during a pandemic could undermine this aspect by reducing turnout.
 - **Impediments on Transparency:** Conventionally, elections are monitored by domestic and international observer groups to ensure the processes are lawful and meet the requirements for an election conducted with integrity. For COVID-19 elections, the situation could be different.

Key measures announced by Election Commission for Bihar elections

- **COVID-19 patients were also allowed** to take part in the democratic exercise by extending voting time by one hour.
- **Number of voters per booth was restricted** (to 1000 persons) so that social distancing norms are followed.
- **Postal ballot facility was provided** wherever required and requested.
- **Nomination forms were made available online,** apart from offline.
- There were **restrictions on door-to-door campaigning.** The ECI said only five, including the candidate, will be allowed for door-to-door campaign.

Best Practices on elections during COVID-19

- **New Zealand:** Alternative voting arrangements being considered are extending the online service for voting; extending the telephone dictation voting service; offering proxy voting and postal voting and expanding the use of mobile ballot boxes.
- **South Korea:** special polling stations for COVID patients, postal voting and early voting, political agreements on electoral calendar and procedures etc.

Measures for conducting elections during COVID-19

- **Political consensus in sustaining decisions** made on the electoral calendar and procedures to avoid political friction and not undermining the legitimacy of the electoral result.
- **Special Voting Arrangements** and enabling various modalities to cast the vote. Voters should be offered voting methods that minimise direct contact with other people and reduce crowd size at polling stations.
- **Adopt measures that reduce the risks of contagion,** which range from the availability of masks and other protective materials, to the opening of more voting centers and the extension of the voting period.
- **Voter education** should reach all genders. It is important to understand how women access information during the pandemic and target voter education to ensure they have equal access to that information.

1.2. DATA GOVERNANCE QUALITY INDEX

Why in news?

Department of Fertilizers under the Ministry of Chemicals and Fertilizers has been ranked 2nd amongst the 16 Economic Ministries / Departments and 3rd out of the 65 Ministries / Departments on **Data Governance Quality Index (DGQI)**.

About DGQI

- DGQI survey **assesses different Ministries /Departments' performance** on the implementation of Central Sector Schemes (CS) and Centrally Sponsored Schemes (CSS).
- It is conducted by **Development Monitoring and Evaluation Office (DMEO) under NITI Aayog**.
- Its objective is to **assess data preparedness of Ministries / Departments** on a standardized framework to drive healthy competition among them and promote cooperative peer learning from best practices.
 - It will **immensely help improve the implementation framework of government policies**, schemes and programmes to achieve the desired goals.
- **Major themes of DGQI include** Data Generation; Data Quality; Use of Technology; Data Analysis, Use and Dissemination; Data Security and HR Capacity & Case Studies.

What is the role of data in governance?

- **For digital economy growth:** Affordable access to the internet and an encouraging regulatory system has made India the country with the second-largest internet users in the world and has powered its digital economy.
- **Better decision making:** The rapid technological advances have led to large volumes of data being generated by various activities, thus, increasing the dependence of business on data-decision making.
- **Political accountability:** Open government data can create political accountability, generate economic value, and improve the quality of federal initiatives. The possible benefits of Big Data analytics in government could range from transforming government programmes and empowering citizens to improving transparency and enabling the participation of all stakeholders.
- **Citizen empowerment:** Since the launch of the Digital India Program, the country has witnessed tremendous growth in digital infrastructure and initiatives in innovating e-governance policies that can lead to digital empowerment of citizens.
- **Prevents leakage:** Real time monitoring of Direct Benefit Transfer could reduce any potential leakage. It would also lead to need based improvisation in the governance without any lag.
- **Efficient administration:** Actively engaging policy makers and researchers with the processed data is crucial for making targeted and tailored programmes could improve the efficiency of programmes.

Challenges

- **Collection of data:** Collection of data is a paramount task for government as data is received from multiple online and offline channels. Sharing data between departments and across ministries is a challenge, given the jurisdictional boundaries that exist.
 - Moreover, there has been a lack of consistent dialogue and coordination between key stakeholders.
- **Political will for utilizing data in governance:** Data driven policies would be more realist and may target long term benefits. This may go against popular will. Hence, strong political will is required to implement such policies.
- **Privacy concerns:** While privacy of data is important for businesses and government, public trust in government is particularly important. Hence, any breach of confidentiality regarding data that is collected and processed by the government could have serious ramifications.
 - According to The Internet Crime Report for 2019, India stands third in the world among top 20 countries that are victims of internet crimes.
- **Funding & Innovations:** While access to personal data has skyrocketed, funding targeted towards cross-disciplinary research on data governance has remained limited. This has led to a dearth of original research that policymakers can draw upon when trying to make sound policy decisions on data governance in India.

Way ahead

- **Open Data Policy:** Holistic decisions could be made if various government organizations share the pieces of data in their possession. Sharing and monitoring the collected data can help to make a democratic and cost effective governance process
- **Capacity building:** Technological companies and start-ups, which can offer solutions in data analytics by managing massive, complex data, need to be encouraged.
- **Funding the innovations and research:** A structured mechanism should be established for financial contribution of industries in the research field. Also government should put funding of research in priority list.
- **Legislative reforms:** Data collected by various entities is processed and disseminated in various forms. During this process, it should be ensured that the information is not distorted; not disclosed; not appropriated; not stolen; and not intruded upon within specified rules and guidelines.
 - **The proposed “Data Protection bill” and the report by Kris Gopalakrishnan committee** may prove a milestone in this direction.
 - Also, data protection and privacy regulations and guidelines, as exemplified by the EU’s General Data Protection Regulation, is prerequisite.

Utility of Data in governance in India

- There are a few large data projects that **seek to improve delivery of government services, boost private sector opportunities**, all the while enhancing the state’s law enforcement and surveillance powers.
- **Various projects include:**
 - **Unique Identification Authority of India (UIDAI):** UIDAI stores all biometric and demographic details of Aadhaar card holders.
 - **National Intelligence Grid (NATGRID):** This came about in the wake of the 26/11 attacks as a unified intelligence database which would collect data and patterns, such as immigration entry and exit, etc.
 - **Interoperable Criminal Justice System (ICJS):** It was launched with an aim to integrate all courts, police stations, prosecution, forensic science laboratories and jails in the country.
 - **DNA Databanks:** The DNA Technology (Use and Application) Regulation Bill of 2018 seeks to establish regional and national level databanks for both criminal and civil matters.
 - **Big data:** Big Data and associated analytics are beneficial in various areas, such as solving traffic problems in cities; targeting healthcare delivery; efficient supply chain management; preventive steps for environmental protection; etc.

KEY DRIVERS OF DATA GOVERNANCE



Conclusion

Quality data, if analysed at the right time, can be critical for programmatic decision-making, efficient delivery of schemes, and proactive policy revision. Big Data can have a big impact only if used on a massive scale (with safeguards) by governments for the delivery of public goods and services.

1.3. INTEGRITY PACT

Why in new?

Recently, the Central Vigilance Commission (CVC) has amended the Standard Operating Procedure (SOP) on adoption of “Integrity Pact” in government organisations for procurement activities and restricted the maximum tenure of Integrity External Monitors (IEMs) to three years in an organisation.

More about news

- Integrity Pact envisages a **panel of Independent External Monitors (IEMs)** approved for the organization.
- IEM reviews independently and objectively, whether and to what extent parties have complied with their obligations under the Pact.

Integrity pact

- It is a **vigilance tool** that envisages an agreement between the prospective vendors/bidders and the buyer, committing both the parties not to exercise any corrupt influence on any aspect of the contract.
- Its **implementation is assured by Independent External Monitors (IEM)** who are people of unimpeachable integrity.

- The IP **sets out rights and obligations** of the parties involved in public contracts as well as that of IEM.
- Thus, **IP is both a legal document and a process**. It is also adaptable to many legal settings.
- IP was **developed by Transparency International in 1990s**.
- **IP has three players**
 - **The Principal or the Company:** The Principal gives an undertaking by the Principal that its officials will not demand or accept any bribes, kickbacks, gifts, facilitation payment etc.
 - **The Vendor/bidder:** The bidder gives an undertaking that it has not paid, and will neither offer nor pay any bribe, kickbacks facilitation payments, gifts etc. in order to obtain or retain the contract.
 - **The Independent External Monitor (IEM): IEMs play a role only if the obligations in the IP are not fulfilled** by the Principal and/or bidders/vendors.



Advantages of IP

- **Faster processing of contracts**
- **Improvement in the image and general perception** of the company
- **Reduced lawsuits**
- **Smoothens the procurement process, avoids litigation and arbitration** and in addition the corporation which uses the Integrity Pact **improves its profitability by 8%-10%**

Problems in implementation of IP

- **At times, tremendous duplication:** An aggrieved party complains to the CVC and simultaneously takes it to the court also. CVC wants the IEM to investigate the matter and, at the same time, also suggests that someone from the Corporation conduct a technical examination. Thus, the same issue is debated in three different fora. **This leads to a lot of wastage of time, energy and resources.**
- **Difficulty in getting overseas suppliers to accept IP:** Foreign companies have doubts about IP and questions about its adoption. Hence, negotiations with them take time.
- **Double-edged sword:** If IP is not signed, then the head of the company has to face questions from the company. On the other hand, if the foreign company does not sign it, then the company loses its vendor.
- **Disincentive for the government companies:** It is an undue advantage to private companies. IP makes the government company open to complete disclosure while a private company is not accountable to anyone.
- **Concern regarding commercial confidentiality:** PSUs feel that too much disclosure could make them lose their edge in the bidding process whereas vendors are of the opinion that PSUs do not disclose all the information required, as per provisions of the Right to Information (RTI) Act.
- **The IEMs are new to IP and do not have any experience how best to start their functions**

Central Vigilance Commission (CVC)

- It was set up in 1964 on the **recommendations of the Committee on Prevention of Corruption**, to advise and guide Central Government agencies in the field of vigilance.
- CVC is a **statutory body** for preventing corruption in the Central government.
- **CVC in 2008 recommended adoption of IP** to all the Secretaries to the GoI, all CMDs of PSUs and PSB, and all CVOs, and **provided basic guidelines for its implementation** in respect of major procurements in the Government Organizations.

Way ahead

- **Avoid duplication in grievance redressal:** When an aggrieved party that seeks redressal in one fora, other authorities should refrain from attending the same matter. Taking the case to IEM is better than going to court where it is a lengthy and costly affair. IEM's process is a quick process giving the aggrieved the same opportunity that they seek in court.
- **Recalibrating the role of IEM:** Despite IP being in place since 2007 many scams took place after 2008. This necessitates the need to relook and strengthen the role of IEM.
 - **IEMs need to adopt a proactive strategy** instead of waiting till a complaint has been received.
 - **The government and civil society should manage IEMs effective selection process.**
 - IEMs should mutually **share their experiences about cases, circumstances etc.**

- Many a times, the IEMs are located in different cities. To avoid delay, PSU's should go for **teleconferencing**.
- IEMs should not only be **monitoring the tenders and bids**, but also **monitor the execution of the works**.
- **There should be a procedure for removal of IEMs** lacking ethical competence.
- **Time limit for addressing the grievances:** The complaints filed with the CVC should be addressed within 3 months
- **Universalisation of the IP:** All public and private enterprises should adopt IP. This would ensure a level-playing field to check unfair advantage to private companies.
- **Develop Ethical Competence:** Need to educate the people about values and morals.

Conclusion

India is considered to be one of the most corrupt countries in the world. India has been ranked at the **80th position among 180 countries and territories in the Corruption Perception Index (CPI), 2020**. A **revitalized Integrity Pact** could prove **milestone in ensuring people do not lose their rights due to corruption** that appears to be institutionalised in almost every organization in India.

1.5. NATIONAL PROGRAM AND PROJECT MANAGEMENT POLICY FRAMEWORK

Why in News?

Recently, NITI Aayog and Quality Council of India (QCI) launched National Program and Project Management Policy Framework (NPMPF).

About NPMPF

- **It provides an action plan to:**
 - Adopt a **program and project management approach** to infra development.
 - Institutionalize and promote the profession of program and project management and **build a workforce of such professionals**.
 - **Enhance institutional capacity and capability** of professionals
- It **envisages radical reforms** in the way infrastructure projects are executed in India.
- It will help in developing **good quality infrastructure, robust governance and reducing costs and waste material**, without compromising on the environment and ecology.

Program and Project Management

- **It integrates the individual elements of a project** in order to achieve a common objective.
- It is cross-functional in its approach, **managing across various disciplines of constituent projects** such as engineering, designing, planning, procurement, construction and finance as well as various components like power, water, highways, waste management etc.
- Program Management is strategic in nature, while project management is tactical in nature.
 - Program Management focuses on achievement of intended objectives through coordination of multiple projects. Project management focuses on tactics of planning and execution of work output.

Why needed?

- **Poor project management costs the Government:** Crowds out funding for more deserving projects, creates a culture of acceptance of delays and avoidable costs, economic burden due to delayed return in investments.
- **Effective response to changing project requirements:** It will bring in synergies, integration and a common language to complex program initiatives like Sagarmala, Bharatmala, Smart Cities Mission etc.
 - It is estimated that approx. 304 lakh crore of investment is required in Indian infrastructure sector till 2040.
- **To minimize time and cost overrun** due to some key challenges faced during project delivery including uncertainties in the land acquisition process and regulatory approvals, lack of comprehensive upfront planning and risk management etc.
- It will provide coherent execution approach that forms a **crucial link between the portfolios of projects and their component strategic disciplines** to ensure smooth execution of the projects.

1.6. FOREIGN CONTRIBUTION (REGULATION) AMENDMENT ACT, 2020

Why in news?

The Foreign Contribution (Regulation) Amendment Bill, 2020 was passed by parliament.

Background

- Earlier, Central Bureau of Investigation in its report submitted before the Supreme Court has said **less than 10% of the 29-lakh registered NGOs across the country file their annual income** and expenditure.
- Also, according to report by Intelligence Bureau (IB) **foreign-aided NGOs are actively stalling development projects** and impacting GDP growth by 2-3% per annum.
- In this backdrop, the amendments were introduced to FCRA,
 - To **regulate non-governmental organisations** and make them more accountable and transparent.
 - To **regulate religious conversions**, which are supported by foreign funds.
 - To ensure **foreign money is not used against national interests** or for anti-national activities.
- The bill amends the **Foreign Contribution (Regulation) Act, 2010 (FCRA)**. The Act regulates the acceptance and utilisation of foreign contribution by individuals, associations and companies. Foreign contribution is the donation or transfer of any currency, security or article (of beyond a specified value) by a foreign source.

Provisions of the Amendment

- **Prohibition to accept foreign contribution:** Under the Act election candidates, editor or publisher of a newspaper, judges, government servants, members of any legislature are prohibited to accept any foreign contribution.
 - The **Amendment 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.
 - The Amendment **prohibits the transfer of foreign contribution to any other person**.
- **Aadhaar, passport and OCI card for registration:** Amendment adds that any person seeking prior permission, registration must **provide the Aadhaar number of all its office bearers**, directors etc. In case of a foreigner, they must provide a copy of the passport or the Overseas Citizen of India card for identification.
- **FCRA account:** Amendment states that foreign contribution must be received only in an account designated by the bank as 'FCRA account' in such branch of the State Bank of India, New Delhi, as notified by the central government.
 - No funds other than the foreign contribution should be received or deposited in this account.
 - The person may open another FCRA account in any scheduled bank of their choice for keeping or utilising the received contribution.
- **Restriction in utilisation of foreign contribution:** Under the Act, if a person accepting foreign contribution is found guilty of violating any provisions of the Act, the unutilised foreign contribution may be utilised, only with the prior approval of the central government.
 - The Amendment adds that the government may **also restrict usage of unutilised foreign contribution** for such persons based on a summary inquiry, and pending any further inquiry.
- **Renewal of license:** Under the Act, every person who has been given a certificate of registration must renew the certificate within six months of expiration.
 - Amendment adds that, the **government may conduct an inquiry before renewing the certificate** to ensure that the person has fulfilled all conditions specified in Act.
- **Reduction in use of foreign contribution for administrative purposes:** Under the Act, a person who receives foreign contribution must use it only for the purpose for which the contribution is received. Further, they must not use more than 50% of the contribution for meeting administrative expenses.
 - Amendment reduces this limit to 20%.
- **Suspension of registration:** Under the Act, the government may suspend the registration of a person for a period not exceeding 180 days.
 - Amendment adds that such suspension may be extended up to an additional 180 days .

Concerns about the amendments in FCRA

- **Lacks fund accessibility:** Many NGO's will not be able to access foreign funds because the scheme under which they receive these funds from donor agencies and larger NGOs, known as 'regranting' has been banned.
- **Restriction to explore:** The amount NGOs can spend on administration has been cut from 50% to 20%, mean many smaller NGOs will not be able to employ enough staff, hire experts and implement strategies they require to grow.

- **Compulsion of Aadhar:** SC judgement on Aadhar said to ensure greater privacy of individual's Aadhaar data and restricts governments access, while compulsion under amendment seems contravene the judgement.
- **Not well scrutinised:** The draft of the Bill for above amendments was not in the public domain till it was introduced in the Lok Sabha.
- **Hamper delivery of social welfare schemes:** It will have far-reaching consequences on the fields of education, health, people's livelihoods because NGO's provide last-mile connectivity for the delivery of government schemes in these fields.

Way forward

As civil society organisations seek accountability from others, it is a moral obligation for them to themselves be accountable and transparent in substantive ways and maintain the highest standards. However, regulation should balance with their freedom of functioning. Some suggestions are:

- **Recommendations of Vijay Kumar Committee:**
 - Modernising registration process for seamless operation of the applicable provisions of the IT (Income Tax) Act and FCRA with respect to NGOs.
 - Details of NGOs should be made available as searchable database information.
- **2nd ARC report recommendations:**
 - FCRA should be decentralised and delegated to State Governments/District Administration.
 - Fine balance between the purpose of the legislation and functioning of the voluntary sector to avoid subjective interpretation of law and its possible misuse.

1.7. GLOBAL PROTESTS

Why in News?

Recently, there are protests in different countries against government policies on a wide range of issues, ranging from inequality to hunger and unemployment despite the Covid-19 lockdowns.

More in News

- Global Protest Tracker reveals that, despite the seemingly unfavorable conditions for protests, mass demonstrations have begun to return at a notable rate and scale in the past months.
 - **In the United States**, hundreds of thousands of people in over 2,000 localities across the country have protested the killing of Black Americans like George Floyd and Breonna Taylor by police officers.
 - **In Colombia**, Protests have been ongoing since November 2019 against a range of proposed economic and political reforms.
 - **In Pakistan**, opposition parties come together to channelise public discontent at rising prices, power cuts, closure of businesses and other economic misery.
- Carnegie Endowment for International Peace has tracked anti-government protests worldwide since 2017. In that time, more than 100 significant anti-government protests have been erupted worldwide, leading to fall of 30 government or leaders.

Reasons for rise in global protests

- **Socioeconomic issue:** These include tax hikes in Greece, austerity policies in the United Kingdom, indigenous rights in Chile, subsidy cuts in Nigeria, wage issues in South Africa, the cost of living and housing prices in Israel, and gender-based violence in India.
- **Corruption:** corruption trigger is often set off by a specific revelation about the actions of particular politicians but then quickly cascades into a much broader wave of revulsion toward the whole governing system.
- **Political factor:** In a number of cases, specific political issues served as triggers bringing out protesters angry about the broader climate of repression and corruption. Example, protest in Hongkong.
- **New communication technologies and media platforms:** They enables movements in different countries to learn from and engage with each other.
 - The leaderless pro-democracy protest movement in Thailand is connected to groups guiding similar efforts in Hong Kong.
- **Growth of civil society organizations** around the globe in the past two to three decades, especially in those parts of the developing and former Communist worlds where civil society was previously so weak.

Characteristics of the Current Wave of Protests

- **Diversity of places:** Unlike the last major global wave of protests that was associated with the spread of democracy in the 1980s and 1990s, protests are increasing now in every region of the world and in every type of political context.
- **Local triggers:** The current wave of protests is triggered primarily by economic concerns or political decisions, not by transnational issues like globalization that animated some previous protests.
- **Absence of coherent policy messages:** They are designed to be a kind of mass theater that triggers bigger waves of disruption. They seek a different way of doing politics, rather than simply offering a standard series of policy recommendations.
- **Organisationally minimalistic:** Modern protest is organisationally minimalistic, even 'leaderless', heavily dependent on social media and wary of any alliance with 'old' forms of civic and political organisation.
- **Blame the Foreigners:** In recent protests leaders often blame foreigners for the protests. This emphasis on a foreign role in protests highlights the difficulty that many leaders have in accepting that their own citizens are turning against them.
 - This view signals leaders' inability to believe that there exists in their country a genuine civic sector—whether organized around NGOs, unions, or other groups—outside the control of the political establishment and with a legitimate, independent voice.
- **Many protests are not long-term campaigns** but short-lived revolts.

Conclusion

The world started 21st century with expectations that the political character of this century would be largely democratic, as countries throughout the developing and post-Communist worlds worked steadily to fulfill the widespread democratic aspirations. But recent rise in global protest highlighted tremendous global political uncertainty. Today's wave of protests is complex. So, a more granular understanding of protests' aims, forms and impacts is needed.

1.8. TELEVISION RATING IN INDIA

Why in News?

Recently, Ministry of Information and Broadcasting has constituted a committee to review guidelines on Television Rating agencies in India.

Background

- In 2014, Ministry of I&B formulated policy guidelines for Television Rating Agencies to operate in India.
 - 2014 guidelines provide for **self-regulation of television ratings** through an industry-led body like Broadcast Audience Research Council (BARC)
 - BARC is an industry-led body represented by the Indian Broadcasting Foundation (IBF), the Indian Society of Advertisers (ISA) and the Advertising Agencies Association of India (AAAI).
 - BARC India commenced its operations in 2015 and since then it is the sole provider of Television Rating services on a commercial basis.
- BARC calculate Television rating points (TRP) using "**BAR-O-meters.**"
 - **TRP is the criterion that indicates the popularity of a channel or programme.**
 - ✓ Television ratings provide information about the TV watching habits of viewers from different socio-economic background of the audience.
 - ✓ This could be for an hour, a day, or even a week; India follows the international standard of one minute.
 - BAR-O-meters have been installed in over 45,000 empanelled houses by BARC.
 - The **BARC releases weekly TRP results every Thursday** ranking all TV channels and TV programmes.

Significance of television rating

- **It assists advertisers, broadcasters and advertising agencies** in selecting the right media at the right time to reach the target audience.
- **Television ratings influence programmes produced for the viewers.** Better ratings would promote a programme while poor ratings will discourage a programme.
- **TV ratings form an important constituent of fund flows in television industry.**

Issues with Television ratings in India

- **Limitations of sample size:** Inadequate representation of the plurality of the platforms, regions, rural and small towns to reflect correctly the viewership.
- **Reliability of the ratings:** A lack of transparency in the method adopted for selection of the households and confidentiality of the names of the panel households
- **Lack of Validations:** The ratings are not subjected to any validity tests. There is no independent audit carried out on the methodology adopted by the rating agencies
- **Leakage of panel homes which could lead to manipulated ratings:** TRP data be manipulated when broadcasters find households where BAR-O-meters installed and bribe them to watch their channels. They can also bribe the cable operators to make their channel as 'landing page', making the channel first thing to appear after the TV is switched on.
 - Recently, Mumbai Police investigating a scam about manipulation of TRPs by rigging the devices used by the BARC.
 - Manipulation does not involve just financial fraud, but a bigger crime of fraud on the people's right to know the truth, which the media is morally and legally bound to provide.
- **Ownership issues:** Biased ratings on account of the presence of the interested parties in the ownership of rating agencies.
- **Inadequate competition:** There is little or no competition in the rating services.

Way forward

- BARC should conduct a study in collaboration with the Indian Statistical Institute or any other institute of repute, to **estimate the appropriate sample size, and to get the correct representation of the viewership** including regional and niche channels.
- There is a need for the **Government regulation for the system of Television Rating**. Industry body should report to TRAI / Autonomous body set up by the Government; who should give guidelines and certify the rating to ensure its independence, scientific basis and accuracy.
- **Constant up-gradations of the technology** would be required in the measurement devices.
- Rating agencies should have **proper systems in place to safeguard the secrecy of the sampled panel homes**. The systems should be subjected to independent audits.
- **There a need to promote competition in television rating services** to ensure transparency, neutrality and fairness to give TV rating.

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2. INTERNATIONAL RELATIONS

2.1. INDIA-CENTRAL ASIA DIALOGUE

Why in News?

The 2nd meeting of the India-Central Asia Dialogue was recently held in the digital video-conference format with participation of Foreign Ministers of Kazakhstan, Tajikistan, Turkmenistan, Uzbekistan and Kyrgyz Republic.

Highlights of the meeting

The Joint Statement released collectively by the Foreign Ministers highlighted following key points-

- **Emphasis on the need to continue close cooperation** against COVID-19 pandemic.
- **Condemnation of terrorism in all its forms and manifestations:** All states reaffirmed the determination of their countries to combat the menace by **destroying terrorist safe-havens, networks, infrastructure and funding channels** and also underlined the need for every country to ensure that its territory is not used to launch terrorist attacks against other countries.
- **Extension of support for a united, sovereign and democratic Republic of Afghanistan.**

India's interests in the Central Asia

- **Mineral resources:** Central Asian countries have abundant mineral resources such as petroleum, natural gas, antimony, aluminium, gold, silver, coal and uranium which can help ensure energy security for India. For example- Kazakhstan has the largest uranium reserves in the world.
- **Strengthening India's role in Peace negotiations in Afghanistan:** India has always advocated for resolution of the Afghan conflict on the principle of Afghan-led, Afghan-owned and Afghan-controlled peace process, which can be facilitated by support from Central Asian countries.
- **Connectivity:** Central Asia lies in the middle of the Eurasian Continent and can help India achieve connectivity to Europe. The region is important for India to develop its transit and transport potential through regional and international transport corridors such as **the International North-South Transport Corridor (INSTC)**.
- **Economic opportunities:** Central Asia is a huge consumer market for a range of goods and services, which can be provided by India including IT services, tourism, tea, pharmaceuticals etc.
- **Ensuring regional peace and stability:** Instability in the region can have wide ranging implications for India due to regional proximity and effect on India's overseas projects such as the TAPI pipeline. Some critical issues faced by the region include-
 - **Terrorism and radicalization** with existence of terrorist safe-havens, networks, infrastructure and funding channels
 - **Threat of the proliferation of Weapons of Mass Destruction (WMD)** as the region remains highly vulnerable to the smuggling of fissile material for WMD
 - **Illegal Drug trade** emanating from 'Golden Crescent' of opium production (Iran-Pak-Afghan)

Challenges

- **Growing influence of China in Central Asia:** China's One Belt and Road Initiative (BRI) seems to be a credible threat to India's objective on overcoming connectivity issues with Central Asia to ensure strengthened economic-political relations.

About India-Central Asia Dialogue

- India holds this dialogue with **five Central Asian countries-** Kazakhstan, Tajikistan, Turkmenistan, Uzbekistan and the Kyrgyz Republic.
 - All the countries participating in the dialogue, **except for Turkmenistan**, are also members of the **Shanghai Cooperation Organisation**.
- The 1st meeting of the India-Central Asia Dialogue held in January 2019 in Samarkand (Uzbekistan).
 - Also, **Afghanistan attended the 1st and 2nd meetings** as a special invitee.
- The dialogue provides a platform for strengthening cooperation between India and the Central Asian countries in **political, security, economic and commercial, development partnership, humanitarian and cultural spheres** as well as exchanging views on **regional and international issues** of mutual interest and enhancing cooperation under the framework of UN and other multilateral fora.



- **Lack of accessibility:** India does not share physical borders with any of the Central Asian states and the unstable situation in Afghanistan, impact of US-Iran tensions on regional connectivity projects and India's antagonistic relations with Pakistan has further complicated connectivity and trade prospects for India.
- **Domestic challenges faced by the region:** emerging from religious extremism, authoritarian regimes, terrorism, ongoing conflicts etc is in itself a challenge in furthering India's economic interests.

Way forward

- India should **leverage the historical, cultural and civilizational bonds** as well as traditionally close people-to-people contacts to build its Central Asia partnership.
- **ICABC can help promote business linkages, facilitate greater understanding of taxation,** business regulations in India and the Central Asian countries and incentivize trade, business and investment, especially in the area of Small and Medium Enterprises.
- Through Central Asia Dialogue, **India has the opportunity of actively engaging in the economic reconstruction of Afghanistan,** including through the implementation of infrastructure, energy, transit and transport projects.
- India should effectively use **Chabahar port in Iran** to establish trade and transport communications with Central Asian markets.

Conclusion

India and Central Asia face a myriad of common challenges like terrorism, extremism, drug trafficking and such other issues. All these commonalities make them natural partner in their developmental journey and calls for greater cooperation in regional and global arena.

Efforts by India to enhance engagement in the Central Asia

- **Provision of US\$ 1 billion Line of Credit:** by India for priority developmental projects in fields such as connectivity, energy, IT, healthcare, education, agriculture etc. in Central Asia.
- To facilitate transport of goods between India and Central Asia via Iran, India acceded to the Customs Convention on International **Transport of Goods under cover of TIR Carnets in 2017** and **joined the Ashgabat Agreement** – which includes Iran, Oman, Turkmenistan, and Uzbekistan – in 2018.
- **High Impact Community Development Projects (HICDP):** Under these projects India provides Grant assistance for furthering socio-economic development.
- **India-Central Asia Business Council (ICABC):** It was launched in February 2020 and comprises the Federation of Indian Chambers of Commerce and Industry (FICCI) and chambers of commerce from the 5 central Asian countries.
- **Other measures-**
 - hosting of **Central Asian media delegation** in India in April 2019.
 - the **training of Central Asian diplomats** at the Sushma Swaraj Foreign Service Institute in New Delhi in July 2019.
 - **Annual International Dance Festival with a focus on Central Asia,** organized by the Indian Council of Cultural Relations (ICCR) in New Delhi in December 2019.
 - The Indian Government in 2019, extended a **line of credit of US\$200 million, for military equipment to Kyrgyzstan** seeks to modernise its defence systems.
 - In 2019, India signed a uranium supply agreement with Uzbekistan

2.2. INDIA AND THE QUAD

Why in News?

Recently, the Foreign Ministers of the Quadrilateral grouping met in Tokyo.

About Quad

- The Quad was formed in 2007 after four countries— US, India, Japan and Australia — came together.
- However, it did not take off initially for a number of reasons, and was revived in 2017 after almost a decade due to reasons such as growing convergence among countries, increasing significance of Indo-Pacific region, rising threat perceptions vis-à-vis China among others.
- It has since then emerged as **a platform for diplomatic consultation and coordination of participant countries** who meet regularly at the working- and ministerial levels to discuss mutual interests such as ensuring free, open and inclusive Indo-Pacific and rules-based international order.
- The objective of the Quad remains advancing the security and the economic interests of all countries having legitimate and vital interests.

Significance of Quad for India

- **Countering China:** The Quad provides a platform to India to seek cooperation from likeminded countries on issues such as ensuring respect for **territorial integrity and sovereignty** and peaceful resolution of disputes.
 - It also **demonstrates a united front** to check belligerent activities of China against India. This is especially crucial in present times as relations between India and China have been worsening due to military tensions at the Ladakh border.
- **Framing post-COVID-19 international order:** The pandemic has brought about a profound transformation globally that has adversely affected global supply chains, manufacturing activities and overall economies of countries.
 - Quad can help India to not only recover from the pandemic through coordinated responses but can also secure its place in the new world order.
- **Convergence on other issues:** India has converging interests with other Quad members on a variety of important issues such as connectivity and infrastructure development, security including counter-terrorism; cyber and maritime security; reform of multilateral institutions etc.
 - Support from Quad members on these issues can go a long way for India in realizing its strategic and economic goals.
- **Supplementing India's defense capabilities:** Cooperation in the field of defence among Quad members through joint patrols, exchange of strategic information, etc. can help India overcome its imitations pertaining to finances, naval capacity, military reconnaissance and technological and surveillance capabilities.
- **Fulfilling India's Indo Pacific vision:** All members of Quad have at some point affirmed their commitment to ensure a **free, open, inclusive Indo pacific region** following a common rules-based order, where all countries have equal access to common spaces on sea and in the air.

India's relations with the Quad members

- India holds regular **2+2 ministerial dialogues with all Quad members.**
- India has recently **signed all foundational agreements** (Basic Exchange and Cooperation Agreement (BECA), Logistics Exchange Memorandum of Agreement (LEMOA), Communications Compatibility and Security Agreement (COMCASA)) **with the USA for defence cooperation.**
 - India also has some basic forms of logistic exchange and information sharing agreements with Japan and Australia as well.
- India routinely conducts **bilateral and multilateral military exercise** with its Quad partners. For example- JIMEX with Japan, AUSINDEX with Australia, Malabar Exercise with United States and Japan etc.

Challenges

- **Unclear agenda:** The Quad lacks a coherent purpose, strategic objective and an institutional framework. The countries have not even issued a joint statement after meetings of the group, rather offering their own individual readouts.
- **China's influence:** China has strong economic ties with Quad members, especially Australia, which can be used to coerce or influence nations in its favour. This can turn out to be problematic for India.
 - **For example-** In response to Australia's call for an independent international inquiry over the origins of COVID-19, China banned Australian beef imports and imposed fresh tariffs on barley.
- **Different capabilities and burden sharing:** The four members of the Quad do not have the same levels of financial resources, strategic awareness and military capabilities in the Indian Ocean. This creates an imbalanced partnership where burden falls unequally on partners.
- **Possibility of antagonizing China:** China perceives Quad as an Anti-China coalition. Thus, India faces a risk of further deteriorating its relations with China as its proceeds to increase its engagement with the Quad.
- **Differences in priorities:** Within the Indo-Pacific, Australia's and Japan's priorities lie in the Pacific, while India is primarily focused in the Indian Ocean.

Conclusion

Quad members should collaborate and build a positive agenda that is built around collective action in humanitarian assistance and disaster relief, monitoring shipping for search and rescue or anti-piracy operations, infrastructure assistance, connectivity initiatives etc. This will help address inhibitions of China as well as be a step forward in building an institutional framework.

Also cooperating with other regional partners, including ASEAN, East African littoral nations, France, the UK, Pacific Island nations etc. and forums such as the BIMSTEC, Indian Ocean Commission and the Indian Ocean Rim Association can further strengthen the global position of Quad as a group.

2.3. WORLD FOOD PROGRAMME

Why in News?

The **Nobel Peace Prize 2020** was awarded to **World Food Programme (WFP)** for “its efforts to combat hunger, bettering conditions for peace in conflict-affected areas and preventing the use of hunger as a weapon of war and conflict”.

WFP and its achievements

- WFP, established in 1961, is an **intergovernmental organisation and UN’s primary agency** that works towards achieving the SDG Goal of eradicating hunger (Goal 2) by 2030.
- Currently, it is the **world’s largest humanitarian agency combating hunger. It delivers food assistance in emergencies and works with communities to improve nutrition and build resilience.**
- Its **headquartered in Rome, Italy.**
- **Every year, WFP distributes more than 15 billion rations** at an estimated average cost per ration of \$0.61 and **two-thirds of its work is in conflict-affected countries** where people are three times more likely to be undernourished than other countries.
- **In 2019, it assisted close to 100 million people in 88 countries** who are victims of acute food insecurity and hunger.
- It **plays a key role in multilateral cooperation** to combat the use of hunger as a weapon of war and conflict and on making **food security an instrument of peace.**
- WFP publishes **Hunger Map** that depicts the prevalence of undernourishment in the population of each country **to monitor the status of global hunger** and help enhance the efficiency of operations.

WFP and India

- The WFP has been **working in India since 1963.**
- Apart from **focusing on reforms in the Targeted Public Distribution System**, it provides policy inputs, advocacy and technical assistance for improving access to food.
- The WFP has **proposed some unique initiatives** like Automatic Grain Dispensing Machine (Annapurti) and Mobile Storage Units for the effective implementation of TPDS and has completed a **pilot on rice fortification** used in the government’s Mid-day Meals scheme in Varanasi.
- During the current COVID pandemic, it has signed an **MoU with the Uttar Pradesh State Rural Livelihood Mission** to provide technical assistance for setting up supplementary nutrition production units.

About Nobel Peace Prize

- Since March 1901, it has been **awarded annually** (with some exceptions) to those who have "done the most or the best work for fraternity between nations, for the abolition or reduction of standing armies and for the holding and promotion of peace congresses".
- The **recipient is selected by the Norwegian Nobel Committee**, a five-member committee appointed by the Parliament of Norway.

Links between hunger and conflict

- The Nobel award recognises a key connection between hunger and global conflict. As the UN Security Council emphasized in a 2018 resolution, **humankind can never eliminate hunger without first establishing peace. Conflict causes rampant food insecurity:**
 - It **disrupts infrastructure and social stability**, making it hard for supplies to get to people who need them.
 - Too often, **warring parties may deliberately use starvation as a strategy.**
 - Food insecurity also **perpetuates conflict**, as it drives people from their homes, lands and jobs, deepening existing fault lines and fueling grievances.
- Conflict-driven hunger has been **widespread in** the past several years in Afghanistan, the Central African Republic, the Democratic Republic of the Congo, South Sudan and Yemen.

2.4. UNITED NATIONS HUMAN RIGHTS COUNCIL

Why in News?

Pakistan has been re-elected to the United Nations Human Rights Council despite opposition from activist groups over its abysmal human rights records.

United Nations Human Rights Council

- UN Human Rights Council (Council or HRC) was **established in 2006 by UN General Assembly (UNGA) resolution 60/251**. It is the principle intergovernmental body within the United Nations (UN) system **responsible for strengthening the promotion and protection of human rights around the globe**, and for addressing and taking action on human rights violations around the globe.
 - Human Rights Council **replaced the former United Nations Commission on Human Rights**.
- Council is made up of **47 member States who are elected by the UN General Assembly by a simple majority vote**, through a secret ballot. Members of the Council are **elected for three-year terms with one-third of the members being renewed each year**.
- Council membership is based on **equitable geographical distribution of seats** according to the following regional breakdown: 13 African States; 13 Asia-Pacific States; 8 Latin American and Caribbean States; 7 Western European and other States; 6 Eastern European States.
 - **All U.N. members are eligible to run for a seat** on the Council.
 - 117 countries have served as Council members so far, reflecting the UN's diversity giving it legitimacy when speaking out on human rights violations in all countries.
- **It holds three regular sessions per year of a total of at least ten weeks** and can call special sessions to react quickly to urgent country and thematic situations.
- Its **decisions, resolutions, and recommendations are not legally binding**.
 - As a subsidiary of the General Assembly, it reports directly to the Assembly's 193 members. It receives substantive and technical support from the U.N. Office of the High Commissioner for Human Rights (OHCHR), an office within the U.N. Secretariat.

Importance of HRC

- **Assessing the human rights records of all UN Member States** every four and a half years through the Universal Periodic Review.
- **Appointing independent experts** (known as "Special Procedures") to review human rights violations in specific countries and examine and further global human rights issues.
- **Examining complaints from victims of human rights violations** or activist organizations on behalf of victims of human rights violations
- **Promote human rights education and learning as well as advisory services**, technical assistance and capacity-building, to be provided in consultation with and with the consent of Member States concerned;
- **Serve as a forum for dialogue on thematic issues on all human rights;**
- **Make recommendations to the General Assembly for the further development of international law** in the field of human rights;

What are human rights?

- Human rights are rights we have simply because we exist as human beings – **they are not granted by any state**. These universal rights are inherent to us all, regardless of nationality, sex, national or ethnic origin, color, religion, language, or any other status.
- They **range from the most fundamental – the right to life – to those that make life worth living, such as the rights to food, education, work, health, and liberty**.
- Universal Declaration of Human Rights (UDHR), adopted by the UN General Assembly in 1948, was the first legal document to set out the fundamental human rights to be universally protected.
 - UDHR, together with the 2 covenants – the International Covenant for Civil and Political Rights, and the International Covenant for Economic, Social and Cultural Rights – make up the International Bill of Rights.
- **Key feature of Human Right**
 - **Universality:** principle of universality of human rights is the cornerstone of international human rights law. This means that we are all equally entitled to our human rights.
 - **Inalienable:** They should not be taken away, except in specific situations and according to due process. For example, the right to liberty may be restricted if a person is found guilty of a crime by a court of law.
 - **Indivisible and interdependent:** This means that one set of rights cannot be enjoyed fully without the other. For example, making progress in civil and political rights makes it easier to exercise economic, social and cultural rights. Similarly, violating economic, social and cultural rights can negatively affect many other rights.
 - **Non-discriminatory:** This principle is present in all major human rights treaties. It also provides the central theme of 2 core instruments: International Convention on the Elimination of All Forms of Racial Discrimination, and Convention on the Elimination of All Forms of Discrimination against Women.

- **Promote the full implementation of human rights obligations undertaken by States** and follow-up to the goals and commitments related to the promotion and protection of human rights emanating from the United Nations conferences and summits;

Issue with UNHCR

- **Membership Criteria:** Candidates commit to the highest standards of human rights, and states should take into account a nominee's human rights record when voting. Both of these rules are basically unenforceable.
 - There is a different view on human rights. US, for example, wanted only "democratic nations" to be eligible. Such a criterion would have led to debates over the meaning of "democracy", and would seem to prioritise civil and political rights over economic, social and cultural ones.
- **Geographical quota system:** Many times, countries have run unopposed after regional groups nominated the exact number of countries required to fill Council vacancies. Many experts contend that such circumstances limit the number of choices and guarantee the election of nominated members regardless of their human rights records.
- **Tainted democracies:** Most of the members elected in HRC have poor records in certain civil and political rights criteria, such as press freedom
- **Secret Ballot System:** Some Council observers have expressed concern that the Council's closed ballot elections in the General Assembly may make it easier for countries with questionable human rights records to be elected to the Council.
 - To address this issue, some experts and policymakers, have proposed requiring open ballots in Council elections to hold countries publicly accountable for their votes.
- **Politicisation of the HRC:** As the Human Rights Council's members are representatives of their governments, the Human Rights Council is a highly politicised body, like its predecessor. State governments are political constructs, so any institution made up of government representatives is inevitably political too.
 - States generally vote in favour of their national interests rather than human rights interests
- **Israel and the HRC:** Some experts observe that HRC is biased against Israel. It has aimed a disproportionate number of resolutions against that country.
 - Israel has been the subject of more special sessions than any other state (more than a quarter of the 28 sessions).
 - In 2018, **US pulled out of the UNHRC** calling it a "cesspool of political bias" that "makes a mockery of human rights".

UN Office of the High Commissioner for Human Rights (OHCHR)

- OHCHR, a department of the United Nations Secretariat, is mandated **to promote and protect the enjoyment and full realization, by all people, of all rights established in the Charter of the United Nations** and in international human rights laws and treaties.
- The mandate includes **preventing human rights violations, securing respect for all human rights, promoting international cooperation to protect human rights, coordinating related activities** throughout the United Nations, and strengthening and streamlining the United Nations system in the field of human rights.
- In addition to its mandated responsibilities, the Office leads **efforts to integrate a human rights approach within all work carried out by United Nations agencies.**

Conclusion

Human rights are often described as Important pillar of the UN. More needs to be done to ensure that substantive outcomes in the Council are catalysts for change, especially at the national level, where most improvements to human rights protection must be made.

2.5. INDIA US DEFENCE AGREEMENT

Why in News?

India and the United States will sign the landmark defence pact, **Basic Exchange and Cooperation Agreement (BECA)** during the third round of 2 + 2 India-US ministerial dialogue.

More in News

- BECA is the final of the four foundational agreements that the US signs with close partners.

- Foundational agreements are meant to build basic ground work and promote interoperability between militaries by creating common standards and systems. They also guide sale and transfer of high-end technologies.

Four foundational agreements

Basic Exchange and Cooperation Agreement (BECA) for Geospatial Intelligence	<ul style="list-style-type: none"> ● BECA will allow India and US militaries to share geospatial and satellite data with each other. It shares <ul style="list-style-type: none"> ○ Maps, charts, commercial and other unclassified imagery. ○ Geodetic, geophysical, geomagnetic and gravity data. ○ Related products, publications and materials, in printed or digital formats. ○ Mutual technical assistance and technology information exchanges. ● It will allow India to use the US's advanced geospatial intelligence and enhance the accuracy of automated systems and weapons like missiles and armed drones. ● It is signed in 2020
Logistics Exchange Memorandum of Agreement (LEMOA)	<ul style="list-style-type: none"> ● LEMOA gives access, to both countries, to designated military facilities on either side for the purpose of refuelling and replenishment. ● The agreement will primarily cover four areas — port calls, joint exercises, training and Humanitarian Assistance and Disaster Relief. Any other requirement has to be agreed upon by both sides on a case-by-case basis. ● There will be no basing of the U.S. troops or assets on Indian soil. This is purely a logistical agreement. <ul style="list-style-type: none"> ○ India can access the string of U.S. facilities across the globe for logistical support and the U.S., which operates in a big way in Asia-Pacific, will benefit from Indian facilities. ● It was signed in 2016.
Communications Compatibility and Security Agreement (COMCASA)	<ul style="list-style-type: none"> ● It is an India-specific version of Communications and Information Security Memorandum of Agreement (CISMOA). ● It allows both sides to operate on the same communication systems, enabling an “interoperable” environment for militaries. ● It provides the legal framework for the US to part with its sensitive communication equipment and codes to enable transfer of realtime operational information. ● It allows India to procure transfer specialised equipment for encrypted communications for US origin military platforms like the C-17, C-130 and P-8Is. ● It was signed in 2018 and valid for 10 years.
General Security of Military Information Agreement (GSOMIA)	<ul style="list-style-type: none"> ● It facilitates opportunities for greater intelligence sharing between India and US. Recently, Industrial Security Annex (ISA) to GSOMIA was concluded between both countries. ● ISA provides a framework for exchange and protection of classified military information between U.S. and Indian defence industries. ● Under GSOMIA, such information is exchanged between Government authorities. ● It was signed in 2002.

Significance of foundational Agreement

- **Affirmation of the mutual trust:** Signing of Foundational agreement is an affirmation of the mutual trust between the two militaries, and its application will enhance the trust.
- **Facilitate Better Defence Ties:** Signing of these agreements is mandatory, under American law, for the US to enter military alliances related to the export of sensitive equipment.
- **Strengthen India's conventional offensive and defensive capacity:** It gives India access to detailed, sensitive intelligence that can enable to be more accurate in targeting terrorists or rival militaries, and to better monitor the location of the enemy either just across the border or in faraway seas.
- **To counter China:** These agreements may empower India to check Chinese expansionism which threatens a large number of countries in its neighbourhood and beyond, and which has been challenging several established norms and aspects of international relations.
 - Close defence and military cooperation between India and US as well as with other like-minded nations in the future helps to counter Chinese aggression in the region

- **Strategic Convergence in the Indo-Pacific:** A close partnership between the United States and India is central to a free, open, inclusive, peaceful, and prosperous Indo-Pacific region.
- **Enhance humanitarian assistance:** Assist in building worldwide capacity to conduct successful peacekeeping operations, with a focus on enabling other countries to field trained, capable forces for these operations;

Issues with these Agreement

- **Russia Factor:** US wants India to move away from Russian equipment and platforms, as it feels this may expose its technology and information to Moscow.
- **Boost U.S. arms sales to India:** Critics express that agreements are intended to boost U.S. arms sales to India to the benefit of the U.S. economy and American workers.
- **India's policy of Strategic Autonomy:** critics express that the agreements imperil India's long-held foreign policy of strategic autonomy by paving the way for U.S. bases or ports in Indian territories, or unduly binding India to U.S. systems and procedures.
- **Sharing of critical data:** Implementation of the COMCASA would involve data-sharing that could reveal the location of Indian military assets to Pakistan or other third parties.
- **More favourable to US:** The agreements, particularly the LEMOA, primarily benefit the United States since Indian ships are less likely to refuel and resupply at U.S. ports.

3rd India-US 2+2 Ministerial meeting

- A 'two plus two dialogue' is a term used for installation of a **dialogue mechanism between two countries' defence and external affairs ministries** to discuss strategic and security interests.
 - India has also established a 2+2 dialogue mechanism **with other Quad countries Japan and Australia.**
- **Key Highlight of 3rd Meet**
 - **Advancing the Defense and Security Partnership:** Signing of **Basic Exchange and Cooperation Agreement (BECA).**
 - **Strengthening Bilateral U.S.-India Cooperation:** Some key Agreement signed for
 - ✓ Technical Cooperation on Earth Sciences.
 - ✓ Extending the arrangement on nuclear cooperation.
 - ✓ Agreement on postal services.
 - ✓ Cooperation in Ayurveda and cancer research
- **Cooperation during COVID-19 Pandemic:** Ministers sought to jointly promote access to high quality, safe, effective and affordable COVID-19 vaccines and treatments on a global scale.

Conclusion

Since the Civil Nuclear Agreement of 2005, the India-U.S. defence cooperation has been advancing at a rapid pace. The U.S. has relaxed restrictions on technology trade in India's favour considerably, and India is designated a 'Major Defence Partner'. Conclusion of foundational agreements would further deepen defence cooperation and definitely placed India in a strategically advantageous position. However, India's policy maker must ensure that these agreements would not affect India's strategic autonomy.

2.6. ARMENIA AZERBAIJAN CONFLICT

Why in news?

Recently, the decades old conflict between Armenia and Azerbaijan over Nagorno-Karabakh region has resurfaced.

About Armenia-Azerbaijan conflict

- Nagorno-Karabakh (also known as Artsakh) is **internationally recognised as part of Azerbaijan**, but most of the region is controlled by Armenian separatists.
 - It has been **part of Azerbaijan territory since the Soviet era.**
 - The **majority of the population in Nagorno-Karabakh is Armenian Christian** whereas Azerbaijan is a Muslim majority country.
 - Nagorno-Karabakh is a **breakaway region in South Caucasus/Transcaucasia** (strategically important mountainous region in south-east Europe).
- **History and ethnicity** are two factors that play the biggest role in the present conflict between Armenia and Azerbaijan over **Nagorno-Karabakh region.**



- **Azerbaijan claim** the Nagorno-Karabakh region has been under their rule in known history.
- **Armenians' claim** hold the opinion that Karabakh was part of a great Armenian kingdom as far back as the fourth century BCE.
- The issue is further complicated by the fact that the **region changed hands across multiple dynasties** and came to be occupied by varied ethnic communities in the course of the following centuries.
 - In late **1980 the Armenian parliament had voted for transfer of Nagorno-Karabakh to Armenia**, however this demand was rejected by the collapsing Soviet.
 - This followed **years of clashes between Azerbaijan forces and Armenian separatists**.

India's stand on the issue

- India has adopted a **balanced and neutral stance** and has called for restraint and immediate cessation of hostilities.
- In 1995, India has signed a **Friendship and Cooperation Treaty with Armenia**.
 - **On Kashmir issue, Armenia extends its unequivocal support to India** whereas Azerbaijan supports Pakistan's narrative.
 - **In 2008, India** joined Russia, the USA and France and **voted against Azerbaijan's resolution** in UNGA which demanded unconditional withdrawal of all Armenian forces from all occupied territories of Azerbaijan.
- **However, Azerbaijan has strategic importance for India** as it falls on International North-South Transport Corridor (INSTC) route connecting India with Russia through central Asia.
 - Also for most of the countries, the region is an important transit route for the supply of oil and natural gas to the European Union.
 - **Russia supplies arms to both countries** and Armenia is its ally under the **Collective Security Treaty Organization**.
 - Muslim-majority Turkey backs Azerbaijan due to religious affinity.
 - Peace talks have taken place since 1994 mediated by the **Organization for Security and Co-operation in Europe (OSCE) Minsk Group**.

Related information

Minsk Group

- It is the only internationally agreed body to **mediate the negotiations for the peaceful resolution of the conflict**.
- It is chaired **by France, Russia and the US**.
- It functions under the Organization for Security and Co-operation in Europe (OSCE)
- **The Madrid principles were proposed by the Minsk Group** in 2007.
 - These are **series of pragmatic suggestions for settling the conflict** in the Nagorno-Karabakh peacefully.
 - It calls for **Armenia to withdraw its military from Nagorno-Karabakh** in exchange for Azerbaijan granting **de-facto autonomy to Nagorno-Karabakh**.

About Collective Security Treaty Organization.

- It is a **Russia-led military alliance** which ensures the collective defence of any member that faces external aggression.
 - **Collective defence** means that an attack against one Ally is considered as an attack against all Allies.
- It originates from the conclusion of the Collective Security Treaty, which was signed in Tashkent (Uzbekistan) in 1992.
- **Members:** Armenia, Belarus, Kazakhstan, Kyrgyz Republic, Russia and Tajikistan.

फाउंडेशन कोर्स सामान्य अध्ययन
प्रारंभिक एवं मुख्य परीक्षा **2021**

इनोवेटिव क्लासरूम प्रोग्राम

- प्रारंभिक परीक्षा, मुख्य परीक्षा और निबंध के लिए महत्वपूर्ण सभी टॉपिक को विस्तृत कवरेज
- मौखिक अन्वेषणों को समझ के विकास एवं विश्लेषणात्मक क्षमता निर्माण पर विशेष ध्यान
- एग्जीम्पल, चर्चा थ्रूट, वीडियो जैसी तकनीकी सुविधाओं का प्रयोग
- अंतर - विषयक समझ विकसित करने का प्रयास
- योजनाबद्ध तैयारी हेतु करंट ओरिएंटेड अप्रोच
- नियमित क्लास टेस्ट एवं व्यक्तिगत मूल्यांकन
- सीटेट कक्षाएं
- PT 365 कक्षाएं
- MAINS 365 कक्षाएं
- PT टेस्ट सीरीज
- मुख्य परीक्षा टेस्ट सीरीज
- निबंध टेस्ट सीरीज
- सीटेट टेस्ट सीरीज
- निबंध लेखन - शैली की कक्षाएं
- करंट अफेयर्स मैगजीन

लॉकडाउन तक कक्षाएं ऑनलाइन होंगी।
लॉकडाउन के बाद, ऑफलाइन कक्षाएं शुरू की जाएंगी।

DELHI 29 OCT, 1:30 PM | 15 SEPT, 1:30 PM
LUCKNOW 15 SEPT | 9 AM **JAIPUR** 15 SEPT | 4 PM

लाइव / ऑनलाइन कक्षाएं भी उपलब्ध

3. ECONOMY

3.1. POVERTY AND SHARED PROSPERITY

Why in news?

World Bank recently released the report titled “Poverty and Shared Prosperity 2020: Reversals of Fortune” which examines how the COVID19 crisis, compounding the risks posed by armed conflict and climate change, is affecting poverty trends, inclusive growth, and the characteristics of the poor around the world.

Key findings

- **Reversal of extreme poverty trends: Extreme poverty** is defined as living below the international poverty line of \$1.90 or roughly Rs 145-150 per day. Global extreme poverty is expected to rise in 2020 for the first time in over 20 years **mainly due to three reasons:**
 - **COVID-19 and its associated economic crisis:**
 - ✓ Current projections suggest that, in 2020, between **88 million and 115 million people could fall back into extreme poverty** as a result of the pandemic—returning global poverty rates to **2017 levels—with even larger numbers in 2021.**
 - ✓ **South Asia will be the hardest hit region**, with 49 million additional people pushed into extreme poverty followed by South Africa.
 - **Armed conflicts:**
 - ✓ **More than 40 percent of the world’s poor now live in conflict-affected countries**, a number expected to rise further in the coming decade.
 - ✓ Conflict destroys assets and livelihoods. **In the Middle East and North Africa, for example, extreme poverty rates nearly doubled** between 2015 and 2018, spurred by the conflicts in the Syria and Yemen.
 - **Climate change:**
 - ✓ Under present scenarios, the combined effects of climate change **could push between 68 million and 132 million more people into poverty by 2030.**
 - ✓ With their livelihoods predominantly based on primary activities, the poorest are least able to adapt, more vulnerable and less resilient to the impacts of climate change. The impacts of climate change can also raise food prices, worsen people’s health, and increase exposure to disasters.
- **Shared Prosperity:** Shared prosperity is defined as the **growth in the income of the poorest 40% of a country’s population.** A high level of shared prosperity is an important indicator of inclusion and well-being in any country.
 - During 2012-2017, the growth was inclusive and the incomes of the poorest 40 per cent of the population grew at 2.3% per annum. However, **average global shared prosperity may stagnate or even contract over 2019-2021** due to the reduced growth in average incomes as a result of COVID crisis. This **may lead to an increase in income inequality**, resulting in a world that is less inclusive.
- **Changing profile of global poor:** The poor remain predominantly rural, young, and undereducated. However, the current COVID crisis is creating millions of “new poor.” **The new poor” probably will:**
 - be more urban than the chronic poor.
 - be more engaged in informal services and manufacturing and less in agriculture.

Way forward suggested by the report

- **Policy responses need to reflect the changing profile of the poor :** Safety net programs will in particular need to reach people in the informal sector in both rural and urban areas
- Poverty action **needs to address hot spots** of conflict, climate change and COVID-19.
- **Learning lessons** from emergency actions taken during COVID and long-term development experiences :
 - **Closing the gap between policy aspiration and attainment:** Much more attention needs to be given not just to “getting policies right” but to building the capability of the administrative systems that are tasked with implementing them.
 - **Enhancing and improving data:** Data limitations create doubts among the general public, obstruct scientific progress, and hinder the implementation of sound, evidence-based development policies.

- **Investing in preparedness and prevention:** An example of successful international cooperation in disaster preparedness is the **Indian Ocean Tsunami Warning and Mitigation System (IOTWMS) which is operational since 2013.**
- **Expanding cooperation and coordination:** The fact that all are affected in the current crisis is an opportunity for leaders to promote a sense of social inclusion and collective resolve, to improve the empirical foundations of policy making, and ensure that governments' decisions are trusted.

Poverty in India

- India remains the **home of 364 million poor people (28 percent)**, out of a global population of the 1.3 billion as per Human Development Index (HDI), 2019.
- **271 million people came out of poverty between 2005-15.** However, as per Niti Aayog's SDG Index 2019, Indians have fallen back into poverty, hunger and income inequality in the past two years.
- **Measures taken for poor during the COVID** include package under Pradhan Mantri Garib Kalyan Yojana, cash transfers under PM Kisan scheme, more liberal financing under the Mahatma Gandhi National Rural Employment Guarantee Act, 2005, empowering the poor, labourers, migrants through the Atma Nirbhar Bharat scheme etc.
- **Poverty estimation in India** is carried out by **NITI Aayog's** task force through the calculation of poverty line based on the data captured by the National Sample Survey Office under the Ministry of Statistics and Programme Implementation (MOSPI).
- **Poverty line estimation in India is based on the consumption expenditure** and not on the income levels.

3.2. NOBEL PRIZE IN ECONOMICS

Why in news?

This year's Nobel Economics Prize has been awarded to U.S. economists Paul Milgrom and Robert Wilson for their **works on auction theory.**

More in news

- They won the Nobel Economics Prize for improvements to auction theory and **invention of new auction formats that could also be applied to selling of goods and services** (such as radio frequencies) that are difficult to sell through traditional auction formats.
- The discoveries have benefitted sellers, buyers and taxpayers around the world.

What is auction theory?

- It is a **concept of transparent allocation of resources or items of business in a free market** to the best bidder for optimum utilization.
- It is a branch of applied economics and prescribes different sets of rules or designs for transactions.
- Essentially, it is about how auctions lead to the discovery of the price of a commodity. **Auction theory studies:**
 - How auctions are designed?
 - What rules govern the auctions?
 - How bidders behave in auction?
 - What outcomes are achieved through auction?
- **Benefits of the auction theory:**
 - It helps to **understand the bidders' behaviours**
 - It helps in **choosing the best design/format** of the auction for various goods and services.
 - It also helps **understand the evolving nature of auction** and pricing of items and resources in a country or globally.

What is an auction?

- An auction is a **price discovery mechanism of various goods and services.**
- In any auction, **potential buyers place competitive bids** on the goods and services (put for bidding) either in an open or closed format.
- Generally, in any auction, the private entities want to maximize their revenue, whereas **government may give priority to the factors other than maximizing revenue.**
- For instance, instead of allocating the spectrum to the highest bidder government may choose a bidder who would make the telecom accessible to the poor.
 - In fact in India, **before auctions became the norm for limited resources** such as radio waves, governments used to allocate them through licensing mechanism to the **private entity best suited for ensuring social benefits like accessibility to the poor.**
 - This approach, however, led to a proliferation of lobbying.
- **Key variables that determine the outcome of an auction:**
 - Rules of the auction
 - Value (personal or professional) attached to the good put to vote
 - The uncertainty involved in bidding

- It helps to **understand the outcomes of different rules for auction** and consequent final prices.
- It also helps to **understand why governments across the world should not put too much emphasis on maximizing revenues**
 - ✓ For instance, in India the spectrum is allocated to the highest bidder; this is also one of the reasons why telecom sector is under heavy debt.
 - ✓ To avoid such problems in auction **India should chose the 'second-price' auction theory that allows the winning bidder (or the highest bidder) to pay what the second-highest bidder offered.**

Individuals contributions

- **Winners curse:** Wilson worked on common value principle and opined that the rational bidders tend to place bids below their own best estimate of the common value to evade the **winner's curse**.
 - It is possible to overbid (\$50 when the real value is closer to \$25) due to various reasons, in such cases one wins the auction but loses out in reality.
- **Multi stage bidding:** Milgrom opined that private values differ from bidder to bidder. He demonstrated that **an auction format will give the seller higher expected revenue when bidders learn more about each other's estimated values** (which depends on both private as well as common value) during bidding.
 - Therefore, allowing multi-stage bidding is a good way to get more value as every participant gets more time to match/outbid the previous highest bid.
 - He analysed the bidding strategies in a number of well-known auction formats, and demonstrated that an auction format will give the seller higher expected revenue when bidders learn more about each other's estimated values during bidding.

Common value and Private value

- These terms refer to the benefits that a person may derive from a particular good or service.
- **Common value:** Common value is the real monetary value (realized as well as unrealized) of the goods/ services. It is same for everyone.
 - Examples include **the future value of radio frequencies or the volume of minerals in a particular area** or cost involved in a making a painting.
- **Private value:** It is the personal value attached to the goods/ services by an individual. **It differs from person to person.**
 - An art loving person will value a painting more than a philistine; someone may attach his/her status to winning the auction at any cost.

3.3. ASSET RECONSTRUCTION COMPANIES

Why in News?

Recently, former central bankers favored role of Asset reconstruction companies (ARCs) in insolvency resolution.

About ARCs

- ARC is a special type of **financial institution that buys the debtors of the bank at a mutually agreed value** and attempts to recover the debts or associated securities by itself.
- **Narsimham Committee – I (1991)** envisaged setting up of a central Asset Reconstruction Fund to facilitate Banks to improve their balance sheets by cleaning up their non-performing loans portfolio. Later, Narsimham Committee – II (1998) proposed ARCs.
- ARC is **incorporated under the Companies Act** and registered with Reserve Bank of India under the **Securitisation and Reconstruction of Financial Assets and Enforcement of Security Interest (SARFAESI) Act, 2002.**
 - RBI regulates ARCs as Non-Banking Financial Companies.
- **ARCIL was the first ARC** set up by ICICI Bank, State Bank of India and IDBI. There are around 24 ARCs now and Edelweiss is the largest one.
- **Role of ARCs as defined under SARFAESI Act:**
 - Acquisition of financial assets
 - Change or takeover of Management / Sale or Lease of Business of the Borrower
 - Rescheduling of Debts
 - Enforcement of Security Interest
 - Settlement of dues payable by the borrower

Advantages of ARCs

- **Centralization of bad loans** in one or a few hands and provides scope for special legislative powers to a few ARCs rather than to each bank.
- **Regular banking relations are not affected** as banks are left with cleaner balance sheets and do not have to deal with problem clients.
- **It can mix up good assets with bad ones**, as it deals with a larger portfolio, and make a sale which is palatable to buyers.
- **Means of boosting the entrepreneur's confidence**, and gives other options than filing for bankruptcy or insolvency in times of stress.
- **Benefits whole economy** as a previously non-performing asset is now with operationality and functionality. Investors will be able to spot an undervalued product, acquire it at low cost, work to restoring it somewhere nearer to its true value and sell it off for a healthy profit.

Issues with ARCs functioning

RBI's Financial Stability Report (2019) indicates **fairly low recovery for banks through the ARC model** between 2004 and 2018. The **maximum average recovery by ARCs** as a percentage of total bank claims stood at **21.5% in 2010**. Since then, **it has steadily declined and reached 2.3% in 2018**. **The key reasons for the non-performance of ARC model were:**

- Earlier, ARCs were **required to hand over the distressed business back to the original promoter** once they had generated enough value to repay the debt. Thus, they had little incentive to turn around distressed businesses.
- **ARCs were not adequately capitalized** to meet the requirement of banks to transfer NPAs.
- **Valuation of NPA remains a concern** as there is always a difference of opinion on recovery period, method of valuation, and data collection.
- **Difficult to expeditiously aggregate loans from all other creditors** even if an ARC acquires the NPA of a particular bank. Also, developing and possessing requisite skill sets in managing the acquired distressed companies is a big challenge for ARCs.
- **Lack of flexibility in controlling structure of an ARC**, as it is either owned by the private parties or the bank (i.e. not by the government) with **restrictions on a controlling stake and minimum investment by a single party**.
- **Regulatory ambiguity** in functioning of ARCs. For ex: Insolvency and Bankruptcy Code, 2016 (IBC) has provisions for submission of 'resolution plans' by financial entities (including an ARC), the SARFAESI Act **does not explicitly permit ARCs to 'invest' in or acquire equity in firms**.

Way forward

- **Bridging NPA valuation gap by introducing set of guidelines** to be carried out by an external agency before the sale.
- **Setting up of a Distressed Loan Sales Trading Platform** for receiving bids for NPAs for better price discovery.
- **Preparing a panel of sector specific management firms/ individuals** having expertise in running firms/ companies which could be considered for managing the (acquired distressed) companies.
- **A relaxation of controlling structure norm** would encourage more private entities to have a presence in this sector bringing more depth to this sector. This will bring specialists into the game and the sector will be more competitive and transparent.

3.4. SWAMITVA SCHEME

Why in News?

The SVAMITVA (Survey of Villages and Mapping with Improved Technology in Village Areas) scheme was recently launched by the Prime Minister on the occasion of National Panchayati Raj.

About SVAMITVA Scheme

- It is a **Central Sector Scheme** that aims to provide an **integrated property validation solution for rural India**, engaging the latest Drone Surveying technology, for demarcating the inhabitant (Aabadi) land in rural areas.

- It aims to **update the 'record-of-rights' in the revenue/property registers and issue property cards to the property owners** in rural areas.
- It is a **collaborative effort** of the Ministry of Panchayati Raj (MoPR) (Nodal Ministry for implementation of the scheme), State Panchayati Raj Departments, State Revenue / Land Records Departments and Survey of India (technology partner for implementation).
- **Key Components of the scheme**
 - **Establishment of CORS network:** Continuously Operating Reference Stations (CORS) is a network of reference stations that supports establishment of Ground Control Points, which is an important activity for accurate Georeferencing, ground truthing and demarcation of Lands.
 - **Large Scale Mapping (LSM) using Drone:** Rural inhabited (abadi) area would be mapped by **Survey of India** using drone Survey to generate **high resolution and accurate maps** to based on which, property cards would be issued to the rural household owners.
 - **Information, Education and Communication:** Awareness program to sensitize the rural population about the surveying methodology and its benefits.
 - **Enhancement of Spatial Planning Application "Gram Manchitra":** The digital spatial data/maps created under drone survey shall be leveraged for creation of spatial analytical tools to support preparation of Gram Panchayat Development Plan (GPDP).
 - **Online Monitoring and reporting dashboard** would monitor the progress of activities.
 - **Program Management Units:** The scheme will be implemented through the regular departmental mechanisms, which will be assisted by Programme Management Units at the National and State level.
- **Coverage:** The Pilot Phase for the year 2020-21 will extend to six States (Haryana, Karnataka, Madhya Pradesh, Maharashtra, Uttar Pradesh and Uttarakhand) covering approx. 1 lakh villages and **CORS network establishment** is planned for two States (Punjab and Rajasthan).
 - The scheme aims to cover all 6.62 lakh villages in the country by the end of financial year 2023-24.

About Survey of India

- It is the National Survey and Mapping Organization of the country under the **Department of Science & Technology**.
- It was set up in 1767 and is the **oldest scientific department of the Govt. of India**.
- It takes a leadership role in providing user focused, cost effective, reliable and quality geospatial data, information and intelligence for meeting the needs of national security, sustainable national development, and new information markets.

Intended Benefits of the scheme

- **Financial stability to the citizens in rural India:** A 'record of rights' will enable rural households to use their property as a financial asset for taking loans and other financial benefits.
- **Enhanced collection of property tax:** Updation of property and asset register will strengthen tax collection and demand assessment process of Gram Panchayats.
 - The 2018 Economic Survey estimated only 19% of the potential property tax was being collected by Gram Panchayats
- **Making land marketable:** The property cards will help increase liquidity of land parcels in the market.
- **Reduction in property related disputes and legal cases:** through creation of accurate land records.
- **Improved quality of GPDP:** GIS maps of **Gram Panchayat and community assets** like village roads, ponds, canals, open spaces, school, Anganwadi, Health sub-centres, etc. can be used to prepare better-quality GPDP.
 - Further, these GIS maps and spatial database would also help in **preparation of accurate work estimates**, allocation of construction permits, elimination of encroachments, etc. for various works undertaken by Gram Panchayats and other Departments of State Government.
- **Aid relief work:** Accurate land records will make relief and compensation work easier in disaster affected areas.

Potential issues in implementation of the scheme

- **Reluctance in community:** Land and boundaries are sensitive topics among rural people, which can discourage them to participate in such policy reforms.
- **Exclusion of vulnerable people:** Dalits, women, tenant farmers and tribal communities are often excluded from accessing land, even though they may legitimately have a claim.
- **Lack of functional market in rural areas** for the using land as a marketable collateral

Way Forward

- **Engaging the community from the beginning:** Involving the community and ensuring high level of transparency can create an environment of greater acceptance of the process and reduce potential for disputes.
- **Protecting the most vulnerable people:** It would be important to build safeguards in the implementation process to ensure legitimate claims of the most vulnerable people are not crowded out.
- **Establish a grievance redressal system:** A grievance redressal system will effectively addresses people's concerns in a transparent and fair manner and will aid in smooth implementation of the program.
- **Enable markets to work:** States should simplify the legislative and regulatory procedures to build consumer confidence and encourage transactions in these areas.

Conclusion

Modernising land records is one of the foundational steps towards mending and reimagining broken institutional arrangements, which are pivotal in today's circumstances. This scheme will go a long way towards building financial strength and independence of the local self-governance institutions, the Gram Panchayats.

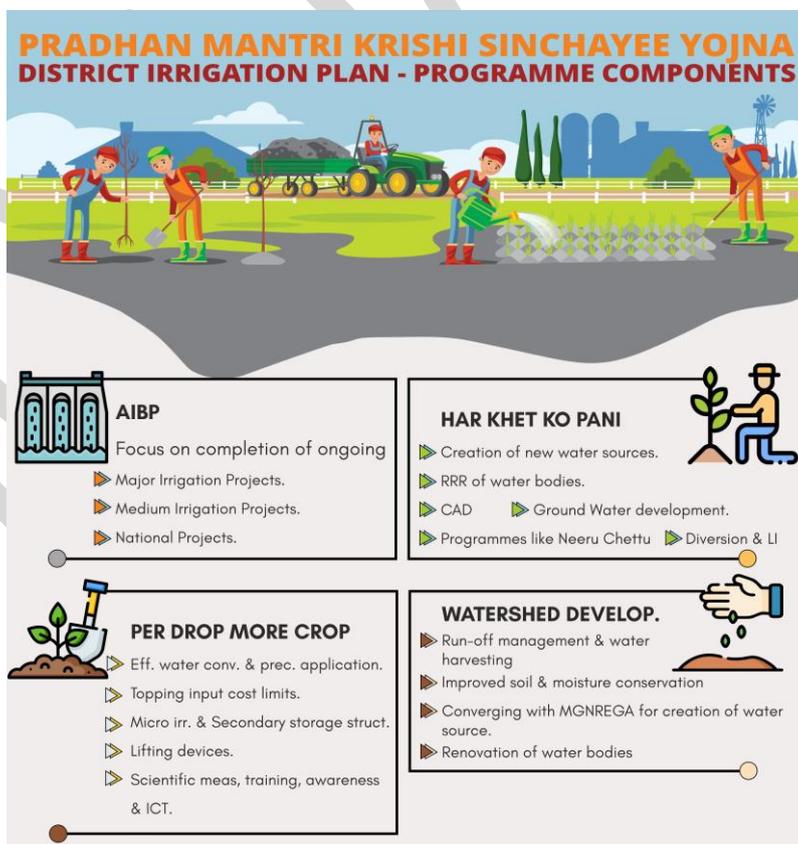
3.5. ACCELERATED IRRIGATION BENEFITS PROGRAMME (AIBP)

Why in news?

Recently, the Public Accounts Committee submitted its report on the Accelerated Irrigation Benefits Programme (AIBP).

Accelerated Irrigation Benefits Programme (AIBP)

- Central Government launched the AIBP in the year **1996-97 to provide Central Assistance to major/medium irrigation projects in the country.**
- It is being implemented by **Ministry of Jal Shakti.**
- **Objectives:**
 - To accelerate implementation of such projects which were beyond the resource capability of the states.
 - To focus on faster completion of ongoing Major and Medium Irrigation including National Projects.
- After launch of Pradhan Mantri Krishi Sinchai Yojana (PMKSY) in 2015-16, **AIBP became a part of PMKSY.**
 - PMKSY aims to ensure **access to some means of protective irrigation to all agricultural farms** in the country, to produce 'per drop more crop', thus bringing much desired rural prosperity.
 - AIBP component of PMKSY focuses on **major and medium irrigation projects that involve an area of more than 2000 hectares.**
- Since its inception, 297 Irrigation / Multi-Purpose Projects have been included for funding under AIBP.



Shortcomings in AIBP

- **Frequent modification in design and scope of the work:** This happened due to the following deficiencies in preparation and planning of Detailed Project Reports (DPRs) like
 - Inadequate surveys

- Inaccurate assessment water availability
- Inaccurate calculation of Cost Benefit (CB) ratio.
- Revision in cost estimates after commencement of work also **adversely affecting the schedule of implementation of the project.**
- **Violation of project guidelines:** According to the PAC projects and schemes were included in the programme in violation of project guidelines resulting in irregular release of Rs. 3,718 crore.
- **Deficiencies in financial management:** The PAC noted many cases of **non/short release of funds, delay in release of funds at** various levels and non-adjustment of unspent balances of funds in the subsequent release.
 - According to the PAC, **the utilisation certificates of funds, amounting to Rs. 2187 crore**, that constituted 37% of the total central assistance received by the state agencies were **not submitted to the implementing ministry in time.**
 - Instances of **diversion of funds, short or non-realisation of revenue, tardy implementations of projects** were also observed by the PAC.
- **Deficiencies in monitoring:** Lack monitoring by the central and state agencies is also a major problem.

Way ahead

- **Comprehensive revision of the guidelines:**
 - Ministry of Jal Shakti should consult all the stakeholders and state governments and **assess the need for a comprehensive revision of the guidelines.**
 - Ministry should also **frame timelines for the inclusion of projects**, which may include the possibility of changes, so as to remove the need for frequent revisions.
 - **Concrete action should be taken to adhere to the guidelines and timelines thus formed.**
- **Changes in implantation of the projects:**
 - **The deficiencies in preparing and processing of DPRs** such as delays, inadequate surveys, and inaccurate assessment of command area **should be rectified.**
- **Fiscal management:**
 - A **uniform parameter for calculation of CB ratio** should be adopted.
 - ✓ CB ratio for projects should be **reviewed continuously and be based on realistic assumptions.**
 - The government should take **strict actions on instances of short/non- realisation of revenue.**
 - The government should **form a separate cell to examine cases of undue benefits to contractors.**
- **Transparency and Accountability:**
 - The PAC has advised that **more DPRs of the projects** being implemented under AIBP **should be open for audits**
 - The government should put in place a **mechanism to monitor the due diligence of states** in adhering to guidelines.
- **Improving monitoring of the scheme:**
 - The use of **satellite imagery and field reports** can increase effective monitoring of the irrigation potential.
 - Strengthening the **participatory model of irrigation** through Water Users Associations to tackle various issues related to irrigation.
 - Ministry of Jal Shakti should also increase its efforts in facilitating the formation of **Water Users Associations in all states.**

3.6. NATURAL GAS MARKETING

Why in news?

The Cabinet Committee on Economic Affairs has approved '**Natural Gas Marketing Reforms**', taking another significant step to move towards gas based economy.

Natural Gas Marketing Reforms

- **Standardized e- bidding procedure:** The Director General of Hydrocarbons (DGH) will propose a standardized e-bidding platform to promote market price discovery of natural gas.
- **Producers will be barred from participating in the bidding:** Gas producing companies themselves will not be allowed to participate in the bidding process but affiliate companies would be allowed to bid.

- **Marketing freedom to Field Development Plans:** This would be granted for those Blocks in which Production Sharing Contracts already provide pricing freedom. This is to bring uniformity to the bidding process across various contractual regimes and policies to avoid ambiguity.

Benefits expected from the reforms

- **Ease of doing business:** It would be enhanced due to the following reasons:
 - **Uniformity in the bidding process**
 - **Marketing and pricing freedom** to the new investors
 - **Freedom of choice** to the producers as there will be more than one e-bidding platform
 - **Role of regulator has been defined**
- **Step ahead towards Atmanirbhar Bharat:** These reforms will encourage investments in the domestic production of natural gas and help in reducing import dependence.
 - The domestic production will further help in increasing investment in the downstream industries such as City Gas Distribution and related industries.
- **Gas based economy:** It is expected to add 40 million standard cubic meters per day of more natural gas through domestic production.
- **Reduction in pollution:** The increased gas production consumption will help in improvement of environment.
- **Employment generation:** These reforms will also help in creating employment opportunities in the gas consuming sectors including MSMEs.

Issues in the reforms

- **Very limited impact:** Nominated fields, accounting for almost 80% of India's gas production at present, will be outside the benefit zone of the new policy.
- **Disincentive for the old players:** As only new entrants are given the benefit. The new entities will take advantage of e-bidding platform and discover the viable price. The older players would be at disadvantage.
- **Allowing only affiliates:** Principle behind this is not very clear and only time would tell how not allowing the main gas producing companies would be beneficial to the sector.

Way ahead

The recent step, in principle, is very good for enhancing domestic production of natural gas. However, this step should be complemented with following reforms to harness the expected benefits:

- **Doing away with APM:** Prices under the APM regime is half of what India pays for the import of LNG. Such pricing mechanism has **reduced incentives for domestic producers** to raise supplies. According to IEA this price mechanism **focuses too much on reducing the price level rather than the creation of a market-based system** to reflect the domestic supply-demand structure in India,

Pricing of domestically produced natural gas

- **Administered Price Mechanism (APM)**
 - Price is set by the Government of India every six months.
 - It is weighted **average of prevailing prices in US, UK, Canada and Russia.**
 - Presently, it is USD 1.79 million Btu far less than the price of imported LNG.
 - This pricing regime **covers almost 80% of the domestically produced natural gas.**
- **Non-Administered Price Mechanism (Non-APM) or Free Market gas**
 - This mechanism is applicable on **contractual agreements based gas production.**
 - These are only 20% of the total domestic production.
 - The new reform would cover beneficiaries in this regime.

Natural gas

- Natural gas is a **mixture of gases which are rich in hydrocarbons** consisting of methane, nitrogen, carbon dioxide etc.
- Natural gas reserves are **deep inside the earth near other solid & liquid hydrocarbons beds** like coal and crude oil.
- It is not used in its pure form; it is processed and converted into cleaner fuel for consumption.
- **It could be used in following ways:** Feedstock in the manufacture of fertilizers, Fuel for electricity generation, Cooking in domestic households, Transportation fuel for vehicles.

Natural Gas scenario in India

- Natural gas comprises **about 6.2% of India's primary energy mix**, far behind the **global average of 24%.**
- The government plans to increase this share **to 15% by 2030.**
- **Domestically produced** natural gas contributes to only **48% of India's total consumption** of domestic gas.
- It is being supplied from the **oil & gas fields located at western and southeastern areas** viz. Hazira basin, Mumbai offshore & KG basin as well as North East Region (Assam & Tripura).

- **Tax reforms:** Since natural gas does not fall under the GST, **gas consumption suffers from cascading effect of tax.** According to IEA, "Bringing natural gas under the GST and introducing a postage stamp gas transport tariff would reduce these costs and create a level playing field with other fuels."
- **Gas exchange hub (IGX):** Trading through this platform is open only for imported liquefied natural gas (LNG). Allowing domestic producers to trade on this platform **would further the transparent price discovery** on the basis of buyers and sellers interacting in an open market. According to IEA this may also pave the way for removal of multiple price regimes.

3.7. COASTAL SHIPPING BILL, 2020

Why in news?

Recently, the Shipping Ministry has issued draft 'Coastal Shipping Bill, 2020' for public consultation.

Provisions of the bill

- **Mandatory licencing** for all foreign vessels.
- **National Coastal and Inland Shipping Strategic Plan:** It aims for the seamless integration of inland waterway routes with maritime coastal transport. The aim is to enable transportation of goods solely via water-based modes of transport, from inland waterways to coastal shipping routes.
- **National Register of Coastal Shipping:** It contains all information about the coasting trade of India. Such a register would ensure transparency of procedure and aid in information sharing between the regulators, industry and other participants.
- **Schedule of Penalties:** It enables the Central Government to revise fines without amending the Act and thus, makes it easier to revise fines to keep up.

Importance of the bill

- **Potential of India:** Coastal shipping in India holds great potential owing to our vast coastline of around 7500 kilometres and proximity to important global shipping routes.
- **Cost of transport and production:** Currently, maritime transport handles around 70% and 90% of India's trading in terms of value and volume respectively. It will further reduce transportation and production costs with integration of coastal maritime transport with inland waterways.
- **Policy prioritisation:** Separate legislation on coastal shipping helps to recognize the policy priorities to meet the demands of the India's growing and evolving shipping industry.

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4. SECURITY

4.1. ROLE OF TECHNOLOGY IN BORDER MANAGEMENT

Why in news?

Indian Army is working on converting the existing border fence into a smart fence integrated with several sensors through a hybrid model.

More on news

- The new hybrid model of the **smart fence** being tested will **cost around ₹10 lakh per km** and **60 km is being attempted this year**.
- The fence will be integrated with **LIDAR (Light Detection and Ranging) sensors, infrared sensors and cameras** among others.
- The entire fence along **700 km stretch of Line of Control (LOC)** will be converted into **smart fence** to **improve surveillance and check infiltration**.

Role of technology in Border Management

- **Upgrading existing system:** Technology can be integrated with the existing systems to facilitate better detection and interception by the man behind the machine.
 - At present, border guarding is **almost fully dependent on human surveillance**. This makes border management a time-consuming and complex task.
- **Checking infiltration:** It can be help to detect infiltration via land, underwater, air and tunnels by deploying close circuit television cameras, thermal imagers and night vision devices etc.
- **Facilitate Cross Border Trade:** For example: Blockchain technology can help quickly and securely process transactions, it also makes much easier to identify and trace illegitimate trade.
- **Improved Intelligence inputs and Surveillance:** through Remote sensing satellites, radar satellites and satellites with synthetic aperture radar (SAR) sensors which are capable of providing day and night all-terrain and all-weather inputs.
- **Madhukar Gupta Committee on border protection** had recommended the Union Government to **strengthen border protection and address vulnerabilities in fencing** along the Indo-Pakistan border. This led to implementation of CIBMS in 2015.

Issues related to Border management in India

- **Porosity of borders:** International borders with Pakistan and Bangladesh run through diverse terrain including deserts, marshes, plains and mountains.

About Smart Fence

- The smart border fencing projects have been **built under the Comprehensive Integrated Border Management System (CIBMS)** programme along **Indo-Pakistan and Indo-Bangladesh** international borders.
- Smart fencing at the borders is a **technological solution devised to address the security issues** in the border-states.
- It has hi-tech surveillance system that would **create an invisible electronic barrier on land, water, air and underground** and would help security forces to **detect and foil infiltration bids in most difficult terrains**.

Comprehensive Integrated Border Management System (CIBMS)

- It is a **robust and integrated system that is capable of addressing the gaps in the present system of border security** by seamlessly integrating human resources, weapons, and high-tech surveillance equipment.
- It improves the **capability of Border Security Force (BSF) in detecting and controlling the cross border crimes** like illegal infiltration, smuggling of contraband goods, human trafficking and cross border terrorism etc.
- It also **improves situational awareness** to facilitate prompt decision making and quick reaction to emerging situations.
- It involves deployment of a **range of state-of-the-art surveillance technologies** —
 - Thermal imagers, infra-red and laser-based intruder alarms.
 - Aerostats for aerial surveillance.
 - Unattended ground sensors that can help detect intrusion bids.
 - Radars, sonar systems to secure riverine borders.
 - Fibre-optic sensors.
 - A command and control system that shall receive data from all surveillance devices in real time.
- 2 pilot projects covering about 71 Kms on Indo-Pakistan Border (10 Kms) and Indo-Bangladesh Border (61 Kms) of CIBMS have been completed.
- In 2018, BSF undertook the project **BOLD-QIT (Border Electronically Dominated QRT Interception Technique)** to equip Indo-Bangladesh borders with different kind of sensors in unfenced riverine area of Brahmaputra and its tributaries.

- This porosity of borders facilitates various illegal activities such as smuggling, trafficking of humans, drugs and arms and infiltration.
- **Contested International borders:** History of mistrust and constant border skirmishes with Pakistan along line of control (LOC) makes India highly susceptible to cross-border terrorism.
 - Similarly, India's border with **Myanmar** is **threatened by several insurgent groups** that have **found sanctuaries in jungles** along the border.
 - Political boundary issues of **"enclaves and adverse possessions"** in **Bangladesh** have resulted in political sensitivity along the entire eastern border.
- **Inefficiency in Border management:** Indian borders continue to be guarded by military and police forces that report to different ministries in the Centre and states, making the border management task arduous and leading to duplication of efforts by the security forces.
- **Lack of critical infrastructure:** Critical infrastructure such as observation towers, bunkers, Border Flood Lights etc. are lacking in many border areas which also prevent deployment of hi-tech equipment.
- **Poor intelligence and resource efficiency:** Security forces are ill-equipped to handle border management given poor intelligence capabilities and severe resource deficiency.

Conclusion

One of the main aspects of national sovereignty is the safety and security of states' borders. **If the borders are safe and stable only then can the country enjoy economic and social prosperity.**

Efforts should be made to utilise the **knowledge available with private sector** in the context of **electronic and surveillance equipment** and maintenance and updating of data such as biometric details.

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5. ENVIRONMENT

5.1. NATIONAL GREEN TRIBUNAL (NGT)

Why in news?

The National Green Tribunal (NGT) recently completed 10 years.

About National Green Tribunal

- The NGT is a **statutory and quasi judicial body** established under the National Green Tribunal Act, 2010.
- It aims for effective and expeditious disposal of cases relating to environmental protection and conservation of forests and other natural resources.
- The Tribunal is not bound by the Code of Civil Procedure, 1908 or the the Indian Evidence Act, 1872 but is **guided by principles of natural justice**.
- **Structure:** It consists of a Chairperson, Judicial members and Expert Members
 - Chairperson or Judicial Member of the Tribunal should be a Judge of the Supreme Court of India or Chief Justice of a High Court.
 - These members are not eligible for reappointment
- **Powers of NGT**
 - It has the power to **regulate its own procedure**.
 - An order/decision/award of Tribunal is **executable as a decree of a civil court** and an appeal against the order/decision/ award of the NGT can be filed in the **Supreme Court** (usually within 90 days).
 - The Tribunal is **mandated to dispose applications or appeals within 6 months of filing**.
 - NGT by an order, can provide-
 - ✓ relief and compensation to the victims of air pollution and different environmental damage,
 - ✓ restitution of property damaged
 - ✓ for restitution of the surroundings for such vicinity or areas
 - **Penalty for not complying with the Tribunal's orders:** Upto 3 years imprisonment and/ or fine of Rs 10 crores for individuals (Rs 25 crores for companies)
- **Jurisdiction of NGT:** The NGT deals with civil cases under the seven laws related to the environment:
 - The Water (Prevention and Control of Pollution) Act, 1974
 - The Water (Prevention and Control of Pollution) Cess Act, 1977
 - The Forest (Conservation) Act, 1980
 - The Air (Prevention and Control of Pollution) Act, 1981
 - The Environment (Protection) Act, 1986
 - The Public Liability Insurance Act, 1991
 - The Biological Diversity Act, 2002

Significance of NGT

- Is less formal, less expensive
- Since its members are not eligible for reappointment it **can deliver judgements independently**, without succumbing to any pressures
- **Reduces the burden of higher courts** by providing an alternative dispute decision mechanism.

Achievements of NGT

- **Speedy environmental justice in environmental matters:** Since it began operations in July 2011 and till May, 2020, the NGT has heard 32,626 cases, of which 29,760 have been disposed off.
- **Strengthened the concept of Environmental Justice in India:** Over the years NGT has emerged as a vital player in environmental regulation, passing strict orders on issues ranging from pollution to deforestation, waste management to protection the rights of tribal communities.
- **Technical judgments:** NGT has employed legal and scientific methods and assessed environment impact assessment reports before deciding,
- **Created a new breed of legal practitioners** with expertise in environmental laws.

Challenges/Issues associated with its functioning

- **Lack of institutional mechanism to ensure compliance of its orders:** or to re-work its orders if found infeasible to implement.

- Most of the landmark orders of the NGT related to Ganga water pollution, Delhi air pollution, illegal mining, and solid waste management remain unenforced.

- **Generic orders:** Since July 2018, the Tribunal has disposed of over 700 cases, all at different stages of hearing, with directing the concerned authorities “to look into the matter and take appropriate action in accordance with law”.
- **Large number of dismissals:** Since 2018, the NGT dismissed many appeals filed before it, most of them on procedural grounds.
- **Restricted jurisdiction in case of forest rights:** Two important acts - Wildlife (Protection) Act, 1972 and Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 have been kept out of NGT’s jurisdiction.

- **Obstacle to development:** Decisions of NGT have additionally been criticised and challenged due to their repercussions on monetary growth and development.
- **Vacancies:** NGT only has three judicial and three expert members against the sanctioned strength of 10 each. This forces the tribunal to **outsource most of its technical work and constitute external committees** to look into various aspects of cases.
 - This gives the impression that the NGT is abrogating its own jurisdiction on cases pertaining to environmental protection
- **Other issues-** Absence of a formula-based mechanism in determining the compensation, Restricted number of regional benches, **Prolonged litigation** due to the option of challenging orders of the NGT before the Supreme Court etc.

Significant judgments of the NGT over the years

- **In 2012, NGT suspended the clearance given to the South Korean steel maker, POSCO,** to set up a 12 million-tonne steel plant in Odisha in favour of the nearby communities and forests.
- **In 2012 Almitra H. Patel vs. Union of India case,** NGT gave judgment of entire prohibition on open burning of waste on lands, which include landfills and directed states to implement Solid Waste Management Rules.
- In 2013 in Uttarakhand floods case, NGT relied on the precept of ‘**polluter pays**’ to order the Alaknanda Hydro Power Co. Ltd. to compensate to the petitioner .
- In 2015, the NGT **banned all diesel motors over 10 years** in Delhi-NCR.
- In 2017, the Art of Living Festival on Yamuna Food Plain was declared violating the environmental norms and the NGT panel imposed a penalty of Rs. 5 Crore.
- The NGT, in 2017, imposed an **intervening time ban on plastic bags of less than 50-micron thickness in Delhi** due to the fact “they had been inflicting animal deaths, clogging sewers and harming the environment”.

Way forward

- Amendment to the NGT Act to give the tribunal powers to follow-up its directions and to establish a mechanism for enforcing its directions.
- NGT can provide specific reasons for dismissal of cases or appeals.
- Filling up vacancies in NGT, especially among expert members, to enable the tribunal to become self reliant while inspecting technical aspects of cases.

5.2. WORLD ENERGY OUTLOOK, 2020

Why in News?

Recently, International Energy Agency released World energy Outlook 2020 report

More in News

- **World Energy Outlook**, the IEA’s flagship publication, provides a comprehensive view of how the global energy system could develop in the coming decades.
- **International Energy Agency** is an **autonomous intergovernmental organization** established in the framework of **Organization for Economic Cooperation and Development (OECD)** in 1974 to help countries collectively respond to oil supply disruptions.
 - It is **headquartered in Paris**.
 - The framework was anchored in the IEA treaty called the “**Agreement on an International Energy Program**”.

- A candidate country to the IEA must be a member country of the OECD.
- The IEA family now represents about 75% of global energy consumption.
- **Members:** IEA is made up of 30 member countries and 8 association countries.
- India became an Associate Member in 2017.
- **Other Publications:** Global Energy & CO2 Status Report.

Key findings

- **Impact of COVID 19:** Immediate effects of the pandemic on the energy system shows following expected declines in 2020:
 - 5% in global energy demand,
 - 7% in energy-related CO2 emissions and
 - 18% in energy investment.
 - 20% in oil consumption
- **Demand for renewable energy:** Renewables are less affected than other fuels by the pandemic and its aftermath. Renewables will meet 90% of the strong growth in global electricity demand over the next two decades, led by continued high levels of **solar PV deployment**. By 2040, coal's share in global energy demand **dips below 20% for the first time** in modern energy history.
- **Structural fall in global coal demand:** Coal phase-out policies, the rise of renewables and competition from natural gas lead to the retirement of 275 gigawatts (GW) of coal-fired capacity worldwide by 2025 (13% of the 2019 total)
- **Oil Demand:** Rising incomes in emerging market and developing economies create strong underlying demand for mobility, offsetting reductions in oil use elsewhere.
- **Electricity grids:** There is a disparity in many countries between the spending required for smart, digital and flexible electricity networks and the revenues available to grid operators.
 - Interconnected and complex nature of the electricity grid delivers several benefits including:
 - ✓ **Reliability:** Since the grid is an enormous network, electricity can be deployed to the right places across large regions of the country.
 - ✓ **Flexibility:** The electricity grid allows a power system to use a diversity of resources, even if they are located far away from where the power is needed.
 - ✓ **Economic competition:** Because the grid allows multiple generators and power plants to provide electricity to consumers, different generators compete with each other to provide electricity at the cheapest price.

India's Energy Outlook

- **Electricity access:** Government has been supporting the expansion of distribution grid infrastructure across India to foster electricity access in villages.
 - It provides budgetary support (grants) to state government DISCOMs under the Deendayal Upadhaya Gram Jyoti Yojana (in rural areas), the Saubhagya scheme (last-mile connectivity to households) and the Integrated Power Development Scheme (IPDS) (in urban areas).
- **Cleaner energy:** India continues to promote cleaner cooking and off-grid electrification solutions, including a shift toward using solar photovoltaics (PV) for cooking and charging batteries.
- **Energy Affordability:** Government provides large-scale public subsidies to ensure access to electricity, energy and clean cooking for its population. Subsidies are designed for the purpose of social support and economic development.
 - PAHAL, also known as the Direct Benefit Transfer of LPG scheme, sends the subsidy for the LPG purchased directly to a citizen's bank account.
- **Energy Efficiency:** Allowing private-sector investment in coal mining, opening country's oil and gas retail markets. And creation of functioning energy markets will ensure economic efficiency in the management of the coal, gas and power sectors.
 - India is improving the energy efficiency of **buildings through mandatory building energy codes and voluntary rating schemes**, as well as through policies and programmes to improve the efficiency of appliances and equipment.
 - The use of green bulk procurement (for instance of LED light bulbs) has helped accelerate energy savings.

- **Energy security:** India's electricity security has improved markedly through the creation of a single national power system and major investments in thermal and renewable capacity. To improve oil security, the government has also prioritised reducing oil imports, increasing domestic upstream activities, diversifying its sources of supply and increasing Indian investments in overseas oil fields in the Middle East and Africa.
- **Significant progress in sustainable development:** India has made important progress towards meeting the United Nations Sustainable Development Goals, notably Goal 7 on delivering energy access. Both the energy and emission intensities of India's gross domestic product (GDP) have decreased by more than 20% over the past decade.
 - Government has embarked on an ambitious policy to boost renewable electricity, with a target of 175 GW capacity by 2022. Under its NDC, India targets a share of nonfossil-based capacity in the electricity mix of more than 40% by 2030 and a reduction in the emissions intensity of its GDP of 33-35% by 2030 over 2005. Recently the GoI has indicated ambitious new targets for renewables capacity in the region of 450 GW.
 - **Government has ruled out deploying new coal capacity up to 2027** (beyond plants still under construction) and aims to close the oldest most inefficient coal plants in the country.

Challenges

- **Financial health of Power sector:** India faces the challenge of ensuring the financial health of its power sector which is dealing with surplus capacity, lower utilisation of coal and natural gas plants, and increasing shares of variable renewable energy.
- **Energy taxation and subsidies:** Subsidies on electricity creates a large financial burden on the GoI budget, notably at times of rising prices for energy commodity imports.
- **Increase in oil demand:** India's transport energy demand is growing rapidly. Oil products supplied 95% of total energy in the sector, mostly diesel and gasoline.
- **Coal continues to be the largest domestic source of energy supply** and electricity generation.
- **Number of policy makers:** Energy policy in India is conducted by a number of different ministries (ministry of power, ministry of renewable energy, ministry of oil and natural gas) that have responsibility for their sector.

Way Forward

- **India's Energy Plan aims to ensure energy justice** (more energy for Indians) while fully following India's global commitments (smaller carbon foot-print) for sustainable growth.
- Government should adopt a national energy plan to **set a long-term framework for all stakeholders across the energy system**, which also identifies future energy infrastructure investment needs and provides an integrated approach.
- **Electricity and natural gas can be brought under the GST** to provide a level playing field between coal and gas.
 - Electricity and natural gas remain outside of the GST.
- **Government should phase out indirect subsidies** to ensure that retail energy prices reflect the full costs of energy.
- **Develop a holistic strategy on renewable energy**, encompassing both supply and use, for electricity, heating and cooling as well as transport to fully harness India's large untapped potential.
- Creation of transparent and flexible markets for both oil and gas.

Related news

At 4th India Energy Forum, PM listed **seven key drivers of India's Energy Map:**

- Accelerating efforts towards a **gas-based economy**;
- **Cleaner use of fossil fuels**, particularly petroleum and coal;
- Greater reliance on **domestic sources to drive biofuel**;
- Achieving the **renewable energy target of 450 GW by 2030**;
- Increasing the **contribution of electricity to decarbonise mobility**;
- **Moving into emerging fuels**, including hydrogen;
- **Digital innovation** across all energy systems.

5.3. GREEN BUILDINGS

Why in news?

Vice President of India, inaugurated the Confederation of Indian Industry's Green Building Congress 2020.

What is a green building?

- A **'green' building** is a building that, in its design, construction or operation, **reduces or eliminates negative impacts**, and can create positive impacts, on our climate and natural environment.
- Some **features which can make a building 'green' include:**
 - Efficient use of energy, water and other resources
 - Use of renewable energy, such as solar energy
 - Pollution and waste reduction measures, and the enabling of re-use and recycling
 - Use of materials that are non-toxic, sustainable
 - Consideration of the environment in design, construction and operation etc.
- Currently **India has over 7.61 Billion Sq. Ft of green building footprint** and amongst the top 5 countries in the world.

Advantages of green buildings

- **Economic benefits: Cost effectiveness:** Energy efficiency of green buildings save a huge amount of money on the energy bills, saving up to 20 percent of the operating and maintenance cost.
- **Environmental benefits**
 - **Temperature regulation:** Green buildings with green roofs remain much cooler than regular buildings and greenery induces moisture around the building which creates a pleasant environment in and around the construction.
 - **Emission reduction:** According to various studies, green buildings emit 62% less GHGs.
 - **Eco-friendly:** Green constructions reuse the rainwater and greywater which otherwise would have been wasted. Also, the materials used to build are generally eco-friendly, recycled and biomass materials.
- **Social benefits:** Green buildings reduce the amount of pollution which certainly has an impact positively on mental and physical health.

Steps taken towards Green buildings promotion in India

- The **Energy Conservation Building Code (ECBC) was launched in 2007** by the Bureau of Energy Efficiency (BEE). Its main objective is to establish minimum requirements for energy efficient design and construction of buildings.
 - It was revised in 2017 (ECBC 2017) that prescribes the **energy performance standards for new commercial buildings** to be constructed across India.
 - Adoption of ECBC 2017 for new commercial building construction throughout the country is **estimated to achieve a 50% reduction in energy use by 2030.**
- **(Energy Conservation–New Indian Way for Affordable & Sustainable homes) Eco-Niwas Samhita 2018:** It is **Energy Conservation Building Code for Residential Buildings** launched by Ministry of Power.
- BEE developed **Star Rating Programme for commercial buildings** that rates buildings on a five-star scale based on actual performance in terms of energy usage.
- Two rating systems are operating for rating green buildings in India:
 - **Green Rating for Integrated Habitat Assessment (GRIHA):** It is rating tool evaluates the environmental performance of a building holistically over its entire life cycle, thereby providing a definitive standard for what constitutes a 'green building'. It is jointly developed by The Energy and Resources Institute (TERI) and the Ministry of New and Renewable Energy.
 - **Leadership in Energy & Environmental Design (LEED):** It is an international recognized certification system for the green buildings developed by the U.S. Green Building Council.
- **Indian Green Building Council**, part of the Confederation of Indian Industry (CII) formed in the year 2001, offers services like **developing new green building rating programmes, certification services and green building training programmes.**

Challenges in Green buildings adoption

- **Inadequate Government's Policies & Procedures:** Though government is deciding ambitious targets for green building it lacks in proper rules and regulations to enforce large-scale implementation.
- **Lacking ease of doing:** Builders and developers have to go through a very tedious process when it comes to approvals for green building compliances, this can be one potential reason deterring rapid adoption of green buildings.

- **Expensive Equipment and product:** The equipment and products used in the construction of green buildings are expensive, hence developers and builders are concerned that adopting green buildings will involve high upfront costs.
- **Lack of skilled manpower and expertise:** India lacks in skilled experts and manpower in form of policymakers to architects, engineers to contractors and workers.
- **Limited Awareness:** A very large segment of Indian people are unaware of green buildings and its enduring benefits and who know little about green buildings perceive it to be an expensive and option.

Way forward

- **Encouragement:** Finance Commissions & Local bodies should encourage green buildings through tax incentives and other measures.
- **Legislation:** Making green buildings mandatory through legislation for new constructions, as well existing buildings too should be retrofitted to make them environment-friendly by adopting green practices.
- **Capacity building:** Government should formulate strategies to develop skills among architects, engineers, contractors and workers to facilitate adoption of green buildings.
- **Campaigning and awareness:** Call for creating awareness of promoting green buildings concept among the people and promoting 'Net Zero Carbon Buildings'.

5.4. MANAGING URBAN WATER BODIES

Why in News?

Recent urban floods in Hyderabad have highlighted issues regarding management of water bodies in Indian cities.

About Urban water bodies

- Urban water bodies in India range from riverfronts, lakes and ponds to marshes, mangroves, backwaters, lagoons and other wetlands. E.g. - Hussainsagar and Osmansagar lakes in Hyderabad.
- **Functions of water bodies in urban landscapes-**
 - **Maintaining Hydrology:** by recharging ground water, channelizing water flow to prevent water logging and flooding, shoreline stabilization etc.
 - **Source of water supply:** for drinking, industrial use, irrigation etc.
 - **Water quality improvement:** by removing excess nutrients and many chemical contaminants.
 - **Helps cities adapt to climate change effects:** such as heat island effect and flash floods
 - **Preserving the biodiversity:** by hosting a wide variety of flora and fauna including migratory species.
 - **Socio-economic functions:** Supports recreational activities, tourism, fishing, transportation etc. Some water bodies also act as sites of artistic, religious and spiritual pursuits.

About Urban Flooding

Urban flooding is the inundation of property in a built environment, particularly in densely populated urban areas, caused by intense rainfall (on impermeable surfaces) which **overwhelms the capacity of drainage systems.**

Factors responsible for urban floods-

- **Meteorological Factors-** Heavy Rainfall, Cyclonic storms, Cloudburst etc.
- **Hydrological Factors-** Synchronization of runoffs from various parts of watershed, presence of impervious/ impermeable cover etc.
- **Human Factors-** Land use changes, Encroachment of the flood plain, Inefficiency or non-maintenance of flood management infrastructure, Changing Urban micro-climate due to urban heat island effect etc.

How anthropogenic activities have impacted Urban Watersheds?

- **Water pollution:** from **point sources**, such as waste water from a tributary drain, sewage draining, industrial effluents etc., and **non-point sources** such as urban storm water runoff, solid waste and debris, pollution from agricultural fertilisers and chemicals etc. has **disturbed nutrient composition of urban water bodies.** This has led to algal blooms (through **eutrophication**), which makes these water bodies shallower and reduces their water carrying capacity.
 - Also, solid wastes, especially plastic waste, can **disconnect urban water bodies from inflow sources** and obstruct water flows in natural drainage systems.
- **Riverfront developments:** Developments on floodplains have adverse impacts on **riverbank stabilisation, riparian buffer and immediate floodplain ecological values.** Rivers are being narrowed far within their actual width with concrete riverbed wall embankments, impacting **river's flooding capacity.**
 - For example- The Sabarmati river channel, has been uniformly narrowed to 275 metres during the riverfront development project, when naturally average width of the channel was 382-330 metres.

- **Waste disposal:** The water bodies have been turned into landfills in several cases due to explosive increase in the urban population without corresponding expansion of infrastructure for the disposal of waste. Guwahati's Deepor beel, for example, is used by the municipal corporation to dump solid waste.
- **Encroachment:** through land reclamation to accommodate growing urban population can lead to loss of whole or certain portions water bodies. Charkop Lake in Maharashtra, Ousteri Lake in Puducherry, Deepor beel in Guwahati are well-known examples of water bodies that were encroached.
- **Illegal mining activities:** Illegal mining for building material such as sand and quartzite on the catchment and bed of the lakes/ rivers can alter their beds, **force river to change course, erode banks, lead to flooding and affect groundwater recharge.**
- **Fragmentation of vegetation in the urban spaces:** due to human settlements and construction. The type and amount of vegetation, and the plant community structure, can greatly **affect the storage capacity** in any watershed as healthy vegetative cover keeps soil more permeable and allows the moisture to percolate deep into the soil for storage.
- **Low capacity of urban drainage systems:** combined with factors such as higher flows during storm water, presence of impervious surfaces etc. can lead to heavy rainfall and channel flow in urban watersheds which affect natural drainage patterns through increased soil erosion and high sedimentation in water bodies.
- **Other impacts on functions and integrity of urban water bodies-**
 - Introduction of toxic substances that can enter the food chain and are harmful to plants, fish, and wildlife
 - Reduction of water quality
 - Clogging of sections of natural drainage channels
 - Disturbance of aquatic biodiversity

Measures taken for protection of Urban waterbodies

- **Wetland (Conservation and Management) Rules 2017:** Its objective is to conserve aquatic ecosystems (lakes and wetlands), through implementation of sustainable conservation plans governed by application of uniform policy and guidelines.
- **National Plan for Conservation of Aquatic Eco-systems (NPCA):** It prohibits activities like conversion of wetland for non-wetland uses including encroachment, solid waste dumping, etc.
- **Atal Mission for Rejuvenation and Urban Transformation (AMRUT):** Its mission components include provision for rejuvenation of water bodies specifically for drinking water supply and recharging of ground water.
- **Notifying wetlands under the Ramsar Convention:** It is an inter-governmental accord signed by members countries to preserve the ecological character of their wetlands of international importance.
- **Enforcement & Monitoring Guidelines for Sand Mining:** to control the instance of illegal mining.
- **Water (Prevention and Control of Pollution) Act, 1974:** It provides several directions to control the flow of sewage and industrial effluents into water bodies.

Way Forward

- **Revival and restoration of water bodies:** Processes such as de-weeding, desilting, aeration, bioremediation and biomanipulation can help restore the original state of these water bodies.
- **Integrated watershed development:** by developing an understanding of their inter-connectivity of urban water bodies and taking the extent and topographical conditions of catchment area, existing and proposed storm water drains and permeability of soil conditions into account.
- **Checking encroachments on urban water bodies:** Town Planning departments should regularly monitor the prohibited areas to prevent encroachments.
- **Promote groundwater recharge and pollutant attenuation:** by removing concrete flood control channels and exposing the underlying native sediment.
- **Limit, reduce and/or mitigate for impervious surfaces:** throughout the watershed by use of new engineering techniques like pervious pathways, pervious parking lots to minimize the surface runoff.
- **Stakeholder participation and capacity building:** must be used as an important instrument for better management of urban Water Bodies.
- **Ensuring planned Urbanization:** that takes into account the delineation and protection of catchment areas, drainage channels and areas of lakes, ponds, etc.
- **Other steps:** Ensuring proper disposal of solid and liquid waste, undertaking urban forestry, restricting sand mining etc.

5.5. PESTICIDES MANAGEMENT BILL, 2020

Why in news?

Recently, the experts warned about some provisions in the **Pesticides Management Bill, 2020** which will hurt farmers' livelihood.

About the bill

- The Pesticide Management Bill, 2020 was introduced in Rajya Sabha by the **Ministry of Agriculture and Farmers Welfare in March 2020**.
- It seeks to regulate the manufacture, import, sale, storage, distribution, use, and disposal of pesticides, in order to ensure the availability of safe pesticides and minimise the risk to humans, animals, and environment.
- It seeks to **replace the Insecticides Act, 1968** which currently governs the registration, manufacturing, export, sale and use of pesticides in India.
- The reason for introducing PMB was the **inadequacy of the 50-year-old Insecticides Act, 1968** to meet the needs of multi-dimensional management and administration of pesticides.
 - Also, agriculture in India is largely dependent on chemicals, including pesticides and their overuse and misuse has a **huge impact on the health of humans, animals, bio-diversity and the environment**.

Production and usage of pesticides in India

- The production of pesticides started in India in 1952 with the establishment of a plant in Calcutta.
- India is among the largest producers of pesticides in the world.
- **Insecticides, fungicides and herbicides are used in India**, with insecticides forming the highest share.
- The main use of pesticides in India is for cotton crops, followed by paddy and wheat.
- As of 2019, a total of 292 pesticides are registered in India.
- **Total pesticide consumption is the highest in Maharashtra**, followed by Uttar Pradesh, Punjab and Haryana.
 - Per hectare consumption of pesticides is the highest in Punjab.

Key Features of the Bill

- **Defines Pest & Pesticide:**
 - **Pest** is any species of animal, plant, or pathogenic agent that is unwanted, or injurious to plants, humans, animals, and the environment.
 - **Pesticide** is any substance of chemical or biological origin intended for preventing or destroying any pest in agriculture, industry, public health, pest control operations, or for ordinary use. It also promotes organic pesticides.
- **Constitution of Central Pesticides Board:** to advise the central and state governments on scientific and technical matters arising under the Act. It will also advise the central government in formulating standards and best practices for
 - recall and disposal of pesticides
 - working conditions and training of workers
 - pesticide manufacturers, laboratories, and pest control operators
- **Other Provisions related to –**
 - Registration of pesticides
 - Procedure for obtaining licence to manufacture, distribute, stock pesticides
 - Regulating prices if necessary
 - Prohibition on certain pesticides
 - Offences and penalties

Intended Benefits of the Bill

- It proposes to **promote the production and distribution of safe and effective pesticides** and to **reduce crop losses** due to the use of spurious and substandard products.
- It **assesses the potential effects of these products** on the health of people and the environment.
- Advertisements for pesticides will also be **regulated to prevent misleading claims**.
- **Manufacturers who violate the law will be subject to a heavy penalty** in addition to an imprisonment of up to five years.
- The penalties collected will form a central fund that will **provide compensation for farmers facing losses due to illegal, low-quality or spurious chemicals**.

Key Issues/Concerns

- **Export of pesticides:** PMB 2020 does not allow the export of pesticides that are banned in India even if those are approved for use in other countries.
 - In PMB 2020, there is **no requirement for the registration of a technical grade pesticide** before importing any of its formulations in India.
- **Encouraging the import of formulations:** Bill seeks to encourage the import of formulations, ultimately damaging the crop, health of farmers, and the environment.
- **Prescription:** Under PMB, farmers will have to obtain the prescription before they can buy certain pesticides, which will pose a huge obstacle in the timely procurement of pesticides.
- **Power of licensing & registration:** too much power in hands of bureaucracy.

Way Forward

- **Focus on minimal use of pesticides:** Minimizing the use of pesticides, recognizing the fact that pesticide use is not sustainable. Promoting pesticides will take India away from sustainable agriculture practices and agro-ecology.
- **Pesticide promotion must not be allowed:** Like pharmaceutical drugs, pesticides due to their hazardous nature, must not be allowed to be promoted.
- **Farmers must be made aware of judicious usage:** Pesticides are hazardous chemicals with causing acute as well as chronic toxic effects. They must be sold and used cautiously under supervision like drugs.
- Successful **alternative agro-ecological methods of pest management** without using any chemical pesticide can be used. Such methods must be mainstreamed and promoted among farmers.
- Experts have called for **wider consultations on the Bill** and for it to be placed before a **Select Committee**.

5.6. SULPHUR DIOXIDE POLLUTION

Why in news?

Recently, **India's Sulphur dioxide (SO₂) emissions have declined in 2019** as per the report analysis by Greenpeace India and the Centre for Research on Energy and Clean Air (CREA).

Findings

- India's Sulphur dioxide (SO₂) emissions have recorded a significant **decline of approximately 6% in 2019** as compared to 2018 for the first time in last 4 years.
- **India still occupies the top emitter's position** for the fifth consecutive year followed by Russia and China.
- **India emitted 21% of global anthropogenic (human-made) SO₂ emissions** — or about 5,953 kilotons a year, mostly from coal-fired power plants that lack pollution-curbing equipment.
 - The biggest **emission hotspots in India** are thermal power stations (or clusters of power stations) at Singrauli, Neyveli, Talcher etc.
- Greenpeace India has also released an analysis of NASA data which shows that **India has more than 15% of all anthropogenic SO₂ hotspots in the world** as detected by the OMI (Ozone Monitoring Instrument) satellite.

About Sulphur Dioxide

- It is a **colorless, bad-smelling, toxic gas**, is part of a larger group of chemicals referred to as sulfur oxides (SO_x).
- They are emitted by the burning of fossil fuels coal, oil, and diesel or other materials that contain sulfur. It is **also a natural byproduct** of volcanic activity.
 - Ex: **power plants, metals processing and smelting facilities, and vehicles**.
- It can create **secondary pollutants** once released into the air. Secondary pollutants formed with sulfur dioxide include sulfate aerosols, particulate matter, and acid rain.
- It increases the **risk of stroke, heart disease, lung cancer**, and premature death.
 - Sulphur dioxide's **contribution to acid rain can cause direct harm to trees and plants** by damaging exposed tissues and, subsequently, decreasing plant growth.

Steps taken in India

- Renewable energy capacity has been expanded and **coal dependency decreased**.

- Government has decided to **shut down non-compliant thermal power stations** and has also allocated Rs 4,400 crore to tackle the air pollution crisis.
- In 2015, the Ministry of Environment, Forest and Climate Change (MoEF&CC) introduced SO₂ emission limits for coal power stations.
 - The most efficient and easiest way to reduce their air pollution is to **install Flue-Gas Desulfurization (FGD)** units.
 - But power plants missed the initial deadline of December 2017 for the installation of FGD units.

5.7. UN BIODIVERSITY SUMMIT

Why in news?

Recently, India participated in the UN Biodiversity Summit.

More about News

- The summit is **first of its kind which had taken place on Biodiversity** in the United Nations General Assembly.
- It was convened by **UN secretary general António Guterres** on the sidelines of the General Assembly aimed to build political momentum and bolster financial commitments ahead of talks next year in China.
- It was participated by Head of States/Minister level representing the countries which are **party to Convention on Biological Diversity (CBD)**.
- Theme of the summit: **“Urgent action on biodiversity for sustainable development.”**

About Convention on Biological Diversity (CBD)

- It is the international legal instrument for **“the conservation of biological diversity, the sustainable use of its components and the fair and equitable sharing of the benefits arising out of the utilization of genetic resources”**.
- It has been ratified by 196 nations including India.

Key takeaways of the summit

- **Urgent need to accelerate action on biodiversity:** The Summit highlighted the crisis facing humanity from the degradation of biodiversity and the urgent need to accelerate action on biodiversity for sustainable development and placed the global community on a path towards “living in harmony with nature” – the 2050 Vision for Biodiversity.
- **Post-2020 global biodiversity framework:** Summit provided an opportunity for Heads of State and Government and other leaders to raise ambition for the development of the post-2020 global biodiversity framework to be adopted at the 15th Conference of Parties to the Convention on Biological Diversity in 2021.
- **Failure in achieving Aichi Targets:** There was consensus that conservation targets set a decade ago in Aichi, Japan, to be achieved by 2020, have spectacularly failed. Evidence is presented by the latest UN Global Biodiversity Outlook 5 report: none of the 20 targets has been fully met.
 - Many countries have chosen to ignore the connection between biodiversity and well-being, and depleted ecological capital in pursuit of financial prosperity.

India & Biodiversity Performance

- **Enhanced Tree cover:** India has enhanced the combined forest and tree cover to 24.56% of the total geographical area of the country.
- **Wildlife:** India has the highest number of tigers in the wild and has doubled its numbers ahead of the deadline of 2022 and recently announced the launch of Project Lion and Project Dolphin.
- **Land restoration:** India at summit announced that it aims to restore 26 million hectares of degraded and deforested land, and achieve land-degradation neutrality by 2030.
- **Aichi Targets & other objectives:** India has already set aside extensive area for meeting the conservation objectives, contributing to Aichi Biodiversity Target-11 and the SDG -15. It has established a comprehensive institutional and legal system to realize the objectives of the CBD.
 - It has operationalized a system for access and benefit-sharing provisions of the CBD through a national network of **Biodiversity Management Committees** across the country involving local people and **Peoples Biodiversity Registers** for documentation of biodiversity.
 - India has been championing the cause of **“climate action”** through conservation, sustainable lifestyle and green development model.

5.8. BLUE FLAG

Why in news?

Recently, Kasarkod and Padubidri beaches in Karnataka were accorded **'Blue Flag'** tag from the international agency **Foundation for Environment Education (FEE)**, Denmark.

More about news

- Earlier, in 2019 Ministry of Environment, Forest and Climate Change, had **identified 13 beaches across the country for the Blue Flag certification** and announced a list of activities that will be permissible in their respective coastal regulation zones for that purpose.
 - 8 of them have been accorded "Blue Flag".
- The two beaches **Kasarkod beach and Padubidri beach** in the **Karnataka** are among the eight in the country that have bagged the coveted eco-label **'Blue Flag'** from FEE.
- **Kasarkod and Padubidri beaches have grey water treatment plants**, solid waste management plants, disabled-friendly equipment to enable them to enter seawater, clean drinking water, bathing facility, disabled-friendly and general toilets, solar power plant, solar lighting.

List of Beaches in India awarded Blue Flag certification

- Ghoghala beach (Diu)
- Shivrajpur beach (Gujarat)
- Padubidri and Kasarkod (Karnataka)
- Kappad beach (Kerala)
- Eden beach (Puducherry)
- Rushikonda beach (Andhra Pradesh)
- Golden beach (Odisha)
- Radhanagar beach (Andaman & Nicobar Islands)

About Blue Flag Certification

- The 'Blue Flag' is a certification that can be obtained by a beach, marina, or **sustainable boating tourism operator, and serves as an eco-label**.
 - The certification is **awarded annually by the Denmark-based non-profit Foundation for Environmental Education (FEE)**.
 - It **sets stringent environmental, educational, safety-related** and access-related criteria that applicants must meet and maintain.
- A **'Blue Flag' beach is an eco-tourism model** to provide tourists clean and hygienic bathing water, facilities/amenities, safe and healthy environment and sustainable development of the area.
- The certification is awarded by **the FEE based on 33 stringent criteria** in four major heads:
 - **Environmental education and information**
 - **Bathing water quality**
 - **Environment management and conservation**
 - **Safety and services in the beaches**

5.9. SEAGRASSES

Why in news?

Recently, Scientists have claimed that **protection and restoration of sea grasses can play a significant role in mitigating climate change**.

About Sea Grasses

- Seagrasses are flowering plants that grow **submerged in shallow marine waters like bays and lagoons** found in many parts of the world, from the tropics to the Arctic Circle.
- They have roots, stems and leaves, and **produce flowers and seeds**.

Importance of Seagrasses

- They are considered to be **'Ecosystem Engineers'** which help maintain water quality and trap fine sediments and suspended particles in the water column and increase water clarity.
- Seagrasses **sequester up to 11% of the organic carbon buried in the ocean** and can capture carbon from the atmosphere up to 35 times faster than tropical rainforests.
- They **filter nutrients** released from land-based industries before they reach sensitive habitats like coral reefs.
- They **stabilize sea bottom** similar to land grasses that prevent soil erosion as Ocean bottoms without seagrasses are prone to intense wave action from currents and storms.
- They **protect juvenile and small adult fish** from large predators.
- Seagrasses **provide food as well as habitat** for fishes, octopuses, shrimp, blue crabs, oysters, sponges, sea urchins, clams, etc. They are called **'the lungs of the sea'** as they release oxygen into the water through photosynthesis.
- They are used as **fertilizer for sandy soil**.

- They inhabit all types of substratas (layers) from mud to rock and **they are found extensively in muddy and sandy substratas.**
- Seagrass reproduce through **both sexual and asexual methods.**
- They **evolved from terrestrial plants** that recolonised the ocean 70-100 million years ago.
- It occurs **all along the coastal areas of India** and are abundant in the **Palk Strait and Gulf of Mannar in Tamil Nadu, however threatened now.**
 - Restoration of seagrasses has been taken up by the Tamil Nadu Forest Department in the Gulf of Mannar.
- Some of the important seagrasses are: **Sea Cow Grass** (Cymodocea serrulata), **Thready Seagrass** (Cymodocea rotundata), **Needle Seagrass** (Syringodium isoetifolium) and **Flat-tipped Seagrass** (Halodule uninervis).
- **Threats to Sea grasses include:**
 - Natural disturbances like Grazing, storms, Ice-scouring and Desiccation.
 - Human disturbances like Eutrophication, Mechanical destruction of habitat, Overfishing and Release of nutrients, Siltation, trawling, Coastal engineering construction and Pollution.

5.10. DAM REHABILITATION AND IMPROVEMENT PROJECT

Why in news?

The Cabinet Committee on Economic Affairs has approved the Dam Rehabilitation and Improvement Project (DRIP) Phase II & Phase III.

Background

- **India ranks third globally** after China and the United States of America, with 5334 large dams in operation about 411 dams are under construction and several thousand smaller dams.
- These **dams are vital for ensuring the water security of the Country and play an important role in the economic and agricultural growth** of our country.
- At present **due to deferred maintenance and other health issues, these dams have associated risks in case of failure** and observed catastrophic consequences, in terms of loss of human life and property, and damage to ecology.
- So, in 2012, Ministry of Water Resources, River Development & Ganga Rejuvenation **through Central Water Commission started Dam Rehabilitation and Improvement Project (DRIP)** with World Bank assistance.
- Now, DRIP Phase II & Phase III launched with the financial assistance of the World Bank (WB) and Asian Infrastructure Investment Bank (AIIB).

Related Information

- **Dam Rehabilitation and Improvement Project (DRIP-I)** was undertaken in the year 2012 for comprehensive rehabilitation and improvement of 223 dam projects in seven States of India till 2020.
- **DRIP Phase II & Phase III** will be implemented over a period of 10 years from 2021 to 2031 for comprehensive rehabilitation of 736 existing dams located across the country.
- **Central Water Commission**
 - It is a **premier Technical Organization of India in the field of Water Resources** and is presently functioning as an attached office of the Ministry of Jal Shakti.
 - It is **entrusted with the general responsibilities** for control, conservation and utilization of water resources throughout the country, for purpose of Flood Control, Irrigation, Navigation, Drinking Water Supply and Water Power Development

About the Dam Rehabilitation and Improvement Project (DRIP)

- Project aims to **improve safety and operational performance of dams**, along with institutional strengthening with system wide management approach.
- It has **following 3 objectives** :
 - **Rehabilitation and Improvement of Dams and Associated Appurtenances:**
 - ✓ Project is focused on mitigating the risks of dam failure and ensuring safety of people, riverine ecology and property located downstream of dams through structural and non-structural measures.
 - ✓ For this, Dam Health and Rehabilitation Monitoring Application (DHARMA), Seismic Hazard

- **Dam Health and Rehabilitation Monitoring Application (DHARMA)** is a web-based software to support the effective collection and management of dam safety data in respect of all large dams of India.
- **Seismic Hazard Assessment Information System (SHAISYS)** is a web based interactive application tool to estimate the seismic hazard at any point in Indian region.

Assessment Information System (SHAISYS) have been developed and Dam Safety Conferences, training programmes were organised.

- **Dam Safety Institutional Strengthening:**

- ✓ In addition to physical rehabilitation, emphasis has been given to capacity building of dam owners through customized training programmes in order to ensure availability of trained and skilled manpower for better operation of dams.

- **Project Management**

Intended benefits

- The programme will **enable states and dam owners to extend safety protocols and activities beyond the selected dams** to all other dams within their jurisdiction, overall enhancing the culture of dam safety in the country.
- This **project complements the provisions in the Dam Safety Bill 2019**, by ensuring capacity building of the dam owners as well as the proposed regulators, as well as creating necessary protocols for dam safety.
- It is **likely to generate employment opportunities** equivalent to approximately 10,00,000 person days for unskilled workers, and 2,50,000 person days for working professionals.

The Dam Safety Bill, 2019

- The Bill provides for the surveillance, inspection, operation, and maintenance of specified dams across the country. It also provides for an institutional mechanism to ensure the safety of such dams.
- **Key provisions**
 - **Provides for National and State Committee on Dam Safety** whose functions include formulating policies and regulations regarding dam safety standards and prevention of dam failures, analysing causes of major dam failures and suggesting changes in dam safety practices.
 - **Provides for National Dam Safety Authority:** Functions include, implementing the policies formulated by the National Committee on Dam Safety, resolving issues, specifying regulations for inspection and investigation of dams, and providing accreditation to agencies working on construction, design of dams.
 - **State Dam Safety Organisation (SDSOs):** for keeping perpetual surveillance, inspecting, and monitoring the operation and maintenance of dams, keeping a database of all dams, and recommending safety measures to owners of dams.

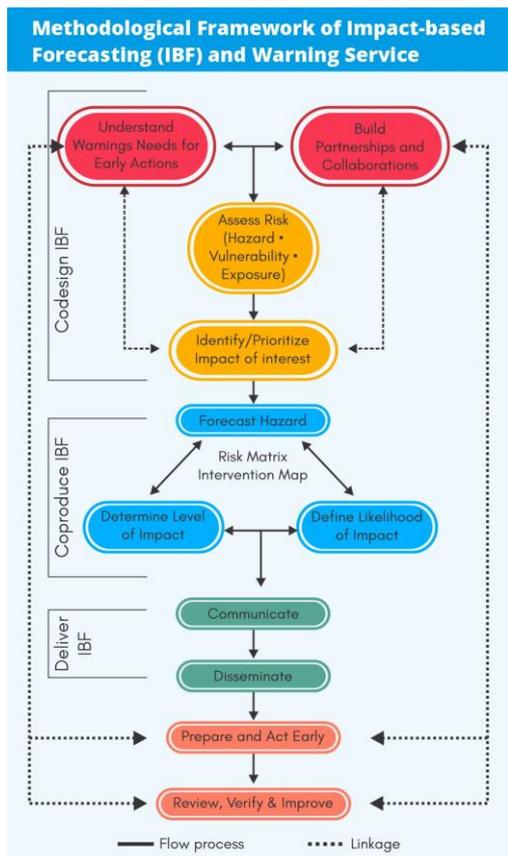
5.11. CYCLONE WARNING SYSTEM

Why in News?

Recently, India Meteorological Department announced to launch a dynamic, impact-based cyclone warning system.

About the impact-based cyclone warning system

- It will use **meteorological data in combination with geospatial and population data** to assess the impact of the cyclone in a particular area.
- As part of the new system, location or district-specific tailored warnings, which factor in the local population, infrastructure, settlements, land use and other elements, will be prepared and disseminated.
 - This aims to **reduce the damage and economic losses** to property and infrastructure.
- All disaster management agencies will make extensive use of cartographic, geological and hydrological data available for the district concerned.
- IMD is **partnering with National Disaster Management Authority**, Indian National Centre for Ocean Information Services and respective state governments for this.



What is Impact-Based Forecasting (IBF)?

- IBF enables anticipatory actions and revolutionizes responses to weather and climate crises. It provides information on the level of risk a hazard poses to a specific area.
- IBF assess the impacts of the forecasted climate and weather phenomenon and consider their warnings based on the level and severity of those impacts at that particular location and /or for the target users/groups.
- It provides the information needed to act before disasters to minimise the socioeconomic costs of weather and climate hazards.
- How IBF is different from normal forecast:

Cyclone warning in India

- Currently, **Cyclone warnings are provided** from the Area Cyclone Warning Centres (ACWCs) at Calcutta, Chennai and Mumbai and Cyclone Warning Centres (CWCs) at Bhubaneswar, Visakhapatnam and Ahmedabad.
- **Warnings are issued to state government in following four stages:**
 - **PRE-CYCLONE WATCH** issued 72 hours in advance contains early warning about development of a cyclonic disturbance.
 - **CYCLONE ALERT** issued at least 48 hrs. in advance contains information on the location and intensity of storm.
 - **CYCLONE WARNING** issued at least 24 hours in advance of the expected commencement of adverse weather over coastal areas.
 - **POST LANDFALL OUTLOOK** is issued at least 12 hours in advance of expected time of landfall.

Hazard	Forecast	IBF for Individuals/ members of public
Tropical Cyclone	A tropical cyclone category 3, windspeed of 125 km/h is expected in the next 48 hours	A tropical cyclone category 3, windspeed of 125 km/h is expected to make landfall in 12 hours, in X and Y regions, likely to damage critical infrastructure such as bridges, blocking transport from region X to region Y.

5.12. CIRCULAR BIOECONOMY

Why in News?

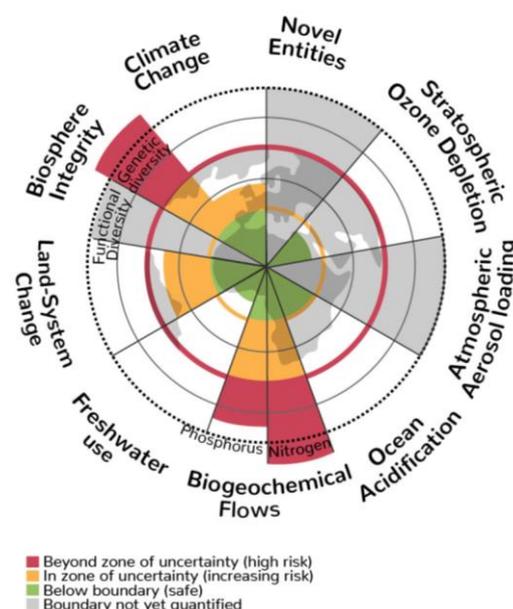
Recently, European Forest Institute (EFI) published the **10-point Action Plan for a Circular Bioeconomy of Wellbeing**.

About Circular Bioeconomy

- The **“Circular Bioeconomy”** is defined as the intersection of bioeconomy and circular economy.
 - The **bioeconomy substitutes fossil carbon by renewable carbon** from biomass from agriculture, forestry and marine environment (including by-products and wastes).
 - A circular economy is an **industrial system that is restorative or regenerative** by intention and design.
 - ✓ It **replaces the end-of-life concept with restoration**, shifts towards the use of renewable energy, eliminates the use of toxic chemicals and aims for the elimination of waste through the superior design of materials, products, systems and business models.
 - ✓ Nothing that is made in a circular economy becomes waste, moving away from our current linear ‘take-make-dispose’ economy.
- The **10-point Action Plan** needed to create a circular bioeconomy based on a synergistic relationship between economy and ecology, includes following:
 - Focus on sustainable wellbeing
 - Invest in nature and biodiversity
 - Generate an equitable distribution of prosperity
 - Rethink land, food and health systems holistically
 - Transform industrial sectors
 - Reimagine cities through ecological lenses
 - Create an enabling regulatory framework

About European Forest Institute (EFI)

- It is an international organization, established by 29 European States, that conduct research and provide policy support on issues related to forests.



- Deliver mission-oriented innovation to the investment and political agenda
- Enable access to finance and enhance risk-taking capacity
- Intensify and broaden research and education

Why Circular Bioeconomy?

- The current linear fossil-based economic model has resulted in our **society already crossing some of the planetary boundaries** for a safe operating space for humanity.
 - **Planetary boundaries** define global biophysical limits that humanity should operate within to ensure a stable and resilient Earth system—i.e. conditions that are necessary to foster prosperity for future generations. There are nine planetary boundaries. (see fig.)
- **Current economic model is not working** with a third of the world’s land is severely degraded, up to 1 million species are threatened with extinction etc.
- **Circular bioeconomy will result in** improved resource and eco-efficiency, low GHG footprint, reducing the demand for fossil carbon etc.
- The circular bioeconomy’s potential for innovation, job creation and economic development is huge, with estimates **indicating a trillion-dollar opportunity**.

5.13. DISENGAGING PREMIER GREEN INSTITUTIONS

Why in news?

Recently, Ministry of Finance has recommended to ‘disengage’ from five premier environment- forest-wildlife institutions that are presently under the **Ministry of Environment Forests and Climate Change (MOEFCC)**.

More about news

- **Disengagement** will involve two aspects
 - **phasing out government support** to the institution in a time-bound manner
 - **disassociating from the management** of the institutions and allowing the relevant industry/stakeholders to run them.
- The committee has recommended that MoEFCC disengage from these autonomous bodies:
 - **Indian Institute of Forest Management**
 - **Wildlife Institute of India**
 - **Indian Plywood Industries Research and Training Institute**
 - **CPR Environmental Education Centre**
 - **Centre of Environment Education**
- It has also recommended that **merger of Society of Integrated Coastal Management and National Centre for Sustainable Coastal Management** as both perform similar roles of promoting coastal management to avoid duplication of activities and attain economies of scale
 - Also **Salim Ali Centre for Ornithology and Natural History**, Coimbatore, which is under the MoEFCC, should be brought under the ministry’s regular functioning.
- It also recommended that the Indian Council for Forest and Research Education, GB Pant National Institute of Himalayan Environment and Sustainable Development and **statutory bodies such as Central Pollution Control Board, Central Zoo Authority (CZA), National Tiger Conservation Authority (NTCA), National Biodiversity Authority** continue to function under and with the financial support of MoEFCC.
- The step has been taken for **rationalisation of autonomous institutions** that function under different ministries with the aim of **minimum government, maximum governance** and ensuring efficient use of public funds.

About institutions

Indian Institute of Forest Management (IIFM)	<ul style="list-style-type: none"> ● It is a sectoral management institute, which constantly endeavors to evolve knowledge useful for the managers in the area of Forest, Environment and Natural Resources Management and allied sectors. ● It disseminates such knowledge in ways that promote its application by individuals and organizations. ● It is located in Bhopal.
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Wildlife Institute of India (WII)	<ul style="list-style-type: none"> Established in 1982, it is an internationally acclaimed Institution. It offers training program, academic courses and advisory in wildlife research and management. It is located in Dehradun
CPR Environmental Education Centre	<ul style="list-style-type: none"> It strives to increase awareness and knowledge of key target groups (school children, local communities, woman etc.) about the various aspects of environment. It is established jointly by the MoEFCC and The C.P. Ramaswami Aiyar Foundation. It is located in Chennai.
Indian Plywood Industries Research and Training Institute	<ul style="list-style-type: none"> It works for development and adoption of efficient technologies in the field of wood and panel products from renewable fibres including plantation timbers and bamboo while meeting the vital needs of the developing society. It was initially formed as a co-operative research laboratory under the umbrella of Council of Scientific and Industrial Research (CSIR). It is located in Bengaluru.
Centre for Environment Education (CEE)	<ul style="list-style-type: none"> The organization works towards developing programmes and materials to increase awareness about the environment and sustainable development. It was established in 1984 as a Centre of Excellence of the MoEFCC. The head office is located in Ahmedabad.

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INTERLINKING OF DIFFERENT TOPICS

6. SOCIAL ISSUES

6.1. WOMEN AND TRADE: THE ROLE OF TRADE IN PROMOTING WOMEN'S EQUALITY

Why in news?

Recently, the World Bank Group and the World Trade Organization (WTO) jointly published a report titled “**Women and Trade: The Role of Trade in Promoting Women's Equality**”.

About the report

- This report marks the first major effort to **quantify how women are affected by trade** through the use of a new gender-disaggregated labor dataset.
- This analysis helps governments understand **how trade policies will affect women and men differently**.
- The gender perspective study of trade **could help in empowering women economically and making the world a better place for women**.
- **Gaining a better understanding** of how women are affected by trade will be essential as countries develop and the **global economy recovers from the pandemic**.

Related information

Other Important reports

- **The World Bank**
 - Ease of Doing Business
 - World Development Report
 - Global Economic Prospective
- **The World Trade Organisation**
 - The World Trade Statistical Review
 - The World Trade Report

What is the role of trade in promoting women's equality?

- **Trade creates better jobs for women:** Countries that are more open to trade, as measured by the ratio of trade to gross domestic product, have higher levels of gender equality.
- **Changing nature of trade creates new opportunities for women:** New trends in global trade-especially the rise in services, global value chains, and the digital economy-are opening up important economic opportunities for women.
 - **Countries are becoming more integrated with global value chains (GVC)**, which tend to create jobs and increase wages for women.
 - **Digital technology and new online platforms create opportunities for women** to bypass traditional trade barriers (finance, access to information etc), expand their entrepreneurial skills and develop flexible careers that enable them to manage both work and household responsibilities.
- **Less competitiveness:** Countries that do not allow women to fully participate in the economy are less competitive internationally.
- **Exporters employ more women:** In developing countries, women make up 33% of the workforce of exporting firms compared with just 24% of non-exporting firms.
- **Growth of services sectors:** More than two-thirds of women in developed countries were employed in the services sector in 2017, up from 45% in 1991.
 - In developing countries, the proportion of women in the service sector jumped to 38 percent from 25 percent over the same period.
- **Positive role of trade on Women:** Trade increases women's wages and increases economic equality. It decreases social inequality, and expand women's access to skills and education.

What are the constraints affecting women in their trade related roles?

- **Wage gap:** Despite many advances, women across the world hold fewer jobs, are paid less, and are more likely to experience worse job conditions than men.
- **Biased trade policy:** On its surface, trade policy is gender-neutral; no country imposes tariffs or nontariff measures by gender. But a closer look at the gender dimension of trade policies reveals important differences in how trade policies affect women and men.
 - Trade policy is inadvertently biased against women, resulting in lower levels of employment and higher prices for consumer goods.
 - Compared to men, women tend to spend a larger share of their income goods with high tariffs, such as food.
- **Women work mainly in low- to medium-skill occupations:** Women are increasingly moving from medium skill to high-skill jobs. Despite this increase, 80% of women globally still occupy medium- and low-skill jobs.

- **Women are more vulnerable to global shock to economy:** For instance, Women account for 60%- 80% of the workforce in the global value chain (GVC) for apparel which has been severely affected by the temporary closure of retail shops due to the COVID-19 pandemic.
 - Similarly, in tourism and hospitality and related sectors women are specifically active.
- **Social, legal and financial barriers:** Women still face wide range of social, legal, financial barriers that prevent them from gaining from greater trade opportunities. These challenges are magnified by a lack of sex-disaggregated data.

Way ahead

- **Enhance cross-border trade through trade facilitation and trade finance:** This can be a catalyst for women traders by creating predictable and efficient customs processes, reducing clearance times and trade costs, increasing the involvement of women in trade facilitation decision mechanisms etc.
- **Improving women's access to trade finance:** This can contribute to empowering women-owned and managed firms.
- **Lower tariff and nontariff barrier:** Female workers, particularly in developing economies, are affected by stubbornly high tariffs on agricultural goods, tariffs on textiles.
 - In India products produced largely by women face on average 6% higher tariffs than products produced largely by men in export markets (2018).
 - **Nontariff measures raise the compliance costs** associated with procedures, regulations, and standards, which can be particularly burdensome for small enterprises with little experience in trade—as is the case for many women-owned firms.
- **Increase women's capacity to engage in international trade:** Targeted policies can help women overcome the challenges; maximize the benefits of trade opening, including services trade, digital trade etc.
 - Proper compensation policy could protect women from the heat of automation.
- **Collective efforts to promote trade and gender equality**
 - International institutions can support trade and gender equality through the maintenance and **strengthening of open, rules-based, and transparent trade.**
 - **Ongoing WTO negotiations and joint initiatives** related to services, agriculture, electronic commerce, and micro, small, and medium enterprises **could further empower women in the world economy.**
 - In addition, impact evaluations of international assistance, **including Aid for Trade with a gender component**, can provide feedback on the kinds of interventions that are most effective in promoting gender equality in trade.
 - Further analysis and technical assistance should continue to **take advantage of increasing access to sex-disaggregated data** to identify priority sectors, skills, and markets in which women have a comparative advantage.

6.2. MODERN SLAVERY

Why in News?

According to a **report titled 'Stacked Odds'**, one in every 130 females globally is living in modern slavery.

More in News

- Global estimates were **studied and reported by Walk Free and two UN agencies - the International Labour Organisation (ILO) and the International Organisation for Migration (IOM).**
- Women and girls account for nearly three quarters (71 per cent) of all victims of modern slavery.
 - Females outnumber males as victims of modern slavery in four of the five world regions. They account for 73% of victims in the Asia and Pacific, 71% in Africa, 67% in Europe and Central Asia, and 63 % in the Americas
- The report highlighted that **99 percent of the victims of forced sexual exploitation are women.** Additionally, 84 percent of all victims of forced marriage and 58 percent of all victims of forced labour are also women.

Modern Slavery

- There is no universally accepted definition of “modern slavery” or “contemporary forms of slavery.”. Essentially, it refers to **situations of exploitation that a person cannot refuse or leave because of threats, violence, coercion, deception, or abuse of power.**

- Modern slavery takes many forms such as
 - **Human trafficking**
 - **Forced labour**
 - **Debt bondage/bonded labour**
 - **Descent-based slavery:** People are treated as property, and their “slave” status was passed down the parental line.
 - **Slavery of children** including child trafficking, child soldiers etc.
 - **Forced and early marriage.**

Factors for Modern slavery

- **Absence of the Rule of Law:** Slavery thrives in the absence of a properly functioning law enforcement system. It is often abetted by police and other authorities. Without adequate enforcement of existing laws and the strengthening of legal frameworks, human traffickers operate with impunity.
- **Poverty:** About 765 million people worldwide live in extreme poverty, making less than \$1.90 per day. Those in destitute conditions have limited means to support their families. In the absence of alternatives, many people, taking risks, are lured by sham offers of better futures.
- **Marginalized Groups:** Groups that face discrimination, including ethnic and religious minorities, women and children, and migrants and refugees, are vulnerable to enslavement.
- **War and Conflict:** Instability brought on by war or conflict can expose besieged communities to forced labor networks.
- **Natural Disasters:** Extreme weather, as well as resulting pandemics, can ravage a country’s physical infrastructure, displace communities, and increase the desperation of already marginalized groups.
- **State-imposed forced labour:** It includes citizens recruited by their state authorities to participate in agriculture or construction work for purposes of economic development, young military conscripts forced to perform work that is not of military nature, or prisoners forced to work against their will.

Measures to be taken to eradicate modern slavery

- **Strengthen Criminal Justice:** Criminalise all forms of modern slavery, and ensure penalties are proportionate to the seriousness of the offence.
- **Ensure that no child is born stateless** by strengthening legal safeguards and ensuring birth registration.
- **Strengthening laws or policies** that prevent or make it difficult for workers to leave abusive employers without risk of loss of visa and deportation and/or forfeit of security deposits must be addressed.
 - **Overturing laws and policies that strip women of their rights** or exacerbate their vulnerability to sexual violence and exploitation;
- **Improve Coordination and Accountability:** Improve coordination among national agencies by developing evidence-based national actions plans and establishing national referral mechanisms involving civil society, law enforcement agencies, and other groups
 - Improve cross-border collaboration and data-sharing to tackle modern slavery.
- **Support Survivors:** Improve support for modern slavery victims and survivors by providing regular, systematic training for all frontline service providers.
- **Work with communities, civil society and faith leaders to create avenues for reporting crimes,** improve access to protection and support services, and change social norms around widow cleansing, witchcraft accusations and other harmful practices.

Modern slavery in India

- Global Slavery Index reported that there were 8 million people in modern slavery in India.
 - 6.10 out of 1000 are estimated proportion of population living in modern slavery
 - 55.49 people out of 100 has vulnerability to modern slavery
 - It was **released by the Walk Free.**

Why are women and girls more at risk?

- Broader socio-economic disadvantages, from factors including **poverty, lack of political representation, and a lack of access to education.**
- In many countries, **laws can exacerbate, rather than protect from modern slavery.** They prevent women from inheriting land and assets, conferring citizenship on their children, traveling freely, and working without their husbands’ permission.
- Within the **workforce, gender discrimination financially penalises women.**
 - Women are often paid far less than men for the same work and are less likely to be considered for leadership roles than men.
- Women are **underrepresented at all levels of political leadership:** on average, just 25 per cent of people in national parliaments in 2020 are female.
- **Normalisation of gender-based violence** also increases female vulnerability to modern slavery.

- Data from the National Crime Records Bureau (NCRB) indicate that there were 8,132 reported **cases of human trafficking** across India. Most of the victims were trafficked for forced labour and prostitution.
 - There have been many **cases of contract violations and exploitation of Indian migrants living in the Gulf countries** which have led people to become modern slaves.
 - There are reported cases of **abductions and coercion of children by Left-Wing Extremists to join Bal Dasta units** which train children in front-line operations, and as couriers and informants against national security forces.

India's Response to Modern Slavery

- India has **criminalised most forms of modern slavery**, including trafficking, slavery, forced labour, and child sexual exploitation in its Penal Code (eg: Protection of Children from Sexual Offences Act, 2012).
 - There is currently no legislation criminalising use of children in armed conflict.
- The **Ujjawala and Swadhar schemes** initiated by the Ministry of Women and Child Development run shelter and rehabilitation services for rescued women.
- In 2016, the government adopted the new **"Central Sector Scheme for Rehabilitation of Bonded Labourers"** which recognises the needs of different groups trapped in bonded labour and provides cash compensation.
- The **government ratified two core ILO conventions** in 2017, namely No. 138 on Minimum Age to Employment and No. 182 on the Worst Forms of Child Labour.

6.3. ELDERLY POPULATION IN INDIA

Why in News?

Ministry of Health and Family Welfare **launched Decade of Healthy Ageing (2020-2030)** on International Day for Older Persons (1st October).

More in News

- Decade of Healthy Ageing (2020-2030) is endorsed by World Health Assembly in August 2020.
- It is an opportunity to bring together governments, civil society, international agencies, professionals, academia, the media, and the private sector for ten years of **concerted, catalytic and collaborative action to improve the lives of older people, their families, and the communities in which they live.**
- In India, **Decade of Healthy Ageing will include evolving convergence within various national health programs and also promoting inter-sectoral coordination** with other line Departments/Ministries.

About Healthy Ageing

- World Health Organisation (WHO) defines healthy ageing as **"the process of developing and maintaining the functional ability that enables wellbeing in older age."**
 - Functional ability is about having the capabilities that **enable all people to be and do what they have reason to value.** For e.g. meeting their basic needs; make decisions; be mobile etc.
 - It includes **all the physical and mental capacities** of an individual and their interaction with environment (home, community etc.)
- **Healthy ageing replaces the World Health Organization's previous focus on Active ageing**, a policy framework developed in 2002.
 - Active ageing is the **process of optimizing opportunities for health, participation and security in order to enhance quality of life as people age.**
 - **It is based on Madrid International Plan of Action, 2002.**
 - Madrid Plan of Action offers a bold new agenda for handling the issue of ageing in the 21st-century.
 - **It focuses on three priority areas:**
 - ✓ older persons and development;
 - ✓ advancing health and well-being into old age; and
 - ✓ ensuring enabling and supportive environments.

Elderly Population - status in India

- According to **Population Census 2011 there are nearly 104 million elderly persons (aged 60 years or above) in India**; 53 million females and 51 million males.
 - A report released by the United Nations Population Fund and HelpAge India suggests that the number of elderly persons is expected to grow to 173 million by 2026.
 - **71% of elderly population resides in rural areas while 29 % is in urban areas.**
- The **old - age dependency ratio climbed from 10.9% in 1961 to 14.2% in 2011** for India as a whole. For females and males, the value of the ratio was 14.9 % and 13.6% in 2011.
 - The **dependency ratio is an age-population ratio of those typically not in the labour force** (the dependent part) **and those typically in the labour force** (the productive part).
 - It is used to measure the pressure on productive population.
- **State - wise data on elderly population divulge that Kerala has maximum proportion of elderly people** in its population (12.6 per cent) followed by Goa (11.2 per cent) and Tamil Nadu (10.4 per cent) as per Population Census 2011.

- The least proportion is in Dadra & Nagar Haveli (4.0 per cent) followed by Arunachal Pradesh (4.6 per cent) and Daman & Diu and Meghalaya (both 4.7 per cent).

Challenges Faced by elderly population

- **Social**

- **Ageist stereotypes:** Stereotyping (how we think), prejudice (how we feel) and discrimination (how we act) towards people on the basis of their age, ageism, affects people of all ages but has particularly deleterious effects on the health and well-being of older people.

- ✓ This marginalizes older people within their communities, reduces their access to services, including health and social care, and limits appreciation and use of the human and social capital of older populations.

- **Changing Family Structure:**

Traditional Indian society with an age-old joint family system has been instrumental in safeguarding the social and economic security of the elderly people. However, with the emerging prevalence of nuclear family set-ups in recent years, the elderly is likely to be exposed to emotional, physical and financial insecurity in the years to come.

- **Lack of Social Support:** Elderly in India are much more vulnerable because of the less government spending on social security system.

- **A rapidly changing world:**

Globalization, technological developments (e.g. in transport and communication), urbanization, migration and changing gender norms are influencing the lives of older people in direct and indirect ways.

- **Health**

- **Medical Problem:** It is often claimed that senior citizens are accompanied by multiply illness and physical ailments. Besides physical illness, the senior citizens are more likely to be the victims of poor mental health.

- **Availability, Accessibility and Affordability of Health Care:** Despite their increased health risks, a large number of older persons lack access to adequate levels and quality of health care.

- **Financial bankruptcy:** The aged people are often financially bankrupted since their assets; properties and all their wealth are legally transferred to their children so most elderly people do not have the emergency fund available to meet their basic needs.

- **Psychological Problems:** The common psychological problems that most of the senior citizens experiences are: feeling of powerlessness, feeling of inferiority, depression, uselessness, isolation and reduced competence.

Way forward

To foster healthy ageing and improve the lives of older people and their families and communities, fundamental shifts will be required

Initiative taken by government for elderly population

- Well-being of senior citizens is mandated in the Constitution of India under Article 41. It says

"The state shall, within the limits of its economic capacity and development, make effective provision for securing the right to work, to education and to public assistance in cases of unemployment, old age, sickness and disablement and in other cases of underserved want".

- In order to ensure quality life for the senior citizens, the Government of India has endorsed various policies and programmes.

- **Integrated Programme for Older Persons (IPOP)** to improve the quality of life of older persons by providing basic amenities like shelter, food, medical care and entertainment opportunities, etc.

- **National Programme for Health Care of the Elderly (NPHCE)** is an initiative to provide dedicated health care services to the elderly population at various levels of primary health care settings.

- **Maintenance and Welfare of Parents and Senior Citizens Act** to ensure need-based maintenance for parents and senior citizens and their welfare.

- **Indira Gandhi National Old Age Pension Scheme (IGNOAPS)**, earlier called as "National Old Age Pension Scheme (NOAPS)", under which Central assistance in form of Pension is given to persons

- **Rashtriya Vayoshri Yojana (RVY)** under which aids and assistive living devices are provided to senior citizens belonging to BPL category who suffer from age-related disabilities such as low vision, hearing impairment etc.

- **Pradhan Mantri Vaya Vandana Yojana** to provide social security during old age. This is a simplified version of the VPBY and is implemented by the Life Insurance Corporation (LIC) of India.

- **Age Friendly Environment:** Removing physical and social barriers and implementing policies, systems, services, products and technologies to:
 - promote health and build and maintain physical and mental capacity throughout the life course; and
 - enable people, even when they lose capacity to continue to do the things they value.
- **Address diversity in older age:** There is no 'typical' older person. Some 80-year-olds have physical and mental capacities similar to many 20-year-olds. Other people experience significant declines in physical and mental capacities at much younger ages. **A comprehensive public health response must address this wide range of older people's experiences and needs.**
- **Long Term Care:** Access to good-quality long-term care is essential to maintain functional ability, enjoy basic human rights and live with dignity. In addition, it is essential to support caregivers, so they can deliver proper care and also take care of their own health.
- **Introduce or enhance legislation** to promote equality and non-discrimination on the basis of age in the provision of health and health insurance services and in social protection policies and programming, and undertake measures to prevent multiple discrimination against older persons;
- **Global Measures:** Undertaking a Global Campaign to Combat Ageism; Enhancing the Global Network for Age-friendly Cities and Community
- **Research in Geriatrics and Gerontology** needs to be further encouraged.

6.4. GLOBAL HUNGER INDEX 2020

Why in news?

As per Global hunger Index (GHI) report 2020, India has ranked 94 out of 107 countries.

Global findings of the report

- Nearly **690 million people are undernourished** out of which 144 million children suffer from stunting, 47 million children suffer from wasting and in 2018, 5.3 million children died before their 5th birthday as a result of undernutrition.
- **Worldwide hunger is at a moderate level** which translates to a score of 10-19.9 out of 100.
- **South Saharan Africa and South Asia have the highest hunger and undernutrition levels** among world regions, with 2020 GHI scores of 27.8 and 26.0, respectively—both considered serious.
 - 3 countries have alarming levels of hunger- Chad, Timor-Leste, and Madagascar.
- The world is **not on track to achieve the 2nd Sustainable Development Goal - Zero Hunger** - by 2030. At the current pace, approximately 37 countries will fail to even to reach low hunger by 2030.

India's Hunger Dilemma

- Out of the total 107 countries, **only 13 countries fare worse than India**

About Global Hunger Index

- It is a tool designed to comprehensively measure and **track hunger at global, regional, and national levels.**
- GHI is published by **Concern Worldwide** (international humanitarian organization) and **Welthungerhilfe** (private aid organisations in Germany).
- It is designed to raise awareness and understanding of the struggle against hunger.
- GHI scores are based on the values of 4 component indicators:
 - **Undernourishment** -share of the population with **insufficient caloric intake.**
 - **Child wasting** - share of children under age 5 who have **low weight for their height.**
 - **Child stunting** - share of children under age 5 who have **low height for their age.**
 - **Child mortality** - mortality rate of children under age 5.
- GHI score is determined on a 100-point scale - **0 is best possible score (no hunger)** and **100 is the worst.** Each country's score is classified by severity -from **Low** to **Extremely alarming.**

Related concepts

- **Hunger:** Food and Agriculture Organization (FAO) defines food deprivation, or undernourishment, as the consumption of too few calories to provide the minimum amount of dietary energy that each individual requires to live a healthy and productive life.
 - Hunger is usually understood to refer to the **distress associated with a lack of sufficient calories.**
- **Undernutrition:** It is the result of inadequate intake of food in terms of either quantity or quality, poor utilization of nutrients due to infections or other illnesses, or a combination of these factors
- **Malnutrition:** It refers more broadly to both **undernutrition** (problems caused by deficiencies) and **overnutrition** (problems caused by unbalanced diets).

(Rwanda, Nigeria, Afghanistan etc.). Countries like Nepal, Pakistan, Bangladesh and Indonesia are ahead of India.

- GHI 2020 gave **score of 27.2 on a 100 point scale to India** which puts the country in the “**serious**” category of **hunger**.
- In terms of overall undernourishment, **14% of India’s population does not get enough calories**.
 - Almost 35% of Indian children are stunted.
 - 17.3% of Indian children under five are wasted.
 - Under 5 mortality rate is at 3.7%.
- **Food insecurity, poor sanitation, inadequate housing, limited access to healthcare** — all result in maternal distress, that leads to the kind of slow, chronic wasting seen in Indian children.
- India has around **70 million tonnes of foodstock (excluding un-milled paddy)** in central pool stored at Food Corporation of India’s warehouses. This is enough to ensure no one stays hungry.
- The **National Food Security Act, 2013** is in place to **ensure food security** for the most vulnerable communities.
 - **Ration distribution through fair price shops, mid-day meal programmes** at schools, nutrition, **maternity benefit programmes for children and pregnant mothers** at **anganwadis** all fall within the Act.

Reasons for dilemma

- The **agriculture output from small and marginal holdings** are either **stagnant or declining** due to reasons such as reduced soil fertility, fragmented lands or fluctuating market price of farm produce.
- **Relative income of unorganised sector** has been on the decline. This has adverse effects on their capacity of people engaged in the sector to buy adequate food.
- The **public distribution system (PDS) in the country is not functioning** well or is not accessible to everyone.
- The **emaciated rural livelihoods sector and lack of income opportunities** other than farm sector has contributed heavily to the growing joblessness in rural areas. The Periodic Labour Force Survey (PLFS) 2017-18 revealed that rural unemployment stood at a concerning 6.1%.

Way forward

- **More crops should be grown, especially by small and marginal farmers** with support from the Union government.
- The government may **create provisions to supply cooked nutritious food to the vulnerable section of the society**.
 - **Jadavpur Jyotidevi Shramajeevi Canteen model of West Bengal** can be **replicated** by other state governments and agencies.
- **Rural employment schemes** such as **MGNREGA** should be given a **boost to increase employment and wages**.
- Access to food grains under the PDS **needs to be streamlined by simplifying technical processes and reducing Aadhaar-related glitches**.
- Union government must also ensure that the **‘One Nation One Ration card’ scheme is operationalised through proper preparations** such as **proper grain allotments to shops, identification procedures and proper issuance of ration cards** to individuals seeking food grain.

6.5. WORLD'S WOMEN 2020: TRENDS AND STATISTICS REPORT

Why in News?

Recently, UN Department of Economic and Social Affairs released report titled “World's Women 2020: Trends and Statistics Report”.

About the report

- Report provided a reality-check on the **global status of women 25 years since adoption of Beijing Declaration and Platform for Action** (for advancing women’s rights).
- It presented **progress towards gender equality in following six critical areas** including, under each area, the impact of COVID-19 on women:
 - Population and families;
 - Health;
 - Education;

- Economic empowerment and asset ownership;
- Power and decision-making;
- Violence against women and the girl child.

Key Findings

- **COVID-19 is affecting women and men in different ways:** Women face **additional challenges** related to the disease compared to men, including,
 - reduced access to sexual and reproductive health services;
 - increased time required to provide care for children, older persons, the sick;
 - higher infection risks than men in the workplace, particularly as women constitute over 70% of the workforce in the health sector.
- **Progress in achieving gender parity in all spheres of political and public life remains slow**
 - Though women's **representation in parliament has more than doubled globally**, it is still 25% in 2020.
 - Globally, **women held only 28% of managerial positions in 2019** – almost the same proportion as in 1995.
- **Women's participation in education is on the rise worldwide**
 - **Women continue to be underrepresented among graduates** in the fields of science, technology, engineering and mathematics (STEM studies), constituting slightly more than a third (35%) of the world's STEM graduates.
 - Worldwide, on average, **90% of men are literate compared to about 80% of women**, with wider gender gaps reported in some countries.
- **Unequal distribution of unpaid domestic and care work restrains women's economic potential**
 - As of 2020, only **less than 50% of women of working age participated in the labour market**, compared to around 75% of men, resulting in a gender gap of 27 percentage points globally, similar to the gap observed in 1995.
 - On an average day, **women spend about three times as many hours on unpaid domestic and care work as men** (4.2 hours compared to 1.7).
- **Violence against women and the girl child remains a global issue**
 - **Laws to address domestic violence**, sexual harassment, marital rape are not yet universally available.
- **Health outcomes for women and men are affected by gender inequalities and norms**, though risk of maternal death has been reduced globally, with the greatest reduction achieved in Southern Asia (reduction of 59%).
- **Population patterns and changes in family composition:** Worldwide, the **age at which women and men first marry has risen over the past two decades** (age 23 for women and age 26.5 for men), mainly due to increased education, formal employment opportunities and women's greater economic independence.

Beijing Declaration and the Platform for Action 1995

- It was adopted unanimously by 189 countries, at fourth World Conference on Women in Beijing, as an **agenda for women's empowerment and considered the key global policy document on gender equality**.
- It set strategic objectives and actions for the **advancement of women and the achievement of gender equality in 12 critical areas of concern such as** Women and poverty, Education and training of women, Women and health, Violence against women, Women and armed conflict, Women and the economy etc.
- United Nations has **organized four world conferences on women**.
 - These took place in Mexico City in 1975, Copenhagen in 1980, Nairobi in 1985 and Beijing in 1995.

6.6. STEM CAREER OPPORTUNITIES FOR WOMEN IN INDIA

Why in news?

Recently, The Department of Science & Technology (DST) and IBM India announced two collaborations to promote STEM (Science, Technology, Engineering and Mathematics) learning among students.

More about news

- The first collaboration involves **DST's 'Vigyan Jyoti' program**, the second collaboration is with **Vigyan Prasar** (an autonomous organisation of DST) that will build and run a technology-driven interactivity platform named **'Engage With Science'**.
- **Vigyan Jyoti** is a programme to promote STEM learning among girl students.

- It aims to **inspire them towards STEM careers** by creating a level-playing field for meritorious girls from grades 9 to 12 to pursue STEM in their higher education, especially from the top colleges in the areas where girls are hugely underrepresented.
- The partnership with IBM India will strengthen the current activities and **expand to include more schools in future.**
- **Women tech experts** working at IBM India will interact and **be role models for inspiring girl students** to plan for a career in STEM under the program.
- **Engage with Science of Vigyan Prasar** aims to build interest and create a community of practice with students, teachers, and scientists connecting the high school students to the higher education institutions.
 - As part of the collaboration for 'Engage With Science' initiative, IBM will run the day-to-day activities of the program, including student workshops, seminars and **leverage its expertise to mentor the students.**

What is the present scenario of STEM career opportunities for women in India?

- According to the United Nations, India is a paradox when it comes to STEM opportunities for women. **Despite producing more women graduates (in STEM), as compared to global average, it employs fewer women researchers.**
 - In STEM 40% of graduates are women in India as compared to 35% of the global average.
 - Only 14% of researchers in India are women as compared to 30% of the global average.

Why India has more women graduates in STEM yet fewer women researchers?

- **Patriarchal culture in STEM:** According to the UN, girls are often made to believe that they are not smart enough for STEM or that boys and men have natural affinity for the field. This creates a psychological barrier, for women, in pursuing research as career.
- **Issues in higher education:** A precipitous drop in the number of women in science happens at the stages following graduation. Building a motivated team and attracting consistent funding are the two main challenges that any young researcher faces. If the researcher is woman then this issue gets exacerbated.
- **Hurdles in attending research conferences:** Scientific ideas grow and take form through interactions. Conferences help in developing fresh, creative and contemporary projects. However, women face following issues in attending research conference:
 - **Administrative hassles** at the workplace
 - **Uncertainty of securing a travel fund**
 - Caring for young children or ageing parents often
- **Repercussions of measures considered to be "women-friendly":** In some institutes, to ensure their safety, women are advised to work only during official hours, while men can access labs any time. The outcome of this measure is contrary to the intention.
- **Gender pay gap:** Despite the ground breaking research and performance, women in the field of STEM are known to be paid less for their research work compared to men.

Steps being taken to plug the gender gap:

- **Proposed Science and Technology Policy 2020 (STP):** Aiming to create women leaders, the DST is developing a framework (under the new STP 2020) to rate and rank science institutes depending on the proportion of women employed.
 - The initiative will **cover both government and private institutes** and the institutions will be **rated on a number of parameters that includes:**
 - ✓ Promotion opportunities
 - ✓ Leadership positions
 - ✓ Support structure (such as crèches)
 - The **various committees looking at women's issues**, including that of sexual harassment complaints, **will be strengthened.**
 - The framework will also provide ways to **mainstream female entrepreneurs** as well as other communities that are **cut off from science due to geographical, regional and other privileges** (like language barrier).
- **Knowledge Involvement in Research Advancement through Nurturing (KIRAN):**
 - In the year 2014, **DST restructured all women specific programmes under one umbrella** called Knowledge Involvement in Research Advancement through Nurturing (KIRAN).
 - **The mandate of KIRAN Program is to bring gender parity in S&T** through gender mainstreaming.
 - KIRAN encompasses **women-exclusive schemes** and encourages them to **foster their career by:**
 - ✓ Undertaking research in S&T
 - ✓ Focusing on S&T solutions of issues & challenges at the grassroots level for social benefits.

Way ahead

- **Funding of crèche facility at workplace:** Making crèche facilities mandatory at workplaces employing a certain number of women were much needed. However, it would be **unaffordable for students and post-doctoral fellows if all the costs were to be borne by the users**. Therefore, these facilities **should be funded by the institutes** to ensure the crèche remain **sustainable, affordable for all and provided employment opportunities to more women**.
- **Safe travel:** Safe travel is particularly necessary for encouraging women to join research institutes located in suburban towns. **Prioritising young families for on-campus housing** by revamping the current seniority-based system and **workplace transport facility in cities** could aid the safety of women.
- **Revamped approach to conferences:** By **supporting and rewarding organisers who ensure greater participation of women**, we can ensure higher participation of women and present networking opportunities to them.
- **Policy reforms:** The **childcare leave should be extended to male parent also** to prevent women from bearing the brunt of career setbacks.

Conclusion

Our future will be marked by scientific and technological progress, which can only be achieved when women and girls are creators, owners, and leaders of science, technology and innovation. **Bridging the gender gap in STEM is vital to achieving the Sustainable Development Goals** and for creating infrastructure, services and solutions that work for all people.

6.7. ANNUAL STATUS OF EDUCATION REPORT 2020

Why in News?

Recently, fifteenth Annual Status of Education Report (ASER 2020 Wave 1) was released

About ASER report

- ASER is an **annual survey that aims to provide reliable annual estimates of children's schooling status** and basic learning levels for each state and rural district in India.
 - Urban areas are not covered.
- **Schooling status is recorded for children in the age group 3 to 16**, and children in the age group 5 to 16 are tested for their ability to read simple text and do basic arithmetic.
- Except for 2015, **ASER has been conducted every year since 2005**.
- ASER is conducted by volunteers from local partner organizations in each district. **ASER is facilitated by Pratham**.

ASER 2020 Findings

- **Children's enrolment:** As compared to data from ASER 2018, data from ASER 2020 (September 2020) show a small shift in enrolment from private to government schools, across all grades and among both girls and boys.
 - **Reasons:** financial distress in household and/or permanent school shutdown among private schools.
- **Children not currently enrolled:** It found that 5.3% of rural children aged 6-10 years had not yet enrolled in school this year, in comparison to just 1.8% in 2018. This proportion is particularly large in Karnataka (11.3% 6- and 7-year-olds not enrolled in 2020), Telangana (14%), and Rajasthan (14.9%).
 - **Reasons:** families are waiting for schools to open to seek admission.
- **Household Resources:** While schools are closed, children rely mainly on the resources available at home to help them learn. These resources can consist of people who can help them to study (for example, educated parents); technology (TV, radio or smartphone); or materials (such as textbooks for the current grade).
 - Children in lower grades get more family support than in higher ones. Similarly, children with more educated parents receive more family support than those with less educated parents.
- **Access to Learning Materials and Activities:** Governments and others have used a variety of mechanisms to share diverse learning materials with students during school closures. However, data shows large variation in access
 - A higher percentage of private school children received learning materials/activities as compared to government school children in the same grades.

- ✓ WhatsApp was the most common medium through which activities and materials were received. However, this proportion was much higher among children in private schools (87.2%) than those in government schools (67.3%).
- About 36% of rural households with school-going children had smartphones. By 2020, that figure had spiked to 62%.
 - ✓ About 11% of families bought a new phone after the lockdown, of which 80% were smartphones.
- **There are significant variations by state in children's receipt of learning materials** or activities during the reference week. States where less than a quarter of all children had received any materials include Rajasthan (21.5%), Uttar Pradesh (21%), and Bihar (7.7%).

Recommendations

Based on finding, ASER suggested certain policy measures

- When schools re-open, **it will be important to continue to monitor who goes back to school** as well as to understand whether there is learning loss as compared to previous years
- **Effective ways of "hybrid" learning need to be developed**, that combine traditional teaching-learning with newer ways of "reaching-learning".
- In order to **improve digital content and delivery for the future**, an in-depth assessment of what works, how well it works, who it reaches, and who it excludes is needed.
- **Parents' increasing levels of education can be integrated** into planning for learning improvement

6.8. STRENGTHENING TEACHING-LEARNING AND RESULTS FOR STATES (STARS) PROJECT

Why in news?

The Union Cabinet approved the **STARS project** partially funded by the World Bank under the new National Education Policy to support states in strengthening the school education system.

About STARS project

- It seeks to **support the states in developing, implementing, evaluating and improving interventions** with direct linkages to improved education outcomes and school to work transition strategies for improved labour market outcomes.
- The overall focus and components of the STARS project are **aligned with the objectives of National Education Policy (NEP) 2020 of Quality Based Learning Outcomes**.
- The **project covers 6 States** namely Himachal Pradesh, Rajasthan, Maharashtra, Madhya Pradesh, Kerala and Odisha.
 - The identified States will be supported for various interventions for improving the quality of education.
 - Besides this project, it is also envisaged to implement a similar ADB funded project in 5 states namely Gujarat, Tamil Nadu, Uttarakhand, Jharkhand and Assam. All states will partner with one other state for sharing their experiences and best practices.
- Around 25 crore students (between the age of 6-17) in 15 lakh schools and over 1 crore teachers will benefit from the programme.
- It would be implemented as a **new Centrally Sponsored Scheme** under Department of School Education and Literacy, Ministry of Education (MOE).
- **It has two major components:**
 - **At the national level**, the project envisages the interventions like
 - ✓ **Strengthen MOE's national data systems** to capture robust and authentic data on retention, transition and completion rates of students.
 - ✓ **Support MOE in improving states Performance Grading Index (PGI) scores** by incentivizing states governance reform agenda through SIG (State Incentive Grants).
 - ✓ **Support MOE's efforts to establish a National Assessment Centre –PARAKH** (Performance Assessment, Review, and Analysis of Knowledge for Holistic Development).
 - ✓ **Contingency Emergency Response Component (CERC)** which would enable it to be more responsive to any natural, man-made and health disasters.
 - **At the State level**, the project envisages intervention like:

- ✓ Strengthening Early Childhood Education and Foundational Learning.
- ✓ Improving Learning Assessment Systems.
- ✓ Strengthening Vocational education in schools through mainstreaming, career guidance and counselling, internships and coverage of out of school children.
- It also aims to **focus on initiatives of PM e-Vidya, Foundational Literacy and Numeracy Mission and National Curricular and Pedagogical Framework for Early Childhood Care and Education** as part of the Atmanirbhar Bharat Abhiyan.
- It will supply **multi-year financing for India's participation in Program for International Student Assessment (PISA) 2021.**

6.9. MINIMUM AGE FOR GIRLS MARRIAGE

Why in News?

Recently, Prime Minister said that the government will soon decide on revising the minimum age of marriage for women.

Background

- Government, in June 2020, **set up a Task Force (headed by Jaya Jaitly)** to examine matters pertaining to age of motherhood, imperatives of lowering MMR, improvement of nutritional levels and related issues.
- One of the Terms of Reference of the Task Force is **to examine the correlation of age of marriage and motherhood with:**
 - Health, medical well-being and nutritional status of mother and neonate/infant/child, during pregnancy, birth and thereafter.
 - Key parameters like Infant Mortality Rate (IMR), Maternal Mortality Rate (MMR), Total Fertility Rate (TFR), Sex Ratio at Birth (SRB), Child Sex Ratio (CSR) etc.
 - Any other relevant points pertaining to health and nutrition in this context.

Child marriage law in India

- In India, **Prohibition of Child Marriage Act (PCMA), 2006, sets the minimum age of marriage at 18 years for women and at 21 for men.**
 - As per a report by SBI, **mean marriage age in India is already above 21 years (i.e. 22.3 years).**
- **PCMA treats underage marriages as valid, but voidable.** It means that an underage marriage is valid as long as the minors involved in the marriage want it to remain valid.
 - PCMA allows the minor party to repudiate the marriage or to have it nullified right up till two years of attaining majority.
- **PCMA also treats those underage marriages as void or having no legal validity, where they involve trafficking, enticement, fraud and deceit.**
- **Protection of Children from Sexual Offences Act (POCSO) Act penalizes penetrative sexual assault on a child** by anyone related to the child through marriage.
- **Section 375 of IPC penalizes sexual acts with a girl below 18 years of age, with or without her consent.**
- **Exception to Section 375** permitting men to consummate marriage with their brides above 15 but below 18 years of age was **read down by Supreme Court in 2017 in the case of Independent Thought v. Union of India.** Thus, now husbands can be booked for raping their minor wives.

Argument in favor of increasing legal age for marriage

- **Early marriage denies girls the right to the highest attainable standard of general, sexual, and reproductive health.** It also constrains evolving physical, emotional, and personal maturity required to safely transition to adulthood.
- Girls who get married at a younger age **are not educated properly and do not have access to healthcare, vaccination, antenatal care, and even facilities for safe delivery and also lose life owing to pregnancy complications.**
- **Maternal mortality, infant mortality and nutrition levels of children are dependent on age of mother.** Children who are born to mothers who tend to get married at an early age may develop health problems.
- Those who marry later are **more likely than others to have a higher secondary or college education, take on skilling opportunities,** gain a better understanding of the world around them and exercise their voices.
- Marriage at a young age means **not even a quarter of women in India get into the labor force** despite accounting for almost half of the 1.3 billion population.
- It will **do away with the gender gap in the legal age at marriage (21 for male and 18 for female),** and the underlying social norm which expects women to be younger than men at the time of marriage.

Issues with increasing legal age for marriage

- **Lack of education, skilling and awareness of rights are not directly related to age only.** Studies have found that age played a relatively smaller role in affecting nutrition levels than did wealth status or education.
- **Child marriage is a social and economic issue.** Despite PCMA, 2006 India is not able to stop child marriages. According to the National Family Health Survey 4 (2015-16), 26.8% of women between ages 20-24 were married before the age of 18.
- To increase the age of marriage to 21 years would mean that **girls will have no say in their personal matters until they are 21.** Child marriage law is used by parents against daughters choosing their own husbands. It has become a tool for parental control.
- The median age at first marriage for both men and women in India has **registered a significant decadal improvement with more people now marrying later** than ever before. Any attempt to leapfrog through quick-fix and ill-conceived punitive measures may considerably reverse these gains.
- There is also an argument that raising the minimum legal age of marriage for women to 21 years **may deny many young women from experiencing pregnancy at these safest ages.** Mortality experienced by the cohort aged 20 years to 24 years (roughly those marrying at ages 18 years and higher) is by far the lowest of all age groups.

Determinants of marriage age in India

- **Social factors:** Marriage decisions in India are often guided by factors such as **dowry considerations** (a younger bride would mean a lower dowry), a fear of loss of family honour and fear of what will people say if the woman remains unmarried.
- **Education:** According to NFHS 4, women having 12 or more years of schooling marry much later than other women.
- **Religion:** The median age at first marriage for women age 25-49 is higher among Christian women (21.6 years), Jain women (21.2 years), and Sikh women (20.9 years) than women from all other specific religions (18.0-19.2 years).

Way forward

- **Incentivising and enabling girls to continue schooling up to Class 12** and helping to enhance their nutrition can stop under-age marriages.
- Efforts to address child marriage in India should be in consonance with the socio-economic realities that **demand investment in education, welfare, and opportunities for women.**
- Noting the law's patriarchal underpinnings, the 18th Law Commission report (2008) asked for **uniformity in the age of marriage at 18 years for both men and women** and lowering the age of consent to 16 years, a recommendation also of the Justice Verma Committee.



ESSAY

ENRICHMENT PROGRAMME 2020

START: 18 OCT | 5:00 PM

- ▶ Introducing different stages from developing an idea into completing an essay
- ▶ Practical and efficient approach to learn different parts of essay
- ▶ Regular practice and brainstorming sessions
- ▶ Inter disciplinary approaches
- ▶ **LIVE / ONLINE** Classes Available



7. SCIENCE AND TECHNOLOGY

7.1. GENOME SEQUENCING

Why in news?

IndiGen programme, the Council of Scientific and Industrial Research's (CSIR) resource, was completed in six months, and the results were recently published.

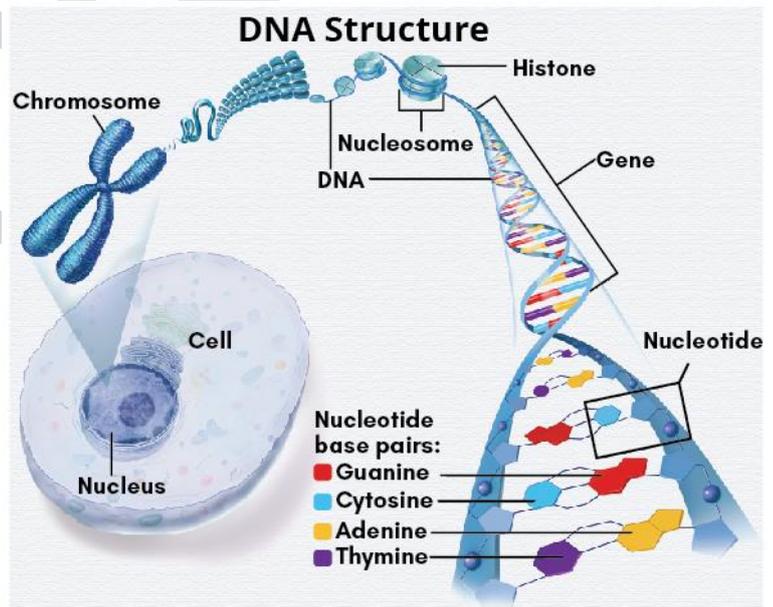
About IndiGen programme

- IndiGen programme aims to **undertake whole genome sequencing of a thousand Indian individuals** representing diverse ethnic groups from India.
- It is **funded by the CSIR India** (autonomous body).
 - CSIR is the **largest research and development (R&D) organization in India** under Ministry of Science and Technology.

Significance of the 'Indigen Project'

- **Understanding the Indian genome variation:** This could benefit the people of India in following manner:
 - **Understanding the epidemiology of genetic diseases** to enable cost effective genetic tests.
 - **Carrier screening** (determining chances of having a child with genetic disorders) applications for expectant couples.
 - **Pharmacogenetic** (study of how genes affect a person's response to drugs) **tests to prevent adverse drug reactions.**
 - **Understanding the genetic diversity** on a population scale.
 - Making **genetic variant frequencies** available for clinical applications.
- **Scaling up Indian genome data:** India is the second largest country in terms of population density with more than 1.3 billion individuals encompassing **17% of the world population.**
 - The country is very diverse with **more than 4500 anthropologically distinct populations.**
- **Understanding genomes:** Study of the entire genome sequence will help scientists understand how the genome as a whole works.

- Its objective is to **create a pilot dataset to enable genetic epidemiology of carrier genetic diseases** towards enabling affordable carrier screening approaches in India.
- It is also seen as a **precursor to a much larger exercise involving other government departments to map a larger swathe of the population in the country.**
- The project involved the Hyderabad-based **Centre for Cellular and Molecular Biology (CCMB) and the CSIR-Institute of Genomics and Integrative Biology (IGIB).**
- Now, CSIR has announced the **conclusion of 'Whole Genome Sequencing'** of 1,008 Indians from different populations across the country. It was found that:
 - **32% of genetic variations in Indian genome sequences are unique** as compared to global genomes.
 - The computational analysis led to the identification of 55,898,122 single nucleotide variants in the India genome dataset.



About Genome sequencing

- A genome is an organism's complete set of DNA. It includes all chromosomes, which houses the DNA, and genes.
 - Hence, each genome has approximately 3.2 billion DNA base pairs.
- The genome contains all the data that is needed to describe the organism completely — acting essentially as a blueprint. The genome can be understood through the process described as sequencing.
- **Genome sequencing** is means deciphering the exact order of base pairs in an individual. This data can be analysed to understand the function of various genes, identify genetic mutations and explore how the mutations impact gene functions.

Challenges in scaling up genome sequencing projects

- **Technological issues:** Like selection of analytical software tools, the speedup of the overall procedure using High-performance computing parallelization and acceleration technology, the development of automation strategies, data storage solutions.
- **Financial issues:** The public exchequer has very limited financial resources for which genetics projects are not as big a priority as national security and social welfare.
- **Legal issues:** Data privacy bill is yet to be passed. Anonymity of the data and questions of its possible use and misuse would need to be addressed.
- **Cyber Security:** Genome sequences of Indians need to be protected with utmost priority. According to Internet Crime Report for 2019, **India stands third in the world among top 20 countries that are victims of internet crimes.**

Way ahead

While India, led by the CSIR, first sequenced an Indian genome in 2009, it is only now its laboratories have been **able to scale up whole-genome sequencing** and offer them to the public.

Funding in the technology has been the major obstacle for in scaling up this project. To overcome such challenges **India should also go for private funding of science projects.**

Important definitions

- **Chromosome:** DNA is tightly coiled to make a thread like structure called Chromosome. Human beings have 46 chromosomes (23 from each parent).
- **Nucleotide:** A nucleotide is an organic molecule that is the building block of DNA and RNA.
- **DNA:** DNA, or deoxyribonucleic acid, is the hereditary material in most of the living beings.
- **RNA:** RNA or Ribonucleic acid molecules are single-stranded nucleic acids. They are hereditary material in some viruses.
- **Genes:** A gene is a 'specific' section of DNA. It is involved in making RNA (transcription) or protein (translation).
- **Gene pool:** A gene pool is the collection of different genes within an interbreeding population.

Related information

Human Genome Project (HGP)

- It was the international research effort to **determine the DNA sequence of the entire human genome.**
- It began in 1990 and completed in 2003.
- The HGP gave us the **ability, for the first time, to read nature's complete genetic blueprint** for building a human being.
- It was coordinated by the **National Institutes of Health, USA and the Department of Energy, USA.**

Genome India Project

- It is **India's ambitious gene-mapping project** that is being described as the "first scratching of the surface of the vast genetic diversity of India".
 - **A genome sequence** spells out the order of each base/nucleotide of the DNA, while **genome mapping** simply identifies a series of landmarks in the DNA.
- It hopes to form a grid after collecting 10,000 samples in the first phase from across India, to arrive at a representative Indian genome
- It is cleared by the **Department of Biotechnology, Ministry of Science and Technology** in Jan, 2020.
- It involves **20 leading institutions** including the Indian Institute of Science in Bengaluru and a few IITs.

7.2. NOBEL PRIZE IN CHEMISTRY

Why in news?

The 2020, Nobel Prize in Chemistry was awarded jointly to Emmanuelle Charpentier and Jennifer A. Doudna **for discovering the CRISPR-Cas9 genetic scissors**, which allows scientists to 'cut-paste' inside a genetic sequence.

About the Discovery

- **tracrRNA:** During Emmanuelle charpentier's studies of streptococcus pyogenes, one of the bacteria that cause the most harm to humanity, she discovered a previously unknown molecule, tracrRNA.

Clusters of Regularly Interspaced Short Palindromic Repeats (CRISPR)

- **CRISPR:** They are specific segments in the bacterial DNA that contain palindromic repeats inter spaced with pieces of DNA (called spacer) that bacteria snip off from attacking viruses.
 - Rodolphe Barrangou discovered that CRISPR is the natural defence mechanism of Bacteria against virus attack.
- **Cas9:** It is a CRISPR-associated (Cas) endonuclease, or enzyme, that acts as "molecular scissors" to cut DNA at a location specified by a guide RNA.
- **CRISPR-Cas9:** It is a unique genome editing technology that enables geneticists and medical researchers to edit parts of the genome by removing, adding or altering sections of the DNA sequence.

- Further studies revealed that this tracrna was part of the bacteria's immune system and **it helps the bacteria destroy viral DNA.**

- **REPROGRAMMED CRISPR-CAS9:** Emmanuelle Charpentier and Jennifer A. Doudna succeeded in recreating the bacteria's scissors and reprogramming it. They then proved that they can now use these scissors to cut any dna molecule at a required site.

Genome editing

- Genome editing is a technology that give scientists the ability to change an organism's DNA.
- This allows genetic material to be added, removed, or altered at particular locations in the genome.
- It is a three-stage complex mechanism of **unwinding, cleaving and rewinding of DNA** to bring desirable changes in the genome of any living beings.
 - Cleaving of the DNA includes editing of genes (cut paste of the DNA).
- **Other genome editing systems** include TALENs and Zinc-Finger Nucleases.

Significance of the discovery

- CRISPER cas9 tool is **easier to adapt and genes could be edited within few weeks** with this tool.
- This tool has contributed to many important **discoveries in basic research**, and plant researchers have been able to develop crops that withstand mould, pests and drought.
- In medicine, **clinical trials of new cancer therapies are underway**, and it can help cure inherited diseases.
- These genetic scissors have **taken the life sciences into a new epoch** and, in many ways, are bringing the greatest benefit to humankind.

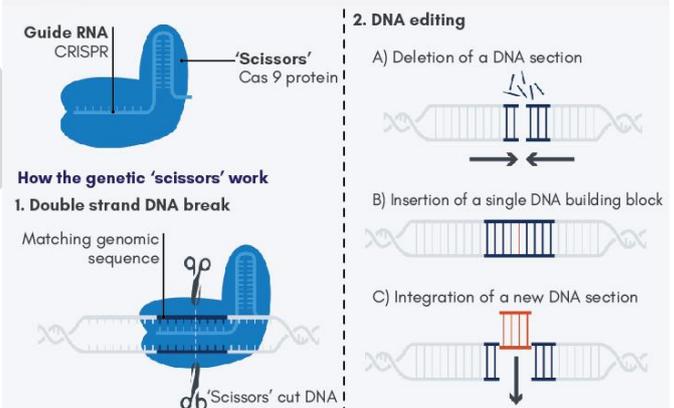
Challenges of Genome editing

- **Ethical issues:** Since there are limits to our knowledge of human genetics, gene-environment interactions, and the pathways of disease, there could be unintended consequences of gene editing on future generations.
 - **Ethical questions that have no concrete answers**
 - ✓ Should we make changes that could fundamentally affect future generations without having their consent?
 - ✓ What if the use of germ line editing veers from being a therapeutic tool to an enhancement tool for various human characteristics (Designer baby)?
- **Off -target effect:** DNA is edited other than the desired site hence creating an unwanted outcome.
 - As happened in China where genetically designed twins were created via in-vitro fertilisation and they were supposed to have a gene that protects them against HIV; however this intended outcome could not be achieved.
 - Instead, the two newborns had host of undesirable mutations.

THE CRISPR/CAS GENETIC SCISSORS

CRISPR/CAS system

An artificially constructed gene editing tool



Conclusion

Even though the CRISPR/Cas-9 system allows a democratic usage in labs across the world to tinker with genomes, it still has not reached the level of precision required to be sure that it does not cause unintentional side effects.

7.3. NOBEL PRIZE IN MEDICINE

Why in news?

Harvey Alter, Charles Rice, and Michael Houghton have received the Nobel Prize in Nobel Prize for Medicine or Physiology, 2020 for **discovering the Hepatitis C virus (HCV).**

About the discovery

- **Clue of the existence of the HCV:** In the 1970s, Dr. Harvey Alter led a team of scientists in discovering that most cases of post-transfusion

Hepatitis

- Hepatitis is **inflammatory disease of the liver.**
- **Hepatitis viruses** are the most common cause of hepatitis in the world but other infections, toxic substances (e.g. alcohol, certain drugs), and autoimmune diseases can also cause hepatitis.

hepatitis couldn't be linked to Type A or B viruses. This discovery provided a hint to the existence of a pathogen that had not yet been described.

- **Identification and Naming of the HCV:** In the 1980s, Dr. Houghton and his colleagues became the first to identify and formally name the hepatitis C virus as the infectious culprit.
 - Their work led to the **development of a diagnostic test** to identify the virus in blood, enabling doctors and researchers for the first time to screen patients and donors.
- **Confirmation of HCV being the sole cause for “non-A, non-B” cases of hepatitis:** Dr. Rice showed that HCV could be isolated in the lab and cause disease in an animal host, the chimpanzee.
 - These studies confirmed the HCV as the sole infectious agent responsible for the mysterious “non-A, non-B” cases of hepatitis and set up a crucial animal model for future studies.

About Hepatitis C virus (HCV)

- It is a **blood-borne virus and causes Hepatitis C disease** which affects the liver.
 - It happens through **transfusions of HCV-contaminated blood and blood products**, contaminated injections during medical procedures, and through injection drug use.
 - **Sexual transmission is also possible**, but is much less common.
 - According to WHO, there about 71 million people (6-11 million of them in India) who are suffering from chronic infection caused by HCV.
 - It is also a **major cause of liver cancer**.
 - **No vaccine is available for HCV yet.**
- **Other types Hepatitis:**
 - **Hepatitis A virus (HAV):** It is present in the faeces of infected persons and is most often transmitted through consumption of contaminated water or food. Certain sex practices can also spread HAV.
 - ✓ **Safe and effective vaccines are available** to prevent HAV.
 - **Hepatitis B virus (HBV):** It is transmitted through exposure to infective blood, semen, and other body fluids.
 - ✓ HBV can be transmitted from infected mothers to infants at the time of birth or from family member to infant in early childhood.
 - ✓ Transmission may also occur through transfusions of HBV-contaminated blood and blood products, contaminated injections during medical procedures, and through injection drug use.
 - ✓ **Safe and effective vaccines are available** to prevent HBV.
 - ✓ The **discovery of the Hepatitis B virus** earned Baruch Blumberg the **Nobel Prize in Physiology or Medicine in 1976**.
 - **Hepatitis D virus (HDV):** Infections occur only in those who are infected with HBV. The dual infection of HDV and HBV can result in a more serious disease and worse outcome.
 - ✓ **Hepatitis B vaccines provide protection** from HDV infection.
 - **Hepatitis E virus (HEV):** HEV is mostly transmitted through consumption of contaminated water or food.
 - ✓ HEV is a common cause of hepatitis outbreaks in developing parts of the world and is increasingly recognized as an important cause of disease in developed countries.
 - ✓ Safe and effective vaccines to prevent HEV infection have been developed but are not widely available.

7.4. NOBEL PRIZE IN PHYSICS

Why in News?

The Nobel Prize in Physics 2020 was awarded to Roger Penrose, Reinhard Genzel and Andrea Ghez for **furthering the understanding of black holes**, the most “enigmatic” objects in the universe.

More about their discovery

- **Black hole formation is a robust prediction of the general theory of relativity:** In January 1965, Roger Penrose proved that black holes really can form and described them in detail, black holes hide a singularity in which all the known laws of nature cease.
 - Penrose used ingenious mathematical methods in his proof that black holes are a direct consequence of Albert Einstein's general theory of relativity.

- **Discovery of a supermassive black hole (Sagittarius A*) at the centre of our galaxy:** All the stars in the Milky Way orbit the centre Sagittarius A* (the Sun orbits Sagittarius A* in more than 200 million years).
 - For nearly three decades, the team led by Genzel and Ghez observed some thirty stars.
 - They found that the stars move in perfect elliptical orbits, just as if the object about which they were orbiting (Sagittarius A*) is a concentrated mass and not diffused or scattered.
 - Given its calculated mass of about four million solar masses, and its invisibility, **this could only be a supermassive black hole, they deduced.**

What are black holes?

- A black hole is a place in **space where gravity pulls so much that even light cannot get out.** The gravity is so strong because matter has been squeezed into a tiny space.
 - This can happen **when a big star is dying** (our sun will never turn into a black hole as it is not big enough to make a black hole).
 - Because no light can get out **they are invisible.**
 - In the center of a black hole is a **gravitational singularity**, a one-dimensional point which contains a huge mass in an infinitely small space, where density and gravity become infinite and space-time curves infinitely, and the laws of physics as we know them cease to operate.
- In 2019 scientists got the first optical image of a black hole through Event Horizon Telescope.
 - It has captured the just outside region of a black hole, located 55 million light-years from Earth, at the centre of a galaxy named **Messier 87**. The image shows a photon (light quantum) can orbit the black hole without falling in. This is called the 'last photon ring'
 - **Sagittarius A*** is the second black hole whose photographs have been captured by the Event Horizon Telescope project.
- On the basis of size black holes can be divided in the 3 categories:
 - **Tiny black holes:** Scientists think the smallest black holes are as small as just one atom. These black holes are very tiny but have the mass of a large mountain. Mass is the amount of matter, or "stuff," in an object.
 - ✓ These black holes were formed when the universe began.
 - **Stellar black holes:** Its mass can be up to 20 times more than the mass of the sun. There may be many, many stellar mass black holes in Earth's galaxy (the Milky Way).
 - ✓ They were formed when the center of a very big star falls in upon itself, or collapses. When this happens, it causes a supernova (supernova is an exploding star that blasts part of the star into space).
 - **Supermassive:** These black holes have masses that are more than 1 million suns together. Scientists have found proof that every large galaxy contains a supermassive black hole at its center.
 - ✓ The supermassive black holes were made at the same time as the galaxy they are in.
- **Detection of Black Holes:**
 - They cannot be directly observed because they themselves do not emit or radiate light, or any other electromagnetic waves that can be detected by instruments built by human beings.
 - But the area just outside the boundary of the black hole (Event Horizon), which has vast amounts of gas, clouds and plasma swirling violently, emit all kinds of radiations, including even visible light.
 - Hence, the presence of black holes can be inferred by detecting their effect on other matter nearby them.

General Theory of Relativity

- This theory was proposed by **Albert Einstein in 1915.**
- Essentially, it's a **theory of gravity** whose basic idea is that instead of being an invisible force that attracts objects to one another, **gravity is a curving or warping of space.** The more massive an object, the more it warps the space around it.
 - **For example**, the sun is massive enough to warp space across our solar system (a bit like the way a heavy ball resting on a rubber sheet warps the sheet). As a result, Earth and the other planets move in curved paths (orbits) around it.
- **This warping also affects measurements of time.** We tend to think of time as ticking away at a steady rate. But just as **gravity** can stretch or warp space, it **can also dilate time.**
- **Confirmation:**
 - In the first major test of general relativity, **astronomers in 1919 measured the deflection of light from distant stars as the starlight passed by our sun**, proving that gravity does, in fact, distort or curve space.
 - **In 2016, the discovery of gravitational waves** (subtle ripples in the fabric of spacetime) was another confirmation of general relativity.

- **Importance:**

- Their detection can provide a test for existing theories of the universe, and lead to a better understanding of black holes and the nature of the universe itself.
- **Enhances the understanding of gravitational force-** which can be useful for the Global Positioning Satellites in order to make them accurate to more than a few metres.

7.5. DRAFT SPACE BASED COMMUNICATION POLICY -2020

Why in News?

Indian Space Research Organisation (ISRO) has released the draft of a new Spacecom Policy 2020.

More on news

- Space is becoming a vital frontier for strategic applications and India needs to augment its space capabilities **to ensure its national security and sovereignty** through appropriate monitoring and control measures.
- Draft policy is in line with **announcements made under Aatmanirbhar Bharat** which called for level playing field provided to private companies in satellites, launches and space-based services and predictable policy and regulatory environment to private players etc.

Objectives of the policy

- Adopt measures to **monitor and authorize use of space assets** for communication to or from Indian Territory.
- **Ensure protection of space assets** and adopt measures to bring in more space assets under the administrative control.
- **Promote increased participation of commercial Indian industry** to provide space based communications both within the country and outside.
- Concentrate on **realization of space based communication systems** for addressing the requirements that cannot be effectively, affordably and reliably satisfied by commercial Indian industry either because of national security concerns or economic factors.
- **Provide a timely and responsive regulatory environment** for the commercial Indian industry to establish and operate space-based communication systems.

Key features of the policy

- **Private players can provide communication services** using space based assets within and outside India.
- **Private service providers are liable for financial damages** if any damages that may occur to other space objects in the outer space.
- Any communication service within the Indian territory from space can be carried out only with an authorised space asset. **Only Indian entities are eligible for obtaining space asset authorisation.**
- The Indian companies **can establish telemetry, tracking and command (TT&C) earth stations and satellite control centre (SCC)** in or outside India.
- **Objectives of societal development** such as social empowerment, providing access to health care and education, rural/tribal development, supporting disaster management, etc. for reasons of economic viability or sustainability **shall be realized by Department of Space (DOS).**
- **Indian National Space Promotion & Authorization Center (IN-SPACe)**, an independent body under DOS, shall accord necessary authorizations and permissions for all satcom related activities, to or from Indian territory.

Why role for private sector?

- **Securing our space capabilities**, by distributing them across many different satellites and spacecraft, so that business continuity is unaffected even if an adversary manages to disable one or more satellites.
- **Meeting India-centric needs:** Private-sector help is needed to cater rapidly changing technological scenarios and to contribute to digitalization.
- **Increasing Demand:** Demand for satellites has reached a stage where ISRO has to deliver 18-20 satellites in a year. ISRO will find this difficult to meet without private sector participation.
- **Getting latest innovations and trends:** Collaboration with private players is vital for capacity building, getting cutting-edge technology, latest innovations etc.
- **Freeing up resources:** A large chunk of ISRO's manpower is involved in manufacturing and launch vehicles, so active involvement of the private sector would allow ISRO to devote more time to core research, deep-space missions etc.

- **Job creation:** Creation of new jobs in high-skilled-labour market in the private space industry.
- **Reducing dependence on taxpayer's money:** Privatising activities in space sector will allow economic contribution from private sector and will reduce dependence on funds from government.

7.6. SUPERCONDUCTIVITY AT ROOM TEMPERATURE

Why in news?

For the First Time, Physicists Have Achieved Superconductivity at Room Temperature.

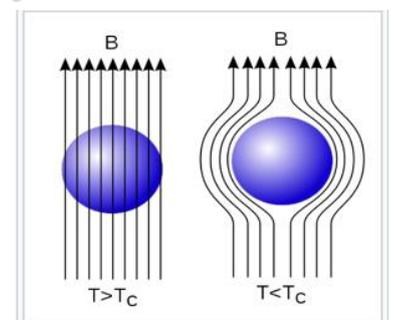
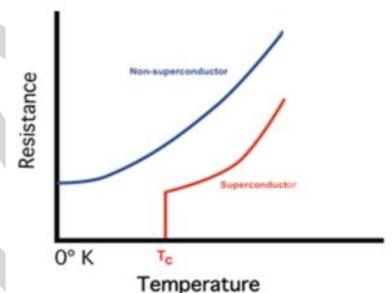
More on news

- For the first time, physicists have achieved the resistance-free flow of an electrical current in a material at room temperature - **15 degrees Celsius (59 degrees Fahrenheit)**.
 - The material used is a combination of carbon, sulphur and hydrogen.
- Although, the **sample sizes used were microscopic and the pressure** at which superconductivity emerged are **still rather impractical**. This achievement will pave the way forward for generation of superconductivity in atmospheric conditions.

About Superconductivity

Superconductivity consists of two key elements:

- **Zero electrical resistance:** Usually, the flow of an electrical current encounters some degree of resistance - a bit like how air resistance pushes back on a moving object, for example. The higher the conductivity of a material, the less electrical resistance it has, and the current can flow more freely.
- **Meissner effect:** It is the expulsion of a magnetic field from a superconductor during its transition to the superconducting state when it is cooled below the critical temperature.



Potential benefits of superconductivity at room temperature

- **Medical and biopharma applications:** Low-temperature superconducting (LTS) materials and high field magnets are used in Nuclear Magnetic Resonance (NMR) and medical Magnetic Resonance Imaging (MRI).
- **Superconductivity and Big Science:** Superconductivity is a core technology that has fueled the progress in high-energy physics accelerators and in thermonuclear fusion reactors. The Large Hadron Collider (LHC) at CERN uses more than a thousand superconducting materials.
- **Power generation and distribution:** These materials are potentially key in the suite of technologies that can help facilitate grid modernization and increase energy security.
 - Powerful new superconducting generators, high-capacity cables and fault current limiters are among the solutions that will enhance the efficiency and reliability of electricity generation, transport and distribution.
- **Sustainable mobility:** The use of superconductors also offers promise of innovations in the field of mobility. Example- Japan Railway project for the construction of the Chuo Shinkansen Maglev Line, a magnetically levitated high-speed train between Tokyo and Nagoya.

7.7. AQUAPONICS

Why in news?

Recently, a pilot Aquaponics facility developed by Centre for Development of Advanced Computing (C-DAC), Mohali was inaugurated.

Hydroponics

- Hydroponics is the **cultivation of plants without using soil**. In the absence of soil, water provides nutrients, hydration, and oxygen to plant life.
- This system fosters **rapid growth, stronger yields, and superior quality**.
- When a plant is grown in soil, its roots are perpetually searching for the necessary nutrition to support the plant. If a plant's root system is exposed directly to water and nutrition, the **plant does not have to exert any energy in sustaining itself**.

About Aquaponics

- Aquaponics is a **combination of aquaculture**, which is growing fish and other aquatic animals, and **hydroponics** (see box).
- Aquaponics uses these two in a symbiotic combination. **Fish waste from the aquaculture portion of the system is broken down by bacteria** (microbes or nitrifying bacteria) into dissolved nutrients (e.g. nitrogen and phosphorus compounds) that plants utilize to grow in a hydroponic unit.
- This **nutrient removal improves water quality for the fish and also decreases overall water consumption** by limiting the amount released as effluent.

Benefits of Aquaponics

- Aquaponics is a recirculating food production system that **uses less than 10% of the water normally required** for fish farming and plant production. It is therefore **suitable for small-scale/domestic consumption** as well as commercial fresh food production, particularly in communities where water is scarce.
- In aquaponics, there is **no toxic run-off from either hydroponics or aquaculture**.
- It is an **excellent way of producing protein foods** such as fish and vegetables in both impoverished areas (to support food security), as well as in areas where there is a high demand for good quality produce.
- **Need for inputs is low** once the system has been set-up, just some simple systems' maintenance along with fish, fish feed, seeds (or seedlings) and water to replenish the unit.

Limitations of Aquaponics

- Aquaponics **combines the risks of both aquaculture and hydroponics**, and thus expert assessment and consultation is essential.
- Commercial aquaponics is **not appropriate in all locations** and Large-scale systems require careful consideration before financial investment.
- Aquaponic systems are characterized by a broader range of microflora than conventional hydroponic systems therefore **pest and disease management need further improvement**.
- The most challenging aspect of managing an aquaponics operation is to **develop a realistic, accurate, and workable marketing plan**. Raising fish indoors is two to three times more expensive than raising fish in open ponds.

Conclusion

In the future, the agriculture sector will need to produce more with less. Aquaponics has the potential to support economic development and enhance food security and nutrition through efficient resource use, and it will become one additional way of addressing the global challenge of food supply in a sustainable way.

7.8. GLOBAL TB REPORT 2020

Why in news?

Recently, World Health Organization (WHO) released Global Tuberculosis (TB) report 2020.

About the report

- Reports aims to provide a **comprehensive and up-to-date assessment of the status of the TB epidemic**, and of progress in the response to the epidemic – at global, regional and country levels – in the context of global commitments and strategies.
- WHO has published a global TB report every year since 1997.
- In 2020, data were reported by 198 countries and territories that **accounted for more than 99% of the world's population and estimated number of TB cases**.

Key findings of the report

- **Global Findings**
 - Globally, **an estimated 10.0 million people fell ill with TB in 2019**, slowly declining in recent years.
 - Approximately **1.4 million people died from TB-related illnesses** in 2019. TB is the leading cause for death of people with HIV.

- There was **still a large gap of 2.9 million between number of people diagnosed** and reported and the estimated cases.
 - ✓ Gap is due to a combination of underreporting of people diagnosed with TB and underdiagnosis.
- **India, Indonesia, the Philippines and South Africa** account of **44%** of global TB cases and these countries would **bear the maximum brunt of COVID-19- induced TB problems.**
- **Drug-resistant TB continues to be a public health threat** and 3 countries that had the largest burden of these cases include **India, China and Russia.**
- World is **not close to meeting the targets of the 2020 milestones** of the '**End TB Strategy**'. Actual reduction was 9% as against aim of 20% between 2015- 19.
- **Impact of COVID on TB**
 - The global number of TB deaths could increase by around 0.2–0.4 million in 2020 alone, if health services are disrupted to the extent that the number of people with TB who are detected and treated falls by 25–50% over a period of 3 months.
 - The economic impact of the pandemic will worsen **2 key determinants of TB incidence: GDP per capita and undernutrition.**
 - The number of people developing TB could **increase by more than 1 million per year** in the period **2020–2025.**
 - The impact on livelihoods resulting from **lost income or unemployment** could also **increase the percentage of people with TB and their households** facing catastrophic costs.
 - Negative impacts on essential TB services include the **reallocation of human, financial and other resources from TB to the COVID-19 response.**
 - Many countries reported the use of **GeneXpert** machines for **COVID-19 testing** instead of **testing for TB.**
 - **Health staff was reassigned** in national TB programmes to COVID-19 related duties.

About Tuberculosis (TB)

- TB is caused by **bacteria (Mycobacterium tuberculosis)** that most often affect the lungs.
- It spreads from **person to person through cough, sneeze or spit.**
- It typically **affects the lungs (pulmonary TB)** but can also affect other organs (extrapulmonary TB).

Global commitments and efforts

- **WHO End TB Strategy:**
 - 80% reduction in the TB incidence rate (new and relapse cases per 100 000 population per year) by 2030, compared with 2015
 - ✓ **2020 milestone:** 20% reduction; 2025 milestone: 50% reduction
 - 90% reduction in the annual number of TB deaths by 2030, compared with 2015
 - ✓ **2020 milestone:** 35% reduction; 2025 milestone: 75% reduction
 - No households affected by TB face catastrophic costs by 2020.
- **SDG Target 3.3:** By 2030, end the epidemics of AIDS, TB, malaria and neglected tropical diseases, and combat hepatitis, water-borne diseases and other communicable diseases
- **Moscow Declaration to End TB:** It is commitment to increase multisectoral action and enhance accountability in the global TB response towards ending tuberculosis (TB) by 2030.

India Specific Findings

- India **registered a decline in the notification of tuberculosis (TB) cases by about 85%** in 2020, after the imposition of COVID-19 induced lockdown.
 - **Only 40 cases were registered for every 100 cases of TB** in India due to a decline in access to TB services during lockdown.
 - The **weekly and monthly number of TB case notifications fell by more than 50%** between the end of March and late April in India, following the **imposition of a national lockdown.**
- India has the **highest TB burden in the world** accounting for **26% of cases of the global total.**
- Huge percentage of potential cases **remaining out of the TB registration net** could **amplify the problems** many fold for India.

For India Tuberculosis Report 2020 refer to June 2020 Monthly Current Affairs.

8. CULTURE

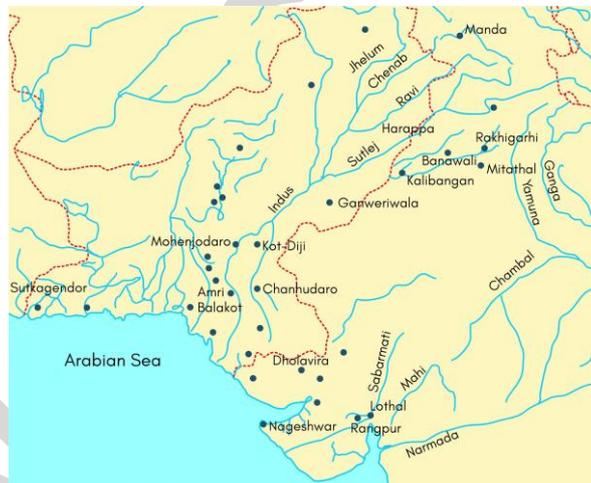
8.1. EVIDENCE OF DAIRY PRODUCTION IN THE INDUS VALLEY CIVILIZATION (IVC)

Why in news?

The year 2020 marks **100 years of discovery of IVC or also known as Harappan Civilization.**, and a new study has shown that dairy products were being produced by the Harappans as far back as 2500 BCE.

Key findings

- **Earliest evidence of industrial level of dairy production:** These were based on analysis of the absorbed lipid residues in unglazed ceramic vessels.
- **Evidence of dairy processing:** that is, the preservation of milk through fermentation and other techniques.
 - The results are based on molecular chemical analysis of residue of pottery found at **Kotada Bhadli, in Gujarat.**
 - Even in the present day, Gujarat is still a major producer of dairy products in India.
- **Animal used for dairy production:** They studied the tooth enamel from fossils of cattle, water buffalo, goat and sheep found in the area. Cows and water buffalo were found to consume millets, while sheep and goats ate nearby grass and leaves.
 - The large herd indicates that milk was produced in surplus so that it could be exchanged and there could have been some kind of trade between settlements.
- **Hence, these finding throws a light on rural economy of IVC.**



What is the relevance of IVC in present times?

- **Town structure:** Towns were built on a grid pattern with main roads cutting lanes and alleys perpendicularly.
 - This pattern is the most accepted in planned cities.
- **Segregation of public and private spheres:** Towns were roughly divided into two blocks- one for public activities- ritual, political and festivity, and the other for domestic houses.
 - This is followed even now with office and public buildings separated but in close proximity to residencies.
- **Soft diplomacy:** Harappan sites are found throughout a large area of over 1000 sq km, with artefacts also located in Afghanistan, Iran, Iraq, Oman, Qatar, Bahrain, Kuwait and the UAE. These connections can be used for soft diplomacy today.
- **Trade:** Most of the IVC sites had traded items. Indus valley people traded with the Mesopotamians and other people from far-away places and that helped diversify the living conditions. It also helped bring in gold and

About Indus Valley Civilization

- It is one of the four earliest civilizations of the world along with the Mesopotamia, Egypt and China.
- IVC was a cultural and political entity which flourished in the northern region of the Indian subcontinent **between c. 7000 - c. 600 BCE.**
- **Dayaram Sahni** first discovered Harappa in 1921.
- Its modern name derives from its **location in the valley of the Indus River**, but it is also commonly referred to as the Indus-Saraswati Civilization (after the Saraswati River mentioned in Vedic sources which flowed adjacent to the Indus) and the Harappan Civilization.
- It remains unclear how the Indus civilization came to an end.
- The civilization's southernmost parts may have continued until Iron Age civilization developed in India about 1000 BCE.

Recent IVC related discoveries

- According to a recent study **shifting monsoon patterns linked to climate change** likely caused the rise and fall of IVC.
- **Bhirrana, Haryana is now considered the oldest discovered IVC site**, dating back to 7500 BCE.
 - Previously, Mehrgarh, in Pakistan (7000 BCE) was considered the oldest site.
- DNA sample of skeletal remains excavated from Rakhigarhi has claimed that inhabitants of IVC were a distinct indigenous people and **challenges theory of an Aryan invasion ending Harappan culture.**

precious items. This shows that **trade is vital for economy** and for earning foreign exchange. It also highlights that trade has been an integral part of economic structure in society.

- **Drainage system:** Harappans built large cities with very intricate irrigation and sanitation systems using technology that can still be found in rural India today.
- **Weights and Measurements:** Standardized weights and measures and standard brick size, these are well-accepted for ease in transactions and building uniformity and have continued to be used from the Indus civilization.
- **Ornaments:** These were widely used by the people. They wore necklaces, armlets, rings etc. Earrings, girdles were also worn by women. Beads were quite popular as is evident from factories found in Chanhudaro and Lothal. People were conscious of fashion.
 - In today's times as well people are conscious of fashion and different styles of jewellery, hairstyles, clothes etc are still in vogue.
- **Seals:** The standard Harappan seal was a square plaque 2 x 2 sq. inches usually made from the soft river stone steatite.
 - It appears that the seals were also used as amulets, carried on the persons of their owners, **perhaps as modern day identity cards**
- **Religion:** The people in IVC were polytheistic evidences of Pashupati seal is found. It has been widely suggested that the Harappans worshipped a mother goddess who symbolized fertility.
 - The worship of deities and nature is still found in the contemporary religions.

Places	Locations	Archaeological Findings
Harappa	Pakistan, River Ravi	Six Granaries, stone symbol of Lingam and Yoni, Mother Goddess figure, Sculpture of dog chasing a deer in bronze metal, a Red sandstone male torso.
Mohenjodaro	Pakistan, River Ravi	Citadel, the Great Bath, Sculpture of bearded priest, the Great Granary, the famous bronze statue of the Dancing Girl and Pashupati seal.
Dholavira	Gujarat, India	Giant water reservoir, unique water harnessing system.
Lothal	Gujarat, India	Dockyard, fire altars, terracotta figure of horse and ship
Rakhigarhi	Haryana	Largest site of Indus Valley civilization, Granary, Terracotta bricks
Ropar	Punjab, India located on River Sutlej	Dog buried with human oval pit burials, Copper axe
Balathal and Kalibangan	Rajasthan, India	Bangle factory, toy carts, bones of Camel, decorated bricks, Citadel and lower town, fire altar
Surkotada	Gujarat, India	First actual remains of Horse bones
Banawali	Haryana, India on dried up River Saraswati	Beads of semi-precious stones, terracotta, steatite and bangles of clay, shell, faience and copper. Well-planned fortified township laid in a radial pattern
Alamgirpur	Meerut, Uttar Pradesh on River Yamuna	Eastern most site of IVC, blade made of Copper, Ceramic items
Mehrgarh	Pakistan	Precursor to IVC, Pottery and Copper tools have been found

8.2. 350TH JAYANTI OF BABA BANDA SING BAHADUR

Why in news?

The Prime Minister recently paid tribute to Baba Banda Singh Bahadur Ji on his **350th Jayanti**.

About Baba Banda Singh Bahadur (1670-1716)

- He was a **Sikh warrior known for his struggle against the Mughal Empire** in the early eighteenth century after meeting with Sri Guru Gobind Singh.
- He was also called Lachman Das, Lachman Dev, or Madho Das and was born in a Minhas Rajput family.
 - He **established a monastery at Nanded** (in present day Maharashtra), on the bank of river Godavari, where in **1708** he was visited by, **and became a disciple of, Guru Gobind Singh**, who gave him the new name of Banda Bahadur.
- After the fortress town of **Gurdas Nangal** fell to the Mughals in **1715**, Baba Banda Singh was **captured and brought to Delhi** where he was tortured to death in **1716** in the reign of Mohammad Farrukhsiyar.

- **Contribution of Banda Bahadur**
 - He was known for the **abolition of the zamindari system**, and granting proprietary rights to the actual tillers of the land.
 - He **minted coins in the names of Guru Nanak Dev and Guru Gobind Singh** and issued orders under his seal.
 - The name of **Mukhlisgarh in Haryana was changed to Lohgarh (Fort of Steel)**, and it became the **capital of the first Sikh state**.

Contemporaries of Baba Banda Singh Bahadur

- **Guru Gobind Singh (1666-1708)** – He was **10th Sikh Guru** who **transformed Sikhs into a martial race** and established **Khalsa (Pure) Panth**.
- **Shah Alam (1643-1712)** – He was **7th Mughal Emperor** and son of Aurangzeb.

8.3. NOBEL PRIZE IN LITERATURE

Why in news?

The **Nobel Prize in Literature 2020** was awarded to **Louise Glück** "for her unmistakable poetic voice that with austere beauty makes individual existence universal."

About Louise Glück

- The Nobel Prize in Literature is given by Royal Swedish Academy for a **writer's entire body of work** and is regarded as perhaps the world's most prestigious literary award.
- **Glück is the first female poet** to win the prize since Polish writer Wisława Szymborska won in 1996.
- Born in New York City in 1943, Glück has written **12 collections of poetry and 2 books of essays**.
- She has also won the **Pulitzer Prize for Poetry in 1993** for her work 'The Wild Iris' written in 1992.
- Her themes include **childhood, family life, trauma, death and healing**.

About Nobel Prize

- Nobel Prizes, as designated in the will of Alfred Nobel, are in **physics, chemistry, physiology or medicine, literature and peace**.
- It is **not awarded posthumously** and is awarded to maximum of three person for single category.
- Alfred Nobel specifically designated the institutions responsible for the prizes he wished to be established:
 - The Royal Swedish Academy of Sciences for the Nobel Prize in Physics and Chemistry,
 - Karolinska Institute for the Nobel Prize in Physiology or Medicine,
 - The Royal Swedish Academy for the Nobel Prize in Literature
 - Committee of five persons to be elected by the Norwegian Parliament (Storting) for the Nobel Peace Prize.

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9. ETHICS

9.1. PANDEMIC AND BEHAVIORAL CHANGE

Context

The Pandemic has not only affected our socio-economic situation by creating a health crisis, but this changed situation has also altered our behavior in many ways. The long lockdowns, uncertainty about the future and fear of the virus has triggered individual and collective behavioral changes.

What are the behavioral changes we have adopted?

As the pandemic has affected every aspect of our collective life, the behavior change needed and propagated by it spans across all dimensions-

- **Behavior in Public Places:**
 - People are now increasingly **desiring to avoid crowded areas and avoid physical contact.**
 - People **prefer to wear face mask when in public.**
- **Behavior at personal level:**
 - Recognition of importance of **personal hygiene**, e.g.- profound uptake in hand washing.
 - A section of people have been **exhibiting high level of generosity**, going out of their way to help people in need as they feel a sense of responsibility towards the society.
 - Unintentionally, many people have started associating virus to various communities and regions thus leading to **stigmatization** of those communities.
- **Economic behaviours:**
 - The coronavirus containment measures have **boosted digitization**, e.g.-growth in contactless and online payments.
 - **Discretionary spending has drastically decreased** in the National as well as Global economy.
- **Work behaviours**
 - A large section of people are **preferring to work from home**, taking help from the available digital communication tools.
 - Work from home has **blurred the lines between work and home**, with many stating that they feel they are always at work thus **disturbing the prevalent work-life balance.**

What are the motivations behind these behavioral changes?

- **Uncertainty and anxiety:** Absence of a clinical solution to pandemic, lack of knowledge and understanding about the virus and lack of clarity on when the pandemic will end has created a sense of uncertainty among people. Empirical studies show that humans as a species do not like uncertainty, this has forced people to think and thus change their behavior.
 - Further, the constant threat that the virus poses, creates fear within the person for oneself and also for the people around them.
- **Legal and Social obligation:** Stringent methods like lockdowns and punitive measures have been adopted to stop the spread of virus. Thus, behavioral change of a large section of the population has not internally changed but is externally changed to legal and social compulsions.
- **Other factors:** Individual and Collective behaviour is not solely guided by rational understanding. Other factors like **social norms, behaviour of role models** and most importantly, **acceptance among peers and family** plays an important role in shaping behaviour.

What are learnings we can adopt from the current experience?

It is unlikely that the situation we are facing today will exactly repeat itself in the near future. But the ingredients which comprise the current situation may repeat in the future. For instance, the uncertainty created by the Pandemic can be similar to the uncertainty created in future due to adoption of a new technology. These learnings can help people in the uncertain times of the future.

- **Behaviour is more emotional than rational:** A person's health-related behaviours ultimately stem from the desire to avoid illness. Thus, rationally one can argue that perceived benefits of the behaviour should be

enough for its adoption but they remain inadequate. Cigarette sales, for example did not decline significantly for years despite the ills of smoking having been widely publicised.

- Emotional cues or triggers for a behaviour play a more important role changing behaviour. For instance-
 - ✓ Prime Minister's call for a voluntary "Janata Curfew", exhorting citizens to show that they care for themselves and their loved ones, and to display their patriotism was an emotive appeal blending fear, patriotism and gratitude.
- **Health is paramount:** In any crises, it is an asset if the populations are healthy, both mentally and physically. In this context, governments, organizations and people should make an effort to adopt healthy behaviours like personal hygiene, encouraging physical fitness and provide due recognition to mental well-being.
- **If 'Work from home' works, others may work too:** The pandemic forced both employers and employees to try work from home and break the inertia around the concept. It highlighted the benefits that it can give to both workers and business.
 - It brings a question, that there are several economic and social concepts that have not been tried on a large scale like '4-day week', '24X7 economies' among others. This forced experiment indicates that **more regular experimentation should be done** with lifestyles and the **current or default may not be the best.**
- **Importance of community:** Response to public health emergencies requires changes in regular behavioural patterns. Encouraging these changes requires coordination and an understanding of the culture and communities affected. The local community are in the best position to effectively enforce an appropriate response.
- **Environmental Sustainability is not difficult:** The period of lockdown saw decreased carbon footprint at unprecedented level. This highlights that nature has huge potential for self-replenishment if conducive conditions are provided. Thus, the experience and learnings from the pandemic can alter the way we approach environmental sustainability making it more easier and effective.

Conclusion: Never let a crisis go to waste

Studies suggest that almost 15% of the people during the pandemic will suffer from post-traumatic stress but at the same time it highlights that almost **50% will experience some kind of post-traumatic growth** in the form of heightened sense of personal growth or higher sense of gratitude for the post COVID-19 world. Thus, it is possible for us as a society to grow through the pandemic with a clear understanding of goals and having the right motivations for the future.



10. SCHEMES IN NEWS

10.1. SAANSAD ADARSH GRAM YOJANA (SAGY)

Why in News?

Saansad Adarsh Gram Yojana (SAGY) completed six years.

Objective	Salient Features
<ul style="list-style-type: none"> • To trigger processes which lead to holistic development of the identified Gram Panchayats. • To substantially improve the standard of living and quality of life of all sections of the population through: <ul style="list-style-type: none"> ○ Improved basic amenities ○ Higher productivity ○ Enhanced human development ○ Better livelihood opportunities ○ Reduced disparities ○ Access to rights and entitlements ○ Wider social mobilization ○ Enriched social capital • To generate models of local level development and effective local governance which can motivate and inspire neighbouring Gram Panchayats to learn and adapt • To nurture the identified Adarsh Grams as schools of local development to train other Gram Panchayats. 	<ul style="list-style-type: none"> • It aimed to develop three Adarsh Grams by March 2019, of which one was to be achieved by 2016. Thereafter, five such Adarsh Grams (one per year) will be selected and developed by 2024. • Identification of villages: MPs can select any gram panchayat, other than their own village or that of their spouse, to be developed as an Adarsh Gram. The village must have a population of 3000-5000 people if it is located in the plains, or 1000-3000 people if located in hilly areas. <ul style="list-style-type: none"> ○ Lok Sabha MPs can choose a village from their constituency, and Rajya Sabha MPs from the state from which they are elected. ○ Nominated members can choose a village from any district of the country. ○ MPs which represent urban constituencies can identify a village from a neighbouring rural constituency. • Funding: No new funds have been allocated for the Yojana. Resources may be raised through: <ul style="list-style-type: none"> ○ Funds from existing schemes, such as Pradhan Mantri Gram Sadak Yojana, MGNREGA, etc. ○ Member of Parliament Local Area Development Scheme (MPLADS), ○ Gram panchayat's own revenue, ○ Central and State Finance Commission Grants, and ○ Corporate Social Responsibility funds. • Planning and Implementation: Gram Panchayats adopted under SAGY prepare Village Development Plans (VDP) through a participatory process under the guidance of Members of Parliament. The VDP includes prioritised time-bound activities to achieve holistic progress of the village. <ul style="list-style-type: none"> ○ District Collector will be the nodal officer for implementing the SAGY. He will conduct a monthly review meeting with representatives of the participating Line Departments. Members of Parliament concerned will chair the review meetings. ○ Ministry of Rural Development will be nodal Ministry coordinating and monitoring the Scheme closely to ensure its efficient implementation. ○ To encourage better performance, four kinds of awards have been instituted: Best Adarsh Grams, Best Charge Officers, Best District Collectors, Best Practices. • The 'Model Village' concept aims to address various challenges (such as health, education, livelihood etc.) comprehensively with adequate focus on the special needs of every village. This earlier was being done only through separate flagship schemes targeting different sectors such as health (NRHM), education (SSA), and livelihood (MNREGA, NRLM).

11. NEWS IN SHORT

11.1. RIGHT TO PROTEST IN PUBLIC SPACE

- Supreme Court gave a verdict on **Right to protest vs. Right to mobility** on a plea against **blocking of road in Shaheen Bagh in Delhi over Citizenship Amendment Act protests**.
- **Highlights of the verdict**
 - Judgment upheld the right to peaceful protest against a law but made it unequivocally clear that **public ways and public spaces cannot be occupied, and that too indefinitely**.
 - In democracy, rights of free speech and peaceful protest were indeed “treasured”, but were **subject to reasonable restrictions**.
 - **Fundamental rights do not live in isolation**. The right of the protester has to be balanced with the right of the commuter.
 - It noted **Social media channels are often fraught with danger** and can lead to the creation of highly polarised environments.
- **Article 19(1)(a)** of the constitution guarantees **fundamental right of freedom of speech and expression**; **Article 19(1)(b)** assures citizens the right to assemble peaceably and without arms.
 - **Article 19(2) and 19(3) imposes reasonable restrictions** on above rights on various grounds including sovereignty and integrity of India, security of State, public order, etc.

11.2. GLOBAL NGO AMNESTY INTERNATIONAL (AI) SHUTS OPERATIONS IN INDIA

- Recently, government froze all the bank accounts of AI India **over alleged charges of money laundering and suspected violations of Foreign Contribution Regulation Act (FCRA)**.
 - Consequently, Amnesty International India has to suspend its operations in India.
- In India, **Ministry of Home Affairs (MHA) monitors foreign funds donated to NGOs and organisations through the FCRA**.
 - FCRA was brought into force **to regulate flow of foreign funds to voluntary organisations** with the objective of preventing any possible diversion of such funds to anti-national activities.
 - **AI and its three subsidiaries are not registered under FCRA**, a pre-requisite for civil society groups, associations and NGOs to receive foreign donations.
- There are certain **NGOs which are registered under Foreign Exchange Management Act (FEMA) and**

are regulated by the Finance Ministry and continue to disburse foreign funds to various associations.

- In the past, several representations were made **to transfer the power to MHA for effective monitoring**.
- Recently government also brought **Foreign Contribution (Regulation) Amendment Bill (FCRA), 2020** to amend FCRA, 2010 to enhance transparency and accountability in the receipt and utilisation of foreign contributions.

11.3. CENTRE AMENDS LAND LAWS IN JAMMU & KASHMIR (J&K)

- Government **omitted “permanent resident of the state”** from Section 17 of Jammu and Kashmir Development Act, which deals with disposal of land in UT.
 - Before Article 370 and Article 35-A were repealed in August 2019, **non-residents could not buy any immovable property in J&K**.
- Under new laws, **government can also transfer land in favour of a person or an institution** for promotion of healthcare or educational institutions.
 - Amendments, however, **do not allow transfer of agricultural land to non-agriculturists**.

11.4. PUBLIC AFFAIRS INDEX (PAI), 2020

- PAI is a data driven platform to **rank States/UTs on governance**. PAI has been developed by the **not-for-profit Public Affairs Centre (PAC)**.
 - Governance performance is **analysed in the context of sustainable development** defined by three pillars of equity, growth and sustainability.
- **In large states category:** Kerala, Tamil Nadu, Andhra Pradesh are top three. Uttar Pradesh, Odisha and Bihar were at the bottom.
- **In small State category:** Goa ranked first and Manipur ranked last.
- Chandigarh emerged at the top in the category of UTs.

11.5. INDIA JOINS UK-LED CAMPAIGN AGAINST ENCRYPTED SOCIAL MEDIA MESSAGES

- Recently, India backed a UK-led campaign **against end-to-end encryption (E2EE) of messages by social media giants**.

- The **UK, India, US, Canada, Australia, New Zealand and Japan** in a **joint international statement** addressed to all tech companies to ensure they do not blind themselves to illegal activity on their platforms, including child abuse images.
 - The seven signatories emphasized that E2EE severely **undermines the ability of companies to take action against illegal activity on their own platforms** such as online child sexual abuse, grooming and terrorist content.
 - The tech companies should also **ensure that there is no reduction in user safety when designing their encrypted services** and it is to enable law enforcement access to content where it is necessary and work with governments to facilitate this.
- It marks an expansion of the so-called "**Five Eyes**" **group of nations, a global alliance on intelligence issues, to include India and Japan.**
 - 'Five Eyes' is an alliance comprising of **Australia, Canada, New Zealand, UK and the US.**
 - It is an international agreement under which these five countries **cooperates and share signals intelligence, military intelligence, and human intelligence.**
- E2EE is a **method of secure communication** that prevents third-parties from accessing data while it's transferred from one end system or device to another.
 - In E2EE, the **data is encrypted on the sender's system or device** and only the recipient is able to decrypt it. Nobody in between, be they an Internet service provider, application service provider or hacker, can read it or tamper with it.
 - People prefer end-to-end encrypted messaging on various apps because it **keeps their messages safe from hackers, criminals, and foreign interference.**

11.6. 10TH INDIA-UK ECONOMIC & FINANCIAL DIALOGUE (EFD)

- India and UK signed **agreements on financial services, infrastructure and sustainable finance** at the 10th EFD.
 - Agreements **will help boost jobs and investments in both countries** while building economic ties.
- Since the first EFD between the two countries in 2007, **bilateral trade has more than doubled to nearly £24 billion in 2019.**
 - India is now the UK's second largest source of investment with 120 new projects in 2019-20.

11.7. MINISTRY OF LABOUR REVISES BASE YEAR OF THE CONSUMER PRICE INDEX (CPI)-INDUSTRIAL WORKERS (IW)

- Base year will be **revised to 2016 from 2001, giving more weight to non-food items** (spending on housing, education and health) in inflation index calculation.
 - **Spending on housing has been increased to 17% weight** as against 15.2% earlier.
 - Spending on heads like **education, health and transport has been increased to 30% weight** as against 23% earlier.
 - **Weight of food and beverage consumption of workers has been reduced to 39%** as against 46.2% earlier.
- Revision in base year **will reflect changing consumption pattern of the working class population** over the years and it will now be revised every five years.
 - CPI (IW) is **used for tracking inflation and as a benchmark for calculating dearness allowance** for government employees, dearness relief for pensioners and wages for industrial workers.
- **At the national level, there are four CPI numbers:** CPI (IW), CPI for Agricultural Labourers (AL), CPI for Rural Labourers (RL) and CPI for Urban Non-Manual Employees (UNME).
 - While the **first three are managed by Labour Bureau** (Ministry of Labour), the **fourth one is released by Central Statistical Organisation** (Ministry of Statistics and Programme Implementation).

- **CPI** is comprehensive measure used for estimation of price changes in a basket of goods and services representative of consumption expenditure in an economy.
 - Based on the suggestions of the Urjit Patel committee, **monetary policy in India is to be formulated in reference to the CPI** (instead of WPI) based inflation.
- **CPI(IW)** covers industrial workers employed in any one of the seven sectors namely factories, mines, plantation, railways, public motor transport undertakings, electricity generation and distribution establishments as well as ports and docks.

11.8. MINISTRY FOR SOCIAL JUSTICE AND EMPOWERMENT (MOSJE) LAUNCHES AMBEDKAR SOCIAL INNOVATION & INCUBATION MISSION (ASIIM)

- **ASIIM is launched under Venture Capital Fund for SCs (VCF-SC)** to promote innovation and enterprise

among Scheduled Castes (SC) students studying in higher educational institutions (HEI).

- VCF-SC (by MoSJE) is for **developing entrepreneurship amongst SC and Divyang youth**, by providing concessional finance to entities of SC entrepreneurs, and enabling them to become Job-Givers.
- Under ASIIM, **1,000 initiatives of SC youth would be identified** and funded up to Rs. 30 lakhs in three year as equity.
- **Objectives of ASIIM are:**
 - **Promoting entrepreneurship** among SC Youth with special preference to Divyangs.
 - **Supporting (1,000) innovative ideas till 2024** through Technology Business Incubators (TBIs)
 - ✓ TBIs are set up by Department of Science and Technology in HEI.
 - **Support, promote, hand-hold the start-up ideas** till they reach commercial stage by providing liberal equity support;
 - Incentivise students with innovative mind-set to take to **entrepreneurship with confidence.**
- **Other initiatives for economic development of SCs**
 - **Stand-up India** scheme for financing SC/Stand/or women entrepreneurs.
 - **National Scheduled Castes Finance & Development Corporation** to financing income generating activities of SCs.
 - **Credit Enhancement Guarantee Scheme for SCs** to support entrepreneurs.

11.9. UNION EDUCATION MINISTER LAUNCHES KAPILA CAMPAIGN AND INSTITUTION INNOVATION COUNCIL 3.0

Kalam Program for IP Literacy and Awareness (KAPILA) Campaign,

- Under KAPILA campaign, **students in higher educational institutions (HEIs)** will get information about the **correct system of application process for patenting their invention.**
 - Overall filing of applications for various Intellectual property Rights (IPRs) in 2018-19 has shown an increase of 15% over previous year.
- IP refers to **creations of the mind, such as inventions; literary and artistic works; designs; and symbols, names and images used in commerce.**
 - **Various types of IPs are:** Copyright, Patents, Trademarks, Industrial designs, Geographical indications, Trade secrets.

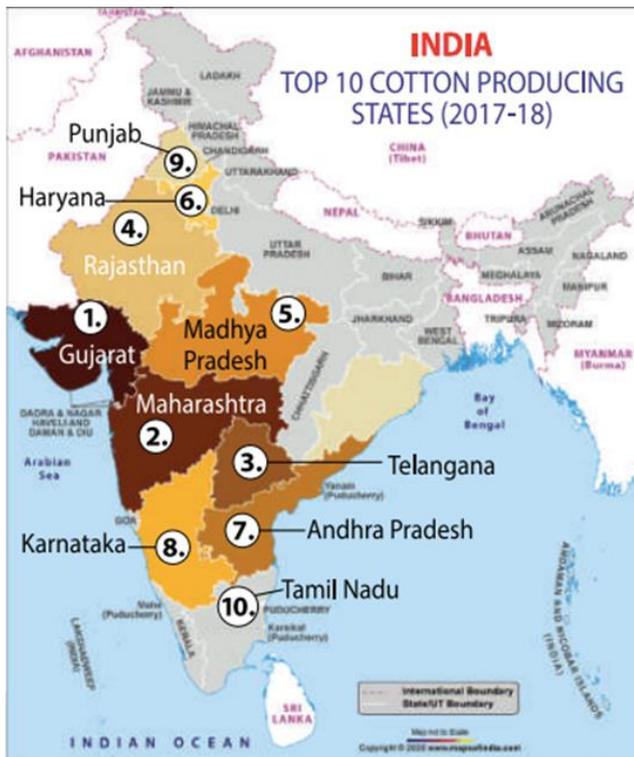
Institution Innovation Council (IIC 3.0)

- IIC was established by Ministry of Education in 2018.

- **Major focus of IIC** is to create a vibrant local innovation ecosystem, Start-up supporting Mechanism in HEIs, prepare institute for Atal Ranking of Institutions on Innovation Achievements Framework etc.
- So far, **IICs have been established in about 1700 higher educational institutions.** IIC will be established in 5000 higher educational institutions under IIC 3.0.

11.10. INDIA GETS ITS FIRST EVER BRAND & LOGO FOR ITS COTTON ON 2ND WORLD COTTON DAY (7TH OCTOBER)

- India's premium Cotton **would be known as Kasturi Cotton in the world cotton Trade.**
 - Kasturi Cotton brand will represent Whiteness, Brightness, Softness, Purity, Luster, Uniqueness and Indianness.
- **India grows all four species of cultivated cotton** *Gossypium arboreum* and *herbaceum* (Asian cotton), *G. barbadense* (Egyptian cotton) and *G. hirsutum* (American Upland cotton).
- Cotton is a **Kharif crop and grows well in black cotton soil** (high water retention capacity) of deccan plateau.
 - Annual temperature requirement is **20-28 degree Celsius** and rainfall of **55-110 cm** is ideal. It requires **minimum 180 frost-free days.**
- India is the **2nd largest cotton producer** (produces 23% of the world cotton) and **the largest consumer** of cotton in the world.
 - India produces about **51% of the total organic cotton production** of the world.
 - It provides livelihood to about **6 million cotton farmers.**
- Cotton Corporation of India (CCI) **has developed a mobile app, Cott-Ally** for providing information regarding weather condition, Crop situation and best farm practices.
 - CCI, under Ministry of Textiles, is a Public Sector Undertaking. Its **major role is to undertake price support operation for cotton.**



11.11. PANNA TIGER RESERVE INCLUDED IN WORLD NETWORK OF BIOSPHERE RESERVES (WNBR) UNDER MAB PROGRAMME

- Biosphere reserves are sites established by countries and recognized under **UNESCO's Man and the Biosphere (MAB) Programme** to promote sustainable development based on local community efforts and sound science.
 - World Network of Biosphere Reserves (WNBR) is a **unique global network of biosphere reserves (BR)** explicitly linking sustainable development and biodiversity conservation.
 - Presently, there are **18 notified biosphere reserves in India of which 12 are recognised** under MAB Program
- **Biosphere Reserves** integrate three main "functions":
 - **Conservation of biodiversity** and cultural diversity
 - **Economic development** that is socio-culturally and environmentally sustainable
 - Logistic support, underpinning **development through research, monitoring, education and training**
- These three functions are pursued through the **Biosphere Reserves' three main zones**
 - **Core Areas:** It comprises a strictly protected zone that contributes to the conservation of landscapes, ecosystems, species and genetic variation.

- **Buffer Zones:** It surrounds or adjoins the core area(s), and is used for activities compatible with sound ecological practices that can reinforce scientific research, monitoring, training and education.
- **Transition Area:** It is an area where community's foster socio-culturally and ecologically sustainable economic and human activities.

About Panna Tiger Reserve

- **Location:** It is situated in the Vindhyas nearer to the confluence of the Deccan Peninsula, Upper Gangetic Plain and Semi-Arid Gujarat Rajputana reflecting the influence of three bio-geographic regions.
- Panna National Park was formed in 1981. In 2011 Panna was notified a biosphere reserve by the Union ministry of environment and forests.
 - ✓ Panna is the **third Biosphere Reserve included in WNBR from Madhya Pradesh after Pachmarhi and Amarkantak.**

11.12. ASAN CONSERVATION RESERVE (ACR) BECOMES UTTARAKHAND'S FIRST RAMSAR SITE

- **ACR is declared as a site of international importance.** With this, the number of Ramsar sites in India goes up to 38, the highest in South Asia.
 - ACR is **located on the banks of Yamuna river near Dehradun district** in Garhwal region of Uttarakhand.
 - ACR hosts many species like white-rumped vulture, ruddy shelduck, red-headed vulture etc.
 - **Importance of Wetlands:** Provides freshwater supply, food and building materials, and biodiversity, to flood control, groundwater recharge, and climate change mitigation.
- **About Ramsar convention, 1971**
 - It is an **intergovernmental international treaty**, signed in Ramsar (Iran) to preserve ecological character of selected wetlands across the globe.
 - **It aims to develop a global network of wetlands for conservation of biological diversity** and for sustaining human life.
 - The wetlands declared as Ramsar sites are **protected under strict guidelines of the convention.**
 - Ramsar Sites are included in **List of Wetlands of International Importance.**
 - ✓ The inclusion of a wetland in the List embodies the government's commitment to take steps necessary to ensure that its ecological character is maintained.

- **Nine criteria for identifying Wetlands of International Importance**

- Contains a representative, rare, or unique example of a natural or near-natural wetland type found within the appropriate biogeographic region.
- Supports vulnerable, endangered, or critically endangered species or threatened ecological communities.
- Supports populations of plant and/or animal species important for maintaining the biological diversity of a particular biogeographic region.
- Supports plant and/or animal species at a critical stage in their life cycles, or provides refuge during adverse conditions.
- Regularly supports 20,000 or more waterbirds.
- Supports 1% of the individuals in a population of one species or subspecies of waterbird.
- Supports a significant proportion of indigenous fish subspecies, species or families, life-history stages, species interactions and/or populations that are representative of wetland benefits and/or values and thereby contributes to global biological diversity.
- Important source of food for fishes, spawning ground, nursery and/or migration path on which fish stocks, either within the wetland or elsewhere, depend. Specific criteria based on other taxa
- Supports 1% of the individuals in a population of one species or subspecies of wetland-dependent nonavian animal species.

11.13. THIRD ASSEMBLY OF THE INTERNATIONAL SOLAR ALLIANCE (ISA) HELD VIRTUALLY

Key highlights:

- **India and France re-elected as President and Co-President** of the ISA for a term of two years.
- Four Vice-Presidents were chosen to represent the **four regions of ISA** i.e. Asia Pacific Region; Africa Region; Europe and others Region; and Latin America & Caribbean Region.
- **Initiatives launched:**
 - **Coalition for Sustainable Climate Action (CSCA)** for institutionalizing ISA's engagement with the private and public corporate sector.
 - **Seventh Programme on Solarizing Heating and Cooling systems**, which significantly draws its energy from traditional power sources.
 - For the first time, following **Solar awards** were conferred.

- ✓ **Visvesvaraya award**, recognizes the countries with maximum floating solar capacity in each of the four regions of ISA.
- ✓ **Kalpana Chawla award** recognises outstanding contribution of scientists and engineers working in the field of solar energy.
- ✓ **Diwakar award** recognizes organisations & institutions that have been working for the benefit of differently-abled people and have maximised the use of solar energy.
- In the wake of the global pandemic, ISA set up ISA CARES, an initiative dedicated **to deployment of solar energy in healthcare sector** in LDC/SIDS ISA Member countries.

PLACE IN THE SUN		International Solar Alliance takes shape
WHAT IS ISA? 70-nations bloc between Tropics of Cancer & Capricorn Most countries in Africa or South America	HEADQUARTERS 200-acre NISE campus in Gurugram	WHAT ISA WILL DO <ul style="list-style-type: none"> • Promote solar technologies • Ensure solar light for households by 2022 • Mechanisms to reduce cost of capital • e-portal to share experiences & practices
• Recently, ISA Framework Agreement allowed all the Member States of United Nations to join ISA, including those beyond the Tropics.		

11.14. CABINET RATIFIED BAN OF PERSISTENT ORGANIC POLLUTANTS (POP'S) LISTED UNDER STOCKHOLM CONVENTION

- **7 POP's** are Chlordecone, Hexabromobiphenyl, Hexabromodiphenylether and Heptabromodiphenylether (Commercial octa-BDE), Tetrabromodiphenylether and Pentabromodiphenylether (Commercial penta-BDE), Pentachlorobenzene, Hexabromocyclododecane and Hexachlorobutadiene.
- The ratification process **would enable India to access Global Environment Facility (GEF) financial resources** in updating National Implementation Plan (NIP).
 - GEF, established in Rio Earth Summit 1992, **funds developing countries and countries with economies in transition** to meet the objectives of the international environmental conventions and agreements.
 - NIP is to meet the country's obligations under the Stockholm Convention.
- Stockholm Convention is a **global treaty to protect human health and environment from POPs**.
 - It is **legally binding**.
- India **ratified the Stockholm Convention in 2006**.

- Ministry of Environment had notified the '**Regulation of POP Rules**' in 2018, under the Environment (Protection) Act, 1986.
- POPs are chemical substances that **persist in environment for a long period, bio-accumulate in living organisms, adversely affect human health/environment** and have the property of long-range environmental transport.
 - **Exposure to POPs can lead to** cancer, damage to central and peripheral nervous systems, diseases of immune system, reproductive disorders and child development.

11.15. BIOPESTICIDES

- Recently, Institute of Pesticide Formulation Technology (IPFT) under the Ministry of Chemicals and Fertilizers has developed **Bio-Pesticide Formulation for insect control in seed spice crops**.
 - The formulation has good shelf life, safe to user & environment and it may be effectively used for **controlling different agricultural insects** especially in seed spice crops.
 - It is based on **entomo-pathogenic fungus Verticillium lecanii**.
 - The seed spices crops suffer major losses due to various insects. For controlling the insects, large amounts of synthetic chemical pesticides are used in these crops, resulting in higher levels of pesticide residues in seed spices which **leads to risks for human health and environment**.
- Biopesticides are the **formulated form of active ingredients based on microorganisms** such as bacteria, viruses, fungi, nematodes or naturally-occurring substances, including plant extracts and semiochemicals (e.g. insect pheromones).
 - The bio-pesticides may be used as a **safer alternative to chemical pesticides** to minimize pesticide residue problem.
 - It may be used as **key input for crop protection from insects pest** in organic agriculture and Integrated Pest Management.

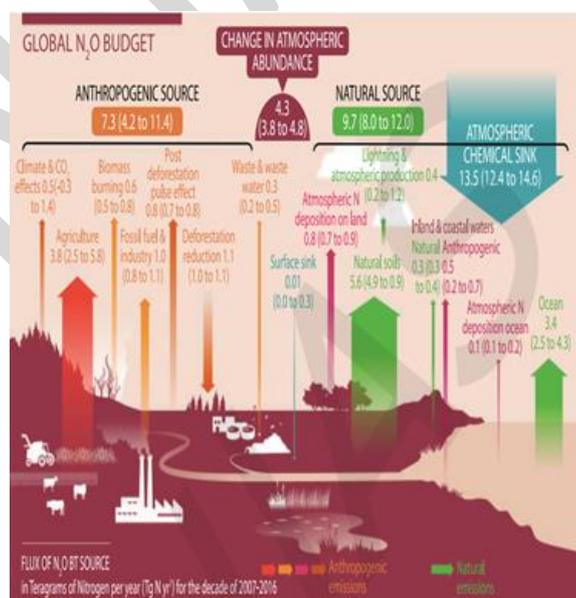
11.16. GLOBAL NITROUS OXIDE (N₂O) BUDGET RELEASED BY GLOBAL CARBON PROJECT (GCP)

- **GCP, jointly with the International Nitrogen Initiative (INI), have created a new activity** and international consortium of scientists to establish and improve global N₂O budget, trends and variability.
 - N₂O is a **long-lived greenhouse gas (GHG) and an ozone-depleting substance**, with an atmospheric lifetime of 116±9 years.

- It is the **third most important GHG**, leading human-driven climate change, after carbon dioxide and methane.

Key highlights

- N₂O is **accumulating at an increasing rate**, with 10% greater global emissions in 2016 than in 1980s.
 - **Dominant cause of increase is use of Nitrogen fertilizers** in agriculture, including organic fertilizers from manure produced by livestock.
- **Agricultural production** contributed almost **70% to global anthropogenic N₂O emission (2007-2016)**.
 - Emissions from agriculture are **dominated by East Asia, Europe, South Asia, and North America**, which are associated largely with use of synthetic nitrogen fertilizer.
- **Highest growth rates in emissions come from emerging economies**, particularly Brazil, China, and India, where there have been large increases in crop production and livestock numbers.
- **Emissions from Europe have decreased** over the past two decades through policies to limit excess of fertilizer applications.



11.17. MULTIDISCIPLINARY DRIFTING OBSERVATORY FOR THE STUDY OF ARCTIC CLIMATE (MOSAIC)

- Recently, the **largest Arctic science expedition MOSAiC expedition** in history came to a close, as the German research vessel Polarstern sailed into the port at Bremerhaven, Germany.
- MOSAiC is the largest first of its kind **one-year long polar expedition into the central Arctic exploring the Arctic climate system** that lasted from 2019 to 2020.

- The objective of the expedition is to **measure the atmospheric, geophysical, oceanographic and all other possible variables in the Arctic**, and use it to more accurately forecast the changes in our weather systems due to climate change in Arctic.
- The project was **designed by the International Arctic Science Committee (IASC)**.
 - IASC is a **non-governmental, international scientific organization** which aims to promote and support leading-edge interdisciplinary research in order to foster a greater scientific understanding of the Arctic region and its role in the Earth system.
- The mission involved collaborations from hundreds of scientists at research institutions around the world.
- It was led by the **Alfred Wegener Institute in Germany** with scientists from 19 countries.
- Dr. Vishnu Nandan, a remote sensing scientist from India, was also a participant of this historical Arctic expedition. However, India is not a member of the expedition. Dr. Nandan participated as a research fellow of the University of Manitoba, Canada.

11.18. FISHING CAT

- The Chilika Development Authority (CDA) designated the **Fishing Cat as ambassador of Chilika Lake, Odisha** in a step towards conservation of the feline species.
- **Fishing Cat** is an adept swimmer and is known to even dive to catch fish.
 - It is **nocturnal** and apart from fish also preys on frogs, crustaceans, snakes, birds and scavenges on carcasses of larger animals.
 - **Wetlands are the favourite habitats** of the fishing cat and are **mainly found in the mangrove forests of the Sundarbans**, around Chilika Lake, foothills of the Himalayas along Ganga and Brahmaputra river valleys and in the Western Ghats.
- **Conservation status**
 - **IUCN status:** Vulnerable
 - **Convention on International Trade in Endangered Species (CITES)** lists the fishing cat on **Appendix II**.
 - **Schedule I of the Indian Wildlife (Protection) Act, 1972** and thereby protected from hunting.
- **Threats faced by Fishing cat includes** Habitat loss due to development activities in wetlands; Intensive aquaculture; hunting for meat and skin etc.
- In **2012**, the West Bengal government officially declared the **Fishing Cat as the State Animal**.

About Chilika Lake

- It is a **brackish water lake and a shallow lagoon** with estuarine character in **Odisha**.
- It is the **largest brackish water lagoon in Asia and India's oldest Ramsar Site**.
- It is the **largest wintering ground for migratory waterfowl** found anywhere on the Indian sub-continent.
- **The Nalabana Island within the Chilka lake** is notified as a Bird Sanctuary under Wildlife (Protection) Act, 1972.
- It was included in the Montreux Record (Threatened list) in 1993 under Ramsar Convention but due to successful restoration of the lake ecosystem by Chilika Development Authority it was **removed from the Montreux Record in 2002 (first site from Asia)**.

11.19. NATIONAL BUTTERFLY STATUS

- A citizen poll has identified **Krishna Peacock** (*Papilio krishna*), **Indian Jezebel** (*Delias eucharis*), and **Orange Oakleaf** (*Kallima inachus*) as contender for National Butterfly.
- Krishna Peacock is generally found in large numbers in the Himalayas.
- Indian Jezebel is known to **deter its predators with its flashy wing colours**. It can be spotted in gardens and other lightly wooded areas.
- Orange Oakleaf is known as **'dead leaf'** for its **ability to camouflage as a dry autumn leaf**. It is found in the moist forests of northern Western Ghats, central, northern and north-eastern parts.

11.20. RARE BRAHMA KAMAL FLOWER

- **Recently**, the rare Brahma Kamal bloomed in **Uttarakhand's Chamoli district**.
- Brahma Kamal is called **the King of Himalayan Flowers**, and is also **the state flower of Uttarakhand**.
- It is the only **flower known to bloom after sunset** and blooms just once a year.
 - Brahma Kamal is **named after God Brahma** and is known to bring good luck and prosperity.
 - It finds **mention in the scriptures** and is offered in many holy shrines, including Kedarnath, Badrinath and Tunganath.
- It takes about two hours to bloom to about **eight inches in diameter**.
- It is scientifically known as **Saussurea Obvallata**, belongs to the thistle tribe of flowering plants.
 - It is highly valued in **Tibetan medicine and Ayurveda for its healing properties**.
 - It is extensively used by the local population to **treat cuts and bruises**.
- Its natural habitat has been facing shrinkage over the last few decades due to **Global warming, Human Encroachment & Over-harvesting**.

11.21. NEW SPECIES OF PLANTS DISCOVERED IN WESTERN GHATS

- Scientists from Agharkar Research Institute (ARI), Pune (autonomous institute of the Department of Science & Technology), have recently found **2 new species of pipeworts in Maharashtra and Karnataka**.
- The one reported from Sindhudurg district of Maharashtra was named as ERIOCAULON PARVICEPHALUM (**due to its minute inflorescence size**), and the other reported from Kumta, Karnataka was named as ERIOCAULON KARAAVALENSE (**named after KARAAVALI = Coastal Karnataka region**).
- **Pipeworts (Eriocaulon)** is a plant group which completes its life cycle within a small period during monsoon.
 - Most of these are **reported from the Western Ghats and Eastern Himalayas**, and around **70% of them are endemic to the country**.
 - They have **myriad medicinal properties** such as - anti-cancerous, analgesic, anti-inflammatory and astringent properties.
 - They are also **used against liver diseases and anti-bacterial purposes**.

11.22. ANTI-RADIATION MISSILE-RUDRAM

- It is **first indigenous anti-radiation missile** of the country developed by the **Defence Research and Development Organisation (DRDO)**.
- **Anti-radiation missiles are designed** to detect, track and neutralise the adversary's radar, communication assets and other radio frequency sources, which are generally part of their air defence systems.
- It can be launched from a **height ranging from 500 metres to 15 km**.
- With this, IAF now has the capability to **perform SEAD (Suppression of Enemy Air Defence)** operations deep into enemy territory to destroy enemy air defence setup.

11.23. SLINEX-20

- It is an annual **bilateral maritime exercise between Indian Navy and Sri Lanka Navy**.
- SLINEX-20 aims to enhance inter-operability, improve mutual understanding and exchange **best practices and procedures for multi-faceted maritime operations** between both navies.
- **Other military exercises between India and Sri Lanka:** Ex MITRA SHAKTI, IN-SLN SF Ex, SAMVEDNA.

11.24. INS KAVARATTI

- INS Kavaratti has been commissioned in the Indian Navy.
- It is the **last of the 4 indigenously built Anti-Submarine Warfare (ASW) stealth corvettes** built under Project 28 (Kamorta class) by Garden Reach Shipbuilders & Engineers (GRSE), Kolkata.
 - It joins 3 other ships of the same class namely - **INS Kamorta, INS Kadmatt and INS Kiltan**.
- It is **named after the capital of the Lakshadweep group of islands** and has been constructed using **high-grade DMR 249A steel** produced in India.
- It has enhanced stealth features which makes it **less susceptible to detection** by enemy.
 - It has **90% indigenous content** with the state-of-the-art equipment and systems to fight in **Nuclear, Biological and Chemical (NBC) warfare conditions**.

11.25. NAG MISSILE

- The final user trial of Nag was **successfully carried at the Pokhran range** in Rajasthan.
- It is India's third-generation, **anti-tank guided missile**.
- **Features:** All-weather, fire-and-forget, lock-on after launch, with an operational range of 500 m to 20 km. It has a single-shot hit probability of 90%.

11.26. INDIA COVID-19 EMERGENCY RESPONSE AND HEALTH SYSTEM STRENGTHENING PROJECT (ESMF)

- It is project financed by World Bank (WB) and Asian Infrastructure Investment Bank (AIIB) to help India's healthcare system tackle the Covid-19 pandemic.
- **Both WB and AIIB will give about \$1.5 billion in the next 4 years** to finance a range of activities such as - construction, upgrading, expansion or rehabilitation of healthcare and/or waste management facilities, procurement of goods such as medical equipment, Personal Protection Equipment (PPE), chemical/biological reagent and other medical supplies.
- It **involves multiple components** that aim to "support the acceleration and scale up of the Govt of India response" to the Covid 19.
- **Key implementing entities** for the project: Ministry of Health & Family Welfare, National Centre for Disease Control, Indian Council of Medical Research (ICMR) and Ministry of Railways.

11.27. ANTISERA

- Biological E, in collaboration with the Indian Council of Medical Research, has developed highly purified antisera that **can be used in prevention and treatment of COVID-19**.
- Antisera are **blood sera that contain antibodies against a specific viral toxin or antigen**. Therapy works **similar to plasma therapy**, but **here plasma is obtained from horses** that have recovered from viral infection.
 - Plasma therapy is not so reliable because **profile of antibodies, their efficacy and concentration keep varying from patient to patient**.

11.28. NEW RESEARCH SHEDS LIGHT ON DECLINING STAR FORMATION IN MILKY WAY GALAXY

- **Galaxies are made up mostly of gas and stars**, with gas being converted into stars during the life of a galaxy. Understanding galaxies thus requires determining **how the amounts of both gas and stars change with time**.
 - **Star formation activity in galaxies** peaked about 8-10 billion years ago and **has been declining steadily till today**.
 - **Cause of this decline was unknown** as there had been no information regarding amount of atomic hydrogen gas (primary fuel for star formation) in galaxies in these early times.
- Now, Astronomers from **National Centre for Radio Astrophysics (NCRA)** and Raman Research Institute **have measured atomic hydrogen gas content of star forming galaxies**.
 - **Given the intense star formation in these early galaxies**, their atomic gas would be consumed by star formation in just one or two billion years.
 - And, **if galaxies could not acquire more gas, their star formation activity would decline, and finally cease**.
- Measurement of atomic hydrogen content **was done by using Giant Metrewave Radio Telescope**, set up by NCRA for investigating astrophysical problems ranging from nearby Solar system to edge of observable Universe.

11.29. NEW SHEPARD

- It is reusable suborbital rocket system **designed to take astronauts and research payloads** past the Karman line (the internationally recognized boundary of space).
- It was launched by US based **space company Blue Origin**.

- It is named after astronaut Alan Shepard, the **first American to go to space**.

11.30. SHYAMJI KRISHNA VARMA

- Prime Minister paid tribute to **Indian nationalist leader and freedom struggle leader Shyamji Krishna Varma** on his 160th birth anniversary.
- He was born in **1857 in Gujarat** and completed his education in India, before moving on to teach Sanskrit at the Oxford University.
- **In 1905 he was barred from practising law by Honourable Society of the Inner Temple** (one of the four professional associations for barristers and judges in London) following charges of sedition for writing against the colonial government.
- He was also the **first President of Bombay Arya Samaj** and an admirer of Dayanand Saraswati.
- He **inspired revolutionaries such as Veer Savarkar and Lala Hardayal** who were also members of India House.
- In the face of criticism by the British, Varma, **shifted his base from England to Paris** and continued his movement. After the outbreak of the Second World War he moved to Geneva in Switzerland and spent the rest of his life there and died in 1930.
- **Organizations founded**
 - **Indian Home Rule Society (IHRS)** in London in 1905 that to promote the cause of self-rule in British India.
 - **India House** for student residence in London between 1905 and 1910 to promote nationalist views among Indian students in Britain.
 - **Indian Sociologist** a monthly journal to outlet nationalist ideas.
- He started a **scholarship scheme to bring radical youth from India** and get them educated abroad to propagate Indian freedom struggle.

11.31. ZOZILA TUNNEL

- Work has begun on Zozila Tunnel. **It will provide all-weather connectivity between Srinagar valley and Leh (Ladakh plateau) on NH-1**.
- It will provide all-weather safe connectivity between Srinagar, Dras, Kargil and Leh regions (important from the strategic point of view).
- Project will make the travel on Srinagar-Kargil-Leh Section of NH-1 **free from avalanches and would reduce the travel time from more than 3 hours to 15 minutes**.

11.32. TECH FOR TRIBALS

- It is an **initiative of TRIFED supported by Ministry of MSME**.

- It aims at **capacity building and imparting entrepreneurship skills to tribal forest produce gatherers** enrolled under the Pradhan Mantri VanDhan Yojana (PMVDY).
- The trainees will undergo a 30 days program over six weeks.
- It will **ensure higher success rate of the Tribal Entrepreneurs** by enabling and empowering them to run their business with marketable products with quality certifications.

11.33. NATIONAL PRODUCTIVITY COUNCIL (NPC)

- NPC has been **granted accreditation conforming to ISO 17020:2012** by National Accreditation Board for Certification Body, Quality Council of India for undertaking inspection and audit work in the area of **Food Safety Audit and Scientific Storage of Agricultural Products**.
 - It will enable NPC to undertake **Independent Third-Party Audits** of Food Business Operators.
- NPC is **autonomous organization** under **Department for Promotion of Industry and Internal Trade** (Ministry of Commerce & Industry) to promote productivity culture in India.
- It is **tri-partite non-profit organization** with equal representation from government, employers and workers' organizations

11.34. INDIA ENERGY MODELLING FORUM

- Recently, NITI Aayog announced governing structure for India Energy Modelling Forum (IEMF).

About IEMF

- IEMF was **jointly launched by NITI Aayog and United States Agency for International Development (USAID)** under the US-India Strategic Energy Partnership.
- IEMF is **part of the Sustainable Growth pillar of US-India Strategic Energy Partnership (SEP)**.
 - SEP organizes interagency engagement on both sides across four primary pillars of cooperation: Power and Energy Efficiency; Oil and Gas; Renewable Energy; and Sustainable Growth.
- IEMF aims to engage Indian researchers, knowledge partners, think tanks and national and international government agencies and departments **for modelling and long-term energy planning**.
- **IEMF seeks to:**
 - Provide a platform to examine important energy and environmental related issues.

- Inform decision-making process to the Indian government.
- Improve cooperation between modelling teams, government, and knowledge partners, funders.
- Facilitate exchange of ideas, ensure production of high-quality studies.
- Identify knowledge gaps at different levels and across different areas.
- Build capacity of Indian institutions.
- The governing structure of IEMF will consist of an inter-ministerial and a **steering committee. It will comprise representatives of the:** Government, Industry Associations, Academia, Policy research organizations, think tanks and funding agencies.

11.35. NEW NORMS FOR AWARDING BODIES, ASSESSMENT AGENCIES

- **Recently, Ministry of Skill Development and Entrepreneurship (MSDE) and National Council of Vocational Education and Training (NCVET)** unveil the new guidelines and operation manuals for Awarding Bodies and Assessment Agencies for further strengthening the skilling ecosystem.
- The guidelines **aim at establishing quality, improved outcomes and standardizing the processes under Skill India Mission**.
- The norms have been developed for the **recognition and regulation of awarding bodies and assessment agencies**, as these two entities are key elements in the skilling ecosystem.
- **About MSDE**
 - Ministry aims to **bridge the gap between demand and supply of skilled manpower** to build new skills and innovation not only for existing jobs but also for jobs that are to be created.
 - Under its flagship programme Pradhan Mantri Kaushal Vikas Yojana (PMKVY) 2016-2020, the Ministry has trained more than 92 lakh candidates so far.
- **About NCVET**
 - It was notified by the **Ministry of Skill Development and Entrepreneurship** in 2018.
 - It subsumed the existing skill regulatory bodies- National Skill Development Agency (NSDA) & National Council for Vocational Training (NCVT) and will act as an overarching skills regulator.
 - It **regulates the functioning of entities engaged in vocational education and training**, both long and short term, and establishes minimum standards for the functioning of such entities.

11.36. 100 YEARS OF JAMIA MILLIA ISLAMIA

- Recently, Jamia Millia Islamia (JMI) completed 100 years
- It was established as the **Independent National University** at Aligarh in 1920 during the Khilafat and Non-Cooperation Movement in response to Gandhiji's call to boycott Government - supported educational institutions.
- It was established by **Shaikhul Hind Maulana Mahmud Hasan, Maulana Mohammed Ali, Hakim Ajmal Khan, Dr. Mukhtar Ahmad Ansari, Abdul Majeed Khwaja and Dr. Zakir Husain.**
- It aimed to have an indigenous education free from British influence.
- It was renamed **Jamia Millia Islamia (JMI)**, and shifted from Aligarh to **New Delhi**.
- **Jauhar** became its first vice-chancellor and **Hakim Ajmal Khan** was its first chancellor.
- The first batch graduated in **1921** comprised 21 students - all male.
- In 1938, Jamia established the **Ustadon ka Madarsa**, which came to be called the Teachers' Training College at Karol Bagh, and the **Idara-e-Talim-o-Taraqqi** that would provide evening classes for adult education.

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