

VISION IAS

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CURRENT AFFAIRS

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1. POLITY AND CONSTITUTION

1.1. ARTICLE 370

Why in news?

August marks one year since the abrogation of Articles 370 and 35A and the administrative reorganization of Jammu and Kashmir.

Background

- In 1948, Indian Government signed Treaty of Accession with ruler of Kashmir to provide Kashmir protection from Pakistan's aggression. Post signing of Treaty of Accession, Article 370 was inserted in the **part XXI of the Constitution** that proclaimed it to be "**Temporary, Transitional and Special Provision**" and provided for a special status to Jammu and Kashmir (J&K).
- As per the Article, the centre needed the state government's concurrence to apply laws — **except in defence, foreign affairs, finance and communications.**
- Also, the state's residents lived under a separate set of laws, **such as those related to citizenship, ownership of property, separate penal code and fundamental rights**, as compared to other Indian citizens.
 - **Article 35A** of the Indian Constitution gave powers to the Jammu and Kashmir Assembly to define permanent residents of the state, their special rights and privileges.
- In August 2019, President of India promulgated **Constitution (Application to Jammu and Kashmir) Order, 2019** which stated that provisions of the Indian Constitution were applicable in the State.
- This effectively meant that all the provisions that formed the basis of a separate Constitution for Jammu and Kashmir stand abrogated. With this, Article 35A was scrapped automatically.
- Also **Jammu and Kashmir Reorganization Act, 2019** was passed by the Parliament, which re-organized J&K into two Union Territories (UTs)-
 - **J&K division** with a legislative assembly
 - UT of **Ladakh** without a legislative assembly.

Petitions related to Article 370 revocation in Supreme Court (SC)

- **Challenge to abrogation of Article 370**
 - Petitions challenging the abrogation of Article 370 of the Constitution, are pending in the SC.
 - Any significant hearing is yet to take place.
- **Petitions against lockdown and for restoring 4G services:**
 - Petitions were filed in the Supreme Court against restrictions imposed on internet services and communication lines.
 - SC declared access to internet a fundamental right and asked the government to review such restrictions and look into restoration of 4G services.

Analyzing developments since abrogation of Article 370

Developments	Analysis
<p>Measures were taken by the Central government for transformational development in the J&K region:</p> <ul style="list-style-type: none"> • In January 2020, Central government granted a package of Rs 80,000 crore for development works in J&K. • The Road Transport & Highways ministry is currently engaged in completing a series of projects in Kashmir region, including -Srinagar-Jammu-Lakhanpur highway; the Qazigund-Banihal tunnel and Srinagar ring road. 	<ul style="list-style-type: none"> • Development in the region has the potential to increase investments in the region, boost industrial growth, create job opportunities, decrease militancy and strengthen its economy. <ul style="list-style-type: none"> ○ As per Ministry of Home Affairs (MHA) data, as many as 168 Memorandum of Understandings (MoU) worth ₹13,600 crores have already been signed for investments in J&K. ○ According to a report by MHA, terror-related activities have reduced by around 36% in the valley after the abrogation of Article 370. ○ Also there has been a 40% decrease of involvement of local youth in terrorist organizations.
<p>Legislative changes: Out of 354 State laws in the erstwhile Jammu and Kashmir, 164</p>	<p>Several Critical legislations passed by the Government of India are now applicable in J&K:</p>

<p>laws have been repealed, 138 laws modified while 170 central laws have been made applicable.</p>	<ul style="list-style-type: none"> • Laws for transparency and accountability in governance: E.g. Right to Information Act, 2005 and Whistle Blowers Protection Act, 2014. • Laws for protection of marginalized sections: E.g. Scheduled Caste and the Scheduled Tribes (Prevention of Atrocities) Act, 1954, National Commission for Safai Karamcharis Act, 1993, and the Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forests Rights) Act, 2007. • Laws granting educational rights: E.g. Right of Children to Free and Compulsory Education Act, 2009
<p>Government introduced an array of Central schemes in the region</p>	<ul style="list-style-type: none"> • Citizens residing in J&K can now reap benefits of central schemes such as Ayushman Bharat scheme, Atal Pension Yojana, PM-KISAN, Pradhan Mantri Jan Dhan Yojana and Stand-Up India. • Under the National Saffron Mission, more than 3,500 hectares of land in J&K is being rejuvenated for saffron cultivation. • In a bid to further boost tourism and connectivity, 11 airports in J&K and two in Ladakh are being considered under the UDAN scheme. • The health sector has been transformed with the opening of two AIIMS Hospitals and five new medical colleges. • There has been a 262% increase in minority scholarships.
<p>Administrative changes in J&K and Ladakh after them being declared as a Union Territories</p>	<ul style="list-style-type: none"> • Structural reforms have been carried out in various departments where overlapping functions have been merged or downsized. <ul style="list-style-type: none"> ○ In the Finance and Planning department, this has stopped duality of funding sources, which has resulted in financial discipline and control over expenditure. • The government employees in J&K now receive benefits under the 7th Central Pay Commission. • Over 10,000 vacancies in J&K at all the levels have been identified for recruitment in various government departments. • However, the UT of Ladakh still faces serious constraints of manpower. Vacancies in government departments, especially at higher levels, are adversely affecting the delivery of public services.
<p>Dilution in Domicile laws after Article 35A was repealed:</p> <ul style="list-style-type: none"> • Parliament has redefined the domiciles in J&K as those who have been a resident for a period of 15 years in the UT or have studied for a period of seven years and appeared in Class X/XII exam in a registered educational institute in J&K. • The domiciles now also include children of central government or central government aided organizations, PSU who have served in J&K for a period of 10 years. 	<ul style="list-style-type: none"> • Intended benefits of the amendment in domicile law: <ul style="list-style-type: none"> ○ Can act as catalyst for industries and MNCs: The ease in procurement of land will draw more investors in the state boosting the economic structure of J&K. ○ Central government employees posted in J&K can now reap same benefits as in the rest of the country: like preferences of local domicile for admission in professional colleges and benefits like scholarships for their children. It will encourage Central Government employees for prolonged tenures, thereby recuperating the administrative structure of J&K. ○ Integration of social fabric under the new domicile law: by granting domicile status to marginalized sections such as West Pakistani Refugees, members of Valmiki community settled in various parts of J&K, other migrants

<ul style="list-style-type: none"> Over 4 lakh people in Jammu and Kashmir have been issued new domicile certificates. 	<p>etc. This will enable them enjoy diverse employment opportunities in the state administration.</p> <ul style="list-style-type: none"> Changes in domicile laws have also been perceived by certain sections as a means to change the demographic makeup of the region.
<p>Several measure were taken to contain violent protests and maintain peace in the J&K region:</p> <ul style="list-style-type: none"> Extended Curfews were placed in certain regions Continued detention of political prisoners Telephone lines, mobile communication and internet services were initially stopped and restrictions were imposed on media and transport 4G Internet connectivity is yet to be restored in J&K 	<ul style="list-style-type: none"> Impact of strict security measures like lockdown and communication and internet blockade: <ul style="list-style-type: none"> Job loss: There have been 144,500 job losses in Kashmir's tourism and handicrafts sector – mostly dependent on earnings from tourists – since August, 2019, as per an estimate of the Kashmir Chamber of Commerce and Industry. On students: Closure of schools and colleges and non availability of high speed internet has impacted education of students. On Health sector: Doctors were unable to keep up with the latest developments in healthcare, especially during the COVID-19 pandemic. Prolonged detention of politicians not only undermines their human rights and individual liberty but also threatens democratic structure. <ul style="list-style-type: none"> However, the state administration has already released nearly 300 out of 444 persons detained under the Public Safety Act (PSA).
<p>Diplomatic and international developments:</p> <ul style="list-style-type: none"> Pakistan portrayed the changes in Kashmir as a “humanitarian crisis” that threatened the stability of the region. As a permanent member of the UN Security Council and an ally of Pakistan, China requested a “closed consultation” on Kashmir. Countries such as Turkey and Malaysia criticised the restrictions imposed in the J&K valley in the UN General Assembly. Concerns regarding human rights violations in Kashmir were also raised by some sections in the US, the UK and other European countries. 	<ul style="list-style-type: none"> While Pakistan tried to internationalize the Kashmir issue through the UNSC consultation, the meeting was closed, informal and did not yield any outcome. <ul style="list-style-type: none"> Almost all countries underlined that J&K was bilateral issue & did not deserve time and attention of Council. India's narrative on Kashmir has been somewhat affected in global media since earlier Pakistan was considered as the primary aggressor in Kashmir and the root of most problems in the region. As a result of proactive diplomatic engagements by Indian government on the matter, most countries view abrogation of Article 370 as an internal matter and seek a bilateral settlement of the Kashmir issue between India and Pakistan.

Conclusion

Revocation of the special status granted to the state of Jammu & Kashmir under Article 370 of the Indian Constitution has unfolded an ambitious roadmap of peace and progress ushering in a new era of inclusive development and transparent governance in the entire region.

Bifurcation of the state into two union territories has also given the local communities a greater sense of participation in public discourse. It is discernible with the youth in the valley joining security forces and civil services and excelling in the field of education and sports.

Development of decentralized local bodies, confidence building measures among youth and restoration of internet services in a phased manner can further aid in participatory socio-economic development of the region.

1.2. CONTEMPT OF COURT

Why in news?

Recently, Supreme Court has held the lawyer-activist Prashant Bhushan as guilty of contempt of court in the context of the comment made on social media, targeting the current Chief Justice of India.

What is contempt of court?

- Contempt refers to the **offence of showing disrespect to the dignity or authority of a court.**
- The **rationale** for this provision is that **courts must be protected** from tendentious attacks that lower its authority, defame its public image, and make the public lose faith in its impartiality.
 - Also, Article 261 says, Full faith and credit shall be given throughout the territory of India to public acts, records and judicial proceedings of the Union and of every State.
- **Constitutional Provisions in relation to contempt:**
 - Contempt of court is one of the **reasonable restrictions on freedom of speech and expression under Article 19(2).**
 - **Article 129 of the Constitution** conferred on the Supreme Court the power to punish contempt of itself. **Article 215 conferred a corresponding power on the High Courts.**
 - ✓ Every High Court shall have and exercise the same jurisdiction, powers and authority, in accordance with the same procedure and practice, in respect of contempt of courts subordinate to it as it has and exercises in respect of contempt of itself.
 - **Article 142(2)** says that when any law is made by the Parliament on the provisions mentioned in clause 1 of this Article, the **Supreme Court has all the power to make an order for securing any person's attendance, production of any documents or has the power to give punishment to anyone for its contempt.**
- The **Contempt of Courts Act, 1971 defines contempt** (the expression contempt of court is **not defined in the constitution**). It divides contempt into civil and criminal contempt.
 - **Civil contempt** refers to the wilful disobedience of an order of any court.
 - **Criminal contempt** means the publication (whether by words, spoken or written, or by signs, or by visible representations, or otherwise) of any matter or the doing of any other act whatsoever which
 - ✓ **scandalises or tends to scandalise**, or lowers or tends to lower the authority of, any court and have the effect of undermining public confidence in the judiciary; or
 - ✓ **prejudices, or interferes or tends to interfere** with, the due course of any judicial proceeding; or
 - ✓ **interferes or tends to interfere with**, or obstructs or tends to obstruct, the administration of justice in any other manner.
- **Punishment:** As per Contempt of Courts Act of 1971, punishment is simple imprisonment for a term up to six months and/or a fine of up to ₹. 2,000. The accused may be discharged, or the punishment awarded may be remitted on apology being made to the satisfaction of the court.

Judicial Decisions to constitute Contempt of Court in India

- **Interference with Administration of Justice:** In **Brahma Prakash Sharma v State of Uttar Pradesh**, the Supreme Court had held that in order to constitute the offence of Contempt of Court, **it was not necessary to specifically prove that an actual interference with administration of justice has been committed.** The Court held that it was enough if a defamatory statement is likely or in any way tends to interfere with the proper administration of justice.
- **Scandalizing the Court:** In the case of **PN Dua v Shiv Shankar and others**, the Supreme Court held that mere criticism of the Court does not amount to contempt of Court.
 - In the **case of Baradanath Mishra v the Registrar of Orissa High Court** judgement, the court said that in a contempt case the court has to ask whether the vilification is of the Judge as a judge, or it is the vilification of the Judge as an individual. If the latter the Judge is left to his private remedies and the Court has no power to commit for contempt.
- **Interference with due course of Justice:** In **Pritam Lal v. High Court of M.P** the Supreme Court held that to preserve the proceedings of the Courts from interference and to keep the streams of justice pure, **it becomes the duty of the Court, to punish the contemnor in order to preserve its dignity.**

- **Period of Limitation:** No court shall initiate contempt proceedings either on its own notions or otherwise **after the expiry of one year** from the date on which contempt is alleged to have been committed.

- **Exceptions to contempt of Court:**

- **Fair and accurate reporting** of judicial proceedings.
- **Any fair criticism on the merits** of a judicial order after a case is heard and disposed of.
- If the publication or other **act is merely a defamatory attack on the judge** and is not intended to interfere with the administration of justice, it will not be taken as contempt of court.
- The Act was amended in 2006 and introduced truth as a valid defence, if it was in public interest and was invoked in a *bona fide* manner.

How do judges respond to criticisms in other democracies?

- **England:** Contempt Law in England has now been abolished after the last contempt proceedings occurred in 1930. British Judge Lord Denning had observed in 1969 that even though the **Court has the jurisdiction for contempt, they shall never use it.** This is because in contempt cases, judges do have a **certain amount of personal interest.** This is against the legal principle that one cannot be a judge in their own case.
 - Lord Denning said “We do not fear criticism, nor do we resent it.”
- **United states:** Justice Hugo Black had observed that **American Public opinion could not be silenced in the pretext of Contempt of Court.** Instead, it contended that the dignity of the Court will not be established and respected if free discussions about the Court were restricted on the pretext of preserving its duty.
- **Canada:** In Kopyto case in 1987, court observed that courts are free to be criticised unless there is any imminent danger to administration of justice.

Issues with contempt of court

- **Stifle with freedom of speech and Expression:** Law of contempt still continues to strike a **fine balance between 'the need to uphold the majesty of the courts and administration of justice' AND 'the non-comprisable fundamental right to freedom** of speech protected and guaranteed by Article 19(1)(a) of the Constitution of India', subject of course to "reasonable restrictions"

- **Vague and wide jurisdiction:** Definition of criminal contempt in India is extremely wide and can be easily invoked because of the *Suo motu* powers of the Court to initiate such proceedings.

- **Against Natural Justice:** A fundamental principle of natural justice, that no one may be the judge in his or her own case. However, the contempt law enables judiciary to sit in judgement on itself.

- In Nand Lal Balwani case, who purportedly hurled a shoe towards the court, the same bench convicted Nand Lal Balwani for contempt and sentenced him to four months imprisonment.

- **Limited right to appeal:** As per the present statutory scheme, a person convicted for the criminal contempt has the right to file a review petition against the judgment and that plea is decided in chambers by the bench usually without hearing the contemnor.

- **Impact Executive functioning:** Court Orders can be sometimes be used to blackmail executive. Fear of contempt of court make misallocation of resources of administration like using of force, logistics etc

- **International practice:** The offence of “scandalising the court” continues in India even though it was abolished as an offence in US, Canada and England.

Contempt of court: A censor on free speech

- **Democratic reform process:** Constructive difference of opinion and suggestions are very important for a democracy to grow. If freedom to express one’s opinion is suppressed then there are chances that any constructive debate will diminish. This will be very disastrous for our democracy.
- **Right to differ:** Individual opinion does not mean that an institution is criticised. The constitution has itself allowed difference of opinion to prevail. By censoring freedom of speech, the judiciary seems to indicate that its institution is infallible and they are superior.
- **Self-protective nature:** Contempt of court has been used as a tool to protect own image of a judge. Sometimes, personal difference is considered as rejection of the institution of judiciary. Since the judges are the same ones that are accused of, conflict of interest cannot be ruled out.

Way forward

- Under the Indian **Contempt of Courts laws power is discretionary** in nature. To check its abusive use **it should be made more determinate and principled.**

- The words 'any other manner' mentioned in section 2 (c) (iii) of the contempt of courts Act, 1971, which is the source of discretionary powers of the courts in criminal contempt of court should either be deleted or some specific guidelines are needed to check this limitless power.
- Judiciary should **balance two conflicting principles**, i.e. freedom of expression, and fair and fearless justice.
- Power to punish for **contempt of court must always be exercised cautiously**, wisely and with circumspection. **There should be an independent panel** to check the misuse of Contempt of Court power
- **Element of 'mens rea' may be incorporated** in the act.
 - 'Mens rea' is a legal concept denoting criminal intent or evil mind. Establishing the 'mens rea' of an offender is usually necessary to prove guilt in a criminal trial.
- Proceedings may be **according to the Indian evidence act and Criminal procedure code**.
- **Punishment for contempt is inadequate** and is not a sufficient deterrent especially with regard to fine it should be sufficiently enhanced to deal with interference in administration of justice.

Should the provision be retained or not?

In 2018, the Department of Justice asked Law Commission of India to examine Contempt of Courts Act, 1971. **Law Commission** has submitted a report stating that there is no requirement to amend the Act, for the reasons stated below:

- **High number of contempt cases:** High civil and criminal contempt pending in various High Courts and the Supreme Court **justify the continuing relevance** of the Act. Commission stated that amending the definition of contempt may reduce the overall impact of the law and lessen the respect that people have for courts and their authority and functioning.
- **Source of contempt power:** Courts derive their contempt powers from the Constitution. The Act only outlines the procedure in relation to investigation and punishment for contempt. Therefore, deletion of the offence from the Act will not impact the inherent constitutional powers of the superior courts to punish anyone for its contempt.
- **Impact on subordinate courts:** The Constitution allows superior courts to punish for their contempt. The Act additionally allows the High Court to punish for contempt of subordinate courts. The Commission argued that if the definition of contempt is narrowed, subordinate courts will suffer as there will be no remedy to address cases of their contempt.
- **International comparison: Commission compared** the offence of 'scandalising the Court' in Britain and India Commission noted that the United Kingdom had abolished the offence in its contempt laws. However, it says abolishing the offence in India would leave a legislative gap. It warranted a continuation of the offence in India as
 - India continues to have a high number of criminal contempt cases, while the last offence of Scandalising the Court in the UK was in 1931.
 - Offence of Scandalising the Court continues to be punishable in UK under other laws.
- **Adequate safeguards into the Act to protect against its misuse.** Provisions in 1971 act suggest that the courts will not prosecute all cases of contempt. The Commission further noted that the Act had withstood judicial scrutiny, and therefore, there was no reason to amend it.
- **Restrict court power:** 1971 Act was a good influence as laying down procedure, restricts the vast authority of the courts in wielding contempt powers. Amending the definition of contempt will lead to ambiguity.

Conclusion

It is **necessary to distinguish between constructive criticism and malicious statement** and the test for contempt needs to be evaluated. It should be whether the contemptuous remarks in question actually obstruct the Court from functioning and **should not be allowed to be used as a means to quash reasonable dissent**.

1.3. SUB-CATEGORIZATION OF OTHER BACKWARD CLASSES (OBCS)

Why in News?

Recently, the Union Cabinet approved the term extension of the commission to examine the issue of sub-categorization of Other Backward Classes (OBCs).

More on News

- The Union Government constituted a four-member commission **headed by Justice G. Rohini in 2017 under Article 340** with an aim to **improve the equitability of sharing of benefits among OBCs**.

Who are OBCs?

- OBC is a collective term used by the Government to classify castes which are **educationally or socially disadvantaged**.
- OBCs are a **vastly heterogeneous group**. There are various jaatis or sub-castes which vary significantly in the societal and economic status.
 - For instance, OBCs include land-owning communities in both north and south India alongside poorer sections of the society living on subsistence labour.

- The **article 340** of the Indian Constitution lays down conditions for the appointment of a Commission to investigate the conditions of backward classes.
- **Mandate of the Commission:**
 - Examining the **extent of inequitable distribution** of benefits of reservation (I.e. 27 percent reservation in jobs and education) among the castes or communities with reference to the central OBC list.
 - Work out the mechanism, criteria, norms and parameters in a **scientific approach for sub-categorization of OBCs**.

Background: The Mandal Commission

- In 1990, the then Union government announced that Other Backward Classes (OBCs) would get **27 percent reservation in jobs in central government services and public sector units (under Article 16(4) of the Constitution)**.
- The decision was based on **Mandal Commission Report (1980)**, which was set up in 1979 and chaired by B.P. Mandal. The mandate of the Mandal Commission was to identify **socially or educationally backward classes** to address caste discrimination.
- The recommendation for OBC reservations in central government institutions was implemented in 1992 while the **education quota came into force in 2006 (under Article 15(4) of the Constitution)**.
- To ensure that benefits of the recommendations of the Mandal Commission percolated down to the most backward communities, the **creamy layer criteria** was invoked by Supreme Court in the ruling called the '**Indira Sawhney Judgment**' (1992).
 - A household with an **annual income of Rs 8 lakh or above** is classified as belonging to the 'creamy layer' among OBCs and hence is not eligible for reservations.

Idea of sub-categorization

- The First Backward Class Commission report of 1955 had proposed sub-categorization of OBCs into **backward and extremely backward communities**.
- In the Mandal Commission report of 1979, a **dissent note** by member L R Naik proposed sub-categorization in **intermediate and depressed backward classes**.
- In 2015, the **NCBC had proposed** that OBCs be divided into the following three categories:
 - a. **Extremely Backward Classes (EBC-Group A)** facing social, educational and economic backwardness even within the OBCs, consisting of aboriginal tribes, nomadic and semi-nomadic tribes who have been carrying on with their traditional occupations;
 - b. **More Backward Classes (MBC-Group B)** consisting of vocational groups carrying on with their traditional occupations; and
 - c. **Backward Classes (BC-Group C)** comprising of those comparatively more forward.
- According to the NCBC, **11 states** (Andhra Pradesh, Telangana, Puducherry, Karnataka, Haryana, Jharkhand, West Bengal, Bihar, Maharashtra, Rajasthan and Tamil Nadu) have **subcategorized OBC for reservations** in state-government-owned institutions.

What is the need for sub-categorization and tentative recommendations of the committee?

- **Benefits of reservations have reached only limited sections:** The Rohini commission highlighted that from about 2,633 central list OBCs, about 1900 castes have not proportionately benefitted.
 - **Half of these 1900 castes have not availed the benefits of reservation at all**, and the other half include those that have availed less than 3 per cent share in the OBC quota.
 - The commission highlighted that **25% of benefits from OBC reservations** have been availed by only **10 sub-castes**.
 - According to the committee, the communities that have got almost no benefits of reservations include profession-based castes such as **Kalaigars**, a community that traditionally polishes tins; and **Sikligars and Saranias**, communities that traditionally sharpen knives; **apart from several other marginalised groups**.
- **Benefits are tilted towards economically stronger sub-sections:** Research suggests that the Mandal Commission recommendations helped the economically better positioned OBCs more than the most backward castes.

Recommendations in this regard

- **A fixed quota of between 8 to 10 percent** within the 27 percent OBC quota for almost 1900 castes from among the central list of 2,633 OBCs.
 - These 1900 castes constitute about 2-3 per cent of the total seats and won't affect other groups significantly but may create substantial opportunities for them.

- Sub-categorization to **be based on relative benefits among the OBCs and not on social backwardness**, this may help deprived sections to be able to avail of their fair share of the quota.

What are the challenges in its implementation?

- **Political sensitivity of the issue:** The move to sub-categorize OBCs **may create agitation in some sections of OBCs** as the benefits get redistributed.
 - OBC reservations have caused political turmoil in the past and its possible effect on the **upcoming Bihar assembly elections** cannot be denied.
- **Use of older and unreliable estimates:** The commission has based its recommendations on quota within quota on the **population figures from the 1931 Census**, and not on the more recent Socio-Economic Caste Census (SECC) 2011.
 - Since the implementation of the Mandal Commission report, over **500 new castes have been added to the Central list of OBCs**. The 1931 Census does not have the population for these new additions.
 - The 1931 census also **does not have population of princely states** that were **not ruled by the British**.
- **Information unavailability on social and educational status:** There is lack availability of information regarding the social and educational backwardness of various castes.
- It could be a very **difficult exercise statistically** due to following reasons:
 - **Large number of castes:** According to NCBC, there are 2514 OBC castes in the country and scientific sub-categorization by analyzing each caste could be challenging.
 - **Variation from state to state:** There are significant variations within castes from state to state which implies data collection needs to be larger and more robust.

What more can be done to ensure equitability of benefits?

- **Revising the creamy layer ceiling:** National Commission for Backward Classes (NCBC) demanded that the income ceiling be further revised as the current limit is not in up to date with the associated purchasing power.
- **Strengthening NCBC:** Expanding the powers and domain of NCBC as envisaged by providing the Commission with a constitutional status.

National Commission for Backward Classes (NCBC)

- Until now, under **Article 338**, it was the National Commission of Scheduled Castes (NCSC) that addressed the grievances of the OBCs.
- The present NCBC (set up under the National Commission for Backward Classes Act, 1993 as Article 338b of the Constitution) can only **recommend inclusion and exclusion of castes** from the OBC list and the level of income that cuts off the “creamy layer” among these castes from the benefits of reservation.
- The **123rd Constitutional Amendment Bill (102nd Constitutional Amendment Act)** aims to provide constitutional status to NCBC that will give it the powers akin to the Commission of Socially and Economically Backward Classes (SCBCs). The functions performed by NCSC will now get transferred to the new panel.
- The amendment also brings about **changes in Article 342a and Article 366**.
 - Article 342a relates to the Central list of Socially and Educationally backward classes.
 - Article 366 contains the definitions used in the Constitution unless specifically stated otherwise.
- Under the Act, the **NCBC will comprise of five members** appointed by the President. Their tenure and conditions of service will also be decided by the President.
- Key functions performed by the panel:
 - In the case of **grievances** related to non-implementation of reservations, economic grievances, violence, etc. people will be able to move the Commission.
 - Act gives the proposed Commission the power to **inquire into complaints of deprivation of rights and safeguards**.
 - It also gives it the **powers of a civil court** trying a suit and allows it to summon anyone, require documents to be produced, and receive evidence on affidavit.

Related News

Sub-categorisation of Scheduled Castes and Scheduled Tribes

- Recently, a five-judge Constitution Bench of the Supreme Court reopened the legal debate on the issue.
- **Background:**
 - In the **E V Chinnaiah case in 2005**, the court had held that special protection of SCs is based on the premise that “**all Scheduled Castes can and must collectively enjoy the benefits of reservation** regardless of inter-se inequality” because the protection is not based on educational, economic or other such factors but solely on those who **suffered untouchability**.

- The Bench **ruled in favour of giving preferential treatment to certain Scheduled Castes** over others to ensure equal representation of all Scheduled Castes but it referred the issue to a larger Bench to decide as E V Chinnaiah case was also taken by a five judge bench.
- **Need for sub-categorization:** States have argued that among the Scheduled Castes, there are some that remain grossly under-represented despite reservation in comparison to other Scheduled Castes.
 - For example, in Andhra Pradesh, Punjab, Tamil Nadu and Bihar, special quotas were introduced for the most vulnerable Dalits. In 2007, Bihar set up the Mahadalit Commission to identify the castes within SCs that were left behind.
- **Possible methods to introduce sub-categorization:**
- **Creamy layer:** The concept of a “creamy layer” within SCs was upheld by the court in a 2018 judgment in Jarnail Singh v Lachhmi Narain Gupta.
- **Preferential Treatment:** Punjab’s law applies a creamy layer for SCs, STs in reverse — by giving preference to Balmikis and Mazhabi Sikhs.

1.4. DEMAND FOR SIXTH SCHEDULE STATUS

Why in news?

Arunachal Pradesh assembly unanimously passed a resolution for the entire state to be included in the Sixth Schedule of the Constitution.

Background

- State government had demanded to put State under the Sixth Schedule to **protect and safeguard the customary rights of tribal people** regarding ownership and transfer of land and forest products of the state.
 - In 2004 and 2007, State assembly had passed two resolutions for creation of Mon autonomous region (MAR) and Patkai autonomous council (PAC) under the provisions of the 6th Schedule of the Constitution.
 - ✓ It was then forwarded to the Centre for approval which is still pending.
- Earlier, state government had also **demanding to amend the Constitution and waive Article 371(H) and put Arunachal Pradesh under the provisions of Article 371(A) and 371(G)** in line with Nagaland and Mizoram.
 - Article 371(A) and 371(G) provides special protection with respect to religious and social practices, customary laws and rights to ownership and transfer of land to the tribal people of the state of Nagaland and Mizoram respectively
 - Under Article 371 (H), the state governor has special responsibility with respect to law and order in the state and in the discharge of his functions in relation thereto.
- Though, at present Arunachal Pradesh has **Bengal Eastern Frontier Regulation (BEFR) Act of 1873** which prohibits all citizens of India from entering Arunachal without a valid **Inner Line Permit**.

Inner Line Permit

- Inner Line Permit is a document that **allows an Indian citizen to visit or stay in a state that is protected under the ILP system**.
- It is British era regulation under the **Bengal Eastern Frontier Regulation Act, 1873**, for Crown’s own commercial interests.
- Arunachal Pradesh, Nagaland and Mizoram are protected by the Inner Line, and lately Manipur was added.

Permit for foreigners

- **Every foreigner, except a citizen of Bhutan**, who desires to enter and stay in a Protected or Restricted Area, is **required to obtain a special permit called Protected Area Permit/Restricted Area Permit** from a competent authority.

Article 371

Article 371 to 371-J of Constitution contains special provisions for eleven states to meet the aspirations, to protect the cultural and economic interests of the tribal and local people of the states or to deal with the disturbed law and order condition in some parts of the states.

Sixth schedule

- Sixth schedule to the constitution provides power to tribal communities to administer the tribal areas in Assam, Meghalaya, Tripura and Mizoram under the provision of article 244(2) and 275(1) of the constitution

Areas in Northeast that are registered as autonomous districts:

- **Assam:** Bodoland Territorial Council, Karbi Anglong Autonomous Council and Dima Hasao Autonomous District Council.
- **Meghalaya:** Garo Hills Autonomous District Council, Jaintia Hills Autonomous District Council and Khasi Hills Autonomous District Council.
- **Tripura:** Tripura Tribal Areas Autonomous District Council.
- **Mizoram:** Chakma Autonomous District Council, Lai Autonomous District Council, Mara Autonomous District Council.

- **Article 244 of provides special system of administration for certain areas** designated as ‘scheduled areas’ and ‘tribal areas.
- **Article 275 makes provisions for statutory grants** to be charged on Consolidated Fund of India. Such grants also include specific grants for promoting the welfare of the scheduled tribes or for raising the level of administration of the scheduled areas in a state.

Advantages of inclusion in 6th schedule

Sixth schedule benefits in democratic devolution of powers, preserve and promote the distinct culture of the region, protect agrarian rights including rights on land and enhance transfer of funds for speedy development through following features:

- **Autonomous District Councils (ADC):** ADCs are bodies representing a district to which the Constitution has given varying degrees of autonomy within the state legislature.
 - Each **autonomous district council** consisting of 30 members, of whom four are nominated by governor and the remaining 26 are elected. All of them remain in power for a term of five years.
- **Autonomous region:** If there are different Scheduled Tribes in an autonomous district, the Governor may, by public notification, divide the area or areas inhabited by them into autonomous regions.
- **Legislative Power:** ADCs are empowered to make legislative laws with due approval from the governor.
- **Limitation to power of Parliamentary or state legislature over autonomous regions:** Acts passed by Parliament and state legislatures may or may not be levied in these regions unless the President and the governor gives her or his approval.
- **Judicial powers:** councils can constitute village courts within their jurisdiction to hear trial of cases involving the tribes. Governors of states that fall under the Sixth Schedule specifies the jurisdiction of high courts for each of these cases.
- **Regulatory power:** The district council can establish, construct or manage primary schools, dispensaries, markets, ferries, fisheries, roads and so on in the district. It can also make regulations for the control of money lending and trading by non-tribals. But such regulations require the assent of the governor
- **Tax revenue collection:** - The district and regional councils are empowered to assess and collect land revenue and to impose certain specified taxes. They can also receive grants-in-aids from the Consolidated Fund of India to meet the costs of schemes for development, health care, education, roads and regulatory powers to state control.

Issues with Sixth Schedule

- **No Decentralization of powers and administration:** It has not taken place in many 6th schedule areas. For example, in Bodo Territorial Area districts, there is only district council which elects few people who enjoy unbridled power.

More to know

- To include Arunachal Pradesh in Sixth schedule **requires constitutional amendment (outside Article 368).**
- National Commission for Scheduled Tribes (Art 338A) has recommended **Union Territory of Ladakh to be declared as a ‘tribal area’ under the Sixth Schedule of the Constitution.**
- **Citizenship Amendment Act (CAA) exempts** the sixth schedule areas and Inner Line permit areas.

Thus, units should be created that will represent people at all strata.

- **Legislative power of state over councils:** The laws made by the councils require the assent of governor. This process has no time limits which delayed the legislations for years. Also, Para 12 (A) of the Sixth Schedule clearly states that, whenever there is a conflict of interest between the District Councils and the state legislature, the latter would prevail.
- **Conflict in discretionary powers of governor:** There are differing views over the discretionary power of governors with respect to the administration of these areas. Thus, conflict is there on requirement of consultation of governor with council of ministers.
- **Lack of codification of customary law:** Customary laws need to be codified and brought into practical use to ensure protection of tribal cultural identity.
- **Lack of skilled professionals:** Almost all Councils do not have access to planning professionals which results in ad-hoc conceiving of development projects without proper technical and financial consideration.
- **Financial dependency:** Autonomous councils are dependent on their respective state governments for funds in addition to the occasional special package from the Centre. There is no State Finance Commission for recommending ways to devolve funds to District Councils and Regional Councils.

- **Lack of development:** Although 6th schedule was enacted to give more benefit to the people and bring fast paced development, yet due to no panchayats or parishad at people level, they have no power and money which non-6th schedule areas have for implementation of various schemes like MGNREGA etc.
- **Corruption:** Financial mismanagement and rampant corruption have often been detected in the functioning of different Councils under the Sixth Schedule provision.

Way Forward

- **Creation of elected village councils** in all areas and ensuring accountability of Village Councils to Gram Sabha.
- Ensure **regular election** conducted by the State Election Commission.
- Recognize Gram Sabha under law and specify its powers & functions.
- Ensure **women and other ethnic minorities** are not excluded from representation in council.
- **Bring transparency** in planning, implementation and monitoring of developmental programmes.

Fifth schedule of the constitution

- Fifth Schedule of the Constitution deals with the administration and control of scheduled areas and scheduled tribes in any state except the four states of Assam, Meghalaya, Tripura and Mizoram.
 - Ten states have Fifth Schedule Areas: Andhra Pradesh, Telangana, Chhattisgarh, Gujarat, Himachal Pradesh, Jharkhand, Madhya Pradesh, Maharashtra, Odisha and Rajasthan.
- **President is empowered to declare** an area to be a scheduled area and **governor is empowered to direct** for application of Parliament or state legislature acts with specified modifications and exceptions.
- Normal administrative machinery operating in a state is not extended to the fifth schedule areas.
- **Panchayats (Extension to Scheduled Areas) Act, 1996 (PESA)** was enacted to extend Panchayat Raj provisions in fifth schedule areas with exceptions and modifications.

How are 6th schedule areas different from 5th schedule?

- It provides **greater autonomy**.
 - Greater powers are devolved and power to make legislation on numerous subjects. In fifth schedule, tribal advisory council have only advisory powers to the state government and that too only on the matters referred to the council by governor. In cases related to transfer of land, it could exercise power on its own.
- The council in 5th schedule is **creation of state legislature while in 6th schedule it is the product of constitution**.
- It has financial power to prepare budget for themselves unlike council in 5th areas.
- They also **receive funds from consolidated fund of India** to finance schemes for development, health, education, roads.

1.5. NATIONAL RECRUITMENT AGENCY

Why in news?

The Union Cabinet recently approved setting up of National Recruitment Agency, an independent body to conduct examination for government jobs.

More on news

- The National Recruitment Agency (NRA) was first proposed by the government in the union budget 2020.
- NRA will conduct the Common Eligibility Test (CET) for recruitment to **non-gazetted posts in government and public sector banks**.
- Government has **sanctioned a sum of INR 1500 crore** for the NRA which will be undertaken over a period of three years.

Key Features

- NRA will be a Society registered under the **Societies Registration Act**, headed by a Chairman of the rank of the Secretary to the Government of India.
- It will have **representatives of** Ministry of Railways, Ministry of Finance, Staff Selection Commission (SSC), Railway Recruitment Board (RRB) & Institute of Banking Personnel Selection (IBPS).
- CET will be held **twice a year** with different CETs for **graduate level, 12th Pass level and 10th pass level** to facilitate recruitment to vacancies at various levels.
- Initially CET will be conducted for 3 agencies only— **RRB, IBPS and SSC**, but later it will be extended to all future recruitments.
- The examinations will be **conducted in 12 languages**.

- CET will be a first level test to shortlist candidates and the **score will be valid for three years.**

Advantages for students

- CET aims to **replace multiple examinations** conducted by different recruiting agencies for selection to government jobs advertised each year, with single online test. Thus, CET **removes the hassle of appearing in multiple examinations.**
- CET will be **held in 1,000 centres across India** in a bid to remove the currently prevalent urban bias. **There will be an examination centre in every district of the country.** This would **encourage more women candidates** to apply. Also, Central government will invest in the necessary infrastructure for 117 aspirational districts.
- There will be a common registration, single fee. This would **reduce financial burden** that multiple exams imposed.
- Also, planned **outreach and awareness facility** to assist candidates in rural and far flung areas to familiarize them with the online examination system will ensure more participation.

Advantages for Institutions

- It will **reduce the cost of spending on setting up an exam centre for every exam** conducted throughout the year with expected savings of Rs 600 crore.
- Currently, approximately 1.25 lakh government jobs are advertised every year for which 2.5 crore aspirants appear in various examinations. A **single eligibility test would significantly reduce the recruitment cycle** leading to efficient administration by filling vacancies quickly.
- **NRA will bring in transparency and efficiency to the recruitment cycle** by conducting single exam and taking onetime fee from candidates.

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2. INTERNATIONAL RELATIONS

2.1. INDIA-MALDIVES BILATERAL RELATIONS

Why in news?

India announced a slew of new connectivity measures for the Maldives to help the island nation deal with the economic impact of the COVID-19 pandemic.

More on news

The announced projects include:

- An **“air bubble agreement”** for travel, a direct ferry service and a submarine cable for telecom connectivity.
- US \$500 million assistance to provide **assistance for the Greater Male Connectivity project** (GMCP) to connect Male to three neighbouring islands - Villingili, Thilafushi and Gulhifahu islands. GMCP would be the largest civilian infrastructure project in Maldives.
- **US \$400 million Line of Credit (LoC)** comes in addition to a previous LoC of \$800 million that was announced in 2018.

Air bubble agreements

- “Transport Bubbles” or “Air Travel Arrangements” are **temporary arrangements between two countries** aimed at restarting commercial passenger services when regular international flights are suspended as a result of the COVID-19 pandemic.
- They are **reciprocal in nature**, meaning airlines from both countries enjoy similar benefits.
- India signed air bubble agreements with **various countries including**, Afghanistan, Canada, France, Germany, Maldives, Qatar, United Arab Emirates, United Kingdom, USA etc.

Strategic Importance of Maldives

- Maldives lies in close **proximity to the west coast of India** and its **potential to allow a third nation’s naval presence in the area** imbues it with significant strategic importance to India.
- **Maldives is situated at the hub of commercial sea-lanes** running through the Indian Ocean. More than **97% of India’s international trade by volume and 75% by value** passes through the region.
- India has the ambition to be **‘Net-security provider’** in Indian Ocean region and this calls for **close military and naval ties with Maldives** so that India protects its own interests as well of its neighbours in the Indian Ocean region.
- China is **rapidly expanding its footprint in the Maldives** though it opened an embassy in the island nation only in 2011. Thus, it **becomes geo-politically and strategically important** for India to maintain its presence in Maldives.



Overview of India-Maldives relations

- **Economic relations**
 - India and Maldives signed a **trade agreement in 1981**, now bilateral trade stands at US\$ 288.99 Million (2018) heavily in favour of India. **India is Maldives’ 4th largest trade partner.**
 - **State Bank of India** has been playing a vital role in the economic development of the Maldives since 1974 by providing **loan assistance for promotion of island resorts, export of marine products and business enterprises.**
- **Defence Cooperation**
 - Since **Operation Cactus (1988)**, in which **Indian Troops prevented a coup in Maldives**, defence and security has been a major area of cooperation between both.

- India provides the largest number of training opportunities for Maldivian National Defence Force (MNDF), **meeting around 70% of their defence training requirements.**
- Indian Army and MDNF have been conducting **Exercise Ekuverin** ('Friends' in the Maldivian language) since 2009.
- **Development Assistance**
 - Major completed development assistance by India include **Indira Gandhi Memorial Hospital**, Maldives Institute of Technical Education, Construction of National Police Academy etc.
 - **Grants for projects under High Impact Community Development Projects (HICDPs):** These include projects such as ambulances, Convention Centre, drug rehabilitation centre, police station upgradation etc.
 - India has provided large-scale assistance to Maldives in the **aftermath of the 2004 Indian Ocean tsunami** and during the **2014 Male water crisis under Operation Neer.**
- **People to people relations**
 - Indians are the **second largest expatriate community** in the Maldives. About 25% of Doctors and Teachers in Maldives are Indian nationals.
 - India offers **several scholarships to Maldivian students** such as: Indian Council for Cultural Relations scholarships, SAARC Chair Fellowship etc.
 - The **India Cultural Center (ICC)** in Male was inaugurated in 2011, which conducts courses in **yoga, classical music and dance.** Also, **Hindi commercial films**, TV serials and music are immensely popular in Maldives.
 - In 2019, Indian PM was conferred with the **Maldives' highest honour —Rule of Nishan Izzuddeen.**

High Impact Community Development Projects (HICDPs)

- HICDPs are **projects with a high-level of community impact and participation** in areas of livelihood and income generation, health, education, gender and child empowerment, sports and sustainable development.
- India has also **signed HICDPs with other nations like Afghanistan, Bhutan etc.**

Challenges in India-Maldives Relations

- The Maldives' **reliance on China** to develop more than **US\$2.5 billion in infrastructure projects** and the resulting accumulation of foreign debt— **40 per cent of the country's GDP**, is a concern for India. These raises concerns about Chinese **debt-trap diplomacy.**
- **Political instability in Maldives** as democracy is yet to take a firm footing is a cause of concern as it will have impact on India's relations. E.g. in 2012 Maldives announced **termination of a USD 511 million project** with the Indian infrastructure company GMR Infrastructure Limited.
- Its political instability has challenged **overall security of the Indian Ocean** by **increasing radicalisation — over 200 Maldivians reportedly joined the Islamic State** —and by the granting of non-transparent permissions for foreign investment.

India's outreach to Indian Ocean Nations during COVID-19 pandemic

- India launched **Mission Sagar** to provide assistance to Indian Ocean Region Nations.
- Under this **INS Kesari** was dispatched for **Maldives, Mauritius, Seychelles, Madagascar and Comoros**, to provide food items, COVID related medicines.
- It is in consonance with the Prime Ministers vision of **Security and Growth for All in the Region 'SAGAR'.**
 - SAGAR vision was **enunciated by Indian PM in 2015**, which, among others, envisages **collective action and cooperation to advance peace and security** and respond to emergencies.

Way Forward

- Both countries need to enhance **regional cooperation** by using common platforms such as the Indian Ocean RIM Association and Indian Ocean Naval Symposium.
- While the recent **'India-First Policy' of the Maldives and India's 'Neighbourhood First Policy'** are intuitively complementary, implementing these policies with strategic sensitivity is of the utmost importance.

2.2. INDIA-VIETNAM

Why in news

India and Vietnam held the 17th meeting of their bilateral Joint Commission on Trade, Economic, Scientific and Technological Cooperation.

Highlights of the meeting

- **Economic and defence engagement:** India and Vietnam agreed to add new momentum to their economic and defence engagement and explore closer cooperation in civil nuclear energy, space, marine sciences and new technologies.
 - India had earlier announced a line of credit US\$500 million for procurement of defence equipment from India.
 - Vietnam is negotiating with India for both BrahMos and Akash missiles.
- **Cooperation at Multilateral and Regional forums:** including at the UN Security Council where both are elected to be non-permanent members in 2021, based on their strong convergence of views on many global and regional issues.
 - Both agreed to step up cooperation and coordination at important regional forums under the ASEAN framework.
 - Vietnam has supported India's bid to become a permanent member of the U.N. Security Council and join the Asia-Pacific Economic Cooperation (APEC)
- **Indo-Pacific:** Both agreed to enhance their bilateral cooperation in line with India's **Indo-Pacific Oceans Initiative (IPOI)** and the **ASEAN's Outlook on Indo-Pacific** to achieve shared security, prosperity and growth for all in the region.

Indo-Pacific Oceans Initiative (IPOI)

- It is an initiative **launched** by Prime Minister **at the East Asia Summit** in Thailand in November 2019.
- The initiative is **centred around seven pillars** including maritime security; maritime ecology; maritime resources; capacity building and resource sharing; disaster risk reduction and management; science, technology, and academic cooperation; and trade connectivity and maritime transport.
 - India has called on Vietnam to partner on one of the seven pillars of the IPOI.

ASEAN's Outlook on Indo-Pacific

- ASEAN Outlook on the Indo-Pacific **envisages ASEAN Centrality as the underlying principle for promoting cooperation in the Indo-Pacific region**, with ASEAN-led mechanisms, such as the East Asia Summit (EAS), as platforms for dialogue and implementation of the Indo-Pacific cooperation, while preserving their formats.

Importance of Vietnam for India

- **Act east Policy:** Vietnam is a core partner of India in ASEAN and a critical partner in Look & Act East Policy which aims to re-invigorate its historical ties with countries in Southeast and East Asia.
- **To contain China:** Vietnam, due to its critical geostrategic location in the neighborhood of China holds the key to any future strategy to contain the hegemonic rise of China.
 - India and Vietnam have **built strategic partnerships**, including extensive cooperation on developing nuclear power, enhancing regional security and fighting terrorism, transnational crime and drug trafficking.
- **Energy Security:** Vietnam has rich hydrocarbon reserves. **Vietnam is also keen for India to expand its presence in oil and gas exploration** in the South China Sea.
- **Trade and Economy:** India is among the top ten trading partners of Vietnam. Under the Mekong Ganga Cooperation (MGC) framework, India has been taking up **Quick Impact Projects (QIPs)** having short gestation period, bringing direct benefits to communities at the grassroots level.

Challenges in India-Vietnam relations

- **South China Sea:** Vietnam is involved in a territorial dispute with China over the South China Sea (SCS). India too is engaged in oil exploration activities in the areas of the Sea that Vietnam has claimed.
 - However, Vietnam lauded India's principled position on the disputed South China Sea and also sought India's participation in the oil and gas sectors.

Evolution of India-Vietnam relationship

- The strong ties between the two, date as far back as to the cold war days of the 1950s.
- **India supported** Vietnam's independence from France, objected to the US involvement in Vietnam in the 1960s and was one of the first countries to recognise a united Vietnam in 1975 after the war with the US.
- India initially maintained Consulate-level relations with the then North and South Vietnams and established full diplomatic relations with Vietnam in 1972.
- Relations between the two countries were elevated to the level of **'Strategic Partnership' in 2007** and further to a **"Comprehensive Strategic Partnership" in 2016**.
- Today, **India sees Vietnam as a pivotal state in its "Act East" policy**, the same way that China sees Pakistan as a strategic counter-balance to India.

- **Cultural gap:** There is a significant cultural, custom and language gap between people from both countries. India is much closer to Thailand (Buddhism, Hinduism, Brahminical Rights) and Cambodia (Angkor Wat renovation) in comparison to Vietnam.
- **Connectivity:** The two countries are geographically far apart. This not only affects tourism but also impacts the import and export of goods and business exchanges.
 - However, India-Myanmar-Thailand trilateral **highway will allow Indian goods to reach Southeast Asia with ease and vice versa.** India-Myanmar-Thailand trilateral highway could link up with already existing roads like the one linking Thailand with the Vietnamese port of Da Nang.
- **Industries:** India has some problems related to land acquisition in Vietnam, which is hampering the pace with which manufacturing industries can set up their bases in Vietnam.

Way forward

- India-Vietnam strategic partnership is key to maintaining peace and stability not only in SE Asia but in the entire Indo-Pacific region as the two countries share plethora of complementarities. Both the countries, **by exploring different areas such as IT, agro-chemicals, agro-processing etc can come more close to each other.**
- Strengthening ties with Vietnam will eventually lead a **step towards the realization of SAGAR** (Security and Growth all in the region) initiative and **both can mutually benefit each other in the arena of Blue Economy and ocean security.**
 - **Security and Growth for All in the Region (SAGAR)** is India's policy or doctrine of maritime cooperation in the Indian Ocean region. Through this, India seeks to deepen **economic and security cooperation** with its maritime neighbours and assist in building their maritime security capabilities.

2.3. ABRAHAM ACCORD

Why in News?

Recently, UAE and Israel signed a US-brokered agreement that has come to be known as the '**Abraham Accord**', that aims at establishing formal relations between the two countries.

More about news

- According to the Accord, UAE and Israel would establish formal diplomatic relations and in exchange, Israel would suspend its plans to annex parts of the occupied West Bank.
 - With this, **UAE will become the first Gulf country** to establish diplomatic and economic relations with Israel.
 - ✓ **Gulf countries** are the seven Arab states which border the **Persian Gulf, namely Bahrain, Kuwait, Iraq, Oman, Qatar, Saudi Arabia and UAE.**
 - ✓ UAE becomes the third Arab nation to recognize Israel after Egypt (in 1979) and Jordan (1994).
- For decades, there has been a consensus among many Arab and Muslim-majority states that they will not end a state of hostility with Israel until it agrees to a deal granting statehood to the Palestinians.

About Arab-Israel conflict

- **Hussein-McMahon (1915) correspondence** contained British support of an independent Arab state for Arab assistance in opposing the Ottoman Empire.
- In 1917, during World War I, the British captured Palestine from the Ottoman Empire after the **Sykes-Picot Agreement** with France (1916).
- Later in **Balfour Declaration (1917)**, Britain pledged establishment of Palestine as national home for Jews.



- The British Mandate period saw rise in immigration of Jews to the Mandate of Palestine. During World War II, the persecution of Jews by Nazi Germany gave momentum to the demands for a state for Jews in Palestine. This led to a conflict between Arabs and Jews i.e. Israel-Palestine conflict and Arab-Israel wars.
- **In 1947 the United Nations voted to split the Palestine between Arabs and Jews.**
 - Jewish leadership accepted while Arabs rejected the agreement.
 - Consequently, Arab states of **Egypt, Jordan, Iraq, Lebanon and Syria** declared war on Israel.
- **Israel won the war and expanded its territory reducing Palestine to just Gaza strip and West bank.**
 - It was the beginning of this Palestine refugee crisis which ultimately led to the creation of **PLO (Palestine Liberation Organization)** in 1964.
- After a **series of wars in 1956, 1967(Six-day War) and 1973 (Yom Kipper War)** between Israel and Arab States. In 1993, PLO signed **OSLO Accord** with Israel that provides for Palestinian interim self-government in West bank and Gaza strip. (However, Israel backtracked and refused to consider Palestine as a free country.)
- The issue was further complicated by the establishment of **settlements** by Israel in the occupied West Bank.
- In 2011 Palestine launched a diplomatic campaign to gain membership in the UN for the state of Palestine. Same year, it was **admitted in UNESCO as a full member**, however the Palestinian struggle to be an independent nation is still going on.

Significance of this region for US

- **Valuable oil reserves:** Arab states of Persian Gulf holds valuable oil reserves to which US seeks access, not just to supplement American reserves but as a means of maintaining a degree of leverage over the import-dependent European, Asian and Japanese markets.
- **Threat of Terrorism:** U.S. has highlighted the threat of terrorism from the Middle East as America's major national security concern in the post-cold war world.
- **Sustaining freedom of navigation:** It is required by U.S. Navy and for global commercial traffic through the Middle East's major maritime passages—the Strait of Hormuz, the Bab el Mandeb Strait, and the Suez Canal.
- **Iran issue:** US intends to prevent Iran from developing nuclear weapons.

Why Arab states are engaging with Israel?

- **Need to reorient their economies:** To diversify petrodollar fueled economy Arab states need to invest in technology driven sectors. Israel being the leader in technology in West Asia can aid Arab states.
- **Enhanced cooperation with Israel:** Israel is the most technologically advanced country in the Middle East and it can provide cutting-edge technology in fields of biotech, healthcare, defense and cyber surveillance.
- **Threat from radical Sunni extremism:** Arab states now realize the danger it poses to them as exemplified by the rise of the Islamic State terror group.
- **Need to counter Iran:** It could pave the way for the region's Sunni Arab kingdoms, US and Israel enhancing regional cooperation against their common foe, Shia Iran.
- **Need to address threat of slamism or political Islam:** It is a transnational concept often embodied by the Muslim Brotherhood and one which certain Gulf Arab rulers view as an existential threat to their dynastic monarchies.

About West Bank

- It is **located on the west bank of the Jordan River** and is bounded by Israel on the north, west and south. On the east lies Jordan.
- Since the Six-Day War in 1967, **West Bank has been occupied by Israel.** Both Israelis and Palestinians assert their rights to the territory of the West Bank.
- Palestinians who live in the West Bank live **under Israeli military rule, as well as limited self-rule.**
- Also present in the West Bank are some **132 Israeli settlements and 124 unauthorized settlements**, along with military outposts.

What is the geo-political significance of this agreement?

- **For UAE:** Deal signifies a strategic advantage over Iran and access to better technology including biotech, healthcare, defense and cyber surveillance. It might also prompt other Gulf and Arab nations to start engagement with Israel.
- **For Israel:** Israel gets a diplomatic and economic opening with the big power in the Gulf, that could open other doors, given its security interests. It will also provide Israel a secure presence in Gulf and the larger region.
- **For Saudi Arabia bloc:** The bloc sees its interests being aligned with that of U.S. and Israel (Over Iran, Muslim brotherhood etc.) and their support for Palestine, which Arab powers had historically upheld, is dwindling,

- **For USA:** It allows US to pivot away from Trump's Peace to Prosperity plan for resolving the Israeli-Palestinian conflict. The agreement could be interpreted as a counter to the Iran-China deal.
- **For Palestine:** Unlike the past two Arab-Israeli peace agreements, Palestinians do not figure prominently in the current one. Palestinians want a viable independent state which is nowhere on the horizon.
 - Egypt and Israel peace deal promised an autonomous self-governing authority in the West Bank and Gaza.
 - Jordanian Israeli treaty came after Israel agreed to the formation of the Palestinian Authority in the West Bank and Gaza.

Possible significance for India

- **Peace and Stability in West Asia:** Agreement opens the doors to the first **big rapprochement between** traditional adversaries in West Asia—Israel and the Arabs.
 - It is beneficial for India, as it has deep stakes in terms of **energy supplies** and **expatriate populations**.
- **Two state solution:** Israel's suspension of its plan for annexation might lead to early resumption of talks between Israel and Palestine.
 - India has always supported **two-state solution** as part of a negotiated settlement between Israel and Palestine.
- **Ties with Iran could be impacted** as it will see Arab-Israeli tie-ups as a direct threat to its security.
 - India has **prominent stakes in Iran** such as Chabahar port, access route to central Asia etc.
- Also, deal opens **new opportunities for India** to play a much larger role in the regional security and stability in the region, as **India enjoys special relations with both UAE and Israel**.

Conclusion

While the deal has the potential to change Arab-Israeli relations for good, it also shows how the Arab countries are gradually decoupling themselves from the Palestine question. The question now is whether the UAE would be able to convince the Jewish state to relax its occupation of the Palestinian territories and start talks between them. If so happens, the UAE-Israel deal would become a significant step towards Palestinian statehood and peace in the Middle East.

2.4. SUPPLY CHAIN RESILIENCE INITIATIVE (SCRI)

Why in News?

Recently, Trade ministers of India, Australia, and Japan decided to **launch an initiative on supply chain resilience (it was first proposed by Japan)** and invited like-minded countries in the Indo-Pacific region to join the initiative.

About Global Supply Chain

- Global supply chains are **networks that can span across multiple continents and countries** for the purpose of sourcing and supplying goods and services.
- Global supply chains **involve the flow of information, processes and resources** across the globe.

About SCRI

- It is an approach that helps a country **to ensure that it has diversified its supply risk** across a clutch of supplying nations instead of being dependent on just one or a few.
- **Unanticipated events** — whether natural, such as tsunamis, earthquakes or even a pandemic; or manmade, such as an armed conflict in a region — that disrupt supplies from a particular country or even intentional halts to trade, **could adversely impact economic activity in the destination country**.
- **Objective is to-**
 - Attract foreign direct investment to turn the **Indo-Pacific into an economic powerhouse**.
 - Build a mutually **complementary relationship among partner countries**.

Why focus on SCRI?

- **COVID-19 Impact:** If supply chains are heavily dependent on supplies from one country, the impact on importing nations could be crippling if that source stops production for involuntary reasons, or even as a conscious measure of economic coercion.
- **U.S.-China trade tensions:** It could threaten globalization as a whole and have a major impact on countries like India, Japan and Australia which are heavily reliant on international trade both for markets for its exports and for supplies of a range of primary goods.

- **Managing supply of inputs:** Diversification of supply chain is critical for managing the risks associated with supply of inputs and will help to cohesively react to adverse events faster and also to disciplining price volatility.
- **Fraying trade and diplomatic relations with China:** India restricted some Chinese imports and banned several Chinese apps after a deadly border clash. In Australia, exports like beef, barley and now wine has been targeted by China amid deteriorating ties between the two nations.
- **Enhanced cooperation among partner countries:** In 2019, cumulative GDP of 3 countries was \$9.3 trillion, and their merchandise goods and services trade was \$2.7 trillion and \$0.9 trillion, respectively.
 - Australia, Japan and India are already part of **Quadrilateral Security Dialogue** with US.
- **Initiate recharging of supply chains** in Indo-Pacific region: SCRI can work with Association of South East Asian Nations (ASEAN) to build stronger supply and manufacturing chains that are protected from external shocks and influences.



फाउंडेशन कोर्स सामान्य अध्ययन प्रारंभिक एवं मुख्य परीक्षा 2021

इनोवेटिव क्लासरूम प्रोग्राम

- प्रारंभिक परीक्षा, मुख्य परीक्षा और निबंध के लिए महत्वपूर्ण सभी टॉपिक का विस्तृत कवरेज
- मौलिक अवधारणाओं की समझ के विकास एवं विश्लेषणात्मक क्षमता निर्माण पर विशेष ध्यान
- एनीमेशन, पॉवर प्वाइंट, वीडियो जैसी तकनीकी सुविधाओं का प्रयोग
- अंतर - विषयक समझ विकसित करने का प्रयास
- योजनाबद्ध तैयारी हेतु करेंट ओरिएंटेड अप्रोच
- नियमित क्लास टेस्ट एवं व्यक्तिगत मूल्यांकन

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- PT 365 कक्षाएं
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- सीसेट टेस्ट सीरीज
- निबंध लेखन - शैली की कक्षाएं
- करेंट अफेयर्स मैगजीन

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3. ECONOMY

3.1. NATIONAL STRATEGY FOR FINANCIAL EDUCATION (NSFE) 2020-2025

Why in News?

Recently, Reserve Bank of India (RBI) released the National Strategy for Financial Education (NSFE): 2020-2025.

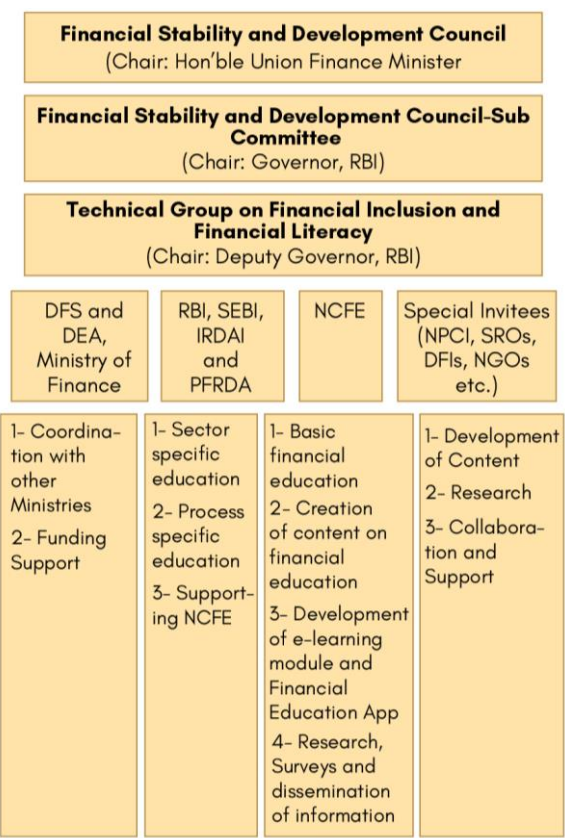
About NFSE

- First NFSE was released in 2013 for the period 2013-2018.
- NSFE intends to empower various sections of the population **to develop knowledge, skills, attitude and behaviour which are needed to manage their money better** and to plan for their future.
- NSFE recommends multi-stakeholder-led approach for creating a financially aware and empowered India.
- NSFE, **has been prepared by the National Centre for Financial Education (NCFE)** in consultation with all the Financial Sector Regulators (RBI, SEBI, IRDAI and PFRDA), DFS and other Ministries and other stakeholders (DFIs, SROs, IBA, NPCI).
- **Technical Group on Financial Inclusion and Financial Literacy** would be responsible for **periodic monitoring and implementation** of NSFE.

What is Financial Literacy and Financial Education?

Financial Education and Financial Literacy are related concepts but not the same. People achieve Financial Literacy through the process of Financial Education.

- **Financial Literacy is defined as a combination of financial awareness, knowledge, skills, attitude and behavior** necessary to make sound financial decisions and ultimately achieve individual financial well-being.
- Financial Education, on the other hand is defined as the **process by which financial consumers/investors improve their understanding of financial products**, concepts and risks and through information, instruction and/or objective advice, develop the skills and confidence to
 - Become more aware of financial risks and opportunities.
 - Make informed choices.
 - Know where to go for help.
 - Take other effective actions to improve their financial well-being.
- Thus, the achievement of Financial Literacy empowers the users to make sound financial decisions which result in financial well-being of the individual.



Components of Financial Education

- **Basic Financial Education:** It consists of fundamental tenets of financial well-being such as importance and advantages of savings, staying out of unproductive loans, borrowing from formal financial sector, time value of money etc. It acts as a foundation for sector-specific and process education.
- **Sector specific financial education:** It is being imparted by Financial Sector Regulators and focuses on “What” of the financial services and the contents cover awareness on ‘Do’s & Don’ts’, ‘Rights & Responsibilities’, ‘Safe usage of digital financial services’ and approaching ‘Grievance Redressal’ Authority.
- **Process education:** It is crucial to ensure that the knowledge translates into behavior. Some of the aspects to be covered include how to use an ATM card, how to do an UPI Transaction etc.

Why is the process of financial education important?

- Lack of financial education is a major impediment to **eradication of economic poverty, enhancement of livelihood opportunities, building asset base, supporting income generating activities** and expanding range of choices available to the population.
- According to a survey, more than **75% of Indian adults do not adequately understand basic financial concepts**. It's even worse when it comes to women. More than 80% of women are financially illiterate.
 - Financial literacy is central to ensure that the accounts opened through financial inclusion efforts are used by the people by availing products/ services relevant to them.
- A thrust on financial education is **essential to make financial inclusion more meaningful** and enabling for citizens' reach to economic well-being.
- It is needed under heightened uncertainty and volatility of the financial sector with **increased influence of private players, shrinking public support system, rise of cost of living and availability of large number of financial products** and services to choose from.
- Financial education will help people **achieve financial well-being by accessing appropriate financial products and services** through regulated entities.

Status of Financial Literacy in India

- NCFE has carried out an **All India Financial Inclusion and Financial Literacy Survey in 2019** to find out the status of financial literacy in India.
- **Key Findings:**
 - **27.18 % of the respondents have achieved minimum target score/minimum threshold score** in each of the components of financial literacy (Financial Knowledge, Financial attitude, Financial Behavior) prescribed by OECD.
 - Though there has been an improvement over the period, further **efforts are needed to improve financial literacy among women**.
 - East, Central and North Zone need more attention.
 - **Rural India, groups with lower education and group of age 50 and above need focused attention.**

Financial Literacy initiatives by various stakeholders

- NCFE through financial education campaigns for all sections of the population through seminars, workshops etc.
 - **National Centre for Financial Education (NCFE)** is a **Section 8 (Not for Profit) Company** promoted by **Reserve Bank of India (RBI), Securities and Exchange Board of India (SEBI), Insurance Regulatory and Development Authority of India (IRDAI) and Pension Fund Regulatory and Development Authority (PFRDA)**.
- RBI through Financial literacy guides, public awareness campaigns etc. RBI in collaboration with Organization of Economic Development (OECD) has issued a concept paper, promoted a financial literacy website, and set up credit counseling centers to provide advice on personal finance.
- NSE, BSE, MCX, and others also have programs on investor awareness and regularly release articles and propaganda related to financial literacy.

What are the challenges to this process of financial education?

- **Low income levels:** A large number of people who have come into the financial system now have low or uncertain incomes. With little or no savings, they **hardly have any incentive to acquire Basic Financial Education**.
- **Information asymmetry:** Difficulty of consumers in identifying and understanding the fine print from the large volume of convoluted information, leads to an information asymmetry between the financial intermediary and the customer.
- **Low technological inclusion:** The hesitation to use ATMs, mobile banking, net banking etc. act as a technological barrier in the **acquisition of process education**.
- **Too much documentation:** Participation in formal financial services requires various documents of proof regarding persons' identity, income, birth certificates, etc. But poor people generally lack these documents and thus remain marginalized from the process.
- **Absence of reach and coverage:** Many of the schemes that are useful to the poor don't reach them further closing the paths that can help poor enter the financial system.

Way forward: Vision provided by NSFE 2020-2025

- Inculcation of **financial literacy concepts among the various sections** of the population through financial education to make it an important life skill. Financial education should **start at school, for people to be educated as early as possible**.

- Improve **usage of digital financial services** in a safe and secure manner.
- **Manage risk at various life stages** through relevant and suitable insurance cover. For example, **planning for old age and retirement** through coverage of suitable pension products.
- Document also recommends **adoption of a '5 C' approach for dissemination of financial education**:
 - **Content**: Creating Financial literacy content for all.
 - **Capacity**: Develop the capacity of various intermediaries who can be involved in providing financial literacy and develop a 'Code of Conduct' for financial education providers.
 - **Community**: Evolve community led approaches for disseminating financial literacy in a sustainable manner.
 - **Communication**: Use technology, mass media channels and innovative ways of communication for dissemination of financial education messages.
 - **Collaboration**: Integrate financial education content in school curriculum, various Professional and Vocational courses.

3.2. RULES OF ORIGIN

Why in news?

The Department of Revenue has recently notified the '**Customs (Administration of Rules of Origin under Trade Agreements) Rules, 2020**' which would come into force on September 21, 2020.

What are Rules of Origin?

- These are the **criteria prescribed to determine the national origin** of an imported product in a country.
- These are mainly used:
 - to **implement measures and instruments of commercial** policy such as anti-dumping duties and safeguard measures;
 - to determine whether imported products shall receive most-favoured-nation (MFN) treatment or preferential treatment;
 - for the purpose of trade statistics;
 - for the application of labelling and marking requirements; and
 - for government procurement.
- Rules of Origin are primarily of two types:
 - **Non-preferential rules of origin**: These apply in the absence of any trade preference, where certain trade policy measures such as **quotas, anti-dumping or "made in" labels** may require a determination of origin.
 - **Preferential rules or origin**: These apply in reciprocal trade preferences (i.e. regional trade agreements or customs unions) or in non-reciprocal trade preferences (i.e. preferences in favour of developing countries or least-developed countries (LDCs)).
 - ✓ **Each trade agreement has its own set of Rules of Origin** that is agreed upon by involved nations, which includes guidelines for issuing a legitimate **Certificate of Origin (CO)**.
 - ✓ Preferential rules of origin are more restrictive than non-preferential ones.
- **Criteria commonly used to determine the country of origin of goods**:
 - **Wholly obtained criterion**: These include goods produced or obtained in a given country without incorporation of any input material from other country.

About Certificate of Origin (CO)

- A CO is an important **international trade document** that certifies that goods in a particular export shipment are wholly obtained, produced, manufactured or processed in a particular country.
 - They declare the **'nationality' and 'content' of the product** and also serve as a **declaration by the exporter to satisfy customs or trade requirements**.
- An exporter has to submit a CO at the landing port of the importing country.

World Trade Organization's Agreement on Rules of Origin

- The agreement aims at **long-term harmonization of non preferential rules of origin** and to ensure that such rules do not themselves create unnecessary obstacles to trade.
- It sets out a **work programme for the harmonization** of rules of origin, negotiations for which are still ongoing. For this process two institutions were established:
 - A **Committee on Rules of Origin** within the framework of the WTO, open to all WTO Members.
 - A **Technical Committee on Rules of Origin**, created under the auspices of the World Customs Organization.
- The agreement also provides **general principles for prescribing rules of origins**, such as transparency, positive standards, administrative assessments, judicial review etc., which **shall also apply to preferential rules of origin**.

- **Substantial/sufficient transformation criterion:** Under it goods are required to undergo substantial transformation in a country for the good to be qualified as originating. Some methods used, in combination or standalone, to meet this criteria are-
 - ✓ **Value Content Method:** A good is considered substantially transformed when the value added of a good in a country increases up to a specified level.
 - ✓ **Change in Tariff Classification (CTC) Method:** A good is considered substantially transformed when the good is classified in a heading or subheading different from all non originating materials used.
 - ✓ **Process Rule Method:** A good is considered substantially transformed when the good has undergone specified manufacturing or processing operations.
- **De minimis or tolerance rule:** It permits a specific share of the value or volume of the final product to be non-originating without the final product losing its originating status.

Significance of ROO

- **Addressing trade distorting practices:** Determination of product origin is essential to implement trade policy measures in a country for purposes like-
 - **correcting “unfair trade”** (e.g. imposition of anti-dumping or countervailing duties against imported products causing material injury to domestic industry)
 - **protecting local industry** (e.g. safeguard measures to protect against an unforeseen increase of imported products causing serious injury to a specific domestic industry).
- **Ensuring effectiveness of Trade Agreements:** Stringent rules of origin can check the wrongful practice of availing concessional customs duty by routing exports to India through preferential trade countries.
- **Transparency in customs procedures:** Rules of origin make it clear for the businesses in India and abroad to know the exact procedures that would be adopted for custom clearance.
- **Implementing environmental or sanitary measures:** For e.g. preventing the import of contaminated foodstuff or plants from a specific country or import of nuclear and hazardous material and their waste.
- **Administering “buy national” policies:** for adjusting balance of payment with specific countries.
- **Ensuring national security or political policy:** by controlling trade in strategic weapons or specific products to which sanctions are applied.

About Customs (Administration of Rules of Origin under Trade Agreements) Rules, 2020 (CAROTAR, 2020)

- These rules will be applicable on **import of goods into India** where the importer makes claim of **preferential rate of duty** in terms of a trade agreement (TA).
- CAROTAR, 2020 aims to **supplement the operational certification procedures** related to implementation of the **Rules of Origin**, as prescribed under the respective TAs of India viz. Free Trade Agreement (FTA), Preferential Trade Agreement (PTA), Comprehensive Economic Cooperation Agreement (CECA), Comprehensive Economic Partnership Agreement (CEPA) etc.
- **Key Provisions:**
 - **To claim preferential rate of duty under a TA**, the importer, at the time of filing bill of entry, has to-
 - ✓ make a declaration in the bill that the **imported products qualify as originating goods for preferential rate of duty** under that agreement.
 - ✓ produce **certificate of origin (CO)**.
 - **The claim of preferential rate of duty may be denied** by the proper officer without verification if the CO-
 - ✓ Is incomplete or
 - ✓ has any alteration not authenticated by the issuing authority or
 - ✓ has expired.
 - The importer also has to submit all relevant information related to **country of origin** criteria, including the **regional value content**.

Concerns related to Rules of Origin

- **Effect on international trade flows:** Rules of origins and related procedures be used as instruments to reinforce protectionist tendencies.
- **Restrictive origin regulations can affect investment flows:** since they might lead to excessive investments in the territories of major importers to satisfy local content requirements to meet the origin criteria.
- **Increased administrative burdens:** Strict regulations can make it difficult for genuine importers to avail the benefits of trade agreements.
- **High cost of trade:** Studies have revealed that origin certificates cost about 5% of the goods' value.
- **Lack of Uniformity:** WTO's General Agreement on Tariffs and Trade (GATT) has no specific **rules** governing the determination of the country of origin of goods in international commerce. Each contracting party of a trade agreement is free to determine its own origin rules.

- An officer may, during the course of customs clearance or thereafter, **request for verification of CO** from verification authority where there is a doubt regarding genuineness or authenticity of the certificate.

Conclusion

The rules of origin enable the preferential agreements to be correctly implemented, which promotes the development of trade and encourages investment. Measures that can ensure their productive use include:

- **Clearly defined terms and procedures**, where any changes are published promptly
- Ensuring that they **do not create restrictive, distorting or disruptive effects** on international trade and do not require the fulfilment of conditions not related to manufacturing or processing of the product in question
- Administering the rules in a **consistent, uniform, impartial and reasonable** manner
- Facilitating **review of any administrative action** in relation to the determination of origin by judicial, arbitral or administrative tribunals.
- **Non-disclosure of confidential information** without the specific permission of the person providing such information.

3.3. TRANSPARENT TAXATION – ‘HONOURING THE HONEST’ PLATFORM

Why in News?

- Recently a platform – “Transparent Taxation — Honouring the Honest” was launched by Prime Minister to strengthen the efforts of reforming and simplifying India's tax system.

About the platform

- It is aimed at **easing the tax compliance and also rewarding honest taxpayers**.
- Main features of Platform are Faceless Assessment, Faceless Appeal and Taxpayer Charter.
 - **Faceless assessment:** To eliminate direct contact between Taxpayer and Income Tax officer.
 - ✓ Under this system, the selection of a taxpayer will be done only through systems using data analytics and AI.
 - **Faceless appeals:** Appeals will be randomly allotted to any officer in the country and identity of the officer deciding the appeal will remain unknown.
 - **Taxpayer charter:** It outlines the rights and responsibilities of both tax officers and taxpayers. It is likely to empower citizens by ensuring timely services by the IT Department.
- It aims to resolve the problems of a taxpayer instead of entangling him further and **ensure that there is no direct contact in all matters of scrutiny, notice, survey or assessment**.
- The new platform apart from being faceless is also **aimed at boosting the confidence of the taxpayer** and decreasing the fear associated with the taxation process.
 - It helps to maintain the privacy and confidentiality of income taxpayers.
 - It seeks to eliminate corrupt practices by doing away with the territorial jurisdiction of income-tax offices
- It is a shift towards rationalization, simplification, greater transparency, ease of managing tax issues and creating an overall taxpayer-friendly ecosystem.
- Faceless Assessment and Taxpayers Charter have come into force from 13th August 2020 while the facility of faceless appeal will be available for citizens across the country from 25th September.

Direct Tax

- It is the tax where the **incidence and impact of taxation fall on the same entity**.
 - In simple words, a direct tax is a tax that you directly pay to the authority imposing the tax.
- It is termed as a **progressive tax** because the proportion of tax liability rises as an individual or entity's income increases.
- **It is of various types such as** income tax, corporate tax, dividend distribution tax, securities transaction tax, fringe benefit tax and wealth tax.

Need for Direct Tax reforms

- **Rationalization and simplification of Income Tax Structure:** The rate structure has broadly remained the same in the last 20 years. Further, there is a need for **rationalization of exemptions** and a rethink of incentives on savings (such as small savings schemes like PPF).
- **Simplify corporate tax rate structure and phase out exemptions:** Exemptions are not equitable vertically (small firms end up paying more taxes) and also there is a loss of revenue due to large number of exemptions.

- **Widen tax base:** It will help to deal with the problem of potential revenue loss due to lower tax rates and simplified tax structure.
- **Reducing tax litigations:** Tendency of tax officials to initiate an action without the necessary justification or assessment is reflected from low success rate of appeals (~30%). There is a need for providing alternate ways of dispute resolutions.
- **Need of Technology infusion** in the tax administration to improve efficiency of tax collection as well as to aid the taxpayer
- **Better sync with global economy:** Since India is much more integrated with the world globally in terms of business linkages and capital account convertibility, the differential treatment of foreign and domestic companies in the country should be gradually phased out.

Recent steps taken to improve direct tax ecosystem

- **Personal Income Tax** - Finance Act, 2020 has provided an option to individuals and co-operatives for paying income-tax at concessional rates if they do not avail specified exemption and incentive.
- **Abolition of Dividend Distribution Tax (DDT)** - In order to increase the attractiveness of the Indian Equity Market and to provide relief to a large class of investors companies are not required to pay DDT with effect from 01.04.2020.
- **Vivad se Vishwas:** To provide for resolution of pending tax disputes which will not only benefit the Government by generating timely revenue but also the taxpayers as it will bring down mounting litigation costs.
- **Faceless E-assessment Scheme** – It provides for making assessment by eliminating the interface between the Assessing Officer and the assessee, optimizing use of resources through functional specialization and introducing the team-based assessment.
- **Document Identification Number (DIN)** - In order to bring efficiency and transparency in the functioning of the Income Tax Department, every communication of the Department is mandatorily having a computer-generated unique DIN.
- **Simplification of compliance norms for Start-ups** - Start-ups have been provided hassle-free tax environment which includes simplification of assessment procedure, exemptions from Angel-tax, constitution of dedicated start-up cell etc.
- **Raising of monetary limit for filing of appeal** - To effectively reduce taxpayer grievances/ litigation monetary thresholds for filing appeals have been raised from Rs. 20 lakh to Rs. 50 lakh for appeal before **Income Tax Appellate Tribunal**, from Rs. 50 lakh to Rs. 1 crore for appeal before the High Court and from Rs. 1 crore to Rs. 2 crore for appeal before the Supreme Court.

India's Tax penetration status

- 57.8 million Individuals filed the **income tax return (~5% of the population)** of which only **15 million (~1.15% of the population) actually paid taxes.**
- India's **Tax-to-GDP ratio stands at around 17% in FY 20** (**direct tax** is ~6% and **indirect tax** is ~11%) which still remains below that of emerging economies (~21%) and much below OECD average (~34%).
 - The ratio of central taxes to GDP slid to a 10-year low of 9.88 % (**direct tax** fell to its lowest in 14 years, at 5.1 per cent, while the **indirect tax** was at a 5-year low at 4.6 per cent in FY20).

About Tax-to-GDP ratio

- It is a representation of the size of the **government's(Centre +States) tax revenue expressed as a percentage of the GDP.**
- Ratio determines the extent to which government is able to finance its expenditure from tax collections, it is also an indicator of tax compliance.
- **Higher Tax-to-GDP ratio means that an economy's tax buoyancy is strong** as the share of tax revenue rises in sync with rise in country's GDP.

3.4. EXPORT PREPAREDNESS INDEX (EPI) 2020

Why in News?

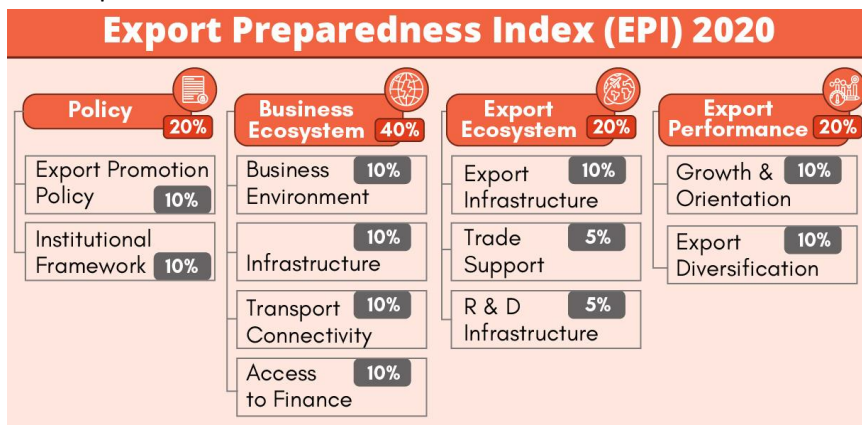
Recently, NITI Aayog in partnership with the Institute of Competitiveness released the **Export Preparedness Index (EPI) report 2020.**

About EPI 2020

- It is a data-driven effort to **identify the core areas crucial for export promotion** at the sub-national level.
- **Primary goals of the Index are** to inculcate competition among all states in India in order to:
 - Bring favorable **export promotion policies.**
 - **Ease regulatory framework** to prompt subnational promotion of exports.
 - Create **necessary infrastructure** for exports.

- **Help in identifying strategic recommendations** for improving export competitiveness.
- It attempts to provide with an extensive **framework for the continual assessment of export readiness of Indian States and UTs** and intends to serve the following purposes:
 - **Ranking of states and UTs** based on their index score.
 - Examining **export preparedness and performance** of Indian States.
 - Identification of challenges and opportunities
 - Enhancing effectiveness of government policies.

- Structure of the **EPI includes 4 pillars and 11 sub-pillars** (refer infographic).



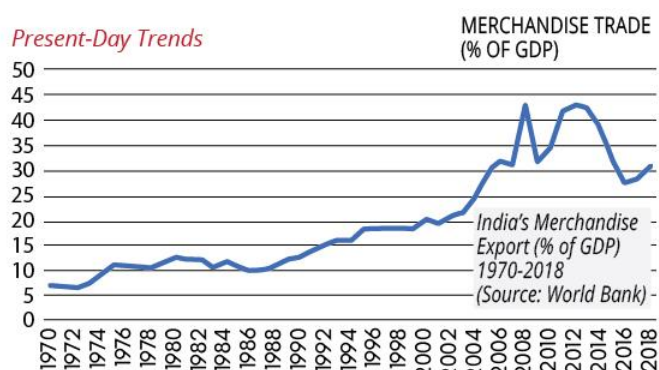
- **Policy:** A comprehensive trade policy provides a strategic direction for exports and imports.
- **Business Ecosystem:** An efficient business ecosystem can help states attract investments and create an enabling infrastructure for individuals to initiate start-ups.
- **Export Ecosystem:** aims to assess the business environment, which is specific to exports.
- **Export Performance:** It examines the export performance of states and UTs to identify focus areas and track improvements.

Key Findings of the report

- On the whole, India has scored an average of 39 on the index. **Both Policy and Business Ecosystem are the two highest scoring pillars**, with the Export Ecosystem being the least scoring pillar.
- Most of the **Coastal States are the best performers**. (States are classified geographically – coastal, landlocked, Himalayan, and UTs/city states.)
 - **Top 3 states in overall ranking:** Gujarat, Maharashtra, Tamil Nadu.
 - **Top 3 landlocked states:** Rajasthan, Telangana and Haryana.
 - **Top 3 Himalayan states:** Uttarakhand, Tripura and Himachal Pradesh.
 - **Top 3 UTs/City states:** Delhi, Goa and Chandigarh.

India's trends in Global Market

- India's merchandise exports have witnessed growth from USD 275.9 billion in 2016–17 to **USD 331.0 billion in 2018–19**.
- India's share in global trade is less than 2% (1.7% in 2018).
- As of present, **70% of India's export has been dominated by five states** – Maharashtra, Gujarat, Karnataka, Tamil Nadu and Telangana.
- **Key measures adopted by the government post-2016** for promotion of merchandise exports:
 - A **mid-term review of the Foreign Trade Policy 2015-20** was conducted in 2017 to assess the policy interventions required to boost the export levels.
 - ✓ For labour-intensive/MSME sectors, incentive rates were revised by 2% and also interest equalization at 3% (both pre and postshipment) was introduced.
 - A **new Logistics Division was established** in the Department of Commerce to organize the integrated development of the logistics sector.
 - **Trade Infrastructure for Export Scheme (TIES) was launched** in April 2017 to address the existing export infrastructure gaps.



- Other **sector-specific policies** such as **Agriculture Export Policy** were rolled out to target export contribution at a micro-level.
- **Transport and Marketing Assistance scheme** was also introduced for the export of specified agriculture products to mitigate the disadvantage of the higher cost of transportation.
- **Missed opportunities**
 - Weakened global trade during 2014-2016, **severely affected the exporting capacities of some of the top contributing nations such as China**. This created opportunities for other nations to take over.
 - ✓ **China's poor performance can be attributed to** less import of raw materials from other developing nations, inconsistent and unpredictable valuation of Yuan, falling global demands etc.
 - China has also rapidly **moved up the Global Value Chains (GVC)** in the same period.
 - ✓ GVCs break up the production process so different steps can be carried out in different countries.
 - **Bangladesh and Vietnam successfully managed to integrate the above GVCs**, which were previously dominated by China.
 - **India missed the opportunity**, despite cheaper labour supply and emphasizing on core sectors to produce large-scale exporting products, **because of issues in product specialization**.






The Index highlighted that **India faces three fundamental challenges in export promotion**:

- **Intra- and inter-regional disparities** in export infrastructure.
- **Poor trade support and growth orientation** among states.
- **Poor R&D infrastructure** to promote complex and unique exports.

Way Forward: Recommendations suggested by the report

- **Convergence**: Creation of Export Infrastructure is a capital-intensive process. By **convergence with various national infrastructure development plans** and coordinating the joint development of export infrastructure, Central government can reward states that have taken significant steps towards export promotion.
- **Robust government–industry–academia linkages**: Every state must actively create channels for such linkages by facilitating and encouraging the capacity building of SMEs and establishment of general export councils.
- **Creating state-level engagements for economic diplomacy**: Under the newly christened 'Economic Diplomacy and States' vertical of the Ministry of External Affairs, NITI Aayog should create capacity within states and build frameworks to facilitate direct engagements with such transnational trade bodies.
- **Focus on designs and standards to make products export-ready**: Central and state governments will have to coordinate and engage with design institutions within the country to create a national discourse on the importance of designs and standards needed for exports.
- **New use cases for products** such as coconut coir, woven textiles, and bamboo, will have to be identified with design thinking so that the vast export potential of the Indian micro-enterprises gets adequately harnessed.

Weightage Structures of the pillars and sub-pillars

 Index	 Logistics Performance Index (LPI)	 Trading Across Borders Doing Business	 Trade Facilitation Index	 Enabling Trade Index
Publishing Agency	World Bank	World Bank	OECD	World Economic Forum
What it measures	Logistics Friendliness of countries	Time and cost of the logistical process of countries	Assessment of trade facilitation policies, areas for action impact of reforms	Factors, policies and services that facilitate trade across borders and to destination
India's Rank	44/160 (2018)	68/190 (2019)	1.52/2 (2018)	102/136 (As per 2016)
Best Performing states/countries	Top 5: Germany, Sweden, Belgium, Austria, Japan	Austria, Belgium, Denmark, France, Hungary, Italy, Netherlands, Spain all tied for Rank 1	1.86/2 - Netherlands	Top 5 : Singapore, Netherlands, Hong Kong, Luxembourg, Sweden

3.5. AGRICULTURAL EXPORTS

Why in news?

Recently, the **High-Level Expert Group (HLEG) on Agricultural Exports set up by the Fifteenth Finance Commission** had submitted its report to the Commission.

Terms of reference of the HLEG

- To **assess export & import substitution opportunities** for Indian agricultural products in the changing international trade.
- To **recommend strategies and measures** to increase farm productivity and enable higher value addition.
- To **identify the impediments for private sector investments** along the agricultural value.
- To **suggest appropriate performance-based incentives** to the state governments for the period 2021-22 to 2025-26.

India's status in Agricultural Export

- India is the **second largest agriculture producer in the world** and has the largest arable land of 156 million hectares.
- In 2019, India exported USD 38.7 billion of agricultural goods, which is only **7% of Indian agriculture production**.
- India ranks **13th in the world in agriculture exports despite being leading producer of milk, bananas, mangoes etc.**
 - One key cause of the discrepancy between rank in production and exports is the **large domestic demand of a population** of 1.34 bn people.
- From 2013 to 2018, growth has slowed down relative to the impressive growth of 2009 to 2011.
 - **Exports dropped by 10% CAGR due to a drop in global process** and back to back drought in 2014, 2015 and 2016.
- India exports **70% of its commodities and agricultural product exports to nearby geographies, including the Middle East, Africa and Asia Pacific**, only exporting 30% to Europe and the Americas showing low agri market diversification.
- India has a **2018 Agri Export Policy** which is framed with a focus on agriculture export-oriented production, export promotion, better farmer realization and synchronization within policies and programmes of Government.

Why there is a slowdown in Agri Export growth?

- **Low productivity:** Indian farms are smaller (1-2 hectares on average), making it harder to achieve economies of scale.

Significance of Agriculture Export

- **High growth potential:** India's agricultural export has the potential to grow from USD 40 billion to USD 70 billion in a few years.
- **Job creation:** Additional exports are likely to create an estimated 7-10 million jobs.
- **Enhancing farm income:** A growth in agri exports can **lead to doubling of farm income, expansion of diversified markets** for Indian agricultural commodities etc
- **Earns foreign exchange**

Agri Export Policy 2018

- Implemented by the **Department of Commerce under Ministry of Commerce and Industry**.
- It aims to double agricultural exports from **US\$ 30+ Billion (2018) to US\$ 60+ Billion by 2022** and reach US\$ 100 Billion in the next few years thereafter.
- It tries to promote **novel, indigenous, organic, ethnic, traditional and non-traditional Agri products** exports.
- It tries to provide an **institutional mechanism for pursuing market access**, tackling barriers and deal with sanitary and phytosanitary issues.
- It has both **strategic and operational elements**.
 - **Strategic elements** include both **general and commodity specific measures**, Infrastructure and logistics, Greater involvement of State Governments and multiple ministries in Agriculture Exports.
 - **Operational elements** include focusing on clusters, marketing and promotion of "Brand India", establishment of Strong Quality Regime, creation of Agri-start-up fund etc.

Agricultural and Processed Foods Export Development Authority (APEDA)

- It is an apex body responsible for the **export promotion of agricultural products** established under the **Agricultural and Processed Food Products Export Development Authority Act, 1985**.
- It works under **Ministry of Commerce and Industry**.

- **Low mechanization:** It is relatively low and Indian farmers do **not utilise many high-yield input varieties** used in other agri-producing countries.
- **High logistics costs:** India's cost of logistics is currently around 14% of GDP – higher than developed country exporters like the US (9.5%).
- **Limited value addition:** India is a more prolific exporter of primary commodities than of value-added agriculture products – **the country ranks 10th globally in processed meat, 18th in the export of processed fruits and vegetables and 35th in dairy.**
 - Reasons for low value addition include relative lack of private sector investment and adequate incentives.
- **Decreasing incentives to agri exports:** While India has invested heavily in a broad range of export promotion schemes such as **Agriculture Export Zones (AEZ)**, India's export incentives have declined over time.
- **Non-tariff barriers (NTB):** Indian agriculture exports also face non-tariff barriers stringent **sanitary and phytosanitary (SPS) standards, residue Limits for various pesticides, antibiotics, etc** in attractive markets such as **Europe (e.g., more stringent shrimp inspections than for other top exporting countries).**
 - NTB refer to restrictions that result from prohibitions, conditions, or specific market requirements that make importation or exportation of products difficult and/or costly.
 - SPS measures are biosecurity measures which are applied to protect human, animal or plant life or health risks arising from additives, toxins and contaminants in food and feed. These measures are governed by the WTO Agreement.
- **COVID 19:** The pandemic has accentuated the global food and agriculture trends, which may result in decrease of agricultural exports.

Changes in Global food and agriculture trends due to Covid 19

- **Shift in consumer behaviour towards health and wellness** is driving higher transparency (e.g., clean ingredients lists replacing artificial low-calorie ingredients, fresh produce and organics)
- Increased global and local regulatory scrutiny driven by **political pressure** (e.g., EU adopting new rules imposing harmonisation of quality and safety requirements for fertiliser).
- COVID-19 crisis has increased the threat of global food insecurity through a combination of **job losses and food price volatility.**
- Countries with heavy dependency on food imports look to secure supplies through **long-term contracts.**
- **Import substitution in agriculture** becomes more of a priority as countries vie to become self-reliant.

Recommendations of HLEG

- **Crop value chains:** Focus on 22 crop value chains with demand driven approach with a potential of taking Indian **exports from USD ~40 bn today to USD ~70 bn in a few years.**
 - HLEG also identified 7 “must-win” lighthouse value chains using parameters of competitiveness, export potential, agricultural diversity etc. These are rice, shrimps, buffalo, spices and fruits and vegetables, vegetable oils and wood.
- **Target markets for export:** Identify markets with high export potential for competitive value chains and sign beneficial bilateral or multilateral trade agreements with them, raising sanitary and phytosanitary production levels to meet their quality standards and negotiating with them to remove non-tariff barriers.
- **Solve Value Chain Clusters (VCC) holistically with focus on value addition:** The clusters would also serve to converge the government's spends and schemes, as well as seek any additional funding required, for **building the necessary infrastructure** at competitive costs for value addition, promoting research and development and promoting “**Brand India**” in global markets.
- **Creating State-led Export Plan:** It is a business plan for a crop value chain, that will lay out the opportunity, initiatives and investment required to meet the desired value chain export aspiration.
- **Centre as an enabler:** Centre should play an active role in enabling the players involved in the agriculture exports and encourage them for more production.
- **Private investment:** To make the proposed state-level plans viable, both the central and state governments will need to incentivise private investors as well as provide viability gap funding, wherever necessary.
- **Robust institutional mechanism to fund:** Funding through the convergence of existing schemes, Finance Commission allocation and private sector investment should be promoted.
- **Long term contracts:** **Due to Covid 19** large food importers may seek to enter into **long-term contracts with exporters** that can assure supply during crises also.
 - India could position itself well to capitalise on these emerging opportunities.

3.6. AGRICULTURE INFRASTRUCTURE FUND (AIF)

Why in News?

Recently, Prime Minister launched a new Central Sector Scheme of a financing facility under Rs. 1 Lakh Crore Agriculture Infrastructure Fund.

About AIF

- It is a Central Sector Scheme, under Ministry of Agriculture & Farmers Welfare, to provide **medium - long term debt financing facility** through interest subvention and credit guarantee.
- **Beneficiaries include** farmers, Primary Agricultural Credit Societies (PACS), Farmer Producers Organizations (FPOs), Agri-entrepreneurs, Startups, Central/State agency or Local Body sponsored Public-Private Partnership Projects etc.
- **Eligible projects include:**
 - **Post Harvest Management Projects like:** Supply chain services including e-marketing platforms, Warehouses, Silos, Sorting & grading units, Cold chains, Logistics facilities etc.
 - **Building community farming assets** like Organic inputs production, Infrastructure for smart and precision agriculture, supply chain infrastructure for clusters of crops including export clusters etc.
- Under AIF, **Rs. 1 Lakh Crore will be provided by banks and financial institutions as loans** with interest subvention of 3% per annum on loans up to Rs. 2 crore.
- The Scheme **will be operational from 2020-21 to 2029-30**. Disbursement in four years starting with sanction of Rs. 10,000 crore in the first year and Rs. 30,000 crore each in next three financial years.
- Moratorium for repayment may vary subject to minimum of 6 months and maximum of 2 years.
- AIF will be managed and **monitored through an online Management Information System (MIS) platform**.
- National, State and District Level Monitoring Committees will ensure real-time monitoring and effective feedback about the implementation of scheme.

Need for a better agricultural Infrastructure

- **For ~58% of total population** of India, agriculture and allied activities are the primary income source and adequate infrastructure **raises farm productivity and lowers farming costs**.
- **India has limited infrastructure connecting farmers to markets** and hence, 15-20% of yield is wasted which is relatively higher vs. other countries where it ranges between 5-15%.
- **Value addition, packing, branding and good marketing** network also adds to the income of the farmer.
- **Provide testing facilities** to assess the quality of product thereby help in fixing better rates in the market.
 - It can help the farmers to assess the quantity in a better manner to predict the outcome.

About Agricultural Infrastructure

- Agricultural infrastructure primarily includes wide range of public services that facilitate production, procurement, processing, preservation and trade.
- It can be grouped under following broad-based categories:
 - **Input based infrastructure:** Seed, Fertilizer, Pesticides, Farm equipment and machinery etc.
 - **Resource based infrastructure:** Water/irrigation, Farm power/energy
 - **Physical infrastructure:** Road connectivity, Transport, storage, processing, preservation, etc.
 - **Institutional infrastructure:** Agricultural research, extension & education technology, information & communication services, financial services, marketing, etc.

Other schemes that impact agricultural infrastructure

- **National Agriculture Market (eNAM):** It is a pan-India electronic trading portal which networks the existing APMC mandis to create a unified national market for agricultural commodities.
- **Pradhan Mantri Krishi Sinchayee Yojana (PMKSY):** It has been formulated with the vision of extending the coverage of irrigation 'Har Khet ko pani' and improving water use efficiency 'More crop per drop'.
- **Integrated Scheme for Agricultural Marketing (ISAM):** To promote creation of agricultural marketing infrastructure, creation of scientific storage capacity, framing of grade standards and quality certification etc.
- **Pradhan Mantri Gram Sadak Yojana (PMGSY):** It linked India's hinterland to towns and cities speaks to the multiplier effect that enabling infrastructure can have on rural communities.
- **Deen Dayal Upadhyaya Gram Jyoti Yojana (DDUGJY):** It aims to provide free electric connections to the underprivileged. DDUGJY is crucial for its feeder separation. It separated agricultural and non-agricultural power supply.

- **Modernize the trading activities** helping the farmers/traders to instantly decide and convey the decisions to initiate the action as early as possible (Ex: e-trading and internet auctions).

Role played by the scheme

Stakeholder	Intended benefits of Scheme
Farmers (including FPOs, PACS, Cooperative Societies)	<ul style="list-style-type: none"> • Improved marketing infrastructure to allow farmers to sell directly to a larger base of consumers and hence, increase value realization for the farmers. • Investments in logistics infrastructure will reduce post-harvest losses and number of intermediaries. • Community farming assets for improved productivity and optimization of inputs will result in substantial savings to farmers.
Government	<ul style="list-style-type: none"> • It will be able to direct priority sector lending in the currently unviable projects by supporting through interest subvention, incentive and credit guarantee. • Government will further be able to reduce national food wastage percentage thereby enable agriculture sector to become competitive with current global levels. • Central/State Government Agencies or local bodies will be able to structure viable PPP projects for attracting investment in agriculture infrastructure.
Agri entrepreneurs and startups	<ul style="list-style-type: none"> • With a dedicated source of funding, entrepreneurs will push for innovation in agriculture sector by leveraging new age technologies including IoT, AI, etc. • It will also connect the players in ecosystem and hence, improve avenues for collaboration between entrepreneurs and farmers.
Banking ecosystem	<ul style="list-style-type: none"> • With Credit Guarantee, incentive and interest subvention, lending institutions will be able to lend with a lower risk. • This scheme will help to enlarge their customer base and diversification of portfolio. • Refinance facility will enable larger role for cooperative banks and RRBs.
Consumers	<ul style="list-style-type: none"> • With reduced inefficiencies in post-harvest ecosystem, key benefit for consumers will be a larger share of produce reaching the market and hence, better quality and prices.

3.7. AGRICULTURAL EDUCATION

Why in news?

The Prime Minister recently pitched for taking agricultural education to middle school level using reforms proposed by National Education Policy (NEP), 2020.

What is Agricultural education?

- Agricultural education focuses on, but is not limited to, study in **horticulture, forestry, conservation**, natural resources, **agricultural products and processing**, production of food and fiber, aquaculture and other agricultural products, mechanics, sales and service, **economics, marketing**, and leadership development.
- It encompasses the study of **applied sciences** (e.g., biology, chemistry, physics), and **business management** principles. One of the major purposes of agricultural education is to apply the knowledge and skills learned in several different disciplines to agriculture.
- **Current status in India:** Formal agricultural education in India is mostly confined to **higher educational institutions**. Currently, there are three central agricultural universities, around 65 State Agricultural Universities (SAUs) and 4 Deemed-to-be-Universities (DUs) in India which focus on imparting formal education in the field of agriculture.

Significance of agricultural education in India

- **Self-reliance of a village/rural economy:** Streamlining the flow of knowledge about agriculture, its modern farming techniques and marketing, to farmers will improve profitability of agriculture and promote agro-entrepreneurship in the country.
 - The growth of farmers and overall farm sector will lead to **creation of jobs** and supplement the efforts of **poverty alleviation** at village level.
- **Emerging food processing industry:** Agriculture sector in India suffers from high post-harvest losses and fragmented food processing industry and needs technical and skills based intervention in food processing technologies, storage infrastructure, marketing etc. This can be facilitated through agricultural education.
- **Promoting Sustainable agricultural practices:** Technical education in the field of rainwater harvesting, micro irrigation, organic farming, climate resilient agriculture, zero budget farming, accurate use of chemical

fertilizers etc. will enable farmers to **minimize environmental damage**, ensure **food security** in the future and **adapt and mitigate for climate change**.

- **Boosting agricultural exports in changing globalized scenario:** Development of analytical and professional skills and knowledge in areas such as Intellectual property Rights (IPRs), WTO's Sanitary and Phytosanitary Measures (SPS), techno-legal specialties etc. is a necessity in today's time.
- **Increased access to information:** A robust agricultural education system can strengthen **Farmers-Researchers linkages** through cooperation of the universities in streamlining the flow of knowledge and expertise from campus to agriculture fields.
- **Expanding agricultural research:** India needs skilled students for research in technologies such as biosensors, precision farming, genetic engineering, bio-fuels, nanotechnology, farm equipments etc.
- **Transforming agricultural market and economy:** There is need for agricultural graduates having knowledge, skills and entrepreneurship to provide a class of **economics and market-based services** such as market intelligence, avenues for development of corporate and contract farming etc.

Challenges to agricultural education

- **Difficulty in attracting talented rural and urban youth:** Low returns, poor quality of education and limited career opportunities make agricultural education a less preferred choice amongst students.
- **Shortage of competent faculty:** There exists high number of vacancies, especially in disciplines like Agricultural Economics, Agricultural Meteorology, Agricultural Statistics etc., in agricultural institutions with limited opportunities for faculty to improve and update their knowledge.
- **Issues in State institutions:** Lack of significant efforts by states have led to deteriorating conditions in some SAUs. Since agriculture is a state subject, central bodies such as the Indian Council of Agricultural Research (ICAR) can play only a facilitating role.
- **Inadequate funding support:** Over the years, increase in the level of public finances of the states to the agricultural universities has been far below their requirements in the context of contemporary needs of higher agricultural education.
- **Integrating Agricultural Education with job creation:** Due to absence of a credible system of assessment of job profiles and skills needed in the sector, agricultural graduates in various streams often find difficulty in accessing gainful employment.
- **Outdated curriculum:** Curriculums have not been changed keeping in view the advances in science and technology in general and agriculture and allied sectors in particular, changing economic status, life styles, food habits and demand for processed/value added foods.
- **Lack of holistic education:** Agricultural education in India concentrates mainly on primary agricultural activities, such as crop production and management, etc and lack components relating to supply chain management like processing, grading, packaging, transportation, marketing etc.
 - There is also a need to shift from **information-based syllabus to skill-based curriculum**.

Way Forward

- **Extending Non-formal education** in rural regions to tap the agricultural potential of workforce.
 - Basic agricultural subjects can also be introduced at **pre-high school and higher secondary level** with the purpose of imparting firsthand knowledge on a particular agro-business or agricultural production self-earning aspects.
- **Updating course curriculum:** Agricultural education needs to keep pace with the changing agricultural scenario and developing technology and incorporate aspects of agro-business management and sustainable practices.
- **Training the academic staff** and collaborating with other national or international centres of excellence can give better exposure to the teachers.
- **Providing students guidance and counseling:** through training and placement cells to attract students in agriculture and to prepare them for job markets.
- **Effective accreditation system** should be evolved for monitoring the quality of SAUs and they can be incentivized to adopt the **Model Act for Agricultural Universities in India (2009)** developed by the ICAR through performance-based grants.
- **Release of fund** through the ICAR Development Grant should be directly made available to the colleges with a freedom to the Deans for better utilization of the fund in the areas of specific need.

- **Public-private partnerships in education:** Models of public-private partnerships must be evolved for curriculum delivery and educational research which can encourage hands on training and experience in real life situations.

Conclusion

Agriculture is the primary source of livelihood for **58 per cent of India's population** and the sector contributed **16.5 per cent** to India's Gross Value Added (GVA) in 2018-2019. Therefore, for a holistic development of the sector and to achieve the goal of doubling farmers' income by 2022, it becomes imperative to expand the scope of agricultural education in India.

Government Initiatives for Agriculture Education

- **Attracting and Retaining Youth in Agriculture (ARYA):** The scheme aims to attract and empower the Youth in Rural Areas to take up various Agriculture, allied and service sector enterprises for sustainable income and gainful employment through skill development.
- **Dedicated Agriculture Education Portal:** It was developed as a single window platform for providing vital education information, e-learning resources etc. from Agricultural Universities across the country in an easy and fast way.
- **Student READY (Rural Entrepreneurship Awareness Development Yojana)** programme: It provides job based and entrepreneurial training to students and consists of — Experiential learning (Business Mode); Hands on training (Skill Development Mode); Rural Awareness Work Experience (RAWE); In Plant Training/ Industrial attachment; and students projects.
- **National Agricultural Higher Education Project (NAHEP):** It is designed to strengthen the national agricultural education system in India with an overall objective to provide more relevant and high-quality education to agricultural university students.
- **International collaborations:** ICAR coordinates the India-Africa Forum Summit (IAFS), Indo-Afghan Fellowship Scheme etc. to support the agricultural human resource development in India.

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4. SECURITY

4.1. DRAFT DEFENCE PRODUCTION AND EXPORT PROMOTION POLICY (DPEPP) 2020

Why in News?

Recently, Ministry of Defence proposed Draft Defence Production and Export Policy 2020 with an aim to double India's defence production in five years.

Current Status of Defence Production in India

- India remained the world's **second-largest arms importer** during 2015-19, with Russia as its largest supplier.
 - Although **Russia's share** of the Indian weapons market **has declined from 72% to 56%**.
- Estimates suggest the Indian armed forces **could spend about \$130 billion** to procure defence equipment in the next five years. The share of domestic procurement in overall Defence procurement is about **60 percent**.
- The size of India's defence industry is **estimated to be Rs 80,000 crore**. "While the contribution of the **public sector** is estimated to be **Rs 63,000 crore**, the share of **private sector** has steadily grown to **Rs 17,000 crore** over the years.
- **Defence exports**: In 2018-19, they were worth Rs 10,745 crore, a growth of over 700 per cent since 2016-17. India exports to more than 40 countries.
- The defence industry is ably **supported by a strong base of over 8,000 MSMEs** that provide strength and vibrancy to the defence supply chain.

About the Draft Policy

The policy is envisaged as a guiding document to overcome aforesaid challenges by providing a focused, structured and significant thrust to defence production capabilities of the country for self-reliance and exports.

Goals and Objectives of the policy:

- To achieve a **turnover of Rs 1,75,000 Crores** including export of Rs 35,000 Crore in Aerospace and Defence goods and services by 2025.
- To develop a **dynamic, robust and competitive Defence industry**, including Aerospace and Naval Shipbuilding industry to cater to the needs of Armed forces with quality products.
- To **reduce dependence on imports** and take forward "Make in India" initiatives through domestic design and development.
- To **promote export of defence products** and become part of the global defence value chains.
- To **create an environment that encourages R&D**, rewards innovation, creates Indian IP ownership and promotes a robust and self-reliant defence industry.

Key Guidelines announced in the policy

- **Procurement Reforms** – which include
 - **Project Management Unit** for supporting the acquisition process and facilitate management of the contracts

Other initiatives launched alongside the policy

Naval Innovation and Indigenisation Organisation (NIIO)

- The NIIO puts in place **dedicated structures for the end users to interact with academia and industry** towards fostering innovation and indigenisation for self-reliance in defence.
- It was accompanied by a compendium of **Indian Navy's Indigenisation perspective plans** titled '**SWAVLAMBAN**'.

SRIJAN

- It is a '**one stop shop online portal that provides access to the vendors** to take up items that can be taken up for **indigenization**.
- There are over 3000 unique items with a value of over Rs 10,000 Crore that are available through the portal.

Prevalent challenges in improvement of Defence Production

- **Absence of designing and development capabilities**, resulting in associated lack of design rights and patents in defence technology.
- **Limited participation of the private sector** as seen from the aforesaid data.
- **Lack of industry-academia-defence linkage** leading to a disconnect between industrial capabilities & academic research and defence needs.
- Defence procurement is a **highly specialized activity that requires a prior estimation** of the development and production timelines involved, which is extremely difficult.
- **India's export market is very limited** vis-à-vis the size of its domestic industry.

- A **Technology Assessment Cell (TAC)** would make an assessment of the Technology Readiness Level (TRL) levels available in the country for all the major systems/ platforms
- **Support to MSMEs/Start-ups –**
 - **setting up of an indigenization portal with an industry interface** to provide development support to MSMEs/Start-ups/Industry **for import substitution.**
 - **Defence Investor Cell** in Department of Defence Production will provide handholding to MSMEs, investors and vendors in defence production for resolving issues
- **Investment Promotion and Ease of Doing Business - Investments would be encouraged** to provide specific focus on certain identified segments and technological areas such as development of **Aero Engines Complex, Maintenance Repair & Overhaul (MRO) and Critical Technologies & Materials.**
- **Innovation and R&D - DRDO** in consultation with the Services and in collaboration with other scientific and industrial establishments would **set up missions in select areas to develop futuristic and critical systems/platforms/materials.**
- **Reforms in DPSUs and Ordinance Factories-**
 - **Ordinance factories will be corporatized** to make them competitive and to improve their productivity.
 - Efforts will be made to **position DPSUs as system integrators** and create a multi-tier domestic supply chain and would be **encouraged to move towards INDUSTRY 4.0.** **Disinvestment of DPSUs** will be pursued.
- **Quality Assurance (QA) and Testing Infrastructure -**
 - The **existing testing infrastructure** with Defence organizations would be made **available for private industry** use on equal priority.
 - Create testing infrastructure through **Defence Testing Infrastructure Scheme (DTIS)** by providing assistance to industry to set up common testing facilities.
- **Export Promotion-**
 - Subject to strategic considerations, **domestically manufactured defence products will be promoted** through Govt to Govt agreements and **Lines of Credit/Funding.**
 - **Export Promotion Cell** set up to promote Defence exports through coordinated action to support the Industry would be further strengthened.
 - An **Open General Export License (OGEL) regime** would be utilized to encourage export of selected defence equipment/items to identified friendly countries.
- **Governance –**
 - The **Department of Defence Production would be the nodal department** for coordination on various components of the DPEPP.
 - **Institutional data collection mechanism** regarding Defence industry, including Aerospace & Naval Shipbuilding industries, in the country **would be further strengthened.**

4.2. NATIONAL INTELLIGENCE GRID (NATGRID)

Why in news?

NATGRID has signed a Memorandum of Understanding (MoU) with National Crime Records Bureau (NCRB) to access the centralised online database on FIRs and stolen vehicles.

More about News

- MoU will **give NATGRID access to Crime and Criminal Tracking Network and Systems (CCTNS) database.**
- All State police are mandated to file First Information Reports (FIR) in the CCTNS.
- MoU enables the NATGRID to get information about details of a suspect as mentioned in the FIR such as his/her father's name, telephone number and other details.

About NCRB

- NCRB, under MHA, was set-up in 1986 **to function as a repository of information on crime and criminals** to assist the investigators in linking crime to the perpetrators.
- It was set up based on the **recommendations of the National Police Commission (1977-1981) and the MHA Task force (1985).**
- In 2009, NCRB was entrusted with the responsibility **for monitoring, coordinating and implementing the CCTNS project.**
 - CCTNS is a **Mission Mode Project under the National e-Governance Plan.**
 - It connects 15000+ police stations and 6000 higher offices of police in the country.
 - CCTNS aims at **creating a comprehensive and integrated system** for enhancing the efficiency and effectiveness of policing **through adopting of principle of e-Governance** and creation of a nationwide networking infrastructure.

About NATGRID

- NATGRID, an attached office of Ministry of Home Affairs (MHA), is the integrated intelligence grid which connects databases of core security agencies. It was **proposed after the 2008 Mumbai terror attacks**.
- It will **assist intelligence and law enforcement agencies** in ensuring national and internal security, **with the ultimate aim to counter terror**.
- NATGRID will link **10 user agencies with certain databases** that would be procured from 21 organisations.
 - **Database involves data related to** credit and debit cards, tax, telecom, immigration, airlines and railway tickets, passports, driving licenses.
 - **It will be available for various central agencies**, on a case-to-case-basis, including Intelligence Bureau, Research and Analysis Wing, Department of Revenue Intelligence etc.
- Recently, MHA announced that physical infrastructure of NATGRID Project will go live by 31st December 2020.

Why NATGRID is needed?

- **Communicate or gather information:** India has around a dozen agencies tasked with intelligence, each having its own database that largely worked in isolation. NATGRID will help in better coordination among them.
 - For instance, it will provide relevant information on terror suspects from various data providing organisations such as banks, telecommunications companies, immigration/income tax department etc.
- **To keep all data on previous intelligence alerts:** By doing so, such data could be assessed to verify similar links when a fresh intelligence alert is issued.
- **Providing real time data:** Real time information will help to collate scattered information into a transparent, accessible, integrated grid and do away with the inefficiencies associated with information asymmetries.
- **New evolving threats:** Use of social media and other platforms for recruitment and propaganda by terrorist groups, and formal banking channels are used to transact terror funding

Challenges faced in implementation of NATGRID

- **Lack of consensus among various ministries:** Ministries including defence had expressed their reservations on the project. There is a fear among the stakeholders that MHA would have access to all information under their jurisdiction.
- **Reduced relevance:** Project was need of the hour in 2008, but since it failed to start, mostly all intelligence agencies, state police and central armed police developed their own mechanism.
- **Lack of adequate safeguards and protections:** Lack of adequate laws to govern Intelligence Agencies and lack of privacy and data protection laws can result in possible violations of privacy and leakage of confidential personal information.
- **Possible misuse of database:** There has been widespread misuse of surveillance capabilities, in recent years, to compromise individual privacy and even violate national sovereignty. For example Snowden files (top-secret documents about telephone records that Edward Snowden stole from National Security Agency of US).
- **Doubts over efficacy:** As State police will not be part of NATGRID they will not be able to access database. It will impact overall efficacy as state agencies are first line responder in most cases.
- **Resistance from the intelligence agencies:** Because of the fear that it would impinge on their territory and possibly result in leaks on the leads they were working on to other agencies.
- **Infringes on the federal system of the Constitution:** For example NCRB is under the Union government and the data pertaining to FIRs of a particular police station is a State subject.

Way forward

- **Mitigate misuse of data concerns:** Elaborate mechanisms to prevent intelligence and security agencies from getting information for any other purpose than that of countering terrorism and transnational organised crimes.
- **Comprehensive privacy laws:** Like in European Union and US, which also lay down conditions for access to databases, and the limitations of such use.
- **Parliamentary Oversight:** To dispel fear of states, that it infringes on federal structure, and to uphold the sovereign electorate's right to oversee institutions that may affect it in the future.
- **Regular audit:** To improve accountability and credibility, it is imperative to have a proper mechanism in which the data is accessed and sought to be used.

5. ENVIRONMENT

5.1. AGROMETEOROLOGY IN INDIA

Why in news?

The Centre for Science and Environment has released a report titled, ‘Agrometeorological services in India- An assessment’.

What is Agrometeorology?

- Agrometeorology is the study and use of weather and climate information to improve the productivity of the agricultural sector.
- In India, **Indian Meteorological Department (IMD)** under the Ministry of Earth Sciences (MoES), is tasked with providing meteorological services. It does so through the **Agrometeorological Advisory Service** program.
- The **three sub-sectors** which work together to provide such services include
 - **Weather forecasting;**
 - **Generation of agromet advisories** (identifying how weather forecasts affect farming);
 - **Dissemination of advisories** (two-way communication with users).

Need for Agrometeorology

- **Weather forecasts:** It plays an essential part in many farming operations. For instance, weeding is best done in a rainless period, planting requires regular but not too heavy rain, spraying pesticides cannot be done in windy weather, etc.
- **Minimise crop loss:** It helps to minimize crop losses due to excess rainfall, cold/heatwaves, cyclones etc. It also helps in better planning for pest attacks.
- **Increasing productivity:** Productivity in agriculture relies on the weather. The growth and harvest of plants is a response both to genetics and the surrounding environment.
- **Need-based services:** For the farmers engaged in cultivation of commercial field crops and horticultural crops like tea, coffee, apple, mango, sugarcane, cotton, grapes, etc.
- **Climate Change:** Current rate of climate change is resulting in an increasing demand for effective and timely agro-meteorological information and services.

Assessment presented by the report

Weather Forecasting	
Current System	Challenges
<ul style="list-style-type: none"> • It involves 2 major components: Data Collection and Data modelling <ul style="list-style-type: none"> ○ Weather data collection- Data is collected over land surfaces (rain gauges, weather stations etc.), oceans (weather buoys), in the lower atmosphere (weather balloons and sensors on airplanes), and from space (satellites). ○ Weather Data Modeling uses mathematical models of the atmosphere and oceans to predict the weather based on current weather conditions. • Both public and private sector provide these services in India. <ul style="list-style-type: none"> ○ IMD, National Institute of Ocean Technology, Chennai; National Institute of Oceanography, Goa; Indian Space Research Organization (ISRO) and state developed networks are involved. ○ Also, there are a few private players (Skymet) in the weather forecasting space. 	<ul style="list-style-type: none"> • Infrastructure is unevenly distributed: Consider the difference between Kerala, which has on average approximately one Automatic Weather Station per 87 sq. km, and Assam, which has one for every 472 sq. km. • Data Quality is inconsistent and sharing is limited: There is lack of quality control of weather stations, lack of attention to maintenance and the lack of a common platform for data collation. • Advanced climate modelling demands better hardware and human resources which India has only recently begun upgrading in earnest.

Generation of Agromet Advisories	
Current System	Challenges
<ul style="list-style-type: none"> • Localized weather forecasts must be combined with local crop data to generate advice for farmers. This involves coordination of the data and human resources of state and Central government agencies. 	<ul style="list-style-type: none"> • Advisories do not always usefully combine weather and agriculture data and are too general to add any value. • Micro scale advisories are not available.

- **Agromet Field Units (AMFUs)**, under the IMD's Agrimet Division, are designed to specialize in converting weather information into usable advisories for farmers.
- **Lack of trained agro meteorologists**

Dissemination of Advisories	
Current System	Challenges
<ul style="list-style-type: none"> ● A variety of dissemination methods are used. <ul style="list-style-type: none"> ○ Central government as part of the Gramin Krishi Mausam Seva (GKMS) programme, sends farmers weather forecasts as well as crop and location specific agro advisories via SMSs. ○ IMD also disseminates agromet information to farmers through public-private partnerships with multiple companies such as Reuters Market Light, IFFCO Kisan Sanchar Limited, NOKIA etc. ○ State governments have their own Departments of Agriculture which are first-line executive institutions engaged in agriculture extension, in parallel with KVKs. 	<ul style="list-style-type: none"> ● Advisories are irregular and unreliable at most occasions. ● Inability or unwillingness to pay for weather information: 85% of farmers in India are subsistence farmers, and cannot pay for such services.

Way Forward

- Agromet advisories **should be treated as a public good**. State governments need to take more responsibility for investment.
- The Central government must focus on creating a **single platform for high-quality weather data**.
 - **By law, all weather data collected** in the country, public or private, and across government departments and levels, must **flow into a central database**.
 - **The data collected** should be of **sufficient quality**.
- **Capacity needs to be expanded** based on hiring specialists for meteorology, agriculture and extension.
 - State governments need to employ meteorologists at the block level, as well as revive their extension systems to reach advisories to the farmers in most need.
- The **existing hybrid agromet institutions** can be the **site of coordination**—by developing **technological platforms** for combinations of such information or convening specialists on a regular basis.

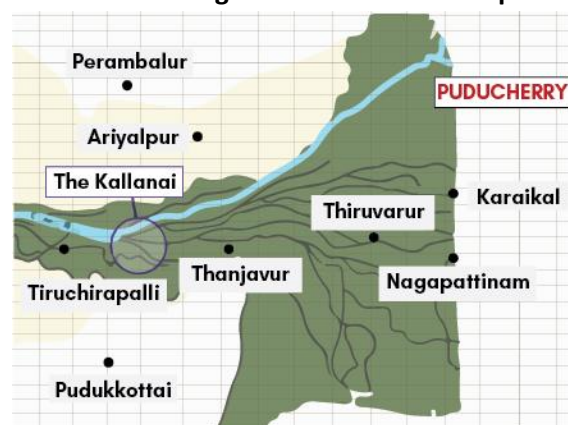
5.2. PROTECTED AGRICULTURAL ZONE

Why in news?

The State government of Tamil Nadu recently notified the **Tamil Nadu Protected Agricultural Zone Development Rules, 2020**.

More on the news

- In February, 2020 the State government enacted the **Tamil Nadu Protected Agricultural Zone Development (TNPZD) Act, 2020**, with objectives to use the available agricultural lands for sustainable development of agriculture and ensure that the **agricultural activities were not unduly constrained** by **non-agricultural use or other development** objectives.
- The **Petroleum, Chemicals and Petrochemicals Investment Region (PCPIR)** in Tamil Nadu was subsequently scrapped.
 - **PCPIR** is a specifically delineated investment region planned for the establishment of manufacturing facilities for domestic and export led production in petroleum, chemicals & petrochemicals, along with the associated services and infrastructure.
- **Key features of the TNPZD Act, 2020**
 - **Establishment of Protected Agricultural Zone (PAZ)** comprising of Thanjavur, Tiruvarur and Nagapattinam districts and some region in Cuddalore and Pudukkottai districts.
 - **Prohibition of certain new industrial and developmental activities in PAZ:** such as
 - ✓ Establishment of Zinc, Copper and Aluminium smelter, Iron and steel plants, Tannery, Ship breaking Industry.
 - ✓ Exploration, drilling and extraction of oil and natural gas including coal-bed methane, shale gas and other hydrocarbons.



- **Creation of a Protected Agricultural Zone Development Authority (PAZDA):** with Chief Minister of TN as its Chairperson. It will perform following functions in the PAZ-
 - ✓ **recommend area for inclusion**
 - ✓ Take necessary steps to **increase agricultural production** and productivity
 - ✓ recommend establishment of **agro-based and allied industries**
 - ✓ Suggest measures related to **sustainable agricultural practices**
 - ✓ suggest preventive measures to safeguard the **livelihood of the agriculturalists**

Significance of PAZ in the Cauvery delta region

- **Recognition of farmers' concerns:** The delta has seen multiple protests for a decade over methane, hydrocarbon, oil and natural gas projects which required acquisition of fertile lands and well drilling.
- **Sustainable development of Cauvery delta region:** Activities like coal bed methane projects in the region can lead to intrusion of seawater in agricultural lands and threaten sustainable agricultural developments, livelihood and security of the farmers.
- **Food security:** The Cauvery delta region is the rice bowl of Tamil Nadu and contributes around 40 per cent of the paddy production of the state. Thus, protecting and improving farming activities will improve food security.
- **Addressing environmental degradation:** The Cauvery delta region is already highly vulnerable to climatic change and sea level rise.
 - Certain industrial projects and activities in the region have had adverse effects on the environment including depletion of ground water and degradation of sanctuaries, wet lands and other bio diversity rich and eco-sensitive regions.

Concerns

- Only new projects are prohibited under the act, while **pre-existing hydrocarbon extraction projects in the zone are allowed.** Methods of extraction such as fracking are known to have potential adverse effects on the environment and hydrology.
- Disbarring of hydrocarbon exploration in the Cauvery delta belt can impact **the country's oil and natural gas production.**
- **Infrastructure developments** such as harbour, pipelines, road, tele communications, power, water supply and other utilities are permitted in the PAZ. **Land acquisition** for such projects also impacts agricultural activities.

Way Ahead

- The impact of existing projects on environment and agriculture must be thoroughly assessed.
- PAZs can be developed on the lines of **Special agricultural zones (SAZs)** envisioned by **M.S. Swaminathan**, to include features like-
 - Focus on **water security and water use efficiency** and climate smart agriculture.
 - Creation of **Agro Service Centres** including soil testing labs and call centre, plant health clinics, weather stations and advisories, biopharmacy etc.
 - **Development of infrastructure facilities** such as farm production units, planting materials production units, markets, processing and value addition units, irrigation support etc.
 - **ICT based initiatives** related to procurement system, on farm technology and training of farmers.

5.3. EMISSION NORMS FOR THERMAL POWER PLANTS

Why in news?

With several thermal power plants (TPP) likely to miss the government's 2022 deadline for installing equipment to minimise pollution from their operations, the Ministry of Power is **recommending that the deadline be extended by up to two years for over 300 such units.**

Background

- In 2015, Ministry of Environment, Forests and Climate Change (MoEFCC) notified specific standards for the thermal power plants to control

Need for such standards

- **Coal dependent power sector:** Coal accounts for 205 GW (56%) of the total installed power generation capacity in the country—and for 77% of the current electricity supply in the country and India needs to ensure that this capacity is made cleaner.
- **High emissions by power plants:** Thermal power plants are source of **60% of industrial particulate matter, 45% of SO₂, and 30% of NO_x emissions** in the country, apart from 80% of mercury as a pollutant.
- **Health impacts:** TPPs account for some 80% of India's industrial emissions of sulfur- and nitrous-oxides in India, which cause lung diseases, acid rain and smog.

the emissions under “**Environment (Protection) Amendment Rules, 2015**’.

- According to rules,
 - TPPs were required to achieve the **notified limit within 2 years i.e. by 2017 in a phased manner.**
 - It amends existing norms related to **emission of suspended particulate matter (SPM) and introduces new norms for emission of SO₂, NO_x and Mercury** from TPPs.
 - It also **specifies modified limits for specific water consumption** by TPPs and insists to convert existing **once through based condenser cooling (OTBCC) system to recirculation type.**
- The deadline had to be pushed to December 2022 for all the power stations in the country in view of the sheer volume of work, implementation issues and challenges as well as the critical need for maintaining supply of electricity.
 - Power stations in national capital region were however required to comply with the revised norms by December, 2019.

Emission standards for TPPs and present status:

- As per rough estimates, the 2015 norms can reduce the TPPs’ **PM emissions by 35%, SO₂ emissions by 80%, and NO_x emissions by 42%** and reduce their water consumption by nearly a third.
- **The norms provide different mechanisms** to reduce the emissions and usage of water such as:
 - **Flue Gas Desulphurization (FGD)** process for controlling SO_x emissions.
 - **Selective Non-Catalytic Reduction (SNCR) and Selective Catalytic Reduction (SCR) system** for controlling NO_x emissions.
 - **Electro-Static Precipitators (ESPs)** are to be deployed for control of particulate matter (PM) in thermal power stations.
 - **Installation of cooling towers** in order to change over to closed cooling water system for controlling water consumption.
- **Present status**
 - In 2017, 165.9 gigawatts (GW) out of the total of 187.1 GW — or **89% of the country’s existing coal based power capacity — were not in compliance** with the sulphur dioxide (SO₂) emission limits notified in 2015.
✓ **Only 1% of the total coal-fired power plant capacity** have installed the mandatory FGD systems.
 - According to Centre for Science and Environment **less than half of the coal-fired capacity is in compliance with particulate matter (PM) standards.**
 - Of the total coal-fired capacity in the country, plants **with only 27% capacity have awarded bids for FGD implementation.** Around 72% capacity have not even awarded the bids at present.

Challenges in achieving the targets

- **Technology implementation:** Very few of the power producers in the country have **prior experience** in the selection, maintenance and evaluation of Air Quality Control Systems which reduces the scope of compliance.
- **Unavailability of Limestone and Water Consumption:** There are issues related to limestone availability and water consumption; for implementing the FGD installation plans in the thermal power plants across the nation.
 - The **mobilization of Limestone** to power plants will create its own environmental foot-print.
- **Requirement of Additional capital:** As per a recent Centre for Science, Technology and Policy (C-STEP) Report, the total cost of installing pollution control technology in India’s thermal power plants is around ₹ 3.91 – 3.96 lakh Crore till 2030.
 - Uncertainties in regard to time frame in which **payment will be received from DISCOMs**, which has been a challenge for the private sector generating companies in maintaining desired cash flow, and hence delays in installation of equipment.
 - Lenders and banks already being conscious in funding new generation projects in view of many of the new **power stations having turned into stranded assets**, are not keen to finance emission control systems to power stations.
- **Space Constraints:** Central Electricity Authority (CEA) has identified about 72 GW of thermal capacity that is not in a position to install FGD due to the non-availability of space and hence will not be able to comply with the new SO_x emission norms.
- **Covid 19 lockdown:** This has delayed the construction of emission reduction facilities by 6 months due to unavailability of labour force.

Way Forward

- **Information sharing:** Technology options in respect of FGD may be examined by CEA and the findings may be brought to the notice of all concerned - generating companies, power utilities, State Electricity Regulatory Commission (SERCs) as well as CERC so as to facilitate proper and timely decision making on the part of generating companies to place orders.
- **Tariff rationalization:** SERCs may expeditiously make appropriate provisions in tariff regulations necessitated on account of revised emission standards for thermal power stations so that there is a regular cash flow.
- **Closing down inefficient plans:** A proper retirement plan for old and inefficient units, causing more emission due to poor operational heat rate, is required to be formulated.
- **Optimization of implementation:** Options of excluding auxiliaries like water treatment plant, lime handling system, etc., can be provided in the tenders in order to optimize scope and overall implementation schedule.
- **Market for Pollution Control Technologies:** The implementation of the new emission norms has created a huge business opportunity for the equipment manufacturers of FGD, SCR etc. To comply with the emission standards, power producers will have to make significant investments in installing Pollution Control Technologies.

Flue Gas Desulphurization (FGD)

- It is a set of technologies used to remove SO₂ from **exhaust flue gases of fossil-fuel power plants**.
- This is accomplished through either a **wet or a dry process**.
- **Dry FGD:** In the process of dry scrubbing injection systems, **lime** is used as a reagent to react and remove gaseous pollutants.
 - A dry injection process injects dry hydrated lime directly into the flue gas duct.
 - It yields a dry final product, collected in particulate control devices for further treatment.
- **Wet FGD:** A shower of lime slurry is sprayed into a flue gas scrubber, where the SO₂ is absorbed into the spray and becomes a wet calcium sulfite and waste water.
- **FGD wastewater** can be effectively and efficiently treated using large filter presses or large vacuum belt filters for very large sludge production.

Selective catalytic reduction (SCR)

- It is currently the most widely applied technology.
- Ammonia is used as a reducing agent to convert NO_x to nitrogen **in the presence of a catalyst in a converter**.
 - The catalyst is usually a mixture of titanium dioxide, vanadium pentoxide, and tungsten trioxide.
- SCR can remove 60–90% of NO_x from flue gases.
- The process is very expensive and the associated ammonia injection results in an ammonia slipstream in the exhaust

Selective non-catalytic reduction (SNCR)

- In the SNCR process a reagent, i.e., **urea**, ammonium hydroxide, anhydrous ammonia, or aqueous ammonia, is injected into flue gases in the furnace within the appropriate temperature zone.
- The NO_x and the reagent (urea, etc.) react to form N₂ and H₂O and do not require a catalyst.

Electrostatic precipitator

- An electrostatic precipitator is a filtration device that removes fine particles, like dust and smoke, from a flowing gas using the force of an induced electrostatic charge minimally impeding the flow of gases through the unit.

5.4. CARBON CAPTURE, UTILISATION & STORAGE (CCUS)

Why in news?

The Department of Science & Technology (DST) has invited proposals from Indian researchers in the area of CCUS under **Accelerating CCUS Technologies (ACT)** in collaboration with other ACT member countries.

More on the news

- ACT is an initiative to facilitate the emergence of Carbon dioxide (CO₂) Capture, Utilisation, and Storage (CCUS) via **translational funding of projects** aimed at accelerating and maturing CCUS technology through targeted innovation and research activities.
- Sixteen countries, regions, and provinces are working together in ACT.
- To date, there have been two ACT calls, the first (in 2016), which mobilised funds from participating partners and the European Commission, and the second call (in 2018) was funded by participating national funding agencies only. DST has now made a third call and will make available funds of **approx. 10 Million €**.
- CCUS is also one of the identified innovation challenges in the **Mission Innovation (MI) Programme**- a global initiative of 24 countries and the European Union to accelerate the global clean energy innovation in which the Department of Science & Technology (DST) is an active partner.

About Carbon capture, utilisation and storage (CCUS)

- CCUS is group of technologies designed to **reduce the amount of CO₂** released into the atmosphere from coal and gas power stations as well as heavy industry including cement and steel production. Once captured, the CO₂ can be either re-used in various products, such as cement or plastics (**utilisation**), or stored in geological formations deep underground (**storage**).
- **Capture technologies** separate CO₂ from other gases which may be done in three different ways:
 - **Pre-combustion capture:** It refers to capturing **CO₂ generated as an undesired co-product** of an intermediate reaction of a conversion process. A pre-combustion system involves first converting solid, liquid or gaseous fuel into a mixture of hydrogen and carbon dioxide using one of a number of processes such as 'gasification' or 'reforming'.
 - ✓ **Gasification** is a process that converts biomass- or fossil fuel-based carbonaceous materials into carbon monoxide, hydrogen and carbon dioxide.
 - ✓ **Reforming**, in chemistry, processing technique by which the molecular structure of a hydrocarbon is rearranged to alter its properties.
 - **Post-combustion capture:** It involves **separation of CO₂ from waste gas streams** after the conversion of the carbon source to CO₂ – for example, via combustion of fossil fuels or digestion of wastewater sludge. It includes methods like absorption in solvents, high pressure membrane filtration, adsorption by solid sorbents, including porous organic frameworks, and cryogenic separation etc.
 - **Oxy-fuel combustion:** It can only be applied to **processes involving combustion**, such as power generation in fossil-fuelled plants, cement production and the iron and steel industry. Here, **fuel is burned with pure oxygen to produce flue gas with high CO₂ concentrations** and free from nitrogen and its compounds.
 - ✓ **Flue gas** refers to the **combustion exhaust gas** produced at power plants and other industries.
- **Storage:** Suitable storage sites for captured carbon include former gas and oil fields, deep saline formations (porous rocks filled with very salty water), coal bed formations, ocean bed etc.
- **Utilization:** As an alternative to storage, captured CO₂ can be used as a commercial product, either directly or after conversion. Examples of utilisation include-
 - **In the food and drink industry:** CO₂ is commonly used as a carbonating agent, preservative, packaging gas and as a solvent for the extraction of flavours and in the decaffeination process.
 - **In the pharmaceutical industry:** where CO₂ can be used as a respiratory stimulant or as an intermediate in the synthesis of drugs
 - **Concrete building materials:** CO₂ can be used to cure cement, or in the manufacture of aggregates.
 - **Enhanced oil and coal-bed methane recovery:** where the carbon dioxide is injected into depleting oil or gas reserves to increase the amount of recovery.
 - **Production of chemicals, plastics and fuels** such as methanol, urea, polymers, syngas etc.
 - **Remediation of alkaline industrial wastes**
 - **Mineral carbonation:** It is a chemical process in which CO₂ reacts with a metal oxide such as magnesium or calcium to form carbonates.
 - **Biofuels production:** CO₂ can be used to cultivate microalgae used for the production of biofuels.
 - **Generating additional power: Technologies are being developed to use CO₂ for power generation. Example-** CO₂-based steam cycles can help power generation turbines run more efficiently, geologically stored CO₂ could be used to extract geothermal heat for producing renewable geothermal energy.

Benefits associated with CCUS

- **Emission reduction:** The International Energy Agency (IEA) forecasted that the technology can contribute over 16% of the total global CO₂ emission reductions required by 2050.
- **Creating negative-emission power plants:** through combination of CCUS with bioenergy. This may be critical for offsetting emissions in harder-to-abate sectors.
- **Adding economic value:** to CO₂ by converting it into useful chemicals or fuels of commercial importance.
- **Enriching concrete:** Captured CO₂ could be used to strengthen concrete, leading to increased infrastructure durability.
- **Creating new green jobs:** in the field of CCUS operations.

Concerns

- **High Costs:** Due to reasons such as, technological limitations, extra energy and materials needed in the process of carbon capturing, transport and infrastructure costs etc., CCUS technologies are still not cost effective and scalable. For example- Oxy fuel combustion requires oxygen which is expensive.

- **Environmental impacts:** Deep sea storage of CO₂ can lead to acidification or eutrophication and harm marine organisms close to injection points. Long term effects of direct CO₂ injection on large ocean areas have not yet been studied.
- **Leakage:** The main concerns with CO₂ storage are its possible leaks and the related damage that a concentrated CO₂ stream would cause if it escaped into the environment.
- **Benefits being partly offset by emissions related to the CCUS life cycle chain:** The extra energy and materials needed for the technology: for example, from fuel extraction, transportation, infrastructure building, burning of fuel, CO₂ capture, solvent production etc., can increase concentration of other gas pollutants and deplete natural resources.

Way Forward

- **Environmental impacts** of CCUS have to be evaluated carefully on a life cycle basis to ensure a positive economic and environmental balance.
- **Further research** is needed to develop **cost-effective and energy-efficient** capture techniques. Focus should be on the development of materials and products with longer lifetimes to enable **long-term storage** of CO₂.
- Governments should establish an **overall policy strategy and pathway for CCUS in industry**, incorporating necessary R&D priorities, **awareness generation**, incentive policy mechanisms and legal frameworks.

5.5. URBAN FORESTRY

Why in News?

Recently, Ministry of Environment, Forest and Climate Change (MoEF&CC) selected Arunachal Pradesh capital (**Itanagar**) for implementation of the 'Nagar Van' or Urban Forest scheme.

About Nagar Van Scheme

- It envisages creating forests in **200 urban cities across the country in next five years** with a renewed focus on people's participation and collaboration between Forest Department, Municipal bodies, NGOs, Corporates and local citizens.
 - Pune's Warje forest offer good model for growth.
- Forest once established **will be maintained by State Government.**

About Urban Forestry

- It is an integrated, city wide approach to the **planting, care and management of trees, forests, and natural systems** in the city to secure multiple environmental and social benefits for urban dwellers.
- It **concentrates on all tree dominated as well as other green resources** in and around urban areas, such as woodlands, public and private urban parks and gardens, urban nature areas, street tree and square plantations, botanical gardens and cemeteries.

Importance of urban Forestry

- **Environmental Benefits:**
 - It includes **reduction in temperature rise in urban areas**, removal of other air pollutants, recharge of groundwater and stabilization of soil.
 - India has pledged to **create an additional carbon sink** of 2.5 -3.0 billion tonnes of CO₂ equivalent through additional forest and tree cover by 2030 and urban forestry will have an important contribution towards achieving it.
- **Social and Psychological Benefits:**
 - Urban trees enhance the **beauty and environmental quotient of city** and are among the most important features contributing to the aesthetic quality of residential streets and community parks.
 - Urban parks and peri-urban forests are an **important recreational facility**. Urban green spaces can enhance cultural activities by providing venues for local festivals, civic celebrations, political gatherings and theatrical performances.

Urban Forestry in India

- Existing availability of per capita open spaces **varies from 0.81 sq m in Chennai to 278 sq m in Greater Noida.**
- Most of the Indian cities, **are far behind per capita forest availability in comparison to European/US cities (20 to 40% of total geographical area).**
- Chandigarh has more than 35% of its geographical area under forest and tree cover, making it one of the greenest cities of India.
- 2014 Urban and Regional Development Plans Formulation and Implementation guidelines suggest a **norm of 10-12 square metres of open space per person.**

- It can **reduce stress and improve physical health** for urban residents as it is discovered that time spent in nature, relieves mental fatigue and the feelings of violence and aggression that can spring from it.
- **Economic Benefits:**
 - Landscaping with trees can **increase property values and commercial benefits**. In Delhi, poor people gain income from the harvesting and sale of a number of products from trees growing on land owned by the Municipal Corporation.
 - Urban forest offers significant benefits in reducing building air-conditioning demand and **reducing energy consumption**.
 - **Saves municipal expenditures** for storm water management infrastructure, ozone non-attainment and other costs associated with asthma and other illnesses related to poor air quality.

Potential issues with Urban Forestry

- **Expensive approach:** Urban forestry initiatives conducted on a scale beyond small homegardens can cost a large amount of money to implement. This is particularly the case if instant results are wanted as maintenance costs can be very high in such situations.
- **Structural damage:** The roots of street trees often cause the cracking of roads and pavements and sometimes water pipes. Urban trees can also cause structural damage to buildings.
- **Threats to Human safety:** Poorly planted or inappropriate tree species can serve as a hazard to urban inhabitants, either directly (through falling branches or the falling over of the entire tree) or indirectly.

Constraints in India

- **Shortages of green space** as most of the spaces are utilized for residential or business purposes due to huge population pressure.
- **Unequal spatial distribution of green space** as several areas of the city have absolutely no parks while majority of the total green space are concentrated in some select ward areas.
- **Other factors** are lack of funding, weak linkages with other resource management programs, and improper planning that fails to consider the surrounding ecosystem, the community, and the regional context.

Way forward

- Initiatives such as **engagement of NGOs, civil society, media and corporate groups** are necessary to extend urban green cover.
- Species must be selected by **considering climate, soil type and topography**. In recent times, trees are largely planted for their high growth rate and decorative appearance.
- Need to **plant trees that provide multiple benefits to individual and society**, particularly in-house compounds for providing edible pods, flowers, fruits, leaves etc. and in median strips between roads for shades and ground water recharge.
- **Riverside beautification** as well as tree plantation can solve the problem of lack of space. Tree plantation on the shores of river or water channel can increase the urban green cover and provide space for city dwellers.
- Plan for urban forestry **should be integrated into overall planning of the urban areas** in advance otherwise greening of the urbanized area becomes more difficult once the settlement takes place.

5.6. SEA LEVEL RISE

Why in news?

Recently Scientific Reports journal noted that sea-level rise (SLR) is a "well accepted" consequence of climate change.

Findings of the study

- Sea levels have risen by between **180 to 200 mm since 1900**.
- **0.5-0.7% of the world's land area is at a risk of episodic coastal flooding by 2100**, impacting 2.5-4.1% of the population assuming there are no coastal defenses or adaptation measures in place.
 - By 2100, the global population potentially exposed to episodic coastal flooding will increase **from 128-171 million to 176-287 million**.

Regional and Global Sea level rise

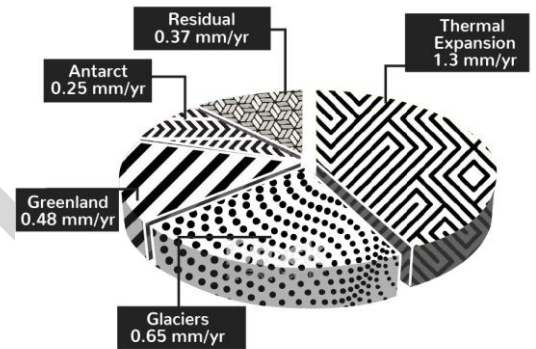
- **Sea level rise** is an increase in the level of the world's oceans due to the effects of global warming and other factors
- **Global sea level trends and regional sea level trends** are different measurements.
 - Tide stations around the globe provide local or **regional sea level changes**
 - Satellite measurements provide the average height of the entire ocean which is **global sea level change**.
- **Sea level rise at specific locations may be more or less than the global average** due to many local factors: subsidence, ocean currents, variations in land height, and whether the land is still rebounding from the compressive weight of Ice Age glaciers (called as isostasy).

- The value of global assets exposed to this change is projected to be between **\$6-\$9 trillion or 12-20% of the global GDP.**

Causes of the sea-level rise

- **Thermal expansion:** When water heats up, it expands. About half of the sea-level rise over the past 25 years is attributable to warmer oceans simply occupying more space.
- **Melting glaciers:** Persistently higher temperatures caused by global warming have led to greater-than-average summer melting of mountain glaciers as well as diminished snowfall due to later winters and earlier springs.
 - That creates an imbalance between runoff and ocean evaporation, causing sea levels to rise.
- **Loss of Greenland and Antarctica's ice sheets:** Melt water from above and seawater from below is seeping beneath Greenland's ice sheets, effectively lubricating ice streams and causing them to move more quickly into the sea
- **Changes in the net storage of terrestrial freshwater:** E.g., groundwater/river extraction, reservoirs, changes in rainfall and evaporation from climate variability.
- **Local factors:** Over relatively short time spans (hours to years), the influence of tides, storms, earthquakes and landslides and climatic variability—such as El Niño—dominates sea level variations at local level.

Individual contributions to the GMSL rise (1993-2015) in mm/yr



Impacts of Sea Level Rise

- **Loss of habitat:** Almost 3 billion people are living within 200 km of the coasts and islands all over the world. A sea level rise will lead to loss of habitation and hence leads to de-urbanization.
 - Indonesia is planning to shift its capital from **Jakarta, the "world's fastest-sinking city"** owing to sinking of land by 25 cm per year.
 - It may also significantly affect tourism and recreation through impacts on landscapes (e.g., beaches), cultural features etc.
- **Agriculture:** SLR will affect agriculture mainly through land submergence, soil and fresh groundwater resources salinisation, and land loss due to permanent coastal erosion, with consequences on production, **livelihood diversification and food security.**
- **Coastal fisheries and aquaculture:** The negative effects of SLR on fisheries and aquaculture are indirect, through adverse impacts on habitats (e.g., coral reef degradation, reduced water quality in deltas and estuarine environments, soil salinisation, etc.).
- **Impact on Small Island Nations:** Because of small islands' high coastline to land area ratio, most of their human settlements, agricultural lands, and critical infrastructure are at or near the coasts.
- **Storm Surges:** Higher sea levels are coinciding with more dangerous hurricanes and cyclones that move more slowly and drop more rain, contributing to more powerful storm surges.
- **Digital exclusion:** The prospect of higher coastal water levels threatens basic services such as Internet access, since much of the underlying communications infrastructure lies in the path of rising seas.
- **Maritime disputes:** With sea-level rise, the baselines from which most maritime zones (defined under **United Nation Convention on Law of Seas (UNCLOS)**) are measured will change. As a consequence, the outer boundary of the zone may also change, retreating landward, which may lead to maritime disputes.
- **Impact on India:** As per the study by Hyderabad-based Indian National Center for Ocean Information Services, Sea levels along the Indian coast are projected to rise between 3.5 inches to 34 inch (2.8 feet) by the end of century due to global warming.
 - Climate change is expected to inundate significant sections of Mumbai by 2050, impacting millions of people.

Way forward

- **Integrated coastal management:** It will help in resource management following an integrative, holistic approach and an interactive planning process in addressing the complex management issues in the coastal area.

- **Coastal Regulation Zone** notifications issued under **Environmental Protection Act, 1986** will help in this integrated management.
- **Community ownership:** Policy makers should engage stakeholders in the early stages of decision-making and throughout the entire decision-making process to enhance overall resilience in coastal areas, while supporting community ownership.
- **Barriers to urban areas:** Rotterdam has offered a model to other cities seeking to combat flooding and land loss. **Rotterdam has built barriers**, drainage, and innovative architectural features such as a “water square” with temporary ponds.
- **Enclosure dams:** To protect 25 million people, and important economic regions of 15 Northern European countries from rising seas as a result of climate change a **mammoth Northern European Enclosure Dam (NEED)**, enclosing all of the North Sea is being planned.
- **Adaptation to Sea Level Rise:**
 - **Relocating utility infrastructure**, such as treatment plants and pump stations, to higher elevations would reduce risks from coastal flooding.
 - **Understanding and modeling groundwater conditions** will inform aquifer management and projected water quantity and quality changes.
 - **Coastal restoration plans** may protect water utility infrastructure from damaging storm surge by increasing protective habitat of coastal ecosystems such as **mangroves and wetlands**.
 - **The injection of fresh water into aquifers** can help to act as a barrier, while intrusion recharges groundwater resources.

5.7. LANDSLIDES

Why in news?

Recently, unusually high rainfall and unscientific land use caused landslides at a settlement of tea estate workers in Munnar in Idukki, Kerala.

About Landslide

- **Landslides are a type of "mass wasting,"** which denotes any down-slope movement of soil and rock under the direct influence of gravity.
- It encompasses five modes of slope movement: **falls, topples, slides, spreads, and flows**.
- As per **Geological Survey of India (GSI)**, about 0.42 million km² covering nearly 12.6% of land area of our country is prone to landslide hazards.

Causes of landslide

- **Water and flooding:** Water reduces the friction between the bedrock and the overlying sediment, and gravity sends the debris sliding downhill.
 - In sand and clay soils, a small amount of water may increase stability. However, the sediment gets heavier as more water is added and that can cause it to flow downhill.
 - **Earthquakes:** If the Earth's crust vibrates enough to disrupt the force of friction holding sediments in place on an incline, a landslide can strike. Seismic activity can also make it easier for water to seep into the soil, further destabilizing the slope.
 - Moreover, as the Indian plate moves northwards under the Eurasian plate at a speed of 45 mm per year, the mountain rocks experience continuous stress, making them fragile and prone to further landslides.

Case with Idukki

- Idukki District, known as “**spice garden of Kerala**” lies in Western Ghats region of Kerala, with **Anaimudi Mountain Range and Eravikulam National Park in the North** and Idukki dam and Periyar National Park in the south.
- **Major causes of recent landslide:**
 - Heavy rainfall of 216 cm.
 - Human interventions such as building on slopes which are nearly 40° without adequate protective measures.
 - Blockage of river channels and change of river course due to previous landslides.
 - Soil has a high content of sand which absorbs more water, takes a loose form, and is at risk of slipping down.
 - Soil has high clay content and high-intensity rainfall saturates the soil on the slopes.

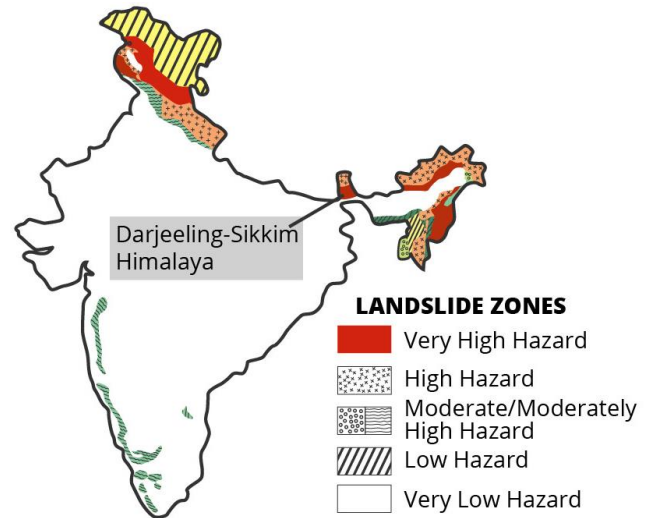
About Geological Survey of India (GSI)

- GSI's main function is creation and updation of national geoscientific information and mineral resource assessment.
- It was set up in 1851 primarily to find coal deposits for the Railways.
- Presently, it is an attached office to the **Ministry of Mines**.
- GSI is headquartered in Delhi.

- **Wildfires and deforestation:** Plants help keep the soil stable by holding it together like glue with their roots. When this glue is removed, the soil loosens, and gravity acts upon it much more easily. The loss of vegetation after a fire or deforestation makes the razed land susceptible to slides.
- **Anthropogenic activities:** External loads such as buildings, reservoirs, highway traffic, stockpiles of rocks, accumulation of alluvium on slopes, etc.

Impacts of landslides

- **Loss of life:** Landslides have caused massive damage of life and property during extremely heavy rain across India
 - **Kedarnath landslide in Uttarakhand in June 2013,** caused by flash floods that resulted in over 5,000 deaths, was identified as the most tragic such disaster.
- **Infrastructure loss:** The surface communications in the hilly areas throughout the world are disrupted by landslides.
- **Agriculture & vegetation loss:** Destruction of the agricultural land is the direct impact of landslide hazards. Sometimes the surface becomes so irregular that even the use of machinery becomes impossible.
 - Landslides lead to tilting of trees and their subsequent uprooting leading to deforestation.



Way forward

- The **National Disaster Management Authority** has released **National Landslide Risk Management Strategy**.
 - **Landslide Hazard Zonation (LHZ):** It recommends Landslide Hazard Zonation maps to be prepared at macro scale and meso level.
 - ✓ It focuses on making use of advanced state-of-the-art tools such as Unmanned Aerial Vehicle (UAV), Terrestrial Laser Scanner, and very high-resolution Earth Observation (EO) data.
 - **Awareness Programmes:** Since the community is the first to confront the disaster before any aid reaches them, a mechanism of awareness is framed to involve and educate the community.
 - **Capacity Building and Training of Stakeholders:** Creation of **Centre for Landslide Research Studies and Management (CLRSM)** to create a techno-scientific pool of expertise in the country.
 - **Preparation of Mountain Zone Regulations and Policies:** The strategy describes the formulation of land-use policies and techno legal regime, updation and enforcement of building regulations, **review and revision of BIS code / guidelines for landslide management, proposed amendment in town and country planning legislations,** regulations for land use zoning for natural hazard prone areas etc.
- Some of the best practices in **Sikkim** such as **controlled breaching of artificial lake** to prevent Lake Burst situation helped in reducing landslides can be extrapolated in hilly regions.
- **Early Warning System for Landslide** should be installed in hazard prone areas and dissemination of information through mobile networks can be used to reduce the loss of life.
- **The Gadgil Panel on Western Ghats Ecology** recommended for a replacement of the prevailing 'Develop Recklessly, Conserve Thoughtlessly' pattern with one of '**Develop Sustainably, Conserve Thoughtfully**', which would result in to reduced landslide incidents on the Western Ghats.

5.8. FLOODS IN BIHAR AND ASSAM

Why in news?

Parts of Assam and Bihar in India have been severely affected by floods almost every year in the last decade.

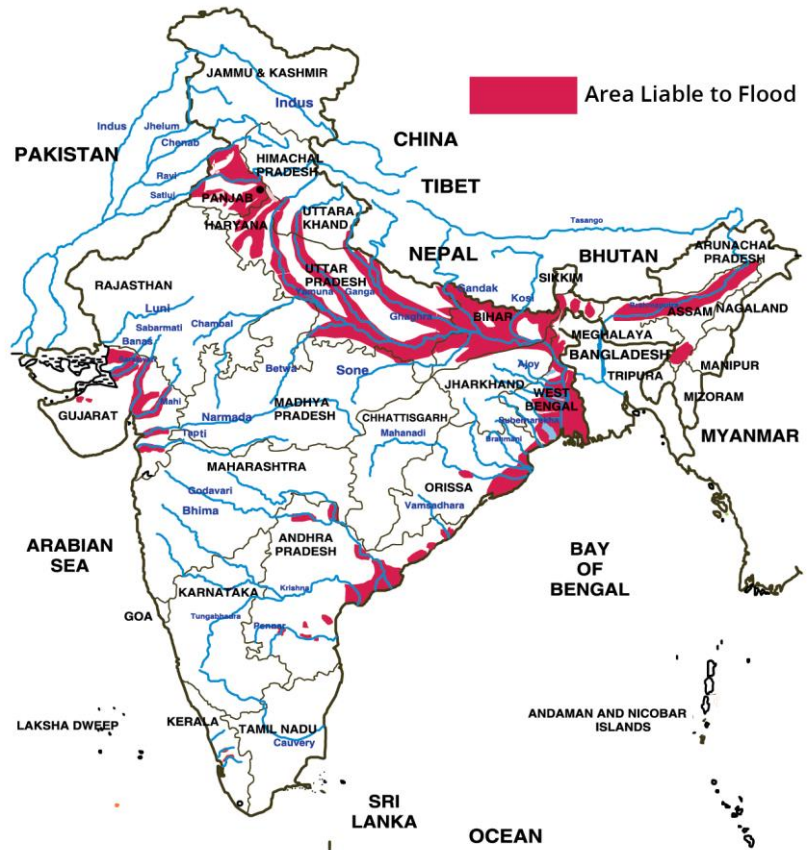
Floods in India

- Rashtriya Barh Ayog (RBA) had estimated in 1980, total flood-prone area in the country as **40 million hectare (mha)** which was revised further to 49.815 mha.
 - As such, about 39.58 % of the total land area of Assam and 73.63% of the geographical area of North Bihar is considered to be prone to floods.

- Recurring floods in the Assam and Bihar have had **catastrophic effects** such as widespread loss of human and animal life, destruction of crops and private property, displacement of people, and damage to infrastructure which aggravates the already poor drainage system.
 - Average annual loss due to flood in Assam is to the tune of Rs. 200.00 Crores.

Why are floods a recurring phenomenon in these regions?

- **Topographical and Hydrological factors:** Overflowing Rivers is the primary cause of floods in these regions. Brahmaputra and Barak and their tributaries in Assam and Kosi River in Bihar are responsible for majority of floods. The flooding situation in these rivers is often aggravated by:
 - **erosion and silting of the river beds**, resulting in a reduction of the carrying capacity of river channels
 - **earthquakes and landslides** leading to changes in river courses and obstructions to flow
 - **synchronization of floods** in the main and tributary rivers
 - **inflow** from neighboring states
- **Meteorological factors:** 80% of the precipitation in India takes place in the monsoon months from June to September. Concentrated rainfalls in a short span of time and events such as cloud bursts, glacial lake outbursts etc. often cause floods in Himalayan Rivers.
- **Anthropogenic factors:** These include deforestation, drainage congestion, encroachment of natural water bodies, unsustainable mining of river-bed, poorly planned development works and climate change induced extreme weather events.
- **Flaws in Flood management strategies:**
 - **Construction of embankments without proper assessment:** Embankments have been used extensively in Assam and Bihar for managing flooded rivers. Some studies have concluded that in certain cases embankments have enhanced the flood problem. Major issues with embankments include:
 - ✓ They can interfere with drainage and cause drainage congestion
 - ✓ Their inability to stand erosion
 - ✓ They need continuous maintenance and repairs
 - ✓ They can raise river bed levels thus decreasing carrying capacity of rivers



Significance of floods in Kaziranga's ecosystem

- The entire area of Kaziranga is formed by **alluvial deposits** from the Brahmaputra and its tributaries.
- The regenerative nature of floods helps **replenish Kaziranga's water bodies** and maintain its landscape, a mix of wetlands, grasslands and semi-evergreen deciduous forests.
- The flood waters also help get **rid of unwanted plants** such as water hyacinth.

Government's efforts towards flood management

- **Rashtriya Barh Ayog (RBA)** was constituted in 1976. It submitted its report in 1980 recommending various measures of flood control.
- **National Water Policy-2012:** It emphasizes construction of large storage reservoirs and other non-structural measures for integrated flood management.
- **Setting up Ganga Flood Control Commission (GFCC)** at Patna in 1972 and **Brahmaputra Board** in 1980 for advising the Ganga Basin States and North Eastern-States respectively on Flood Management measures.
- The **Central Water Commission (CWC)** was set up in 1945: It performs flood forecasting activities on major rivers and their tributaries in the country and issues flood forecast at 175 stations.

- **Absence of an integrated approach by the Centre and the state:** The Brahmaputra Board formed under the Brahmaputra Board Act, 1980, lacks coordination with the state government. Similar lack of coordination can be seen between the Assam Disaster Management Authority and National Disaster Management Authority (NDMA).
- **Unrealized potential of multipurpose dams:** The dams in Assam and Bihar mainly focus at the hydropower benefits and lack storage space for flood control.
- **Trans boundary management of rivers:** Absence of real time sharing of hydrological data and poor coordination among river basin nations about river flow management is an issue.

Way forward

- **Adopting a collaborative approach** involving all stake holders — the Centre, the state, the district administration, Indian Meteorological Department and crucially, the community.
 - It is also important for Assam to **work together with the neighbouring states** like Meghalaya that shares the basin of Brahmaputra.
- **Shifting the focus from mindless construction of embankments to flood mitigating policies** that complement the existing embankments and accentuate the impact of floods.
 - **National Water policy, 2012**, recommends conducting **morphological studies**, based on which planning, execution and maintenance of revetments, spurs, embankments, etc. could be carried out.
- An **integrated approach to managing floods** is needed that works simultaneously for water management, physical planning, land use, agriculture, transport and urban development as well as nature conservation.
 - **E.g. - Wetlands**, locally known as beels, act as reservoirs and rejuvenating them before monsoon can help in mitigating flood in parts.
- **Incorporating storage space in the reservoirs** as a preventive measure during the floods.
- **Raising awareness among communities** residing in the flood-prone areas and ensuring efficiency of the local authorities could help mitigate the effects of the disaster.
- **Improving Flood forecasting** so that information about floods forecasts reaches the affected villages on time.
- **Managing silt through dredging:** The fine dredged material can be used to supply organic content and nutrients to deficient soils to increase productivity.
- **Flood Plain Zoning (FPZ):** FPZ measures aim at demarcating zones or areas likely to be affected by floods of different magnitudes or frequencies and probability levels and specifying the types of permissible developments in these zones, so that whenever flood actually occurs, the damage can be mitigated.
 - **Central Water Commission (CWC)** had circulated a **Model Bill on Flood Plain Zoning** to all the States in 1975 to guide of States for enactment of legislation in this regard.
 - **RBA** recommends **scientific assessment** of flood prone areas, flood damage and areas suffering from drainage congestion and water-logging. This should be based on frequency of flooding and period of inundation as gauged by **contour maps and satellite imagery**.

5.9. FLASH DROUGHTS

Why in News?

According to a recent study, about 10-15% areas under cultivation of rice and maize were affected by flash droughts during the monsoon seasons in India between 1951 and 2018.

About Flash Droughts

- Unlike conventional drought that propagates slowly, **flash drought is characterized by rapid onset and intensification** caused by high evapotranspiration rates due to abnormally high temperatures, winds, and high incoming solar radiation.
 - Therefore, flash droughts are **associated with low soil moisture, extreme heat, and high evapotranspiration**.
- It can be classified as **agricultural droughts** due to their direct association with soil moisture and crop stress. Therefore, **soil moisture has been widely used as an indicator** to identify flash droughts.
- Flash droughts can be driven by lack of precipitation known as **precipitation deficit flash drought**.
- On the other hand, flash drought caused by anomalously **high temperature is known as heatwave flash drought**.

- Drivers and **characteristics of flash droughts can vary regionally as well as in different seasons.** For example, subtropical or temperate regions of the world can experience flash droughts anytime in a year.
- Flash drought can have **localized as well as to large-scale implications.** The regional flash droughts can affect crop production and irrigation demands at the local scale.
 - For instance, 2017 flash drought in the Northern Plains of the USA was limited to only two states.

Key findings of the study

- It identified **39 flash droughts during 1951-2018** and found that **82% of those occurred during monsoon season** in India.
- Flash droughts are mainly **driven by significant negative anomalies of precipitation (monsoon break).** Increased air temperature and precipitation deficit together (during breaks) cause a rapid depletion of soil moisture leading to flash drought.
- Flash droughts in the monsoon season can have **implications for agriculture and water management in India.**
 - About **10-15% of rice and maize grown area is affected** by the flash droughts each year in India.
 - Since flash droughts cause a rapid depletion of soil moisture, **irrigation water demands can considerably increase** in the agricultural regions.
 - Frequent flash droughts during the monsoon season in northern India **can indirectly influence groundwater storage.**

5.10. BOREAL SUMMER INTRA SEASONAL OSCILLATION

Why in news?

Researchers at the Indian National Centre for Ocean Information Services (INCOIS), Hyderabad have found a better way to forecast waves based on **Boreal Summer Intra Seasonal Oscillation (BSISO).**

More on news

- Researchers found that, some phases of BSISO **induce high wave activity** in north Indian Ocean and Arabian Sea.
- Waves induced by **active phases of BSISO are nearly 0.5 meters higher** than those which occur during other phases of BSISO.
- Studying BSISO will help improve wave forecasts along India's coasts and mitigate adverse impacts of high waves (coastal flooding, erosion, etc).
- It also helps in better planning of Sea-navigation routes.

About BSISO

- BSISO is the **transfer of heat from Indian Ocean to western Pacific Ocean** roughly every 10-50 days during the monsoon (June-September).
- It represents the monsoon's '**active**' and '**break**' periods, in which **weeks of heavy rainfall give way to brilliant sunshine** before starting all over again.
- The active phase **enhances monsoon winds** and hence the surface waves.
- It is **one of the most prominent sources of short-term climate variability** in the global monsoon system.

Indian National Centre for Ocean Information Services (INCOIS)

- It was established as an **autonomous body in 1999 under the Ministry of Earth Sciences (MoES)** and is a **unit of the Earth System Science Organization (ESSO).**
- It is mandated to provide **the best possible ocean information and advisory services to society, industry, government agencies and the scientific community.**
- It carries out **sustained ocean observations** and constant improvements through systematic and focussed research.

5.11. MANGROVE ECOSYSTEM

Why in news?

Guidelines on Mangrove Ecosystem restoration for the Western Indian Ocean region were released.

More in News

- The guidelines were developed by the member states of **Nairobi Convention with support from UNEP–Nairobi Convention, the Western Indian Ocean Marine Science Association and the Western Indian Ocean Mangrove Network.**

- Guidelines can be used to **guide action on mangroves as part of the upcoming UN Decade on Ecosystem Restoration (2021-2030)** and support progress towards achieving Sustainable Development Goal 14.2 on protecting and restoring marine and coastal ecosystems.

About Mangroves

- Mangroves are diverse group of salt-tolerant plant community of **tropical and subtropical intertidal regions of the world, occurring mainly between latitude 24° N and 38° S.**
 - Temperature pattern of sea-surface and air, rainfall and freshwater runoff have a strong influence** over mangrove forest, largely through the reduction of salinity.
- They are referred to as **'tidal forests'** and belong to the category of **'tropical wetland rainforest ecosystem'**.
- They exhibit varied morphological and physiological **evolutionary adaptations to survive the limiting factors imposed by lack of oxygen, high salinity and diurnal tidal inundation.**
 - Succulent leaves, sunken stomata, aerial breathing roots called 'pneumatophores', vivipary, stilt roots, buttresses etc are some of the adaptations exhibited by mangroves.
- In India, three types of mangrove formation can be seen.**
 - Deltaic mangroves occur mainly along the east coast,
 - Backwater-estuarine type along the west coast and
 - Insular type in the Andaman and Nicobar Islands.

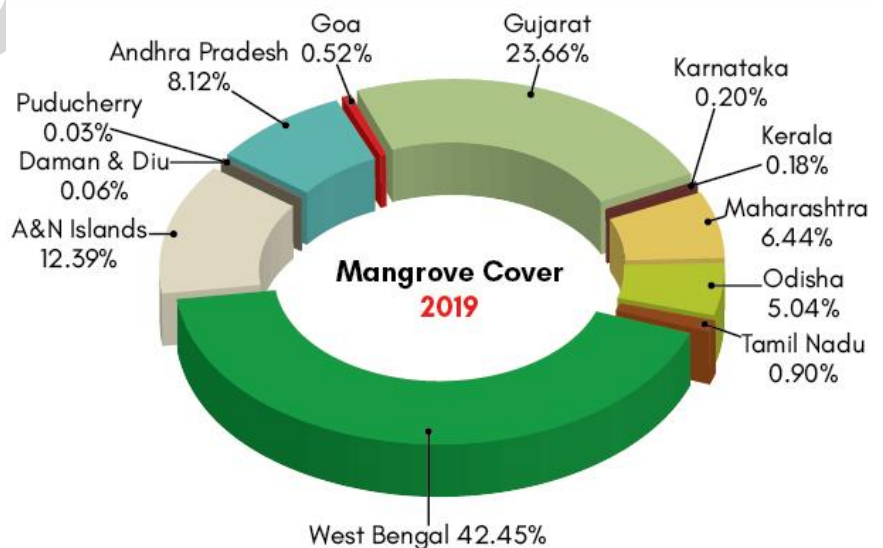
Nairobi Convention

- It is a **partnership between governments, civil society and the private sector**, working towards a prosperous Western Indian Ocean Region with healthy rivers, coasts and oceans.
- It entered into force in 1996 and is part of **UNEP's Regional Seas Programme.**
- The **Convention offers a regional legal framework and forum for inter-governmental discussions** that lead to better understanding of regional environmental problems and the strategies needed to address them.
- To address emerging issues in the region, the Conference of Parties (COPs) have **established expert groups and task forces, such as the Mangrove Network, the Coral Reef Task Force, Marine Turtle Task Force, the Forum for Academic and Research Institutes (FARI), and the Legal and Technical Working Group.**
- India is not a party to the convention.**

Mangrove status in India

- According to Ministry of Environment, Forest & Climate Change biennial State of Forest Report 2019 **mangrove cover in the India is 4,975 sq. km, which is 0.15% of the country's total geographical area.**
- West Bengal has 42.45%** of India's mangrove cover, followed by **Gujarat 23.66%** and **A&N Islands 12.39%.**
 - Sunderbans Mangroves of West Bengal is largest mangrove forest in the world** and is a hub of animals such as the Gangetic dolphin, estuarine crocodiles, and of course the Bengal tiger among others.
 - Godavari-Krishna Mangroves, Baratang Island Mangroves in Andaman and Nicobar and Pichavaram Mangroves in Tamil Nadu** are other important mangrove sites.
- India has lost 40% of its mangrove area** in the last century, mainly due to agriculture, aquaculture, tourism, urban development and overexploitation.
- Globally, 67 percent of mangroves to date lost or degraded and an additional 1 percent being lost each year, expected to continue to disappear mangroves in around 100 years.**

PIE CHART SHOWING MANGROVE COVER IN DIFFERENT STATES & UTs



Benefits of Mangrove ecosystem

- **Mangrove goods and services:** Mangrove is used as wood for fuel, construction, fish traps and non-wood products such as **traditional medicine** to treat malaria, diarrhoea, snake bites etc. They also act as an important source of livelihood for the coastal communities.
- **Habitat and nursery functions:** The broad and towering canopies provide **nesting and resting ground for migratory and sea birds**. It also supports the associated ecosystems such as seagrass beds and coral reefs.
- **Coastal protection:** Mangroves act as buffer between land and the sea and play a significant role in sediment stabilization, shoreline and coastal protection as well as water purification.
- **Erosion control:** Mangroves can reduce the height of wind and swell waves and reduce the water level of storm surges, which **lessens the risk of flooding**.
- **Nutrient cycling:** Mangroves have an estimated mean biomass identical to tropical terrestrial forests, forming a base of many coastal food webs through **regulating and supporting nutrient cycling**.
- **Carbon sequestration:** Mangroves capture and store huge stocks of carbon in both above and below ground components; making them one of the most carbon rich ecosystems on the planet.
 - Experts estimate that carbon emissions from mangrove deforestation account for up to 10% of emissions from deforestation globally, despite covering just 0.7% of land coverage.

Related News

- Recently, United **States National Aeronautics and Space Administration (NASA)** had created the first map of the causes of change in **global mangrove habitats** between 2000 and 2016.
- Study finds mangroves **losses from natural causes such as erosion and extreme weather are more slowly than human causes** such as farming and aquaculture.
- **Commodities**— a combination of rice, shrimp, and oil palm cultivation — served as the **primary global driver of mangrove loss**, constituting 47 per cent of global losses from 2000 to 2016.
 - Shoreline erosion represented the second highest percentage of global losses.
- The vast majority of the total global direct anthropogenic loss, nearly 80 per cent, was concentrated in six nations: Indonesia, Myanmar, Malaysia, the Philippines, Thailand, and Vietnam.

Threats to mangrove ecosystem

- **Increased population** and rising demand for small timber, fodder, fuelwood and other non-wood forest products.
- **Urbanisation and agriculture:** In India, over 40 per cent of mangrove area on the western coast was converted to agricultural fields and converted to urban areas.
 - Mangroves are **cleared for Shrimp culture, Saltpans and Aquaculture** also pose major threat to the mangroves.
- **Pollution: Discharge of domestic sewage, industrial effluents and pesticides** into creeks and estuaries harming the mangrove ecosystem.
- **Climate change:** It threatens the mangrove areas mainly through **rising sea levels and increased sedimentation** caused by precipitation and shoreline change.
- **Exploitation:** Illegal large-scale collection of mangrove fruits used in production of medicine, which hinders their natural regeneration.
 - The traditional use of **dragnets in fishing, often hampers regeneration of mangroves** because young seedlings get entangled in the nets and are uprooted.

Global Initiative to protect Mangrove

- **Inclusion of mangroves in Biosphere Reserves, World Heritage sites and UNESCO Global Geoparks** contributes to improving the knowledge, management and conservation of mangrove ecosystems throughout the world.
- **International Blue Carbon Initiative** is a coordinated, global programme focused on mitigating climate change through the conservation and restoration of coastal and marine ecosystems.
- **Global Mangrove Watch (GMW)** is an online platform that provides the remote sensing data and tools for monitoring mangroves and gives universal access to near real-time information on where and what changes there are to mangroves across the world.

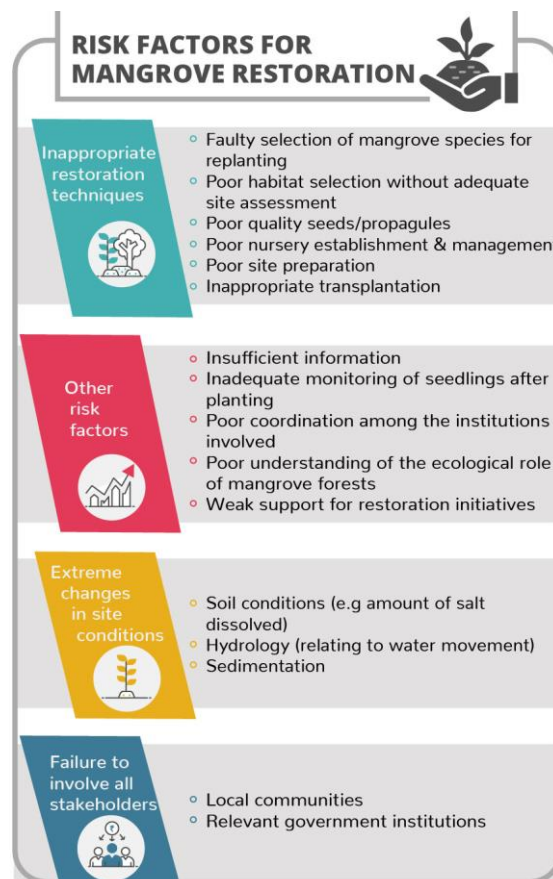
Initiatives to conserve Mangrove ecosystem

- India has drafted a '**National Strategy and Action Plan**' to sustainably mitigate the mangrove and coastal ecosystem.

- **Coastal Regulation Zone (CRZ) notification under the Environmental Act, 1986**, declared all coastal stretches up to 500 m from the high tide line as CRZ, which is very essential for conservation and sustainable management of mangrove forests.
- Ministry of Environment, Forest and Climate Change put **restrictions on the expansion of shrimp farming**.
- **Mangrove for Future (MFF)** is Indian initiative with cooperation of IUCN to promote investment in coastal ecosystem conservation for sustainable development.
- **'Magical Mangroves – Join the Movement'** a nationwide campaign launched recently which highlights the significance of mangroves conservation in present times and urges citizens to join the conservation movement.
- In Andhra Pradesh, Forest Department has formed **Eco-Development Committees and Van Samrakshan Samithis** for joint implementation of projects in mangrove areas. Maharashtra became the first coastal state to declare a **state mangrove tree species** as a symbol to enhance conservation of the salt-tolerant vegetation.

Way forward

- The **identification and implementation of conservation priorities for mangroves** on the basis of comprehensive species-specific information.
- **Mangrove nursery banks** should be developed for propagation purposes and **suitable sites are to be identified** for planting mangrove species.
- The **participation of the local community** should be made compulsory and **socioeconomic studies on the mangrove-dependent people** need to be taken up to involve them in management of mangrove biodiversity.
- **Integrating mangrove restoration with alternative livelihoods:** Integrating restoration activities with income generating activities to surrounding communities, reduces human overdependence and subsequent pressure on mangrove ecosystem and their resources.
 - For e.g. Beekeeping, aquaculture, use of energy efficient stoves should be promoted to relieve pressures and safeguard mangroves.
- **Periodical monitoring** of the mangrove forest is very much necessary to assess the status and impact of environmental and human interference on marine flora and fauna.



5.12. SNOW LEOPARD

Why in news?

India's first snow leopard conservation centre will be established in Uttarakhand.

More about news

- The conservation centre will be built by the **Uttarakhand forest department along United Nations Development Programme (UNDP) in Uttarkashi forests** as part of its six-year long project, **SECURE Himalayas**.
 - The project aims at securing livelihoods, conservation, sustainable use and restoration of high range Himalayan ecosystems.
 - The project looks into conversation of snow leopards and other endangered species and their habitats, found in Himalayas. **This project was started in 2017**.
 - It is funded by **the Global Environment Facility-United Nations Development Programme**.
- The Snow leopard conservation centre aims to protect the animal with the help of local community and also **give employment to locals** from nearby villages through tourism. It also aims to conservation and restoration of Himalayan ecosystems.

Other Conservation measures by the Government:

- **Project Snow Leopard:** To safeguard and conserve India's unique natural heritage of high-altitude wildlife populations and their habitats by **promoting conservation through participatory policies and actions.**
- **Global Snow Leopard & Ecosystem Protection Program (GSLEP):** It is an unprecedented alliance of all snow leopard range countries, non-governmental organizations, multi-lateral institutions, scientists and local communities, united by one goal: saving the snow leopard and its mountain ecosystems.
 - **Afghanistan, Bhutan, China, India, Kazakhstan, Kyrgyz Republic, Mongolia, Nepal, Pakistan, Russian Federation, Tajikistan, and Uzbekistan** are part of GSLEP.
- The Indian Government has also launched the **first national Snow Leopard Population Assessment** to estimate the population of snow leopards in the Indian ranges.

About Snow Leopard

- It is a **Schedule I animal under Wildlife Protection Act** of India.
- It is listed as **"Vulnerable"** by the International Union for Conservation of Nature.
- They are listed under Appendix I of CITES.
- The animal faces many threats to its existence due to poaching and habitat destruction.
- In India, it inhabits the Himalayas at elevations ranging from 3,000 to 4,500 metres across **Jammu and Kashmir, Ladakh, Himachal Pradesh, Uttarakhand, Sikkim, and Arunachal Pradesh.**
 - This area contributes to about five per cent of the global snow leopard range.
 - In Uttarakhand, snow leopards are found in Nanda Devi Biosphere Reserve, Gangotri National Park, Askot Wildlife Sanctuary and other places of altitude between 3000-4500 meters in total geographical area of around 13,000 square kilometres.
- Snow leopards are found in 12 countries—including China, Bhutan, Nepal, India, Pakistan, Afghanistan, Russia, and Mongolia.



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6. SOCIAL ISSUES

6.1. RETHINKING SOCIAL SECURITY

Why in news?

The Covid-19 crisis has brought to the forefront the glaring loopholes in the social security measures in India.

What does Social security mean?

- Social security is the protection that a society provides to individuals and households to ensure access to health care and to guarantee income security, particularly in cases of old age, unemployment, sickness, disability, work injury, maternity or loss of a breadwinner.
- **Importance of social security-**
 - It provides older people with **income security** in their sickness, unemployment and retirement years.
 - Children benefit from social security programmes designed to help their families **cope with the cost of education**.
 - For employers and enterprises, social security helps maintain **stable labour relations** and a productive workforce.
 - And social security can contribute to social cohesion and to a country's overall growth and development by **bolstering living standards**, cushioning the effects of structural and technological change on people and thereby providing the basis for a more positive approach toward globalization.
- **Examples of Social security measures in India:**
 - Enactment of **National Food Security Act (NFSA), 2013** which entitles upto 75% of the rural population and 50% of the urban population to receive subsidized foodgrains under Targeted Public Distribution System.
 - **Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS)** aims to enhance livelihood security in rural areas by providing at least 100 days of guaranteed wage employment in a financial year to unskilled workers.
 - **Maternity Benefit (Amendment) Act, 2017** provides women in the organized sector with paid maternity leave of upto 26 weeks.
 - **Atal Pension Yojana** encourages the workers in unorganised sector to voluntarily save for their retirement.

Constitutional Basis for Social Security in India

- **Article 21** of the Constitution guarantees the **fundamental right to life with basic dignity** to all which includes all the rights that are essential to main human life in a civilized society, such as food, clothes, house, medicine and education.
- Several **Directive Principles of State Policy**, enumerated in Part-IV of the Constitution, provide basis for many social security benefits. Examples-
 - **Article 38** is a mandate to the state to secure a social order for the promotion of welfare of the people.
 - **Article 41** provides for right to work, education and public assistance in certain cases such as unemployment, old age, sickness and disablement.
 - **Article 42** stands for providing just and human conditions of work and maternity relief.

Issues highlighted by COVID-19 crisis in India's Social security measures

- **Large exclusionary errors in schemes:** A considerable section of needy population is left out of their purview in the process of enumeration, identification and authentication due to absence of strong, decentralized and responsive administrative capacity.
 - Prescribed ration under Food Security Act, 2013 could not reach a major section of people who were in dire need of food for survival, mostly due to the lack of adequate documentation.
- **Top down approach of policy formulation:** Policymakers are often unaware of harsh ground realities that create hurdles in efficient delivery of intended benefits.
 - Poor assessment of the scale and specific requirements of efforts needed during COVID-19 led to shortages and quality issues in the public distribution system.
 - Directives for maintaining social distancing, in order to curb the spread of the disease, does not factor ground realities that a large section of people dwells in congested and overcrowded homes where social distancing might be an unachievable idea.
- **Ineffective implementation of schemes on ground level:** This can be attributed to factors such as limited administrative capacity, inadequate estimation of needs of vulnerable population, corruption at various levels, weak institutions, lack of training among stakeholders etc.

- **Lack of awareness:** Large sections of vulnerable population are unaware of rights and benefits guaranteed to them under various social security schemes.
 - Labourers engaged in formal work, who were recruited by middlemen, were unaware of their identification numbers or whether they received any contributions from their employers for their provident funds.
- **Apathetic attitude towards marginalized sections:** Vulnerable sections in the population find themselves at the margins of the priority of the governance ecosystem.
 - The lockdown was declared hurriedly without proper assessment of its economic impacts migrant population. Factors such as shortage of food and lack of affordable housing and unemployment benefits led to a mass exodus of migrant workers to their hometowns.

Way forward

- An approach for **progressive realisation of rights** should be devised through a dialogic process that involves all stakeholders.
- The marginalized need to be **assured of a minimum form of social security and effective disbursement of public entitlements**.
- Formulation of policies should be done in a **decentralized** manner which provides scope and suggestions for handling actual ground realities.
- Administrative capacity needs to be strengthened. **Participants from vulnerable sections** can be involved in effective implementation of schemes through adequate capacity development and training.

Conclusion

The pandemic provides an opportune moment for the social welfare policy regime in India to undergo a paradigmatic shift in its approach towards policy designing as well as its implementation. Only a more inclusive and humane approach towards perceiving the need of social welfare can guarantee an effective way of relieving the suffering of the vulnerable sections of the population.

6.2. NATIONAL DIGITAL HEALTH MISSION (NDHM)

Why in news?

Recently, the **National Digital Health Mission (NDHM)** was launched by Ministry of Health & Family Welfare (MoHFW), in a pilot mode in six Union territories.

Background

- The genesis of a new digital health infrastructure in India came about in the **National Health Policy (NHP), 2017** which proposed a new **National Digital Health Authority** and envisaged creation of a **digital health technology eco-system** aimed at developing an integrated health information system.
- Based on the NHP, 2017, NITI Aayog proposed a visionary digital framework - **National health stack (NHS)** in 2018.
- In July, 2019 the **National Digital Health Blueprint (NDHB)** of the mission was prepared by a panel of MoHFW to create a framework for the NHS.

About National Digital Health Mission (NDHM)

- NDHM is a **voluntary healthcare programme** that aims to reduce the gap among stakeholders such as doctors, hospitals, citizens etc by connecting them in an integrated digital health infrastructure.
- **Vision:** To create a national digital health ecosystem that supports **universal health coverage** in an **efficient, accessible, inclusive, affordable, timely and safe** manner.



- The scheme will be initially rolled out in the Union Territories of Chandigarh, Ladakh, Dadra and Nagar Haveli and Daman and Diu, Puducherry, Andaman & Nicobar Islands and Lakshadweep.
- **Features of NDHM**
 - **Building blocks or digital systems:**
 - ✓ **HealthID** - a repository of all health-related information of a person, such as medical tests, previous prescriptions, diagnosis, treatments etc. It can be created **voluntarily** by every Indian citizen.
 - ✓ **DigiDoctor** – a single, updated repository of all doctors enrolled in nation with relevant details such as name, qualifications, specializations, registration number, years of experience, etc
 - ✓ **Health Facility Registry (HFR)** - a single repository of all the health facilities (both public and private) in the country.
 - ✓ **Personal Health Records (PHR)** - an electronic record of health-related information on an individual that can be drawn from multiple sources while being managed, shared, and controlled by the individual.
 - ✓ **Electronic Medical Records (EMR)** - a digital version of a patient's chart which contains the patient's medical and treatment history from a single health facility.
 - ✓ **Consent Manager and Gateway** - The exchange of health information is enabled by the consent manager and gateway where Health records can only be issued / viewed with patient consent.
 - **National Health Authority**, attached office of MoHFW, will **design, build, roll-out and implement** the NDHM.
 - **Federated Architecture:** The **Government of India will own, operate and maintain the core building blocks** of NDHM such as Health ID, Digi-Doctor and HFR.
 - ✓ All other building blocks will be designed to be operated in a federated model that factors **regional, state-level and institution-level** platforms and systems to function independently but in an interoperable manner.
 - ✓ Components, like **PHR and EMR** solutions can be developed by **private players**, in line with the official guidelines issued by the government.
 - **NDHM sandbox** has been setup to enable any **software to integrate** with the digital building blocks and **test their compliance** to the guidelines and digital health standards.
 - NDHM will be developed by adopting **India Enterprise Architecture Framework (IndEA)** notified by MeitY.
 - ✓ IndEA is a set of citizen-centric, efficiency-focused and event-driven architectural patterns, reference models and standards for designing Enterprise Architectures.

Benefits associated with a Digital Health Infrastructure

- **Inclusive Healthcare:** Technological interventions such as telemedicine can bridge the **urban-rural healthcare divide** and achieve **portability** not just for the beneficiaries but also for practitioners.
- **Better utilization of data:** NDHM would facilitate convergence of data and a comprehensive feedback loop between researchers, policymakers, and providers.
 - **Modern big data analytics and machine learning tools** can utilize the data for health care cost estimation, business opportunities in healthcare market, medical research and preventive healthcare.
- **Effective implementation of schemes and policies:** Access to health data will enable government to strengthen implementation of health programmes and policies through geography and demography-based monitoring and decision making.
- **Enabling citizens to make informed decisions:** Through correct information and sources, citizens can overcome challenges such as finding the right doctors, seeking appointment, payment of consultation fee etc. to avail the best possible healthcare.
- **Improved health care services:** The integrated ecosystem will also enable better continuum of care, faster reimbursements and effective health interventions. A digital health ecosystem will also help in improving **consumer experience** and **accountability** of healthcare providers
- **Reduced risks for government and healthcare providers:** by improved price discovery mechanism and better fraud detection.
- **Boost to Medical tourism:** A national digital ecosystem can attract a globally competitive healthcare insurance and service provision industry with potential increase in medical tourism.
- **Achieving Sustainable Development Goals (SDGs):** NDHM can be a major stride towards achievement of the SDG 3.8 of Universal Health Coverage, including financial risk protection.

Challenges

- **Federal nature of Healthcare:** Health in India is responsibility of the States which leads to fragmentation of policy formulation, implementation and regulation.
- **Digital divide:** Digital systems can lead to exclusion of digitally illiterate and unconnected remote, hilly and tribal areas.
- **High cost of developing digital infrastructure:** Providing unique ID and encoding data for the use of medical professionals along with developing and securing data network is a costly process.
- **Huge requirement of skilled labour:** India faces shortage of skills in areas such as cyber security, business analysis, clinical resources and software development and systems engineering.
- **Inadequate primary health system:** It faces myriad of issues such as poor data collection, use of obsolete technology, shortage of healthcare facilities, shortage of staff etc.
- **Apprehension among healthcare providers:** due to fear of litigation, use of new technology, increased administrative burden etc.
- **Privacy, security and sovereignty issues:** Health IDs will contain sensitive personal data which can be accessed by a third party. With involvement of private players from across the globe, safeguarding of medical data will become essential.

Way Forward

- **Ensuring transparency to increase user confidence:** To increase acceptance of new technology, processes involved in utilization of health data should be made transparent and easy to understand.
- **Drawing strict privacy related guidelines:** Data confidentiality, cyber security and ethics are significant for innovation and real-world use of Digital healthcare. Hence, formulation of guidelines on health data of individuals should be protective of rights of patients.
 - A combination of data protection techniques like **anonymization, de-identification and encryption** can be applied.
 - Every access to each record must be done with **explicit consent of the individual** and with a permanent record of the transaction.
- **Maintaining Technical Sovereignty:** by fostering indigenous innovation in health-tech through public and private research institutions and start-ups.
- **Specialized systems** can be designed to reach out to the "unconnected", digitally illiterate, remote, hilly and tribal areas. **Telemedicine** will help in reaching out to such groups to provide them with services of experts.
- **Using the experience of Ayushman Bharat—Pradhan Mantri Jan Arogya Yojana (AB-PMJAY):** It has successfully used the available public digital infrastructure to provide end-to-end services such as paperless payments. This can be leveraged to expand the reach of digital health to all residents and develop an open and inter-operable health management system.
- **Developing a standardized system for medical record maintenance:** It will ensure uniformity and ease portability of such records. Healthcare professionals should be trained accordingly.

Conclusion

India's remarkable macroeconomic performance has yet to translate into the country's health system which lags behind on multiple dimensions including key outcome indicators, public financing for healthcare, level and depth of health insurance coverage, etc. A digital health ecosystem has the potential for pushing towards such transformation.

MoHFW's Initiatives related to digital health

- **E-Sanjeevani platform:** It enables two types of telemedicine services viz. Doctor-to-Doctor (eSanjeevani) and Patient-to-Doctor (eSanjeevani OPD) Tele-consultations.
 - More than 1,50,000 tele-consultations have been completed till date, enabling patient to doctor consultations from the confines of their home.
- **e-Hospital:** It is an ICT based Hospital Management System specifically meant for the hospitals in Government Sector.
- **Mera Aspatal:** It is a patient feedback system for the services received at the hospital.
- **e-Shushrut:** It is a hospital Management Information System developed by C-DAC.
- **Electronic Vaccine Intelligence Network (eVIN):** It is an indigenously developed technology system in India that digitizes vaccine stocks and monitors the temperature of the cold chain through a Smartphone application.

- **National Health Portal (NHP):** It aims to establish a single point access for authenticated health information for citizens, students, healthcare professionals and researchers. Users can access detailed information pertaining to health related issues.

6.2.1. DRAFT HEALTH DATA MANAGEMENT POLICY

Why in news?

The National Health Authority (NHA) has recently released the Draft Health Data Management Policy of the National Digital Health Mission (NDHM) for public feedback.

About the Draft Health Data Management Policy

The policy acts as a guidance document across the National Digital Health Ecosystem (NDHE) and sets out the minimum standard for data privacy protection that should be followed across the board in order to ensure compliance with relevant and applicable laws, rules and regulations.

Objectives

- To **safeguard digital personal health data** and increase awareness of the importance of data privacy.
- To create a system of digital personal and medical health records which are **easily accessible** to individuals and health service providers and is purely **voluntary** in nature.
- To ensure **national portability** in the provision of health services.
- **To leverage the information systems** existing in the Indian health sector by encouraging conformity with the defined data privacy standards and integrating such existing systems with NDHE.

Key Points

- **Definitions:** The policy defines important terms such as data fiduciary, anonymisation, harm, personal data, sensitive personal data etc.
- **Rights of data principals** (the individual to whom the personal data relates): Citizens have the following rights regarding their health data-
 - Confirmation and access to their personal data
 - Correction and erasure of information
 - Restrict or object to disclosure of any data
 - Data portability
- **Consent framework:** It incorporates the following principles in relation to processing of personal or sensitive personal data by data fiduciaries-
 - Data fiduciaries can collect or process personal or sensitive personal data only with the **valid consent** of the data principal.
 - **Consent can be withdrawn at any time** and ease of such withdrawal should be comparable to the ease with which consent was given.
 - The consent of the data principal may be obtained **electronically or physically** on paper, either directly or through a consent manager.
- **Privacy Notice:** A clear **privacy notice** to be given to data principals prior to the collection and further processing of health data or at the **time of any changes** in privacy policies or procedures.
- **Allocation of Health ID:** Citizens can request for the creation of a Health ID at no cost which may be authenticated using Aadhar number or any other document of identification.
 - Citizens have the **option of opting-out of the NDHE and de-linking** their personal data, **cancelling their Health ID**, and requiring the **removal of any personal data** linked with such ID.
 - The creation of a Health ID, Health Practitioner ID or Health Facility ID shall collect only such data as may **be essential to identify and authenticate** a data principal, health practitioner or health facility.
- **Privacy principles to be followed by data fiduciaries:**
 - Accountability and Transparency
 - Privacy by Design (proactively embedding privacy into the design and operation)
 - Choice and Consent Driven Sharing with lawful and clear identification of collection, purpose use and storage
 - Maintenance of updated, complete and accurate data
 - Empowerment of Data Principal

- Reasonable Security Practices and Procedures like **Data Protection Impact Assessment** for new technologies, Maintenance of **records and strict audit trail** of all activities
- Any personal data or sensitive personal data of the data principal **shall not be published, displayed or posted publicly** by any person or entity.
 - **Anonymised or de-identified data** in an aggregated form can be made available for the purpose of facilitating health and clinical research, academic research, archiving, statistical analysis, policy formulation etc.
- **Grievance redressal**: Any inquiries or complaints about the processing of personal data may be raised to the Data Protection Officer or Grievance Officer.
- **Non-compliance with this Policy**: can lead to suspension or cancellation of issued ID and exclusion from NDHE.

6.3. NATIONAL COUNCIL FOR TRANSGENDER PERSONS

Why in news?

The Centre has recently constituted the National Council for Transgender Persons under Transgender Persons (Protection of Rights) Act, 2019.

About the council

- **Composition and structure**:
 - It will be **headed by the Union Minister for Social Justice and Empowerment** (ex-officio) and Union Minister of State for Social Justice & Empowerment will be Vice-Chairperson (ex-officio).
 - The council **will have joint secretary-level members** from the Ministries of Health, Home, Minority Affairs, Education, Rural Development, Labour And Law. In addition, there will be a member from the department of pensions, NITI Aayog, National Human Rights Commission and National Commission for Women.
 - **Representatives from five states or Union Territories**, on a rotational basis, will be members of the commission. The first such clutch comprises Jammu and Kashmir, Andhra Pradesh, Odisha, Tripura and Gujarat.
 - **Five representatives from the transgender community and five experts**, from non-governmental organisations.
 - The members of the council other than the ex officio members, shall hold office for a term of three years.
- **Functions**:
 - **To advise** the central government on the formulation of policies, programmes, legislation and projects with respect to transgender persons.
 - **To monitor and evaluate** the impact of policies and programmes designed for achieving equality and full participation of transgender persons.
 - **To review and coordinate** the activities of all the departments of Government and other Governmental and non-Governmental Organisations which are dealing with matters relating to transgender persons
 - **To redress grievances** of transgender persons
 - **To perform such other functions** as prescribed by the Centre.
- **Need for the council**
 - Intersex people are often marginalised in the legal and policy discourse. The distinction between gender identity and sex characteristics is also not understood. To bring about changes in the existing governance regime, there was the felt need of a body to work and engage with the system.
 - The council **will help government in identifying the problems faced by the transgender community** members and probable solutions. Various challenges being faced by the transgender community are:
 - ✓ **Discrimination** by their own family members and society leading to barriers in accessing public spaces and shelter.
 - ✓ **Lack of access to educational opportunities** as Indian schools remain unequipped to handle children with alternative sexual identities.
 - ✓ **Lack of employment opportunities** due to hiring biases, on-the-job discrimination, wage inequalities and thus they are forced into professions like prostitution and begging for livelihood.
 - ✓ **Barriers in accessing health care services**, because of the lack of treatment awareness, and incidences of disrespect, harassment and violence. The community is highly vulnerable to sexually transmitted diseases like HIV AIDS and Mental health.

- ✓ **Legal hurdles** in possessing identity documents.

- **Concerns**

- **Less horizontal and vertical representation:**
 - ✓ The council has inadequate community representation for a population of **4.88 lakh**.
- Indigenous problems of the unrepresented states and of uneducated and poor section of community might also not get adequate representation.
- **Lack of transparency:** Parameters for selecting members are not disclosed to the general public.
- The notification contains no provision for **establishing coordination between the National Council with the Transgender Development Boards** set-up post the NLSA judgement in various states.

- **Conclusion**

- The **establishment of National Council for Transgender Persons is a welcome step**. Its **effective functioning must be ensured** to identify the issues faced by the transgender community and accordingly advise the government.
- **A multi-prolonged approach with focus on gender Sensitisation** is needed to eliminate the social stigma associated with the transgender community. This **must be started from the school level** to accept the transgender community integral component of societal life.

- **Other provisions to protect the community**

- **Constitutional Safeguards under** Articles 14, 15, 19 and 21 ensures right to equality, and prohibits discrimination on the grounds of sex, race, caste, religion or place of birth.
- **The Supreme Court Judgments on Transgender Rights:**
 - The Supreme Court in **NALSA Judgement, 2014** recognized the third gender along with the male and female. It also
 - ✓ acknowledged right to choose one's gender identity under article 21 of the Constitution.
 - ✓ directed the state to provide reservations for them in public education and employment.
 - ✓ directed the state to make special provisions regarding HIV sero-surveillance for transgender persons and provide appropriate health facilities
 - ✓ directed the state to frame social welfare schemes for their all-round development
 - **In 2018, SC decriminalised homosexuality** by partially striking down the colonial era provisions of Section 377 of the Indian Penal Code (IPC).

- **State Level Initiatives:**

- **Kerala** became the first state to formulate a **transgender policy in 2015** which is aimed at ending the discrimination and bringing the third sex to the mainstream. The state has also set up a **transgender justice board** to deal with their complaints
- **Maharashtra** is the second state in India to set up a welfare board and the first, to set up a **cultural institute** dedicated to the transgender community.
- **Tamil Nadu** has established Tamil Nadu Transgender Welfare Board (TGWB) and has also been providing welfare schemes for socio-economic upliftment of the community.

- **About Transgenders**

- As per the Act, a **transgender is a person, whose gender does not match the gender assigned to that person at birth** and includes trans-men or trans-women, persons with intersex variations, gender-queers, and persons having socio-cultural identities such as kinnar, hijras, aravani, and jogta".
 - Intersex variations is defined to mean a person who at birth shows variation in his or her primary sexual characteristics, external genitalia, chromosomes, or hormones from the normative standard of male or female body.
- As per the Census of 2011, **Transgender population in India is 4.9 lakh**.
- The **highest proportion (about 28%), has been identified in Uttar Pradesh** followed by Andhra Pradesh, Maharashtra, Bihar, Madhya Pradesh and West Bengal.

- **Other Provisions of Transgender Persons (Protection of Rights) Act, 2019:**

- **Prohibition against discrimination:** The Bill prohibits the discrimination against a transgender person, including denial of service or unfair treatment in relation to: (i) education; (ii) employment; (iii) healthcare; (iv) access to, or enjoyment of goods, facilities, opportunities available to the public; (v) right to movement; (vi) right to reside, rent, or otherwise occupy property; (vii) opportunity to hold public or private office; and (viii) access to a government or private establishment in whose care or custody a transgender person is.
- **Certificate of identity for a transgender person:** A transgender person may make an application to the District Magistrate for a certificate of identity, indicating the gender as 'transgender'. A revised certificate may be obtained only if the individual undergoes surgery to change their gender either as a male or a female.
- **Welfare measures by the government:** to ensure the full inclusion and participation of transgender persons in society. Steps must be taken for their rescue and rehabilitation, vocational training and self-employment, create schemes that are transgender sensitive, and promote their participation in cultural activities.

- **Offences and penalties:** Penalties for the following offences vary between six months and two years, and a fine: (i) forced or bonded labour (excluding compulsory government service for public purposes), (ii) denial of use of public places, (iii) removal from household, and village, (iv) physical, sexual, verbal, emotional or economic abuse.

6.4. TRIBAL HEALTH AND NUTRITION

Why in news?

Union Tribal Affairs Minister e-launched Tribal Health & Nutrition Portal “Swasthya”.

More about news

- It is e-portal on tribal health and nutrition which will be providing all health and nutrition related information of the tribal population of India in a single platform.
 - It will curate innovative practices, research briefs etc. collected from different parts of India to facilitate the exchange of evidence, expertise and experiences.
- **Other initiatives launched:**
 - **National Overseas Portal and National Tribal Fellowship Portal** to bring greater transparency and easy information to Scheduled Tribe (ST) students.
 - Online Performance Dashboard “**Empowering Tribals, Transforming India**” under Digital India to work towards empowering STs and will bring efficiency and transparency.
 - e-newsletter on health and nutrition- **ALEKH**.

Status of tribal population in India

- According to 2011 census, the tribal population in India is over 104 million which is spread across 705 tribes and accounts for **8.6% of country’s population**.
 - More than 90% of tribal people live in **rural areas**.
- M.P. has highest tribal population followed by Maharashtra, Odisha and Rajasthan.
- The socio-economic condition of tribals:
 - **Livelihood status** - 40.6% of tribals live below poverty line vis-a-vis 20.5% non tribals.
 - **Lack of Basic amenities**- The 2011 census data shows that access to tap water, sanitation facilities, drainage facilities and clean cooking fuel is much lower among the tribal population.
 - **Education gap**-There is also a stark gap in educational status as 41% of STs are illiterate.
 - **Sex ratio** among tribals is 990/1000 as compared to national average of 933/1000.

Tribal Health status

- **Disease burden:** Tribals suffer from a triple burden of diseases
 - **Malnutrition and communicable diseases:** Tribal population share a disproportionate burden of communicable disease like malaria, tuberculosis, HIV, hepatitis, viral fevers etc. e.g. tribals account for 30% of malaria cases and 60% of malaria related mortality, 50% of adolescent tribal girls are underweight, low body mass index and stunting in tribals is more than nontribal population.
 - **Genetic disorders and lifestyle diseases**- like hypertension, diabetes, respiratory diseases etc. Also, genetic disorder in form of sickle cell anemia ranges from 1-40%. G-6-PD red cell enzyme deficiency is reported in tribes like Adiyar, Irula, Paniyan, Gonds.
 - **Mental illness and addictions**- **According to NFHS-3, 72% of tribal men in the age of 15-54 use tobacco as compared to 56% of non-tribal men**
- **Other Indicators** - The performance related to life expectancy, maternal mortality, adolescent health, child morbidity, mortality and under five mortality is below national average by 10-25%. Fore.g.:
 - life expectancy of tribals is 63.9 compared to national average of 67 years,
 - under 5 mortality rate is 74 as against national average of 62
 - 50% Adolescent ST girls are underweight and BMI below less than 18.5.
 - About **80 per cent of tribal children are undernourished and suffering from anaemia**. While **40 per cent of under five tribal children in India are stunted**.

Reasons for poor health among tribals

- **Unhygienic and primitive practices:** The chief causes of maternal and infant mortality were found to be **unhygienic and primitive practices for parturition and no specific nutritious diet** with iron, calcium and vitamins is consumed by women.

- **Lack of Health Infrastructure:** Though tribals are heavily dependent on public health services but there is a shortfall of public health centres, sub-centres, community health centres by 27-40% in about half of the states. This has resulted in low access and coverage, low outputs and outcomes in tribal health status.
- **Lack of Human resource:** There are severe shortages in health human resources in terms of PHC doctors (33% shortfall), CHC specialists (84% shortage), health workers, nursing staff, ASHA workers and locally trained youth. The isolated locations with minimal facilities create unwillingness among the health workers.
- **Financing of Tribal Health:** The tribal sub plan (TSP), though started with the noble goal of complementing existing finances for tribal policies, has shown a lackadaisical response. The tribal affairs ministry has no information regarding TSP allocations of various states. Also, there is lack of accounting of actual tribal health expenditure.
- **Lack of Awareness and mistrust on modern medicine:** The tribals are amenable to western systems of medicine and depend on supernatural cures. Hence, **vaccination and immunization of Infants and children have been inadequate** among tribal groups.
- **Governance Structure-** Lack of population level data, centralized policy formulation and implementation, near absence of tribals from the process, weak state level intervention etc. has accentuated dismal health conditions among tribals.

Way forward

- **Awareness & Education:** Raising awareness of health issues, conduct Information, Education and Communication (IEC) campaigns – such as stressing the importance of hand washing, regular ante-natal checkups, institutional deliveries, immunization etc.
- **Policy and governance:** Creation of National Tribal Health Council and Tribal health research cell to improve tribal health and healthcare system in India.
- **Health Services to Remote Populations:** Mobile medical camps to improve outreach in remote tribal populations would play a major role. Which will make availability of drugs, diagnostic facilities to tribals in remote area.
- **Transportation for Expectant Mothers:** Tribal populations generally have to deal with lack of resources in tough terrains. Provision of emergency transportation for pregnant tribal women to health facilities for obstetric care is one of the major necessities of the tribal women.
- **Health Workers from Tribal Communities:** As tribal populations find it difficult to navigate through the complexities of medical facilities, health workers from tribal communities may become the link between the healthcare facilities and tribal communities.
- **Infrastructure and capacity building:** To help healthcare providers deliver quality healthcare services dealing with complex healthcare scenarios of tribal regions, upgraded infrastructure and capacity building initiatives needs to be in place.

6.5. MENSTRUAL LEAVE

Why in news?

Recently, Zomato announced a new paid period leave policy for employees.

More on news

- The **policy allows up to 10 days of period leave** a year.
- Company employees **can apply for period leave through a human resources portal** and a **sexual harassment team** will be in place to respond to any employees facing harassment for taking the time off.

Menstrual Leave discourse in India

- The **State of Bihar** has **had two extra days of casual leave per month** for women government employees to take time off for periods since 1992.
- In 2017, the **digital media company Culture Machine**, which has offices in five cities in India, put in place a menstrual leave policy independent of vacation and sick days.
- **Menstruation Benefit Bill 2017**(Tabled in Lok Sabha in 2018)
 - The Bill seeks to provide women **working in the public and private sectors two days of paid menstrual leave every month** as well as better facilities for rest at the workplace during menstruation.
 - The benefits would also be extended to female students of Class VIII and above in government recognized schools.
 - The Bill caters to **girls and women across sector/industry/profession/job roles** and not just for women engaged in white collar work.

What is the need for menstrual leave?

- **Age-old taboo:** The policy will be instrumental in tackling an age-old taboo in India by **generating awareness and open discussions** on the issue.
 - According to UNICEF, 71 percent of young women in India remain unaware of menstruation until their first cycle.
- **Addressing the associated shame or stigma:** The policy is intentioned at providing women the freedom to tell people on internal groups, or emails that they are on period leave i.e. normalization of the issue and across the board acceptance for the issue.
- **Spillover to the unorganized sector:** Increased debate and conversation on the issue at national level could lead to recognition of menstrual leave in unorganized sector.
 - For example, there is a large section of women who work in the unorganized labor sector as domestic workers, and almost no houses give them a day off when they have their periods. This conversation could make a difference here.
- **Women's Right:** Workplaces need to accommodate for biological differences between co-workers and it is women's right to have provisions in accordance with that.
 - This is not a choice that women make every month, so if someone finds it difficult to be at the work for conditions not under their control then they should have the **right to rest without being penalized** in any way.
- **Reassertion of reproductive rights:** Women and girls are often excluded from decision-making due to their lower literacy levels and social standing within the family. The policy has the potential to make all women conscious of their reproductive rights irrespective of direct effect of policy on them.
- **Availability of associated infrastructure and menstrual products:** Provision of sanitary napkins and adequate facilities for sanitation and washing could come into limelight as a result of this policy discussion.

Why talking about menstruation is considered a taboo in India?

- Culturally in many parts of India, **menstruation is still considered to be dirty and impure**. Further, **women are prohibited from participating in normal life while menstruating**. She must be "purified" before she is allowed to return to her family and day to day chores of her life.
- Superstitious and unscientific notions on menstruation have led to following:
 - The **cultural shame attached to menstruation** and **shortage of menstrual products** (as many as 88% of women who get periods in India resort to using unsafe sanitary methods) stop menstruating women from going to school and working.
 - Consequently, it is very **difficult to have an open discussion** about it as **people seem to get extremely uncomfortable** and prefer to discuss it behind closed doors.

What are the unintended consequences that the policy may generate?

- **Justify lower salaries and hiring bias:** If we insist that one group or another has an extra set of costs associated with their employment then we'll end up seeing the wages of that group fall relative to groups that don't have those associated costs or decreased hiring of that altogether.
 - For example, a research found that 1.1-1.8 million women lost their jobs in 2018-19 across 10 major sectors owing to the Maternity Benefit (Amendment) Act 2016 which doubled the paid maternity leave from three to six months.
- **Negative affect on the Gender Equality debate:** The explicit term "period leave" creates a demarcation, thereby allowing it to be taken in context where it is used to differentiate between men and women.
- **Reinforcing the prevalent stereotyping:** The policy risks reinforcing the stereotypes of labeling women as 'needing extra protection and extra time off', which in turn might reinforce biases in hiring, promotion and compensation.
- **Negative affect on privacy:** Asking women to inform their employers they're on their periods forces women to let go of their menstrual privacy. This can be construed as a shade of benevolent patriarchy.
 - Similar to any other health-related information, it should be a person's right to decide how open they would like to be about their issues.

Case in point: Japan

- Japan's **1947 Labor Standards Law** inducted the provision of **seirikyuka, or "menstrual leave,"** for painful periods.
- A study shows that from 1960–1981, the number of Japanese women **using the national period leave policy declined to 13% from 20%**, as they increasingly opted to take their regular sick days over facing social stigma from their coworkers.

- This highlights how policy as a singular measure is not enough. As despite the prevalence of the policy for more than 70 years, the associated stigma was not addressed adequately.

Way Forward

As a society, it is our job to make sure that we overcome the aforesaid challenges and make room for one's biological needs while not lowering the bar for the quality of our work.

The menstrual leave policy could be structured in such a way that overcomes these challenges. For example, giving all employees enough paid sick leave to account for periods or employers can be encouraged to institute work-from-home policies that allow employees to work remotely for a fixed number of days in a month. These two options can be explored alongside provision of comfortable spaces within the office premises.

If women need to **tolerate their pain in silence just to 'fit' in** and not be outcast, then we surely are **padding the patriarchy cycle ahead**. The idea of menstrual leave **may be seen as a starting point** for elimination of structural issues associated with menstruation.

6.6. CHILD LABOUR

Why in news?

Convention No. 182- Worst Forms of Child Labour Convention, 1999, of the International Labour Organization (ILO), has become the first international labour standard ever to **achieve universal ratification** (i.e. all 187 member countries of ILO have now ratified it).

About ILO's Convention no. 182

- It calls for the **prohibition and elimination of the worst forms of child labour**, which includes deployment of children in-
 - **all forms of slavery**: such as the sale and trafficking of children, debt bondage and serfdom and forced recruitment of children in **armed conflict**;
 - **prostitution**, or pornography;
 - **illicit activities**, such as production and trafficking of drugs;
 - any work which is likely to harm their **health, safety or morals**.
- It is one of the ILO's eight Fundamental Conventions and was adopted in a meeting in Geneva in 1999.
- As ratification rates increased and countries adopted laws and policies, including relating to minimum age to work, the incidence of child labour and its worst forms has dropped by almost **40 per cent between 2000 and 2016**.

About Child Labour

- As per ILO, the term **"child labour"** is defined as work that deprives children of their childhood, their potential and their dignity, and that is harmful to physical and mental development. It includes **work that**:
 - is **mentally, physically, socially or morally dangerous and harmful to children**; and/or
 - **Interferes with their schooling** by: depriving them of the opportunity to attend school; obliging them to leave school prematurely; or requiring them to attempt to combine school attendance with excessively long and heavy work.
- A combination of many factors gives rise to child labour, such as poverty, social norms condoning it, lack of decent work opportunities for adults and adolescents, migration, and emergencies.

International Labour Organization (ILO)

- ILO is a **tripartite U.N. agency**, formed in 1919 that brings together governments, employers and workers of its member states, to set labour standards, develop policies and devise programmes promoting decent work for all women and men.

India is a **founder member** of the ILO.

The **eight ILO fundamental Conventions** are:

- **No. 29**: The Forced Labour Convention, 1930
- **No. 87**: The Freedom of Association and Protection of the Right to Organise Convention, 1948
- **No. 98**: The Right to Organise and Collective Bargaining Convention, 1949
- **No. 100**: The Equal Remuneration Convention, 1951
- **No. 105**: The Abolition of Forced Labour Convention, 1957
- **No. 111**: The Discrimination (Employment and Occupation) Convention, 1958
- **No. 138**: The Minimum Age Convention, 1973
- **No. 182**: The Worst Forms of Child Labour Convention, 1999
- India has ratified **6 out of 8** of these conventions (all except convention number **87** and **98**).

Status of Child Labour in India

- India accounts for close to **7.3 per cent** of around 152 million children worldwide engaged in child labour.
- According to census data of 2011, around 10.1 million children were engaged in child labour in India.
- **80% of working children live in India's villages**, where most of them work in agriculture.
- Children between 14-17 years engaged in hazardous work account for 62.8% of the India's child labour workforce, 10% of these are hired in family enterprises.
- Uttar Pradesh, Bihar, Rajasthan, Maharashtra, and Madhya Pradesh are the states with maximum child labourers.
- Despite various efforts, **certain challenges** hinder India's progress towards eradicating child labour:
 - **Ineffective enforcement of laws** due to limited administrative capacity.
 - Some of the **industries exclusively depend on child labor** due to their short stature such as mica mining, bangle-making, beedi-making etc.
 - Inadequate tracking and rehabilitation of children post rescue.
 - In low income families, parents and guardians often view their children as "**source of income**".
 - **Poor quality of public education** in India limits future employment opportunities for children, forcing them to engage in menial labour at a young age.
 - India's vast **informal economy** makes it easier for contractors and middlemen to exploit children.

India's efforts against child labour

Constitutional Provisions

- **Article 23** prohibits the trafficking in human beings and forced labour.
- **Article 24** prohibits the employment of children below the age of fourteen years in factories.
- **Article 39(e)** makes it a duty of the State to prevent the children from entering into jobs, unsuited to their age.

Legislations

- **Child Labour Amendment (Prohibition and Regulation) Act, 2016:** It regulates the employment of children and does not allow children below the age of 14 to work except as a child artist and in a family business.
- **The Factories Act, 1948:** It prohibits the employment of children below the age of 14 years.
- **The Mines Act, 1952:** It prohibits the employment of children below 18 years of age in a mine.
- **The Juvenile Justice (Care and Protection) of Children Act, 2000:** It made it a crime, punishable with a prison term, for anyone to procure or employ a child in any hazardous employment or in bondage.
- **The Right of Children to Free and Compulsory Education Act, 2009:** It mandates free and compulsory education to all children aged 6 to 14 years.

Schemes

- **National Child Labour Project (NCLP) Scheme:** It seeks to eliminate all forms of child labour through Identification and withdrawal of all children in the Project Area from child labour.
- **PENCIL Portal:** was launched for effective implementation of NCLP.

Active role played by NGOs

- NGOs sensitize stakeholders to end this social evil, and make locals more vigilant to report instances of child labour at businesses. They also work for their rehabilitation.
- Many civil society organizations such as **Bachpan Bachao Andolan** founded by Nobel laureate Kailash Satyarthi, **Kailash Satyarthi Children's Foundation**, **Save the Children**, etc. have worked to protect children from this menace.

International conventions

- The ratification of **ILO Conventions 182 and 138** reflect on India's commitment towards the elimination of child labour.

Way Forward

- There should be an **exhaustive and identical definition of child labour** for all the industries and working establishment.
- **Rigorous implementation of penal provisions** of the statutes is needed.
- **Rehabilitative and reformative activities** should be conducted for the children who are found working in hazardous institutions. Provision should be made for ensuring that their mental, emotional and physical health is attained after they are saved from hazardous institutions
- Focusing on grassroots strategies to **mobilize communities and sensitize trade organisations** against child labor to increase reporting of such instances.
- Child labor can be controlled by economic development and making **quality education affordable** across all levels.

Impact of COVID-19 on child Labour

There is a rising concern that COVID-19 pandemic may reverse the progress made in controlling child labour. Millions of children are under the risk of being pushed into child labour due to reasons such as:

- **Rising poverty:** Impact of the crisis on employment opportunities, supply chains in agriculture sector etc will suppress incomes for industrial labour and farmers.
 - According to the World Bank, in India, 12 million people have a chance of slipping below the poverty line due to pandemic-related job losses. Research has indicated that **one percentage point increase in poverty leads to about 0.7 percent percentage point increase in child labour.**
 - Households might be forced to sending their children into child labour due to their increased economic vulnerability, shortage of food supplies and trap of debt bondage.
- **Increasing informality:** Post-Pandemic, capital-intensive small enterprises are likely to decline which may result into increase in self-employment producing work especially conducive to child involvement.
- **Dilution of labour laws by some states to mitigate economic effects of COVID-19:** Many employers may exploit these changes to hire “cost-effective” child labour as they have lower bargaining power and are mostly unable to press for their rights.
 - For example, relaxation of rules related to site inspection will open channels for employment of children.
- **Factors that may drive children away from schools and into child labour:**
 - **Declining remittances from migrant workers** due to lockdown measures and business closures from COVID-19 might push children, especially in rural areas, into agricultural labour.
 - **Credit crisis and reduction in household income and savings** might reduce household investment in schooling.
 - **Temporary closure of schools** disproportionately affects education of children with illiterate parents.
 - **Discontinuation of mid-day meals** can increase dropout rates.
 - **Digitization of education** has led to exclusion of children in households with no access to the internet or digital devices.
- **Compounding shocks to health:** The rising number of deaths from COVID-19 is trailed by growing numbers of children left without one or both parents making them particularly vulnerable to child labour, trafficking and other forms of exploitation.
- **Pressure on public budgets:** Governments have taken substantive steps to improve social assistance which results into diminishing child labour. With larger budgetary constraints, due to COVID-19 pandemic, these steps may decline in future.

There is a need to implement a series of measures ranging from universal free distribution of ration, livelihood support, regeneration of rural economy, renewed and more rigorous efforts for child protection, education for all children, and strengthening public health care infrastructure.

6.7. STUDENTS' LEARNING ENHANCEMENT GUIDELINES

Why in news?

Ministry of Education recently released **Students' Learning Enhancement Guidelines**, prepared by NCERT, to address the issues related to gaps and/or loss of learning among students, during and after the lockdown.

Background

- During the COVID-19 crisis and consequent closure of schools, various initiatives have been undertaken to maintain continuity in school education through **digital means**, such as - Alternative Academic Calendar, PRAGYATA Guidelines, Digital Education-India Report, NISHTHA-Online, etc.
- However, concerns from various stakeholders were raised about the learning of **children do not have access to digital resources**. Unequal access to digital education resources raises the concerns of equity and inclusion which can lead to deficiencies in learning of children.

National Council of Educational Research and Training (NCERT)

- It is an **autonomous organisation** set up in 1961 by the Government of India to assist and **advise the Central and State Governments** on policies and programmes for qualitative improvement in school education.
- **Major objectives of NCERT** are to:
 - undertake, promote and coordinate research in areas related to school education;
 - prepare and publish model textbooks and other study material;
 - organise training of teachers;
 - develop and disseminate innovative educational techniques and practices;
 - collaborate with state educational departments, universities, NGOs etc.
 - act as a nodal agency for achieving the goals of Universalisation of Elementary Education.

- The guidelines have been formed taking into cognizance diverse challenges and concerns of learning during the COVID-19 period such as- issues faced by children of migrants and students with parents at risk due to their work, accessibility to digital devices, social-emotional aspects of learning etc.

About the guidelines

The guidelines suggest Learning Enhancement models during COVID-19 for the following three **types of situations-**

- **For students who do not have any digital resources**
 - **School-wise child-wise surveys** need to be undertaken to map the digital devices accessibility for each child.
 - **Specific learning plans**, based on learning outcomes and not entirely dependent on textbooks, need to be prepared separately for children with special needs.
 - **Ensure doorstep delivery of** prescribed textbook and other supplementary learning materials such as worksheets, assignments etc.
 - Schools can create a **Shiksha Team for helping/mentoring children** to continue their learning process with the help of community members.
 - **Special interventions** for learning, clearing doubts, discussing hard spots, etc. may include- toll-free helplines, Mobile schools and mobile libraries etc.
- **For students having limited digital resources or very basic technological devices**
 - **Using Alternative Academic Calendar** developed by the NCERT which includes detailed guidelines about conducting learning outcome-based activities for different classes.
 - **Digital Tools** such as SMS/messages, recorded stories by teachers through smart phones, television, radio, social media and Google meet, etc. can be used.
- **For students having digital resources available for online education**
 - **Arrangements may also be made to record the sessions** so that children can attend classes as and when they have access to mobile or laptop. Social media tools can also be used.
 - **Synchronous classes need to be utilized** for giving guidance on doing self-study and assignment as well as solving queries.

Way forward

COVID-19 has created a situation which demands transformation in school education and also in the roles of various stakeholders. Though core elements of school education such as curriculum, syllabus, textbooks, assessment, etc. will continue to be there, yet the transaction mechanisms in school education may go through a drastic change. Therefore, school education needs to remodel itself by inducing flexibility and adaptability. Interventions that are needed include:

- Creating **alternative and innovative ways** for summative assessment of students
- Providing support to parents and students on **reducing stress and anxiety**
- **Developing skills among teachers** for using ICT and social media tools
- Creating a **strong network among educators** that reaches out to teachers with plans and strategies
- Strengthening relationship among **teachers, community and parents.**
- **Guiding parents** to bridge the gap between school and home becoming an active participant in child's learning.

6.8. REMOTE LEARNING REACHABILITY REPORT

Why in news?

United Nations Children's Fund (UNICEF) has released report titled '**Remote Learning Reachability**' providing analysis of the potential reach of remote learning policies using data from 100 countries.

Key findings of the report

- At least **or 31% (463 million)** of school children worldwide **cannot be reached by remote learning programs**, mainly due to a lack of necessary household assets or policies geared toward their needs.
- Globally, **3 out of 4 students** who cannot be reached by remote learning opportunities come from **rural areas and/or poor households.**

- The share of students who cannot be reached by digital and broadcast remote learning policies is **the highest in the countries of Sub-Saharan Africa**.
- In India, only **24% of households** have internet connections to access e-education.
- **Other factors that prevent learning** even when children have the technology and tools: Competing factors in the home including **pressure to do chores, being forced to work, a poor environment for learning and lack of support** in using the online or broadcast curriculum.

Key Recommendations

- **Democratize access to safe and secure remote learning** for all children and young people. Design remote learning programs that are **accessible to all children and can be adapted for households that do not have access to broadcast or digital media**.
- Identify the **best combination of remote learning policies**, develop and provide quality education content.
- **Address the social and gender norms** that in many countries prevent children – **especially girls** – from using computers and online learning to their maximum potential.
- **Support and train teachers and parents** to effectively manage remote **‘virtual’ classrooms** and help children learn at home, at all levels of education.
- **Invest in innovation** that supports **real-time monitoring** of remote learning, including **formative learning assessments**.

6.9. SWACHH SURVEKSHAN 2020

Why in news?

Swachh Survekshan 2020 awards were announced recently.

About Swachh Survekshan

- It is an annual ranking exercise taken up by the **Ministry of Housing and Urban Affairs (MoHUA)**.
- It seeks to assess urban areas of country on their **levels of cleanliness and active implementation of Swachh Bharat Abhiyan** in a timely & innovative manner.
 - It was **launched in 2016** which is the world’s largest urban sanitation and cleanliness survey.
 - It aims to **encourage large scale citizen participation and create awareness** amongst all sections of society about the importance of working together towards making towns & cities a better place to live in.

Focus Area of Swachh Survekshan 2020



ODF and GFC Certifications

- Swachh Bharat Mission - Urban introduced certification initiatives like ODF+/ODF++ and Star Rating of Garbage Free Cities (GFC).
- The **ODF guidelines** focus on construction and usage of toilet to stop open defecation.
- **ODF+ guideline** was developed to assess sustainable community/public toilet usage so that cities are motivated to improve the standard of operations & maintenance.
- **Focus of the ODF++ protocol** is to achieve sanitation sustainability by addressing complete sanitation value chain, ending with safe fecal sludge management.
- The concept of **star rating of cities** is to introduce a certification process to assess the solid waste management progress in the city through a process of desktop assessment of the progress claimed, direct observation and citizen’s feedback.

- The data collected through many sources for 57 indicators (40 – **Service Level Progress**, 9 – **Direct Observation** and 8 – **Citizen Feedback**) is compiled for ranking the cities.
- Swachh Survekshan gave ranking based on following parameters (each having 25% weightage):
 - Marks of Certifications: ODF & Garbage Free Cities (GFC)
 - Direct Observation
 - Marks of Service Level Progress measured through Swachh Survekshan League 2020.
 - Citizen Feedback
- **Indore emerged as the cleanest Indian city** fourth time in a row followed by Surat.
- **Cleanest capital city** - New Delhi (Union Territory of New Delhi) and the NDMC.
- **Cleanest state with more than 100 cities** – Chhattisgarh.
- **Cleanest state with less than 100 cities** – Jharkhand.
- **Cleanest Ganga town** – Varanasi.
- **Cleanest megacity with more than 40 lac population** – Ahmedabad.

About SS League 2020

- It was introduced with the objective of sustaining the **onground performance of cities along with continuous** monitoring of service level performance when it comes to cleanliness.
- It is a quarterly cleanliness assessment of cities and towns in India and is integrated with 5th edition of Swachh Survekshan 2020.
- It is conducted in 3 quarters:
 - April- June,
 - July – September
 - October- December 2019.
- It has 2000 marks for each quarter evaluated on the basis of monthly updation of Swachh Bharat Mission-Urban (SBM-U) online Management Information System by cities along with citizen's validation on the 12 service level progress indicators through outbound calls.
- Ranks have been assigned in two categories of cities with population
 - 1 lakh and above (with two sub-categories, i.e. 1-10 lakh and 10 lakhs and above)
 - less than 1 lakh (under this category, the rankings are given zone and population wise).
 - It includes five zones namely, North, East, Northeast, South and West.

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7. SCIENCE AND TECHNOLOGY

7.1. DNA TECHNOLOGY (USE AND APPLICATION) REGULATION BILL, 2019

Why in news?

Parliamentary Standing Committee on Science and Technology has expressed concerns over some of the provisions of The **DNA Technology (Use and Application) Regulation Bill, 2019**.

Background

- The first attempt to regulate use and application of DNA technology was made in **2003** with the constitution of a **DNA Profiling Advisory Committee**. A draft bill was accordingly prepared.
- After many revisions, the **Bill was introduced in Lok Sabha in 2018**, but it lapsed.
- **In 2019, it was reintroduced and was referred to Parliamentary Standing Committee.**

Key provisions of the Bill

- It provides for the **regulation of use of DNA technology** for establishing the identity of certain persons.
- DNA testing is allowed only in respect of matters listed in the Schedule to the Bill, like:
 - matters of **offences under Indian Penal Code**,
 - **civil matters such as paternity suits** and
 - for **establishment of individual identity**.
- **Consent provisions for collection of DNA:**
 - For arrested persons, **authorities are required to obtain written consent** if the **offence carries a punishment of up to seven years**.
 - If the offence carries more than seven years of imprisonment or death, **consent is not required**.
 - If the person is a **victim/relative of a missing person/minor/disabled person**, the authorities are **required to obtain the written consent** of such person.
 - **If consent is not given** in these cases, the authorities can approach a **Magistrate who may order the taking of bodily substances** of such persons.
- Establishment of a **National DNA Data Bank and Regional DNA Data Banks**.
 - DNA laboratories are required to share data prepared by them with the National and Regional DNA Data Banks.
- Bill provides for **removal of the DNA profiles** of the following persons:
 - A **suspect** if a police report is filed or court order given.
 - An **undertrial** if a court order is given.
 - on written request, for persons **who are not a suspect, offender or undertrial**.
- Establishment of a **DNA Regulatory Board to supervise the DNA Data Banks and laboratories**.
 - **The Secretary, Department of Biotechnology** will be **ex officio Chairperson** of the Board.
 - Board will comprise **additional members** including: Experts in the field of biological sciences; **Director General of the National Investigation Agency** and Director of the **Central Bureau of Investigation**.
 - **Functions of the Board** include, advising governments on all issues related to establishing DNA laboratories or Data Banks, granting accreditation to DNA laboratories etc.
- **Penal provisions for offences like unauthorised disclosure**, obtaining, use and access of DNA samples, destruction, alteration, contamination or tampering with biological evidence etc.

Concerns raised by the Committee

- **Sensitive information:** DNA profiles can reveal extremely sensitive information of an individual such as pedigree, skin colour, behaviour etc. Access to such information can be misused to specifically target

About Deoxyribonucleic Acid (DNA)

- DNA is a molecule that contains the **biological instructions** that are used for the **growth and development** of an organism.
- DNA of each person is unique and **variation in the sequence of DNA can be used to match individuals and identify them**.

DNA Profiling and Sampling

- It is the process where a **specific DNA pattern, called a profile**, is obtained from a person.
- The biological material used to determine a DNA profile include **blood, semen, saliva, urine, faeces, hair, teeth, bone, tissue and cells**.

individuals and their families with their own genetic data. E.g.: incorrectly linking a particular caste/community to criminal activities.

- **Weak Consent Clause:** Magistrate can easily override it consent thereby making consent perfunctory. There is no guidance on the grounds and reasons of when the magistrate can override consent.
- **Violation of the fundamental right to privacy:**
 - Bill provides **retention of DNA found at a crime scene in perpetuity**, even if conviction of the offender has been overturned.
 - **DNA profiles for civil matters will also be stored in the data banks**, but without a clear and separate index. This violates the fundamental right to privacy and does not serve any public purpose.
- **Absence of robust data protection legislation**, which raises concerns regarding security of a huge number of DNA profiles that will be placed with the National DNA Data bank and its regional centres.

Potential Benefits of DNA Technology (Use and Application) Regulation Bill, 2019

- **Identifying missing persons, unidentified deceased persons** including disaster victims, burn victims, accident victims etc.
- **Apprehend repeat offenders for heinous crimes** such as rape and murder.
- **Expedite delivery of justice** by reducing wrongful convictions and enhancing accuracy of investigating authorities.

Way Forward

- **Committee suggested the following:**
 - **Independent scrutiny must be done** of the proposals to destroy biological samples and remove DNA profiles from the database.
 - Make provisions to ensure that if a person has been found innocent **his DNA profile has to be removed immediately** from the data bank.
- India first needs **laws to protect privacy and personal data** and also sample collection has to be carefully defined, purpose-based.
- The DATA banks and laboratories should have **highest possible levels of cyber security** to prevent Cyber security breaches.

7.2. INTERNATIONAL THERMONUCLEAR EXPERIMENTAL REACTOR (ITER)

Why in news?

India has recently competed 50 per cent of the work assigned to it under the ITER project.

About ITER Project


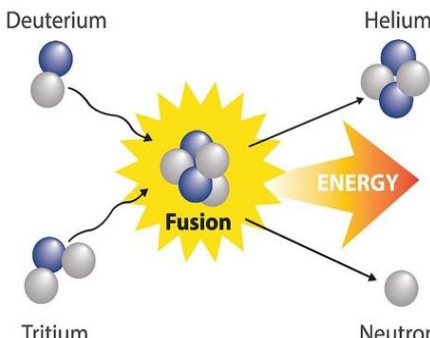
- Launched in 1985, ITER is an **experimental fusion reactor facility** currently under construction in Cadarache, south of **France**.
- It aims to prove the feasibility of **nuclear fusion as a future source of energy** and build the world's largest **tokamak** through an international collaboration.
- Once complete, ITER will be the first fusion device to produce **net energy**.
- **ITER Members:** Signatories to the ITER Agreement include **China, the European Union, India, Japan, Korea, Russia** and the **United States** (35 nations).

Tokamak

- The **tokamak** is an experimental **magnetic fusion device** designed to harness the energy of fusion.
- Inside a tokamak, the energy produced through the fusion is **absorbed as heat in the walls of the vessel**, which will be used by a fusion power plant to produce steam and then electricity by way of turbines and generators.
- The device uses **magnetic fields** to contain and control the hot plasma, which enables the fusion between **deuterium and tritium nuclei** to produce great amounts of energy.
 - **Plasma** is an ionized state of matter similar to a gas. A gas becomes plasma at extreme temperatures.
- The machine has been designed specifically to:
 - **Produce 500 MW of fusion power**
 - **Demonstrate the integrated operation of technologies for a fusion power plant** such as heating, control, diagnostics, cryogenics and remote maintenance.
 - **Achieve a deuterium-tritium plasma** in which the **reaction is sustained for a long duration** through internal heating
 - **Test tritium breeding:** Since the world supply of tritium is not sufficient to cover the needs of future power plants
 - **Demonstrate the safety characteristics of a fusion device:** such as the control of the plasma and the fusion reactions with negligible consequences to the environment.

- These countries share the **cost of project construction, operation and decommissioning**, and will also share in the **experimental results and any intellectual property** generated by the project.
- European Union being the host party contributes 45% while the rest of the parties contribute 9% each. Most of these contributions (around **nine-tenths**) are through 'in-kind' procurement of ITER components.
- Each Member has created a **Domestic Agency** to fulfill its procurement responsibilities to ITER.
- **India's contribution:** India which formally joined the ITER project in **2005**, is responsible for delivery of cryostat, in-wall shielding, cooling water system, cryogenic system, heating systems, Diagnostic Neutral Beam System, power supplies and some diagnostics.
 - India is contributing resources worth about \$2.2 billion to this effort.
 - ITER-India is the Indian domestic agency, a specially empowered project of the **Institute for Plasma Research (IPR)**, an aided organization under Dept. of Atomic Energy.

Differences between Nuclear Fission and Fusion

Nuclear Fission	Nuclear Fusion
Fission is the splitting of a heavy, unstable nucleus into two lighter nuclei , which releases a tremendous amount of energy.	Fusion is the process where two light nuclei combine together releasing vast amounts of energy.
 <p>Nuclear Fission</p>	 <p>Fusion</p>
Uranium and plutonium are most commonly used for fission reactors.	Atoms of Tritium and Deuterium (isotopes of hydrogen) are used in fusion reactors.
Energy produced is lesser than that in nuclear fusion.	Energy released is several times greater than fission.
Fission reactors produce highly radioactive fission products .	Fusion reactors produce no high activity/long-lived radioactive waste . The burnt fuel in a fusion reactor is helium, an inert gas.
Additional neutrons released in the fission reaction can initiate a chain reaction which sustains fission reactions for longer durations .	Due to the tremendous amount of pressure and temperature needed to join the nuclei together, fusion reactions are difficult to sustain for long periods of time.

Advantages of fusion energy

- **Abundant energy:** Fusing atoms together in a controlled way releases nearly four million times more energy than a chemical reaction such as the burning of coal, oil or gas and four times as much as nuclear fission reactions.
- **Sustainability:** Fusion fuels are widely available and nearly inexhaustible. Deuterium can be distilled from all forms of water, while tritium will be produced during the fusion reaction as fusion neutrons interact with lithium.
- **Zero carbon emissions:** Fusion doesn't emit harmful toxins like carbon dioxide (**CO₂**) or other greenhouse gases into the atmosphere. Its major by-product is helium: an inert, non-toxic gas.
- **No high activity long-lived radioactive waste:** The activation of components in a fusion reactor is low enough for the materials to be recycled or reused within 100 years.
- **Limited risk of proliferation:** Fusion doesn't employ fissile materials like uranium and plutonium. There are no enriched materials in a fusion reactor like ITER that could be exploited to make nuclear weapons.

Issues related to India's participation in ITER

- **Delays in in-cash contribution:** Since 2017, India has not fulfilled its in-cash contribution.
- **Low allocation of human resources at the ITER site:** Only 25 Indians are currently working there, as against 100 engineers/ scientists allowed as per the agreement. This gives opportunity to countries like China to have excess staffing.
- India deputed a rather **junior person to represent the country** in comparison to heads of states by other nations at the recent high profile global virtual event.

- **No risk of meltdown in a tokamak fusion device:** It is difficult to reach and maintain the precise conditions necessary for fusion. Thus if any disturbance occurs, the plasma cools within seconds and the reaction stops.
- **Cost:** The average cost per kilowatt of electricity is expected to be slightly more expensive than that of a fission reactor at the beginning, but less expensive as economies of scale bring the costs down.

Conclusion

By the end of the century, demand for energy will have tripled under the combined pressure of population growth, increased urbanization and expanding access to electricity in developing countries.

Relying on fossil fuels alone to increase the energy production is both impractical and impossible, because of lack of access to required resources and irreparable damage to the environment through global warming. Thus fusion provides a great opportunity to India to meet its energy needs in the future.

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8. CULTURE

8.1. LINGARAJ TEMPLE

Why in news?

Odisha government recently announced to give a facelift to the 11th century Lingaraj Temple, similar to its pre-350-year structural status.

About Lingaraj Temple

- It was built in 11th century AD by **King Jajati Keshari of Somavanshi** dynasty with later additions by **Ganga dynasty** rulers.
- Its **Deul** (tower) rises to a height of **180 feet** and marks the culmination of the temple architecture in Bhubaneswar which was the cradle of the **Kalinga School of Temple Architecture**.
- The temple can broadly be divided into 4 main halls - **The Garba Griha** (Sanctum Sanctorum), the **Yajana Mandapa** (the hall for prayers) the **Natya Mandapa** (dance and music hall) and the **Bhoga Mandapa** (where devotees can have the prasad/offering of the Lord).
- The exquisite **carvings depicting chores of daily life**, the activity centres, apart from being a place of worship makes the temple a place for social and cultural gathering.
- Lingaraj is referred to as **“Swayambhu”** – (**self-originated Shivling**) and the **Shivling is known as Hari Hara**. It signifies the syncretisation of Shaivism and Vaishnavism sects in Odisha.
- The other attraction of the temple is the **Bindusagar Lake**, located in the north side of the temple.
- **Shivaratri festival** is the major festival celebrated in the temple.
- The temple compound is **not open to non-Hindus**, but there is a **viewing platform** beside the wall offering a good view of the main exteriors. This was originally erected for a visit by **Viceroy Lord Curzon**.

Kalinga school of temple architecture

- Kalinga architectural style is a **sub-style of Nagara architecture, flourished in the ancient Kalinga region** - present state of Odisha, West Bengal and northern Andhra Pradesh.
- In this, **Shikhara (called deul in Odisha)** is almost vertical before it curves near the top.
- Shikhara is preceded by a **mandapa (called Jagmohan or ‘dance pavilion’ in Odisha)**.
- The style consists of **three distinct types of temples: Rekha Deula, Pidha Deula and Khakhara Deula**.
- The **Rekha Deula and Khakhara Deula** houses the sanctum sanctorum while the **Pidha Deula** constitutes outer dancing and offering halls.
- **Examples of Kalinga architecture:** Rajarani temple (Bhubaneswar); Jagganath Temple, Puri.

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9. ETHICS

9.1. VACCINE DEVELOPMENT AND DISTRIBUTION

Context

There is tremendous interest in the development of a COVID-19 vaccine, with more than a hundred initiatives under way around the world. Even if one or more vaccines emerge, the public-health problem will not be eliminated. But policymakers can avert some foreseeable problems by starting to address key questions about financing and distribution now.

But why vaccine distribution requires ethical decision-making?

Governments, international agencies and health systems have an obligation to ensure, to the best of their ability, adequate provision of health care for all. However, this may not be possible during a pandemic, when health resources are likely to be limited.

- Setting priorities and rationing resources in this context means **making tragic choices**, but it is essential that these tragic choices be **ethically justified**.
- Ethical justifications can be provided in various ways, it is important to understand which systems suits the context best. For example, the **allocation of different resources may find ethical justifications in different principles** or values.
- Most importantly, a standardized ethical framework that can be used as a **guide for decision-making process** from hospitals to administrators.

Globalism vs. Nationalism debate in the context of vaccine distribution

- Several countries like Britain, France, Germany and the US have entered into pre-purchase agreements with Covid-19 vaccine manufacturers, a development that has come to be known as “**vaccine nationalism**”.
- There are fears that such advance agreements will make the initial few vaccines **unaffordable and inaccessible to everyone** apart from the rich countries, in particular to **countries with fewer resources and bargaining power**.
- In this context, **WHO has warned** that hoarding possible COVID-19 vaccines while excluding others would **further deepen the pandemic**.
- The possible counter to vaccine nationalism is **global collaboration**, which is being done through the WHO-backed **COVAX Facility mechanism**.
 - The facility aims to procure **at least two billion doses** of COVID-19 vaccines by the end of next year for deployment and **distribution mainly in the low- and middle-income countries**.

What values could be the basis for deciding who should get priority?

- **Equality:** Each person’s interest should count equally unless there are good reasons that justify the differential prioritization of resources.
 - Characteristics of individuals, such as race, ethnicity, creed, ability or gender, should not serve arbitrarily as the basis for the differential allocation of resources.
 - This value could be the most appropriate guide the allocation of scarce resources among individuals or populations who can be expected to derive the same benefit from the resource, for example, vaccines among high-risk populations.
- **Best outcomes (utility):** This principle can be used to justify the allocation of resources according to receiver’s capacity to do the most good or minimize the most harm, for example, using available resources to save the most lives possible.
 - This value could be the most appropriate guide for allocation of scarce resources that confer substantially different benefits to different individuals, for example, ventilators to those expected to derive the most benefit.
- **Prioritize the worst off:** This principle can be used to justify the allocation of resources to those in greatest medical need or those most at risk.
 - This value could be the most appropriate to guide the allocation of resources that are designed or intended to protect those at risk, for example, PPE for health care workers, vaccines for those most at risk of infection and severe illness, or those most in need.

- **Prioritize those tasked with helping others:** This principle can be used to justify the allocation of resources to those who have certain skills or talents that can save many other people, or because something is owed to them on account of their participation in helping others.
 - This value could be most appropriate to guide the allocation of resources to health care workers, first responders, etc.

What can be done to ensure that these principles are applied fairly?

- **Ensuring Transparency:** The decisions and their justifications should be made public. This implies that the population should be informed about the criteria guiding the decisions.
- **Encouraging Inclusiveness:** Those affected by allocation decisions – including individuals, communities or countries – should be able to exert at least some influence over the decision-making process as well as the decision itself.
 - This also implies that decisions should be open to challenge and potentially revisable, perhaps through an appeal process.
- **Ensuring Consistency:** Decisions should be consistent so that all persons in the same categories are treated in the same way. This implies that favoritism towards one's own family, religious or political compatriots, or otherwise, should not be exercised.
- **Maintaining Accountability:** Those making decisions about allocation must be accountable for those decisions – that is, they should justify their decisions and be held responsible for them.

Taking into account these values, what could be the best possible course of action?

Action	Reason
<ul style="list-style-type: none"> • Prioritizing those who, if vaccinated, would prevent the greatest spread of the virus. E.g.- Health care workers (caring for patients) and first responders. 	<ul style="list-style-type: none"> • This will also ensure maximization of benefit making largest possible impact with each vaccination dose. • Their contribution to the health and well-being of the community.
<ul style="list-style-type: none"> • Prioritizing those at greatest risk of becoming infected and seriously ill. 	<ul style="list-style-type: none"> • This will ensure maximization of benefit of vaccine by saving lives in immediate effect.
<ul style="list-style-type: none"> • Prioritizing participants of research aimed at developing vaccines, therapies or other critical resources. 	<ul style="list-style-type: none"> • They have also helped save others by their participation. (But they should not take precedence those most at risk in the case of resources such as vaccines.)
<ul style="list-style-type: none"> • Giving low priority to younger populations unless sick or need critical care. 	<ul style="list-style-type: none"> • Research suggests that younger populations appear to be at lower risk in the COVID-19.
<ul style="list-style-type: none"> • Maximizing utility should be balanced with the principle of priority to the worst-off. 	<ul style="list-style-type: none"> • There are chances that in order to extend benefit to as many people as possible isolated populations which are at high risk may get excluded.

Conclusion

Ethical considerations are vital to decision-making about the deployment of vaccines in acute humanitarian emergencies. A fair system **engenders solidarity and trust**, which are **vital to the successful and sustained collective response** necessary for dealing effectively with any outbreak. This allocation of a limited supply of vaccine calls for a fine balance between utility and equality and fairness. Following could be done to ensure this:

- **Vaccine Delivery Platform:** which enables coordination between health management authorities, local government and state government.
 - Further, the platform could be **integrated with the information repository** created for the vaccination distribution.
- **Maintaining Information Repository** for identification and accordingly optimization of the vaccine delivery process. Also, it could create a **list of people who need vaccination** on immediate basis in a given area.

10. SCHEMES IN NEWS

10.1. RASHTRIYA KRISHI VIKAS YOJANA

Why in news?

Recently, the Union Government has launched **Innovation and Agri-entrepreneurship Development programme** under Rashtriya Krishi Vikas Yojana.

Objectives	Salient Features
<ul style="list-style-type: none"> To strengthen the farmer's efforts through creation of required pre and postharvest agri-infrastructure that increases access to quality inputs, storage, market facilities etc. and enables farmers to make informed choices. To provide autonomy, flexibility to States to plan and execute schemes as per local/farmers' needs. To promote value chain addition linked production models that will help farmers increase their income as well as encourage productivity To mitigate risk of farmers with focus on additional income generation activities - like integrated farming, mushroom cultivation, bee keeping etc. To attend national priorities through several sub-schemes. To empower youth through skill development, innovation and agri-entrepreneurship 	<ul style="list-style-type: none"> RKVY scheme was initiated in 2007 by Ministry of Agriculture and Farmer's Welfare. It is umbrella scheme for ensuring holistic development of agriculture and allied sectors by allowing states to choose their own agriculture and allied sector development activities as per the district/state agriculture plan. It incentivizes States to increase public investment in Agriculture & allied sectors. States have been provided flexibility and autonomy for selection, planning approval and execution of projects/programs. Decentralised planning for agriculture and allied sectors is initiated by the states through District Agriculture Plan and State Agriculture Plan based on agro-climatic conditions, availability of appropriate technology and natural priorities It was recently revamped as Rashtriya Krishi Vikas Yojana- Remunerative Approaches for Agriculture and Allied Sector Rejuvenation (RKVY-RAFTAAR) for three years i.e. 2017-18 to 2019-20. Under RKVY-RAFTAAR, major focus is on pre & post-harvest infrastructure, besides promoting Agri-entrepreneurship and innovations. It is a Centrally Sponsored Scheme. Fund Allocation - 60:40 grants between Centre and States in states and 90:10 for North Eastern States and Himalayan States. Fund breakup: <ul style="list-style-type: none"> Regular RKVY-RAFTAAR (Infrastructure & Assets and Production Growth)-70% of annual outlay to be allocated to states as grants (out of this, 20% are flexi-funds) RKVY-RAFTAAR special sub-schemes of National Priorities- 20% Innovation and Agri-entrepreneur development- 10% (In case the funds not utilized, it will be diverted to regular RKVY & sub-schemes) <ul style="list-style-type: none"> ✓ This fund will be utilized for creating end to end solution for agri-entrepreneurs through skill development and financial support for setting up agri-enterprises. For UTs the grant is 100% as Central share. Sub-Schemes include: <ul style="list-style-type: none"> Bringing Green Revolution to Eastern India Crop Diversification Program (CDP)– It is being implemented in the Original Green Revolution States of Punjab, Haryana and Western Uttar Pradesh to diversify area from water guzzling crop Reclamation of Problem Soil (RPS) Foot & Mouth Disease – Control Program (FMD-CP) Saffron Mission Accelerated Fodder Development Programme (AFDP)- farmers/ FPOs/ Cooperatives in the drought affected districts/blocks are provided financial assistance of Rs. 3200/ha (upto a maximum area of two ha) for taking up additional production of fodder.

10.2. AMRUT SCHEME

Why in news?

Recently, Odisha has bagged first position in implementation of AMRUT scheme.

About AMRUT scheme

Objectives	Salient Features
<ul style="list-style-type: none"> To provide basic civic amenities like 	<ul style="list-style-type: none"> It has been launched by Ministry of Housing and Urban Affairs (MoHUA). The purpose of "AMRUT" mission is to:

<p>water supply, sewerage, urban transport, parks as to improve the quality of life for all especially the poor and the disadvantage d.</p> <ul style="list-style-type: none"> • Infrastructure creation that has a direct link to provision of better services to the citizens. 	<ul style="list-style-type: none"> ○ Ensure that every household has access to a tap with assured supply of water and a sewerage connection. ○ Increase the amenity value of cities by developing greenery and well maintained open spaces e.g. parks ○ Reduce pollution by switching to public transport or constructing facilities for non-motorized transport. • The major project components are: <ul style="list-style-type: none"> ○ Water Supply system ○ Sewerage, Septage ○ Storm Water Drainage, ○ Urban Transport ○ Green Space and Parks ○ Reforms management and support ○ Capacity building etc. • Earlier, the MoHUA used to give project-by-project sanctions. In the AMRUT this has been replaced by approval of the State Annual Action Plan once a year by the MoHUA and the States have to give project sanctions and approval at their end. • AMRUT makes States equal partners in planning and implementation of projects, thus actualizing the spirit of cooperative federalism. • The Mission covers 500 cities that include all cities and towns with a population of over one lakh with notified Municipalities. The category of cities that have been selected under AMRUT is given below: <ul style="list-style-type: none"> ○ All Cities and Towns with a population of over one lakh with notified Municipalities as per Census 2011, including Cantonment Boards (Civilian areas), ○ All Capital Cities/Towns of States/ UTs, not covered in above , ○ All Cities/ Towns classified as Heritage Cities by MoHUA under the HRIDAY Scheme, ○ Thirteen Cities and Towns on the stem of the main rivers with a population above 75,000 and less than 1 lakh, and ○ Ten Cities from hill states, islands and tourist destinations (not more than one from each State). • It is Central Sponsored Scheme. • The project fund is divided among States/UTs in 50:50 weightage and it is given to the urban population of each State/UT and number of statutory towns.
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11. NEWS IN SHORTS

11.1. NCC EXPANSION

- PM had recently announced **major expansion of NCC units to cover 173 border areas** and coastal districts.
- A total of **1 Lakh cadets will be inducted into NCC** from these regions.
- Out of the total cadets **one- third will be girl cadets**.
- 83 NCC units are proposed to be upgraded (Army 53, Navy 20, Air Force 10) for implementing proposal.

About National Cadet Corps:

- NCC is a tri-service organisation set up in 1948 through **the National Cadet Corps Act, 1948 (based on the recommendations of Kunzru committee)**.
- It operates under Ministry of Defence and is the largest uniformed youth organization of the country.
- **It provides for voluntary participation** by school and college students.
- It aims at not only armed forces drills and training but also engages in community services. E.g. at Corona Pandemic start, **around 25000 Cadets were readied to assist Govt in tackling COVID**.
- Its certificate holders are entitled to various reservations in Govt institutes and jobs.

11.2. ARIIA 2020

- Recently, Atal Ranking of Institutions on Innovation Achievements (ARIIA) rankings were announced.
- It is an initiative of **Ministry of Education** to systematically rank all major higher educational institutions and universities in India on indicators related to **'Innovation and Entrepreneurship Development'** amongst students and faculties.
 - In the ARIIA 2020 rankings, **IIT Madras has bagged the top spot** for best centrally funded institution followed by IIT Bombay and IIT Delhi.
 - In the category of private institutions, **Kalinga Institute of Industrial Technology, Odisha** has emerged as the winner.
 - **College of Engineering Pune, Maharashtra** has topped the list for State-Funded Autonomous Institutions.
 - For the first time, **ARIIA 2020 rankings had a special prize category for women-only** higher educational institutions.
- ARIIA **focus on quality of innovations** and try to measure the real impact created by these innovations nationally and internationally.

- The results of the rankings have been evaluated based on seven parameters. These include:
 - Budget & Funding Support.
 - Infrastructure & Facilities.
 - Awareness, Promotions & support for Idea Generation & Innovation.
 - Promotion & Support for Entrepreneurship Development.
 - Innovative Learning Methods & Courses.
 - Intellectual Property Generation, Technology Transfer & Commercialization.
 - Innovation in Governance of the Institution.

11.3. 2ND EDITION OF STUDENT ENTREPRENEURSHIP PROGRAMME (SEP)

- It was **launched by NITI Aayog's Atal Innovation Mission** in collaboration with Dell Technologies for young innovators of Atal Tinkering Labs (ATLs).
 - They will receive mentor support; prototyping and testing support; intellectual property registration and patenting of ideas etc. from Dell volunteers.
- SEP is a 360-degree development program for **future technology leaders and entrepreneurs**.
 - It is **dedicated to encourage innovation spirit of students** and nurturing their leadership and entrepreneurial skills.

11.4. GRAMODYOG VIKAS YOJANA

- It was recently approved by Ministry of Micro Small and Medium Enterprises (MSME).
- It aims to the **benefit of artisans involved in manufacturing of Agarbatti** and to develop village industry under the scheme.
- **Khadi and Village Industries Commission** will provide training, and assist artisans working in this area, with Agarbatti manufacturing machines.
- Recently, Government had placed the 'Agarbatti' item under Restricted trade in the import policy and enhanced the import duty from 10% to 25% on 'round bamboo sticks'.

11.5. NATIONAL GIS-ENABLED LAND BANK SYSTEM LAUNCHED BY MINISTRY OF COMMERCE AND INDUSTRY

- National **GIS (Geographic Information System)-enabled Land Bank system**, is being developed by integration of Industrial Information System (IIS) with State GIS Systems.

- **Department for promotion of Industry & Internal Trade** has developed IIS portal, a GIS-enabled database of industrial areas/clusters across the country to **adopt a committed approach towards resource optimization, industrial upgradation and sustainability.**
- GIS is a computer system for capturing, storing, checking, and displaying data related to positions on Earth's surface.
- IIS aims to **provide details of logistics, land, rail & air connectivity, tax incentives, drainage system, power supply and raw material availability** from portal on various industrial belts.
 - Currently information about industrial belts in six states is available on the portal
- **Benefits:** investors will help investors to get real-time information about availability of industrial land and resources for potential projects; address delays in acquiring land especially for large projects, ease in land conversion from agriculture use, improving ease of doing business etc.
- **Issues in land availability:** mismatch between demand and supply, fragmented land holdings, regulatory and policy restrictions, dysfunctional pricing regime and weak informational and institutional mechanisms.

11.6. KAVKAZ 2020

- India has withdrawn from **Kavkaz multi-nation military exercise in Russia citing logistics difficulties** due to COVID-19 pandemic.
- Kavkaz is the Russian strategic command and staff exercise. Some **20 countries are participating** in this exercise including China, Pakistan.

11.7. ONE SUN, ONE WORLD, ONE GRID (OSOWOG) INITIATIVE

- OSOWOG aims to **connect 140 countries through a common grid** that will be used to transfer solar power.
 - Idea was first presented in 2018 during the first assembly of International Solar Alliance (ISA).
- The underlying logic is that a **grid spread across multiple time zones could balance intermittent renewables with other renewables.**
- **OSOWOG is divided into 3 phases:**
 - **Phase 1:** Indian Grid interconnection with Middle East, South Asia and South East Asian (MESASEA) grids.
 - **Phase 2:** MESASEA grid interconnection with African power pools and other countries located in solar and renewable energy rich areas.
 - **Phase 3:** Global inter-connection.
- **Benefits of OSOWOG:** attracting investments; utilizing skills and technology; reducing project

costs; higher efficiency and increased asset utilization, scale-up in access to energy etc.

- **Significance:**

- While India is a partner nation is most trade associations, with **ISA and OSOWOG it is planning to take a leadership position.**
- It will provide a **major investment drive to ISA** to counter China's presence in several African markets.
- It will help in **climate change mitigation** especially in the backdrop of US withdrawal from Paris climate deal.

11.8. NATIONALLY DETERMINED CONTRIBUTIONS- TRANSPORT INITIATIVE FOR ASIA (NDC- TIA)

- NDC-TIA project **aims at promoting a coherent strategy of effective policies for decarbonising transport** that are co-ordinated among various sector ministries, civil society and the private sector.
- Project **engages in China, India and Vietnam over the period 2020-24.**
- It is a **joint project of seven organisations** including World Resources Institute, International Transport Forum, International Council on Clean Transportation etc.
- The **implementing partner in India for the project is NITI Aayog.**

11.9. AGRICULTURE MACHINERY EMISSIONS

Ministry of Road Transport and Highways (MoRTH) has issued a draft notification for separate emission norms for agriculture machinery and construction equipment vehicles.

- MoRTH has proposed amendments to **Central Motor Vehicles Rules (CMVR), 1989.**
- The **key proposals include:**
 - **Separate emission norms** for Agricultural machinery (agricultural tractors, power tillers and combined harvesters) and Construction Equipment Vehicles.
 - Change the nomenclature of emission norms from **Bharat Stage Construction Equipment Vehicle/ Tractor Emission Norms (CEV/TREM)-IV** and **Bharat Stage (CEV/TREM) -V** to
 - ✓ **TREM Stage-IV and TREM Stage-V** for Agricultural Tractors and other equipments.
 - ✓ **CEV Stage - IV and CEV Stage-V** for the Construction Equipment Vehicles.

- Also, **date for implementation of TREM Stage-IV and CEV Stage – IV has been deferred** to 2021 (from earlier 2020), to provide more time in implementing the next stage of emission norms.

Rationale behind the proposal

- In 2017, Supreme Court **banned sale of Bharat Stage-III vehicles but said the ban is not applicable to equipment used for farming and construction.** But, due to nomenclature being same for tractors and commercial equipment vehicles, their registration was also stopped.

11.10. INDIA WATER RESOURCES INFORMATION SYSTEM

- Ministry of Jal Shakti has launched a new version of India-WRIS.
- This is a **web portal containing information related to Water Resources** through dashboards for rainfall, water levels & discharge of rivers, water bodies, ground water levels, reservoir storages, evapotranspiration and soil moisture, as well as modules on water resources projects, water bodies, hydro-met data availability and tools for GIS layer editing.
- India-WRIS was **launched in 2019 under National Hydrology Project.** National Water Informatics Centre to maintains and updates India WRIS.

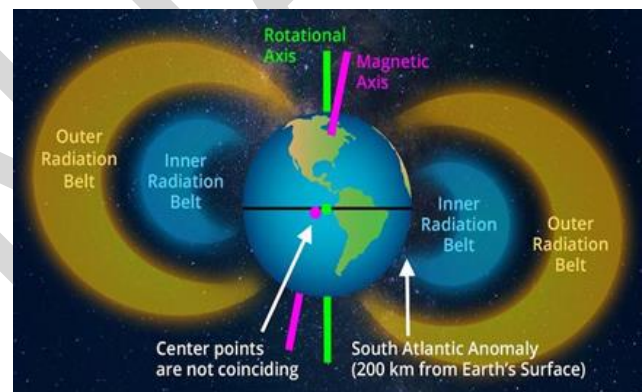
11.11. HARIT PATH

- It is a mobile app that will **facilitate creation of Green Highways** across the country.
 - It will monitor location, growth, maintenance activities, targets etc of **every plant under all Highway plantation projects.**
- It is **developed by National Highways Authority of India (NHAI)** under Ministry of Road Transport and Highways.
- Recently, NHAI had also undertaken a **nation-wide plantation drive, Harit Bharat Sankalp,** under which it planted over 25 lakh plants in 25 days along the stretches of National Highways.

11.12. SOUTH ATLANTIC ANOMOLY

- Recent data from NASA shows splitting of South Atlantic Anomaly.
- South Atlantic Anomaly (SAA), also called as 'dent' in Earth's Magnetic Field is an unusually weak spot in the Earth's Magnetic Field that allows charged particles from Sun to dip closer to the Earth's surface than normal.
 - It is observed over South America and the southern Atlantic Ocean.

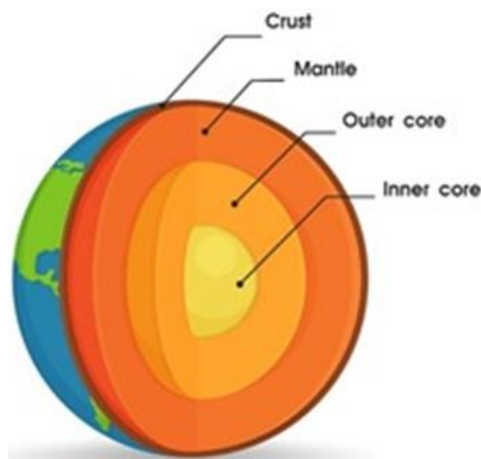
- Recent data shows that **SAA is expanding westward and splitting into two lobes** which can result in weakening of magnetic field and **can impact:**
 - **Low-Earth orbit satellites** that travel through SAA will get hit by solar particles which can result in a short circuit and further lead to permanent damage.
 - **International Space Station,** which is in low-Earth orbit, instruments will also be impacted.
- **SAA arises from two features of Earth's core:** The tilt of its magnetic axis, and the flow of molten metals within its outer core.
 - So far, **SAA degradation has not caused any visible impacts** on Earth's surface.
- Earth's magnetic field **acts like a protective shield around the planet,** repelling and trapping charged particles from the Sun.
 - **Magnetic field of Earth is due to metallic and liquid outer core,** around 3,000 km below our feet.



11.13. EARTH'S INNER CORE

- Researchers **have revised the estimate of the age of Earth's solid inner core to 1-1.3 billion years old.**
 - Earlier it was reported that inner core was only about 565 million years old, quite young compared to the age of Earth (4.5-billion-year).
- **Earth's core is made mostly of iron,** with the inner core being solid and the outer core being liquid.
 - The **circulation of this liquid metal creates electric currents** and turns Earth into a giant electromagnet. This is how Earth's magnetic field is generated. The process is called **geodynamo.**
- **Earlier estimates have created a paradox,** where the core would have had to reach unrealistically high temperatures to maintain the geodynamo for billions of years before the formation of the inner core.
- **New research solves that paradox** by finding a solution that keeps the temperature of the core within realistic parameters.

- It suggests that geodynamo was maintained by two different energy sources and mechanisms.



11.14. MOUNT SINABUNG VOLCANO

- **Mount Sinabung** volcano in **Indonesia** erupted in August, 2020 spouting ash at least 5,000 metres high into the sky.
- **Mount Sinabung** is an **active stratovolcano** on **Indonesia's Sumatra island**
- It erupted in 2010 after a 400-year-long break and has been continuously active since 2013.
- It is prone to seismic upheaval due to its location on the **Pacific's Ring of Fire** or the Circum-Pacific Belt, which is an **area along the Pacific Ocean characterised by active volcanoes and frequent earthquakes.**
- Stratovolcano is a **tall, conical volcano** composed of one layer of hardened lava and volcanic ash.
- These volcanoes are characterized by a steep profile and **periodic, explosive eruptions.**
- The lava that flows from them is **highly viscous, and cools and hardens** before spreading very far.



11.15. MAURITIUS STRUGGLES TO CONTAIN OIL SPILL

- Mauritius has **declared a state of environmental emergency** after a grounded ship off its coast is said to be leaking tonnes of crude oil.
 - Oil is **one of the most abundant pollutants in the oceans.** About 3 million metric tons of oil contaminates the oceans annually.

- **Impact on Mauritius**
 - **Ecological:** Site of the leak is **Pointe d'Esny region**, home to a wealth of sanctuaries for rare and endemic wildlife and a marine park with pristine protected coral reefs, mangrove forests and endangered species.
 - **Economic:** Mauritius depends primarily on its seas for food and tourism. Spill threatens to permanently destroy its ecotourism.
- **Measures that can be taken**
 - **Floating booms** can be placed around the source of the spill or to reduce or prevent further spreading of oil.
 - **Use of various sorbents** (e.g., straw, volcanic ash, and shavings of polyester-derived plastic) that absorb oil from the water.
 - **Skimmers or oil scoops** can be deployed onto boats to remove the contaminants from the water surface.

11.16. SWACHH BHARAT MISSION ACADEMY (SBMA) LAUNCHED BY MINISTRY OF JAL SHAKTI

- It is an Interactive Voice Response (IVR)-based **training course with modules on Open Defecation Free (ODF) Plus programme.**
 - ODF Plus is an extension of the ODF programme under the Swachh Bharat Mission.
 - Its objective is to sustain the ODF programme and to take up **Solid and Liquid Waste Management.**
- SBMA will **boost the capacity building efforts in training of Swachhagrahis**, community-based organizations, NGOs, SHGs and others who are associated with phase 2 of SBM(G).

11.17. TRIFOOD PROJECT OF TRIBAL COOPERATIVE MARKETING DEVELOPMENT FEDERATION OF INDIA (TRIFED)

- **Ministry of Tribal Affairs (MoTA)** launched the tertiary processing centres of Trifood Project, in Raigad (Maharashtra) and Jagdalpur (Chhattisgarh).
- TRIFOOD is a joint initiative of **Ministry of Food Processing Industry, MoTA and TRIFED.**
 - It aims to **enhance the income of tribals through better utilization** of and value addition to the Minor Forest Produce (MFP) collected by the tribal forest gatherers.

11.18. FIT INDIA YOUTH CLUBS

- Union Minister of Youth and Sports launched a nation-wide initiative, the **Fit India Youth Club**, on Independence Day.
- Fit India Youth Club, a **part of the Fit India Movement**, endeavours to **harness the power of youth to create mass awareness about the importance of fitness**, across the country.
 - **Fit India Movement** is a nation-wide campaign that aims at encouraging people to include physical activities and sports in their everyday lives.
- It brings together fitness and voluntarism in which 75 lakh volunteers of **Nehru Yuva Kendra Sangathan** and **National Service Scheme**, along with **Scouts and Guides**, **NCC** and other youth organisations will come together to register as Fit India Youth Clubs.
- **Fit India Youth Clubs will be established in every block in the country.** Under the aegis of a district unit each member of the club will **motivate people from the community to take up fitness activities of 30 to 60 minutes in his or her daily routine.**
- The clubs will **organise and encourage schools and local bodies** to organise one community fitness programme every quarter.
- One of the first initiatives that will be taken up by the Fit India Youth Clubs is to popularise the **Fit India Freedom Run** which is a unique concept that allows participants to run at their pace and at their place and plan their own running routes.

11.19. INDIA'S FIRST INTERNATIONAL WOMEN'S TRADE CENTRE

- It will be **setup at Angamaly, Kerala** in consonance with United Nations Sustainable Development Goals.
- It **aims to accelerate women entrepreneurship and secure gender parity** while providing women with a safe place to start new businesses, and get their products marketed globally.

11.20. WORLD'S 'FIRST' COVID-19 VACCINE OUT IN RUSSIA

- Russian COVID-19 vaccine, dubbed Sputnik V, has been developed by the Gamaleya institute along with the Russian Direct Investment Fund.
 - The vaccine has been named after Sputnik-1, **first artificial Earth satellite** launched by Soviet Union (1957).
- **World Health Organization has not approved of the vaccine yet** and still terms it as a vaccine 'candidate' and not a 'vaccine'.

- Recently, Union government stated that **India is talking to Russia for purchasing Sputnik V.**

11.21. PAN-INDIA 1000 GENOME SEQUENCING OF SARS-COV-2 COMPLETED SUCCESSFULLY

- **Genome sequencing** is figuring out order of DNA nucleotides, or bases, in a genome that make up an organism's DNA.
- **Department of Biotechnology** had launched this project in May this year.
- Sequence data will soon be released in **Global Initiative on Sharing All Influenza Data (GISAI)** for use by researchers across the Globe.
- This will improve our understanding on how virus is spreading, helping to interrupt transmission chains, prevent new cases of infection, and provide impetus to research on intervention measures.

11.22. COVID-19 BIOREPOSITORIES

- Government dedicated to the nation the largest network of **five dedicated COVID-19 Biorepositories established by Department of Biotechnology.**
- These are at Translational Health Science and Technology Institute Faridabad, Institute of Life Science Bhubaneswar, Institute of Liver and Biliary Sciences New Delhi, National Centre for Cell Science Pune and Institute for Stem Cell Science and Regenerative Medicine Bangalore.
- **Main purpose of biorepositories are archival of inactivated virus and clinical samples**, including naso-oropharyngeal swabs, stool, urine, saliva, serum, plasma, PBMC and Serum.

11.23. INDO-US VIRTUAL NETWORKS FOR COVID-19

- **Indo-US Science and Technology Forum (IU SSTF)** announced the awards to pursue research in disease management of COVID-19 through **Indo-US virtual networks.**
- The Virtual Networked Centers provide a **platform to enable Indian and American scientists** from academia, laboratories and industry to carry out joint research activities by leveraging already existing infrastructure and funding available with the partners on both sides.
- These network projects could be of two types:
 - **Knowledge R & D Networked Centers** aim to encourage joint project implementation amongst Indian and American scientists from Academia and Laboratories on focal areas of research through networking.

- **Public-Private Virtual Networked Centers** enable Indian and American scientists from Academia and Industry to **work together to promote pre-commercial R & D activities** having potential towards applied research and product development.

About Indo-US Science and Technology Forum (IUSSTF)

- **Established in 2000**, it is an **autonomous bilateral organization** jointly funded by both the Governments of India and USA.
- It **promotes Science, Technology, Engineering and Innovation** through substantive interaction among government, academia and industry.
- **Department of Science & Technology**, Government of India and **the U.S. Department of States** are respective nodal departments.

11.24. CENTRE FOR BIO-PHARMA ANALYSIS

- The Centre for Biopharma Analysis (CBA) was recently launched by Department of Biotechnology (DBT) in Pune.
- It is **funded by DBT under the National Biopharma Mission (NBM)**, launched in 2017.
- It will **provide high-quality analytical services** for biopharmaceutical developers and manufacturers.
- This centre will **help start-ups, research institutes and bio-pharma industry** save significant time and cost in developing products that can enter the market faster and at an affordable price.
- It is designed to cater to all academics, medicine developers across India to **fast track the development of vaccines**, drugs, diagnostic and other bio-pharma products.

National Biopharma Mission (NBM)

- NBM, launched in 2017, aims to **make India a hub for design and development** of novel, affordable and effective **biopharmaceutical products**.
- It has an allocation of **US\$ 250 million** and is **jointly funded** by the **Government of India and the World Bank** in equal measure.
- **Biotechnology Research Assistance Council (BIRAC)** under DBT is the **implementation partner** of the Government of India for the Mission.
 - BIRAC is a **not-for-profit Public Sector Enterprise** set up by DBT.

11.25. UK LAUNCHES £3 MILLION INNOVATION CHALLENGE FUND IN INDIA

- The fund aims to **support scientists in academia and industry to tackle the COVID-19 pandemic** and climate change.
- Grants under the Fund are part of initiative under the Tech Partnership known as **Tech Clusters**.

- Tech Clusters **will support the development of Indian Tech Clusters** by breaking down barriers to growth, including building international links.

11.26. WORLD HEALTH ORGANIZATION (WHO) CERTIFIED AFRICAN REGION FREE OF WILD POLIO

- For certification, **all countries in WHO Region need to have no case of wild polio for 3 consecutive years**. No single country can be certified as polio-free.
 - **Now, five of six WHO regions**, except Eastern Mediterranean which includes Afghanistan and Pakistan, **are certified free of wild poliovirus**.
 - In 2014, India is in South-East Asia Region of WHO
- Poliomyelitis (polio) is a highly **infectious disease that invades nervous system**. There are **3 types of wild polio virus** – type 1, type 2, and type 3. **Only type 1 wild poliovirus remains in circulation**.
- **Two types of vaccinations** against poliovirus:
 - **Inactivated polio vaccine** is made up of inactivated (killed) polio virus and will provide immunity from all strains of polio.
 - **Oral polio vaccine** contains a live, attenuated (weakened) vaccine-virus. When a child is vaccinated, the weakened vaccine-virus replicates, triggering a protective immune response.
 - ✓ However, in some cases, **vaccine-virus is genetically altered during replication**. This is called a vaccine-derived poliovirus (VDPV).
- **Diseases eradicated from India:** Yaws, Polio, Guinea worm, smallpox, Maternal and neonatal tetanus.

Region	Year certified polio-free
WHO African Region	
WHO Region of the Americas	1994
WHO South-East Asia Region	2014
WHO European Region	2002
WHO Eastern Mediterranean Region	
WHO Western Pacific Region	2000

11.27. DR VIKRAM SARABHAI

- ISRO Names Moon Crater **Captured by Chandrayaan-2 After Vikram Sarabhai** called "Sarabhai" Crate
- **About Dr Vikram Sarabhai**
 - He founded the **Physical Research Laboratory (PRL) in Ahmedabad in 1947**.
 - He was also Chairman of the Atomic Energy Commission.

- Played Key role in **establishing ISRO** and referred to as **father of the Indian space programmes**.
- **Awards conferred on him**
 - Shanti Swarup Bhatnagar Award (1962)
 - Padma Bhushan (1966)
 - Padma Vibhushan, posthumous (after-death) (1972)

11.28. DWARF PLANET CERES GIVEN STATUS OF AN “OCEAN WORLD”

- This status was given as scientists have determined that Ceres has a **brine (solution of salt in water) reservoir**, making it “water rich”.
- Ceres is a dwarf planet which lies in the **asteroid belt between Mars and Jupiter**.
- **Criteria for dwarf planet are**
 - body orbits around the Sun.
 - Not a satellite of any planet.
 - Has not cleared the neighbourhood around its orbit.
 - Has enough mass for its gravity to pull it into a roughly spherical shape.

11.29. CHEMOSYNTHESIS AIDS MICROBES SURVIVAL

- Recently, scientists have discovered that **microbes across globe could live on air** — by feeding off the hydrogen, carbon dioxide and carbon monoxide to survive extreme conditions.
- In 2017, the **phenomenon was observed in Antarctica** but researchers have now discovered that **the phenomenon is global, and occurs in soils across the world’s three poles** (Antarctic, Arctic and Tibetan Plateau in the Hindu Kush-Himalayas).
- The findings mean that microbes use **trace gases (gases in the atmosphere other than nitrogen, oxygen and argon) as energy and carbon source to grow**.
- This is possible by process called **Chemosynthesis**, which helps **microbes grow in areas of low photosynthetic capacity** (low or absence of sunlight).

About Chemosynthesis

- It is the process through which **bacteria or other living organisms derive energy** — from **reactions involving inorganic chemicals** — typically in the **absence of sunlight**.
- The process is also called **carbon fixation**, through which **inorganic carbon is converted to organic compounds** by living organisms and **stored as form of energy**.
- Chemosynthesis has profound impact on the **production and cycling of greenhouse gases** such as **carbon dioxide, methane and nitrous oxide**.

Photosynthesis vs Chemosynthesis

- **Photosynthesis** – occurs in plants and some bacteria, wherever there is enough sunlight.
- Photosynthetic organisms **use the sun’s energy** to turn **carbon dioxide and water into sugar and oxygen**.
- Chemosynthesis – is the **use of the energy released by chemical reactions** (instead of the sun’s energy) to **produce food**.

11.30. SWADESHI MICROPROCESSOR CHALLENGE- INNOVATE SOLUTIONS FOR AATMANIRBHAR BHARAT

- It seeks to invite innovators, startups and students to **use these microprocessors to develop various technology products**.
- It is aimed at **meeting India’s future requirements of strategic and industrial sectors** and mitigate the issues of security, licensing, technology obsolescence and cutting dependency on imports.
- It was launched by **Ministry of Electronics and Information Technology**.

11.31. SUPER APPS

- Tata Group is planning to launch an all-in-one super app by the end of this year.
- Super app is a **platform developed by a company offering various services under one umbrella**.
 - E.g. China’s WeChat started out as a messaging app, expanded into payments, cabs, shopping, food ordering, etc.
- A **country or a region becomes super app-ready** when its large base of population has smartphone first instead of desktop and ecosystem of apps customised to local needs is not evolved.
- **Concerns:** possibility of a monopoly, concerns of privacy etc.

11.32. WARLI PAINTINGS

- It expresses **daily and social events of Warli tribe** of Maharashtra. These paintings **do not depict mythological characters** or images of deities, but depict social life.
- Images of human beings and animals, along with scenes from daily life are created in a loose rhythmic pattern.
 - Paintings depict scenes of **human figures engaged in activities like hunting, dancing, sowing and harvesting**.
 - In Warli paintings a **series of dots and dashes make one line**.
- **Women are mainly engaged** in the creation of these paintings.

11.33. NUAKHAI JUHAR

- It is an agricultural festival to welcome the new crop of the season.
- It is also called NuakhaiParab or NuakahiBhetghat and is celebrated in Odisha, Chhattisgarh and areas of neighbouring states.
- Nuakhai is a combination of two words signifies eating of new rice as 'nua' means new and 'khai' means eat.

11.34. THUMBIMAHOTSAVAM 2020

- It is first-ever State Dragonfly Festival in Kerala
 - 'Pantalu' is the official mascot of the festival.
- This is part of National Dragonfly Festival organised by WWF India, Bombay Natural History Society and Indian Dragonfly Society in association with National Biodiversity Board, UN Environmental

Programme, UN Development Programme and IUCN-CEC.

- **Dragonfly Festival started in 2018** to educate and inform the public about the integral role that dragonflies, and their lesser known siblings damselflies, play in our environment.

11.35. WORLD URDU CONFERENCE

- It is being organized by **National Council for Promotion of Urdu Language (NCPUL)**.
- NCPUL is an **autonomous body under the Ministry of Human Resource Development**, Department of Secondary and Higher Education.
 - It was set up to **promote, develop and propagate Urdu language**.
- Urdu is **one of the languages under 8th schedule** of the Constitution of India.

“ The Secret To Getting Ahead Is Getting Started ”



ALTERNATIVE CLASSROOM PROGRAM for

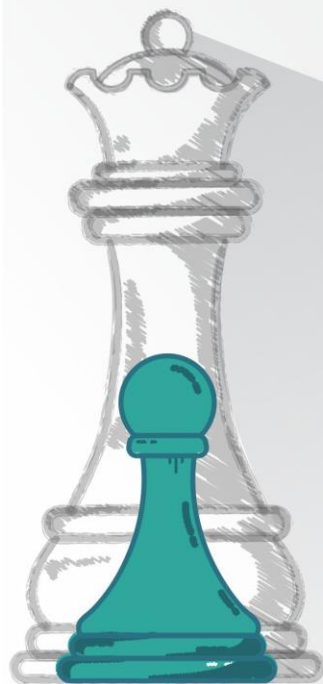
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PRELIMS & MAINS 2022 & 2023

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Regular Batch	Weekend Batch
29 Sept 5 PM	11 Sept 10 AM
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