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Polity, Bills, Acts and Judgments

1. Virtual Courts Vs Online Courts (PIB)

- Nine virtual Courts have been set up at Delhi (2 courts), Faridabad (Haryana), Pune & Nagpur (Maharashtra) Kochi (Kerala), Chennai (Tamil Nadu), Gauhati (Assam) and Bengaluru (Karnataka) **to try traffic offences.**
- **The concept is aimed at** reducing the footfalls in the court by eliminating the presence of the violator or advocate in the court.
- Virtual court can be managed by a virtual judge (which is not a person but an algorithm) whose jurisdiction can be extended to the entire state and working hours can be 24X7.
- As on 08.12.2020, these courts have handled 35,02,896 cases and realised Rs.130.72 Cr in **finances.**
- In November 2020, Delhi High Court has issued "Digital NI Act Courts-Project Implementation Guidelines" and operationalization is expected soon to have Virtual Courts dealing with Negotiate Instruments Act cases.
- Besides being environmentally friendly as cases are adjudicated in a paperless manner, it has led to saving of judicial manpower and added to convenience of citizens.

Distinction between virtual courts and online courts

- In Virtual Courts, Plaint and other documents such as vakalatnama, written submissions are filed electronically; Court fees are paid electronically; Evidence is

submitted digitally; arguments are heard over videoconferencing; witnesses give their testimony remotely over videoconferencing and Judge decides the case online either presiding from the physical Courtroom or from some other place.

- A copy of the Order or the Judgement is made available on the website of the Court or through some electronic means.
- In comparison, online courts have asynchronous hearings, while in virtual courts the interactions are synchronous.
 - What that means is that while in virtual courts the advocates, judges, witnesses and litigants are all required to be present or available at the time of the hearing, in online courts this isn't the case.
- In such a system of hearing, all the participants are not needed to be present together or simultaneously for the hearing to proceed and the evidence can be presented to judges without the need for their synchronous availability.
- At the risk of eliminating nuances, while virtual courts are basically mechanisms of conducting a court over videoconferencing, online courts are a relatively more advanced means of justice delivery.
- As far as the legal sanctity of virtual courts or videoconferencing is concerned – it was provided for by the Supreme Court in its April 6, 2020 order invoking article 142 of the Constitution.
- This order covered all the High Courts, and they were in fact endowed with the discretion of adopting such a technology basis to their own needs customisation in

view of the evolving pandemic scenario in different states.

- Model rules were drafted and circulated as well amongst all the High Courts while the District or lower courts were to adopt rules as prescribed by their parent High Courts.
- In **Naresh Shridhar Mirajkar and Ors. v. State of Maharashtra and Ors.**, the Supreme Court stated — "... Public trial in open Court is undoubtedly essential for the healthy, objective and fair administration of justice. Trial held subject to the public scrutiny and gaze naturally acts as a check against judicial caprice or vagaries and serves as a powerful instrument for creating confidence of the public in the fairness, objectivity, and impartiality of the administration of justice."

2. Ordinance-Making Power of Governor (Article 213 of the Constitution) (TH)

- **Context:** An editorial.

Analysis

- **Governor** can promulgate an ordinance only when the legislative assembly (in case of a unicameral legislature) is not in session or (in case of a bicameral legislature) when both the Houses of the state legislature are not in session or when either of the two Houses of the state legislature is not in session.
 - The last provision implies that an ordinance can be promulgated by the governor when only one House (in case of a bicameral legislature) is in session because a law can be passed by both the Houses and not by one House alone.
- He can promulgate an ordinance only when he is satisfied that circumstances exist which render it necessary for him to take immediate action.
- His ordinance-making power is co-extensive with the legislative power of the state legislature.
 - This means that he can issue ordinances only on those subjects on which the state legislature can make laws.
- An ordinance issued by him has the same force and effect as an act of the state legislature.
- An ordinance issued by him is subject to the same limitations as an act of the state legislature.
 - This means that an ordinance issued by him will be invalid to the extent it makes any provision which the state legislature cannot make.
- He can withdraw an ordinance at any time.
- His ordinance-making power is not a discretionary power.
 - This means that he can promulgate or withdraw an ordinance only on the advice of the council headed by the chief minister.
- An ordinance issued by him should be laid before the legislative assembly or both the Houses of the state legislature (in case of a bicameral legislature) when it reassembles.
 - An ordinance issued by him ceases to operate on the expiry of **six weeks** from the reassembly of the state legislature.
 - It may cease to operate even earlier than the prescribed six weeks, if a resolution disapproving it is passed by

the legislative assembly and is agreed to by the legislative council (in case of a bicameral legislature).

- If the Houses of the state legislature are summoned to reassemble on different dates, the period of six weeks is calculated from the later of those dates.

- This means that **the maximum life of an ordinance can be six months and six weeks**, in case of non-approval by the state legislature (six months being the maximum gap between the two sessions of Legislative Assembly).

- If an ordinance is allowed to lapse without being placed before Legislative Assembly, then the acts done and completed under it, before it ceases to operate, remain fully valid and effective.

- An ordinance like any other legislation, **can be retrospective**, that is, it may come into force from a back date.

- It may modify or repeal any act of state legislature or another ordinance.
- It can alter or amend a tax law also.
- However, it cannot be issued to amend the Constitution.

- There is no established practice requiring the Governor (or the President under Article 123 of the Constitution) to state the circumstances for immediate action.

- The court can inquire whether circumstances existed that enabled the Governor to be satisfied of the necessity of promulgating an ordinance.

- The Supreme Court in the **D.C. Wadhwa case (1987)** ruled that successive repromulgation of ordinances with the same text without any attempt to get the bills passed by

the assembly would amount to violation of the Constitution and the ordinance so promulgated is liable to be struck down.

- The Ordinance making power does not constitute the President or the Governor into a parallel source of law making or an independent legislative authority.
- Governor cannot make an ordinance without the instructions from the President in three cases:

- (a) If a bill containing the same provisions would have required the previous sanction of the President for its introduction into the state legislature.

- (b) If he would have deemed it necessary to reserve a bill containing the same provisions for the consideration of the President.

- (c) If an act of the state legislature containing the same provisions would have been invalid without receiving the President's assent.

- In justification of the ordinance making power of the President/Governor, Dr. B.R. Ambedkar said in the Constituent Assembly that the mechanism of issuing an ordinance has been devised in order to enable the Executive to deal with a situation that may suddenly and immediately arise when the Parliament/state legislature is not in session.

- It must be clarified here that the ordinance-making power of the President/Governor has no necessary connection with the national emergency envisaged in Article 352.

- The President/Governor can issue an ordinance even when there is no war

or external aggression or armed rebellion.

3. Tenth Schedule of the Constitution for Defection (TH)

- **Context:** Congress through its advocates complained about the delay of over a year and a half by the State Assembly Speaker to decide the disqualification petitions filed against 10 Congress MLAs who defected to the BJP in July 2019. The Supreme Court Bench scheduled the case for hearing in the second week of February.
- **For further details refer to 28th Nov file.**

4. HC permits transgender to contest panchayat poll from women's category (TH)

- **Context:** The Bombay High Court's Aurangabad Bench has allowed a transgender to contest village panchayat polls in women's category, saying that such persons have the right to "self-perceived gender identity".
- The court in its order said that the Union government has introduced the Transgender Persons (Protection of Rights) Act, 2019, and has permitted a transgender person to have a right to self-perceived gender identity.
- **Transgender Persons (Protection of Rights) Act, 2019 was covered in 15th July file.**

5. SC says 'no' to intense Judicial Review (TH)

- **Context:** Supreme Court refused to treat the Central Vista project as a unique one requiring greater or "heightened" judicial review.

- A majority view of the Supreme Court said the government was "entitled to commit errors or achieve successes" in policy matters without the court's interference as long as it follows constitutional principles.

Analysis

- The doctrine of separation of powers implies that each pillar of democracy – the executive, legislature and the judiciary – perform separate functions and act as separate entities.
- The doctrine is a part of the basic structure of the Indian Constitution even though it is not specifically mentioned in its text.
- Thus, no law may be passed and no amendment may be made to the Constitution deviating from the doctrine.
- Different agencies impose checks and balances upon each other but may not transgress upon each other's functions.
- Thus, the judiciary exercises judicial review over executive and legislative action, and the legislature reviews the functioning of the executive.
- There have been some cases where the courts have issued laws and policy related orders through their judgements. These include
 - the Vishakha case where guidelines on sexual harassment were issued by the Supreme Court.
 - the order of the Court directing the Centre to distribute food grains (2010).
 - the appointment of the Special Investigation Team to replace the High Level Committee established by the Centre for investigating black money deposits in Swiss Banks.
- In 2007 SC noted that, "**Courts cannot create rights where none exist nor can**

they go on making orders which are incapable of enforcement or violative of other laws or settled legal principles.

With a view to see that judicial activism does not become judicial adventurism the courts must act with caution and proper restraint. It needs to be remembered that courts cannot run the government. The judiciary should act only as an alarm bell; it should ensure that the executive has become alive to perform its duties."

- The power of judicial review is **significantly vested upon the High Courts and the Supreme Court of India.**

- **Under Article 13 of the Indian Constitution, the compulsion of judicial review was described in fundamental rights in Part III.**
- **It is stated that the State or the Union shall not make such rules/acts that are inconsistent with or in derogation of the fundamental rights. If any law made by the Parliament or the State Legislature contravenes the provisions of this Article 13, it shall be void.**

Meaning of Judicial Review

- **Judicial Review can be understood as a form of court proceeding, where the lawfulness of a decision or action is reviewed by the judge.**
- The main concern **behind Judicial Review is that whether the law has been correctly applied with and right procedures have been followed.**
- **Judicial review has evolved in three dimensions, namely:**
 - To protect the legality of essential rights under Part III of the Indian Constitution.

- To authorize the disinterest of organizational achievement.
- Guardian of public interest.

6. What are Bypolls? (TH)

- **Context:** Bye Election to the Andhra Pradesh Legislative Council and other States.

Analysis

- By-elections or by polls are used to fill elected offices that have become vacant between general elections.
- Under the following circumstances, by polls can occur for a seat:
 - When the incumbent dies or resigns.
 - When the incumbent becomes ineligible to continue in office.
 - When a constituency election is invalidated by voting irregularities.
- When a candidate wins a seat after the by polls he or she will **remain in office till the Lok Sabha/Assembly dissolves.**
- **A person cannot be a member of both Houses of Parliament at the same time under the Representation of People Act (1951).**
 - If a person is elected to both the Houses of Parliament, he must intimate within 10 days in which House he desires to serve.
 - If a sitting member of one House is also elected to the other House, his seat in the first House becomes vacant.
 - If a person is elected to two seats in a House, he should exercise his option for one, otherwise, both seats become vacant.

7. SC examines constitutional validity of laws enacted by States (TH)

- **Context:**The Supreme Court agreed to examine the constitutional validity of laws enacted by States, such as Uttar Pradesh and Uttarakhand, that criminalise religious conversion via marriage and mandate prior official clearance before marrying into another faith.
- The laws under question Prohibition of Unlawful Conversion of Religion Ordinance, 2020 and the Uttarakhand Freedom of Religion Act, 2018 are in violation of the **fundamental rights of dignity and liberty enshrined under Article 21.**
- They had been enacted despite a series of judgments by the Supreme Court, including in **the Hadiya case, that right to marry a person of one's choice was part of an adult's privacy.**
- Under these laws, a person marrying into another faith should give a month's prior notice to the authorities, then there will be an inquiry. All these provisions are oppressive.
- Petitioners have approached SC under Article 32 of the Constitution

Steps to a controversy

The Uttar Pradesh Prohibition of Unlawful Conversion of Religion Ordinance, 2020, p the procedure to be followed for religious conversion:

<ul style="list-style-type: none"> • The individual who wants to convert and those who perform such conversions have to submit a notice to the District Magistrate, 60 days and a month in advance, respectively • District Magistrate will institute a police inquiry • Once conversion takes place, the person should submit a declaration within 	<ul style="list-style-type: none"> 60 days. The notice will be publicly exhibited for any objections • The converted person has to appear before the DM and confirm his/her identity and details • Violations will attract punishment of six months to three years' imprisonment for the person who has converted and one to five years 	<ul style="list-style-type: none"> for the convertor • The burden of proof conversion did not through force, fraud marriage rests on t who facilitated it • Marriages done for sole purpose of religious conversion are liable declared void • All offences under law are non-bailable
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Analysis

Writ Jurisdiction of the SC

- The Constitution has constituted the Supreme Court as the **guarantor and**

defender of the fundamental rights of the citizens.

- The Supreme Court is empowered to issue writs including habeas corpus, mandamus, prohibition, quo warranto and certiorari for the enforcement of the fundamental rights of an aggrieved citizen.
- In this regard, the Supreme Court has original jurisdiction in the sense that an aggrieved citizen can directly go to the Supreme Court, not necessarily by way of appeal.
 - However, the writ jurisdiction of the Supreme Court **is not exclusive.** The high courts are also empowered to issue writs for the enforcement of the Fundamental Rights.
 - It means, when the Fundamental Rights of a citizen are violated, the aggrieved party has the option of moving either the high court or the Supreme Court directly.
- There is also a difference between the writ jurisdiction of the Supreme Court and that of the high court. The Supreme Court can issue writs only for the enforcement of the Fundamental Rights and not for other purposes.
 - The high court, on the other hand, can issue writs not only for the enforcement of the fundamental rights but also for other purposes.
 - It means that the writ jurisdiction of the high court is wider than that of the Supreme Court.
- **Parliament can confer on the Supreme Court, the power to issue writs for other purposes also.**

On what grounds can SC examine any Law/rules made by the central and the state governments?

- **Legislative Competence:** A law must be challenged in the Court if it is in excess of the legislative competence of the framing authority. Competence can be checked by checking the subject matter of the law forms part of which of the three Lists and has the competent authority framed the law on that matter.
- **Violation of Rights:** The Court can check whether a particular law violates which kind of rights- whether Fundamental or Constitutional rights?
- **Violation of the Constitution:** The Court can test a law if it is ultra-vires the Constitution. In this regard, there are following Doctrines which have been evolved by the SC over a period of time: These are as under:

- **Doctrine of Basic Structure:** The Doctrine of Basic Structure signifies the basic features of the Constitution, which cannot be changed/amended, as they form the foundation of the Constitution on which its core principles/existence stands.
- **Doctrine of Pith & Substance:** Pith means 'true nature' or 'essence of something' and Substance means 'the most important or essential part of something'. Doctrine of Pith and Substance says that where the question arises of determining whether a particular law relates to a particular subject (mentioned in one List or another), the Court looks for the substance (i.e., the essential feature) of the matter. Thus, if the substance

falls within Union List, then the incidental encroachment by the Central law on the subject mentioned in the State List does not make it invalid.

- **Doctrine of Colorable Legislation:** The literal meaning of Colorable Legislation is that under the 'color' or 'appearance' of the power conferred for one particular purpose, the legislature cannot seek to achieve some other purpose which it is otherwise not competent to legislate on. It comes into play when a Legislature does not possess the power to make laws upon a particular subject but it indirectly makes law on it.

8. SC notice to Centre on plea to debar legislators (TH)

- **Context:** The Supreme Court asked the Centre and the Election Commission of India (EC) to respond to a plea to debar legislators, disqualified under the Tenth Schedule, from contesting byelections during the rest of the tenure of the House.
- The petitioner referred to recent events in Karnataka and Madhya Pradesh.

Analysis

- **Article 164 (1) (b):** A member of the Legislative Assembly of a State or either House of the Legislature of a State having Legislative Council belonging to any political party who is disqualified for being a member of that House under the Tenth Schedule shall also be disqualified to be appointed as a Minister for duration of the period commencing from the date of his disqualification till the date on which the

term of his office as such member would expire or where he contests any election to the Legislative Assembly of a State or either House of the Legislature of a State having Legislative Council, as the case may be, before the expiry of such period, till the date on which he is declared elected, whichever is earlier.

- **Article 361 (B):** A member of a House belonging to any political party who is disqualified for being a member of the House under the Tenth Schedule shall also be disqualified to hold any remunerative political post for duration of the period commencing from the date of his disqualification till the date on which the term of his office as such member would expire or till the date on which he contests an election to a House and is declared elected, whichever is earlier.
- **Note: Tenth Schedule of the Constitution for Defection and Disqualifications for membership was covered comprehensively in 28th Nov file.**

9. Haryana Panchayati Raj Act provisions arbitrary (TH)

- **Context:** Terming the provisions in the Haryana Panchayati Raj (Second Amendment) Act, 2020 as arbitrary and unconstitutional, senior Congress leader Karan Singh Dalal has asked Governor Satyadev Narayan Arya to get the Act annulled.
- Mr. Dalal has pointed out that sub-Section 3 of Section 9 of the Act caps the participation of women in local bodies at 50%.
- **For details, refer to 8th Nov file.**

10. Simultaneous Elections: “One nation, one election” (TH)

- **Context:** Legal luminaries Soli Sorabjee and Mahesh Jethmalani spoke in favour of holding simultaneous elections, during a webinar.

Analysis

What are simultaneous polls?

- The terms of Legislative Assemblies and the Lok Sabha may not synchronise with one another.
 - Currently, elections to the state assemblies and the Lok Sabha are held separately — that is whenever the incumbent government’s five-year term ends or whenever it is dissolved due to various reasons.
 - But the idea of “One Nation, One Election” envisages a system where elections to all states and the Lok Sabha will have to be held simultaneously.
 - **The idea of reverting to simultaneous polls was first mooted in the annual report of the Election Commission in 1983.**

- **This would mean that the voters will cast their vote for electing members of the LS and the state assemblies on a single day.**

Background

- The first general elections to Lok Sabha and all State Legislative Assemblies were held together in 1951-52. That practice continued over three subsequent general elections held in the years- 1957, 1962 and 1967.
 - However, due to the premature dissolution of some Legislative Assemblies in 1968 and 1969, the cycle got disrupted for the first time.

- After 1967, elections to State Assemblies and Parliament have been held separately.

Adverse impacts of the existing electoral cycle

- Impact on development programs and governance due to imposition of Model Code of Conduct by the Election Commission.
- Frequent elections lead to massive expenditures by Government and other stakeholders.
- It disrupts normal public life.
- It can perpetuate caste, religion and communal issues across the country.
- Engagement of security forces for significantly prolonged periods.
- Frequent elections adversely impact the focus of governance and policy making.

Why do some support?

- Simultaneous polls will reduce enormous costs involved in separate elections.
- The system will help ruling parties focus on governance instead of being constantly in election mode.
- Simultaneous polls will boost voter turnout.

What are the arguments against it?

- National and state issues are different, and holding simultaneous elections is likely to affect the judgment of voters.
- Since elections will be held once in five years, it will reduce the government's accountability to the people. Repeated elections keep legislators on their toes and increases accountability.
- When an election in a State is postponed until the synchronised phase, President's rule will have to be imposed in the interim period in that state. This will be a blow to democracy and federalism.

- Impact to voter behaviour: Indian voters are not mature / informed enough to differentiate between the voting choices for State Assembly and Lok Sabha in case simultaneous elections are held.

- As a result, voter behaviour gets influenced and he/she may vote for the same political party, which in most cases may be larger national parties.

Duties of Election Commission of India

- It is mandated to conduct elections for State Assemblies, Legislative Council, Lok Sabha, Rajya Sabha, President, Vice-President.
- Also, Enumeration of votes, verification of voters' list and delimitation of constituencies is undertaken by Election Commission of India.

Key draft recommendations of the Law Commission

- **The Law Commission of India (Chairman: Justice B.S. Chauhan) released its draft report on Simultaneous Elections on August 30, 2018.**
- The Commission noted that simultaneous elections cannot be held within the existing framework of the Constitution.
 - Simultaneous elections may be conducted to Lok Sabha and state Legislative Assemblies through appropriate amendments to the Constitution, the Representation of the People Act 1951, and the Rules of Procedure of Lok Sabha and State Assemblies.
 - The Commission also suggested that at least 50% of the states should ratify the constitutional amendments.

- The Commission noted that holding simultaneous elections will:
 - (i) save public money,
 - (ii) reduce burden on the administrative setup and security forces,
 - (iii) ensure timely implementation of government policies, and
 - (iv) ensure that the administrative machinery is engaged in development activities rather than electioneering.

Immediate Challenges to Simultaneous Elections and their Remedies

No-confidence motion

- The Commission noted that a no-confidence motion, if passed, may curtail the term of Lok Sabha/ state assembly.
- It recommended replacing the 'no-confidence motion' with a 'constructive vote of no-confidence', through appropriate amendments.
- In a constructive vote of no confidence, the government may only be removed if there is confidence in an alternate government.
- It further suggested the option of limiting the number of such motions during the term of the House/ Assembly.

Hung House/ Assembly

- If no party secures a majority to form the government, it may result in a hung House/ Assembly.
- In order to prevent this, the Commission recommended that the President/ Governor should give an opportunity to the largest party along with their pre or post-poll alliance to form the government.
- If the government can still not be formed, an all-party meeting may be called to resolve the stalemate. If this fails, mid-term elections may be held.

- The Commission recommended that appropriate amendments be made to provide that any new Lok Sabha/Assembly formed after mid-term elections, will be constituted only for the remainder of the previous term, and not the entire five years.

Amendment to anti-defection laws

- The Commission recommended that appropriate amendments be made to anti-defection laws to ensure that all disqualification issues (arising from defection) are decided by the presiding officer within six months.

11. Duration of Panchayats and State Election Commission (TH)

- **Context:** A.P. High Court stayed gram panchayat elections and suspended State Election Commission (SEC) order for polls in February 'in the interest of public health.'

Analysis

Duration of Panchayats

- The 73rd Amendment Act of 1992 provides for a five-year term of office to the panchayat at every level. However, it can be dissolved before the completion of its term.
- Further, fresh elections to constitute a panchayat shall be completed
 - (a) before the expiry of its duration of five years; or
 - (b) in case of dissolution, before the expiry of a period of six months from the date of its dissolution.
- But, where the remainder of the period (for which the dissolved panchayat would have continued) is less than six months, it shall not be necessary to hold any election for constituting the new panchayat for such period.

- Moreover, a panchayat constituted upon the dissolution of a panchayat before the expiration of its duration shall continue only for the remainder of the period for which the dissolved panchayat would have continued had it not been so dissolved.
- In other words, a panchayat reconstituted after premature dissolution **does not enjoy the full period of five years** but remains in office only for the remainder of the period.

State Election Commission

- The superintendence, direction and control of the preparation of electoral rolls and the conduct of all elections to the panchayats shall be vested in the state election commission.
- It consists of a state election commissioner to be appointed by the governor.
- His conditions of service and tenure of office shall also be determined by the governor.
- He shall not be removed from the office except in the manner and on the grounds prescribed for the removal of a judge of the state high court.
 - A judge of a high court can be removed from his office by the president on the recommendation of the Parliament.
 - This means that a state election commissioner cannot be removed by the governor, though appointed by him.
- His conditions of service shall not be varied to his disadvantage after his appointment.
- The state legislature may make provision with respect to all matters relating to elections to the panchayats.

12. Prime Minister's National Relief Fund (PMNRF) (PIB)

- **Context:** The Prime Minister, Shri Narendra Modi has approved an ex-gratia of Rs. 2 lakh each from **Prime Minister's National Relief Fund** for the next of kin of those who have lost their lives due to the tragic hospital fire in Bhandara, Maharashtra. He has also approved Rs. 50,000 to those seriously injured.

Analysis

- In pursuance of an appeal by the then Prime Minister, Pt. Jawaharlal Nehru in January, 1948, the **Prime Minister's National Relief Fund (PMNRF)** was established with public contributions to assist displaced persons from Pakistan.
- A very large proportion of the funds stands committed to be utilized in a phased manner for various schemes announced by PM.
 - The resources of the PMNRF are now utilized primarily to render immediate relief to families of those killed in natural calamities like floods, cyclones and earthquakes, etc. and to the victims of the major accidents and riots.
 - Assistance from PMNRF is also rendered, to partially defray the expenses for medical treatment like heart surgeries, kidney transplantation, cancer treatment and acid attack etc.
- The fund consists **entirely** of public contributions and **does not** get any budgetary support.
 - **PMNRF accepts only voluntary donations by individuals and institutions.**

- Contributions flowing out of budgetary sources of Government or from the balance sheets of the public sector undertakings **are not accepted**.
- Conditional contributions, where the donor specifically mentions that the amount is meant for a particular purpose, **are not accepted** in the Fund.
- The corpus of the fund is invested in various forms with scheduled commercial banks and other agencies.
- The disbursement out of the fund is made at the discretion of the Prime Minister, and in accordance with the Prime Minister's directions.
- PMNRF **has not been** constituted by the Parliament.
- The fund is recognized as a Trust under the Income Tax Act and the same is managed by Prime Minister or multiple delegates for national causes.
- PMNRF is exempt under Income Tax Act, 1961 for return purposes.
- Contributions towards PMNRF are notified for 100% deduction from taxable income under section 80(G) of the Income Tax Act, 1961.
- Prime Minister is the Chairman of PMNRF and is assisted by Officers/ Staff on honorary basis.

13. Regional Connectivity Scheme – UdeDesh Ka AamNagrik (PIB)

- **Context:** First direct flight between Kalaburagi to Tirupati flagged off under the RCS-UDAN (**Regional Connectivity Scheme – UdeDesh Ka AamNagrik**)
- **Covered in detail in 9th Oct file.**

14. Year End Review: 2020- Department of Telecommunications (PIB)

National Broadband Mission

- The government announced a new 'mission' - **National Broadband Mission** - aimed at:
 - providing broadband access in all villages and remote areas in the country by 2022;
 - entailing investments of around ₹7 lakh crore (\$100 billion) from various stakeholders, including ₹70,000 crore from **Universal Service Obligation Fund (USOF)**;
 - significantly improving quality of services for mobile and internet;
 - laying incremental 30 lakh route km of Optical Fiber Cable; and
 - increasing tower density from 0.42 to 1 tower per thousand of population by 2024.
- Additionally, a Broadband Readiness Index will be developed to measure the availability of digital communications infrastructure within a State/UT.

BharatNet Project

- National Optical Fiber Network (NoFN) (now renamed as BharatNet) project was launched in 2012.
- The project involves connecting all the 2,50,000 gram panchayats (GPs) in the country through optical fibre to the block headquarters for provision of both bandwidth and **dark fiber** (A dark fibre or unlit fibre is an unused optical fibre, available for use in fibre-optic communication) on a universal and non-discriminatory basis.

- The network is capable of providing scalable bandwidth of up to 1 GBPS upgradeable to 10 Gbps at a later stage.
- The project is a Centre-State collaborative project, with the States contributing free Rights of Way for establishing the Optical Fibre Network.
- Under BharatNet project around 1.50 lakh Gram Panchayats (GPs) have already been connected with high speed broadband connectivity which will help in launching various services in the rural areas.
- As on 28.12.2020, **Wi-Fi hotspots** have been installed in GPs and about 4.8 Lakh **Fiber to The Home (FTTH)** broadband connections have been provided. In addition to Wi-Fi hotspots, the number of GPs taken on **SWAN (State Wide Area Network)** stands at 5330.
- The scope of BharatNet has now been enhanced to connect all 6 Lakh inhabited villages in the country.
- To leverage the potential and entrepreneurship of private sector, a major part of the roll out is being done through Public Private Partnership.
- **Three Phases**
- For the purpose of implementation, the Bharatnet project covering all 2,50,000 Gram Panchayats has been divided in to **three Phases**.
- **BharatNet phase-1** was completed in December 2017, by covering about one lakh Gram Panchayats covering 3 lakh villages.
- **Under Phase-II**, targeted to be completed by March 2019, connectivity will be provided to remaining 1.5 lakh GPs in the country using an optimal mix of underground fibre, **optic fibre cable (OFC)** **over power lines**, radio and satellite media.
 - OFC over electricity poles is a new element of the BharatNet strategy as the mode of connectivity by **aerial OFC has several advantages**, including lower cost, speedier implementation, easy maintenance and utilization of existing power line infrastructure.
- Phase-2 of the project is **100 percent Made in India** as from fibre to design to software everything has been spearheaded by C-DoT (Centre for Development of Telematics).
- The last mile connectivity to citizens was proposed to be provided creating Wi-Fi hotspots in gram panchayats.
- **In the third phase from 2019 to 2023**, state-of-the-art, future-proof network, including fiber between districts and blocks, with ring topology to provide redundancy would be created.
- The network will be used for various citizen centric services such as e-health, e-education, e-medicine etc.
- The government is also aiming to convert at least 15% of the total villages to digital village in the next 3-4 years.
- Digital Village, which was conceptualised by the Common Service Centre (CSC) SPV under the Ministry of Electronics and IT, is a village where citizens can avail various e-services of the central and the State governments, as well as of private players.
 - These include banking, insurance, tele-medicine, pension and e-governance services. Such villages are also equipped with LED bulb

assembly unit, sanitary napkin unit, and rural-Wifi infrastructure.

- In the interim budget 2019-20, the Finance Minister had announced the government's target of one lakh villages as Digital Villages over the five years.

GramNet, NagarNet and JanWiFi

- **GramNet** will be connecting all key rural development institutions with 10 Mbps upgradeable to 100 Mbps in the future.
- **NagarNet** will be establishing 1 million public Wi-Fi Hotspots in urban areas.
- **JanWiFi** aims at establishing 2 million Wi-Fi Hotspots in rural areas.

Universal Service Obligation Fund (USOF)

- The entire project is being funded by **Universal Service Obligation Fund (USOF)**, which was set up for improving telecom services in rural and remote areas of the country.
- It is a non-lapsable fund.
- Credits to this fund require parliamentary approval.
- **It has been created under department of telecommunications, Ministry of communication and information technology.**
- The resources for meeting the Universal Service Obligation (USO) would be raised through a 'Universal Access Levy (UAL)', which would be a percentage of the revenue earned by the operators under various licenses.
- The Indian Telegraph (Amendment) Act, 2003 gives **statutory status to the Universal Service Obligation Fund (USOF)**.
- The Fund has a provision for allocation under **gender budgeting**, for providing

services to **women**, like broadband access to women SHGs.

Objective of USOF

- **Economic:** Network extension & stimulate uptake of the ICT services
- **Social:** Mainstreaming the underserved & un-served areas/groups by bridging the Access Gap.
- **Political:** To enable citizens exercise their political rights in an informed way and
- **Constitutional:** Equitable distribution of the fruits of the telecom/digital revolution and fair allocation of national resource (pooled USO levy) via targeted subsidies.

Other Projects and Initiatives

- Submarine Optical Fiber Cable (OFC) Connectivity between Chennai and Andaman & Nicobar Islands.
- Submarine OFC Connectivity between Kochi and Lakshadweep.
- Comprehensive Telecom Development Plan for North Eastern Region (NER): In order to provide connectivity to uncovered areas of North Eastern Region (NER), the Department is executing a project to install of 2004 towers to cover 2128 villages and National Highways.
- Mobile connectivity to uncovered villages of and Ladakh
- 4G service in Aspirational Districts
- **Public Wi-Fi Access Network Interface (PM-WANI):** covered in detail in 10th Dec file.
- A web-based portal, "**SARAL SANCHAR**" (Simplified Application for Registration and Licenses) for issuing of various types of Licenses and Registration Certificates for OSPs (Other Service Providers) has been developed by the Department of Telecommunications.

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15. National Energy Conservation Awards (NECA) (PIB)

- **Context:** Ministry of Power, in association with Bureau of Energy Efficiency (BEE), organised the 30th National Energy Conservation Awards (NECA) function.



- During the event, the Standards and Labelling Programme for Air Compressors and Ultra High Definition (UHD) TV on **voluntary basis** was initiated.
- BEE has developed a Management Information System (MIS) portal namely **State-wise Actions on Annual Targets and Headways on Energy Efficiency (SAATHEE)** which will facilitate real-time monitoring of the progress of implementation of various Energy Conservation endeavours at State level.
- BEE is a statutory body under Ministry of Power which is mandated to implement policy and programmes in energy efficiency and conservation.

Analysis

National Energy Conservation Awards

- The Ministry of Power has launched a scheme in 1991, to give national recognition through awards to industries and establishments that have taken special efforts to reduce energy consumption while maintaining their production.
- The awards were given away for the first time on December 14, 1991, which was declared as the 'National Energy Conservation Day'.
- The annual energy conservation awards recognize innovation and achievements in energy conservation by the industries, buildings, zonal railways, state designated agencies; manufacturers of BEE star labeled appliances, electricity distribution companies, municipalities etc.

- 17 sectors covering 5 categories - Industry, buildings, Transport, Institutions and Appliances are included in the Awards.
- Electrical energy savings is calculated in terms of equivalent avoided capacity (mw) per year by the participating units through implementation of energy saving projects.

Standards & Labeling Programme

- The Standards & Labeling Programme is one of the major thrust areas of BEE.
- A key objective of this scheme is to provide the consumer an informed choice about the energy saving and thereby the cost saving potential of the relevant marketed product.
- The scheme targets display of energy performance labels on high energy end use equipment & appliances and lays down minimum energy performance standards.
- Presently, S&L program covers star rating for 26 appliances/equipment. List of the appliances covered under the ambit of Star Labeling is as given below:

Mandatory Appliances	Voluntary Appliances
1. Room Air Conditioners	11. Induction Motors
2. Frost Free Refrigerators	12. Pump Sets
3. Tubular Florescent Lamp	13. Ceiling Fans
4. Distribution Transformer	14. LPG -Stoves
5. Room Air Conditioner (Cassettes, Floor Standing)	15. Washing Machine
6. Direct Cool Refrigerator	16. Computer (Notebooks/Laptops)
7. Color TV	17. Ballast (Electronic/Magnetic)
8. Electric Geysers	18. Office equipment's (Printer, Copier, Scanner, MFD's)
9. Variable Capacity Inverter Air conditioners	19. Diesel Engine Driven Mono-set Pumps
10. LED Lamps	20. Solid State Inverter
	21. DG Sets
	22. Chillers
	23. Microwave Oven

	24. Solar Water Heater
	25. Light Commercial Air Conditioner
	26. Deep freezers

- The labels have been designed after a great deal of research. The labels contain a number of items. The highlight though is the 'STARS'. **More is the stars more efficient is the appliance.**
- An additional aspect that you must know about the labelling program is that it is getting updated every year. A BEE 5 star rated model in 2020 may be equivalent to BEE ¾ star model in 2021.
- The star rating plan is different for products manufactured/imported or assembled in different years.
- Although BEE star rated appliances do comply with Indian Standards, but higher star rating does not mean better quality.

16. Year End Review 2020: Ministry of Law and Justice (PIB)

Election Laws and Electoral Reforms

- The Acts in connection with the conduct of elections to Parliament, state legislatures and to the offices of the President and the Vice-President are:
 - (i) The Representation of the People Act, 1950;
 - (ii) The Representation of the People Act, 1951;
 - (iii) The Presidential and Vice-Presidential Elections Act, 1952;
 - (iv) The Delimitation Act, 2002;
 - (v) The Andhra Pradesh Legislative Council Act, 2005; and

- (vi) The Tamil Nadu Legislative Council Act, 2010.
- The Tenth Schedule to the Constitution of India [also known as anti-defection Law] and the Parliament (Prevention of Disqualification) Act, 1959 also deal with the respective issues relating to the elected representative in the Parliament and the State Legislatures.
- These are administrated by the Legislative Department, Ministry of Law and Justice.

Delimitation of Constituencies

- The first Delimitation Commission in India was constituted in 1952, the second in 1962, the third in 1973 and the fourth in the year 2002.
- The present delimitation, as carried out in fourth delimitation exercise, is based on 2001 census.

Delimitation of Constituencies in UT of Jammu and Kashmir and certain States in North-East India

- After the enactment of Jammu and Kashmir (Reorganisation) Act, 2019 the erstwhile State of Jammu and Kashmir has been bifurcated into two Union territories, viz. Union Territory of Jammu and Kashmir with Legislative Assembly and the Union Territory of Ladakh without Legislative Assembly.
- In terms of special provision as contemplated in Section 62 of said 2019-Act the readjustment of the constituencies in the successor Union territory of Jammu and Kashmir into Assembly Constituencies shall be carried out on the basis of 2011-census figures by a Delimitation Commission to be constituted under the provisions of Delimitation Act, 2002 as amended by said 2019-Act.

- Therefore, in pursuance of the mandate as contained in said 2019-Act and in accordance with the provisions of Section 3 of the Delimitation Act, 2002 the Centre Government has constituted a Delimitation Commission vide notification published in the Gazette of India on 06th March, 2020 for the purpose of delimitation of Assembly and Parliamentary constituencies in the Union territory of Jammu and Kashmir and the States of Assam, Arunachal Pradesh, Manipur and Nagaland.

India Code Information System (ICIS)

- India Code Information System (ICIS), available over Internet, a one stop digital repository of all the Central and State Legislation including their respective subordinate legislations, has been developed with the help of **National Informatics Centre (NIC)** under the guidance of Law and Justice (Legislative Department).
- It is an important step in ensuring legal empowerment of all citizens as well as the object of ONE NATION – ONE PLATFORM.
- The main object of this system is to provide a one stop repository of all the Acts and Legislations in India in the latest and updated format as and when required by the general public, lawyers, judges and all other interested parties and to avoid private publishers from exploiting the general public with enormous prices by claiming published updated laws as their copyrighted work.
- Till date, Central Acts **from the years 1838** to 2020 total 857 Central Acts have been updated and uploaded in (ICIS)for general public.

17. Special Marriage Act, 1954 (IE)

- **Context:** In a judgment removing hindrances to inter-faith marriages, and likely to have a bearing on the set of laws enacted by some states including Uttar Pradesh that prohibit religious conversion for marriage, **the Allahabad High Court has ruled that couples seeking to solemnise their marriage under the Special Marriage Act, 1954 can choose not to publish the mandatory 30-day notice of their intention to marry.**
- Section 5 of the Special Marriage Act, the legislation that allows solemnisation of marriages irrespective of the religion of the couple, requires parties to give a 30-day public notice of their intention to marry. The public notice is displayed at the office of the marriage officer, inviting potential objections to the marriage.
- Anyone having any objection to the marriage can file against it within a period of 30 days. If any such objection against the marriage is sustained by the marriage officer, the marriage can be rejected.

Analysis

About Special Marriage Act (SMA), 1954

- The Special Marriage Act is a **central legislation** made to **validate and register inter-religious and inter-caste marriages in India.**
- It allows two individuals to solemnise their marriage through a **civil contract.**
- **No religious formalities (like marriage ceremonies or faith conversion etc.)** are to be carried out under the Act.
- But there are **certain conditions** laid down in Section 4 of the Act:

- It says that neither of the parties should have a spouse living.
- Both the parties should be **capable of giving consent**; should be sane at the time of marriage.
- The parties shall **not be within the prohibited degree of relations** as prescribed under their law.
- While considering the age, the **male must be at least 21 and the female be 18 at least.**

Publishing marriage details made optional

- The recent verdict by Allahabad High Court made it optional for the parties to the intended marriage to make a request in writing to the Marriage Officer to publish or not to publish a notice under Section 5 and 6 of the Act of 1954.

Section 5 and 6

- The **provision for mandatory publication of notice**, derived through “simplistic reading” of the particular law, “would **invade the fundamental rights of liberty and privacy**, including within its sphere freedom to choose for marriage without interference from state and non-state actors, of the persons concerned”.
- The court also noted that despite the secular law for marriage, a majority of marriages in the country happen as per religious customs. It said that **when marriages under personal law do not require a notice or invitation for objections, such a requirement is obsolete in secular law** and cannot be forced on a couple.

Directives for Marriage officer

- In case the parties do not make such a request for publication of notice in writing, the Marriage Officer shall not publish any

such notice or entertain objections to the intended marriage and proceed with the solemnization of the marriage.

- However, in case the officer has any doubt, he could ask for appropriate details/proof as per the facts of the case.
- **Recently rulings by the Supreme Court based on which this judgement came:**
 - **Aadhaar case (2017)** which made the **right to privacy** a fundamental right under **Article 21** of the Constitution of India.
 - **Hadiya Marriage Case (2018)** which held that the **right to choose a partner is a fundamental right**.
 - **Navtej Singh Johar vs. Union of India case (2018)** in which the court decriminalised homosexuality striking down the **Section 377 of IPC**.

18. What is Question Hour? (TH)

- **Context:** The Question Hour, which had been suspended by the government during the monsoon session, will resume when Parliament meets for the Budget session from January 29.
- The government had claimed that the suspension of the Question Hour, which gives the Opposition an opportunity to hold the government accountable, was an additional precautionary measure to tackle the COVID-19 pandemic.
- **For details, refer to 14th Sep and 3rd Sep file.**

19. Privilege Motion (TH)

- **Context:** The Privileges and Ethics Committee of the Assembly, has given a clean chit to Kerala Finance Minister T.M.

Thomas Isaac in connection with the breach of privilege notice moved against him.

Analysis

Committee on Ethics

- Parliament and each of the state legislature consists of Committee on Ethics.

Functions

- **The Committee shall have the following functions, namely:**
 - to oversee the moral and ethical conduct of members;
 - to prepare a Code of Conduct for members and to suggest amendments or additions to the Code from time to time in the form of reports to the Council;
 - to examine cases concerning the alleged breach of the Code of Conduct by members as also cases concerning allegations of any other ethical misconduct of members; and
 - to tender advice to members from time to time on questions involving ethical standards either *suo motu* or on receiving specific requests.

Powers of Committee on Ethics

- Committee is empowered to recommend the imposition of sanctions, where it has been found
 - that a member has indulged in unethical behaviour or
 - that there is other misconduct or
 - the member has contravened the Code/Rules,
- The Committee may recommend the imposition of one or more of the following sanctions:
 - censure
 - reprimand

- suspension from the House for a specific period
- any other sanction as determined by the Committee to be appropriate.

Parliamentary privileges and privileges of State Legislature

- Parliamentary privileges (Article 105 of the Constitution)/privileges of State Legislature (Article 194 of the Constitution) are special rights, immunities and exemptions enjoyed by the two Houses of Parliament/State Legislatures, their committees and their members.
- They are necessary:
 - To secure the independence and effectiveness of their actions;
 - To maintain their authority, dignity and honour; and
 - To protect their members from any obstruction in the discharge of their parliamentary responsibilities.
- The Constitution has also extended the parliamentary privileges/privileges of State Legislature to those persons who are entitled to speak and take part in the proceedings of a House of Parliament/State Legislature or any of their committees.
 - These include the Attorney General of India/Advocate General of the State and Union/State Ministers.
- It must be noted that the parliamentary privileges **do not extend** to the President/Governor who are also integral part of the Parliament/State Legislature.

Classification

- Parliamentary privileges/privileges of State Legislature can be classified into two broad categories:

- Those that are enjoyed by each House of Parliament//State Legislature collectively; and
- Those that are enjoyed by the members individually.

Collective Privileges

• The privileges belonging to each House of the Parliament/State Legislature collectively are:

- It has the right to publish its reports, debates and proceedings and also the right to prohibit others from publishing the same.
 - The 44th Amendment Act of 1978 restored the freedom of the press to publish true reports of parliamentary proceedings/proceedings of the State Legislature without prior permission of the House.
 - But this is not applicable in the case of a secret sitting of the House.
- It can exclude strangers from its own procedure and hold secret sittings to discuss some important matters.
- It can make rules to regulate its own procedure and the conduct its business and to adjudicate upon matters.
- It can punish members as well as outsiders for breach of its privileges or its contempt by reprimand, admonition or imprisonment (also suspension or expulsion, in case of members).
- It has the right to receive immediate information of the arrest, detention, conviction, imprisonment and release of a member.
- It can institute inquiries and order the attendance of witnesses and send for relevant papers and records.
- The courts are prohibited to inquire into the proceedings of a House or its committees.

- No person (either a member or outsider) can be arrested, and no legal process (civil or criminal) can be served within the precincts of the House without the permission of the presiding officer.

Individual Privileges

- **The privileges belonging to the member individually are:**
- They cannot be arrested during the session of Parliament/State Legislature and 40 days before the beginning and 40 days after the end of a session.
 - This privilege is available only in civil cases and not in criminal cases or preventive detention cases.
- They have freedom of speech in Parliament/State Legislature.
 - No member is liable to any proceedings in any court for anything said or any vote given by him in Parliament/State Legislature or its committees.
 - This freedom is subject to the provisions of the Constitution and to the rules and standing orders regulating the procedure of Parliament/State Legislature.
- They are exempted from jury service.
 - They can refuse to give evidence and appear as a witness in a case pending in a court when Parliament/State Legislature is in session.

Breach of Privilege and Contempt of the House

- Normally, a breach of privilege may amount to contempt of the House. Likewise, contempt of the House may include may include a breach of privilege also.
- Contempt of the House, however, has wider implications. There may be a

contempt of the House without specifically committing a breach of privilege. Similarly, actions which are not breaches of any specific privilege but are offences against the dignity and authority of the House amounts to contempt of the House.

Sources of Privileges

- Originally, the Constitution (Article 105) expressly mentioned two privileges, that is, freedom of speech in Parliament/State Legislature and right of publication of its proceedings.
- With regard to other privileges, it provided that they were to be the same as those of the British House of Commons, its committees and its members on the date of its commencement (26th January 1950), until defined by Parliament.
- It should be noted that the Parliament, till now, has not made any special law to exhaustively codify all the privileges.
- They are based on five sources:
 - Constitutional provisions;
 - Various laws made by Parliament;
 - Rules of both the Houses;
 - Parliamentary conventions; and
 - Judicial interpretations.

Who can move a privilege motion? How?

- A notice is moved in the form of a motion by any member of either House against those being held guilty of breach of privilege.

What are the rules governing privilege?

- A member may, with the consent of the Speaker or the Chairperson, raise a question involving a breach of privilege either of a member or of the House or of a committee thereof.
- The rules however mandate that any notice should be relating to an incident of recent

occurrence and should need the intervention of the House.

- Notices have to be given before 10 am to the Speaker or the Chairperson.

What is the role of the Speaker/Rajya Sabha Chair?

- The Speaker/RS chairperson is the first level of scrutiny of a privilege motion.
- The Speaker/Chair can decide on the privilege motion himself or herself or refer it to the privileges committee of Parliament.
- If the Speaker/Chair gives consent, the member concerned is given an opportunity to make a short statement.

What percentage of privilege notices are rejected?

- A large number of notices are rejected, with penal action recommended in only a few.

What is the privileges committee?

- In the Lok Sabha, the Speaker nominates a committee of privileges consisting of 15 members as per respective party strengths.
- In the Rajya Sabha, the deputy chairperson heads the committee of privileges, that consists of 10 members.

What is the punishment in case of breach of privilege or contempt of the House?

- The house can ensure attendance of the offending person.
- The person can be given a warning and let go **or be sent to prison** as the case may be.

20. 11th National Voters' Day (NVD) (PIB)

- **Context:** Election Commission of India celebrated 11th National Voters Day on 25th January 2021.

Analysis

- The theme for this year's NVD, 'Making Our Voters Empowered, Vigilant, Safe and

Informed', envisages active and participative voters during elections.

- The National Voters' Day has been celebrated on January 25 every year since 2011, all across the country to mark the foundation day of Election Commission of India, i.e., 25th January 1950.

- The main purpose of the NVD celebration is to encourage, facilitate and maximize enrolment, especially for the new voters.
- New voters are felicitated and handed over their Elector Photo Identity Card (EPIC) in the NVD functions.

- During the event, the Honourable President of India confers the **National Awards for the Best Electoral Practices** on State and District level officers for their outstanding performance in the conduct of elections in different spheres.

- National Awards are also given to important stakeholders like national icons, CSOs and media groups for their valuable contribution towards voters' awareness.

- **Chalo Karen Matdaan:** It is a **comic book** which aims at voter education in a fun and thought-provoking way. Targeting young, new and future voters, this comic contains interesting and relatable characters to educate voters at large on electoral processes.

21. Establishment of three capitals (TH)

- **Context:** The establishment of three capitals (Amaravati, Visakhapatnam and Kurnool as legislative, executive and judicial capitals) will lead to balanced development of all regions in Andhra Pradesh, Governor

BiswaBhusanHarichandan said in his Republic Day address.

Analysis

- Andhra Pradesh has borrowed the idea of three decentralised capitals from South Africa. Three cities serve as capitals of the country— Pretoria (executive), Cape Town (legislative), and Bloemfontein (judicial).
 - In South Africa, the unique feature of its trio of capitals arose out of the settlement at the end of the second Anglo-Boer War.
- Several countries in the world have implemented the concept.
- In Sri Lanka, Sri Jayawardenepura Kotte is the official capital and seat of national legislature, while Colombo is the de facto seat of national executive and judicial bodies.
- Malaysia has its official and royal capital and seat of national legislature at Kuala Lumpur, and Putrajaya is the administrative centre and seat of national judiciary.
- **Among Indian states, Maharashtra** has two capitals— Mumbai and Nagpur (which holds the winter session of the state assembly).
- **Himachal Pradesh** has capitals at Shimla and Dharamshala (winter).
- The former state of **Jammu & Kashmir** had Srinagar and Jammu (winter) as capitals.

22. DNA Technology (Use and Application) Regulation Bill, 2019(TH)

- **Context:** Asaddudin Owaisi, president of the All India Majlis-e-Ittehad-ul-Muslimeen (AIMIM), and CPI leader Binoy Viswam have filed dissent notes to the parliamentary standing committee's report

on the **DNA Technology (Use and Application) Regulation Bill, 2019** on the grounds that it does not take into account their concerns over privacy violations.

- They say if enacted, the Bill will target Dalits, Muslims and Adivasis by way of DNA sample collection and indefinite storage.

Analysis

- In Aug 2020, the Parliamentary Standing Committee on Science and Technology, in a draft report, has called the **DNA Technology Regulation Bill** "premature".
- The Bill proposes DNA sampling and profiling of citizens accused of crime or reported missing and storing their unique genetic information for administrative purposes.
- The committee said in the absence of a robust data protection legislation, the security of a huge number of DNA profiles that will be placed with the National DNA Data bank and its regional centres is questionable.
- The draft report also red-flagged certain provisions of the Bill.
 - The Bill permits retention of DNA found at a crime scene in perpetuity, even if conviction of the offender has been overturned.
 - The committee urged the government to amend the provisions to ensure that if the person has been found innocent his DNA profile must be removed immediately from the data bank.
 - The committee recommended that independent scrutiny must be done of the proposals to destroy biological samples and remove DNA profiles from the database.

- The Bill also provides that DNA profiles for civil matters will be stored in the data banks, but without a clear and separate index.
 - The committee questioned the necessity for storage of such profiles, pointing out that this violates the fundamental right to privacy and does not serve any public purpose.
- The committee, in its draft report, pointed out that DNA profiles can reveal extremely sensitive information of an individual such as pedigree, skin colour, behaviour, illness, health status and susceptibility to diseases.
- The report also red-flagged disregard to an individual's privacy and other safeguards.
 - The Bill proposes to store DNA profiles of suspects, undertrials, victims and their relatives for future investigations.
 - While there is a good case for a DNA database of convicts, so that repeat offenders may be easily identified, there is no legal or moral justification for a database with DNA of the other categories as noted above, given the high potential for misuse.
- In the Bill, if a person is arrested for an offence that carries punishment up to seven years, investigation authorities must take the person's written consent before taking the DNA sample. But this consent is only "perfunctory", the report said.
 - The Bill refers to consent in several provisions, but in each of those, a magistrate can easily override consent, thereby in effect, making consent perfunctory.
 - There is also no guidance in the Bill on the grounds and reasons when the

magistrate can override consent, which could become a fatal flaw.

DNA Technology Regulation Bill, 2019

- The DNA Technology (Use and Application) Regulation Bill, 2019 provides for the regulation of use of DNA technology **for establishing the identity of certain persons.**

Use of DNA Data

- Under the Bill, DNA testing is allowed only in respect of matters listed in the Schedule to the Bill.
- These include offences under the Indian Penal Code, 1860, and for civil matters such as paternity suits.
- Further, the Schedule includes DNA testing for matters related to establishment of individual identity.

Collection of DNA

- Authorities are required to obtain consent for collection in certain situations.
- 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 consent is not given in these cases, the authorities can approach a Magistrate who may order the taking of bodily substances of such persons.

DNA Data Bank

- The Bill provides for the establishment of a National DNA Data Bank and **Regional DNA Data Banks**, for every state, or two or more states.
- Every Data Bank will be required to maintain indices for the following categories of data:

- (i) a crime scene index,
- (ii) a suspects' or undertrials' index,
- (iii) an offenders' index,
- (iv) a missing persons' index, and
- (v) an unknown deceased persons' index.

Removal of DNA profiles

- The Bill provides for removal of the DNA profiles of the following persons:
 - (i) of a suspect if a police report is filed or court order given,
 - (ii) of an undertrial if a court order is given, and
 - (iii) on written request, for persons who are not a suspect, offender or undertrial, from the crime scene or missing persons' index.

DNA Regulatory Board

- The Bill provides for the establishment of a DNA Regulatory Board, which will supervise the DNA Data Banks and DNA laboratories.
- The Secretary, Department of Biotechnology, will be the **ex officio Chairperson of the Board.**
- The Board will comprise additional members including:
 - (i) experts in the field of biological sciences,
 - (ii) Director General of the National Investigation Agency and
 - (iii) the Director of the Central Bureau of Investigation.

Do you know?

- A typical adult has over three billion characteristics in her DNA and only about a dozen characteristics (**13 to be precise**) are required for a DNA profiling database.
- **Short tandem repeat (STR) analysis** is a technique used in genetic identification and

is commonly associated with DNA testing in **forensic laboratories, paternity disputes or missing persons cases.**

23. Official Secrets Act (TH)

- **Context:** The Congress filed complaints with the Mumbai Commissioner of Police demanding action against Republic TV Editor-in-Chief Arnab Goswami under the Official Secrets Act.
- In a memorandum submitted to Police Commissioner Param Bir Singh, the Congress highlighted the WhatsApp chats that are part of the chargesheet filed in the alleged TRP scam case.

Analysis

What is the Official Secrets Act?

- **OSA has its roots in** the British colonial era. The original version was The Indian Official Secrets Act (Act XIV), 1889.
- This **was brought in** with the main objective of muzzling the voice of a large number of newspapers that had come up in several languages, and were building political consciousness.
 - It was amended and made more stringent in the form of The Indian Official Secrets Act, 1904, during Lord Curzon's tenure as Viceroy of India.
 - In 1923, a newer version was notified. The Indian Official Secrets Act (Act No XIX of 1923) was extended to all matters of secrecy and confidentiality in governance in the country.
- **It broadly deals with two aspects** — spying or espionage, covered under Section 3, and disclosure of other secret information of the government, under Section 5.

- Under Section 5, both the person communicating the information and the person receiving the information can be punished.
- For classifying a document, a government Ministry or Department follows the Manual of Departmental Security Instructions, 1994, not under OSA.
 - **Also, OSA itself does not say what a “secret” document is.**
- It is the government’s discretion to decide what falls under the ambit of a “secret” document to be charged under OSA.
- It has often been argued that the law is in direct conflict with the Right to Information Act, 2005.

Between the RTI Act and OSA, which has primacy?

- Section 22 of the RTI Act provides for its primacy vis-a-vis provisions of other laws, including OSA. So, if there is any inconsistency in OSA with regard to furnishing of information, it will be superseded by the RTI Act.
- However, under Sections 8 and 9 of the RTI Act, the government can refuse information.
 - Effectively, if the government classifies a document as “secret” under OSA Clause 6, that document can be kept outside the ambit of the RTI Act, and the government can invoke Sections 8 or 9.

Has there been any effort to change provisions of OSA?

- In 1971, the Law Commission in its report on ‘Offences Against National Security’, observed that “it agrees with the contention” that “merely because a circular is marked secret or confidential, it should

not attract the provisions of the Act if the publication thereof is in the interest of the public and no question of national emergency and interest of the State as such arises”.

- **The Law Commission, however, did not recommend any changes to the Act.**
- In 2006, the **Second Administrative Reforms Commission (ARC)** recommended that OSA be repealed, and replaced with a chapter in the National Security Act containing provisions relating to official secrets.

24. What is the Collegium system of appointing judges to the High Court and Supreme Court? (TH)

- **Context:** The Supreme Court questioned the government about the delay in clearing Collegium recommendations for judicial appointments to various High Courts.

Analysis

- Also, in May 2019, a nine-judge Bench of the Supreme Court has dismissed a bunch of petitions seeking a review of the court’s judgment in the Second Judges Case in 1993, which led to the collegium system of appointment of judges.
- The 1993 judgment was the basis on which a five-judge Constitution Bench declared the National Judicial Appointments Commission Act (NJAC) and the Constitutional (Ninety-Nine Amendment) Act, 2014 unconstitutional in October 2015.

Collegium System of appointing judges

- The Collegium is the system of **appointment and transfer** of judges that has evolved through judgments of the Supreme Court, and **not by an Act of**

Parliament or by a provision of the Constitution.

- The Constitution confers the power of appointment of judges on the President of India (i.e., the Government of India) to be made in consultation with the Chief Justice of India and other judges of the Supreme Court and the High Courts.
- The Supreme Court Collegium is headed by the Chief Justice of India and comprises four other seniormost judges of the court.
- A High Court Collegium is led by its Chief Justice and four other seniormost judges of that court.
 - Names recommended for appointment by a High Court Collegium reaches the government **only after approval by the CJI and the Supreme Court Collegium.**
- Judges of the higher judiciary are appointed only through the Collegium system — and **the government has a role only after names have been decided by the Collegium.**
 - The government's role is limited to getting an inquiry conducted by the Intelligence Bureau (IB) if a lawyer is to be elevated as a judge in a High Court or the Supreme Court.
 - It can also raise objections and seek clarifications regarding the Collegium's choices, **but if the Collegium reiterates the same names, the government is bound, under Constitution Bench judgments, to appoint them as judges.**
- This system of appointments **emerged out of three rulings of the Supreme Court collectively passed known as the Three Judges Case, culminating in the historic**

Supreme Court Advocates-on-Record Association Vs Union of India 1993 judgement.

- In its landmark 1993 judgment, the apex court held that the independence of the judiciary, which is part of the basic structure of the Constitution, was being undermined by the primacy of the executive in key appointments.
- **First Judges Case:** Primacy of the Chief Justice of India (CJI) was not really to be found in the Constitution.
 - In the First Judges Case (1981), the apex court held (4-3) that in the appointment of a judge of the Supreme Court or the High Court, *the word "consultation" in Article 124(2) and in Article 217(1) of the Constitution does not mean "concurrence"*.
 - In the event of a disagreement, the "ultimate power" would rest with the Union Government and not the CJI.
 - The First Judges Case, therefore, was an instance where the apex court acted against its own interests.
- **Second Judges Case:** A specific procedure called 'Collegium System' for the appointment and transfer of judges in the higher judiciary.
 - In the Second Judges Case (1993), the court (7-2) overruled the First Judges Case, holding that in the event of conflict between the President and the CJI with regard to appointments of Judges, it was the Chief Justice of India whose opinion would not only have primacy, but would be determinative in the matter. **Thus, the**

President's recommendation was made non-binding.

- The 1993 verdict also gave birth to the Collegium System. This was the collection of the CJI and the two most senior judges of the SC or the HC, depending on the case.
- What this did was in effect "moderate" the CJI's powers when it comes to the appointment of judges.
- **Third Judges Case:** Recommendation should be made by the CJI and his four seniormost colleagues, instead of two.
- Finally, in the Third Judges Case (1998), the SC reaffirmed its 1993 judgement and expanded the Collegium to include the CJI and the *four* most-senior judges of the court after the CJI.

What does the Constitution say?

- The procedure listed in the Constitution for judicial appointments comes under **Articles 124(2) and 217**.
- Every Judge of the Supreme Court shall be appointed by the President **by warrant under his hand and seal** after consultation with such of the Judges of the Supreme Court and of the High Courts in the States as the President may deem necessary for the purpose and shall hold office until he attains the age of sixty-five years.
- "Provided that in the case of appointment of a Judge other than the Chief Justice, the Chief Justice of India shall always be consulted," says Article 124(2).
- "Every Judge of a High Court shall be appointed by the President by warrant under his hand and seal after consultation with the Chief Justice of India, **the Governor of the State**, and, in the case of appointment of a Judge other than the

Chief Justice, the Chief Justice of High Court," says Article 217.

25. State Election Commission (TH)

- **Context:** The Andhra Pradesh government has "objected" to the censure notices issued by the State Election Commissioner to two senior IAS officials over preparations for the local body elections.
- The State Election Commissioner had reached the conclusion that the two senior IAS officers were responsible for the adoption of old (2019) electoral rolls which jeopardised the right of nearly 3.6 lakh youth who attained 18 years as on January 1, 2021, to vote, and there was nothing personal about it.

Analysis

- The superintendence, direction and control of the preparation of electoral rolls and the conduct of all elections to the panchayats shall be vested in the state election commission.
- It consists of a state election commissioner to be appointed by the governor.
- His conditions of service and tenure of office shall also be determined by the governor.
- He shall not be removed from the office except in the manner and on the grounds prescribed for the removal of a judge of the state high court.
 - A judge of a high court can be removed from his office by the president on the recommendation of the Parliament.
 - This means that a state election commissioner cannot be removed by the governor, though appointed by him.

- His conditions of service shall not be varied to his disadvantage after his appointment.
- The state legislature may make provision with respect to all matters relating to elections to the panchayats.

26. Protection of Children from Sexual Offences (POCSO) Act, 2012 (IE)

- **Context:** Bombay HC's interpretation of POCSO risks making the law redundant.

Analysis

- Recently, the Nagpur Bench of the Bombay High Court in the case of Satish BanduRagde v. The State of Maharashtra held that "skin-to-skin" contact is essential to constitute the offence defined under Section 7 of the Protection of Children from Sexual Offences Act, 2012 (POCSO Act) which deals with sexual offences against minors.
- The POCSO Act was enacted with the specific intention of protecting children from sexual assault and sexual harassment. **It took into consideration the standards prescribed by the Convention on the Rights of the Child adopted by the General Assembly of the United Nations** to which the Indian government acceded to on December 11, 1992.
- The Act acknowledges the special vulnerability of children and that special protection, above and beyond that provided in the IPC, is required when the victim is a child.
 - Section 354 of the Indian Penal Code, 1860, which deals with outraging modesty of women and provides for a lesser sentence in comparison to POCSO.

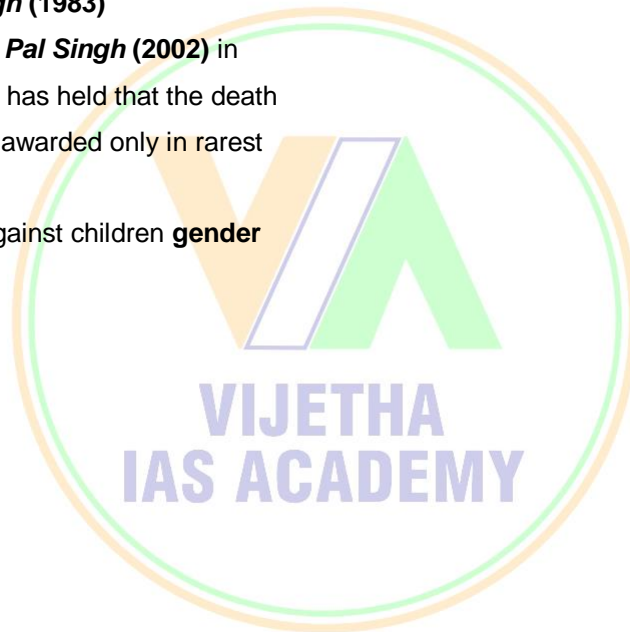
Protection of Children from Sexual Offences (POCSO) Act, 2012

- The Act deals with sexual offences against persons **below 18 years of age**, who are deemed as children.
- The Act for the **first time**, defines "penetrative sexual assault", "sexual assault" and "sexual harassment".
- **Speedy trial** of offences through appointment of **Special Public Prosecutors** and designated **Special Courts**.
- The Act provides for stringent punishments which have **been graded as per the gravity of offence**.
- The Act deems a sexual assault to be "aggravated" under certain circumstances, such as when the abused child is mentally ill or when the abuse is committed by a person in a position of trust or authority vis-a-vis the child, like a family member, police officer, teacher, or doctor.
- The Act provides for a dedicated '**Online Complaint System (e-baalnidaan)**' to ensure timely/speedy redressal of complaints of various violations and deprivation of child rights.
- The Act also provides for **mandatory** reporting of sexual offences.
- The police are also required to bring the matter to the attention of the Child Welfare Committee (CWC) **within 24 hours** of receiving the report.
- It provides for special courts that conduct the **trial in-camera** and **without revealing the identity of the child**.
- The Act stipulates that a case of child sexual abuse must be disposed of **within one year** from the date the offence is reported.

- The Act provides for the Special Court to determine the amount of **compensation** to be paid to a child who has been sexually abused, so that this money can then be used for the child's medical treatment and rehabilitation.

Recent Amendments

- The amended Act provides **death penalty** for aggravated sexual assault on children and greater punishments for other crimes against minors.
 - The Bill justifies this by referring to the judgments of the Supreme Court in ***Machhi Singh (1983)*** and ***Devender Pal Singh (2002)*** in which the court has held that the death penalty can be awarded only in rarest of rare cases.
- It makes offences against children **gender neutral**.



Art, Culture and History

January 2021

1. The battle of Bhima-Koregaon (TH)

- **Context:** The battle of Bhima-Koregaon, one of the last battles in 1818 of the Third Anglo-Maratha War which culminated in the Peshwa's defeat, should be included in history textbooks, said the Union Minister of State for Social Justice and Empowerment.

Analysis

- A small village in Pune district of Maharashtra, Bhima-Koregaon is associated with an important phase of Maratha history.
- On January 1, 1818, a Dalit-dominated British Army had defeated a Peshwa army, led by Peshwa Bajirao II, in Koregaon.
- The battle attained a legendary stature for Dalits, who consider the win as a victory of the Mahars(a Scheduled Caste) against the injustices perpetuated by the Brahminical Peshwas.
- A pillar, known as Vijay Sthamb (victory pillar), was installed by the East India Company in memory of those who fought for them in the battle.
- Every year on January 1, the Ambedkarite Dalits gather at Bhima Koregaon to pay their respect at the Vijay Sthamb (victory pillar).

Third Anglo-Maratha War

Sequence of Events

- The Third Anglo-Maratha War (1817-1818) came about because of conflict between the British and the Pindaris.
- The British suspected that the Marathas were providing help to the Pindaris, who were mercenaries fighting for the Marathas.

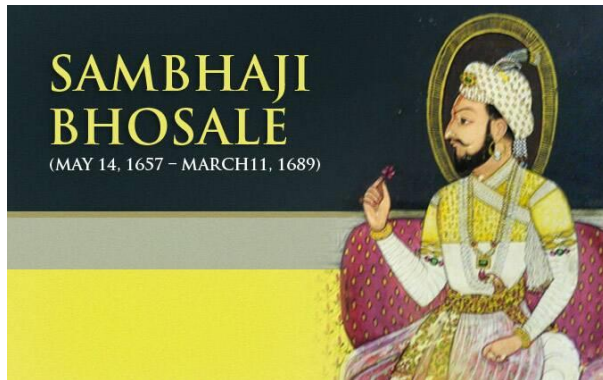
- There was a lot of interference from the British Residents in the internal affairs, particularly regarding succession.
- In a bid to increase revenue, Peshwa Baji Rao introduced certain stringent measures. The British accused him of maladministration.
- The Marathas decided to go to war to retain their freedom.
- **Peshwa Baji Rao II** tried to form a confederacy of the Maratha chiefs against the English. He roped in the support of the Pathan chief Amir Khan and the Pindaris.
- **Peshwa Baji Rao II's forces, supported by those of Mudhoji II Bhonsle of Nagpur and Malharrao Holkar III of Indore, rose against the East India Company.**
- Pressure and diplomacy convinced the fourth major Maratha leader, Daulatrao Shinde of Gwalior, to remain neutral even though he lost control of Rajasthan.
- British eventually won resulting in the break up of the Maratha Empire.
- On June 3, 1818, the Peshwa surrendered and was captured and placed in a small estate at Bithur, near Kanpur.
- Most of his territory was annexed and became a part of the Bombay Presidency. All the Maratha powers had surrendered.

2. Sambhaji Maharaj (TH)

- **Context:** The controversy has erupted over renaming Aurangabad city as 'Sambhajinagar' in Maharashtra. Opposition parties are criticising this as a ploy to divide the Hindu and Muslim communities.
- Sambhaji in his short rule spanning nine years, gained recognition for his valour and

patriotism. He continues to be celebrated, particularly in Maharashtra, as the ruler who chose death over conversion.

Analysis



A dramatic accession

- The eldest son of the Maratha emperor, Chhatrapati Shivaji, Sambhaji was the second ruler of the kingdom after his father's death.
- Chhatrapati Shivaji passed away in April 1680, and for a good nine months Sambhaji was involved in a bitter accession struggle with his half-brother Rajaram, who was 10 at the time. Soyrabai, Sambhaji's stepmother and the mother of Rajaram, plotted against to keep him away from the throne.
- **Ultimately though, Sambhaji gained the support of Maratha commander-in-chief Hambirrao Mohite and in January 1681 was officially crowned ruler of the Marathas.** Rajaram, Soyrabai, and their associates were put under house arrest.

Face-off with the Mughals

- The Mughals were the staunchest enemies of the Marathas during Sambhaji's reign.
- One of the first major actions taken by Sambhaji against the Mughals, was when his forces **attacked Burhanpur**, a wealthy Mughal city in Madhya Pradesh.
 - Sambhaji had planned the attack, being aware of Mughal emperor

Aurangzeb's plans to expand into the Deccan.

- **Burhanpur was an important trading center and Sambhaji's attack came as a huge blow for the Mughals.**
- For the next six years, between 1682 and 1688, the Marathas under Sambhaji and the Mughals under Aurangzeb were engaged in multiple battles in the Deccan.
 - The Mughals wanted to acquire possession over the forts held by Marathas in Nashik and Baglana regions. In 1682, they attacked the Ramsej fort near Nashik. However, despite months of failed attempts, the Mughals failed to take control of the fort and were forced to retreat. **The Ramsej fort had become an important morale booster for the Marathas.**

Battles with other important 17th century dynasties in India

- The Marathas under Sambhaji also came into conflict with the Abyssinian Siddi rulers who wished to acquire control over the Konkan coast.
 - Sambhaji fought them, restricting their presence to the island of Janjira, located in the present-day Raigad district of Maharashtra. The Siddis were also stopped from intruding into Maratha regions.
- Sambhaji also **led a campaign on the Portuguese colony of Goa** in late 1683.
 - The Portuguese colonists were thoroughly weakened by the Maratha raid, and sought help from the Mughals.

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- Sambhaji was forced to retreat from Goa in January 1684, with the arrival of the Mughal army and navy.
- **In 1681, Sambhaji also attempted to take control over Mysore, then ruled by the Wodeyar king Chikkadevaraja. However, he was driven back from there.**

Sambhaji capture and surrender to death

- In the autumn of 1687, the Mughal and Maratha forces faced each other in the dense forests near Wai and Mahabaleshwar in Deccan India. **The Battle of Wai, as it came to be called, was won by the Marathas**
- The Maratha commander-in-chief, and one of the most important supporters of Sambhaji, Hambirrao Mohite, was killed in this Battle of Wai.
 - The execution of Mohite, came a blow to them, and a large number of Maratha troops began deserting Sambhaji.
- In January 1689, Sambhaji was captured by Mughal forces. Sambhaji was asked by Aurangzeb to surrender all his forts and treasures, and finally to convert to Islam. Sambhaji refused to do so, and as result was put to a torturous death.

3. Jagdish Chandra Bose (PIB)

- **Context:** Many times, research might not fulfil its immediate goal but the same research can become path-breaking in some other sector.
- The Prime Minister illustrated this point by the example of **Jagdish Chandra Bose** whose microwave theory could not be taken forward commercially but today, the entire radio communication system is based on that.

Analysis

Sir J C Bose

- Inspired by lofty nationalistic ideals, Bose Institute was set up in 1917 in Calcutta by Sir Jagadish Chandra Bose (1858 - 1937), the founder of modern science in the Indian subcontinent.
 - It is Asia's first modern research centre devoted to interdisciplinary research.
- On this occasion, he delivered **his famous address "The voice of life"** and dedicated the institute to the service of the nation.
- **Bose's Galena detector** was the **first** semiconductor device and photovoltaic cell.
- He also **designed the earliest waveguide and Horn Antenna**, an integral part of present-day microwave engineering and astronomy.
- Sir J.C. Bose demonstrated his wireless millimeter wave (microwave) experiments at the Royal Institution, London in January 1897.
 - This predates the wireless experiments at Salisbury Plain in May 1897 by Marconi, to whom the Nobel prize was however awarded.
 - Most notably, in 1895, he was the first to demonstrate the wireless transmission and reception of electromagnetic waves at Presidency College (now Presidency University), Kolkata.
- Indeed, Bose was a pioneer of multimedia communication in every way.
- He was the **first Asian** to be awarded a US patent in 1904.
- Bose and the legendary mathematician Ramanujam were also the **first Asian**

- fellows** of the Royal Society, London as well as those of Vienna and Finland.
- Bose has been **recognized by Institute of Electrical and Electronics Engineers (IEEE)** as a father of radio and wireless communication.
 - His work was also commemorated by IEEE as the oldest "milestone achievement" from Asia.
 - He was a member from Asia on the International Committee on Intellectual Cooperation of the League of Nations along with Einstein, Curie and Millikan.
 - Besides being a physicist par excellence, another remarkable contribution of J. C. Bose was that **he was the first in the world to initiate interdisciplinary research by probing plants from the vantage point of physics** - an integrated biophysical view of life that is in vogue.
 - His studies on coherer led to the discovery of the common nature of the electric response to external stimuli by both living and inanimate objects.
 - Many of these experiments were possible because of his design and fabrication of novel instruments like crescograph, photosynthetic bubbler, soshnugraph etc.
 - Two of his famous books are "Response in the Living and Non-Living" (1902) and "The Nervous Mechanism of Plants" (1926).
 - The latter book was dedicated to his friend the great poet and Asia's first Nobel laureate, Rabindranath Tagore. Tagore's great admiration of Bose reflects in his poems.
 - He is also considered the **father of Bengali science fiction**.

- He was neither awarded Nobel Prize nor Bharat Ratan.

4. Kalaripayattu (TH)

- **Context:** Kalaripayattu, considered the oldest surviving martial art of the country, with a legacy of more than 3,000 years, is set to see a surge in popularity with the establishment of an academy in the Kerala capital.

Analysis

Indian Martial Arts

- India has a long history of martial arts.
- **Shaolin Kung Fu**, a term that includes a large variety of Chinese martial arts, traces its lineage to Bodhidharma, the Indian monk who, according to popular legend, introduced Buddhism to China during the 6th century AD.
- Sadly, while Chinese and Japanese fighting forms such as **kung fu and ju-jitsu** have become national institutions, many of India's ancient fighting techniques languish as forgotten art forms.

Kalaripayattu



- Often known as the 'Mother of All Martial Arts', this 3000-year old art form originating from **Kerala**, draws inspiration from the raw power, swift movements and sinuous strength of majestic animals – the lion, tiger, elephant, wild boar, snake and crocodile.

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- The term 'kalari' refers to the place where this combat style is taught while 'payattu' means to practise.
- This combat style has different levels through which one learns how to fight, **with and without, hand-held weapons.**
- This legendary warrior art form most was recently popularised by 76-year-old **Meenakshamma's** heroic exhibition of swordplay against a man half her age.

5. Toda Tribe (TH)

- **Context:** A fashion label collaborates with the reclusive Toda tribe of The Nilgiris to celebrate ethnic motifs and embroidery
- These tribals in the Nilgiris are working with the fashion brand on their famous **Toda embroidery, which has been awarded the GI tag.**
- A Dravidian ethnic group of the Nilgiris, the Toda people live in small huts made with bamboo and mud called munds.
- There are currently about 2,000-odd Todas living in the district.

Analysis

- Todas, a tribal group in the higher altitudes of the Nilgiris, **settled there 3,500-4,000 years ago** when a climate change occurred in southern India.
 - This buffalo-tending pastoral community is widely believed to be the earliest people to move into the upper Nilgiri plateau perhaps during the 1st century AD.
- It remained relatively isolated, until 'discovered' during the early 19th century by the erstwhile British administration.
- **The Toda people are living only on the upper plateau of the Nilgiri hills with an average elevation of 2300 ft. at the**

junction of the Eastern and the Western Ghats in Tamil Nadu State of India.

- **It has been inferred that the Toda people are not aborigines, but came probably as conquerors or immigrants from the sea.**
- Of all the tribes of South India, **the Todas of the Nilgiris remain as the most widely studied ethnic group till date**, owing to its
 - **unique physical characteristics** (such as tall stature, fair complexion, pointed and long nose),
 - **culture traits (such as half-barrel shaped huts, buffalo-centred culture, lacto-vegetarianism, weaving of embroidered shawl, the putkuli) and linguistic features** (Toda language has characteristics of proto-Dravidian language).
- **Toda lands are part of The Nilgiri Biosphere Reserve, a UNESCO-designated International Biosphere Reserve and their territory has been declared as UNESCO World Heritage Site.**



Figure 1 Munds: House of Toda People

- Todas mostly have large herd of buffaloes. Their livelihood is mainly by producing milk products.
- And they are also experts in silver-smith works. This tribe lives in munds, which

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consist of five buildings or huts, out of which they use three as dwellings, one as a dairy and the other as shelter for the calves at night.

- Todas have belief that they were the descendants of the Pandavas. True to that belief, **they follow polyandry** (polygamy in which a woman has more than one husband)

Toda tribes are vegetarians. People do not eat meat, eggs which can hatch (fertilised eggs) and fish but some villagers eat fish. They make Buffalo milk into butter, butter milk, yogurt, cheese and drink it plain. **Rice is the main food which is eaten with dairy and curries.**



Puthukuli – An embroidery art practiced by the Toda tribes

- **Todas can be easily identified with their dressing style.** Toda Tribe dress consists of a single piece of cloth for both men and women.
- These shawls are adorned with the **Toda embroidery, called Poothkuli or Puthukuli.**
- The style of work is called Pugur in Toda language (meaning flower) using red and black threads on a white background giving a rich effect.
- Todas generally create their tattoo motifs and patterns using these threads. A white

fabric is beautifully enriched with rich red and black motifs.

- **Poothukuli holds a very important role in their festivals and funerals.**

6. Indian New Years (PIB)

- **Context:**The Prime Minister greeted people on the occasion of Lohri and Pongal.

Analysis

- New Year is celebrated all across the world on January 1. This, however, is in accordance with the **Gregorian calendar.**
- It's the **harvesting season** which is **mostly synonymous with the new year celebrations in India.**
- Being a diverse nation, new year in India is celebrated in various regions at various times of the year depending on solar or lunar calendars.
- **As per the solar calendar,** the new year is celebrated during the spring harvest time on April 13/14/15 as Vaisakhi or Baisakhi in north and central India, Rongali Bihu in Assam, Tamil Putthandu in Tamil Nadu, Vishu in Kerala, Bishuva Sankranti in Odisha and PoilaBoishakh in Bengal.
- **As per the lunar calendar,** new year is celebrated in various parts of India during March/April.
 - **Ugadi** is the New Year's Day for the Hindus of Maharashtra, Andhra Pradesh, Karnataka and Telangana.
 - **GudiPadwa** is celebrated in Maharashtra, Goa and Konkan belt as new year.
 - **Sajibu Cheiraoba** in Manipur, **Navreh** in Kashmir and **Cheti Chand** is celebrated by Sindhi Hindus as new year.

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- In Gujarat, **BestuVaras** is celebrated around October/November time as new year.

Difference Between the Lunar Calendar & the Solar Calendar

- The difference between the lunar calendar and the solar calendar is the celestial body used to measure the passage of time.
- The lunar calendar uses the phases of the moon to measure time, usually measuring the time from new moon to new moon as one month.
- The time required for the Earth to rotate around the Sun is one solar year.
- The solar calendar typically measures the time between vernal equinoxes.

Some major harvest festivals of India

Baisakhi

- Baisakhi Festival falls on April 14th and marks the beginning of the solar year in Punjab/Haryana.
- For farmers of these States, Baisakhi marks the time for harvest of rabi crops.
- Baisakhi has special significance for Sikhs as on this day in 1699, their **tenth Guru Gobind Singh Ji organized the order of the Khalsa.**

Bihu: Assam



- Bihu is the national festival of Assam **celebrated three times in a year**, Maagh Bihu in January, Bohaag Bihu in April and Kaati Bihu in October.

- Rongali Bihu or Bohag Bihu is the major among the other and most popular Bihu festival celebrated as the **Assamese New Year** in mid April along with Spring season.
- **Hareli and Cher-Chera: Chhattisgarh**



- **Vishu and Onam: Kerala**

- ✓ The ancient festival (Onam) has a significance of homecoming of the legendary Emperor Mahabali and harvest of rice and rain flowers in Kerala.

- **Nuakhai/Nabanna: Odisha**



- **Kut:** By Kuki-Chin tribes of Manipur



- **TokhuEmong:** By the tribes of LothaNagas
- **Pongal:** Tamil Nadu
- **Bhogi:** Andhra Pradesh
- **Uttarayan:** Gujarat, Associated with flying of colourful kites

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- **Navroz:** Parsis in India celebrate New Year or Navroz.

7. Thiruvalluvar Day 2021: History, significance and all you need to know about the iconic poet (PIB)

- **Context:** Tamil Nadu celebrates Thiruvalluvar Day today (15th Jan) in honour of the Saint Poet Thiruvalluvar.

Analysis

- Thiruvalluvar, a poet and philosopher, is regarded as a cultural icon by **Tamils**.
- His most popular work is **Thirukkural**, a collection of couplets on **ethics, politics, economy and love**.
- Thiruvalluvar Day was first celebrated on May 17 and 18 in 1935.
- In the present time, it is usually observed either on January 15 or 16 in Tamil Nadu and is a part of Pongal celebrations.

Who is Thiruvalluvar?

- While not much is known about Thiruvalluvar's life, speculations about it have been largely deduced from his work Thirukkural and other Tamil texts.
- Earliest references of the poet are found in the text TiruvalluvalMaalai.
- Legends say he may have lived in the town of Mylapore, a neighbourhood in present-day Chennai and flourished between the 4th century and 6th century.
 - Though the period in which he lived is also widely debated with some accounts saying that he lived from 8th to 9th century.
- Thiruvalluvar's primary work Thirukkural contains 1330 couplets (kurals) that are divided into 133 sections of 10 couplets each.

- The text is divided into three parts with teachings on dharma, artha, and kama (virtue, wealth and love).

- A statue of Valluvar was also erected outside the School of Oriental and African Studies in Russell Square, London.

8. Lala Lajpat Rai(TH)

- **Context:** The Prime Minister has paid tributes to **Lala Lajpat Rai** ji on his Jayanti.

Analysis

Safety-valve theory

- In his *Young India* published in 1916, the Extremist leader Lala Lajpat Rai used the **safety-valve theory** to attack the Moderates in the Congress. Having discussed the theory at length and suggested that the Congress 'was a product of Lord Dufferin's brain,' he argued that 'the Congress was started more with the object of saving the British Empire from danger than with that of winning political liberty for India. The interests of the British Empire were primary and those of India only secondary.'

Swadeshi Movement

- Lala Lajpat Rai spread the Swadeshi message in Punjab and other parts of northern India.
- The **militant nationalists**, led by Tilak, Bipin Chandra Pal, Lajpat Rai and Aurobindo Ghosh, were in favour of extending the movement to the rest of India and carrying it beyond the programme of just Swadeshi and boycott to a full-fledged political mass struggle.
- In Rawalpindi, in Punjab, the arsenal and railway engineering workers went on strike as part of the 1907 upsurge in the Punjab

which had led to the deportation of Lajpat Rai and Ajit Singh.

Formation of the All India Trade Union Congress (AITUC) in 1920

- Lokamanya Tilak, who had developed a close association with Bombay work., was one of the moving spirits in the formation of the AITUC, which had **Lala Lajpat Rai, the famous Extremist leader from Punjab, as its first president** and Dewan Chaman Lal, who was to become a major name in the Indian labour movement, as its General Secretary.
- Lajpat Rai was among the first in India to link capitalism with imperialism and emphasize the crucial of the working class in fighting this combination. He said on 7 November, 1920: 'India... has... been bled by the forces of organized capital and is today lying prostrate at its feet. Militarism and Imperialism are the twin-children of capitalism; they are one in three and three in one. Their shadow, their fruit and their bark all are poisonous. It is only lately that an antidote has been discovered and that antidote is organized labour.'
- Lala Lajpat Rai said: 'Revolutions and revolutionary movements are only natural . . . there can be no progress in the world without revolutions and revolutionary movements.'

Swaraj Party

- Lajpat Rai and Madan Mohan Malaviya separated themselves from the *Swaraj* Party on Responsivist as well as communal grounds.

Public Safety Bill in 1928.

- Frightened by the spread of socialist and communist ideas and influence and believing that the crucial role in this respect

was being played by British and other foreign agitators sent to India by the Communist International, the Government proposed to acquire the power to deport 'undesirable' and 'subversive' foreigners.

- Nationalists of all colours, from the moderates to the militants, united in opposing the Bill.
- Lala Lajpat Rai said, 'Capitalism is only another name for Imperialism . . . We are in no danger from Bolshevism or Communism. The greatest danger we are in, is from the capitalists and exploiters.'

Hindustan Socialist Republican Army (HSRA)

- Even though, as we shall see, the HSRA and its leadership was rapidly moving away from individual heroic action and assassination and towards mass politics, Lala Lajpat Rai's death, as the result of a brutal lathi-charge when he was leading an anti-Simon Commission demonstration at Lahore on 30 October her 1928, led them once again to take to individual assassination.
- The death of this great Punjabi leader, popularly known as Sher-e-Punjab, was seen by the romantic youthful leadership of the HSRA as a direct challenge. And so, on 17 December 1928, Bhagat Singh, Azad and Rajguru assassinated, at Lahore, Saunders, a police official involved in the lathi charge of Lab Lajpat Rai. In a poster, put up by the Hindustan Socialist Republican Army (HSRA) after the assassination, the assassination was justified as follows: 'The murder of a leader respected by millions of people at the unworthy hands of an ordinary police official . . . was an insult to the nation. it

was the bounden duty of young men of
India to efface it. . . We regret to have had
to kill a person but he was part and parcel

Hindu communal solidarity

- Lajpat Rai, Madan Mohan Malaviya and N.C. Kelkar joined the Hindu Mahasabha and argued for Hindu communal solidarity.

1. Dzukou Valley (TH)

- **Context:** The Indian Air Force has engaged an Mi-17V5 helicopter to tame a massive wildfire in **Dzukou Valley, a popular trekking destination on the Manipur-Nagaland border.**
- Tribals burn down forest areas for hunting the terrified wild animals and doing shifting cultivation. There are some disputes between Manipur and Nagaland which also lays claim to the valley.

Analysis

- Dzukou Valley in Nagaland also called the (valley of flowers of North East) is more popular with trekkers for its interesting and challenging trekking circuits.
- It prides itself for being one of the most-visited tourist sites in not only Nagaland but the entire Northeast India.
- Dzükou Lily- a flower is found only in this valley. These rare flowers begin to bloom during the onset of monsoon season.

2. Severe Cold Wave, Cold Wave and Cold Day (TH)

- **Context:** The India Meteorological Department declared that Delhi was under the spell of a **severe cold wave**, but relief from the dipping mercury was on the horizon as light rain is expected under the influence of a western disturbance between January 3 and January 5.

Analysis

- The showers will most likely cause a rise in the minimum temperature by a few notches.
- A severe cold wave is declared when the minimum temperature dips to 2 degrees Celsius or the departure is more than 6.4 degrees from the normal.

Cold Day

- In the plains of north India, foggy conditions prevail during winter for several days or weeks.
- The minimum temperature on these days remains **above normal**, while maximum temperature remains much **below normal**.
- When maximum temperature is less than or equal to 16°C in Plains, it will be declared "Cold Day."

Cold Wave

- Wind chill is a measurement of the rate of heat loss from your body when you're exposed to low temperatures combined with wind.
- **Wind chill factor** is taken into account while declaring the cold wave situation.
- The wind chill effective minimum temperature (WCTn) is defined as the effective minimum temperature **due to wind flow**.
- For example, when the minimum temperature is 15 degree Celsius and the wind speed is 10 mph, WCTn will be 10.5 degree Celsius (it is calculated using a formula not relevant for UPSC).
- When WCTn is 0°C or less, Cold Wave should be declared irrespective of normal minimum temperature of the station.
 - However, this criterion is not applicable for those stations whose normal minimum temperature is below 0°C.

3. Migratory birds have been found dead under mysterious circumstances at the Pong Dam (IE)

- More than 750 migratory birds have been found dead under mysterious circumstances at the Pong Dam lake in Kangra in recent days.

Pong-Dam

- A reservoir has been constructed on the river Beas in the wet land of Shivalik hills of Kangra district of Himachal Pradesh, which has been named as Maharana Pratap Sagar.
- It is also known as Pong reservoir or Pong Dam.
- This reservoir or lake is a famous wildlife sanctuary and one of the international wetland sites declared by Ramsar Convention in India.

4. Red Sanders (TH)

- **Context:** 34 red sanders smugglers caught in Andhra Pradesh.
- **This topic has already been covered comprehensively in 14th Sep file.**

5. DeeporBeel: Assam's only Ramsar site (TH)

- **Context:** Authorities ban community fishing in DeeporBeel, a wetland on the south-western edge of Guwahati and Assam's only Ramsar site, to prevent over-exploitation.

Analysis

DeeporBeel Wildlife Sanctuary

- DeeporBeel (Beel means wetland or large aquatic body in Assamese) located in Guwahati and is considered one of the large and important riverine wetlands in the Brahmaputra Valley of lower Assam, India.

- DeeporBeel is an open lake basin connected with a set of inflow and outflow channels.
- DeeporBeel has both biological and environmental importance besides being the only major storm-water storage basin for Guwahati city.
- It is considered one of the staging sites for migratory birds in India; and some of the large congregations of aquatic birds in Assam during winter.
- Because of the richness of avian fauna it enjoyed, DeeporBeel has been selected as one of the Important Bird Area (IBA) sites by Birdlife International.
- DeeporBeel has also been designated as a Ramsar Site in November 2002.

6. Western Disturbances: Origin, spread, effects and climate change (PIB)

- **Context:** Western disturbances to bring rain in north-western parts of India.

Analysis

- Western disturbances (WDs) are **extra tropical mid-tropospheric cyclonic circulations** most often embedded in the subtropical westerly jetstream (STWJ).

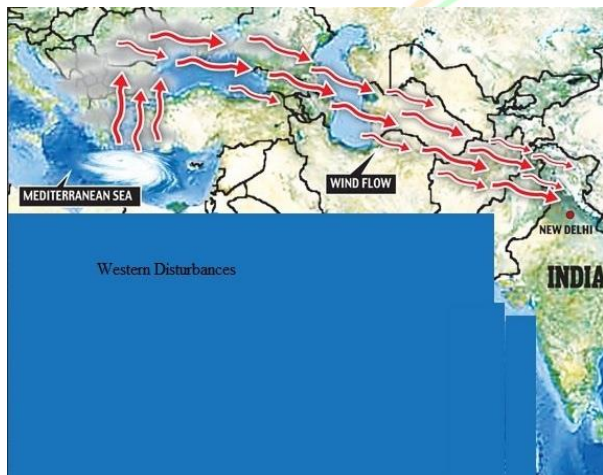
Why are they named so?

- The word 'disturbance' is used because the air within low pressure systems (fronts, depressions and cyclones) tends to be unstable or disturbed.
- And 'western' refers to the direction from which they originate vis-à-vis India.

How do western disturbances originate?

- WDs are caused by **pronounced temperature differences between higher and lower latitudes.**

- The transfer and interaction of warm and cold air creates an area of low pressure in the mid-latitudes, usually over the Mediterranean Sea.
- Provided other conditions remain favourable, chances of WD intensification are higher **when there is greater meridional (north versus south) temperature difference.**
- Other factors that determine the strength of WDs are:
 - the location and intensity of the jet stream and
 - the amount of moisture being carried by the low-pressure system.



Where do western disturbances originate from?

- They typically originate over western Eurasia (Mediterranean Sea, Black Sea and Caspian Sea) before propagating downstream across Pakistan and northern India.
- They originate as perturbations (disturbances) in the subtropical jet, typically over the Mediterranean, growing baroclinically on approach to the subcontinent.
- They are driven by westerlies, which are prevailing winds from the west toward

the east in the middle latitudes between 30 and 60 degrees latitude.

- After covering thousands of miles, these moisture-laden WDs eventually come up against the mighty Himalayas and are blocked.
 - As a consequence, the moisture gets trapped and precipitation is shed in the form of snow and rain over northwest India, and sometimes other parts of north India.

When are western disturbances the strongest?

- They are most prominent during the winter, when the STWJ is situated over south Asia and as westerlies are stronger in winter, **but can occur at any time of year.**
- Their **effect is minimal** during the monsoon months in India.

What are the effects of western disturbances?

- Western Disturbances along with their induced systems are the principle rain producing systems during non-monsoonal months over Northwest India including Punjab, Haryana, Uttar Pradesh and Delhi, as well as **almost all extreme precipitation events in the region; but mostly rely on local sources of moisture (e.g. the Arabian Sea).**
 - Induced systems are secondary low pressure areas or cyclonic circulations induced by the primary WD.
- Their effect sometime extends up to Gangetic plains and Northeast India.
- They are also responsible for bringing snowfall in the higher reaches of Jammu & Kashmir, Himachal Pradesh and Uttarakhand.

- Most of the moisture is shed between November and March.
 - The influence of WDs is strongest from December to February, when there can be as many as 5-6 WDs every month.
- The formation of fog starts and slowly the cold wave occurs spreading to southwards in the country.
- WDs are also associated with cloudy skies and an **increase in night-time temperatures** (due to trapping of heat reradiated by the earth's surface by the clouds) in parts of north India.
- They can also cause strong winds that help disperse suspended pollutants in the smog-filled cities of the region, including New Delhi.
- It is worth mentioning here that although the effects of WDs are rarely seen after spring (March-April), due to the northward movement of the jet stream above India, in some cases (which we will read about ahead), WDs can persist even outside the traditional winter months.
- Precipitation from western disturbances replenishes the Himalayan glaciers, preserves the natural ecosystem, helps rabi crops like wheat, and assists hydropower generation.
- Light rain under the influence of western disturbance provides relief from the **severe cold wave** conditions in the north-western parts of India.

Do western disturbances cause extreme weather?

- WDs are not usually associated with **disasters**, since they not high-intensity weather systems.

- These are advective (horizontal movement of a mass of fluid such as air or an ocean current), not convective systems, so they don't have a lot of energy and usually don't cause heavy precipitation.
- However, anomalies do exist.
 - **WDs had a role to play in the Leh cloudburst of 2010, Uttarakhand rains of 2013, and the J&K floods of 2014.**

WDs and Climate Change

- The lack of data and understanding of the mechanics of WDs has also led to debates about the impact of global warming and climate change on western disturbance formation and intensity.
- In an age where droughts, crop failure and melting glaciers are becoming all too common, studying these linkages more closely will allow scientists to get deeper insights into western disturbances, how they may have changed over the years, and most importantly, what we can do about it.

7. Prevention of Cruelty to Animals Act, 1960 and Animal Welfare Board (TH)

- **Context:** The Supreme Court asked the Centre to "delete" its law, which allowed authorities to seize cattle on a mere suspicion that they suffered cruel treatment at the hands of their owners or were being primed for slaughter.
- As per rules framed under the Prevention of Cruelty to Animals Act, 1960 these animals would then be lodged in 'gaushalas' as "case property" to await the court's verdict.
- In short, a farmer, a livestock owner or a cattle trader loses his animals even before

they were found guilty of cruelty towards them.

Analysis

Salient features of the Prevention of Cruelty to Animals Act, 1960

- This act provides for punishment for causing unnecessary cruelty and suffering to animals.
- This act defines animals and different forms of animals.
- **This Act enshrines the provisions relating to the establishment of an animal welfare board, its constitution, powers, and functions.**
- This act discusses different forms of cruelty, exceptions, and killing of a suffering animal in case any cruelty has been committed against it, so as to relieve it from further suffering.
- This act provides the guidelines relating to experimentation on animals for scientific purposes.
- This act enshrines the provisions relating to the exhibition of the performing animals, and offences committed against the performing animals.
- This Act provides for the limitation period of 3 months beyond which no prosecution shall lie for any offences under this Act.
- According to this Act an animal refers to any living creature excluding a human being. Therefore, this definition is comprehensive and exhaustive. **For animals, it refers not solely to mammals, but also includes birds, reptiles, etc.**
- Prevention of Cruelty to Animals Act, 1960 enshrines the provisions relating to the

constitution, funding, and functioning of the animal welfare board.

Animal Welfare Board

- The **Animal Welfare Board of India** is a **statutory advisory body under Ministry of Fisheries, Animal Husbandry and Dairying.**
- It established by the Central Government purporting to provide for animal welfare and extending protection against animals from unnecessary pain or suffering.
- It was the **first of its kind** to be established by any Government in the world.
- It is permanently chaired by a senior official of the Ministry of Environment, Forests and Climate Change (MoEF).
- Shrimati **Rukmini Devi Arundale** pioneered the setting up of the Board.
 - The headquarters of the Animal Welfare Board of India (AWBI) has been shifted **from Chennai to Haryana's Ballabgarh** for "better coordination " between the environment ministry and the board.

Some important Functions of the Board

- To advise the Government or any local authority or other person on **improvements in the design of vehicles** so as to lessen the burden on draught animals.
- To impart education in relation to the humane treatment of animals.
- To advise the Government or any local authority or other person in connection **with slaughter of animals** so that unnecessary pain or suffering is eliminated in the pre- slaughter stages as far as possible
- To ensure that unwanted animals are destroyed by local authorities,

whenever it is necessary to do so,
either instantaneously or after being
rendered insensible to pain or
suffering.

- To give financial assistance and other assistance to Animal Welfare Organisations functioning in any local area or to encourage the formation of Animal Welfare Organisations in any local area.
- To give financial and other assistance to animal hospitals whenever the Board think it is necessary to do so.
- The **AWBI, however, does not have the right** to prescribe punishments or fines for violations of the PCA Act but can pursue legal action.
 - It has in the past led litigation to disallow the use of bulls in Jallikattu in Tamil Nadu.
- The Board consists of 28 Members. The term of office of Members is for a period of 3 years.
- **The Board grants recognition to the newly started Animal Welfare Organisations (AWOs).**

Funds of the Board shall consist of:

- Governmental grants allocated to it time and again;
- Contributions, donations, gifts, subscriptions, etc. made to the Board by any individual or local authority.
- **Note: Nothing in this Act shall affect the experimentation (including operations) on animals for the purpose of**
 - combating any disease or
 - advancement through the new discovery of physiological knowledge;
 - or knowledge which will be useful for decreasing the mortality rate; or

Suffering alleviation; of either human beings, animals, or plants.

8. Install smog towers at big work sites: SC (TH)

- **Context:** The Supreme Court ordered the Centre to issue directions for the mandatory installation of smog towers in all major development projects, including the construction of the new Parliament building.

Analysis

Recommendations of the High Level Committee (HLC) to control air pollution in Delhi

- Painting roads with photocatalytic coating to clean air, using anti-smog guns at construction sites to reduce dust pollution and setting up of a 20 metre-high 'smog tower' with air purifiers are among the pilot projects suggested by a High Level Committee (HLC) to the Supreme Court to control air pollution in Delhi and NCR.

Painting roads

- Photocatalytic paints can remove pollutants from the air in the presence of sunlight and ultraviolet (UV) rays.
- It can be applied on a range of surfaces, such as roofing tiles or even on the surface of roads.
- Photocatalytic paints contain titanium dioxide [TiO₂] which acts as a catalyst when exposed to UV rays and removes atmospheric pollutants.
- The catalyst converts the pollutants into other species.
 - But there is a risk that nano materials present in these paints may result in production of other undesirable species such as nitrous acid and

formaldehyde, which will have adverse health impacts.

Smog tower

- The HLC has also suggested that a pilot project of “smog tower.”
- The committee said in its report that smog towers, as per the current knowledge and experience, may not provide a viable solution to improve air quality on a large scale, they are suitable for a **localised effect only**.
- The system comprises a series of specially-adapted greenhouses situated at the base of the tower, which suck in polluted air and heat it using solar energy.
- The heated polluted air then passes through multiple layers of filters before it is released back into the environment.
- China had, last year, set up the world’s largest air purification tower in the city of Xi’an. According to reports, the 100 metre-high tower was able to make significant improvements to Xi’an’s air quality.
- Recently, a group of environmentalists have written an open letter to the Supreme Court, urging it not to direct the Centre or the States to spend public money on “expensive” and “inefficient” smog towers, which will “only benefit the manufacturers and sellers”.
- India’s leading air pollution scientists and researchers unanimously say that outdoor air purifiers are inefficient to the point of being useless.
- These are ineffective in bringing down PM2.5 levels and may even add to pollution when the dirty filters are disposed off in our already overflowing landfills and burnt.

Anti-smog gun

- Anti-smog gun is a device that sprays nebulized/ atomised water droplets into the air through high pressure propellers, which help particles to settle down.
- The gun is attached to a water tank built on a movable vehicle, which can be taken to various parts of the city.
- Anti-smog guns may be effective in controlling **localised dust** during the period of application and more suitable to high dust emission zones such as large construction sites.

Oxy furnace

- Oxy furnace uses only oxygen as fuel instead of atmospheric air (which contains nitrogen), thus reducing the production of NOx by about 90% in industries.
- But the committee also said that NOx is mostly released in urban centres from vehicles and not industries.

Wireless Sensor Network

- Wireless Sensor Network (WSN) technology to monitor air pollution is still in developmental stage and IIT and NEERI are reviewing its performance.
- The committee has informed that WSN may be used as an indicative monitoring tool for a few activities like mining, large construction sites, to supplement air quality data and report to regulator for conducting further investigation.

LiDAR

- LiDAR or Light Detection and Ranging is a high-end application of LASER-based technology for monitoring pollution.
- The HLC has recommended that this technology may be adopted for vertical monitoring at a few places to track transport of pollutants at higher altitude.

Smog Free Project

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- It is created by Dutch artist Daan Roosegaarde in 2016 as a means of purifying air. It also turns particulate matter into jewellery by compressing 1,000 cubic meters of polluted air into rings, which visitors can purchase.

What is Smog?

- Smog is a kind of air pollution, originally named for the mixture of smoke and fog in the air.
- Today, smog generally refers to **photochemical smog**, which is the haze created **when sunlight reacts with nitrogen oxides and volatile organic compounds** that can be found in fossil fuel emissions from automobiles, factories, and power plants.
- These reactions create ground-level ozone and tiny particles in the air, known as particulate matter.
- Smog can form in almost any climate where industries or cities release large amounts of air pollution.
 - However, it is worse during periods of warmer, sunnier weather when the upper air is warm enough to inhibit vertical circulation.
- During the winter months when the wind speeds are low, it helps the smoke and fog to become stagnate at a place forming smog.
- Certain landscapes can also contribute to smog problems. For example, large cities located in basins surrounded by mountains are more likely to have problems with smog, because smog gets trapped in the valley where it can't be blown away by winds.
 - Delhi, Los Angeles and Mexico City are cities known for having smog

problems that are exacerbated by their landscapes

Harmful Effects of Smog

- Not only does smog reduce visibility and create an unattractive haze on the horizon, it also has negative health effects.
- Smog also affects plants and animals.
 - The ground level ozone present in the smog also inhibits plant growth and causes immense damage to crops and forests.
- Heavy smog is responsible for decreasing the UV radiation greatly.
 - Thus, heavy smog results in a low production of the crucial natural element vitamin D leading to cases of rickets among people.
- Smog has also been known to cause corrosive damage to buildings and vehicles.

9. Asian Waterbird Census-2021 (TH)

- **Context:** The two-day **Asian Waterbird Census-2021** commenced in Andhra Pradesh recently under the aegis of experts from the Bombay Natural History Society (BNHS), covering at least two dozen sites, including Coringa Wildlife Sanctuary, Kolleru Lake and Krishna Sanctuary.
- Dr. Sathiyaselvam, who had previously explored the avian diversity in the Godavari estuary, said more study was still required to establish that the **Indian Skimmer breeds on the Kakinada coast**, which supports a great number of Indian Skimmer.

Analysis

- Every January, thousands of volunteers across Asia and Australasia visit wetlands in their country and count waterbirds. This

citizen science programme is the Asian

Waterbird Census (AWC).

- The AWC is an integral part of the global waterbird monitoring programme, the International Waterbird Census (IWC), coordinated by Wetlands International.
- This is the 51st annual round of the International Birds Census and the 31st round of the Asian Birds Census.
- It runs in parallel with other regional programmes of the International Waterbird Census in Africa, Europe, West Asia, the Neotropics and the Caribbean.
- The AWC was initiated in 1987 in the Indian subcontinent and since has grown rapidly to cover major region of Asia, from Afghanistan eastwards to Japan, Southeast Asia and Australasia.
 - The census, thus covers the entire East Asian – Australasian Flyway and a large part of the Central Asian Flyway.
 - There are four separate regional schemes of the IWC that represent the major flyways of the world: Africa-Eurasia, Asia-Pacific, Caribbean and Neotropics.
- **The census has the following objectives:**
 - to obtain information on an annual basis of waterbird populations at wetlands in the region during the non-breeding period of most species (January), as a basis for evaluation of sites and monitoring of populations;
 - to monitor on an annual basis the status and condition of wetlands;
 - to encourage greater interest in waterbirds and wetlands amongst citizens.
- The information collected is available to a wide range of government agencies and non-government organizations and contributes to conservation activities from the local to global level, including:
 - the **Ramsar Convention on Wetlands**, in identifying and monitoring wetlands of international importance;
 - the **Convention on Migratory Species (CMS)**, by monitoring the status of migratory waterbirds and their habitats;
 - the **Convention on Biological Diversity's (CBD)** goal in conservation and sustainable use of biodiversity;
 - implementation of the **East Asian-Australasian Flyway Partnership Initiative (EAAFP) and Central Asian Flyway Action Plan** through monitoring important and Flyway Network sites;
 - **BirdLife International's** Important Bird Area (IBA) Programme;
 - **IUCN/BirdLife International's** Global Species Programme (Red List);
 - **Wetlands International's** Waterbird Population Estimates programme.
 - ❖ **Bird population is a criterion for declaring a place as a Ramsar site.**
 - ❖ **Wetlands International** is the only global not-for-profit organisation dedicated to the conservation and restoration of wetlands.
 - ❖ 2020 was a special year for biodiversity as it marked the end of the landmark **Aichi 2020 Biodiversity Targets**, that governments around the world had agreed several years ago.

Add.: 7/50, IInd Floor, Near Roop Vatika, Shankar Road, Old Rajinder Nagar, New Delhi-60

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10. Govt. approves advisory for management of Human-Wildlife Conflict across the country (PIB)

- **Context:** The Standing Committee of National Board of Wildlife (SC-NBWL) in its 60th meeting approved the advisory for management of Human-Wildlife Conflict (HWC) in the country.

Analysis

- The advisory makes important prescriptions for the States/ Union Territories for dealing with Human-Wildlife conflict situations and seeks expedited inter-departmental coordinated and effective actions.
- Some of the important approvals took place during the meeting are:
 - empowering gram panchayats in dealing with the problematic wild animals as per the section 11 (1) (b) of Wild Life (Protection) Act, 1972;
 - utilising add-on coverage under the Pradhan Mantri FasalBimaYojna for crop compensation against crop damage due to HWC;
 - augmenting fodder and water sources within the forest areas;
 - payment of a portion of ex-gratia as interim relief within 24 hours of the incident to the victim/family.
 - formulation and implementation of special plans for improved stall-fed farm animal etc.
- Some of the other important approvals took place during the meeting are, **inclusion of Caracal, a medium size wild cat found in some parts of Rajasthan and Gujarat,** into the list of critically endangered species for taking up conservation efforts with

Scheme-Development of Wildlife Habitat.

- Now, there are 22 wildlife species under recovery programme for critically endangered species.

National Board for Wildlife

- The Indian Board for Wildlife was constituted under the Wildlife (Protection) Act, 1972.
 - Amendment of the Act in 2002, incorporated a provision for the constitution of the National Board for Wildlife, replacing the Indian Board for Wildlife.
- It is an apex body to review all wildlife-related matters and approves projects in and around national parks and sanctuaries.
- The National Board for Wild Life **is chaired by the Prime Minister**, Union Minister of Environment, Forest and Climate Change is the vice-chairman of the Board.
- The Board is responsible for promotion of conservation and development of wildlife and forests.
- In September 2013, the National Board for Wildlife (NBWL), the apex advisory body to the central government on all wildlife-related matters, said no to new roads through protected forests, but was open to the widening of existing roads with adequate mitigation measures irrespective of the cost, only if alternative alignments were not available.
- The government accepted this as policy in December 2014. In February 2018, the NBWL made it mandatory for every road/rail project proposal to include a wildlife passage plan as per guidelines framed by Wildlife Institute of India, an

autonomous wildlife research body under the Environment Ministry.

- However, features like underpasses are unlikely to suffice in dense wildlife-rich forests where too many animals compete for space.
- Natural Gas would soon be extracted from Trishna Wildlife Sanctuary in Tripura following National Wildlife Board's clearance.

11. Gangetic River Dolphin (TH)

- **Context:** A video showing group of men and boys in Uttar Pradesh's Pratapgarh district beating to death a Gangetic river dolphin surfaced on social media.
- The Gangetic River Dolphin- An **endangered species, is recognised as the National Aquatic Animal.**

Analysis

About Gangetic dolphin

- Gangetic river dolphins are found in the rivers systems of Ganga, Brahmaputra, Meghna and Karnaphuli- Sangu in **Nepal, India and Bangladesh.**
- **It is the only surviving freshwater dolphin in India.**
- The Ganges River dolphin is classified as **endangered by the IUCN Red List** and has been included in the **Schedule I for the Wildlife (Protection) Act, 1972.**
- Being a mammal, the Ganges River dolphin cannot breathe in the water and must surface every 30-120 seconds.
- Ganges river dolphins prefer deep waters, in and around the confluence of rivers.
- **The distribution range of the Ganges river dolphins in India covers seven states namely, Assam, Uttar Pradesh,**

Madhya Pradesh, Rajasthan, Bihar, Jharkhand and West Bengal.

- The upper Ganga River (in Uttar Pradesh), **Chambal River** (Madhya Pradesh and Uttar Pradesh), **Ghaghra and Gandak Rivers** (Bihar and Uttar Pradesh), Ganga River, from Varanasi to Patna (Uttar Pradesh and Bihar), **Son and Kosirivers** (Bihar), **Brahmaputra from Sadia (foothills of Arunachal Pradesh) upto Dhubri** (on the Bangladesh border) and **Kulsi River, a tributary of the Brahmaputra River**, form ideal habitats for the Ganges river dolphin.
- The Gangetic Dolphins are generally blind and catch their prey in a unique manner. They emit an ultrasonic sound which reaches the prey.
 - The dolphin then registers this image in its mind and subsequently catches hold of its prey.
 - Their eyes lack a lens and therefore function solely as a means of detecting the direction of light.
 - **It uses echo-location to navigate and hunt.** Like bats, they produce high-frequency sounds which helps them 'see' objects when the sound waves bounce off them.
- Because of the sound it produces when breathing, the animal is popularly referred to as the 'Susu'.
- The species is found exclusively in freshwater habitat.
- River Dolphins are solitary creatures and females tend to be larger than males.
- The Ganges River dolphin (Susu) is among the four "obligate" freshwater dolphins - the other three are: **the baiji now likely**

extinct from the Yangtze river in China, the **bhulan of the Indus** in Pakistan and the **boto of the Amazon** River in Latin America.

- **Obligate species:** Restricted to a particular condition of life; for example, dependent on a particular habitat to be able to breed
- Although there are several species of marine dolphins whose ranges include some freshwater habitats, **these four species live only in rivers and lakes.**
- The **Vikramshila Gangetic Dolphin Sanctuary (VGDS)**, from Sultanganj to Kahalganj on the Ganga in Bihar is the only dolphin sanctuary in the country.
- National Waterway-1 connecting Haldia to Varanasi passes through it.
- The National Mission for Clean Ganga celebrates October 5 as **National Ganga River Dolphin Day.**
- Once present in tens of thousands of numbers, the Ganges river dolphin has dwindled abysmally to less than 2000 during the last century owing to **direct killing, habitat fragmentation by dams and barrages and indiscriminate fishing.**

12. Ken-Betwa link soon (TH)

- Union Jal Shakti Minister Gajendra Singh Shekhawat on Saturday said people would soon get good news regarding the Ken-Betwa river interlinking project as the governments of Madhya Pradesh and Uttar Pradesh were close to an agreement on it.
- He said discussions on the project were underway and now “some minor issues are left for which there is need for clarifications”.

Analysis

Interlinking of Rivers, National Water

Development Agency (NWDA) and National Interlinking of Rivers Authority (NIRA)

- The National Water Development Agency (NWDA) is a Registered Society under the **Ministry of Jal Shakti.**
- It has been set up to:
 - carry out detailed studies, surveys and investigations in respect of Himalayan and Peninsular Components of **National Perspective for Water Resources Development;**
 - explore the feasibility of linking sub-basins of rivers in States like Bihar;
 - take up the work for preparation of Detailed Project Report (DPR) of Ken-Betwa link, which is one of the priority links under Peninsular Component of National Perspective Plan;
 - to undertake the work of preparation of DPRs of intra-State links;
 - undertake completion of water resources projects under Pradhan Mantri Krishi Sinchai Yojana (PMKSY); and
 - act as a repository of borrowed fund or loan from Banks / other institutions for the execution of projects.

Inter-Linking of Rivers

- The National Perspective Plan (NPP) was prepared by the then Ministry of Irrigation, now Ministry of Water Resources, RD & GR (now the **Ministry of Jal Shakti**) for water resources development through inter basin transfer of water, for transferring water from water surplus basins to water-deficit basins.
- Under the NPP, the National Water Development Agency (NWDA) has identified 30 links (16 under Peninsular Component & 14 under Himalayan

Component) for preparation of Feasibility Reports.

- No State except Kerala is opposing the Interlinking of Rivers (ILR) Programme.
- Further Kerala Government is opposing only Pamba-Achankovil-Vaippar link which concerns the State.

Ken-Betwa link project

- The Ken-Betwa link project, country's first river interlinking project, envisages diversion of surplus waters of Ken basin in Madhya Pradesh to water deficit Betwa basin in Uttar Pradesh to help irrigate the drought-prone Bundelkhand region and the adjoining areas.
 - Both the rivers originate in Madhya Pradesh but empties themselves into Yamuna in Uttar Pradesh.



- The ₹18,000-crore project has been mired in several hurdles. The most recent one is a disagreement between the States on the **share of water** and difficulty in acquiring non-forest land.
- Other than differences between the States, there are outstanding **environmental obstructions** too.

- The project involves deforestating a portion of the **Panna Tiger reserve in Madhya Pradesh**.
- A new proposed irrigation project will submerge more than three lakh trees in the **Palamau Tiger Reserve (Jharkhand)**.

- The project involves building a 77-metre tall and a 2-km wide **Dhaudhan dam** and a 230-km canal for **both irrigation and drinking water supply**.
- It had been cleared by the apex wildlife-regulator, The National Board for Wildlife, in 2016.
- **Ken Betwa Link Project Phase-I (Madhya Pradesh & Uttar Pradesh) is one of the 16 National Projects in India.**

National Interlinking of Rivers Authority (NIRA)

- The Central government is working on the establishment of an exclusive body to implement projects for linking rivers.
- To be called the **National Interlinking of Rivers Authority (NIRA)**, the proposed body is expected to take up both inter-State and intra-State projects.
- It will also make arrangements for generating up funds, internally and externally.
- An official of the **National Water Development Agency (NWDA)**, which is **responsible for the formulation of proposals of the linking of rivers**, said an updated draft Cabinet note has been circulated to other Ministries in the Central government.
- The subject of establishment of the Authority was discussed at the last meeting of the Special Committee on Inter-Linking

of Rivers (ILR) headed by Union Minister of Jal Shakti.

- Once approved, the projects will be pursued as national projects, wherein the Centre will absorb 90% of the cost and the States concerned the rest.
- As of now, six ILR projects — the Ken-Betwa, Damanganga- Pinjal, Par-Tapi-Narmada, Manas-Sankosh-Teesta-Ganga, Mahanadi-Godavari and Godavari-Cauvery (Grand Anicut) — have been under examination of the authorities.
- With regard to the peninsular rivers, the Centre has chosen to focus on the Godavari-Cauvery link than the earlier proposal to link the Mahanadi-Godavari-Krishna-Pennar-Cauvery rivers.
 - The latter has eluded consensus given reservations from Odisha, officials said.

13. Dzukou Valley (TH)

- **Context:**The wildfire at **Dzukou Valley, straddling the Manipur-Nagaland border**, has been doused after it raged for two weeks.

Analysis

- Tribals burn down forest areas for hunting the terrified wild animals and doing shifting cultivation.
- There are some disputes between Manipur and Nagaland which also lays claim to the valley.
- Dzukou Valley in Nagaland also called the (valley of flowers of North East) is more popular with trekkers for its interesting and challenging trekking circuits.
- It prides itself for being one of the most-visited tourist sites in not only Nagaland but the entire Northeast India.

- Dzüko Lily- a flower is found only in this valley. These rare flowers begin to bloom during the onset of monsoon season.

14. SC takes cognisance of contamination of rivers (TH)

- **Context:**The Supreme Court took suo motu cognisance of the contamination of rivers by sewage effluents through lapses committed by municipalities, saying “open surface water resources including rivers are the lifeline of human civilisation”.

Analysis

Central Pollution Control Board (CPCB) and Environmental Jurisprudence

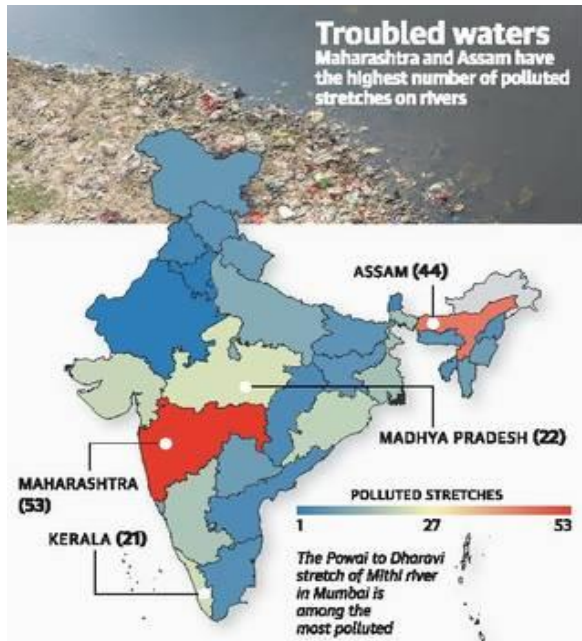
- CPCB is a statutory organisation constituted **under the Water (Prevention and Control of Pollution) Act, 1974**.
 - Further, CPCB was entrusted with the powers and functions under the **Air (Prevention and Control of Pollution) Act, 1981**.
- It serves as a field formation and also provides technical services to the Ministry of Environment and Forests for the provisions of the **Environment (Protection) Act, 1986**.

Principal functions of the CPCB are:

- to promote cleanliness of streams and wells in different areas of the States by prevention, control and abatement of water pollution, and
- to improve the quality of air and to prevent, control or abate air pollution in the country.
- One of the mandates of CPCB is to collect, collate and disseminate technical and statistical data relating to **water pollution**.
- Ambient air quality refers to the condition or quality of air surrounding us in the outdoors.

- National Ambient Air Quality Standards are the standards for ambient air quality set by the Central Pollution Control Board (CPCB) that is applicable nationwide.
- The CPCB has been conferred this power by the **Air (Prevention and Control of Pollution) Act, 1981.**

More river stretches are critically polluted: Central Pollution Control Board



- The CPCB, since the 1990s, has a programme to monitor the quality of rivers primarily by measuring BOD (Biochemical Oxygen Demand), which is a proxy for organic pollution — the higher it is, the worse the river.
- The health of a river and the efficacy of water treatment measures by the States and municipal bodies are classified depending on BOD, with a BOD greater than or equal to 30 mg/l termed 'priority 1,' while that between 3.1-6 mg/l is 'priority 5.'
- **The CPCB considers a BOD less than 3 mg/l an indicator of a healthy river.**

Frequently Asked Questions

What is BOD?

- The Biochemical Oxygen Demand (BOD) is a measure of the oxygen required by aerobic (requiring oxygen) micro-organisms to biochemically oxidize the organic matter present in the waste and is expressed in mg/l.

What is Environmental Protection Charge (EPC) & who has to pay EPC?

- In 2016, the Supreme Court imposed Environment Protection Charge (EPC) of 1% on the sale of 2000cc and above diesel cars which will be registered in Delhi-NCR.

What is PUC?

- PUC (Pollution Under Control) is a Certification Mark issued to certify that motor vehicles in India meet emission and pollution control norms.
- **After the expiry of period of one year** from the date of first registration, every motor vehicle is required to carry a valid PUC Certificate & subsequently after every six months.

What is eutrophication?

- Eutrophication is the process of the excessive increase in nutrients, such as **phosphate and nitrate**, in water due to the direct depositing of non-treated sewage.

What are the criteria to identify an industry under grossly polluting industry (GPI) category?

- GPIs were identified as Industries discharging effluents into a water course and a) handling hazardous substances, or b) effluent having BOD load of 100 Kg per day or more, or c) a combination of (a) and (b).

What is CEPI?

- A Comprehensive Environmental Pollution Index (CEPI), which is a rational number to characterize the environmental quality at a

given location following the algorithm of source, pathway and receptor have been developed.

- The index captures the various health dimensions of environment including air, water and land.

What is CPA?

- CPA Stands for Critically Polluted Areas.
- It means the areas where the pollution level is more than 70 %.

What is NAMP?

- National Air Quality Monitoring Programme (NAMP) is a nation-wide programme for monitoring of ambient air quality.
- CPCB has established a NAMP which presently comprises of 614 monitoring stations covering 257 cities in 29 states & 5 UTs.
- Under NAMP **three major pollutants** viz. PM10 (Particulate Matter having an aerodynamic diameter less than or equal to 10 μm), Sulphur dioxide (SO₂) and Nitrogen dioxide (NO₂) have been identified for regular monitoring at all locations.

What is NWMP?

- National water Quality Monitoring Programme (NWMP) is a nation-wide programme for monitoring of water quality.
- CPCB in collaboration with concerned SPCBs/PCCs established a nationwide network of water quality monitoring comprising 2500 stations in 28 States and 6 Union Territories.

How many critically polluted areas have been identified?

- The Central Pollution Control Board in consultation with State Pollution Control Boards has identified 24 areas in the

country as critically polluted areas. These are:

- Bhadravati (Karnataka),
- Chembur (Maharashtra),
- Digboi (Assam),
- Govindgarh (Punjab),
- Greater Cochin (Kerala),
- Kala-Amb (Himachal Pradesh),
- Parwanoo (Himachal Pradesh),
- Korba (Madhya Pradesh),
- Manali (Tamil Nadu),
- North Arcot (Tamil Nadu),
- Pali (Rajasthan),
- Talcher (Orissa),
- Vapi (Gujarat),
- Visakhapatnam (Andhra Pradesh),
- Dhanbad (Bihar),
- Durgapur (West Bengal),
- Howrah (West Bengal),
- Jodhpur (Rajasthan),
- Nagda- Ratlam (Madhya Pradesh),
- Najafgarh Drain (Delhi),
- PatancheruBollaram (Andhra Pradesh),
- Singrauli (Madhya Pradesh),
- Ankleshwar (Gujarat),
- Tarapur (Maharashtra)

What are the measures for control of noise pollution?

- Ambient standards in respect of noise for different categories of areas (residential, commercial, industrial) and silence zones have been notified **under the Environment (Protection) Act, 1986.**
- Noise limits have been prescribed for automobiles, domestic appliances and construction equipment at the manufacturing stage.

- Standards have been evolved and notified for the gen sets, fire crackers and coal mines.

What steps have been taken to control noise pollution due to loud-speakers?

- The Govt. of India has enacted Noise Pollution (Regulation and Control) Rules, 2000 vide S.O.123(E), dated 14th February, 2000.
- The Rule deals with provisions to control noise pollution due to loud-speakers and public address system, as given below:
 - A loud speaker or a public address system shall not be used except after obtaining written permission from the authority.
 - A loud speaker or a public address system shall not be used at night (between 10.00 p.m. to 6.00 p.m.) except in closed premises for communication within e.g. auditoria, conference rooms, community halls and banquet halls.

What are the 17 Categories of the major polluting industries?

- Aluminium Smelter
- Caustic Soda
- Cement
- Copper Smelter
- Distilleries
- Dyes & Dye Intermediates
- Fertilizer
- Integrated Iron & Steel
- Tanneries
- Pesticides
- Petrochemicals
- Drugs & Pharmaceuticals
- Pulp & Paper
- Oil Refineries
- Sugar

- Thermal Power Plants
- Zinc Smelter

What are the incentives to the industries for pollution control?

- Commissioning of the stand-by power supply systems by chlor-alkali plants reduce mercury emission due to power failures.
- Introduction of blending system for coal homogenisation in cement plants.
- Conversion of single hood to the double hood system in copper smelters to reduce the fugitive emissions
- Biomethanation of the effluents in distilleries.
- Solar evaporation ponds in small-scale water polluting units not having Common Effluent Treatment Plants (CETPs) in the proximity.
- Conversion of the open hearth furnaces (OHF) to the basic oxygen furnaces (BOF) and introduction of the dry system (instead of wet) for the quenching of the hot coke in iron & steel plants
- Commissioning of chemical recovery plants (CRPs) by pulp & paper industries; and

Environment Authorities

- In addition to Pollution Control Boards, 5 Environmental Authorities have been constituted under the Environment (Protection) Act 1986. These are:
 - The Central Ground Water Authority - Aqua Culture Authority
 - Dahanu Taluka Environment (Protection) Authority
 - Environment Pollution (Prevention & Control) Authority for National Capital Region of Delhi

- Loss of Ecology (Prevention and Payment of Compensation) Authority for State of Tamil Nadu.
- National Environment Appellate Authority, 1997

What are the laws enforced by of the Pollution Control Boards?

- The Central and State Pollution Control Boards were set up for enforcement of the Water (Prevention & Control of Pollution) Act, 1974.
- Over the years, the Boards have been assigned additional responsibilities which include the following:
 - Water (Prevention & Control of Pollution) Cess Act, 1977.
 - Air (Prevention & Control of Pollution) Act, 1981
 - Environment (Protection) Act, 1986 and Rules made thereunder
 - Hazardous Waste (Management & Handling) Rules 1989.
 - Manufacture, storage and Import of Hazardous Chemicals Rules, 1989
 - Bio-medical Waste (Management & Handling) Rules, 1998
 - Municipal Solid Waste (Management & Handling) Rules, 2000.
 - Plastic wastes Rules, 1999
 - Coastal Regulation Zone Rules, 1991
 - Public Liability Insurance Act, 1991

Environmental Jurisprudence

- The Supreme court in **Vellore Citizens Welfare Forum v. Union of India case** reiterated and declared in unequivocal terms that 'the precautionary principle and the polluter pays principle' are part of the environmental jurisprudence of this country.

- These principles have been accepted as a **part of the law of the land as article 21 of the Constitution** of India guaranteed the protection of life and personal liberty.
- There is also a constitutional mandate to protect and improve the environment under articles 47, 48-A and 51-A (g).
- **Article 47.** The State shall regard the raising of the level of nutrition and the standard of living of its people and the improvement of public health as among its primary duties and in particular, the State shall endeavour to bring about prohibition of the consumption except from medicinal purposes of intoxicating drinks and of drugs which are injurious to health.
- **Article 48A.** The State shall endeavour to protect and improve the environment and to safeguard the forests and wild life of the country.
- **Article 51A(g).** To protect and improve the natural environment including forests, lakes, rivers and wild life, and to have compassion for living creatures.
- Apart from the constitutional mandate to protect and improve the environment there are plenty of post-independence legislations on the subject but more relevant enactments for our purpose are: The Water (Prevention and Control of Pollution) Act, 1974 (the Water Act), The Air (Prevention and Control of Pollution) Act, 1981 (the Air Act) and the Environment Protection Act 1986 (the Environment Act).

15. Forest Fires in India: Causes, Effects and Spread (IE)

- **Context:** Forest fires in Himachal Pradesh.
- Analysis**

- The Forest Survey of India's data on forest fire attribute around 50% of the forest areas as fire prone. However, **only 6.17% of the forests are prone to severe fire damage.**

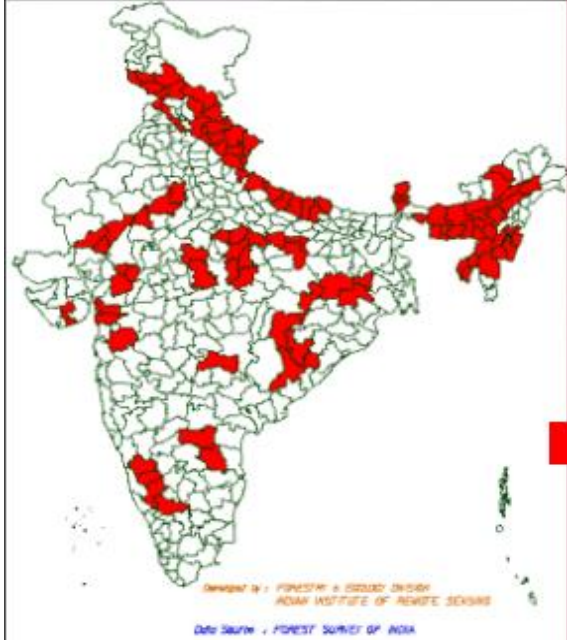


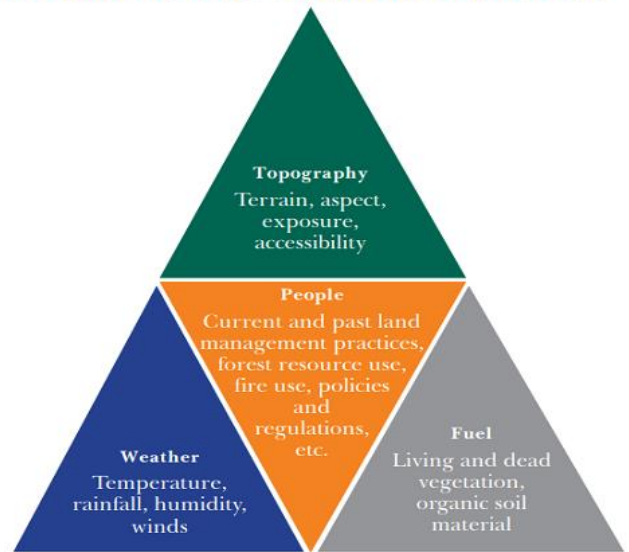
Fig: Map of India showing the districts with regular interval of forest fire

- A large fraction of **India's deciduous and semi-deciduous forests** is characterized by open and frequently burned stands.
 - To reduce water stress, the deciduous trees shed their leaves during the dry season.
 - These fuels, together with the grass layer, allow the development of low- and medium-intensity surface fires almost every year.
 - The Himalayan regions and the dry deciduous forests of India, particularly in Andhra Pradesh, Assam, Chhattisgarh, Jharkhand, Karnataka, Madhya Pradesh, Maharashtra and Odisha are ecologically sensitive areas and are most affected by these fires.

- India's monsoons are largely **responsible for the seasonal nature of forest fires in the country.**
- For most of India, **forest fires peak during the dry months of March or April** before the arrival of the monsoon.

Forest fires result from a combination of natural and social factors. The forest fire triangle in figure 1.3 illustrates how these factors are interrelated.

FIGURE 1.3: THE WILDFIRE TRIANGLE



- Local topography influences the difficulty of fire prevention and suppression and can raise the potential for out-of-control fires.
 - Moving up steep slopes, fires can spread at several times the rate they would on level ground.
 - Winds in rugged terrain can change direction quickly or blow harder, and fuels may dry out faster on south-facing slopes.
- By comparison with dry deciduous forests, there is a greater potential **for intense fire behaviour** in India's subtropical pine forests. Pine needles degrade slowly and have a high resin content.

More specifically the causes of forest fires in India are:

- **Natural Causes:**

- Lightening
- Rubbing of dry sticks
- Friction due to rolling stones

- **Man- Made Causes:**

- Shifting Cultivation
- Covering up Illicit felling of trees
- Clearing path through the forest
- Tribal Traditions

- The following are among the **advantages**

of natural forest fires:

- Wildfires are sometimes a natural process, and help forests by promoting flowering, branching and seedling establishment.
- Fires that are limited to the surface may help in the natural regeneration of forests.
- The heating of the soil may result in helpful microbial activity, and hasten decaying processes that are useful for the vegetation.
- Fire helps revive dormant seeds of many species.
- Some young woody trees survive ground fires and have higher growth rates immediately post-fire, until they reach a certain height.
- Fires helps suppressing invasive species.

- ❖ **Bandipur National Park** in Karnataka experienced large-scale forest fires recently.

- The following are among the

disadvantages of forest fires:

- Forest fires are one of the most important causes of land degradation that lead to biodiversity loss, deforestation and desertification processes.

- Wildfires release chlorine-containing compounds. Some of these can reach the ozone layer, and cause photocatalytic ozone depletion.
- Forest fires and volcanic eruptions are the largest producer of dioxins in the world.
- ❖ Dioxins are carcinogenic bio-accumulative toxins, that are able to persist in the environment for a prolonged period of time.

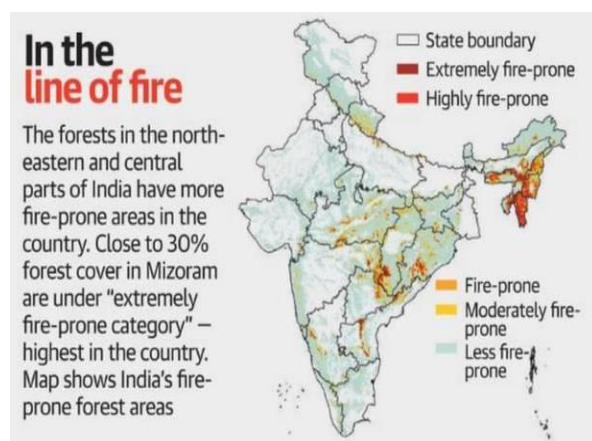
Forest Fire Alert System

- The Forest Fire Alert System is part of the Large Forest Fire Monitoring Programme that was launched by the Forest Survey of India (FSI) in January 2019 using near real time data from the SNPP-VIIRS satellite.
- Fully automated Forest Fire Alert System 3.0 disseminates its alert system for 20 states at beat level and 2 states at Range level. In case of the rest of the States/UT's, alerts are sent up to District level in the absence of Administrative boundary information from State Forest Departments.
- Forest Survey of India has been using spatial information (MODIS and SNPPVIIRS sensors on-board Aqua and Terra Satellites of NASA) to find and report forest fires in the nascent stage and provide quick and reliable signals to SFDs and general public to initiate preventive measures at their end.
 - Each of the MODIS satellites has two passes over India daily.
- The Draft Forest Policy, 2018, does mention forest fires as a threat and has proposed the mapping of vulnerable areas along with developing and strengthening early warning systems.

- Uncontrolled fires are a complex problem that require a comprehensive and long-term policy. This requires more effective coordination with local communities — the primary forest users in India. It demands proper co-ordination mechanisms between the state governments, the forest departments, and the MoEF&CC.
- These fires should be treated as disasters so that disaster management authorities can play a major role in preventing them.
 - The National Forest Commission of 2006 too suggested that all fires that burn an area larger than 20 sq km, should be declared a state disaster.
- The new Real Time Forest Alert System of India, that lists potential fire spots across the country, must be taken seriously by the state forest departments.

India State of Forest Report (ISFR), 2019 and Forest fires

- About 21.40% of forest cover in India is highly to extremely fire prone, with forests in the north-eastern region and central India being the most vulnerable, the 2019 report by the Forest Survey of India (FSI) has said.
- The forest fire points (FFP) were analysed using a moderate resolution imaging spectroradiometer (MODIS).



- The analysis showed that extremely fire prone areas account for 3.89% of total forest cover, very highly fire prone areas account for 6.01% and highly fire prone areas for 11.50%. Together, the three categories come to 21.40 % of forest cover.
- The seven States of the north-eastern region accounted for about one-third of fire alerts in the country.
 - Mizoram, a small State, recorded the highest number of fire alerts.
- One of the major reasons for forest fires in the north-east is slash-and-burn cultivation, commonly called jhoom or jhum cultivation. The fires happen between the months of January and March.
- The north-east has tropical evergreen forests and, unlike the dry deciduous forests of central India, these are not likely to catch fire easily.
- In India, most forest fires are restricted to the forest floor and are well controlled by beating the fire with the help of the local community.
- As per the data from the National Forest Inventory program of FSI, 9.89% of forest areas are heavily affected and 54.40% mildly affected due to forest fires.
 - Therefore, almost two thirds of our forest areas are vulnerable to forest fires.
- Forest fires are difficult to predict in advance, as almost all fires are caused by people in our country, unlike the case in many Western countries.

- The forest types most affected by fires:

like laying out an alternative road (Hunsur

TABLE 1.3: IMPLIED AVERAGE FIRE RECURRENCE INTERVAL BY FOREST TYPE, 2003-2016

Forest type	Number of months in which forest burned (2003-2016)	Implied recurrence interval (years per fire)
Wet Evergreen forest	2.0	7
Semi Evergreen forest	2.3	6
Moist Deciduous forest	3.1	5
Dry Deciduous forest	3.9	4
Dry Evergreen forest	2.3	6
Thorn forest	4.1	3
Subtropical broadleaved forest	1.7	8
Subtropical Pine forest	2.2	6
Subtropical Dry Evergreen forest	2.9	5
Montane Wet Temperate forest	1.7	8
Montane Moist Temperate forest	2.6	5
Montane Dry Temperate forest	2.2	6
Sub Alpine forest	2.3	6

Data sources: MODIS monthly data product for active fires (MCD14ML); forest type data from Reddy et al. (2015), available from National Remote Sensing Centre, Bhuvan data platform, <http://bhuvan.nrsc.gov.in/>.

16. Bandipur Tiger Reserve (BTR) (TH)

Analysis

- For years, the two National Highways, **NH 181 (linking Karnataka with Tamil Nadu) and NH 766 (linking Karnataka with Kerala)**, cutting through the tiger reserve had turned into a deathtrap for the wildlife, with more than 40 different species of animals getting killed every year on the road.
- It was then that the Karnataka High Court, hearing a writ petition in 2009, ordered closure of the NHs for night traffic, thus upholding the animals' right to live.
- However, the ban on night traffic, even though hailed by Tamil Nadu, has not gone well with the neighbouring Kerala, which has based its argument on the reason that its mountain district's economy, predominantly supported by tourism, has gone for a toss.
- Karnataka, on the other hand, has been complying with all the orders of the courts,

to Kutta), deployment of additional staff and infrastructure development.

India's policy

- In September 2013, the National Board for Wildlife (NBWL), the apex advisory body to the central government on all wildlife-related matters, **said no to new roads through protected forests, but was open to the widening of existing roads with adequate mitigation measures irrespective of the cost, only if alternative alignments were not available.** The government accepted this as policy in December 2014.
 - In February 2018, the NBWL made it mandatory for every road/rail project proposal to include a wildlife passage plan as per guidelines framed by Wildlife Institute of India, an autonomous wildlife research body under the Environment Ministry.
- Bandipur Tiger Reserve**
- The Bandipur, Nagarahole, Wayanad, Mudumalai and Sathyamangalam Tiger

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Landscape is spread across the states of

Karnataka (Bandipur-Nagarahole), Tamil Nadu (Mudumalai-Sathyamangalam) and Kerala (Wayanad).

- The Bandipur Tiger Reserve along with Nagarahole, Mudumalai, Sathyamangalam & Wayanad Landscape is the source population in the Western Ghats landscape complex, having one of the largest Wild population of Tigers in the world.
- The Bandipur Tiger Reserve forms a very important component of 5520.00 Sq. Km. landscape, **the first Biosphere Reserve in the country i.e. Nilgiri Biosphere Reserve**, notified under the Man and Biosphere (MAB) Programme of the IUCN.
- This Landscape of Bandipur, Nagarahole, Mudumalai & Wayanad complex is home to single largest Asian Elephant population in the world.

17. Ammonia in Water Bodies (TH)

- **Context:** The Supreme Court had taken suo motu cognisance of the contamination of rivers by sewage effluents through lapses committed by municipalities, saying “open surface water resources including rivers are the lifeline of human civilisation”.
- It was concerned about increased ammonia level which has impaired water treatment plants and a drinking water and health crises loom large in Delhi.
- “Deterioration of quality of fresh water has a direct co-relation with the quality of public health... **The right to clean environment, and further, pollution-free water, has**

been protected under the broad rubric

of the right to life (Article 21 of the Constitution),” a three-judge Bench led by the Chief Justice had said.

- Ammonia is one of several forms of nitrogen that exist in aquatic environments. Unlike other forms of nitrogen, which can cause nutrient over-enrichment of a water body at elevated concentrations and indirect effects on aquatic life, ammonia causes direct toxic effects on aquatic life.

Analysis

Ammonia and its sources

- Ammonia is a common industrial chemical used:
 - for synthesis of nitrogen-containing organic and inorganic chemicals
 - for manufacture of fertilisers
 - for use as a fertiliser itself by direct injection into soils
- The most common sources of ammonia entering surface waters and groundwaters are domestic sewage and industrial effluents.
- Natural sources of ammonia include the decomposition or breakdown of organic waste matter, gas exchange with the atmosphere, forest fires, animal and human waste, and nitrogen fixation processes, **atmospheric lightning and volcanicism.**
- Ammonia can enter the aquatic environment via direct means such as municipal effluent discharges and the excretion of nitrogenous wastes from animals, and indirect means such as nitrogen fixation, air deposition, and runoff from agricultural lands.
- Ammonia is the preferred nitrogen-containing nutrient for plant growth. Ammonia can be converted to nitrite (NO₂)

and nitrate (NO₃) by bacteria, and then used by plants. Nitrate and ammonia are the most common forms of nitrogen in aquatic systems. Nitrate predominates in unpolluted waters.

Harmful effects of Ammonia

- When ammonia is present in water at high enough levels, it is difficult for aquatic organisms to sufficiently excrete the toxicant, leading to toxic buildup in internal tissues and blood, and potentially death.
- Environmental factors, such as pH and temperature, can affect ammonia toxicity to aquatic animals. Toxicity increases as pH decreases and as temperature decreases.
- Plants are more tolerant of ammonia than animals, and invertebrates are more tolerant than fish.
- Hatching and growth rates of fishes may be affected.
 - In the structural development, changes in tissues of gills, liver, and kidneys may also occur.
- Toxic concentrations of ammonia in humans may cause loss of equilibrium, convulsions, coma, and death.

18. Bio-Medical Waste Management Rules, 2016(TH)

- **Context:** The National Green Tribunal (NGT) has directed biomedical waste management facilities in the country to obtain authorisation from State pollution control boards while asking the Central Pollution Control Board (CPCB) to ensure strict compliance of biomedical waste management rules.
- All biomedical waste needs to be disposed of in colour coded categories — yellow, red, white and blue — as per the guidelines

stipulated in the Biomedical Waste Management Rules 2016 and by the Central Pollution Control Board.

Analysis

Bio-Medical Waste Management Rules, 2016

- These rules are one of the **six categories of waste management rules** brought out by the Ministry of Environment, Forest and Climate Change (MoEFCC), as it has earlier notified plastic, e-waste, solid-waste, hazardous and construction and demolition waste management rules.
- Biomedical waste comprises human & animal anatomical waste, treatment apparatus like needles, syringes and other materials used in health care facilities in the process of treatment and research.
- However, it **shall not apply to:**
 - radioactive wastes,
 - wastes covered under the MSW Rules, 2000,
 - lead acid batteries,
 - hazardous wastes,
 - e-waste,
 - hazardous microorganisms
- Total bio-medical waste generation in the country is 484 TPD (tonnes per day), out of which 447 TPD is treated.

- Scientific disposal of Biomedical Waste through segregation, collection and treatment in an environmentally sound manner minimises the adverse impact on health workers and on the environment.

Salient features of BMW Management Rules, 2016, as amended in 2018:

- The ambit of the rules **has been expanded to include** vaccination camps, blood donation camps, surgical camps or any

other healthcare activity undertaken

outside the healthcare facility;

- Establish a **Bar-Code System** for bags or containers containing bio-medical waste for disposal;
- Bio-medical waste has been classified in to **4 categories instead 10** to improve the segregation of waste at source;
- Chlorinated plastic bags and gloves will not be used beyond March 27, 2019; (Will eliminate the emission of dioxin and furans from burning of such wastes)
- Inclusion of emissions limits for **Dioxin and furans**;
- **State Government to provide land** for setting up common bio-medical waste treatment and disposal facility;
- **No occupier shall establish on-site treatment and disposal facility**, if a service of common bio-medical waste treatment facility is available at a distance of seventy-five kilometre.

Monitoring and Implementation of BMW Management Rules, 2016

- **Ministry of Environment, Forest and Climate Change** shall review the implementation of the rules in the country once in a year through the State Health Secretaries, CPCB and SPCBs.

19. Green Taxation in India (TH)

- **Context:** In a bid to curb pollution and motivate people to switch to environment-friendly alternatives, the road transport ministry has decided to impose additional taxes on old vehicles that are unfit for roads as 'green taxes'.

Analysis

- According to the ministry, the revenue collected from the green tax will be kept in

a separate account and will be used for tackling pollution.

- Personal vehicles to be charged with green tax at the time of renewal of registration certification after 15 years;
- Higher green tax (50% of road tax) for vehicles being registered in highly polluted cities;
- Differential tax will also be charged depending on fuel (petrol/ diesel) and the type of vehicle;
- Vehicles like strong hybrids, electric vehicles and those running on alternate fuels like CNG, ethanol and LPG will be exempted.
- Transport vehicles older than eight years could be charged with green tax at the time of renewal of fitness certificate at the rate of 10 to 25% of road tax.
- Public transport vehicles, such as city buses, will be paying lower Green Tax, the ministry noted adding, meanwhile, vehicles used in farming, such as tractor, harvester, tiller, etc to be exempted entirely.
- The proposal will now go to the states for consultation before it is formally notified.
- The Ministry also approved the policy of deregistration and scrapping of vehicles owned by the Government department and PSU, which plied on the road for 15 years or more. It is to be notified, and will come into effect from April 1, 2022.

Ecotax/green tax

- An **ecotax/green tax** is a tax whose tax base is defined so as to internalise the negative externality generated either from the production/consumption/ extraction behaviour in an economy.

Clean Environment Cess

- India's **Clean Environment Cess** or coal cess acts as a carbon tax.
- The coal cess is levied on coal, lignite and peat at the rate of ₹ 400 for every tonne of coal produced or imported, and the funds raised are managed by the National Clean Environment Fund (NCEF), which was known as the National Clean Energy Fund earlier.

Compensatory Afforestation Fund Act, 2016

- It is defined as afforestation done in lieu of the diversion of forest land for non forest use under the Forests (Conservation) Act, 1980.
- The **Compensatory Afforestation Fund Act, 2016**, establishes dedicated, non-lapsable interest bearing funds - the National Compensatory Afforestation Fund under the Public Account of India, and a State Compensatory Afforestation Fund under the Public Account of each state.
- These Funds will receive payments for:
 - (i) compensatory afforestation,
 - (ii) net present value of forest (NPV), and
 - (iii) other project specific payments.
- The amount to be paid depends on the economic value of the goods and services that the razed forest would have provided.
 - These include timber, bamboo, firewood, carbon sequestration, soil conservation, water recharge, and seed dispersal.
- The National Fund will receive 10% of these funds, and the State Funds will receive the remaining 90%.
- These Funds will be primarily spent on afforestation to compensate for loss of forest cover, regeneration of forest

ecosystem, wildlife protection and infrastructure development.

- The Fund can also be used for catchment area treatment, wildlife management, forest fire prevention, soil and moisture conservation work in the forest....it cannot be used for payment of salary, travelling allowances, making buildings and buying office equipment for forest officers.
- The balance with both funds will be non-lapsable and get interest as per a rate declared by the central government on a yearly basis.

Independent authority

- The CAF Act 2016 also established an independent authority — the **Compensatory Afforestation Fund Management and Planning Authority** under the chairmanship of the **Union Minister of Environment & Forests** for monitoring, technical assistance and evaluation of **compensatory afforestation activities**— to execute the fund.

Issues

- While the government is prompt in collecting such taxes, it seems to have a lackadaisical approach in utilizing them for stated goals. Substantial resources have been diverted from the NCEF towards myriad government schemes though it was originally instituted to fund research and development in the field of clean energy technologies.
- A detailed list of projects recommended for NCEF funding available since 2011 shows that most of the money has been directed towards various government missions such as the Green India Mission, the Jawaharlal Nehru National Solar Mission, installation of

solar photovoltaic plants or solar water

heater systems, etc. A large part of the fund is also lying unutilized.

- Thus, the use of NCEF money to provide for budgetary shortfall in any environment-related programme is defeating its original purpose, which was to provide loans or viability gap funding for new renewable technologies. Even afforestation efforts seem to be suffering from a similar situation.

Forest Advisory Committee (FAC)

- **Forest Advisory Committee (FAC)** of Ministry of Environment, Forests & Climate Change (MoEF&CC) has been constituted under the Forest (Conservation) Act 1980.
- It has both official as well as unofficial members, **the Director General of Forests as the Chairman.**
- The FAC is an apex body tasked with adjudicating requests by the industry to raze forest land for commercial use.

20. Turtle Survival Alliance (TSA) (TH)

- The **Turtle Survival Alliance (TSA)** was formed in 2001 as "an IUCN partnership for sustainable captive management of freshwater turtles and tortoises."
- The TSA arose in response to the rampant and unsustainable harvest of Asian turtle populations to supply Chinese markets, a situation known as the **Asian Turtle Crisis.**
- Recognizing that some species of turtles and tortoises were unlikely to survive without well-managed populations, the TSA was charged with developing breeding programs for the most critically endangered of the world's chelonian species.
- Although the TSA was organized in response to the Asian Turtle Crisis, the group is well positioned to respond to other

endangered turtle species, particularly

where a managed breeding component is included in their overall survival strategy.

- Today the TSA supports projects or programs – both wild and captive - that benefit 21 of the World's 25 Most Endangered Tortoises and Freshwater Turtles.
- TSA's conservation actions utilize a three-pronged approach:
 - 1) Restoring populations in the wild where possible,
 - 2) Securing species in captivity through assurance colonies, and
 - 3) Building the capacity to restore, secure and conserve species within their range country
- On May 23, 2020, World Turtle Day, a number of conservation agencies launched a citizen science initiative, a mobile-based application called **KURMA, aimed at turtle conservation.**

21. Elephant Corridor Case (TH)

- **Context:** The Supreme Court appointed conservationist Nandita Hazarika as Member of a Technical Committee constituted by it on October 14 last year to hear complaints by land owners against the action taken by the Nilgris Collector, which included sealing of their buildings and allegations about the "arbitrary variance in acreage of the **elephant corridor.**"
- On October 14, the top court upheld the Tamil Nadu government's authority to notify an 'elephant corridor' and protect the migratory path of the animals through the **Nilgiri biosphere reserve.**

- The reserve is **the largest protected forest area in India**, spanning across Tamil Nadu, Karnataka and Kerala.
- The corridor is situated in the ecologically fragile **Sigur plateau, which connects the Western and the Eastern Ghats** and sustains elephant populations, a “**keystone species**”, and their genetic diversity.
 - The elephants cross the plateau in search of food and water.



Economy

1. Index of Eight Core Industries (TH)

- **Context:** The Office of Economic Adviser, Department for Promotion of Industry and Internal Trade released Index of Eight Core Industries for the Month of November, 2020.
- Output from India's eight core sectors hit a three-month low in November, contracting 2.6% in the festive month with coal, fertilizers and electricity the only sectors to record positive growth on a year-on-year basis, suggesting the economy is still not out of the woods.
- The good news is that the Index of Eight Core Industries was revised upwards for both August and October, based on updated data inputs received by the Office of Economic Adviser in the Department for Promotion of Industry and Internal Trade that compiles the data.

Analysis

Core Industries

- Index of Eight Core Industries **has the base: 2011-12.**
- The Eight Core Industries comprise **40.27 %** of the weight of items included in the **Index of Industrial Production (IIP).**
- The data relating to core industries is released by the Office of the Economic Adviser, Department for Promotion of Industry & Internal Trade, Ministry of Commerce and Industry.
- The Index of Eight Core Industries is a monthly production index, which is also considered as a lead indicator of the monthly industrial performance.
- Since April, 2014, Electricity generation data from Renewable sources are also included.
- Since March 2019, a new steel product called Hot Rolled Pickled and Oiled (HRPO) under the item 'Cold Rolled (CR) coils' within the production of finished steel has also been included.
- **The eight core industries are,** in descending order of their weights:
 - Petroleum Refinery Products (weight: 28.04%)
 - Electricity (weight: 19.85%)
 - Steel (weight: 17.92 %)
 - Coal production (weight: 10.33 %)
 - Crude Oil (weight: 8.98 %)
 - Natural Gas (weight: 6.88 %)
 - Cement (weight: 5.37%)
 - Fertilizer (weight: 2.63 %)

Aluminium sector as India's ninth core industry

- The Centre must actively consider classifying the aluminium sector as India's ninth core industry, according to a report by VK Saraswat, NITI Aayog member, and Aniruddha Ghosh, a Delhi-based economist.
- The aluminium sector contributes to nearly 2 per cent of manufacturing GDP and is a high direct and an indirect employment multiplier creating close to 800,000 jobs.

2. Anti-Dumping Duty (TH)

- **Context:** The designated authority under the Ministry of Commerce and Industry has recommended the levy of anti-dumping duty on viscose spun yarn imported from China, Vietnam and Indonesia.
- The Indian Manmade Yarn Manufacturers Association had sought the levy as import of viscose yarn from these countries was hurting domestic manufacturers. After an investigation, the Directorate General of Trade Remedies has recommended the move.

Analysis

- Binding tariffs, and applying them equally to all trading partners (most-favoured-nation treatment, or MFN) are key to the smooth flow of trade in goods.
- The WTO agreements uphold the principles, but they also allow exceptions — in some circumstances.
- Three of these issues are:
 - actions taken against dumping (selling at an unfairly low price);
 - subsidies and special “countervailing” duties to offset the subsidies;
 - emergency measures to limit imports temporarily, designed to “safeguard” domestic industries.

Countervailing Duty (CVD)

- It is an **additional import duty** imposed on imported products (by the importing country) when such products enjoy benefits like export subsidies and tax concessions in the country of their origin.
- The objective of CVD is to nullify or eliminate the price advantage (low price) enjoyed by an imported product when it is given subsidies or exempted from domestic taxes in the country where they are manufactures.
- The **WTO permits** member countries to impose countervailing duty when the exporting country gives export subsidy.

Anti-Dumping Duty

- Dumping is a process where a company exports a product at a price lower than the price it normally charges on its own home market.
- An anti-dumping duty is a **protectionist tariff** that a domestic government imposes on foreign imports that it believes are priced below fair market value.
- Typically, anti-dumping action means charging extra import duty on the particular product from the particular exporting country in order to bring its price closer to the “normal value” or to remove the injury to domestic industry in the importing country.
- Anti-dumping duty is imposed on the basis of margin of dumping which can vary across countries, producers or exporters.
 - **Accordingly, there are variable rates of anti-dumping duty on different exporting countries, producers or exporters.**
- The use of anti-dumping measure as an instrument of fair competition is **permitted by the WTO.**

- The WTO agreement allows governments to act against dumping where there is genuine (“material”) injury to the competing domestic industry.
 - In order to do that the government has to be able to show that dumping is taking place, calculate the extent of dumping (how much lower the export price is compared to the exporter’s home market price), and show that the dumping is causing injury or threatening to do so.
- Disputes in the anti-dumping area are subject to **binding dispute settlement** before the Dispute Settlement Body of the WTO.

Anti-Dumping and Customs Duty

- Although anti-dumping duty is levied and collected by the Customs Authorities, it is entirely different from the Customs duties not only in concept and substance, but also in purpose and operation.
- The following are the **main differences** between the two:
- Anti-dumping and the like measures in their essence are linked to the notion of fair trade.
 - The object of these duties is to guard against the situation arising out of unfair trade practices while customs duties are there as a means of raising revenue and for overall development of the economy.
- Customs duties fall in the realm of trade and fiscal policies of the Government while anti-dumping and anti-subsidy measures are there as trade remedial measures.
- Anti-dumping duties are not necessarily in the nature of a tax measure inasmuch as the Authority is empowered to suspend these duties in case of an exporter offering a price undertaking. Thus, such measures are not always in the form of duties/tax.
- Anti-dumping and anti-subsidy duties are levied against exporter/country in as much as they are country specific and exporter specific as against the customs duties which are general and universally applicable to all imports irrespective of the country of origin and the exporter.

Extent of anti-dumping duty

- Under the WTO arrangement, the National Authorities can impose duties up to the margin of dumping i.e. the difference between the normal value and the export price.
- The Indian law also provides that the anti-dumping duty to be recommended/levied shall not exceed the dumping margin.
- The anti-dumping duty **cannot be levied retrospectively beyond 90** days from the date of issue of Notification imposing duty.

Authority for Anti-Dumping

- Anti-dumping and anti-subsidies & countervailing measures in India are administered by the Directorate General of anti-dumping and Allied Duties (DGAD) functioning in the Dept. of Commerce in the Ministry of Commerce and Industry and the same is headed by the "Designated Authority".
- The Designated Authority's function, however, is only to conduct the anti-dumping/anti-subsidy & countervailing duty investigation and make recommendation to the Government for imposition of anti-dumping or anti subsidy measures.

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- Such duty is finally imposed/levied by a Notification of the Ministry of Finance.
 - **Thus, while the Designated Authority (in the Department of Commerce) recommends the anti-dumping duty, provisional or final, it is the Ministry of Finance, Dept. of Revenue which acts upon such recommendation within three months and imposes/levies such duty.**
- Safeguard measures, on the other hand, are administered by another Authority namely, Director General (Safeguard), which functions under the Dept. of Revenue, Ministry of Finance.
- The Standing Board of Safeguards (chaired by the Commerce Secretary) considers the recommendations of the DG (Safeguards) and then recommends the impositions of the Safeguard Duty as it deems fit, to the Ministry of Finance which levies the duty.

Minimum Level of Imports

Individual exporter:

- Any exporter whose margin of dumping is less than 2% of the export price shall be excluded from the purview of anti-dumping duties even if the existence of dumping, injury as well as the causal link is established.

Country:

- Further, investigation against any country is required to be terminated if the volume of the dumped imports, actual or potential, from a particular country accounts for less than 3% of the total imports of the like product.
 - However, in such a case, the cumulative imports of the like product from all these countries who individually account for less than 3%, should not exceed 7% of the import of the like product.

APPEAL

- The law provides that an order of determination of existence degree and effect of dumping is appealable before the Customs, Excise and Gold (Control) Appellate Tribunal (**CEGAT**).
- However, as per the judicial view, only the final findings/order of the Designated Authority/Ministry of Finance can be appealed against before the CEGAT.
- Appeal cannot lie against the Preliminary findings of the Authority and the provisional duty imposed on the basis thereof.
- The Appeal to the CEGAT should be filed within 90 days.

3. Financial Action Task Force (FATF) (TH)

- **Context:**The Financial Action Task Force (FATF) had deferred its once-a-decade evaluation of India's anti-money laundering regime scheduled for this year, citing the COVID-19 pandemic, and indicated that the onsite review to be conducted by global experts may now take place in early 2021.
- The FATF undertakes peer reviews of each member on an ongoing basis to assess the implementation of its recommendations and provides a detailed analysis of each country's system for preventing criminal abuse of the financial system. The FATF review of India will happen [in 2021].

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Analysis

- FATF is an **inter-governmental body** established in 1989 by a Group of Seven (**G-7**) Summit in Paris.
 - **G-7 Countries:** Canada, U.S., U.K., Italy, France, Germany and Japan – the seven largest advanced economies.
 - **Earlier it was G-8** when Russia was suspended from it because of Russia's annexation of Crimea, a part of Ukraine.
- It helps in combating **money laundering, terrorist financing** and other related threats to the **integrity of the international financial system.**
- The FATF's decision making body, **the FATF Plenary**, meets **three times** per year.
- **The FATF monitors:**
 - the progress of its members in implementing necessary measures,
 - reviews money laundering and terrorist financing techniques and counter-measures, and
 - promotes the adoption and implementation of appropriate measures globally.
- In collaboration with other international stakeholders, the FATF works to identify national-level vulnerabilities with the aim of protecting the international financial system from misuse.
- The FATF is an international policy-making body. It **does not** take a role in law enforcement matters, investigations or prosecutions.
- The FATF **does not address at all issues related to low tax jurisdiction or tax competition.** The FATF mandate focuses only on the fight against laundering of proceeds of crimes and the financing of terrorism.

FATF Members and Observers

- The FATF currently comprises **39 members (37 countries including China and India and 2 regional organisations - European Commission, Gulf Co-operation Council)**, representing most major financial centres in all parts of the globe.
 - **Pakistan is not a member of FATF.**
- From the Indian sub-continent, India is the **only member** of FATF.
- **FATF Observers: Indonesia.**

4. IFSCA becomes member of IOSCO (PIB)

- The International Financial Services Centres Authority (IFSCA) has become an Associate Member of the International Organization of Securities Commissions (IOSCO).
- The IOSCO is the international organization that brings together the world's securities regulators, covering more than 95% of the world's securities markets, and is the global standard setter for the securities sector.
 - IOSCO works closely with the G20 and the Financial Stability Board (FSB) in setting up the standards for strengthening the securities markets.
 - The IOSCO Objectives and Principles of Securities Regulation have been endorsed by FSB as one of the key standards for sound financial systems.

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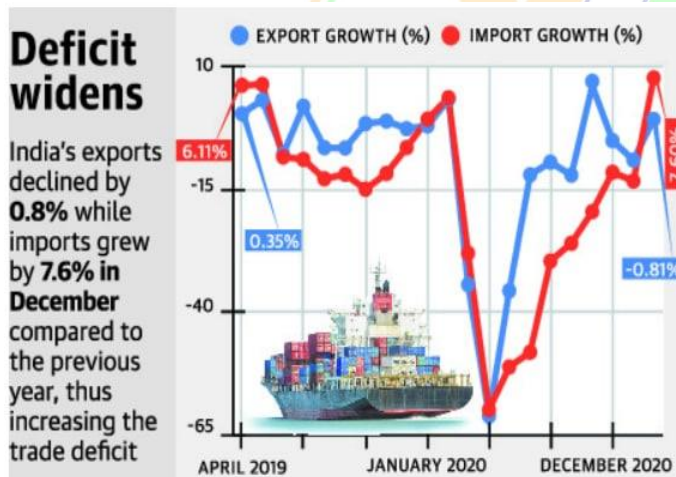
- The membership of IOSCO would provide IFSCA the platform to exchange information at the global level and regional level on areas of common interests.
- Further, the IOSCO platform would enable IFSCA to learn from the experiences and best practices of the regulators of other well established financial centres.

5. India's first Social Impact Bond (SIB) (livemint)

- In what is claimed to be a maiden innovative move on civic terrain, the Pimpri-Chinchwad Municipal Corporation (PCMC) has signed an MoU with United Nations Development Programme (UNDP) India to co-create **India's 'first Social Impact Bond (SIB)'**.
- This SIB will support the PCMC in improving healthcare services for local residents, especially with respect to the pandemic, while incurring minimum investment risks, said UNDP.
- This is the first time that a government body will act as the 'outcome funder' in a bond, whereas traditionally most government-funded public projects require large and early investments by the government with a substantial gestation period of outcomes and involve various kinds of risks.

6. Balance of Payment (BOP) (TH)

- **Context:** The trade deficit (the difference between imports and exports) at \$15.71 billion was highest since July 2020. The country had witnessed trade surplus in June 2020.



Analysis

- Balance of Payment (BOP) statement acts as an economic indicator to identify the trade deficit or surplus situation of a country.
- Analyzing and understanding the BOP of a country goes beyond just deducting the outflows of funds from inflows.
- There are various components of BOP and fluctuations in these accounts which provide a clear indication about which sector of the economy needs to be developed.

What is 'Balance of Payment'?

- Balance of Payment (BOP) is a statement which records all the monetary transactions made between residents of a country and the rest of the world during any given period.
- This statement includes all the transactions made by/to individuals, corporates and the government and helps in monitoring the flow of funds to develop the economy.

- When all the elements are correctly included in the BOP, it should sum up to zero in a perfect scenario.
 - This means the inflows and outflows of funds should balance out. However, this does not ideally happen in most cases.
- **BOP statement of a country indicates whether the country has a surplus or a deficit of funds i.e. when a country's export is more than its import, its BOP is said to be in surplus. On the other hand, BOP deficit indicates that a country's imports are more than its exports.**
- Tracking the transactions under BOP is something similar to the double entry system of accounting. This means, all the transaction will have a debit entry and a corresponding credit entry.

Why balance of payment is vital for a country?

- BOP of a country reveals its financial and economic status.
- BOP statement can be used as an indicator to determine whether the country's currency value is appreciating or depreciating.
- BOP statement helps the Government to decide on fiscal and trade policies.
- It provides important information to analyze and understand the economic dealings of a country with other countries.
- By studying its BOP statement and its components closely, one would be able to identify trends that may be beneficial or harmful to the economy of the country and thus, then take appropriate measures.

7. Regulation S bonds and the Export-Import Bank of India (EXIM Bank) (TH)

- **Context:** The Exim Bank is in the dollar money market with a seven-year bond issue, selling Reg S bonds worth at least \$1 billion.
- **Regulation S bonds** are issued by foreign issuers in the U.S. debt market and are denominated in U.S. dollars, but resident American citizens cannot subscribe to them.

Analysis

- Export-Import Bank of India (EXIM Bank) is a specialized financial institution, wholly owned by Government of India, set up in 1982, for financing, facilitating and promoting foreign trade of India.
- EXIM Bank extends Lines of Credit (LOCs) to overseas financial institutions, regional development banks, sovereign governments and other entities overseas, to enable buyers in those countries to import developmental and infrastructure projects, equipments, goods and services from India, on deferred credit terms.
- EXIM Bank has laid strong emphasis on enhancing project exports, the funding options for which have been enhanced with introduction of the Buyer's Credit-National Export Insurance Account (BC-NEIA) program.
- The Bank facilitates two-way technology transfer by financing import of technology into India, and investment abroad by Indian companies for setting up joint ventures, subsidiaries or undertaking overseas acquisitions.

- The Bank provides assistance in helping Indian firms in their globalization efforts by locating overseas distributor(s)/ buyer (s)/ partner (s) for their products and services.
- Exim Bank also lays special emphasis on enhancing export capabilities and international competitiveness of Indian companies through its various Advisory Services.

8. National Infrastructure Pipeline (NIP) (PIB, TH)

- **Context:** Finance Minister chaired review meeting of the **National Infrastructure Pipeline**.
- The NIP is a part of the Government of India's initiative to provide world-class infrastructure to its citizens and **enhance the ease of living**.
- **For details, refer to 23rd Dec file.**

9. OPEC Vs OPEC + and the Two Most Popular Grades of Crude Oil (TH)

- **Context:** Brent crude oil prices rose to their highest since February 2020 after Saudi Arabia agreed to reduce output more than expected in the meeting with the Organization of the Petroleum Exporting Countries (OPEC) and other major producers that form the group known as OPEC+.
- Reductions agreed to by Saudi Arabia were included in a deal to persuade other producers in the OPEC+ group to hold output steady.
- With corona virus infections spreading rapidly in many parts of the world, producers are trying to support prices as demand takes a hit from new lockdowns.

Analysis

The Two Most Popular Grades of Crude Oil

- When it comes to physical oil, there are different grades.
- The most popular traded grades are **Brent North Sea Crude (commonly known as Brent Crude)** and **West Texas Intermediate (commonly known as WTI)**.
- WTI is the benchmark crude for North America.
- Brent refers to oil that is produced in the Brent oil fields and other sites in the North Sea.
- Brent Crude's price is the benchmark for African, European, and Middle Eastern crude oil.
 - The pricing mechanism for Brent dictates the value of roughly two-thirds of the world's crude oil production.
 - The supply of this crude Brent Oil is waterborne, it's easy to transport to distant locations.
- Since both types of oil are used as benchmarks, different countries will use them in different manners. Asian countries tend to use a mixture of Brent and WTI benchmark prices to value their crude oil.

Sulfur in Oil

- Oil contains sulfur, and the percentage of sulfur in crude oil dictates the amount of processing needed to refine the oil into energy products.
 - "Sweet crude" is a term that refers to crude oil that has less than 1% sulfur.²
- The sulfur content of both Brent and WTI is well under 1%, **making them both "sweet."**
- They are also less dense ("lighter") than many of the crude oils extracted elsewhere.

- Both of these characteristics make them easier to refine and more attractive to petroleum product producers.
- **One Barrel** is the unit of volume for crude oil and petroleum products. One barrel equals approximately 159 liters.

OPEC Vs OPEC+ (TH)

- **For details, refer to 10th Nov file.**

10. India's seventh Trade Policy Review (TPR)(PIB)

- **Context:** India's seventh Trade Policy Review (TPR) began 6th January 2021 at the World Trade Organization in Geneva.

Analysis

- The TPR is an important mechanism under the WTO's monitoring function, and involves a comprehensive peer-review of the Member's national trade policies. India's last TPR took place in 2015.
- India has advocated a short-term package of effective measures at the WTO that includes:
 - a temporary waiver of certain TRIPS provisions to increase manufacturing capacity and ensure timely and affordable availability of new diagnostics, therapeutics and vaccines for COVID-19;
 - a permanent solution for Public Stockholding (PSH) for food security purposes to address food security concern; and
 - a multilateral initiative that provides for easier access to medical services under mode-4 to facilitate easier cross-border movement of health care professionals.

Analysis

- These reviews are part of the **Uruguay Round agreement**, but they began several years before the round ended.
- Annex 3 to the **Marrakesh Agreement**, agreed by Members in April 1994, placed the Trade Policy Review Mechanism (TPRM) **on a permanent footing as one of the WTO's basic functions**.
- Initially they operated under General Agreement on Tariffs and Trade (GATT) and, like GATT, they focused on goods trade.
 - With the creation of the WTO in 1995, their scope was extended, like the WTO, **to include services and intellectual property**.
- The objectives of the TPRM, as expressed in Annex 3 of the Marrakesh Agreement, include:
 - to increase the transparency and understanding of countries' trade policies and practices, through regular monitoring
 - to improve the quality of public and intergovernmental debate on the issues
 - to enable a multilateral assessment of the effects of policies on the world trading system.
- All WTO members are reviewed, **the frequency of each country's review varying according to its share of world trade**.

- The Annex mandates that the four Members with the largest shares of world trade (currently the European Union, the United States, Japan and China) be reviewed **each three years**, the next 16 be reviewed **each five years**, and others be reviewed **each seven years**.
- A longer period may be fixed for least-developed country Members.

How the reviews are organized

- The reviews take place in the Trade Policy Review Body which is actually the WTO General Council — **comprising the WTO's full membership** — operating under special rules and procedures.
 - The reviews **are therefore essentially peer-group assessments**, although much of the factual leg-work is done by the WTO Secretariat.
- Reviews are conducted by the Trade Policy Review Body (TPRB) on the basis of a policy statement by the Member under review and a report prepared by economists in the Secretariat's Trade Policy Review Division.

11. USTR slams India's digital tax, holds off on tariffs; '301' trade probe and Equalisation Levy (TH)

- **Context:** Digital services taxes imposed by France, India, Italy and Turkey discriminate against big U.S. tech firms, such as Google, Facebook, Apple and Amazon.com and are inconsistent with international tax principles, the U.S. Trade Representative (USTR)'s office said on Wednesday (7 Dec 2021), paving the way for potential retaliatory tariffs.

Analysis

- USTR, releasing the findings of its **"Section 301" investigations** into the digital taxes, said it was not taking specific actions at this time, but "will continue to evaluate all available options."
- India on Thursday said the 2% **equalisation levy** does not discriminate against U.S. companies as it applies equally to all non-resident e-commerce operators irrespective of their country of residence, Press Trust of India reported.
- In a statement, the Commerce and Industry Ministry said the purpose of the levy is to ensure fair competition, reasonableness and exercise the ability of governments to tax businesses that have a close nexus with the Indian market through their digital operations.
- It also does not have extraterritorial application as it applies only on the revenue generated from India, the ministry said.

'301' trade probe

- The '301' probe is a trade tool authorized by Section 301 of the U.S. Trade Act of 1974 which the U.S. uses to assert its rights under trade agreements if it decides American industries are facing "unfair" foreign trade practices.
- Having used the World Trade Organization's (WTO) dispute settlement mechanism alone in recent times, the U.S., under the Trump administration, has brought the 301 back into use, launching a 2017 probe against China.

Equalisation Levy in News: 8th July 2020

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- The government is exploring changes to the equalisation levy, and may stop charging the tax on digital transactions either partially or in its entirety for a year, people with direct knowledge of the matter said.
- The government is doing a cost-benefit analysis and has reached out to stakeholders to figure out if it needs to suspend or shelve the 2% equalisation levy imposed this fiscal year on any purchase by an Indian or India-based entity through an overseas ecommerce platform.
- The 2% equalisation levy in its current form is too widely worded, needs clarity and could be challenged as lacking constitutional validity as it brings thousands of transactions made online under its scope.
- The 2% equalisation levy was introduced in the 2020-21 Budget and came into effect from April 1.
- Many Indian startups and stakeholders are also pushing to shelve or reduce the 6% equalisation levy, the so-called Google tax, charged on the advertising revenue that overseas companies such as Google, Facebook and Netflix generate from India.
- The burden of this tax eventually falls on the local startups and others who advertise on these platforms, as most digital majors pass on it to them.
- The equalisation levy, introduced in **2016 Union Budget**, is a direct tax on payments made by residents to non-resident companies for online advertisement, provision of digital and advertising space or any other facility or service for online advertisement.
- India is the **first country** to impose such a levy, post the Organization for Economic Cooperation and Development (OECD) action plan.
- A tax panel has recommended expanding the ambit of this levy to cover a wide gamut of transactions including online marketing, cloud computing, website designing, hosting and maintenance, platforms for sale of goods and services, and online use of or download of software and applications.
- At a time when all of these players are expanding their presence in India, it only makes sense to shelve the 6% equalisation levy, and instead make regulations to make sure global digital companies have Indian legal entities, invoice from here and pay GST and other taxes just like Indian companies.
- The government is also looking to introduce personal data protection Bill that would require these players to have their servers and data in India. If these companies have an India presence, they could face both direct taxes like income tax and indirect taxes such as GST, and also on a much larger portion of their revenue.

12. Indian Economy: Recent issues (TH, PIB)

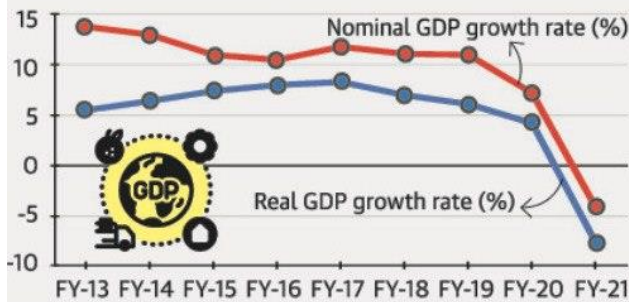
- **Context:** India's **fiscal deficit** for the year ending in March is likely to exceed 7% of gross domestic product, as revenue collections suffered from a lockdown and restrictions to rein in the spread of COVID-19.
- India's **real GDP (Gross Domestic Product)** is estimated to contract by 7.7% in 2020-21, with **GVA (Gross Valued added)** shrinking by 7.2%, advance estimates released by the National Statistical Office on Thursday show.

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Shrinking economy

India's real GDP and nominal GDP may contract by 7.7% and 4.2% in 2020-21 respectively, according to the government



- India's economy had expanded 4.2% in 2019-20, but entered a recessionary phase with two successive quarters of sharp contraction triggered by the COVID-19 lockdowns.
- The National Statistical Office (NSO), Ministry of Statistics and Programme Implementation has also released the First Advance Estimates of **National Income** at both Constant (2011-12) and Current Prices, for the financial year 2020-21 along with the corresponding estimates of expenditure components of the Gross Domestic Product (GDP).

How to read GDP data - GVA vs GDP

- There are two main ways in which the Central Statistics Office (CSO) estimates economic growth: Gross Value Added (GVA) and Gross Domestic Product (GDP).
- GVA is from the **supply side** — that is, by mapping the value-added (in rupee terms) by the various sectors in the economy.
 - GVA tracks the income generated for all the workers in the economy.
- The GDP is arrived at from the **demand side**.
 - It is calculated by mapping the expenditure made by different categories of spenders.
- Broadly speaking, there are four sources of expenditure in an economy — namely, private consumption, government consumption, business investments, and net exports (exports minus imports).
- Because the GDP maps final expenditure, it includes both taxes and subsidies that the government receives and gives.
 - **This component, net taxes, is the difference between GVA and GDP.**
- Typically, GDP is a good measure when you want to compare India with another economy, while GVA is better to compare different sectors within the economy.
- GVA is more important when looking at quarterly growth data, because quarterly GDP is arrived at by apportioning the observed GVA data into different spender categories.

Fiscal deficit and other economy related terms

- **Gross Fiscal Deficit** is defined as the excess of total expenditure of the government over the total non-debt creating receipts.
- **Net fiscal deficit** can be arrived at by deducting net domestic lending from **gross fiscal deficit**.
- **Revenue deficit** arises when the government's actual net receipts is lower than the projected receipts.

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- Revenue deficit signifies that government's own earning is insufficient to meet normal functioning of government departments and provision of services.
- An increase in the ratio of revenue deficit to gross fiscal deficit indicates an increase in the utilization of borrowed funds for revenue purposes.
- It indicates increase in liabilities of the Central Government *without increase in the assets of that Government*.
- The difference between fiscal deficit and revenue deficit is the government's capital expenditure.
- **Effective Revenue Deficit**
 - In the 2012-13 budget, the concept of **effective revenue deficit** was introduced that excluded grants for the creation of capital assets from conventional revenue deficit.
 - Effective Revenue Deficit is the difference between revenue deficit and grants for creation of capital assets.
 - ❖ Grants for creation of capital assets are defined as "the grants-in-aid given by the Central Government to the State Governments, constitutional authorities or bodies, autonomous bodies and other scheme implementing agencies for creation of capital assets which are owned by the said entities".
 - The concept of effective revenue deficit has been suggested by the **Rangarajan Committee on Public Expenditure**.
 - It is aimed to deduct the money used out of borrowing to finance capital expenditure.
 - The concept has been introduced to ascertain the actual deficit in the revenue account after adjusting for expenditure of capital nature.
 - Focusing on this will help in reducing the consumptive component of revenue deficit and create space for increased capital spending.
- **Trade deficit:** A nation has a trade deficit if the total value of goods and services it imports is greater than the total value of those it exports.
- **Primary Deficit:** It is the difference between the current year's fiscal deficit (total income – total expenditure of the government) and the interest paid on the borrowings of the previous year.
 - $\text{Primary Deficit} = \text{Fiscal Deficit (Total expenditure – Total income of the government)} - \text{Interest payments (of previous borrowings)}$.
 - **Fiscal deficit** is also defined as the difference between the total expenditure of the government and its total income.
 - **What does Primary Deficit indicate?** Primary deficit is measured to know the amount of borrowing that the government can utilize, excluding the interest payments.
 - A decrease in primary deficit shows progress towards fiscal health.
 - Note that the difference between the primary deficit and fiscal deficit reflects the amount of interest payment on public debt generated in the past.
 - Hence, when the primary deficit is zero, the fiscal deficit becomes equal to the interest payment. This means that the government has resorted to borrowings just to pay off the interest payments. Further, nothing is added to the existing loan.

- Budget Deficit and Monetized Deficit are the deficits on the basis of financing.
 - Fiscal Deficit, Primary Deficit, Revenue Deficit and Effective Revenue Deficit are the deficits on the basis of type of transactions.
- **Factor income:** It is determined by subtracting income made by citizens of a country on their foreign investments from income earned by foreigners on their investments within the country.
- **Current/Financial transfers:** They include interest earnings, foreign remittances, donations, aids and grants, official assistance, pensions etc.
- **Current account deficit/balance: trade deficit + factor income + financial transfers** OR
- **CAD/CAB = $(X-M) + (NY+NCT)$ where:**
 - X = Exports of goods and services
 - M = Imports of goods and services
 - NY = Net income abroad
 - NCT = Net current transfers
- **Balance of payments:** The balance of payments is the sum of all transactions between a nation and all of its international trading partners.

Fiscal expansion

- Fiscal expansion is generally defined as an increase in economic spending owing to actions taken by the government.
- Expansionary fiscal policy can also lead to inflation because of the higher demand in the economy.
- A general increase in overall spending can cause the cash flow leaving the country to increase as consumers and the government both purchase more. This increases the debit side of the balance of payments.
- Fiscal expansion generally worsens the Inflation and Balance of payments.

13. Revised Liquidity Management Framework (TH)

- **Context:** The Reserve Bank of India (RBI) said it had decided to restore normal liquidity management operations in a phased manner and would conduct variable rate reverse repo auction of ₹2 lakh crore on January 15.
- In February, RBI had announced a **revised Liquidity Management Framework**, but had temporarily suspended it in view of the COVID-19 outbreak.

Analysis

- The Reserve Bank of India (RBI) on 6 February 2020 revised the existing liquidity management framework through which it aimed to ensure adequate liquidity in the system so that sufficient credit is provided to all productive sectors in the economy.
- There would be **no fixed daily liquidity injection operations**, but the central bank would act whenever the banking system requires money.
- According to the revised framework, RBI has finalized **weighted average call rate (WACR) as the single operating target** and withdrawn the current provision of maintaining assured liquidity of 1% of net demand and time liability (NDTL).
 - The **call rate** is the interest rate at which banks lend overnight money to each other.

- With this move, RBI is looking to target call rate and keep it near the repo rate so that better transmission happens.
- It will **ensure enough liquidity to anchor the call rate at around the repo rate.**
 - Which means if the call rate inches above the repo rate, it would signal liquidity deficit and the central bank will bring its tools to infuse liquidity.
 - Similarly, if the call rate is below the repo rate, that would mean the banking system has surplus liquidity. In that case, the central bank can operate to suck out the liquidity through its operations.
- The liquidity management corridor will be retained at 50 basis points, which means the RBI can allow call rates to rise up to the **marginal standing facility (MSF)** rate (was at 5.40 per cent in Feb 2020 (for the sake of understanding only)) and **reverse repo rate** (was at 4.90 per cent in Feb 2020), while the repo rate remains at the middle (was at 5.25 per cent in Feb 2020).
- Earlier RBI had to maintain 1% NDTL liquidity to ensure that inter-bank call rate is near the repo rate.
 - Accordingly, the daily fixed rate repo and four 14-day term repos every fortnight being conducted, at present, are being withdrawn,” the central bank had said.
- **Instruments of liquidity management will include** “fixed and variable rate repo/reverse repo auctions, outright open market operations (OMOs), forex swaps and other instruments as may be deployed from time to time to ensure that the system has adequate liquidity at all times.
- While getting rid of the 14-day fixed repo, the RBI said it will operate a 14-day term repo/reverse repo operation at a variable rate that would be conducted to coincide with the cash reserve ratio (CRR) maintenance cycle.
 - This would be the “main liquidity management tool for managing frictional liquidity requirements.

Terms for Reference

Cash Reserve Ratio (CRR)

- Banks need to hold some portion of their deposits in cash with the RBI. This ratio is called CRR.
- If the RBI cuts CRR, banks will be left with more money to lend or invest. On the other hand, if the CRR is raised, banks will have lesser money to lend.
- Banks **do not earn any interest** for maintaining CRR balance.

Statutory Liquidity Ratio (SLR)

- Banks also have to invest a certain portion of their deposits in government securities with the RBI. This percentage is known as SLR.
- Banks can earn return on these investments. The current SLR is 19.5% (for reference only; it keeps on changing).

Repo rate

- Repo rate refers to the rate at which commercial banks borrow money from the Reserve Bank of India (RBI) in case of shortage of funds at a fixed interest rate.
- Technically, a repo is also known as “**Repurchasing Option**”.

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- a. Banks provide eligible securities (securities recognized by the RBI and at the same time which are above the Statutory Liquidity Ratio limit).
- b. RBI gives 1 day or overnight loan to the bank.
- c. RBI charges an interest rate called repo rate from the bank.
- d. Banks repay the loan after one day and repurchase the security it has given as collateral.
- The higher the repo rate, the higher the cost of short-term money to the banks and vice versa.
- Generally, whenever the repo rate is raised, banks pass the burden on to customers.

Reverse Repo Rate

- A Reverse repo rate is a rate which the RBI offers to banks when they deposit their surplus cash with the RBI for shorter periods.
- In other words, it is the rate at which the RBI borrows from the commercial banks.
- When banks have excess funds but don't have any other lending or investment options, they deposit/lend the surplus funds with the RBI and earn interest on the deposited funds.
- It is always lower than repo rate.
- The **Repo Rate increases the money supply** while the **Reverse Repo Rate decreases the money supply** in the economy.

Marginal Standing Facility (quantitative instrument)

- Marginal Standing Facility is a liquidity support arrangement provided by RBI to commercial banks if the latter doesn't have the required eligible securities above the SLR limit.
- Under MSF, a bank can borrow one-day loans from the RBI, even if it doesn't have any eligible securities excess of its SLR requirement.
- In the case of MSF, the bank can borrow up to 1 % (can be changed by the RBI) below the SLR (means 1% of Net Demand and Time Liabilities or liabilities simply).
- **But the main condition is that for such borrowings the bank has to give higher interest rate to the RBI.**
- **The interest rate for MSF borrowing was originally set at one percent higher than the repo rate. Now it is 0.25% higher than repo rate.**
- The Reserve Bank will reserve the right to accept or reject partially or fully, the request for funds under this facility.

Statutory Liquidity Ratio (SLR)

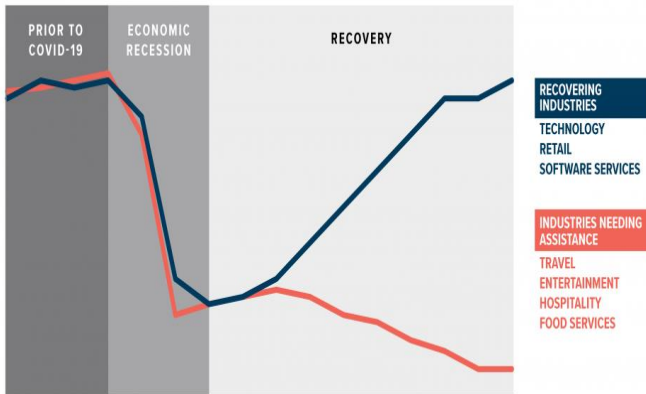
- Banks also **have to invest a certain portion of their deposits in government securities with the RBI**. This percentage is known as SLR.

14. Explained: Types of Economic Recoveries (IE)

K-shaped Recovery

- The term '**K-shaped recovery**' is used to describe what has been happening in varying degrees since the financial crisis of 2008: The growing gap between winners and losers among countries, economic sectors, companies, and, of course, people.

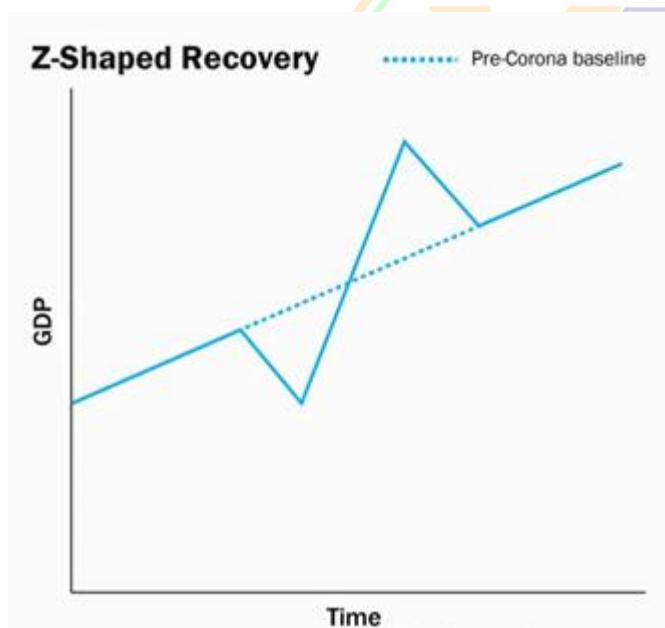
- For example: Industries like technology, retail, and software services have recovered from the industry and begun re-hiring, while the travel, entertainment, hospitality, and food services industries have continued to decline past March levels.



Other Major Types of Economic Recoveries

Z-shaped Recovery

- If the economic disruption was just for a small period wherein **more than people's incomes, it was their ability to spend that was restricted**, it is possible to imagine a "Z"-shaped recovery.



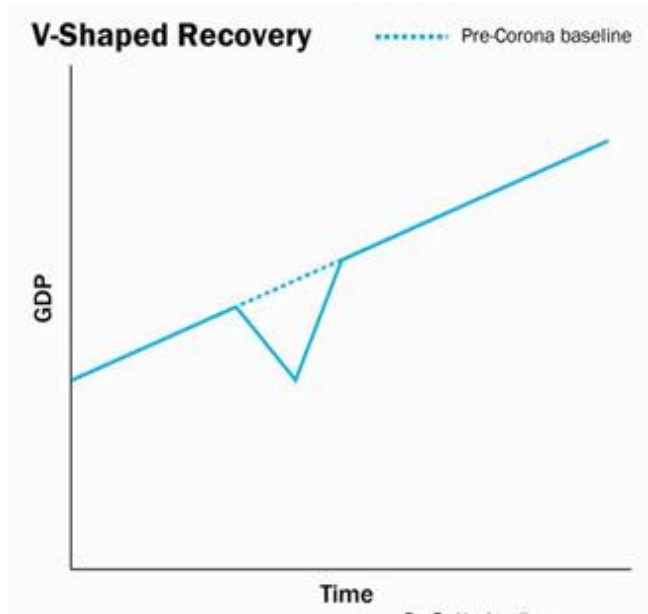
- **In this, the GDP** — and here we are talking about absolute GDP, not GDP's growth rate — actually **overshoots the trend path** because of the pent-up demand.
 - Imagine, deferred parties, salon visits, movies, purchase of new cars, houses and appliances etc. — all of them get bunched up together.

V-shaped Recovery

- But what if the economic disruption lasts longer resulting in several activities being forgone instead of being deferred?
 - For instance, even the monthly haircut — when you go to the salon after 3 months, you have already lost 2 haircuts-worth of economic activity forever!

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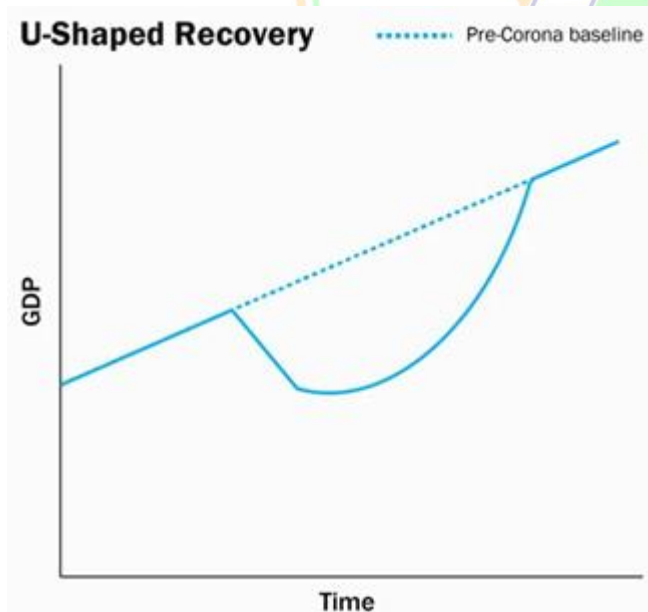
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- In such a scenario, and **assuming incomes and jobs are not permanently lost**, the economic growth recovers sharply and returns to the path it was following before the disruption. This is called a **“V”-shaped** recovery.

U-shaped Recovery

- But what will happen if this recovery is slower and takes more time because the **economic disruption resulted in several jobs being lost and people losing incomes, drawing down on their savings etc.?**



- Then the economy will follow a **“U”-shaped** path. In such a scenario, after the initial fall, the recovery is gradual before regaining its momentum.

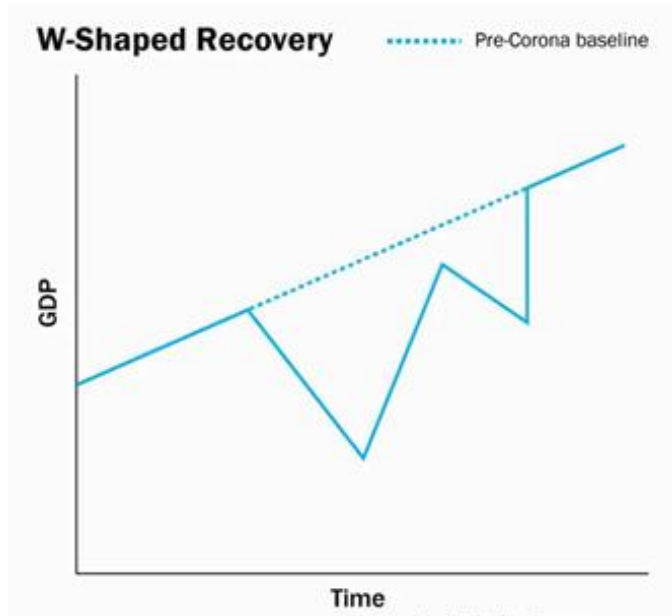
W-shaped Recovery

- Since we are talking about a Covid-induced disruption, it makes sense to also look at a **“W”-shaped** recovery as well.

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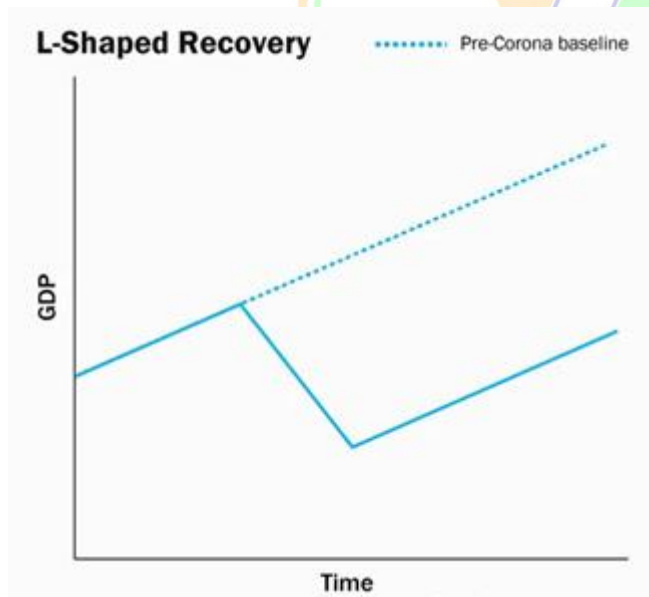
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- This shape allows for the possibility of a V-shaped recovery, which is pegged back by a second wave of infections until of course, the economy recovers for the second time.



L-shaped Recovery

- The last scenario is **the one policy-makers most dread**. It is called the “L”-shape recovery.
- Here, simply put, **the economy fails to regain the level of GDP even after years go by.**
- As the shape shows, **there is a permanent loss to the economy’s ability to produce.**



15. Earnings before interest, taxes, and amortization (EBITA)(PIB)

- **Context:**BSNL & MTNL turns EBITDA positive within 1 year of approval of revival plan by Union Cabinet.

What Is EBITA?

- EBITA refers to the earnings of a company before interest, tax, and expenses of amortization are deducted.

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- **EBITA is a measure of company profitability used by investors.**
- It is **helpful for comparison of one company to another in the same industry.**
- **EBITA includes the cost of assets but excludes the associated financial costs;** hence it can more accurately present a company's performance.
- A company's EBITA is considered by some analysts and investors to be a **more accurate representation of its real earnings.**
- It removes from the equation the taxes owed, the interest on company debt, and the effects of **amortization, which is the accounting practice of writing off the cost of an intangible asset over a period of years.**
- One benefit is that it **more clearly indicates how much cash flow a company has on hand to reinvest in the business or pay dividends.**
- EBITA measures the profits of a company available for payment to its lenders, investors, funding for amortisation, and transfer to reserves.
- EBITA provides **a measurement of the operational efficiency of a company or increase in business activities or otherwise.**
- Another similar measure adds depreciation to the list of factors to be eliminated from the earnings total. That is earnings before interest, taxes, depreciation, and amortization (EBITDA).

EBITA vs. EBITDA

- EBITA is not used as commonly as EBITDA, which adds depreciation into the calculation.
- Depreciation, in company accounting, is the recording of the reduced value of the company's tangible assets over time. It's a way of accounting for the wear and tear on assets such as equipment and facilities.
- Some companies, such as those in the utilities, manufacturing, and telecommunications industries, require significant expenditures in equipment and infrastructure, which are reflected in their books.
- Both EBITA and EBITDA are useful tools in gauging a company's operating profitability.
 - Profitability is earnings generated throughout the ordinary course of doing business.
- A clearer picture of the company's profitability may be gained if capital expenditures and financing costs are subtracted from the official earnings total.
- Analysts generally consider both EBITA and EBITDA to be reliable indicators of a company's cash flow.
- However, some industries require significant investment in fixed assets.
 - Using EBITA to evaluate companies in those industries may distort a company's profitability by ignoring the depreciation of those assets.
 - EBITA is deemed to be a more appropriate measure of its operating profitability.
 - In other words, the EBITA measurement may be used instead of EBITDA for companies that have substantial capital expenditures which may skew the numbers.

16. The concepts of Bad Bank and Non-Performing Assets (NPAs) (IE)

- **Context:** With commercial banks set to witness a spike in NPAs, or bad loans, in the wake of the contraction in the economy as a result of the Covid-19 pandemic, Reserve Bank of India (RBI) Governor Shaktikanta Das recently agreed to look at the proposal for the creation of a bad bank.

Analysis

What's a bad bank and how does it work?

- Technically, a bad bank is an asset reconstruction company (ARC) or an asset management company that takes over the bad loans of commercial banks, manages them and finally recovers the money over a period of time.
- The bad bank is not involved in lending and taking deposits, but helps commercial banks clean up their balance sheets and resolve bad loans.
- The takeover of bad loans is normally below the book value of the loan and the bad bank tries to recover as much as possible subsequently.
- Former RBI Governor Raghuram Rajan had opposed the idea of setting up a bad bank in which banks hold a majority stake.
- US-based Mellon Bank created the first bad bank in 1988, after which the concept has been implemented in other countries.
- The bad bank concept is in some ways similar to an ARC but is funded by the government initially, with banks and other investors co-investing in due course. The presence of the government is seen as a means to speed up the clean-up process.

Do we need a bad bank?

- ARCs have not made any impact in resolving bad loans due to many procedural issues.
- **For complete details, refer to 19th Dec file.**

17. SOFR (Secured Overnight Financing Rate) (TH)

- **Context:** State Bank of India (SBI) has executed two inter-bank short term money market deals with pricing linked to SOFR (Secured Overnight Financing Rate).
- SOFR is a replacement for USD LIBOR that may be phased out end-2021.

Analysis

Secured Overnight Financing Rate (SOFR)

- It is a **benchmark interest rate for dollar-denominated derivatives and loans** that is replacing the London interbank offered rate (LIBOR).
- It is a broad measure of the cost of borrowing cash overnight collateralized by Treasury securities.
- The secured overnight financing rate, or SOFR, is an influential interest rate that banks use to price U.S. dollar-denominated derivatives and loans.
- The daily secured overnight financing rate (SOFR) is based on transactions in the Treasury repurchase market, where investors offer banks overnight loans backed by their bond assets.
- Benchmark rates such as the SOFR are essential in the trading of derivatives—particularly interest-rate swaps, which corporations and other parties use to manage interest-rate risk and to speculate on changes in borrowing costs.

History of the Secured Overnight Financing Rate (SOFR)

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- Since its inception in the mid-1980s, the LIBOR has been the benchmark interest rate to which investors and banks peg their credit agreements. Comprising of five currencies and seven maturities, the LIBOR is determined by calculating the average interest rate at which major global banks borrow from one another.
- The five currencies are the U.S. dollar (USD), euro (EUR), British pound (GBP), Japanese yen (JPY), and the Swiss franc (CHF), and the most commonly quoted LIBOR is the three-month U.S. dollar rate, usually referred to as the current LIBOR rate.
- Following the financial crisis of 2008, regulators grew wary of overreliance on that particular benchmark.
- LIBOR is based largely on estimates from global banks who are surveyed and not necessarily on actual transactions.
- In addition, banking regulations after the financial crisis meant that there was less interbank borrowing happening, prompting some officials to express concern that the limited volume of trading activity made the LIBOR even less reliable.
- Eventually, the British regulator that compiles LIBOR rates said it will no longer require banks to submit interbank lending information after 2021.
- This update sent developed countries around the world scrambling to find an alternative reference rate that could eventually replace it.
- In 2017, the Federal Reserve (Fed) responded by assembling the Alternative Reference Rate Committee, comprising several large banks, to select an alternative reference rate for the United States. The committee chose the secured overnight financing rate (SOFR), an overnight rate, as the new benchmark for dollar-denominated contracts.
- The Secured Overnight Financing Rate (SOFR) vs. LIBOR
- Unlike the LIBOR, there's extensive trading in the Treasury repo market—roughly 1,500 times that of interbank loans as of 2018—theoretically making it a more accurate indicator of borrowing costs.
- Moreover, the secured overnight financing rate (SOFR) is based on data from observable transactions rather than on estimated borrowing rates, as is sometimes the case with LIBOR.
- Transitioning to the Secured Overnight Financing Rate (SOFR)
- For now, the LIBOR and the secured overnight financing rate (SOFR) will coexist.
- However, it's expected that the latter will replace LIBOR over the next few years as the dominant benchmark for dollar-denominated derivatives and credit products.
- On November 30, 2020, the Federal Reserve announced that LIBOR will be phased out and eventually replaced by June 2023. In the same announcement, banks were instructed to stop writing contracts using LIBOR by the end of 2021 and all contracts using LIBOR should wrap up by June 30, 2023.

London Interbank Offered Rate (LIBOR)

- LIBOR, which stands for **London Interbank Offered Rate**, serves as a globally accepted key benchmark interest rate that indicates borrowing costs between major global banks for **short-term loans**.
- The rate is calculated and published **each day** by the Intercontinental Exchange (ICE).

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- It is based on **five currencies** including the US dollar, the euro, the British pound, the Japanese yen, and the Swiss franc, and serves **seven different maturities**—overnight/spot next, one week, and one, two, three, six, and 12 months.
- LIBOR is also the **basis for consumer loans** in countries around the world, so it impacts consumers just as much as it does financial institutions.

18. Grant for Rural Local Bodies (PIB)

- **Context:** The Department of Expenditure, Ministry of Finance has released grants to the Rural Local Bodies (RLBs) as per the recommendations of the 15th Finance Commission to create community assets and improve financial viability of the RLBs.

Analysis

- The grants are provided to all the three tiers of Panchayati Raj - Village, Block and District to enable pooling of resources across villages and blocks.
- The 15th Finance Commission has recommended two types of grants to the RLBs – basic and tied grants.
- Basic grants are untied and can be used by the local bodies for location specific felt needs except for salary or other establishment expenditure.
- The tied grants can be used for the basic services of (a) sanitation and maintenance of Open Defecation Free (ODF) status and (b) supply of drinking water, rain water harvesting and water recycling.
- The grants are meant to ensure additional funds to RLBs over and above the funds allocated by the Centre and the State for sanitation and drinking water under the Centrally Sponsored Schemes like Swachh Bharat and Jal Jeevan Mission.
- The States are required to transfer the grants to the RLBs within 10 working days of receipt from the Union Government.
 - Any delay beyond 10 working days requires the State Governments to release the grants with interest.



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International Relations

1. The Brexit Deal (TH)

- **Context:** What is in store for Britain and the European Union after the former's exit from the trading bloc on January 31, 2020?

What are the main features of the agreement?

- The **UK-EU Trade and Cooperation Agreement**, which came into force on January 1, 2021, **retains the 'zero tariffs' and quotas trade regime of the past on all imports of goods.**
 - It thus averts the potentially catastrophic consequences for Britain of leaving the bloc without any agreement.
 - A hard exit would have resulted in levies of 50% and higher and duties on dairy and food products, besides tariffs on manufactured goods.
- **Northern Ireland will continue to remain within EU jurisdiction**, avoiding a hardening of its border with the Republic of Ireland.
- On access for EU fisheries to British seas — a contentious issue — **the agreement "recognises U.K. sovereignty over her fishing waters"**.

What are some new hurdles the U.K. will face?

- An **exit from the customs union** means the return of customs controls at the U.K. borders and checks on rules of origin to prevent abuse of the zero-tariffs regime.
 - The **millions of customs declarations U.K. businesses will have to complete** from now onwards are estimated to cost around £7 billion annually.

How does the European Union plan to enforce a level playing field?

- The **U.K. is free to set its own standards on labour laws and environmental protection.**
 - Access to EU markets could, however, be restricted and tariffs imposed wherever arbitrators rule that businesses have been granted unfair advantage.
- London has succeeded in **breaking free from the jurisdiction of EU law and the European Court of Justice**, which U.K.'s eurosceptics regard as an affront to national sovereignty.
 - British and EU companies will be able to **challenge state subsidies awarded to their rivals in relevant national courts** if they suspect any violation of common provisions set out in the agreement.

How serious could be the impact of the exclusion of services from the accord?

- As the **services sector** accounts for about 80% of the U.K.'s economy, the fallout from leaving it **outside the purview of the new accord** will be hard.
 - The agreement covers data flows in some areas of policing and law enforcement, while decisions on personal data transmissions are to be dealt with separately.
 - Given London's status as the premier global financial hub, the exclusion of financial services from the agreement is likely to cause uncertainty.
- Both sides have **reached an understanding** that the terms of access to each other's markets would be subject to a unilateral declaration by one party that the

regulatory framework of the other was equivalent to its own.

2. Iran plans to enrich uranium well beyond the threshold set by 2015 Vienna accord

(TH)

- **Context:** Iran has informed the International Atomic Energy Agency (IAEA) that it intends to produce uranium enriched to up to 20% purity in its Fordow underground plant, well beyond the threshold set by the 2015 Vienna accord (Iran nuclear deal was reached in Vienna).

Analysis

- According to the latest report available from the UN agency, published in November, Tehran was enriching uranium to levels greater than the limit provided for in the Vienna agreement (3.67%) but not exceeding the 4.5% threshold, and still complied with the Agency's very strict inspection regime.
- But there has been turmoil since the assassination in late November of Iranian nuclear physicist Mohsen Fakhrizadeh.
- In the aftermath of the attack, blamed on Israel, hardliners in Tehran pledged a response and Parliament passed a controversial law calling for the production and storage of "at least 120 kg per year of 20% enriched uranium" and to "put an end" to the IAEA inspections intended to check that the country is not developing an atomic bomb.

What was agreed?

- Under the accord, Iran agreed to limit its sensitive nuclear activities and allow in international inspectors in return for the lifting of crippling economic sanctions.

- Under the nuclear deal, Iran agreed to have less than 300 kilograms of uranium enriched to a maximum of 3.67% far below the 90% needed to produce weapons for 15 years.

Abu Musa and the Greater and Lesser Tunb islands



- **Abu Musa and the Greater and Lesser Tunb islands** are located in the Persian Gulf near the entrance to the strategic Strait of Hormuz, through which a fifth of world oil output passes.

- The islands are under Iranian control but are also claimed by the UAE.

3. Vietnam buys Indian rice for first time in decades (TH)

- **Context:** Vietnam, the world's third biggest exporter of rice, has started buying the grain from rival India for the first time in decades after local prices jumped to their highest in nine years amid limited domestic supplies.

Analysis

- The purchases underscore tightening supplies in Asia, which could lift rice prices

in 2021 and **even force traditional buyers of rice from Thailand and Vietnam to switch to India — the world’s biggest exporter of the grain.**

- **Indian prices are very attractive.** The huge price difference is making exports possible. Vietnam’s 5% broken rice is offered at about \$500-\$505 per tonne, compared to Indian prices of \$381-\$387.
- Dwindling supplies and **continued Philippine buying lifted Vietnamese rice export prices to a fresh nine-year high.**
- Below are the countries that exported the highest dollar value worth of rice during 2019.
 - India: (32.5% of total rice exports)
 - Thailand: (19.2%)
 - United States: (8.6%)
 - Vietnam: (6.6%)
 - Pakistan: (5.6%)
 - China: (4.8%)
 - Italy: (2.9%)
 - Myanmar (Burma): (2.6%)
 - Cambodia: (2%)
 - Uruguay: (1.7%)

4. Gulf leaders sign deal to end years-long dispute (TH)

- Gulf leaders signed a **“solidarity and stability” deal** on Tuesday (5 Jan 2021) after leaders of Saudi Arabia and Qatar publicly embraced, bringing Doha back into the regional fold after a three-year-long rift.
- Saudi Arabia had led a coalition of countries in the Gulf and beyond to cut ties and transport links with Qatar in June 2017, charging that it was too close to Iran and backed radical Islamist groups — allegations that Doha denied.

- Those countries, along with **Oman and Kuwait, which have mediated between the two sides**, signed a deal in Al-Ula, after Riyadh overnight re-opened its land, sea and air borders to Doha.
- **Note: Qatar crisis has been comprehensively explained in 5th Dec File.**

5. China holds third edition of South Asia multilateral meet (TH)

- **Context:** China has held its third multilateral dialogue with countries from South Asia to take forward closer cooperation on fighting COVID-19 and coordinating their economic agendas, reflecting a new approach in Beijing’s outreach to the region.

Analysis

- The third dialogue, held virtually on January 6, brought together every country in the region barring India, Bhutan and the Maldives, and was aimed at “anti-epidemic cooperation and poverty reduction cooperation.”
- All three dialogues have been attended by Pakistan and Nepal, which are emerging as two lynchpins in China’s regional strategy.
 - The first such meeting was convened by China in July 2020, and was attended by Pakistan, Nepal and Afghanistan.
 - This was followed by a grouping in November attended by China, Pakistan, Nepal, Sri Lanka and Bangladesh.
- The January 6 meeting was attended by all five countries that have taken part in these dialogues — Pakistan, Nepal, Afghanistan,

Sri Lanka and Bangladesh — and was a follow-up to the two earlier meetings.

CPEC extension

- At the July quadrilateral dialogue with Afghanistan, Nepal and Pakistan, China proposed extending the China-Pakistan Economic Corridor (CPEC) to Afghanistan, as well as taking forward an economic corridor plan with Nepal, called the **Trans-Himalayan Multi-dimensional Connectivity Network**.

6. The Al-Ula conclave (TH)

- **Context:** On January 5, the leaders of the Gulf Cooperation Council (GCC) met at the ancient town of Al-Ula in Saudi Arabia to end the bitter discord that three of its members — Saudi Arabia, the UAE and Bahrain, along with Egypt — have had with their partner, Qatar.

Analysis

- On June 5, 2017, the Arab Quartet, as they styled themselves, subjected Qatar to an onerous diplomatic boycott and a total land, sea and air embargo.
- They accused Qatar of destabilising the region with its support for Islamist groups.
- They then presented Qatar with 13 demands including severing ties with the Muslim Brotherhood, diluting relations with Turkey and Iran, and shutting down the Al Jazeera network, in order to normalise ties.
- Viewing these demands as an encroachment on its sovereignty, Qatar rejected them. This led to the boycott. Now, three and a half years later, the boycott has ended.
 - With its huge resources, Qatar could weather the financial assault, while the backing of Turkey, Iran and two GCC

partners, Kuwait and Oman, ensured that the movement of goods and people was maintained.

Background to the boycott

- Ten years ago, the Arab Spring uprisings across West Asia had thrown up popular demands for reform — an end to authoritarian rule and the restoration of Arab “dignity” through freedom and democracy.
- Four leaders fell under these pressures, which also gave rise to two new developments: one, Muslim Brotherhood-affiliated parties came to power in Egypt and Tunisia; and, two, Saudi Arabia decided to divert demands for domestic reform by highlighting a threat from Iran.
- Asserting that Iran had hegemonic designs across the region, the Kingdom shaped opposition to Iran on sectarian basis and confronted it in theatres of its influence — Syria and later Yemen.
- The Brotherhood, with its grassroots mobilisation and a political platform that marries Islamic principles with Western-style democracy, poses a serious challenge to the existing monarchical order that provides no scope for popular participation.
 - Hence, Saudi Arabia and the UAE watched with horror the Brotherhood’s electoral successes, culminating in Mohammed Morsi being elected President in Egypt in 2012.
 - Fearing that a successful Brotherhood administration would become a model for their countries as well, the two GCC allies supported the Egyptian army’s coup against Morsi in July 2013.

Qatar and the Brotherhood

- Qatar, a GCC member, besides supporting its independent television channel, Al Jazeera, that often criticises regional leaders, it is a major supporter of the Brotherhood.
- After the events of 9/11, when the U.S. was convinced of the need for wide-ranging reform in the region, it believed that the Brotherhood, with its blend of Islam and democracy, could achieve change. Hence, Qatar's backing for the Brotherhood from the early 2000s and later, specifically of Morsi, was in line with U.S. interests.
- Recently, when the UAE and Bahrain "normalised" ties with Israel, both Qatar and Turkey affirmed their support for Hamas, the Islamist party in power in Gaza.
 - The two countries are also partners in Libya, ranged against the group backed by Egypt and the UAE in the ongoing civil conflict.

Possible re-alignments

- The most likely reason for the reconciliation at Al-Ula is the incoming Biden presidency in the U.S.: it is expected that, besides reviving the nuclear agreement with Iran and easing sanctions, Joe Biden could focus on Saudi Arabia's dismal human rights record and the war in Yemen.
- Hence, the Saudi Crown Prince Mohammed bin Salman was anxious to project his conciliatory approach to the incoming administration by patching up with Qatar.
- The reconciliation has evoked no enthusiasm from the other sponsors of the boycott.
 - The UAE has its own reasons for hostility towards Qatar. It has far greater concerns relating to the threat

from the Brotherhood than other GCC members due to the influence of its domestic Brotherhood-affiliated Al Islah party.

- Again, its leaders are also keen to emerge as major players in regional affairs on the back of close links with the U.S. They therefore see Qatar as a rival hindering their aspirations.

• **For further details, refer to the Gulf Cooperation Council (GCC) of 11th Dec. International Relations**

7. Kalapani Boundary Dispute(TH)

- **Context:** Nepal has raised the **Kalapani boundary dispute** with India during the Joint Commission meeting.
- Kalapani is a patch of land near the India-Nepal border, close to the Lipulekh Pass on the India-China border, which is one of the approved points for border trade and the route for the Kailash-Mansarovar yatra in Tibet.

Analysis

- In June 2020, the Lower House of Nepal's Parliament unanimously had voted for the **Second Constitution Amendment Bill**, which guarantees legal status for the new political map of the country that includes part of Indian territory in Uttarakhand.

Border trouble

On Saturday, Nepal's Parliament unanimously approved a new map which shows places such as Limpiyadhura, Kalapani and Lipulekh, including the strategically important Lipulekh pass, which are in Uttarakhand's Pithoragarh district, as part of that country's territory



Kalapani and the maps

- India inherited the boundary with Nepal, established between Nepal and the East India Company in the **Treaty of Sugauli in 1816**.
 - Kali river constituted the boundary, and the territory to its east was Nepal. The dispute relates to the origin of Kali.
- The territorial dispute stems from the fact that Nepal claims the land to the east of river Kali, which forms the country's western border.
- As per Kathmandu's understanding, the river originates from Limpiyadhura in the higher Himalayas, giving it access to a triangular-shaped land defined by Limpiyadhura-Lipulekh and Kalapani.
- India opposes the notion and says the origin of the river is much further down, which reduces Nepal's territorial demand.
- Nepal's has also released a new political official map **that claimed Kalapani, Limpiyadhura and Lipulekh of Uttarakhand as part of its sovereign territory**.
- However, the emergence of this dispute now has more to do with the domestic political compulsions of Nepali leaders who often use Nepali nationalism card, the flip side of which is anti-Indianism, to create an anti-India rhetoric to gain politically in the domestic elections.
- Indian Chief of the Army Staff (COAS) is also an honorary general of the Nepal Army and vice-versa, highlighting the traditional ties between the two armies.



- Indian States of Uttarakhand, Uttar Pradesh, Bihar, West Bengal and Sikkim border Nepal.

8. S-400 Triumf Air-Defense System and CAATSA (TH)

- **Context:** As India prepares to receive the first batch of S-400 long-range air defence system by year-end, the first group of Indian military specialists are scheduled to depart for Moscow soon to undergo training courses on the S-400, the Russian Embassy here said in a statement.
- **This topic has been comprehensively covered in 16th Dec file.**

9. Darfur Region (TH)

- **Context:** Sudanese troop presence helped restore calm in Darfur after three days of inter-ethnic violence that claimed at least 155 lives and displaced tens of thousands.



- In July 2020, about 500 armed men targeted the **Masalit community** in west Darfur's Masteri town.
- These incidents are a reminder of the unfinished task of restoring stability in Darfur racked by a conflict between the nation's dominant Arab rulers and the African ethnic communities demanding greater autonomy from Khartoum.
- Nertiti town in central Darfur has become the epicentre of the growing opposition in the region.
- Darfur is a desert plain in western part of Sudan.
 - The volcanic highlands of the **Marrah Mountains** dominate the central part of this plain.
 - In the north, they merge into the Libyan Desert.

10. Palestinians face discrimination by Jewish Authorities (TH)

- **Context:** An Israeli non-governmental organisation has accused the Jewish state of "apartheid" in its treatment of Palestinians.

Analysis

Israel Palestine Conflict

- Israel occupied the West Bank, including Arab east Jerusalem, and the Gaza Strip in the Six-Day War of 1967. Today it is home to at least five million Palestinians defined by the United Nations as living under Israeli occupation.
- Arab Israelis — Palestinians who stayed on their land following the Jewish state's creation in 1948 and their descendants — make up about 20% of Israel's roughly nine million people. By law they have rights equal to those of Jewish citizens, but they say that in practice they suffer discrimination in employment, housing, policing and other essentials.



- In another war in 1967, Israel occupied East Jerusalem and the West Bank, as well as most of the Syrian Golan Heights, and Gaza and the Egyptian Sinai peninsula.
- Golan Heights, also called Al-Jawlān, is a hilly area overlooking the upper Jordan River valley on the west.
- The area was part of extreme south-western Syria until 1967, when it came under Israeli military occupation, and in 1981 Israel unilaterally annexed the part of the Golan it held.
- Most Palestinian refugees and their descendants live in Gaza and the West Bank, as well as in neighbouring Jordan, Syria and Lebanon.

- Neither they nor their descendants have been allowed by Israel to return to their homes - Israel says this would overwhelm the country and threaten its existence as a Jewish state.
- Israel still occupies the West Bank, and although it pulled out of Gaza the UN still regards that piece of land as part of occupied territory.
- Israel claims the whole of Jerusalem as its capital, while the Palestinians claim East Jerusalem as the capital of a future Palestinian state. Only the US recognises Israel's claim to the whole of the city.
- In the past 50 years Israel has built settlements in these areas, where more than 600,000 Jews now live.
- Palestinians say these are illegal under international law and are obstacles to peace, but Israel denies this.
- Note: **Boundary of Israel touches two seas namely Mediterranean Sea in the North and Red Sea in the South.**

11. West Asia Peace Conference(TH)

- Russia backed a Palestinian proposal for a **West Asia peace conference.**
- The U.S. — which sided with Israel under the administration of Donald Trump — said it intended to “restore credible U.S. engagement with Palestinians as well as Israelis”.
- “The roughly 10 participants would include Israel, the Palestinians, the four members of the **West Asia diplomatic quartet (Russia, the UN, the U.S. and the EU),** along with four Arab states — Bahrain, Egypt, Jordan and the UAE.

12. New Strategic Arms Reduction Treaty (New START Treaty) (TH)

- **Context:** Russian lawmakers approved the extension of the last remaining nuclear Russia-U.S. arms control treaty (New START treaty), an action that comes just days before it's due to expire.

Analysis

New START

- The New START accord, signed in 2010, limits the number of strategic nuclear warheads that Russia and the United States can deploy and due to lapse in February 2021.
- It is a bipartisan process of **verifiably** reducing U.S. and Russian strategic nuclear arsenals.
- In August 2020, the U.S. and Russia terminated the 1987 **Intermediate-Range Nuclear Forces (INF) treaty** that had limited the United States and Russia from fielding **land-based missiles** with a range between 500 and 5,500 kilometers, both conventional and nuclear.
 - The INF Treaty was **the first pact to include intensive verification measures**, including on-site inspections.
- Now only one major bilateral agreement, **New START**, limits the U.S. and Russian nuclear arsenals.



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Science and Technology,

Defence, Space

1. Swine Flu Vs Bird Flu (TH)

- **Context:** Prohibitory orders were imposed and a one-km radius area was declared a “zero mobility zone” in Rajasthan’s Jhalawar town on Thursday after over 50 crows were found dead because of avian influenza. The mass death of crows was also reported recently from Jodhpur.

Analysis

- **H5N1** is a type of influenza **virus** that causes a highly infectious, severe **respiratory disease in birds** called avian influenza (or “bird flu”).
- Human cases of **H5N1** avian influenza occur occasionally, but it is **difficult to transmit the infection from person to person**.
- Infected birds pass on **H5N1** through their saliva, nasal secretions, and faeces.
- **H5N8 first appeared in China in 2014.**
- The strain came from the H5N1 virus which started its menace in China in 1996.

Swine flu

- The **pandemic influenza strain, or swine flu**, that spread globally in 2009 was referred to as **H1N1**.
- There are **four major types of influenza that infect humans**, known as influenza A, B, C and D.
 - Influenza A and B can both cause **serious infections**, and are the cause of what we call the flu.
 - **Influenza C** viruses differ from influenza A and B, and **only cause a mild infection**, so they **don’t appear in vaccines**.

- **Influenza A** viruses infect humans and many different animals.
- Influenza B viruses circulates among humans and cause seasonal epidemics.
- Influenza C viruses can infect both humans and pigs but infections are generally mild and are rarely reported.
- Influenza D viruses primarily affect cattle and are not known to infect or cause illness in people.
- **Influenza type A viruses** are of most significance to public health due to their potential to cause an influenza pandemic.
- Depending on the origin host, influenza A viruses can be classified as avian influenza, swine influenza, or other types of animal influenza viruses.
- Aquatic birds are the primary natural reservoir for most subtypes of influenza A viruses.

- A pandemic influenza strain is one that **humans have not been previously exposed to**, so people do not have immunity to it.

Hs and Ns

- Surface antigens (foreign **proteins**) haemagglutinin (H) and neuraminidase (N) form the viral coat of the H1N1 influenza viruses.
- Viruses **attach by their haemagglutinin onto receptors** on the surface of cells in order to infect them, like a grappling hook.
- The **neuraminidase removes these receptors from infected cells** at the right time to allow newly synthesised viruses to escape and spread.

- Among influenza A viruses there are **18 different types of haemagglutinin**, from H1 to H18 and **11 different types of neuraminidase**, from N1 to N11. Each virus has one type of H (such as H1) and one type of N (such as N1).
- **Influenza B strains do not circulate in animals**, so they cannot cause a pandemic. But, like influenza A viruses, they continually change, so we will never become immune to every strain.

2. The Concept of Lightning (IE)

Context: Lightning strikes have caused 1,771 deaths between April 1, 2019 and March 31, 2020, according to a report published on December 31 on lightning incidents in India. The report has been prepared by Climate Resilient Observing Systems Promotion Council (CROPC), a non-profit organisation that works closely with India Meteorological Department (IMD).

Analysis

What does the report highlight?

- Lightning strikes originate from Chotanagpur Plateau – the confluence of Odisha, West Bengal and Jharkhand—and extended to Bangladesh to Patkai plateau of Meghalaya affecting other North eastern states. The reason for death was that people were caught unawares and about 78 per cent deaths took place due to people standing under isolated tall trees. About 22 per cent of the people were struck in the open.
- **The report mentions that the rapid degradation of environment like global**

warming, deforestation, depletion of water bodies, concretisations, rising pollution and aerosol levels have cumulatively pushed the environment to extremes. “And lightning is direct promulgation of these climatic extremities.”

- It has been observed that during pre-monsoon to initial monsoon, fatalities are more to
- farmers as they are out in the agriculture field or in orchards.
- In the later part of the year—September onwards—majority died while standing under tall trees or inside their huts.

Lightning-an atmospheric phenomenon

Lightning is a very rapid and massive discharge of electricity in the atmosphere, some of which is directed at the earth's surface.



So, how does lightning occur?

- **Lightning is the process of occurrence of a natural 'electrical discharge of very short**
- **duration and high voltage between a cloud and the ground or within a cloud', accompanied by a bright flash and sound, and sometimes thunderstorms.**
- Inter cloud or intra cloud (IC) lightning which are visible and are harmless.

- It is cloud to ground (CG) lightning, which is harmful as the 'high electric voltage and electric current' leads to electrocution.
- Lightning is a **giant discharge of electricity** accompanied by a brilliant flash of light and a loud crack of thunder.
- The spark can reach over five miles (eight kilometers) in length, raise the temperature of the air by as much as 50,000 degrees Fahrenheit (27,700 degrees Celsius), and contain a hundred million electrical volts.
- Lightning is not confined to thunderstorms. It's been seen in **volcanic eruptions, extremely intense forest fires, surface nuclear detonations, heavy snowstorms, and in large hurricanes.**
- **Every lightning strikes around a fixed period and almost similar geographical locations in similar patterns.**
- As per the report, Kalbaishakhi—Norwesters, which are violent thunderstorms with lightning—claims life in eastern India; pre-monsoon lightning deaths occur mostly in Bihar, Jharkhand, Chhattisgarh and UP.

What kind of technology is used to forecast lightning strikes?

- Early lightning forecasts **uses satellite observations, inputs from 'network of Doppler and other radars', 'lightning detection Sensors' among others.**
- This makes Lightning Forecast unique with best possible lead time of even a week.

Relief and Preparedness Measures by the Government

- The Centre had increased compensation for victims of natural disaster to Rs 4 lakh in

2015.

- There have been phenomenal losses of animal life also from lightning strike.
- Lightning is not a notified disaster as per the Ministry of Home Affairs
- The NDMA has issued comprehensive guidelines for preparations of Lightning action
- plans to states, but the large number of fatalities show the implementation also needs a
- more 'scientific and focused community centric approach' as well as convergence of
- various departments.

Development of lightning

- Ice in a cloud may be key in the development of lightning.
- Ice particles collide as they swirl around in a storm, causing a separation of electrical charges.
- **Positively charged ice crystals rise to the top of the thunderstorm, and negatively charged ice particles and hailstones drop to the lower parts of the storm. Enormous charge differences develop.**
- A moving thunderstorm also gathers positively **charged particles along the ground that travel with the storm.**
- As the differences in charges continue to increase, positively charged particles rise up tall objects such as trees, houses, and telephone poles—and people.
- The negatively charged bottom part of the storm sends out an invisible charge toward the ground.
- When the charge gets close to the ground, it is **attracted by all the positively charged objects**, and a channel develops.

The subsequent electrical transfer in the channel is lightning.

Some observations

- **If your hair stands up** in a storm, it could be a bad sign that positive charges are rising through you, reaching toward the negatively charged part of the storm. Your best bet is to get yourself immediately indoors.
- The **rapid expansion of heated air causes the thunder.**
- Since light travels faster than sound, the thunder is heard after the lightning.
- Not all lightning forms in the negatively charged area low in the thunderstorm cloud. Some lightning originates in the top of the thunderstorm, the area carrying a large positive charge. Lightning from this area is called positive lightning.
- **Positive lightning is particularly dangerous**, because it frequently strikes away from the rain core, either ahead or behind the thunderstorm. It can strike as far as 5 or 10 miles (8 or 16 kilometers) from the storm, in areas that most people do not consider to be a lightning-risk area.
- In addition to the visible flash that travels through the air, the current associated with the lightning discharge travels along the ground. Although some victims are struck directly by the main lightning stroke, **many victims are struck as the current moves in and along the ground.**
- A house or other substantial building offers the best protection from lightning. However, people should **avoid contact with anything that conducts electricity, including landline telephones.** Most people hurt by lightning while inside their

homes are talking on the telephone at the time.

- A shelter that does not contain plumbing or wiring throughout or some other mechanism for grounding from the roof to ground is not safe.
- **Victims of lightning do not retain the charge** and are not "electrified." It is safe to help them.
- **Lightning can—and often does—strike in the same place twice.** Tall buildings and monuments are frequently hit by lightning.
- A motor **car with a metal top can offer you some protection**—but keep your hands from the metal sides.
- **An umbrella can increase your chances of being struck** by lightning if it makes you the tallest object in the area.
- **Always avoid being the highest object anywhere**—or taking shelter near or under the highest object.
- Most people do not realize that they can be struck by lightning even when the center of a thunderstorm is 10 miles (16 kilometers) away and there are blue skies overhead.
- Some scientists think that **lightning may have played a part in the evolution of living organisms.**
 - The immense heat and other energy given off during a stroke has been found to convert elements into compounds that are found in organisms.
- **Lightning also helps in nitrification (Nitrogen Cycle); it converts the atmospheric nitrogen (N₂) into nitrates and nitrites.**
- **Lightning can kill people** or cause cardiac arrest. Injuries range from severe burns

and permanent brain damage to memory loss and personality change.

• **Difference Between Lightning and High Voltage Electricity.**

Factor	Lightning	High Voltage
Energy Level	25 kA typical, millions of volts	Usually much lower
Time of Exposure	Brief, instantaneous	Prolonged
Pathway	Flashover, orifice	Deep, internal
Burns	Superficial and minor	Deep with major injury

Steps to follow in the event of lightning

1. **Follow the 30/30 rule.** Count the seconds after a lightning flash. If you hear thunder within 30 seconds, seek safe shelter (see step 2). Do not go outside again until 30 minutes after the last lightning strike. More than half of lightning-related deaths happen after the thunderstorm has passed. The danger exists whenever thunderstorms are in the area, even when clear skies are directly overhead.
2. **Only use safe shelters.** Full-size buildings, such as houses or businesses, work best. Stay away from sheds or open shelters (picnic awnings or baseball dugouts). Hard-top cars, vans, and trucks work well, but not golf carts, soft-top convertibles (even with the top up), bicycles, or

motorcycles. Whether in a building or a car, keep all windows and doors closed.

3. **While inside, avoid anything that conducts electricity** and is plugged into a wall socket -- phones, electrical outlets, lights, desktop computers, televisions, stereos, and water faucets (metal plumbing conducts electricity) are just some of the items to avoid. Portable devices such as wireless phones (stay away from the base station that's plugged into the wall), flashlights, unplugged laptop computers, and personal MP3 players are all fine. Avoid metal door or window frames.
4. **If you're caught outside, go inside immediately.** *No safe options exist outside.* Run to your car or a safe building as soon as you hear thunder.
5. **Lightning can and does strike in the same place twice** -- hundreds of times, really. Conditions that draw lightning aren't likely to change. If lightning strikes close to you, do not assume you are safe until the storm passes.
6. Did you know **that rubber shoes do nothing to protect you from lightning?** That talking on the telephone is the leading cause of lightning injuries inside the home? That standing under a tall tree is one of the most dangerous places to take shelter?

3. Why people with prior infection still need vaccination (TH)

- **Context:** Since vaccine shortage is expected to last at least for a few months, it may seem appealing to delay or avoid vaccinating those who have been naturally infected. But does science support such a decision?

Analysis

- A small minority of those with even symptomatic infection do not end up making high levels of antibodies, and another small minority of such naturally infected people do not make long-lasting antibodies.
- While highest levels of binding antibodies are seen in people with the most severe disease, asymptomatic infections may result in low antibody levels or even no antibodies being measured in up to 20% of people.
- Vaccines are made to induce a good immune response, which is expected to be more predictable than the response to infection.
- Another reason why skipping vaccination in people already infected might not be advisable is the way the virus in general primes the immune system.
- Immune responses to natural infection can be modified by immune evasion mechanisms of the virus.
- But vaccine formulations do not include those viral tricks, and therefore, immune responses to the vaccines are more likely to be uniform and predictable.
- “Yes, it is possible that vaccines can result in an immune response that does better than natural infection. We have known this for a long time,” adds a scientist.

- There is no evidence for how long on average protection from natural infection lasts.

4. India and the race for vaccine development (TH)

- Advanced biotechnology laboratories and large-scale vaccine manufacturing facilities made India a front runner, if not the best bet, to win the vaccine race in the world outside of China.
- We had two more advantages: representation in two global initiatives– the **Global Pandemic Preparedness Monitoring Board** and **Coalition for Epidemic Preparedness Innovations**, the latter advising the world to prepare for vaccine development.
- India's vaccine manufacturing facilities are highly rated, globally. They have in-house research and development laboratories. However, they are concerned with research of a practical nature, for refining processes and products, rather than basic and fundamental research necessary for designing new vaccine candidates.

5. FSSAI slashes limit for transfat levels in foods (TH)

- **Context:** The Food Safety and Standards Authority of India (FSSAI) has capped the amount of trans fatty acids (TFA) in oils and fats to 3% for 2021 and 2% by 2022 from the current permissible limit of 5% through an amendment to the Food Safety and Standards (Prohibition and Restriction on Sales) Regulations.

Analysis

- The revised regulation applies to edible refined oils, vanaspati (partially

- hydrogenated oils), margarine, bakery shortenings and other mediums of cooking such as vegetable fat spreads and mixed fat spreads.
- Transfats are associated with an increased risk of heart attacks and death from coronary heart disease.
 - **India has committed to eliminate trans fats from food supply by 2022.**
 - When the World Health Organisation called for a global ban on transfats by 2023, India announced that it would do this a year before the deadline, by 2022.
 - The Food Safety and Standards Authority of India (FSSAI) has also launched a new mass media campaign, called “**Heart Attack Rewind**”, the 30 second public service announcement (PSA), calling for the elimination of industrially produced trans fatty acids to less than 2% by the year 2022 in a phased manner.
 - “**Heart Attack Rewind**” warns citizens about the health hazards of consuming trans fat and offers strategies to avoid them through healthier alternatives.

What are Fats?

- Fat is a **nutrient**. It is crucial for normal body function, and without it, we could not live.
- Fats, which consist of a wide group of compounds, are usually **soluble in organic solvents and insoluble in water**.
- All types of fats, regardless of whether they are liquid or solid are called **lipids**.
- Not only does fat **supply us with energy**, it also makes it possible for other nutrients to do their jobs.
- It helps to **absorb some vitamins and minerals**.

- Fat is needed to **build cell membranes**, the vital exterior of each cell, and the sheaths surrounding nerves.
- Fats also play an important role **in the regulation of body temperature, the reduction of inflammation, muscle movement, blood clotting and brain development**.
- **Protein, carbohydrates and fats** are the three essential nutrients **that provide the body with caloric energy**.
 - Although carbohydrates are the main source of energy for the body, fats are the most energy dense of these nutrients.
 - Containing 9 kcal per gram, fats provide roughly twice as much energy and calories as proteins and carbohydrates which only provide 4 kcal per gram.
 - **Vitamins and minerals** do not **provide energy** (calories), but they help to release **energy** from carbohydrate, protein, and fat.
 - To date, there are 13 essential vitamins: **vitamins A, C, D, E, K, and 8 B vitamins**.
- Any calories that are not immediately metabolized for energy are stored in the body as fat for future use.
- Fat is stored throughout the body in fat cells known as **adipocytes**.
- However, fat cells can increase and decrease in size depending on the amount of fat that the body is storing.

Types

- All fats have a similar chemical structure: a chain of carbon atoms bonded to hydrogen atoms.

- What makes one fat different from another is the length and shape of the carbon chain and the number of hydrogen atoms connected to the carbon atoms.
- Seemingly slight differences in structure translate into **crucial differences in form and function.**

Saturated fats

- Saturated fats are **solid at room temperature.**
- They are **totally saturated**, meaning that each molecule of fat is covered in hydrogen atoms.
- A large intake of saturated fats may eventually raise cholesterol levels, which increases the risk of **cardiovascular disease and stroke.**
- A healthy diet includes less than 10 percent of its calories from saturated fats.
- It is mostly found in meat and milk products.
 - However, **unprocessed saturated fats are an important part of a healthy diet** and can be regularly consumed.
 - An important and beneficial saturated fat is **coconut oil**, which has scientifically demonstrated health benefits.

Unsaturated fats

- Unsaturated fats, which include monounsaturated and polyunsaturated fats, **are liquid at room temperature.**
- They are **mostly derived from plant oils** and are classed as "good" fats:

Monounsaturated fats

- Monounsaturated fat molecules are not saturated with hydrogen atoms - each fat molecule has only the space for one hydrogen atom.

- Monounsaturated fats may lower LDL (low-density lipoprotein - bad) cholesterol, and keep HDL (high-density lipoprotein - good) cholesterol at higher levels.
 - For instance, the Mediterranean diet, a well-researched and chronic disease-risk lowering diet, **is full of monounsaturated fats.**

Polyunsaturated fats

- In polyunsaturated fats, there are a number of spaces around each polyunsaturated fat molecule - they are not saturated with hydrogen atoms.
- Polyunsaturated fats **are essential fats.** That means they're required for normal body functions but your body can't make them. So you must get them from food.
- Polyunsaturated fats are used to build cell membranes and the covering of nerves. They are needed for blood clotting, muscle movement, and inflammation.
- Monounsaturated fats are relatively stable, but they're not quite as stable as saturated fats.
- Polyunsaturated fats are the **least stable fats** as polyunsaturated fats have multiple binding sites exposed, making them particularly open to oxidation.
 - It's important to note that **just because a fat is unstable doesn't mean it's bad for us.**
 - We should just handle less stable fats more carefully to make sure they don't oxidize or spoil.
 - That means avoiding ones that are heavily processed or exposed to high heat.

Omega 6 and Omega 3

- A polyunsaturated fat has two or more double bonds in its carbon chain.

- There are two main types of polyunsaturated fats: omega-3 fatty acids and omega-6 fatty acids.
- The numbers refer to the distance between the beginning of the carbon chain and the first double bond. Both types offer health benefits.
- As they are polyunsaturated, our **body can't produce omega 3s and omega 6s on its own**; we get them from food.
- Polyunsaturated fats are good for our health, especially those from fish, known as omega-3 polyunsaturated fatty acids.
- Omega-3 fatty acids protect against heart disease by lowering blood cholesterol levels and possibly inflammation.
- Omega-3 polyunsaturated fatty acids may also help reduce the symptoms experienced by people who suffer from arthritis, joint problems in general, and some skin diseases.
- **Vegetable sources of omega 3s include cauliflower, walnuts and flaxseeds.**
- Omega-6 fatty acids are mostly found in vegetable oils.
- An excessive intake of omega-6's may lead to **increased inflammation.**

What are *trans* fats?

- The worst type of dietary fat is the kind known as *trans* fat.
- It is a by-product of a process called **hydrogenation** that is used to turn healthy oils into solids and to prevent them from becoming rancid.
- *Trans* fats have no known health benefits and **that there is no safe level of consumption.**
- There are two broad types of *trans* fats found in foods: naturally-occurring and artificial *trans* fats.

- **Naturally-occurring *trans* fats** are produced in the gut of some animals and foods made from these animals (e.g., milk and meat products).
- **Artificial *trans* fats** are created in an industrial process that adds **hydrogen to liquid vegetable oils.** They are also known as partially hydrogenated oils.

Why do some companies use *trans* fats?

- *Trans* fats are easy to use, inexpensive to produce and last a long time (give longer shelf-life to the items prepared by them).
- *Trans* fats give foods a desirable taste and texture.
- Many restaurants and fast-food outlets use *trans* fats to deep-fry foods because oils with *trans* fats can be used many times in commercial fryers.

How do *trans* fats affect health?

- *Trans* fats raise bad (LDL) cholesterol levels and lower good (HDL) cholesterol levels.
- *Trans* fats create inflammation, which is linked to **heart disease, stroke, diabetes, and other chronic conditions.**
- They contribute to insulin resistance, which increases the risk of developing **type 2 diabetes.** **Even small amounts of *trans* fats can harm health.**

Cholesterol

- Cholesterol travels through the blood **on proteins** called "lipoproteins."
- Two types of lipoproteins carry cholesterol throughout the body:
- **LDL (low-density lipoprotein)**, sometimes called "bad" cholesterol, makes up most of our body's cholesterol.
 - High levels of LDL cholesterol raise our risk for heart disease and stroke.

- **HDL (high-density lipoprotein)**, or "good" cholesterol, absorbs cholesterol and carries it back to the liver. The liver then flushes it from the body.
 - High levels of HDL cholesterol can lower our risk for heart disease and stroke.

Conclusion: Avoid the trans fats, limit the saturated fats, and replace with essential polyunsaturated fats.

Food Safety and Standards Authority of India (FSSAI)

- It has been established under the Food Safety and Standards Act, 2006 which **consolidates various acts and orders** that have hitherto handled food related issues in various Ministries and Departments.
- It has been created for laying down **science-based standards** for articles of food.
- Various Central Acts like Prevention of Food Adulteration Act, 1954 etc. are repealed after the commencement of FSS Act, 2006.
- The Act also aims to establish a **single reference point** for all matters relating to food safety and standards.
- To this effect, the Act establishes an **independent statutory authority** - the Food Safety and Standards Authority of India **under the Ministry of Health and Family Welfare**.
- Food Safety and Standards Authority of India and State Food Safety Authorities shall enforce various provisions of the Act.
- FSSAI also contributes to the development of international technical standards for food, sanitary and phyto-sanitary standards.

6. Kerala on alert after bird flu in two districts (TH)

- Kerala was placed on high alert after an outbreak of bird flu was confirmed in some of the districts.
- The presence of the H5N8 subtype of the Influenza A virus was reported in ducks in many districts.

Influenza Type A Viruses

Subtypes: Hemagglutinin (HA) and Neuraminidase (NA)
(Viruses are divided into subtypes on the basis of two proteins on the surface of the virus)

18 known HA subtypes | 11 known NA subtypes

Different combinations of HA and NA proteins are possible

- An H7N2 virus designates an influenza A virus subtype that has an HA7 protein and an NA2 protein
- H5N1 virus has an HA5 protein and an NA1 protein

All known subtypes of influenza A viruses can infect birds, except subtypes H17N10 and H18N11, which have only been found in bats

Influenza A H5

- There are nine known subtypes of H5 viruses: H5N1, H5N2, H5N3, H5N4, H5N5, H5N6, H5N7, H5N8, H5N9

- Five of eight samples airlifted to the **National Institute of High Security Animal Diseases, Bhopal**, tested positive for the virus.
- Culling of ducks in the infected regions would be undertaken as per Central guidelines.

Analysis

Bird Flu

- **H5N1** is a type of influenza **virus** that causes a highly infectious, severe **respiratory disease in birds** called avian influenza (or "bird flu").
- These flu viruses occur naturally among birds. Wild birds worldwide carry the viruses in their intestines, but usually do not get sick from them. However, bird flu is

very contagious among birds and can make some domesticated birds, including chickens and ducks, very sick and kill them.

How does avian flu spread in birds?

- Infected birds shed flu virus in their saliva, nasal secretions, and feces (droppings). Susceptible birds become infected when they have contact with contaminated excretions or surfaces that are contaminated with excretions.
- Infected birds pass on **H5N1** through their saliva, nasal secretions, and faeces.
- **H5N8 first appeared in China in 2014.**
- The strain came from the H5N1 virus which started its menace in China in 1996.

Do avian flu viruses infect humans?

- Bird flu viruses do not usually infect humans, but several cases of human infection with bird flu viruses have occurred since 1997.
- Human cases of **H5N1** avian influenza occur occasionally, but it is **difficult to transmit the infection from person to person.**
- While it can prove lethal for birds, **the H5N8 strain of avian influenza has a lower likelihood of spreading to humans compared to H5N1.**

Swine flu

- The **pandemic influenza strain, or swine flu**, that spread globally in 2009 was referred to as **H1N1**.
- There are **four major types of influenza that infect humans**, known as influenza A, B, C and D.
 - Influenza A and B can both cause **serious infections**, and are the cause of what we call the flu.
 - **Influenza C** viruses differ from influenza A and B, and **only cause a**

mild infection, so they **don't appear in vaccines.**

- **Influenza A** viruses infect humans and many different animals.
 - Influenza B viruses circulates among humans and cause seasonal epidemics.
 - Influenza C viruses can infect both humans and pigs but infections are generally mild and are rarely reported.
 - Influenza D viruses primarily affect cattle and are not known to infect or cause illness in people.
 - **Influenza type A viruses** are of most significance to public health due to their potential to cause an influenza pandemic.
 - Depending on the origin host, influenza A viruses can be classified as avian influenza, swine influenza, or other types of animal influenza viruses.
 - Aquatic birds are the primary natural reservoir for most subtypes of influenza A viruses.
- A pandemic influenza strain is one that **humans have not been previously exposed to**, so people do not have immunity to it.

Hs and Ns

- Surface antigens (foreign **proteins**) haemagglutinin (H) and neuraminidase (N) form the viral coat of the H1N1 influenza viruses.
- Viruses **attach by their haemagglutinin onto receptors** on the surface of cells in order to infect them, like a grappling hook.
- The **neuraminidase removes these receptors from infected cells** at the right

time to allow newly synthesised viruses to escape and spread.

- Among influenza A viruses there are **18 different types of haemagglutinin**, from H1 to H18 and **11 different types of neuraminidase**, from N1 to N11. Each virus has one type of H (such as H1) and one type of N (such as N1).
- **Influenza B strains do not circulate in animals**, so they cannot cause a pandemic. But, like influenza A viruses, they continually change, so we will never become immune to every strain.

7. India, Antarctica, Arctic and More (PIB)

- **Context:** India launched the 40th scientific expedition to Antarctica.
- The Indian Antarctic expeditions began in 1981.
- The Indian Antarctic programme has now credited to have built three permanent research base stations in Antarctica—named Dakshin Gangotri, Maitri, and Bharati.
- As of today, India has two operational research stations in Antarctica named Maitri and Bharati.
- The National Centre for Polar and Ocean Research (NCPOR), Goa, manages the entire Indian Antarctic program.
- **This topic has been comprehensively covered in 14th Oct file.**

8. Pfizer skipped meeting with expert panel thrice, says Health Ministry (TH)

- Pfizer Inc, which has applied for approval to market its RNA-based vaccine that has got the go-ahead in the U.S. and the U.K, has not yet appeared for a presentation before the Subject Expert Committee.

- Pfizer's vaccine has also been pre-qualified by the World Health Organization and is being made available in several other countries.
- It employs a technology platform in which a **small part of the SARS-CoV-2, called the messenger RNA**, that normally gives instructions to cells to make protein, can instruct the body's cells to make viral proteins that can then trigger an immune response.
- This can reduce instances of adverse side effects without compromising on the immune system's ability to launch a protective response that can protect against infection.
- There have been challenges in keeping the m-RNA stable.
- The technology also allows such vaccines to be made relatively quickly compared to the current approaches of culturing virus strain in chicken eggs.
- However, a relative drawback is it requires extreme sub-zero degree refrigeration that is not available in most of the world, including India.
- **"What is an mRNA vaccine" was covered in 7th Nov file.**

9. Explained: Bird flu and its spread to other animals including humans (IE)

- **Context:** Bird flu has been reported among **wild geese** in Himachal Pradesh, **crows** in Rajasthan and Madhya Pradesh **and ducks** in Kerala. In Haryana, around one lakh **poultry birds** have died mysteriously in the last few days.
- In Himachal Pradesh's Pong Dam Lake, around 1,800 migratory birds have been found dead.

Analysis

What is avian influenza?

- **It is a highly contagious viral disease caused by Influenza Type A viruses which generally affects poultry birds such as chickens and turkeys.**
- There are many strains of the virus – some of them are mild and may merely cause a low egg production or other mild symptoms among chickens, while others are severe and lethal.

How does the bird flu spread?

- Wild aquatic birds such as ducks and geese are the natural reservoir of Influenza A viruses and the central players in the ecology of these viruses.
- **Many birds carry the flu without developing sickness, and shed it in their droppings.**
- Since birds excrete even while flying, they provide “a nice aerosol of influenza virus, shedding it all over the world”.
- From water birds, many of whom migrate and travel long distances, the viruses are thus
- further spread to poultry and terrestrial birds.
- Sometimes, the virus jumps over to mammals such as pigs, horses, cats and dogs.

When and how did the bird flu start infecting humans?

- Bird flu outbreaks have been affecting poultry around the globe for decades, and culling of infected birds has been a common measure to contain the spread.
- But it was in 1997 when humans are first known to have contracted bird flu following an outbreak in a live bird market of Hong Kong. **It was the H5N1 strain of the virus.**

- Movement of infected poultry and migratory birds, and an illegal bird trade are believed to be the causes of the spread. Some mammals such as cats and lions were also infected.
- **Subsequently, several other strains of the virus such as H5N2 and H5N8 jumped from animals to humans, thus becoming a global public health concern.**

Does it spread easily to humans?

- Generally, people coming in close contact with infected alive or dead birds have contracted the H5N1 bird flu.
- As per the WHO, H5N1 bird flu does not usually spread from person to person.
- There is also no evidence, the WHO says, that the disease can be spread to people through properly prepared and cooked poultry food. The virus is sensitive to heat, and dies in cooking temperatures.
- H5N1 is severe and deadly – If the virus mutates and becomes easily transmissible from person to person, say by altering its shape to grab human cells much more effectively, it can potentially cause a pandemic.
- **Also, flu viruses are more prone to mutation because they have a segmented genome.**
- All known strains of flu – including the seasonal flu and the pandemic flu (including SARS Cov-2)– have jumped from birds to humans in this way.
- In birds, virus generally infects the gut.
- However, in Humans the avian influenza attacks the respiratory tract and may cause severe respiratory illnesses such as pneumonia or Acute Respiratory Distress Syndrome (ARDS).

- For more details, refer to 5th Jan file.

10. Explained: The return of bird flu (IE)

- **Context:** After bird flu (avian influenza) was confirmed in Kerala, Rajasthan, Madhya Pradesh, Haryana, and Himachal Pradesh, high alert has been sounded in Maharashtra. Several states have been reporting deaths of birds, including **poultry birds, crows and migratory species.**

Analysis

- The infection Bird flu or avian influenza is the name used to describe a viral infection that is reported mostly in birds, but has the potential to affect humans and other animals. The most common strain of the virus **that causes severe respiratory disease in birds** is H5N1; various other strains like H5N7, H5N8 too, cause infection.
- The virus was first reported in geese in China in 1996. Since then, outbreaks have been reported periodically across the world.
- The H5N1 virus can jump species and infect humans from the infected bird.
- The **high mortality rate in humans** — almost 60 per cent — is the main cause of concern about the spread of bird flu.
- In its present form, **human-to-human transmission/infection is not known** — human infections have been reported only among people who have handled infected birds or carcasses.
- The virus dies immediately if exposed to temperatures over 70 degrees Celsius.
- Unlike in South East Asian countries, both meat and eggs in India are eaten well cooked, which sees them being exposed to over 100 degrees Celsius.

- Thus, the chances of humans contracting the virus from eating chicken and eggs is extremely rare.

11. National Mission on Quantum Technologies and Applications (TH)

National Mission on Quantum

Technologies and Applications

- **Context:**The government in its budget 2020 has announced a **National Mission on Quantum Technologies & Applications (NM-QTA)** with a total budget outlay of Rs 8000 Crore for a period of five years to be implemented by the Department of Science & Technology (DST).

Analysis

- Quantum mechanics was developed in the early 20th century to describe nature in the small — at the scale of atoms and elementary particles.
- For over a century it has led to ubiquitous inventions such as lasers and semiconductor transistors.
- More than two years ago, **the department of science and technology launched the Quantum-Enabled Science and Technology (QuEST) programme** with an aim to develop technical capacity within the country to build quantum computers and communications systems comparable with the best in the world.
- The first phase of the project was to build the infrastructure and acquire human resources to develop physical and computation structures for improving precision in quantum measurement.
 - The eventual goal is to build quantum computers domestically.

- Google's recently announced that it had achieved "quantum supremacy"—the ability to perform a calculation on a quantum computer that is impossible on a conventional computer.
- Ordinary computers function using binary logic gates that can be either off or on.
 - This is why classical computers store information in bits—either as a 0 or 1.
- On the other hand, quantum computers can store information as both a 0 and a 1 at the same time using a quantum property called superposition.
- This means that with two quantum bits (or qubits), information can be stored in four possible states of superposition, and as more qubits are added, the computational power grows exponentially.
- While this gives us more computing power, quantum computers are error-prone.
- The quantum state is delicate. It lasts for a fraction of a second and is easily disrupted by tiniest of vibrations or variations in temperature.
- This "noise" in calculations causes mistakes to occur, and unless we can make them sufficiently error-free, quantum computing will not be commercially viable.
- Google's breakthrough was to achieve sufficient control over the process to allow its experimental computer to outperform a traditional computer. As a result, its computer could solve in 200 seconds what would take the world's fastest supercomputer 10,000 years.
 - Google's Sycamore processor harnessed 53 qubits in its latest experiment.
- Take encryption, for example. Almost all digital security today is based on the RSA algorithm that encrypts messages by relying on the factorization of two large prime numbers. While it is easy to multiply two prime numbers, it is very difficult to factorize them. RSA encryption exploits this feature, making it impossible for even governments and private actors with near infinite computational resources to decrypt messages.
- Quantum field has not yet matured for commercialization, due to the extreme scientific challenges involved.
- Quantum computers store and process information using quantum two level systems (quantum bits or qubits) which unlike classical bits, can be prepared in superposition states.
- This key ability makes quantum computers extremely powerful compared to conventional computers when solving certain kinds of problems like finding prime factors of large numbers and searching large databases.
- The prime factorization quantum algorithm has important implications for security as it can be used to break RSA encryption, a popular method for secure communication.

Promising future

- Besides computing, exploring the quantum world promises other dramatic applications including the creation of novel materials, enhanced metrology, **secure communication**, to name just a few.
 - For example, **China recently demonstrated secure quantum communication links between terrestrial stations and satellites.**
- And computer scientists are working towards deploying schemes for **post-quantum cryptography** — clever schemes

by which existing computers can keep communication secure even against quantum computers of the future.

- Quantum field has not yet matured for commercialization, due to the extreme scientific challenges involved.
- Quantum computers store and process information using quantum two level systems (quantum bits or qubits) which unlike classical bits, can be prepared in superposition states.
- This key ability makes quantum computers extremely powerful compared to conventional computers when solving certain kinds of problems like finding prime factors of large numbers and searching large databases.
- The prime factorization quantum algorithm has important implications for security as it can be used to break RSA encryption, a popular method for secure communication.

Quantum Supremacy

- Recently, Google claimed to have achieved 'quantum supremacy' (the term 'quantum supremacy' coined by theoretical physicist John Preskill), which means that researchers at Google had solved a really difficult problem in seconds with the help of quantum computers which a supercomputer could not.
- **Google's quantum computer**, named **Sycamore**, claimed 'supremacy' because it reportedly did the task in 200 seconds that would have apparently taken a supercomputer 10,000 years to complete.

What are quantum computers?

- Quantum computers do not look like desktops or laptops that we associate the word 'computer' with. Instead (and there are only a handful of them) they resemble

the air-conditioned server rooms of many offices or the stacks of central processing units from desktops of yore that are connected by ungainly tangled wires and heaped in freezing rooms.

- Conventional computers process information in 'bits' or 1s and 0s, following classical physics under which our computers can process a '1' or a '0' **at a time**.
- Quantum computers compute in 'qubits' (or quantum bits). They exploit the properties of **quantum mechanics, the science that governs how matter behaves on the atomic scale**. In this scheme of things, processors can be a **1 and a 0 simultaneously**, a state called quantum superposition.
- In a quantum computer, a number of elemental particles such as **electrons** or **photons** can be used (in practice, success has also been achieved with **ions**), with either their charge or polarization acting as a representation of 0 and/or 1. Each of these particles is known as a qubit.
- While this accelerates the speed of computation, a machine with less than a 100 qubits can solve problems with a lot of data that are even theoretically beyond the capabilities of the most powerful supercomputers. Because of quantum superposition, a quantum computer — if it works to plan — can mimic several classical computers working in parallel.
- The ideas governing quantum computers have been around since the 1990s but actual machines have been around since 2011, most notably built by Canadian company **D-Wave Systems**.

How will it help us?

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- The speed and capability of classical supercomputers are limited **by energy requirements**. Along with these they also need more **physical space**.
- Several encryption systems used in banking and security applications are premised on computers being unable to handle mathematical problems that are computationally demanding beyond a limit. Quantum computers, in theory, can surpass those limits.
- A question critics raise is how the use of quantum computing and its ability to break encryption codes will impact online banking.
- However, if technological breakthroughs were to pose a real threat to banking or financial operations, it is likely that banks will harness quantum computers themselves.

Limitations

- This does not imply that the quantum computer can solve every challenging problem thrown at it.
- A common ailment that many quantum computers share is that they have their own unique propensity to errors and are not as amenable to executing real world problems as super computers.
- However, the Google feat shows that quantum computers are capable of a real world task.
- It gives confidence to private entrepreneurs and even academics to invest time and money to improving them and customise them to real world problems.

Is India working on quantum computing?

- There are no quantum computers in India yet.

- In 2018, the Department of Science & Technology unveiled a programme called **Quantum-Enabled Science & Technology (QuEST)** and committed to investing ₹80 crore over the next three years to accelerate research.
- The ostensible plan is to have a quantum computer built in India within the next decade.
- Phase-1 of the problem involves hiring research experts and establishing teams with the know-how to physically build such systems.

12. Identical twins aren't perfect clones, study shows (TH)

- **Context:** Identical twins are not exactly genetically the same, new research shows. 15% of identical twins showed up to 100 genetic differences.
- Previously, many researchers believed that physical differences between identical twins were related mostly to environmental factors, such as nutrition or lifestyle and not because of mutations.
- A mutation means an alteration in a sequence of DNA – a tiny change that is not inherently good or bad, but can influence physical features or susceptibility to certain diseases. They can occur when a cell divides and makes a slight error in replicating DNA.

Analysis

Cloning

- Strictly speaking, cloning is the creation of a genetic copy of a sequence of DNA or of the entire genome of an organism.
 - The copied material is called a clone.
 - Geneticists have cloned cells, tissues, genes and entire animals.

- In the latter sense, cloning occurs naturally in the birth of identical twins and other multiples.
- But cloning can also be done artificially in the laboratory via embryo twinning or splitting: an early embryo is split *in vitro* so that both parts, when transferred to a uterus, can develop into individual organisms genetically identical to each other.
- In the cloning debate, however, the term 'cloning' typically refers to a technique called somatic cell nuclear transfer (SCNT).
 - SCNT involves transferring the nucleus of a somatic cell into an oocyte from which the nucleus and thus most of the DNA has been removed. (The mitochondrial DNA in the cytoplasm is still present).
 - The manipulated oocyte is then treated with an electric current in order to stimulate cell division, resulting in the formation of an embryo.
 - The embryo is (virtually) genetically identical to, and thus a clone of the somatic cell donor.
 - Dolly was the **first mammal** to be brought into the world using SCNT.
 - ❖ Dolly, however, was not 100% genetically identical to the donor animal.
 - ❖ Genetic material comes from two sources: the nucleus and the mitochondria of a cell. Mitochondria are organelles that serve as power sources to the cell.
 - ❖ They contain short segments of DNA. In Dolly's case, her *nuclear* DNA was the same as the donor animal; other of her genetic materials came from the mitochondria in the cytoplasm of the enucleated oocyte.
- ❖ For the clone and the donor animal to be exact genetic copies, the oocyte too would have to come from the donor animal (or from the same maternal line – mitochondria are passed on by oocytes).
- In biomedical research, cloning is broadly defined to mean the duplication of any kind of biological material for scientific study, such as a piece of DNA or an individual cell.
- With the advent of **recombinant DNA technology** in the 1970s, it became possible for scientists to create transgenic clones—clones with genomes containing pieces of DNA from other organisms.
- Cloning happens all the time in nature—for example, when a cell replicates itself asexually without any genetic alteration or recombination.
- Prokaryotic organisms (organisms lacking a cell nucleus), such as bacteria and yeasts, create genetically identical duplicates of themselves using binary fission or budding.
- In eukaryotic organisms (organisms possessing a cell nucleus) such as humans, all the cells that undergo mitosis, such as skin cells and cells lining the gastrointestinal tract, are clones; **the only exceptions are gametes (eggs and sperm), which undergo meiosis and genetic recombination.**
 - Mitosis is the division of a cell into two daughter cells that are genetically identical to the parent cell.
 - Meiosis is the division of a germ cell into four sex cells (e.g. egg or sperm),

each with half the number of chromosomes of the parent cell.

- Mitosis is a means of asexual reproduction, whereas meiosis is necessary for sexual reproduction.

13. Why haven't crocodiles evolved since the age of the dinosaurs? (TH)

- The crocodiles of today look very similar to those that lived during the Jurassic period some 200 million years ago.
- Though lizards and birds have evolved and diversified into many thousands of species, **crocodiles have only a few species** – just 25.
- Now, scientists explain how a **particular pattern of evolution known as the 'stop-start' pattern and certain environmental changes** could explain why crocodiles haven't changed much.
- The findings show that the limited diversity of crocodiles and their apparent lack of evolution is a result of a slow evolutionary rate.
 - It seems the crocodiles arrived at a body plan that was very efficient and versatile enough that they didn't need to change it in order to survive.
- The climate during the age of dinosaurs was warmer than it is today, and that may explain why there were many more varieties of crocodile than we see now.
 - Prehistory also saw types of crocodile we don't see today, including giants as big as dinosaurs, plant-eaters, fast runners and serpentine forms that lived in the sea.
 - Being able to draw energy from the sun means they do not need to eat as

much as a warm-blooded animal like a bird or a mammal.

- This versatility could be one explanation why crocodiles survived the meteor impact at the end of the Cretaceous period, in which the dinosaurs perished.
 - Crocodiles generally thrive better in warm conditions because they cannot control their body temperature and require warmth from the environment.
- The next step for the team's research is to find out why some types of prehistoric crocodile died out, while others didn't.

14. Bacterial haute couture (TH)

- Cobalt, used in batteries, is toxic to living things. The metal seeps into the cells of most bacteria and kills them.
- Researchers investigated what happened when Geobacter, a bacterium found in soil and sediment, encounters cobalt.
- They found that the bacteria can extract the metal from rust and coat themselves with it.
- The microbe's ability can be used to extract cobalt from batteries and recycle it.

15. How old is the universe? (TH)

- A new study calculates that the cosmos is 13.77 billion years old, give or take 40 million years, which agrees with earlier estimates made using the Planck satellite. The astronomers used the Chilean Atacama Cosmology Telescope (ACT).
- In 2019, others showed that the universe is hundreds of million years younger than this estimate, by measuring the movements of galaxies, sparking off a debate.

16. Light Detection and Ranging Survey (LiDAR) (PIB)

- **Context:** National High Speed Rail Corporation Limited will be adopting **Light Detection and Ranging Survey (LiDAR)** technique using Laser enabled equipment mounted on a Helicopter for conducting ground survey for the preparation of Detailed Project Report for the proposed Delhi-Varanasi HSR corridor.

Analysis

- The alignment or ground survey is a crucial activity for any linear infrastructure project as the survey provides accurate details of areas around the alignment.
- The aerial LiDAR survey technique, **for the first time for any railway project in India, was adopted for the Mumbai-Ahmedabad High Speed Rail (MAHSR) Corridor** primarily because of its **high accuracy**.
- The ground survey using aerial LiDAR for MAHSR alignment was done only in 12 weeks against the 10-12 months if had been done through traditional survey methods.

LiDAR

- LiDAR, which stands for **Light Detection and Ranging**, is a remote sensing method that uses light in the form of a pulsed laser to measure ranges (variable distances) to the Earth.
- These light pulses—combined with other data recorded by the airborne system—generate precise, **three-dimensional information** about the shape of the Earth and its surface characteristics.
- A LiDAR instrument principally consists of a laser, a scanner, and a specialized GPS receiver.

- Airplanes and helicopters are the most commonly used platforms for acquiring LiDAR data over broad areas.
- Two types of LiDAR are topographic and bathymetric.
 - Topographic LiDAR typically uses a near-infrared laser to map the land, while bathymetric LiDAR uses water-penetrating green light to also measure seafloor and riverbed elevations.
- LiDAR systems allow scientists and mapping professionals to examine both natural and manmade
- A Prof. from the Department of Archaeology and Ancient History said that the LiDAR technology has immense potential for India, especially for agriculture and geology-related applications, but our country has still not used it in archaeology.

17. Tapas and SWiFT UAVs (PIB)

- **Context:** India's Defence Research and Development Organisation (DRDO) has handed over retractable landing gear systems for the Tapas and SWiFT unmanned aerial vehicles (UAVs).

Analysis

TAPAS-BH-201



- Rustom 2 (Rustom-II, also called TAPAS-BH-201, "Tactical Airborne Platform for

Aerial Surveillance-Beyond Horizon-201") is a Medium Altitude Long Endurance (MALE) UAV being developed by DRDO for the Indian Armed Forces.

- Once fully ready, the Rustom UAVs will replace Israeli Heron UAVs being used by the Indian Air Force (IAF) and the Navy.
- Rustom-2 is comparable to the American-made MQ-1 Predator drone and can fly for 24 hours at stretch.
- Rustom-2 is capable of carrying different combinations of payloads depending on the mission objectives including synthetic aperture radar (SAR), electronic intelligence (ELINT) systems and situational awareness systems.
- It has a satellite communications (SATCOM) link to relay real time battlefield information.
- The drone can loiter autonomously at high altitudes performing real-time, high-resolution intelligence, surveillance and reconnaissance (ISR) with its SAR and Electro-Optical/Infrared (EO/IR) sensors.

Stealth Wing Flying Testbed (SWiFT)



- The Stealth Wing Flying Testbed (SWiFT) is a technology demonstrator for an autonomous stealthy unmanned combat air vehicle (UCAV) being developed by Indian Ministry of Defence's Aeronautical

Development Agency (ADA) and Indian Institute of Technology (IIT) Kanpur.

- SWiFT is a scaled down testbed intended to develop technologies required for DRDO Ghatak UCAV program, tentatively called Autonomous Unmanned Research Aircraft (AURA).
- The Ghatak UCAV will be capable of releasing missiles, bombs and precision-guided munitions.
- The full scale Ghatak prototype is expected to conduct its maiden flight in 2024-25.

18. The first report of a primary deposit of vanadium in India (TH)

- **Context:** Arunachal Pradesh, considered a sleeping hydropower giant, is likely to become India's prime producer of vanadium, a high-value metal used in strengthening steel and titanium.

Analysis

- Exploration being carried out by the Geological Survey of India (GSI) has placed the eastern Himalayan State on the vanadium map of the country, and geologists are confident of identifying a deposit soon.
- It is recovered as a by-product from the slag collected from the processing of vanadiferous magnetite ores (iron ore).
- India is a significant consumer of vanadium, but is not a primary producer of the strategic metal.
 - According to data provided by the GSI, India consumed 4% of about 84,000 tonnes of vanadium produced across the globe in 2017. China, which produces 57% of the world's vanadium, consumed 44% of the metal.

- The expected grade of vanadium mineralisation in Arunachal Pradesh is comparable to the important vanadium deposits of the world.
 - Vanadium mineralization in Arunachal Pradesh is geologically similar to the “stone coal” vanadium deposits of China hosted in carbonaceous shale.
- **The largest deposits are in China, followed by Russia and South Africa.**

Facts About Vanadium



- Vanadium is a medium-hard, steel-blue metal.
 - Although a lesser-known metal, it is quite valuable in the manufacturing industry due to its malleable, ductile and corrosion-resistant qualities.
 - Vanadium rarely exists as a free element in nature but can be found in about 65 different minerals.
 - It also can be found in phosphate rock and some crude oils.
 - Vanadium can be detected spectroscopically in the Sun's rays and occasionally in the light of other stars.
 - High doses of vanadium are toxic to humans, but scientists think we may need the element in very small amounts for normal bone growth.
 - Vanadium can be found in trace amounts in many types of food, including mushrooms, black pepper, parsley, dill weed, shellfish, beer, wine and grain.
- Vanadium is sold as a bodybuilding supplement typically in the form of vanadyl sulfate.
 - Around 80 percent of the vanadium produced is alloyed with iron to make a shock- and corrosion-resistant steel additive.
 - Vanadium alloys are also used to make nuclear reactors because of their low-neutron-absorbing properties.
 - The compound vanadium pentoxide (V_2O_5) can also be combined with gallium to form superconductive magnets, according to Jefferson Lab. When mixed with aluminum and titanium, vanadium can create a very strong alloy that is used for special applications such as dental implants and jet engines.
 - Vanadium has very colorful oxidation states, including purple, green, blue and yellow.
 - Since vanadium steel keeps its hardness at high temperatures, it is used in circular saws, drill bits, engine turbines and other moving parts that produce high levels of heat.
 - Vanadium can be used in the process of refining uranium for nuclear purposes.
 - Vanadium is present in a small number of meteorites.

19. Smellicopter: An autonomous drone inspired by Moths (TH)

- **Context:** Researchers at the University of Washington and the University of Maryland have developed the ‘smellicopter’ an autonomous drone that uses live antennae

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from a moth to smell and avoid obstacles as it travels in the air.

- Moths can use their antennae to sense chemicals in the environment. Incorporating a live antenna from a moth as a sensor makes this drone tune and search in rescue operations. It also helps navigate an area with unexploded devices.

Analysis

All about Moths

- Moths vary greatly in size, ranging in wingspan from about 4 mm (0.16 inch) to nearly 30 cm (about 1 foot).
- Highly adapted, they live in all the habitats except polar habitats.
- Compared with butterflies, moths have stouter bodies and duller colouring.
- Moths also have distinctive feathery or thick antennae.
- the moth life cycle has four stages: egg, larva (caterpillar), pupa (chrysalis), and adult (imago).
- The larvae and adults of most moth species are plant eaters.
 - Larvae in particular do considerable damage to ornamental trees and shrubs and to many other plants of economic importance.
 - The bollworm and measuring worm are two of the most destructive types of moth larvae.
- Some moths are notorious for their ability to impersonate other animals.
- To avoid being eaten, some moths have evolved to look like less palatable insects, such as wasps, tarantulas and the praying mantis.
- Some moths even mimic bird droppings.
- While some moths, particularly caterpillars such as the corn earworm, bollworm are

major agricultural pests, many others are important pollinators.

- Their hairy bodies make moths great pollinators — they pick up pollen from any flower they land on.

Do you Know?

- While some moths suck nectar, others don't eat at all.
- For instance, the adult Luna moth doesn't even have a mouth. After it emerges from its cocoon, it lives for about a week. Its sole mission in life? To mate and lay eggs.
- Though they lack noses, moths are expert sniffers. They detect odor molecules using their antennae instead of through nostrils. Male giant silkworm moths have elaborate, feather-shaped antennae with hairlike scent receptors that allow them to detect a single molecule of a female moth's sex hormone from 7 miles (11 kilometers) away.
- Because of their abundance, moths are major players at the bottom of the food chain. They're a huge source of food for bats.
- In some parts of the world, moths are a major food source for people, too. More than 90 percent of people in some African countries eat moth and butterfly caterpillars.
 - Caterpillars are packed with protein and healthy fats, and research shows that 100 grams of these insects provides more than 100 percent of the daily requirement **of some vital minerals, such as potassium, calcium, zinc and iron.**

20. Spintronics (PIB)

- **Context:** Scientists have produced electron gas (**2d-electron gas(2DEG)**) with ultra-high mobility, which can speed up transfer

of quantum information and signal from one part of a device to another and increase data storage and memory.

Analysis

- The need for attaining new functionalities in modern electronic devices has led to the manipulation of property of an electron called **spin degree of freedom** along with its charge.
- This has given rise to an altogether new field of **spin-electronics or 'spintronics'**. It has been realized that a phenomenon called the 'Rashba effect', which consists of splitting of spin-bands in an electronic system, might play a key role in spintronic devices.
- Due to the high mobility of the electron gas, electrons do not collide inside the medium for a long distance and hence do not lose the memory and information.
 - Hence, such a system can easily remember and transfer its memory for a long time and distance.
- In addition, since they collide less during their flow, their resistance is very low, and hence they don't dissipate energy as heat. So, such devices do not heat up easily and need less input energy to operate.

21. All about Clinical Trials in India (TH)

- **Context:** The phase-3 clinical trial of Bharat Biotech's COVID-19 vaccine, Covaxin, by a private hospital in the Bhopal-based Peoples College of Medical Sciences & Research Centre appears to suffer from serious violations.

Analysis

Clinical Trials

- No new drug can be launched in India without it undergoing clinical trial in the country.
- India has 17% of global population and 20% of global disease burden.
- Less than 1.4% of all global clinical trials are done in India.
- Clinical trials are approved by the **Drug Controller General of India (DCGI)**.
- Recent revival of clinical trials in India is **because of introduction of scientific and balanced guidelines that suit all stakeholders.**
- **India has begun harmonizing the clinical trial environment as per international standards:**
 - now 50% of the trials can be conducted in private hospitals,
 - there is no restriction of three trials per investigator and
 - a formula for calculating financial compensation has been derived.
- **The Clinical Trials Registry of India (CTRI)** - It is a **free and online system** for registration all clinical trials being conducted in India.
 - Any researcher who plans to conduct a trial involving human participants, of any intervention as well **as trials being conducted in the purview of the Department of AYUSH** is expected to register the trial in the CTRI before enrolment of the first participant.
 - Registration of clinical trials in the CTRI is now **mandatory.**
- **Prerequisites of conducting a clinical trial in India**
 - Permission from the Drugs Controller General, India (DCGI).

- Approval from respective Ethics Committee where the study is planned.
- Mandatory registration on the Clinical Trials Registry of India.
- **The Drug Controller General of India is the main licensing authority.** It issues the permissions for new drugs and devices and oversees clinical trials.
- **The National Pharmaceutical Pricing Authority sets drug prices.**
- **The Drugs and Cosmetics Act** has a special provision to accept international trial data or other information, to allow import, and to waive the clinical trial requirement in the interest of public health.
- A clinical trial may also be waived for drugs that are approved and have been used in other countries for many years.

Informed consent process

- The **informed consent process**, the cornerstone of ethics in clinical trials.
- Following the October 2013 Supreme Court order, the Indian regulator had in 2019 made mandatory an audio-video recording of the informed consent process of each vulnerable individual participant before conducting clinical trials.
- And a written consent from the participant had to necessarily be taken before the audio-video recording of the informed consent process.
- In case of illiterate participants, an impartial witness is required to be present during the entire informed consent process to append his/her signatures to the consent form.

Stages of a clinical trial

- In its developing stage, a vaccine must go through three phases of rigorous experimental testing on human beings,

referred to as clinical trials, to judge its safety and efficacy.

- With an average sample size of less than 100, **phase I** is the preliminary study of safety, where the objective is to find the acceptable dose level which will not cause serious side-effects.
- **Phase II** is a study of safety and efficacy together, with a few hundred people or even fewer.
- Doses appearing to be simultaneously effective and safe are forwarded for a **phase III** study, which is a detailed evaluation of effectiveness in comparison to some existing treatment or some similar-looking treatment having no effect (called placebo).
 - Hundreds or even a few thousand people are given either the vaccine or a placebo.
 - They are then tracked over months to determine whether the people receiving the vaccine get infected less than people who get the control.
 - This stage even allows scientists to look for rare side-effects that can't be spotted in smaller, earlier stage trials.
- After the three phases, if the vaccine is found to be safe and effective, the study report is forwarded to the regulatory agency, which, if convinced, permits its usage en masse.
- **Phase IV** is the postmarketing surveillance stage. Such surveillance can only be conducted after the drug is marketed.

Central Drugs Standard Control

Organization

- **The Central Drugs Standard Control Organisation (CDSCO), headed by the** Drugs Controller General of India, under

Ministry of Health & Family Welfare,
Government of India is the National
Regulatory Authority (NRA) of India.

- Under the Drug and Cosmetics Act, the regulation of manufacture, sale and distribution of Drugs **is primarily the concern of the State authorities** while the **Central Authorities** are responsible for:
 - approval of New Drugs and Clinical Trials in the country,
 - laying down the standards for Drugs,
 - control over the quality of imported Drugs,
 - coordination of the activities of State Drug Control Organisations
 - banning of drugs and cosmetics and providing expert advice with a view of bring about the uniformity in the enforcement of the Drugs and Cosmetics Act.
- Further CDSCO along with state regulators, is jointly responsible for grant of licenses of certain specialized categories of critical Drugs such as blood and blood products, I. V. Fluids, Vaccine and Sera.

Why are guinea pigs used in medical research?

- They have **many biological similarities to humans**, beyond the simple fact that they are mammals, which make them useful in many fields of research.
 - **Studies on guinea pigs led to the discovery of:**
 - Vitamin C
 - the tuberculosis bacterium
- adrenaline

22. What are Deepfakes? (TH)

- **Deepfakes** — synthetic media, meaning media (including images, audio and video)

that are either manipulated or wholly generated by Artificial Intelligence.

- India has not enacted any specific legislation to deal with deepfakes, though there are some provisions in the Indian Penal Code that criminalise certain forms of online/social media content manipulation.
- The Information Technology Act, 2000 covers certain cybercrimes. But this law and the Information Technology Intermediary Guidelines (Amendment) Rules, 2018 are inadequate to deal with content manipulation on digital platforms.
 - (The guidelines stipulate that due diligence must be observed by the intermediate companies for removal of illegal content.)
- Blockchains are robust against many security threats and can be used to digitally sign and affirm the validity of a video or document.

23. Ballistic Missile (TH)

- **Context:** Pakistan has successfully test-fired a nuclear-capable surface-to-surface ballistic missile- Shaheen-III, which can strike targets up to 2,750 km.
- The launch of Shaheen-III missile was “aimed at revalidating various design and technical parameters of weapon system”, said a statement issued by the media wing of the Pakistani Army.

Analysis

- Ballistic missiles are powered initially by a rocket or series of rockets in stages (**first stage**), but then follow an unpowered (without fuel) curved trajectory mostly above the atmosphere (**second stage**) before descending to reach its intended

target (third stage). Thus, Ballistic

missiles have three stages of flight.

- A ballistic missile is only guided during the initial short boost phase, but minor corrections can be made by means of control motors.
- Ballistic missiles can carry either nuclear or conventional warheads.
- Ballistic missiles with range less than 1,000 kilometers are also known as “tactical” ballistic missiles.
- Ballistic missiles with range between 1,000 and 3,000 kilometers are also known as “theater” ballistic missiles.
- Ballistic missiles whose range is more than 5,500 kilometers (approximately 3,410 miles) are also known as **intercontinental or strategic ballistic missiles (ICBMs)**
- Ballistic missiles first came into use during World War II, when the Germans used them to attack London.
- They can be launched from **ground, air, sea or submarine platforms.**

How Cruise missiles, often in news, different from Ballistic Missiles?

- Cruise missiles are unmanned vehicles that are **propelled by jet engines**, much like an airplane.
- They can be launched from **ground, air, sea or submarine platforms.**
- Cruise missiles remain within the atmosphere for the duration of their flight and can fly as low as a few meters off the ground.
- Flying low to the surface of the earth expends more fuel but makes a cruise missile very difficult to detect.
- Cruise missiles **are self-guided** and use multiple methods to accurately deliver their payload, including terrain mapping, global

positioning systems (GPS) and inertial guidance.

Sriharikota v/s Wheeler Island

- **Sriharikota Island** is located in Pulicat lake (Andhra Pradesh). It houses India's satellite launch centre, Satish Dhawan Space Centre
- Abdul Kalam Island is located in Bay of Bengal, off the coast of Odisha. **Formerly known as Wheeler Island**, missile test facility for the most of Indian missiles including long range ones is available here.

24. Akash-NG (New Generation) Missile (PIB)

- **Context:** DRDO conducted the successful maiden launch of Akash-NG (New Generation) Missile from Integrated Test Range off the coast of Odisha.
- **The Akash-NG is a new generation Surface to Air Missile (SAM) meant for use by the Indian Air Force to intercept high-maneuvring low radar cross-section aerial threats.**
- The Akash-NG system has been developed with better deployability compared to other similar systems with canisterized launcher and much smaller ground system footprint.
- The new Akash system can defend an area of at least 10 times better compared to any short range SAM and is capable of engaging up to 10 targets simultaneously.
 - The earlier variant has a maximum range of 30 km, while Akash-NG can strike targets up to 70 km.

Analysis

Akash Missile

- Akash is India's first indigenously designed, developed and produced air defence system.

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- The short range multi-target engagement capable missile **was developed as part of the Integrated Guided-Missile Development Programme (IGMDP)** other than Nag, Agni, Trishul, and Prithvi missiles.
- The supersonic Akash missile has a range of around 25-30 km and up to the altitude of 18,000 metres.
- This missile uses high-energy solid propellant for the booster and ramjet-rocket propulsion for the sustainer phase. The missile system is **highly mobile**.
- **Several variants** of the missile — Akash MK1, Akash-MK2 — with improved accuracy and higher ranges are under development by the DRDO.
- The missile system was formally inducted into the **IAF and the Army** in May 2015.

25. Joint Military Exercise in Andaman Sea (PIB)

- **Context:** Indian Armed Forces conducted a large-scale conjoint military training exercise “KAVACH” along with “AMPHEX-21” in the Andaman Sea and Bay of Bengal.

Analysis

Tri service Military ‘Exercise Kavach’

- The aim of the tri-service drill is to sharpen operational synergy between the three services (Army, Navy and Air Force)
- The exercise will check the **preparedness of all the agencies in dealing with an asymmetric threat**.
- Asymmetrical threats are unconventional strategies and tactics adopted by a force.

Tri-service joint amphibious exercise

AMPHEX – 21

- It was conducted in Andaman & Nicobar group of islands.
- The exercise involved participation of Naval ships, amphibious troops of the Army and different types of aircraft from the Air force.
- The exercise was aimed at validating India’s capabilities to safeguard the territorial integrity of its island territories.
- It also sought to enhance operational synergy and joint warfighting capabilities amongst the three Services.

26. All about Lithium and Lithium-ion Batteries (PIB)

- **Context:** With electric vehicles fast becoming the new reality, Union Minister for MSME and Road Transport & Highways has stressed the need to emerge as pioneers in developing leading battery and power-train technologies.
- Noting that the challenge we presently face is the control on strategic reserves of Lithium, which is used to manufacture Lithium-ion rechargeable batteries used in vehicles, the Minister has called upon the EV sector to shift towards a completely indigenous battery technology in the coming years.

Analysis

Lithium discovered in India: What does it mean for Renewables?

- The Department of Atomic Energy, Government of India has discovered 1600kg Lithium in **Mandla district of Karnataka**.
 - India is spending a considerable amount of money on Lithium import, which acts as a drain to the Forex. The import bill of Lithium has risen upto three-fold between 2017 to 2020.

- Lithium has widespread uses across domains. It is added to glasses and ceramics for resistance to temperature fluctuation, it is used in heat-resistant greases and lubricants, and it is alloyed with aluminium and copper for light weight aerial components.
- Lithium is also used in psychiatric medications and in dental imprints.
- The lighter of two lithium isotopes is used in the production of Tritium, a key component of nuclear weapons.
- The most widespread and well-known use of Lithium is in the Lithium-ion (Li-ion) battery.
- Some of the most common applications of lithium-ion batteries are power backup appliances, mobile phones, laptops, and other commonly used electric goods.
- India's first Lithium plant has been set up at Gujarat in 2021.
- The growing demand for Lithium in India is driven by the goal of Indian government to become one of the largest electric vehicle markets world over.
 - NITI Aayog has set an ambitious target to increase the number of electric vehicles by 30 percent by 2030.
- While we have discovered 1600kg Lithium reserves, other countries are far ahead in Lithium discovery and export.
- Bolivia is the leading producer with 2.10 crore tonnes lithium reserves, and Argentina has 1.70 crore tonnes of Lithium.
- The Indian Space Research Organisation (ISRO) manufactures these batteries, but their quantity is presently limited, and they are severely restricted in use.
- The element is promoted because it has a lot of potential in the renewable sector of the modern energy spectrum, some of its advantages include:
 - India has declared 350 GW by 2030 as its renewable energy goals. Lithium discovery is a crucial step to making India self-reliant in the renewable sector and achieve the energy goals.

Four-fold jump in Li-ion battery imports since 2016 (from an article in the Hindu dated Feb 2020)

- India has quadrupled its imports of lithium-ion (Li-ion) batteries and more than tripled its import bill on the product, vital for powering a range of devices from cellphones to electric vehicles, from 2016-2018.
- Indian manufacturers source Li-ion batteries from China, Japan and South Korea and the country is among the largest importers in the world.
- The Indian Space Research Organisation (ISRO) manufactures such batteries but volumes are limited and they are restricted for use in space applications.
- In June 2018, Central Electro Chemical Research Institute (CECRI) in Tamil Nadu's Karaikudi, under the Council of Scientific & Industrial Research (CSIR) and RAASI Solar Power Pvt Ltd signed a Memorandum of Agreement for transfer of technology for India's first lithium-ion (Li-ion) battery project.
- To promote indigenous development of such batteries, the Union Cabinet in 2019 approved a programme, called a **National Mission on Transformative Mobility and Battery Storage** in the NITI Aayog (chaired by CEO NITI Aayog) to "drive clean,

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connected, shared, sustainable and holistic mobility initiatives.”

- Electric vehicles are expected to account for a significant share in the growth of the Li-ion battery demand in India though reports say this is unlikely at least until 2025, because electric cars are still significantly costlier than their combustion-engine counterparts.
- The government has announced investments worth \$1.4 billion to make India one of the largest manufacturing hubs for electric vehicles by 2040.

What's so special about lithium?

- In a lithium-ion battery, lithium metal migrates through the battery from one electrode to the other as a lithium ion.
- Lithium is one of the lightest elements, and it has the strongest electrochemical potential of any element.
- This enables a lithium-based battery to pack a lot of energy storage in a small, light battery.
- As a result, **lithium-ion batteries have become the battery of choice in many consumer electronics** such as laptops and cell phones.

Lithium-ion Batteries Gain Momentum

- Because of the inherent advantages in lithium-ion batteries, sales have grown exponentially since the turn of the century. **This has helped drive down costs consistently.**
- However, one country has seized the momentum and established a commanding market lead over its competitors in this space. But it's not the **U.S., where much of the critical research and development that created the lithium-ion battery took place.**

China in the Driver's Seat

- China is home to 73% of the global lithium cell manufacturing capacity, followed by the U.S., far behind in second place with 12% of global capacity.
 - **Note:** Top **producers of lithium** in the world as in 2019:
 - ❖ Australia: 51,000 MT
 - ❖ Chile: 16,000 MT
 - ❖ **China: 8,000 MT**
- China has a major advantage of **cheap labor**, which has allowed it to dominate many manufacturing industries.
 - But China also has **more lithium reserves** and much greater lithium production than the U.S. (so at least two reasons)
- The soft, silvery metal lithium is also known as **“white petroleum.”**
- Japan's Sony was the company that first commercialized the technology, but China was able to catch up because of its ability to manufacture the batteries at larger scales and sell them for cheaper.
- **For further details, refer to the “2019 Nobel Prize in Chemistry” article in 10th October file.**

2019 Nobel Prize in Chemistry

- It will be awarded to John D. Goodenough, M. Stanley Whittingham and Akira Yoshino **for the development of lithium-ion batteries.**
- Through their work, this year's Chemistry Laureates have laid the foundation of a **wireless, fossil fuel-free society.**
- **Dr. Whittingham**, awarded this year's Chemistry Prize, used lithium's enormous drive to release its outer electron when he developed the first functional lithium battery.

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- **Dr. Goodenough** doubled the lithium battery's potential, creating the right conditions for a vastly more powerful and useful battery.
- **Dr. Yoshino** succeeded in eliminating pure lithium from the battery, instead basing it wholly on lithium ions, which are safer than pure lithium. This made the battery workable in practice.
- The result was a **lightweight, hardwearing battery** that **could be charged hundreds of times** before its performance deteriorated.
- The advantage of lithium-ion batteries is that they are **not based upon chemical reactions that break down the electrodes**, but upon lithium ions flowing back and forth between the anode and cathode.
- Lithium-ion batteries are used everywhere from **mobile phones** to **electric vehicles**, and also **to store significant amounts of energy from solar and wind power**.

The advantages/disadvantages of Lithium-ion batteries over other batteries are:

- **Advantages**

- **High energy density** - This implies Li-ion batteries can last way longer between charges, while maintaining high current output; this is because lithium is highly reactive element, and a lot of energy can be stored in its atomic bonds.
- **Do not need prolonged priming** when new. One regular charge is all that's needed.
- **Relatively low self-discharge** - Lithium batteries have low self-discharge, not only whilst being used, but lithium-ion batteries have a clear

advantage when not being used as well. When not in use, the rate of self-discharge is extremely low. The leakage of harmful chemicals is a common phenomenon in conventional batteries.

- **Low Maintenance** - no periodic discharge is needed; there is no memory.
- **Specialty cells** can provide very high current to applications such as power tools.
- Lithium-ion batteries can serve as a **solution for varied power demands** across the spectrum. It can range from vast energy storage to portable energy storage solutions. They can thus be used as large or small batteries.
- One of the advantages of Li-ion batteries is the fact that they **come in all shapes and sizes**, giving the users with many options to choose from according to their needs.

- **Limitations**

- **Requires protection circuit** to maintain voltage and current within safe limits.
- **Subject to aging, even if not in use** - storage in a cool place at 40% charge reduces the aging effect.
- **Transportation restrictions** - shipment of larger quantities may be subject to regulatory control. This restriction does not apply to personal carry-on batteries.
- **Expensive to manufacture** - about 40 percent higher in cost than nickel-cadmium.

- **Not fully mature** - metals and chemicals are changing on a continuing basis.
- Petrol run vehicles use lead-acid batteries, and not Li-ion batteries, because the latter is **sensitive to overheating**.
- They also **degrade faster in higher temperatures** and can even explode on overheating.
- Dependent on flammable and combustible materials, current **Li-ion batteries are susceptible to fire and explosion incidents**, most of which is without any warning.
- One of the major Centres of ISRO, **Vikram Sarabhai Space Centre (VSSC)**, is offering to transfer the in-house developed Li-ion cell technology to competent Indian Industries on **non-exclusive basis** to establish Li-ion cell production facilities in the country.
- This initiative is expected to enable Zero Emission Policy of India and accelerate the development of indigenous electric vehicle industry.

27. Neglected Tropical Diseases (NTDs) (PIB)

- **Context:** On World Neglected Tropical Diseases (NTD) Day, on 30th January 2021, more than 50 landmarks representing 25 nations across the world will be lit up to celebrate how far we have come together in beating NTDs. India too will proudly join these countries, by illuminating UNESCO world heritage site Qutub Minar.
- 1 in 5 people around the world are affected by NTDs. India is home to the world's

largest absolute burden of at least 11 of these major neglected tropical diseases.

Analysis

What are “neglected tropical diseases”?

- There are four primary criteria that define an illness as a neglected tropical disease (NTD):
- **First**, there is a significant burden of mortality and morbidity.
- **Secondly**, a majority of incidents occur in the world's tropical and sub-tropical regions, and it particularly impacts the poor.
- **Thirdly**, the disease is amenable to treatment, as well as prevention.
- **Finally**, the overall level of investment in research addressing the disease, from prevention to diagnosis to treatment and rehabilitation, is exceptionally low in comparison to its impact.

Some of the neglected tropical diseases identified by WHO are (please note that this list keeps on changing, red coloured diseases might no longer be in the latest list):

- Buruli ulcer
- Chagas disease
- Dengue and Chikungunya
- Dracunculiasis (guinea-worm disease)
- Echinococcosis
- Foodborne trematodiasis
- Human African trypanosomiasis (sleeping sickness)
- Leishmaniasis
- Leprosy (Hansen's disease)
- Lymphatic filariasis
- Mycetoma, chromoblastomycosis and other deep mycoses
- Onchocerciasis (river blindness)
- Rabies
- Scabies and other ectoparasites

- Schistosomiasis
- Soil-transmitted helminthiasis
- Snakebite envenoming
- Taeniasis/Cysticercosis
- Trachoma
- Yaws (Endemic treponematoses)
- The following six NTDs can be controlled or even eliminated through mass administration of safe and effective medicines or other, effective interventions:
 - Dracunculiasis (Guinea Worm Disease)
 - Lymphatic Filariasis
 - Onchocerciasis
 - Schistosomiasis
 - Soil-transmitted Helminths (STH) (i.e., *Ascaris*, Hookworm, and Whipworm)
 - Trachoma
- **Leprosy:** A complex disease caused by infection mainly of the skin, peripheral nerves, mucosa of the upper respiratory tract and eyes.
- **Chagas disease:** A life-threatening illness transmitted to humans through contact with vector insects (triatomine bugs), ingestion of contaminated food, infected blood transfusions, congenital transmission, organ transplantation or laboratory accidents.
- **Human African trypanosomiasis (sleeping sickness):** A parasitic infection spread by the bites of tsetse flies that is almost 100% fatal without prompt diagnosis and treatment to prevent the parasites invading the central nervous system.
- **Leishmaniasis:** Disease transmitted through the bites of infected female sandflies that in its most severe (visceral) form attacks the internal organs and in its most prevalent (cutaneous) form causes face ulcers, disfiguring scars and disability.
- **Taeniasis and neurocysticercosis:** An infection caused by adult tapeworms in human intestines; cysticercosis results when humans ingest tapeworm eggs that develop as larvae in tissues.
- **Dracunculiasis (guinea-worm disease):** A nematode infection transmitted exclusively by drinking-water contaminated with parasite-infected water fleas.
- **Echinococcosis:** Infection caused by the larval stages of tapeworms forming pathogenic cysts in humans and transmitted when ingesting eggs most commonly shed in faeces of dogs and wild animals.
- **Foodborne trematodiasis:** Infection acquired by consuming fish, vegetables

Neglected tropical diseases – Summary

- **Dengue:** A mosquito-borne infection causing flu-like illness that may develop into severe dengue and cause lethal complications.
- **Rabies:** A preventable viral disease transmitted to humans through the bites of infected dogs that is invariably fatal once symptoms develop.
- **Trachoma:** A chlamydial infection transmitted through direct contact with infectious eye or nasal discharge, or through indirect contact with unsafe living conditions and hygiene practices, which left untreated causes irreversible corneal opacities and blindness.
- **Buruli ulcer:** A debilitating mycobacterial skin infection causing severe destruction of the skin, bone and soft tissue.
- **Yaws:** A chronic bacterial infection affecting mainly the skin and bone.

and crustaceans contaminated with larval parasites; clonorchiasis, opisthorchiasis and fascioliasis are the main diseases.

- **Lymphatic filariasis:** Infection transmitted by mosquitoes causing abnormal enlargement of limbs and genitals from adult worms inhabiting and reproducing in the lymphatic system.
- **Onchocerciasis (river blindness):** Infection transmitted by the bite of infected blackflies causing severe itching and eye lesions as the adult worm produces larvae and leading to visual impairment and permanent blindness.
- **Schistosomiasis:** Trematode infections transmitted when larval forms released by freshwater snails penetrate human skin during contact with infested water.
- **Soil-transmitted helminthiasis:** Nematode infections transmitted through soil contaminated by human faeces causing anaemia, vitamin A deficiency, stunted growth, malnutrition, intestinal obstruction and impaired development.
- **Mycetoma** is a chronic, progressively destructive inflammatory skin disease which usually affects the lower limbs. Infection is thought to be caused by the inoculation, through a thorn prick or skin damage, of fungi or bacteria into the subcutaneous tissue.

WHO issues new 10-year plan to end suffering from neglected tropical diseases

- The overarching 2030 global targets are:
 - reduce by 90% the number of people requiring treatment for NTDs
 - at least 100 countries to have eliminated at least one NTD
 - eradicate two diseases (dracunculiasis and yaws)

- reduce by 75% the disability-adjusted life years (DALYs) related to NTD

- Additionally, the road map will track 10 cross-cutting targets and disease specific targets that include:
 - a reduction by more than 75% in the number of deaths from vector-borne NTDs such as dengue, leishmaniasis and others,
 - promote full access to basic water supply,
 - sanitation and hygiene in areas endemic for NTDs and achieve greater improvement in collecting and reporting NTD data disaggregated by gender.

28. How Radioactive Isotopes are Used in Medicine (PIB)

- **Context:** Bhabha Atomic Research Centre (BARC) has evolved a design for the first PPP Research Reactor for production of Nuclear Medicines.
- This project will be a major step towards making India self-reliant in key radio isotopes, to increase availability of effective and affordable treatments for cancer

Analysis

- Radioactive isotopes, or radioisotopes, are species of chemical elements that are produced through the natural decay of atoms.
- Exposure to radiation generally is considered harmful to the human body, but radioisotopes are highly valuable in medicine, particularly in the diagnosis and treatment of disease.
 - Radioisotopes typically have short half-lives and typically decay before

their emitted radioactivity can cause damage to the patient's body.

- Nuclear medicine uses radioactive isotopes in a variety of ways. One of the more common uses is **as a tracer** in which a radioisotope, such as technetium-99m, is taken orally or is injected or is inhaled into the body.
 - The radioisotope then circulates through the body or is taken up only by certain tissues.
 - Its distribution can be tracked according to the radiation it gives off.
 - The emitted radiation can be captured by various imaging techniques.
 - Through such imaging, physicians are able to examine blood flow to specific organs and assess organ function or bone growth.
- Therapeutic applications of radioisotopes typically are intended **to destroy the targeted cells such as those of cancer**.
 - In radiation therapy for cancer, the patient's tumor is bombarded with ionizing radiation, typically in the form of beams of subatomic particles, such as protons, neutrons, or alpha or beta particles, which introduces breaks in the double-stranded DNA molecule, causing the cancer cells to die and thereby preventing their replication.
 - While radiotherapy is associated with unpleasant side effects, it generally is effective in slowing cancer progression or, in some cases, **even prompting the regression of malignant disease**.
- The use of radioisotopes in the fields of nuclear medicine and radiotherapy has advanced significantly since the discovery

of **artificial radioisotopes** in the first decades of the 1900s.

- Artificial radioisotopes are produced from stable elements that are bombarded with neutrons.
- A radioisotope used for diagnosis must emit gamma rays of sufficient energy to escape from the body and it must have a half-life short enough for it to decay away soon after imaging is completed.
- The radioisotope most widely used in medicine is Tc-99, employed in some 80% of all nuclear medicine procedures.
 - It is an isotope of the artificially-produced element technetium and it has almost ideal characteristics for a nuclear medicine scan.

Sterilisation

- Many medical products today are sterilised by gamma rays from a Co-60 source, a technique which generally is much cheaper and more effective than steam heat sterilisation.
- The disposable syringe is an example of a product sterilised by gamma rays.
- Because it is a 'cold' process radiation can be used to sterilise a range of heat-sensitive items such as powders, ointments, and solutions, as well as biological preparations such as bone, nerve, and skin to be used in tissue grafts.
- Sterilisation by radiation has several benefits.
 - It is safer and cheaper because it can be done after the item is packaged.
 - The sterile shelf-life of the item is then practically indefinite provided the seal is not broken.

Nuclear medicine vs X-rays

- Positioning of the radiation source within (rather than external to) the body is the fundamental difference between nuclear medicine imaging and other imaging techniques such as X-rays.
- A distinct advantage of nuclear imaging over X-ray techniques is that both bone and soft tissue can be imaged very successfully.

Schemes, Policies, Initiatives, Awards and Social Issues

1. Pradhan Mantri KisanUrja Suraksha evamUtthanMahabhiyan (PM-KUSUM)

Scheme (PIB)

- **Context:** The Ministry of New and Renewable Energy has issued an order for the scale-up and expansion of the **Pradhan Mantri KisanUrja Suraksha evamUtthanMahabhiyan (PM-KUSUM) Scheme**.

Analysis

- The target now is to achieve enhanced solar capacity of 30.8 gigawatt (GW) by 2022.
 - The scheme had aimed to add a solar capacity of 25,750 MW (25.75 GW) by 2022.
- The scheme aims providing financial and water security to farmers.
- The scheme now consists of **three components**.
 - The first is 10,000 MW of decentralised ground mounted grid connected renewable power plants up to 2 MW.
 - The second is installation of 20 lakh (up from 17.50 lakh) stand-alone solar powered agriculture pumps.
 - The third component is solarisation of 15 lakh (up from 10 lakh) grid-connected solar powered agriculture pumps.
- Due to COVID-19 the implementation was slow during first half of the year, however, progress picked-up from August 2020 onwards.

- Based on the learning during first year, provisions for feeder level solarisation are being included in the scheme.
- Convergence of Scheme with Pradhan Mantri Krishi Sinchayee Yojana (PM-KSY) and Agriculture Infrastructure Fund has also been provided for.
- For ease of availability of finance the Reserve Bank of India included the three components of the Scheme under Priority Sector Lending Guidelines.
- In November, 2020, MNRE amended/clarified implementation Guidelines of Pradhan Mantri KisanUrja Suraksha evamUtthanMahabhiyaan (PM-KUSUM) Scheme based on the learnings from the implementation of the Scheme during the first year.
 - Scope of scheme has been increased by including pasturelands and marshy lands owned farmers.
 - Size of solar plant has been reduced so that small farmers can participate and completion period increased from nine to twelve months.
 - Further, penalty for shortfall in generation removed for ease of implementation by farmers.
 - As per the same MNRE order, Central Financial Allowance (CFA) will be allowed for solar pumps to be set up and used by Water User Associations (WUAs)/Farmer Producer Organisations (FPOs)/Primary Agriculture Credit Societies (PACSS) or for cluster-based irrigation system along with individual farmers.

Other Measures to increase Solar Energy Generation

- Announcement of a target of installing 100 GW of solar energy capacity by December, 2022.
- Waiver of Inter State Transmission System (ISTS) charges and losses for inter-state sale of solar power for projects to be commissioned up to December, 2022.
- Permitting Foreign Direct Investment (FDI) up to 100 percent under the automatic route.
- Notification of standard bidding guidelines to enable distribution licensees to procure solar and wind power at competitive rates in cost effective and transparent manner.
- Declaration of trajectory for Renewable Purchase Obligation (RPO) up to year 2022.
- Implementation of **Green Energy Corridor project** to facilitate grid integration of large-scale renewable energy capacity addition.

India Solar Cities Programme

- Solar City aims at minimum 10% reduction in projected demand of conventional energy at the end of five years, through a combination of enhancing supply from renewable energy sources in the city and energy efficiency measures.
- At least one city in each State to a maximum of seven cities in a State may be supported by the Ministry.
- The cities may have population between 0.5 to 50 lakh.

Suryamitra Programme

- The Suryamitra Skill Development Programme is designed with the objective to develop skilled and employable workforce (Suryamitras) catering to the needs of Solar PV industries.

Solar Pumps

- Solar pumps convert solar energy into electricity and fed to a pump that circulates water.
- There are **two main types** of solar pumps:
 - **Surface pumps** to move water through pipes.
 - **Submersible solar water pumps** are used to move water from inside wells to the surface.

Solar Pumps vs. Wind Pumps

- Solar pumps have some distinct **advantages over wind pumps**:
 - Solar-power systems collect energy **even when it's cloudy outside**, while wind systems rely on gusty conditions for peak efficiency.
 - Solar-power systems also often **cost less** than wind systems, and are **less expensive to maintain**.
 - Solar systems are also more mobile than wind systems.

- When sunlight falls on the solar panels it produces **direct current (DC)** which then feeds the motor to pump out the water.

Difference between AC and DC current

- In **direct current (DC)**, the electric charge (**current**) only flows in one direction. Electric charge in **alternating current (AC)**, on the other hand, changes direction periodically.
- We tend to get less losses to resistance when distributing AC over long distances.
- We can use thinner wires for AC which means they're cheaper to make and suspend.
- **Sector wise details of Installed Capacity from renewables excluding large hydro above 25 MW is as follows:**

Sector	Installed capacity
--------	--------------------

	(GW)
Solar Power	36.32
Wind Power	38.26
Bio Energy	10.31
Small Hydro	4.74
Wind Solar Hybrid	0
Round the Clock (RTC) Power	0

2. Major e-Governance Programmes (PIB)

- Major e-Governance programmes and activities undertaken by MeitY (Ministry of Electronics & IT) during 2020, including the support given during the pandemic, are as follows:
 - AarogyaSetu**, contact tracing app, for predicting potential COVID-19 hotspots.
 - MyGov**, the citizen engagement platform of the Government of India, and UN Women, held the **COVID-19 Shri Shakti Challenge** to encourage and involve women-led start-ups to develop innovative solutions to fight against Corona virus.
 - DigiLocker**, the digital platform for issuance and verification of documents issued by Government and private departments.
 - National Center of Geo-Informatics (NCoG)** is a Geographic Information System (GIS) based decision support system platform, under National e-Governance Division (NeGD). It geo-enables e-Governance to facilitate location based information for all.

- UMANG**, a mobile app (Android, iOS and KaiOS), is a unified platform aggregating major govt services (center, state and local bodies); the app is integrated with Aadhaar, DigiLocker, Payment Gateway etc.
- Open Forge**, a software repository and collaborative platform for software developers for managing project lifecycle.
- India's first global summit on Artificial Intelligence (AI), **RAISE 2020**.
- Digital Skilling initiative** launched by MeitY and NASSCOM in emerging technologies; the initiative aims to cover 7 lakh IT professionals in the next 5 years.
- Electronic Transaction Aggregation & Analysis Layer (eTaal)** dashboard (iOS and Android app available) for aggregated view of online transactions through e-Governance projects across Central, State and Local level.
- Jeevan Pramaan**, a biometric-enabled digital service for pensioners to submit their Digital Life Certificates (DLC) online, processed 4.31 crore DLCs till November 2020.

3. 1000 Springs Initiative (PIB)

- Springs are natural sources of groundwater discharge and have been used extensively in the mountainous regions across the world, including India.
- However, in the central and eastern Indian belt with more than 75% tribal population, it remains largely unrecognized and under-utilized.
- The '**1000 Springs Initiative**' by the Ministry of Tribal Affairs and United Nations Development Programme aims to harness the potential of perennial springs to meet

the water needs of the remote tribal communities.

- Under this initiative, young tribal youths from the rural belt of three districts of **Odisha namely, Kalahandi, Khandamal and Gajapati** have been trained as barefoot hydro geologists by combining traditional and scientific knowledge for identification and mapping of springs, and undertaking rejuvenation and protection measures in their habitations.

4. UJALA and SLNP complete six years

(PIB)

- Launched in January 2015, the Government of India's zero subsidy **Unnat Jyoti by Affordable LEDs for All (UJALA)** and **Street Lighting National Programme (SLNP)** marks their sixth anniversary recently.
- Both the programmes are being implemented by **Energy Efficiency Services Limited (EESL)**, a joint venture of PSUs under the Ministry of Power, since their inception.
- Under UJALA, EESL has distributed over 36.69 crore LED bulbs across India.
 - This has resulted in energy savings, reduction in peak demand and decreased GHG emissions.
- Additionally, over 72 lakh **LED tube lights** and over 23 lakh **energy efficient fans** have also been distributed at affordable price under this programme.
- With SLNP, EESL has installed about 1.14 crore **LED streetlights** across India.
 - This has resulted in energy savings, reduced peak demand, GHG emission reduction and monetary savings in electricity bills of municipalities.

Energy Efficiency Services Limited (EESL)

- EESL is a joint venture of four national Public-Sector Undertakings – NTPC Limited, Power Finance Corporation Limited, Rural Electrification Corporation Limited and POWERGRID Corporation of India Limited – under the **Ministry of Power**.
- EESL also leads the **market-related activities** of the National Mission for Enhanced Energy Efficiency (NMEEE), one of the eight national missions under the National Action Plan on Climate Change.
- The company's energy service model combines **cost reduction achieved by demand aggregation and economies of scale**, which in turn have stimulated India's private energy efficiency investments and large-scale manufacturing.
- EESL focuses on solution-driven innovation with no subsidy or capital expenditure (CAPEX).
- It is able to do so using its Pay-As-You-Save (PAYS) model, which obviates the need for any upfront capital investment by the consumer.
- The entire investment by EESL is recovered through monetised energy savings over a scheduled project period.
- Energy Efficiency Services Limited (EESL) is a Super-Energy Service Company (ESCO).
- EESL is implementing the **world's largest non-subsidised energy efficiency portfolio** across sectors like lighting, buildings, e-mobility, smart metering and agriculture at a scale which no organization has been able to achieve.
- Objectives

- To carry out and promote the business of Energy Efficiency and climate change including manufacture and supply of energy efficiency services and products.
- To Provide consultancy services in the field of Clean Development Mechanism (CDM) projects, carbon markets, demand side management, energy efficiency, climate change and related areas.
- To act as resource center in the field of Energy Efficiency and take up the activities of Capacity Building, Training and other related activities.

5. PM to Inaugurate PravasiBharatiya Divas Convention 2021 (PIB)

- PravasiBharatiya Divas (PBD) Convention is the flagship event of the **Ministry of External Affairs** and provides an important platform to engage and connect with the overseas Indians.
- The 16th PBD Convention is being held Virtually on 9 January, 2021 in New Delhi.
- The theme of 16th PBD Convention 2021 is “Contributing to Aatmanirbhar Bharat”.

PravasiBharatiya Divas

- It is celebrated **once in every two years** to strengthen the engagement of the overseas Indian community with the Government of India.
- **January 9 was chosen as the day to celebrate this occasion since** it was on this day in 1915 that Mahatma Gandhi, the greatest Pravasi, returned to India from South Africa, led India's freedom struggle and changed the lives of Indians forever.

PravasiBharatiya Samman Award

- The PravasiBharatiya Samman Award is the highest honour **conferred on a Non-Resident Indian, Person of Indian Origin; or an organisation or institution established and run by Non-Resident Indians or Persons of Indian Origin**, who have made significant contribution in better understanding of India abroad, support India's causes and concerns in a tangible way, community work abroad, welfare of local Indian community, philanthropic and charitable work, etc.

Bharat Ko Janiye Quiz

- Bharat ko Janiye Quiz was launched in order to strengthen the engagement with young overseas Indians and encourage them to know more about their country of origin.
- The first edition of the online “Bharat ko Janiye” Quiz was organized for young **overseas Indians and foreigners of 18-35 years of age in 2015-16.**

6. Year End Review- 2020: Ministry of Labour and Employment (PIB) Official Logo of Labour Bureau was unveiled

- The newly launched logo represents that Labour Bureau is a data-based organization dealing in data related to workers and work.
- The logo also represents the three goals that Labour Bureau strives to achieve in producing quality data i.e. Accuracy, Validity and Reliability.
- Blue wheel is a cog wheel representing work, choice of blue colour signifies that we deal with blue collar workers.

- The graph is not going up words alone as in real world data has ups & downs because it captures ground reality.
- A tricolored Graph, matching the colours of the National flag, along with wheat ears, signifying the fruit of rural agricultural labour, have been beautifully placed in the logo.

All India surveys

- Labour Bureau has been entrusted with the task of conducting the following four “All India” surveys:
 - All India Survey on Migrant workers,
 - All India Survey on Domestic workers,
 - All India Survey on employment generated by Professionals, and
 - All India Survey on employment generated in the non-formal transport sector.



National Career Service Project-(NCS)

- The Ministry is implementing the National Career Service (NCS) Project as a Mission Mode Project for transformation of the National Employment Service to provide a variety of employment related services like job matching, career counselling, vocational guidance, information on skill development courses, apprenticeship, internships etc.

Pradhan Mantri RojgarProtsahan Yojana (PMRPY)

- The Pradhan Mantri RojgarProtsahan Yojana (PMRPY) Plan Scheme, launched

by the Ministry of Labour & Employment, has been designed to incentivise employers for generation of new employment, where Government of India will be paying the full employer's contribution towards EPF & EPS both w.e.f 01.04.2018 (earlier benefit was applicable for employer's contribution towards EPS only) for the new employment.

- **Women are allowed to work in mines under Pradhan Mantri Rozgar Protsahan Yojana.**

7. Year End Review- 2020: Ministry of Youth Affairs and Sports

Indigenous Sports Disciplines in Khelo India Youth Games (KIYG)

- The 4th Edition of Khelo India Youth Games is planned to be conducted in Haryana in 2021.

- It has been decided to include 5

Indigenous Sports Disciplines in Khelo

India Youth Games (KIYG) Haryana, 2021

- The 5 Indigenous Sports Disciplines in KIYG-2021 are:
 - Kalaripayattu
 - Gatkha
 - Thang-Ta
 - Maalkhamb
 - Yogasana

- For details, refer to 28th Dec file.

Target Olympic Podium Scheme (TOPS)

- For details, refer to 15th Sep file.

20 new disciplines are now eligible for Government jobs under sports quota

- Government has recently introduced 20 new disciplines for Central Government jobs under the sports quota.
- The list of sports which qualify for appointment of meritorious sportspersons

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in Central Government offices has now thus been revised from 43 to 63.

- The revised list, issued by the DoPT, includes 20 new disciplines: Baseball, Body Building (was included as part of Gymnastics previously), Cycling Polo, Deaf Sports, Fencing, Kudo, Mallakhamb, Motorsports, Net Ball, Para Sports (disciplines included in Paralympics and Para Asian Games), PencakSilat, Roll Ball, Rugby, SepakTakraw, Soft Tennis, Shooting Ball, Tenpin Bowling, Triathlon, Tug-of-war and Wushu.

Pandit Deendayal Upadhyay National

Welfare Fund to Sportspersons

- Financial assistance is given under the scheme '**Pandit Deendayal Upadhyay National Welfare Fund to Sportspersons**' for following purposes:
 - Assistance to sportspersons living in indigent circumstances
 - Assistance to Families of deceased Sportspersons Assistance for Medical Treatment to sportspersons or family members
 - Assistance for injuries sustained during training for and participation in Sports competitions
 - Assistance for training, procurement of equipments and participation in national and international sports events
 - Assistance to coaches and support personnel
 - Assistance for medical treatment to coaches and support personnel

8. Year End Review 2020- Ministry of Panchayati Raj (PIB)

- The major highlights of the Ministry of Panchayati Raj during the year 2020 are as follows:

SVAMITVA (Survey of Villages and Mapping with Improved Technology in Village Areas)

- The **Ministry of Panchayati Raj** has launched the physical distribution of Property Cards under the SVAMITVA Scheme.
- The launch will enable around one lakh property holders to **download their Property Cards through the SMS link delivered on their mobile phones.**
- This would be followed by physical distribution of the Property Cards by the respective State governments.
- SVAMITVA is a **Central Sector Scheme** of the **Ministry of Panchayati Raj**, which was launched on National Panchayati Raj Day, 24th April 2020.
- The scheme aims to provide the 'record of rights' to village household owners in rural areas and issue Property Cards.
- The Scheme is being implemented across the country in a phased manner over a period of four years (2020-2024) and would eventually cover around 6.62 lakh villages of the country.

Other features of the scheme:

- drone-based survey of rural areas by the **Survey of India**;
- establishment of Continuous Operating System (CORS) stations' network to assist in future drone flying activities;
- digital property card format.

The scheme seeks to achieve the following objectives:

- To bring financial stability to the citizens in rural India by enabling them to use their property as a financial asset for taking loans and other financial benefits.
 - Creation of accurate land records for rural planning.
 - Determination of property tax, which would accrue to the GPs directly in States where it is devolved or else, add to the State exchequer.
 - Creation of survey infrastructure and GIS maps that can be leveraged by any department for their use.
 - To support in preparation of better-quality Gram Panchayat Development Plan (GPDP) by making use of GIS maps.
 - To reduce property related disputes and legal cases
 - **Survey of India (Sol)** is the national mapping agency (NMA) of the country under the Ministry of Science & Technology.
 - However, its use in survey applications is limited because of inherent errors associated with the GPS signals.
 - It will help in the construction of large infrastructure projects and in generation and updation of revenue maps, which is one of the major problems being faced by the country today.
 - The system will also augment with the NAVIC network along with other GNSS networks like GPS, Galileo and GLONASS. In future, when the NAVIC system improves, dependence on foreign satellite systems will be reduced, making India a self-reliant nation.
 - It is in great demand among industries like surveying, navigation, construction, mining, precision agriculture and scientific research that require greater positional accuracy, as well as continuity of data.
- Continuously Operating Reference System (CORS)**
- CORS enables users (e.g. moving platforms) to position themselves with high-precision (**cm-level**).
 - CORS is a GPS augmentation system that facilities, archives and distributes GPS data corrections for precise positioning in an automated manner, usually over an Internet connection.
 - Distance-dependent errors are greatly reduced because more than one station is at work to ensure correct positioning.
 - GNSS (Global Navigation Satellite System) technology has transformed how surveying is done.
 - India has launched various ambitious missions to prepare the nation for **disruptive technologies** like Artificial Intelligence, Machine Learning, Industry 4.0 and robotics.

Panchayat funds to be audited online to bring in transparency and accountability of funds utilization

- Panchayat funds will be audited online as for the first time as the Ministry of Panchayati Raj has decided to carry out an online audit of 20 per cent of the estimated 2.5 lakh gram panchayats (GPs) across the country for the financial year 2019-20 on a pilot basis.
 - This will be scaled up to 100 per cent Panchayats across India in the next financial year 2021-22.
- For this purpose, the accounts of the panchayat for the year 2019-20 have been completed and closed in **e-Gram SWARAJ, (Simplified Work-based Accounting Application for Panchayati Raj)**, which was launched on the National Panchayati Raj Day on April 24, 2020.
 - e-GramSwaraj assists in enhancing the credibility of Panchayat through inducing greater devolution of funds to PRI.
 - It brings better transparency through decentralized planning, progress reporting and work-based accounting.
 - Furthermore, the application provides a platform for effective monitoring by higher authorities.
 - In this endeavour, the Ministry of Panchayati Raj has put in place an **e-Financial Management System (e-FMS)** comprising of Panchayat Planning, Physical Progress, Financial Progress, and Asset Management with Local Government Directory (LGD) forming the base for such a robust system along with the Public Financial

Management System (PFMS), Special Planning and Geotagging.

- This will be conducted using **AuditOnline**, an open-source application which facilitates the online and offline audit of accounts to improve the transparency and accountability of the utilisation of the funds.
 - AuditOnline is developed as part of Panchayat Enterprise Suite (PES) under e-panchayat Mission Mode Project (MMP) initiated by the Ministry of Panchayati Raj (MoPR).
 - **AuditOnline: Online Audit of Panchayat accounts**
 - ❖ As a critical Institutional reform, Ministry of Panchayati Raj has launched the **AuditOnline** application on **15th April, 2020** for carrying out online Audits of Panchayat accounts.
 - ❖ **AuditOnline** not only facilitates the auditing of accounts but also provisions for maintaining audit records that have been carried out.
 - ❖ One of the main unique aspect of **AuditOnline**; is that it is a completely configurable application i.e. the application can be modified/configured as per States 'Audit process flow, so that the State Auditors using the application can easily carry out the audit exercise using **AuditOnline**.
- To begin with; it was decided to carry out the audit of Panchayat accounts for 14th Finance Commission (XIV FC) for the year 2019-20.
 - Accordingly, States were informed that mandatory audit of at least 20% GPs need to be carried out.

- Uploading photos of work done and geo-tagging projects will also allow for physical inspection.
- The Ministry of Panchayati Raj has been making efforts to bring in transparency, efficiency and accountability in the functioning of Panchayats through the use of Information and Communication Technology (ICT). Recently, it recognised the efforts taken by the States and UTs and conferred e-Panchayat Puraskars.

- Himachal Pradesh secured the first prize under e-Panchayat Puraskar-2020.
- This award is conferred to those states who have ensured maximum use of information technology for monitoring the various works of the panchayats.

Gram Swaraj Abhiyan (Ministry of Rural Development)

- The campaign is undertaken under the name of "SabkaSath, Sabka Gaon, Sabka Vikas".
- The objective of the campaign is to promote social harmony, spread awareness about pro-poor initiatives of government, reach out to poor households to enrol them as also to obtain their feedback on various welfare programmes.
- As a part of GSA, more than 21,000 Indian villages with a significantly large number of poor households were able to buy LED bulbs for a special price under UJALA programme.
- The identified schemes are as follows.
 - Pradhan Mantri Ujjwala Yojana
 - Saubhagya
 - Ujala scheme
 - Pradhan Mantri Jan Dhan Yojana

- Pradhan Mantri Jeevan Jyoti Bima Yojana
- Pradhan Mantri Suraksha Bima Yojana and
- Mission Indradhanush.

Rashtriya Gram Swaraj Abhiyan (Ministry of Panchayati Raj)

- This Abhiyan is being undertaken for **developing governance capabilities of Panchayati Raj Institutions (PRIs) to deliver on the Sustainable Development Goals (SDGs).**
- It is a Centrally Sponsored Scheme.
- The scheme will have both Central Component - National Level activities including "National Plan of Technical Assistance", "Mission Mode project on e-Panchayat", "Incentivization of Panchayats" and State component - Capacity Building of Panchayati Raj Institutions (PRIs).
- The Central Component will be fully funded by the Government of India. However, Centre:State funding pattern for State Component will be 60:40 for all States, except North East and Hill States where Centre:State funding pattern will be 90:10.
 - For all Union Territories (UTs) (with and without legislatures), the Central share will be 100%.
- **Rashtriya Gram Swaraj Abhiyan** extends to all States and UTs of the country and will also include institutions of rural local government in non-Part IX areas, **where Panchayats do not exist.**
- The Scheme will be implemented during the period from 2018 to 2022.
- The implementation and monitoring of the activities of the scheme will broadly be aligned for achieving the Sustainable Development Goals (SDGs) with main

thrust on Panchayats identified under

Mission Antyodaya* and 115 Aspirational districts as identified by NITI Aayog.

- In his Budget Speech for 2017-18, the Finance Minister announced to undertake a Mission Antyodaya to bring one crore households out of poverty to make 50,000 Gram Panchayats poverty free. Accordingly, convergent action with Mission Antyodaya has been integrated into this scheme.

Mission Antyodaya(Ministry of Rural Development)

- Adopted in Union Budget 2017-18, Mission Antyodaya is a convergence and accountability framework aiming to bring optimum use and management of resources allocated by 27 Ministries/ Department of the Government of India under various programmes for the development of rural areas.
- In his Budget Speech for 2017-18, the Finance Minister announced to undertake a Mission Antyodaya to bring one crore households out of poverty to make 50,000 Gram Panchayats poverty free. Accordingly, convergent action with Mission Antyodaya has been integrated into **Rashtriya Gram Swaraj Abhiyan**.
- It is envisaged as state-led initiative with Gram Panchayats as focal points of convergence efforts.
- It is carried out coterminous with the **People's Plan Campaign (PPC)-Sabki Yojana Sabka Vikas of Ministry of Panchayat Raj** and its purpose is to lend support to the process of participatory planning for Gram Panchayat Development Plan (GPDP).

- Panchayats have been mandated for the preparation of Panchayat Development Plan (PDP) for economic development and social justice utilizing the resources available to them.
- The PDP planning process has to be comprehensive and based on participatory process which involves the full convergence with Schemes of all related Central Ministries / Line Departments related to 29 subjects enlisted in the Eleventh Schedule of the Constitution.

- It involves conducting an annual survey on measurable outcomes at Gram Panchayat level to monitor the progress in the development process across rural areas.
- Mission Antyodaya encourages partnerships with network of professionals, institutions and enterprises to further accelerate the transformation of rural livelihoods.

National Panchayat Awards 2020

- The awards are given on the **National Panchayati Raj Day celebrated on 24th April annually**.
- National Panchayat Awards for all three tiers of Panchayati Raj Institutions are conferred under various categories namely, **DeenDayal Upadhyay Panchayat Sashaktikaran Puraskar, Nanaji Deshmukh Rashtriya Gaurav Gram Sabha Puraskar, Gram Panchayat Development Plan Award, Child-friendly Gram Panchayat Award and e-Panchayat Puraskar**.

9. Natural Capital Accounting and Valuation of the Ecosystem Services (NCAVES) India Forum-2021 (PIB)

- **Context:** NCAVES India Forum 2021 is being organised by the Ministry of Statistics and Programme Implementation (MoSPI).

Analysis

- The NCAVES Project, funded by EU, has been jointly implemented by the United Nations Statistics Division (UNSD), the United Nations Environment Programme (UNEP) and the Secretariat of the Convention of Biological Diversity (CBD).
- India is **one of the five countries** taking part in this project - the other countries being **Brazil, China, South Africa and Mexico**.
- In India, the NCAVES project is being implemented by the MoSPI in close collaboration with the Ministry of Environment, Forest and Climate Change (MoEF&CC) and the National Remote Sensing Centre (NRSC).
- The participation in the project has helped MoSPI commence the compilation of the Environment Accounts as per the UN-SEEA framework and release environmental accounts in its publication **"EnviStats India"** on an annual basis since 2018.
 - The System of Environmental Economic Accounting (SEEA) is a statistical system that brings together economic and environmental information into a common framework to measure the condition of the environment, the contribution of the environment to the economy and the impact of the economy on the environment.

- Another feather to the cap under the NCAVES project is the development of the **India-EVL Tool (Economic Valuation Tool)** which is essentially a look-up tool giving a snapshot of the values of various ecosystem services in the different States of the country, based on about 80 studies conducted across the country.

10. Pradhan Mantri Kisan Samman Nidhi (PM-KISAN) (PIB)

- **Context:** PM-KISAN payments worth ₹1,364 crore have been wrongly made to more than 20 lakh ineligible beneficiaries and income tax payer farmers, according to information provided by the Agriculture Ministry in response to an RTI request.

Analysis

- PM-KISAN is the Centre's flagship scheme to provide income support worth ₹6,000 a year to farming families.
- When it was launched just before the general election in 2019, it was meant to cover only small and marginal farmers who owned less than two hectares. Later that year, large farmers were included in the scheme as the government removed the land size criterion.

Benefits and Eligibility conditions

- It is a Central Sector Scheme **and is being implemented by the Ministry of Agriculture & Farmers' Welfare**.
- **All land holding** eligible farmer families (subject to the prevalent exclusion criteria) are to avail of the benefits under this scheme.
 - The Scheme initially provided income support to all Small and Marginal Farmers' families across the country,

holding cultivable land upto 2 hectares.

- Its ambit was later expanded **to cover all farmer families in the country irrespective of the size of their land holdings, subject to an exclusion criteria.**
- The amount, 6,000 rupees per annum per family, is being released in three 4-monthly instalments of Rs.2000/- each over the year, to be credited into the bank accounts of the beneficiaries through Direct Benefit Transfer mode.
- The Scheme is expected to cover around 14.5 crore beneficiaries.
- Special provisions have been made for the North-Eastern States where land ownership rights are community based, Forest Dwellers and Jharkhand, which does not have updated land records and restrictions on transfer of land.

Exclusion Categories

- The following categories of beneficiaries of higher economic status shall not be eligible for benefit under the scheme:
 - All Institutional Land holders.
 - Farmer families in which one or more of its members belong to following categories:
 - ❖ Former and present holders of constitutional posts
 - ❖ Former and present Ministers/ State Ministers and former/present Members of Lok Sabha/ Rajya Sabha/ State Legislative Assemblies/ State Legislative Councils, former and present Mayors of Municipal Corporations, former and present Chairpersons of District Panchayats.

- ❖ All serving or retired officers and employees of Central/ State Government Ministries /Offices/Departments and its field units Central or State PSEs and Attached offices /Autonomous Institutions under Government as well as regular employees of the Local Bodies (*Excluding Multi-Tasking Staff /Class IV/Group D employees*)
- ❖ All superannuated/retired pensioners whose monthly pension is Rs.10,000/- or more (*Excluding Multi-Tasking Staff / Class IV/Group D employees*) of above category
- ❖ All Persons who paid Income Tax in last assessment year
- ❖ Professionals like Doctors, Engineers, Lawyers, Chartered Accountants, and Architects registered with Professional bodies and carrying out profession by undertaking practices.

- Responsibility of identifying the landholder farmer family eligible for benefit under the scheme **shall be of the State/UT Government.**

11. Atal Innovation Mission (AIM) (PIB)

- **Context:** Atal Innovation Mission, NITI Aayog today (12th Jan 2021) launched its new edition of Atal Tinkering Lab handbook which reinforces detailed establishment and operational processes of the Atal Tinkering Labs and its journey towards an innovative 'Aatmanirbhar Bharat'.
- The publication coincides with the **birth anniversary of Swami Vivekananda, also celebrated as the National Youth Day (12th January)** to honor the birthday of

Swami Vivekananda who voiced the important role that youth play in the building up of a strong nation throughout his life.

Analysis

- The Atal Innovation Mission (AIM) is a **flagship initiative set up by the NITI Aayog to promote innovation and entrepreneurship** across the country at school, university, research institutions, MSME and industry levels.
- Partnering with the **Ministries of Road Transport and Highways, Housing and Urban Affairs, Agriculture and Family Welfare, Drinking Water & Sanitation and the Railway Board**, AIM will attempt to harness the potential of India's innovators.

Implementation framework

- AIM has multiple programs to encourage and support innovation in the country.
- **Atal Tinkering Labs**-Creating problem solving mindset across schools in India.
- **Atal Incubation Centers**-Fostering world class startups and adding a new dimension to the incubator model.
- **Atal New India Challenges**-Fostering product innovations and aligning them to the needs of various sectors/ministries.
- **Mentor India Campaign**- A national Mentor network in collaboration with public sector, corporates and institutions, to support all the initiatives of the mission.
- **Atal Community Innovation Center**- To stimulate community centric innovation and ideas in the unserved /underserved regions of the country including Tier 2 and Tier 3 cities.

- **ARISE**-To stimulate innovation and research in the MSME industry.

Brief on activities carried out under Atal Innovation Mission

Atal Tinkering Laboratories

- With a vision to '**Cultivate one Million children in India as Neoteric Innovators**', NITI Aayog under the **Atal Innovation Mission** is establishing Atal Tinkering Laboratories (ATLs) in schools across India.
- Young children will get a chance to work with tools and equipment to understand the concepts of STEM (Science, Technology, Engineering and Math).
- The objective of this scheme is to:
 - **foster curiosity, creativity and imagination in young minds**; and
 - inculcate skills such as design mindset, computational thinking, adaptive learning, physical computing etc.
- Till date, 2441 schools have been selected across the country to establish ATL.
- ATL would contain educational and learning 'do it yourself' kits and equipment on – science, electronics, **robotics, open source microcontroller boards**, sensors and **3D printers** and computers.
- Other desirable facilities include meeting rooms and video conferencing facility.

Eligibility

- Schools (**minimum Grade VI - X**) managed by Government, local body or private trusts/society to set up ATL.

Atal Incubators

- It aims at **promoting entrepreneurship in universities and industry**.
- At the university, NGO, SME and Corporate industry levels, AIM is setting up world-

- class Atal Incubators (AICs) that would trigger and enable successful growth of sustainable startups in every sector/state of the country, addressing both commercial and social entrepreneurship opportunities in India and applicable globally.
- AIM is also providing scale up support to existing incubators for scaling up their operations.
 - AIM will provide a grant-in-aid of upto Rs. 10 crore for a maximum period of 5 years to cover the capital and operational expenditures to establish the AIC.

Requirements

- The applicant would have to provide at least 10,000 sq. ft. of ready-to-use, built-up space, for the exclusive use of the AIC.

Atal New India Challenges and Atal Grand Challenges

- These are to promote technology driven innovations and product creation for social and commercial impact.
- Atal New India Challenges/Atal Grand Challenges are being launched in specific areas and sectors of national importance - such as Renewable Energies, Energy Storage, Climate-smart precision agriculture, Universal drinking water, Swachh Bharat, Transportation, Education, Healthcare using Robotic, IOT technologies, Artificial Intelligence, Blockchain, Augmented and Virtual reality, Battery Technologies etc.
- Researchers have long talked of the 'Valleys of Death' at the early stage and commercialization stage in taking innovations to market.
 - The Atal New India Challenge aims to address the **second Commercialization Valley of Death,**

in which innovators are unable to access resources for piloting, testing, and market creation.

- The successful applicants will get a grant of upto Rs 1 crore for Atal New India Challenges and larger grants of upto Rs 30 crores for Atal Grand Challenges.
- The vision of ANIC is two-fold:
 - help create products from existing technologies relevant for national and social causes (**productization**);
 - help new deep-tech products find markets and early customers (**commercialization**) in the context of India.
- The programme is open to Indian companies registered under the Companies Act 1956/2013, primarily a Micro, Small and Medium Enterprises (MSME) as defined in the MSMED Act, 2006.
- It is also open to:
 - **Start-Ups, as defined by the Department of Industrial Policy and Promotion (DIPP),**
 - Government or private R&D organizations (other than a Railway R&D organization),
 - academic institutions,
 - academicians, or even individual innovators are encouraged to apply, provided they partner with entities with appropriate manufacturing capabilities.

Atal Innovation Mission launches 'AIM-iCREST'

- In a major initiative to encourage and enable holistic progress in the incubator ecosystem across the country, **NITI Aayog's Atal Innovation Mission (AIM),**

has launched AIM iCREST – an Incubator

Capabilities enhancement program for a Robust Ecosystem focused on creating high performing Startups.

- A **startup incubator** is a collaborative program designed to help new **startups** succeed. The sole purpose of a **startup incubator** is to help entrepreneurs grow their business.
- This is a first of its kind initiative for advancing innovation at scale in India.
- AIM has joined hands with Bill & Melinda Gates Foundation and Wadhvani Foundation - organizations that can lend credible support and expertise in the entrepreneurship and innovation space.

12. Kayakalp Award (PIB)

- Government of India launched a National Initiative 'Kayakalp' on 15th May 2015 as **an extension of 'Swachh Bharat Mission'** to ensure hygiene, sanitation and cleanliness in Public Health Facilities in India.
- Initiated from District hospitals in 2015, the scheme expanded to PHC level (2016) and then covered all Urban Health Facilities by 2017.
- Those District Hospitals, Sub-divisional hospitals, Community Health Centres, Primary Health Centres and Health & Wellness Centres in **public healthcare system** who have achieved high level of cleanliness, hygiene and infection control were recognised and felicitated with award.
 - For the holistic and comprehensive improvement across the health sector, the Kayakalp scheme was extended to private sector health facilities.

• The objectives of the award scheme are:

- 1) To inculcate a culture of ongoing assessment and peer review of performance related to hygiene, sanitation and infection control.
- 2) To incentivize and recognize public healthcare facilities that show exemplary performance in adhering to standard protocols of cleanliness, infection control and sanitation,
- 3) To create and share sustainable practices related to improving cleanliness in public health facilities which lead to positive health outcomes.

Swachh SwasthSarvatra

- Encouraged by the success of Kayakalp initiative, MoHFW had collaborated with Ministry of Drinking Water and Sanitation (**Jal Shakti Mantralaya** is formed by integrating the Ministry of Water Resources, River Development and Ganga Rejuvenation and Ministry of Drinking Water and Sanitation) and launched an integrated scheme under Swachh Bharat Mission named as "**Swachh SwasthSarvatra**" in December 2016.
- The aim of this scheme is to strengthen Community Health Centres in open defecation free (ODF) blocks across the country along with behavioural change to enable them achieve higher levels of cleanliness and hygiene with the goal of making India free of open defecation.
- Three broad objectives of this scheme are:
 - 1. Enabling Gram Panchayat where Kayakalp awarded PHCs are located to become ODF.

- 2. Strengthening Community Health Centre (CHC) in ODF blocks to achieve higher level of cleanliness to meet Kayakalp standards through a support of Rs 10 Lakh under NHM.
- 3. Build capacity through training in Water, Sanitation and Hygiene (WASH) of nominees from covered PHC and CHC.
- Highlighting the fact that the success stories of Kayakalp are not limited to India.
 - It has also been internationally applauded during 72nd World Health Assembly, held on 20-28th May 2019.
 - The success of Kayakalp is duly recognized in Global Baseline Report 2019 published by WHO, UNICEF and JMP.”

13. Pradhan Mantri FasalBimaYajana (PMFBY)(PIB)

- **Context:** Crop Insurance Scheme - The Pradhan Mantri FasalBimaYajana (PMFBY) successfully completes 5 Years of operations on 13th January 2021.

Analysis

- Premium cost over and above the farmer share is equally subsidized by States and Gol.
 - However, Gol shares 90% of the premium subsidy for North Eastern States to promote the uptake in the region.
- As an end to end risk mitigation mechanism for farmers, the scheme extends coverage for the entire cropping cycle from pre-sowing to post-harvest including coverage for losses arising out of prevented sowing and mid-season adversities.
- Individual farm level losses arising out of localized calamities and post-harvest

losses are also covered due to perils such as inundation, cloudburst and natural fire.

- Integration of land records with the PMFBY portal, Crop Insurance mobile-app for easy enrollment of farmers and usage of technology such as satellite imagery, remote-sensing technology, drones, artificial intelligence and machine learning to assess crop losses are some of the key features of the scheme.
- The scheme makes it easier for the farmer to report crop loss within 72 hours of occurrence of any event through the Crop Insurance App, CSC Centre or the nearest agriculture officer.
- As an endeavor to constantly bring about improvements, the scheme was made voluntary for all farmers, post its revamp in February 2020.
- Further the States have also been provided flexibility to rationalize the sum insured so that adequate benefit can be availed by farmers.

14. Target Olympic Podium Scheme (TOPS) (PIB)

- **Context:** Renowned physiologist and sports science expert Dr. Genadijus Sokolovas will be visiting the National Swimming camp being conducted at CSE Bangalore between January 11 and February 21 this year for a period of 6 days.
- The overall cost of Dr. Sokolovas' visit will be covered by the Target Olympic Podium Scheme.

Analysis

- In order to improve India's performance at Olympics and Paralympics, the Ministry of Youth Affairs and Sports started the **Target**

Olympic Podium Scheme (TOPS) in

September 2014; revamped in April 2018.

- The scheme has been extending all requisite support to **probable athletes** (not all athletes) identified for the Tokyo-2021, Paris-2024 and Los Angeles-2028 Olympic Games and Paralympic Games including foreign training, monthly stipend etc.
- **High priority category of sports discipline has been identified** to put focus on and incentivize those sports disciplines played in the Olympics in which India has won medals in the last conducted Asian Games as well as Commonwealth Games or in which India has good chance of winning medals in the upcoming Olympics of 2024 (Paris) and 2028 (Los Angeles).
- **Presently, nine sports disciplines viz.,** (i) Athletics, (ii) Badminton (iii) Hockey (iv) Shooting (v) Tennis (vi) Weightlifting (vii) Wrestling, (viii) Archery and (ix) Boxing **have been categorised as 'High Priority'.**
- Target Olympic Podium Scheme (TOPS) **covers the junior and sub-junior athletes also.**

15. Polio immunisation drive postponed (TH)

- **Context:** The Union Health Ministry has postponed the polio immunisation drive scheduled from January 17 till further notice, citing unforeseen activities.
- While the COVID-19 vaccination starts on January 16, the National Immunisation Day (NID), commonly known as Pulse Polio Immunisation programme, was scheduled for January 17 across India.

Analysis

Universal Immunization Program (UIP)

- Full immunization against preventable childhood diseases is the right of every child.
- With a view to provide this right to every child, the Government of India launched the **Universal Immunization Program (UIP) in 1985.**
- India's Universal Immunisation Programme (U.I.P.) is one of the largest in the world in terms of:
 - quantities of vaccine used,
 - the number of beneficiaries,
 - the number of Immunisation session organised,
 - the geographical spread and diversity of areas covered.
- The UIP provides **free of cost** vaccines to all children across the country to protect them against 12 life threatening diseases.
- These **twelve vaccine preventable diseases** are Tuberculosis, Pertussis, Diphtheria, Tetanus, Hepatitis B, Polio, Pneumonia and Meningitis due to Haemophilus Influenzae type b (Hib), Measles, Rubella, Rotavirus diarrhoea and Japanese Encephalitis (JE).
 - Rubella, JE and Rotavirus vaccine are given in select states and districts.
- Despite being operational for over 30 years, UIP has been able to fully immunize only 65% children in the first year of their life and the increase in coverage was stagnated in the past 5 years (before 2014) to an average of 1% every year.

Mission Indradhanush

- To accelerate the process of immunization by covering 5% and more children every year, Indradhanush mission was adopted.
- Mission Indradhanush aims to ensure that at least 90% of the children under the age

of two years and pregnant women, who are either unvaccinated, or are partially vaccinated against vaccine preventable diseases, are fully immunized with all available vaccines by 2020.

- Mission Indradhanush **does not target** to reduce post-natal death rate but targets to reduce diseases and death due to vaccine preventable diseases.

Intensified Mission Indradhanush (IMI)

- It is a supplemental aggressive action plan to cover all left outs and drop outs in select districts and urban areas with low routine immunization coverage to achieve the target of more than 90% coverage in a specific time-frame (December 2018).
- Mission Indradhanush is under the **Ministry of Health and Family Welfare.**

Measles-Rubella Vaccination Campaign India

- Measles and Rubella are highly **contagious viral diseases** that are spread by contact with an infected person through coughing and sneezing.
- Measles **weakens the immune system** of the body.
 - Hence infection with Measles often leads to serious complications that include blindness, encephalitis, severe diarrhoea and severe respiratory infections such as pneumonia.
 - **Most measles-related deaths are caused by complications associated with the disease.**
- Children below five years are prone to the infection and **one-third** of all measles-related deaths worldwide occur in India.
- **Vitamin A is key to immune system function**, and children with VAD are more

likely to contract common illnesses like measles than children without a deficiency.

- Children with VAD are also more likely to die from respiratory and diarrheal diseases.
- Vitamin A deficiency (VAD), affecting one-third of children in the world under age 5, is the leading cause of childhood blindness.
- Golden rice is a variety of rice produced through genetic engineering to biosynthesize beta-carotene, a precursor of vitamin A.
- Golden Rice is a textbook example of biofortification, genetically engineered to contain high levels of the vitamin A precursor beta-carotene.
- Rubella is a **mild viral infection** that occurs most often in **children and young adults.**
- Infection with Rubella may be associated with **swelling of lymph nodes** and joint pain.
- Rubella infection during pregnancy can cause abortion, stillbirth and may lead to **multiple birth defects** in the new born; like blindness, deafness, heart defects; known as **Congenital Rubella Syndrome (CRS).**
- India accounts for around **one third of all children** born worldwide with congenital rubella syndrome (CRS).
- No specific treatment is available for measles and rubella but these diseases can easily be prevented by vaccination.
- India, along with ten other WHO South East Asia Region member countries, **have resolved to eliminate measles and control rubella/congenital rubella syndrome (CRS) by 2020.**

- In this direction, Ministry of Health & Family Welfare has initiated measles-rubella (MR) vaccination campaign in the age group of 9 months to less than 15 years in a phased manner across the nation.
- The purpose of the **Measles-Rubella campaign** is to protect children and **eliminate transmission of Measles and Rubella** from the community by **vaccinating 100% target children with MR vaccine**.
- The conduct of Measles-Rubella vaccination campaigns was an important factor in achieving measles **elimination in the Western Hemisphere (2002)**, and the elimination of indigenous rubella in 2009.
- The campaign dose will be administered to all children falling between the age group of **9 months to less than 15 years of age**, irrespective of any past history of disease or vaccination.
- India has already beaten **smallpox, polio, maternal and neonatal tetanus** and, very recently, **yaws**.
 - India was **the first country in the world** to become YAWS-free.
 - This accomplishment is significant as India has achieved the milestone of being YAWS-free **much before the WHO global target year of 2020**.
 - YAWS is a kind of **bacterial infection** that affects skin, bones and joints.
- Elimination of measles will contribute to achieving **Sustainable Development Goal's target 3.2** which, among others, aims **to end preventable deaths of newborns and children under five years of age by 2030**.

Why is inactivated polio virus vaccine (IPV) now been introduced when India has already eradicated polio?

- Although India has been declared polio free, wild poliovirus is still present in neighbouring countries such as Afghanistan and Pakistan.
- The poliovirus can be imported by travellers across countries.
- Till such time as the poliovirus is not eradicated from all the countries of the world, the threat of re-emergence and re-infection of polio remains.
- This is an important step towards global; eradication of polio which is being implemented in all countries.
- **2014:** No Wild Polio virus case was reported from the country for the last three years and India had a historic achievement and was certified as "polio free country" along with other South East Asia Region (SEAR) countries of WHO.

16. Phase-II of "Grid Connected Rooftop and Small Solar Power Plants Programme" (PIB)

- **Context:** To generate solar power by installing solar panels on the roof of the houses, Ministry of New and Renewable Energy is implementing Grid-connected Rooftop Solar Scheme (Phase-II).
- Under this scheme Ministry is providing 40% subsidy for the first 3 kW and 20% subsidy beyond 3 kW and upto 10 kW.
- The scheme is being **implemented in the states** by local Electricity Distribution Companies (DISCOMs).
- It has been brought to the notice of the Ministry that some rooftop solar companies / vendors are setting up rooftop solar plants

by claiming that they are authorized vendors by the Ministry.

- It is clarified that no vendor has been authorized by the Ministry. This scheme is being implemented in the state **only by DISCOMs**.
 - The DISCOMs have empaneled vendors through bidding process and have decided rates for setting up a rooftop solar plant.
- Domestic consumers are informed that to get subsidy under the scheme of the Ministry, they should install rooftop solar plants only from the empanelled vendors of the DISCOMs following due process of approval by DISCOMs.
- The solar panels and other equipment to be installed by the empanelled vendors also include 5-year maintenance of the rooftop solar plant by the vendor.

Analysis

- As a part of Intended Nationally Determined Contributions (INDCs), India has committed to increase the share of installed capacity of electric power from non-fossil-fuel sources to 40% by 2030.
- Solar energy is one of the main sources to accomplish the target of 40% of electric power from non-fossil-fuel.
- Government of India has set the target of achieving 100 GW of solar power capacity in the country by the year 2022 of which 40 GW to be achieved from rooftop solar (RTS).
- The **rooftop solar (RTS)** plant is a system installed mainly on the roof of a building and **includes installations on open contiguous land within the area of premises** wherein valid and live electricity connection has been provided by the

concern Distribution utilities/companies (DISCOMS).

- The Solar power so generated can then be used either for captive consumption of the premises or can be fed into the grid and be adjusted in the electricity bill.
- **Net-metering** regulations notified by respective State Electricity Regulatory Commissions (SERCs) provide a legal framework for such adjustment.
 - **Net metering** allows residential and commercial customers who generate their own electricity from solar power to feed electricity they do not use back into the grid.
 - If the home is net-metered, the electricity meter will run backwards to provide a credit against what electricity is consumed at night or other periods where the home's electricity use exceeds the system's output.
 - Customers are only billed for their "net" energy use.
 - Typically, a solar power system produces more energy in summer and comparatively less energy in winter.
- RTS plants help DISCOMs in **reducing transmission and distribution losses** as power consumption and generation are co-located. These Plants are also useful in **tackling day time peak load** as solar generation profile matches such peak loads during the day.
- **The key objectives of the programme are:**
 - To promote grid connected RTS in **all consumer segments**, viz., residential, institutional, social, Govt., commercial, industrial etc.

- To bring DISCOMs at forefront as key drivers for rapid deployment of RTS.
- To create awareness, capacity building, human resource development, etc.
- To promote sustainable business models.
- To create additional RTS capacity of 38000 MW in the country by 31.12.2022 out of which a capacity of 4000 MW in residential sector with Central Financial Assistance and 34000 MW in other sectors (i.e., Social, Government, educational, PSUs, Statutory /Autonomous bodies, Private Commercial, Industrial Sectors etc.) by suitably **incentivizing DISCOMs.**
- **To promote domestic manufacturing of solar cells and module.**
- The Scheme has two major components:
 - **Component A:** Setting up of 4000 MW of grid connected rooftop solar projects in residential sector with Central Financial Assistance (CFA)
 - **Component B:** Incentives to Electricity Distribution Companies (DISCOMs) based on achievement towards initial 18000 MW of grid connected rooftop solar plants.
- The programme **provides for Central Financial Assistance (CFA)** for the household owner and Group Housing Societies to set up RTS on the rooftop of their residence/residential campus.
 - **Other than residential sector:CFA will not be available for other categories** i.e. institutional, educational, social, government, commercial and industrial sectors as the beneficiaries in these sectors are high tariff paying consumers and adoption of solar would be economically beneficial for them even without CFA.
- The power generated through RTS plant would result in significant reduction of the electricity bill paid by them to the DISCOMs, hence making it an economically viable solution.
- **Although CFA is not admissible for non-residential sectors, the DISCOMs will be incentivized for addition of RTS capacity in these sectors too.**
- For subsidized projects (i.e. for residential projects detailed above) **only indigenously manufactured PV panels (both cells and modules) should be used.**
- 1 % of the amount allocated for CFA sector) has been allocated under the programme for capacity building /awareness activities.
- The entire process of receiving proposals, processing them and giving approvals would be IT enabled except in those DISCOMs where the Online Portal is not developed.
- To address the fact that the consumer had to approach multiple agencies (like State Nodal Agencies (SNA's), Solar Energy Corporation of India (SECI), Public Sector Undertakings (PSUs) and other Government Agencies (GAs) etc. involved in the earlier phase) for getting a RTS plant installed, it has been decided to implement the programme by making the DISCOMs and its local offices as the nodal points for implementation of the RTS programme.

- Since the requisite expertise on solar energy for implementation of this Programme may not be available with DISCOMs, they will be at liberty to use the services of State Nodal Agencies (SNAs) engaged in the promotion of Renewable Energy of the respective States/UTs.

Solar Photovoltaic (PV) Vs Solar Thermal Systems

- ‘Solar PV’ works by photons in sun’s rays knocking off electrons in the semi-conducting material in the panels and channels them through a wire—the stream of electrons is electricity.
- Solar PV, therefore, works best where there is lot of sunlight.
- Solar thermal systems, in contrast, suck up sun’s heat and conduct it to where it is needed – such as for drying of spices or fish or wet paint.
- Production of same quantity of electricity is much cheaper by Solar thermal systems than by Solar PV
 - One big reason for this is, in solar PV, there is some loss in conversion of light energy into electric energy, whereas in solar thermal, there is no conversion—it is just heat all through.
- For more details (what is **Solar Photovoltaic (PV) cell**), refer to 7th June file.

17. Pradhan Mantri Kaushal Vikas Yojana (PMKVY) 3.0 (PIB)

- **Context:** In a bid to empower India’s youth with employable skills, the Ministry of Skill Development and Entrepreneurship (MSDE) today launched **Pradhan Mantri Kaushal Vikas Yojana (PMKVY) 3.0**.

Analysis

- Launched in 717 districts, 28 States/eight UTs, PMKVY 3.0 marks yet another step towards ‘Atmanirbhar Bharat’.
- PMKVY 2.0 has been instrumental in bolstering the skilling ecosystem and with PMKVY 3.0, skill development will usher in a new paradigm with focus on demand-driven skill development, digital technology and Industry 4.0 skills.
- PMKVY 2.0 broadened the skill development with inclusion of Recognition of Prior Learning (RPL) and focus on training.
 - With the advent of PMKVY 3.0, the focus is on bridging the demand-supply gap by promoting skill development in areas of new-age and Industry 4.0 job roles
- While the National Educational Policy puts focus on vocational training for a holistic growth and increased employability, PMKVY 3.0 role will be a propagator of vocational education at an early level for youth to capitalize on industry-linked opportunities
- PMKVY 3.0 will encourage healthy competition between states by making available increased allocation to those states that perform better.
- **Mains Question: Skilling is not an objective but a necessary prerequisite for the economic growth of the country. Comment. (150 words)**
- For further details, refer to 15th Sep file.

18. Year Ender 2020---Department of Biotechnology (DBT) (PIB)

- **UNaTI (Undertaking Nationally Relevant Technology Innovation) Atal Jai**

Anusandhan Mission has been

implemented by DBT with a major focus on improved agriculture, affordable healthcare, clean energy and cutting-edge frontier science.

- This mission includes **GARBH-ini** - A Mission to promote Maternal and Child Health and develop prediction tools for pre-term berth, **IndCEPI** - A Mission to develop affordable vaccines for endemic diseases, Development of Biofortified and Protein Rich wheat - contributing to POSHAN Abhiyan, Mission on **Anti Microbial Resistance** for Affordable Diagnostics and Therapeutics and **Clean Energy Mission** - Innovative Technology interventions for Swachh Bharat.
- **GARBH-ini (interdisciplinary Group for Advanced Research in Birth outcomes-DBT India Initiative)** study aim to discover molecular risk-markers and generate a risk-prediction algorithm for preterm birth which will facilitate timely referral and care for at-risk mothers, thus saving children's lives and reducing morbidity.
 - In addition to the well-known risk factors such as history of preterm birth, short Inter-pregnancy interval and short cervix at 3rd trimester, some less reported factors such as **biomass fuel use and exposure to passive smoking as risk factors of PTB have been identified.**
 - With respect to BMI (Body-Mass Index) at enrolment, both underweight and overweight/obese women were found to have a higher risk of PTB.

Ind-CEPI mission

- The Department of Biotechnology, Ministry of Science & Technology, and Government

of India has been implementing the **Ind-CEPI mission 'India Centric Epidemic Preparedness through Rapid Vaccine Development: Supporting Indian Vaccine Development'**.

- The objectives of this mission are aligned with the Global Initiative of **Coalition of Epidemic Preparedness for Innovation (CEPI)** and aims to strengthen the development of vaccines and associated competencies/technologies for the diseases of epidemic potential in India.
- Translational Health Science and Technology Institute (THSTI), an **autonomous institute of the Department of Biotechnology**, has now been recognized by CEPI as one of the Global Network of Laboratories for centralized assessment of COVID 19 Vaccines.
- The CEPI network will initially involve six labs, one each in **Canada, Britain, Italy, the Netherlands, Bangladesh and India.**
- Under the CEPI Global network the Laboratory will use the same reagents and follow a common set of protocols to measure the immune response of multiple vaccine candidates under development and trial.
- This will greatly harmonize the Vaccine trial process and allow different vaccine candidates to be compared and speed up the selection of the most effective candidate.

Coalition of Epidemic Preparedness for Innovation (CEPI)

- CEPI is an innovative global partnership between public, private, philanthropic, and civil society organisations launched in Davos in 2017 to develop vaccines **to stop future epidemics.**

- Its mission is to accelerate the development of vaccines against emerging infectious diseases and enable equitable access to these vaccines for people during outbreaks.
- CEPI, Gavi and the WHO have launched COVAX to ensure equitable access to COVID-19 vaccines and end the acute phase of the pandemic by the end of 2021.

UNaTI Mission Clean Technologies for Swachh Bharat

- DBT has developed various technology platforms designed to convert different solid, liquid and gaseous wastes into renewable fuels, energy and useful products such as food, feed, polymers and chemicals.
- Under the UNaTI Mission, 10 promising clean technologies have been identified for demonstration with DBT support at different sites across India, in collaboration with local stakeholders such as municipalities and other urban local bodies.
- The identified technologies include bio-methanation, constructed wetland, bio-toilets, chemical & membrane free water purification etc.
- The first five projects under this initiative were formally launched on 01st Oct 2020, on the eve of Gandhi Jayanti, with an aim to achieve "Swachh Bharat".

Mission COVID Suraksha

- It was announced with a provision of Rs. 900 Cr. to DBT for supporting development of a comprehensive ecosystem for enabling the development of a safe, efficacious and affordable vaccine for COVID-19.

National Biomedical Resource Indigenisation Consortium

- NBRIC was constituted by the Department of Biotechnology, Ministry of Science and

Technology, Government of India as a Public Private Partnership for convergence of indigenous resources, products and services towards developing diagnostics, vaccines and therapeutics for COVID-19 and beyond for self-reliance in India's biomedical capabilities.

- NBRIC is a 'A Make in India' initiative for Biomedical research and innovative products, towards promoting import substitution and exports.

Unique Methods of Management and treatment of Inherited Disorders (UMMID)

- It is an initiative of the Department of Biotechnology, Ministry of Science and Technology, to tackle inherited genetic diseases of new born babies.
- With a very large population and high birth rate, and consanguineous marriage favoured in many communities, prevalence of genetic disorders is high in India.
- The UMMID initiative aims
 - (i) to establish NIDAN (National Inherited Diseases Administration) Kendras to provide counselling, prenatal testing and diagnosis, management, and multidisciplinary care in Government Hospitals wherein the influx of patients is more,
 - (ii) to produce skilled clinicians in Human Genetics, and
 - (iii) to undertake screening of pregnant women and new born babies for inherited genetic diseases in hospitals at aspirational districts.

Pan India Genome India

- It was initiated a pan India 20 institutions consortium for cataloguing the genetic variation in Indian population with a goal for

whole genome sequencing and subsequent data analysis of 10,000 individuals representing the country's diverse population to help build an exhaustive catalogue of genetic variations in Indian population, and to aid in the design of a genome wide association chip for Indian population.

Mission mode programme on "Minor Oilseeds of India Origin" in various crops

- It was launched which is aimed at sequencing/re-sequencing and phenotypic characterization of available germplasm resources of Minor Oilseeds (Sesame, Linseed, Safflower and Niger) in the country along with exotic lines from diverse agro climatic regions & elite lines of International Institutes.
- **Mission mode programme on "Characterization of Genetic Resources"** in various crops was initiated for sequencing/re-sequencing and phenotypic characterization of available germplasm resources of Chickpea in country along with exotic lines from diverse agro climatic regions & elite lines of International Institutes has been supported.

Thermophilic and Hyperthermophilic Microorganisms

- Hyperthermophile enzyme hydrolase research centre (HERC) has been set up at IISER Mohali as a repository for thermophilic and hyperthermophilic organisms and their enzymes.
- This centre has cloned and produced several carbohydrate active enzymes which will be evaluated for use in 2G Ethanol and biorefinery applications.
- **Thermophilic and hyperthermophilic microorganisms** (growth at temperatures

above 55 and 90°C, respectively) are well established as inhabitants of terrestrial and marine hydrothermal systems.

- Hyperthermophiles grow optimally at temperatures between 80 and 110°C. Only represented by bacterial and archaeal species, these organisms have been isolated from all types of terrestrial and marine hot environments, including natural and man-made environments.
- Current theory and circumstantial evidence suggest that hyperthermophiles were the first life-forms to have arisen on Earth.
- Recent studies suggest that these organisms may occupy extensive regions of the earth's crust and comprise a biomass possibly exceeding all surface-associated biomass.
- Thermophiles and hyperthermophiles, as well as other hydrothermal microbes, exploit subseafloor thermal and chemical gradients associated with deep-sea vents for growth.
- Hyperthermophilic microorganisms have also recently been isolated from oil reservoirs in the North Sea, in the north slope of Alaska, and in continental reservoirs in France.
 - The lack of exogenous seawater in the French reservoirs, which could act as a source of hyperthermophile contamination, suggests that these hyperthermophiles are native inhabitants of this environment as well.
- Furthermore, viable thermophilic bacteria have been found in drill core samples collected more than 2000 m below the surface and in deep-sea marine sediments more than 500 m below the sea-floor in the Pacific Ocean.

- Each of these reports suggests that thermophiles and hyperthermophiles live deep below the surface, though little is known about the microbial ecology of these environments.
- Current uses and potential applications of thermophilic and hyperthermophilic enzymes include: research reagents, catalysts for industrial processes like **starch processing**, paper pulp bleaching, cellulose degradation and ethanol production etc.

Engagement with MI Community:

- India has been actively participating in MI Ministerial(s) and at the 5th Mission Innovation Ministerial (MI-5) held virtually on 23rd September 2020 hosted by Kingdom of Saudi Arabia.

Mission Innovation (MI)

- **Mission Innovation (MI)** is a global initiative of 24 countries and the European Commission (on behalf of the European Union).
- These 25 members have committed to seek to double public investment in clean energy RD&D and are engaging with the private sector, fostering international collaboration and celebrating innovators.
- **Member countries are** (as on 20th January 2021): Australia, Austria, Brazil, Canada, Chile, China, Denmark, European Union, Finland, France, Germany, **India**, Indonesia, Italy, Japan, Mexico, Morocco, Netherlands, Norway, Republic of Korea, Saudi Arabia, Sweden, United Arab Emirates, United Kingdom and United States.

LOTUSHR project

- Under the **LOTUSHR project** in collaboration with Netherlands, a toolbox of

wastewater treatment technologies has been established on site at Barapullah drain to facilitate selection of treatment combinations for optimum treatment of wastewater.

Phytopharmaceutical Mission for North East Region

- The North East Region (NER) of India is one of the 12 mega-biodiversity rich zones of the world and forms a distinctive part of the Indo-Burma Hotspot that ranks 8th among the 34 biodiversity Hotspots of the world.

- The plant bioresources of the region includes not only tropical and sub-tropical biota but those of temperate and alpine regions due to its altitudinal gradient.

- Taking a clue of the global trends and opportunities in plant-based medicines, in India, DCGI promulgated guidelines for Phytopharmaceutical drug development (similar to US-FDA botanical guidance) in 2015.

- Keeping in view the above, the DBT has launched Phytopharmaceutical Mission in NER with the following three major objectives:

- Captive cultivation of selected medicinal plants of NER, which have great demand to ensure supply of authentic and quality botanical raw material to the user industries in the country.
- Development of technology packages for production of GMP grade medicinal plant extracts for export markets.
- Production of safe and efficacious phytopharmaceuticals from medicinal plants of NER for unmet medical

needs using modern scientific tools
and following global standards.

Turmeric Mission programme

- It was launched to generate high-quality raw material for developing nutraceutical products / dietary supplements from turmeric for global market as well as developing curcuminoids / curcumin-based therapeutics for various disease segments.

Indian Bio resource Information Network (IBIN)

- **It has been created** to bring together all the available database and information on the bio-resources and biodiversity of the country in one platform.
- The satellite telemetry tracking of **Jacobin Cuckoo** is a part of IBIN project in collaboration with Wildlife Institute of India to monitor the changes in Indian monsoon patterns and could help in planning the conservation and climate monitoring programmes.

Biotech-KISAN

- It has created a platform in each of 15 agro-climatic zones of the country, which aims to connect farmers and scientists to promote Agriculture Innovation and take the new interventions to the farmers and farms.
- Biotech-KISAN Hubs have been established at pilot-scale level in all agro-climatic zones.
- The programme has now been scaled up and expanded its activities covering **105 Aspirational Districts** in the country.

Green Deal

- Focusing on the threat of climate change, the department collaborated with European Union for the **“Green Deal”** under Horizon 2020 framework to help build a low-carbon, climate-resilient future.

Eureka-Global Stars India initiative

- **Eureka-Global Stars India initiative** is mandated to cooperate in such a manner that Indian academic/research institution can collaborate with industrial partner from Eureka member country leading to translation-based research.
- This collaboration led to launch of two joint calls with Eureka member countries in the area of one health in 2018 and Key Enabling Technologies for Healthcare, Agriculture and Water in 2020 respectively.

EUREKA

- EUREKA is a publicly-funded, intergovernmental network, involving over 40 countries.
- EUREKA's aim is to enhance European competitiveness by fostering innovation-driven entrepreneurship in Europe, between small and large industry, research institutes and universities.
- It is a leading open platform for international cooperation in innovation.
- It remains to this day the only initiative of its kind committed to the 'bottom-up' principle - ensuring that any R&D project with a good business plan receives the support it deserves, independent of its technological nature, or the type of organisations involved.
- The Global Stars initiative was adopted during the EUREKA network meeting in June 2016 – **its aim is to facilitate international R&D&I cooperation between EUREKA countries, including associated countries, and non-EUREKA partner countries.**

19. Pradhan Mantri Awaas Yojana – Gramin (PIB)

- **Context:** Prime Minister will release financial assistance of around Rs. 2691 crores to 6.1 lakh beneficiaries in Uttar Pradesh under Pradhan Mantri Awaas Yojana – Gramin (PMAY-G).

Analysis

- Under PMAY-G, each beneficiary is given 100% grant of Rs.1.20 lakh (in plain areas) and Rs. 1.30 lakh (in Hilly States/North Eastern States/Difficult areas/UT of J&K and Ladakh/IAP/LWE districts).
- The beneficiaries of PMAY-G, in addition to the unit assistance, are also provided support of unskilled labour wages under Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS) and assistance of Rs. 12,000 for construction of toilets through Swachh Bharat Mission-Gramin (SBM-G), MGNREGS or any other dedicated source of funding.
- The scheme has provisions for convergence with other schemes of Government of India and State/UTs for providing LPG connection under Pradhan Mantri Ujjwala Scheme, electricity connection, access to safe drinking water under Jal Jeevan Mission etc.
- **For complete details refer to the 21st Nov file.**

20. All about Padma Awards (TH)

- **Context:** Former Japanese Prime Minister Shinzo Abe and late singer S.P. Balasubrahmanyam were named for the Padma Vibhushan, the second-highest civilian award in India, while singer K.S. Chithra will get the Padma Bhushan.
- No Bharat Ratna recipient was named this year.

Analysis

Bharat Ratna

- Bharat Ratna is the **highest civilian award** of the country.
- It is awarded in recognition of exceptional service/performance of the highest order in **any field of human endeavour.**



- It is treated on a different footing from Padma Award.
- The recommendations for Bharat Ratna are made by the Prime Minister to the President of India.
- No formal recommendations for Bharat Ratna are necessary.
- The number of Bharat Ratna Awards is restricted to **a maximum of three** in a particular year.
- Government has conferred Bharat Ratna Award on 48 persons till date.

Interesting facts about the Bharat Ratna

- First recipients of this award were Dr.Sarvapalli Radhakrishnan, Sir C.V. Raman, and Chakravarti Rajagopalachari in 1954.
- Mother Teresa was the **first naturalized Indian citizen** who received the Bharat Ratna Award in 1980.
- Khan Abdul Ghaffar Khan (1987) and Nelson Mandela (1990) are two non Indians who got Bharat Ratna Award.
- Sachin Tendulkar is the first sports person and the youngest Bharat Ratna Award Winner.

- Lal Bahadur Shastri was the first person to get this award posthumously.
- Subhash Chandra Bose was awarded with Bharat Ratna posthumously in 1992. But due to controversy (as there is no evidence of Subhash Chandra Bose's death) his family refused to accept the award as posthumous winner.
 - This is the **only incident in the history of Bharat Ratna that an award was withdrawn.**
- Prime Ministers Jawaharlal Nehru (1947-64) and Indira Gandhi (1966-77, 1980-84) have been criticised for recommending their names to the president by themselves to get the awards in 1955 and 1971 respectively.
- **There is no provision that award should be given to Indians only.**
- **It is not mandatory that Bharat Ratna should be awarded every year.**
- The award does not carry any monetary grant.
- The holders of the Bharat Ratna rank seventh in the Indian order of precedence.
- M.S. Subbalaxmi was the first musician who got this award.
- All persons without distinction of race, occupation, position or sex are eligible for these awards.
 - However, Government servants in-service including those working with PSUs, except doctors and scientists, **are not eligible for these Awards.**
- The award seeks to recognize works of distinction and is given for distinguished and exceptional achievements/service in **all fields of activities/disciplines.**
- The nomination process is open to the public. **Even self-nomination can be made.**
- The award is normally **not conferred posthumously.**
 - However, in highly deserving cases, the Government could consider giving an award posthumously.
- A higher category of Padma award can be conferred on a person **only where a period of at least five years has elapsed since conferment of the earlier Padma award.**
 - However, in highly deserving cases, a relaxation can be made by the Awards Committee.

Padma Awards

- Padma Awards, which were instituted in the year 1954, **are announced every year on the occasion of Republic Day.**
- The award is given in **three categories**, namely,
 - **Padma Vibhushan** for exceptional and distinguished service;
 - **Padma Bhushan** for distinguished service of a high order; and
 - **Padma Shri** for distinguished service.
- The recipients are also given a small replica of the medallion, which they can wear during any ceremonial/State functions etc., if the awardees so desire.
- The names of the awardees are published in the Gazette of India on the day of the presentation ceremony.
- The total number of awards to be given in a year (excluding posthumous awards and to NRI/foreigners/OCIs) should not be more than 120.

- The award does not amount to a title and cannot be used as a suffix or prefix to the awardees' name

Who Decides?

- All nominations received for Padma Awards are placed before the Padma Awards Committee, **which is constituted by the Prime Minister every year.**
- The Padma Awards Committee **is headed by the Cabinet Secretary** and includes Home Secretary, Secretary to the President and four to six eminent persons as members.
- The recommendations of the committee are submitted to the Prime Minister and the President of India for approval.

21. PRAGATI – Pro-Active Governance and Timely Implementation (PIB)

- **Context:** Prime Minister chaired the meeting of 35th edition of PRAGATI, the ICT based multi-modal platform for Pro-Active Governance and Timely Implementation, involving Central and State governments.
- The platform was launched in March 2015.
- The platform is aimed at:
 - addressing common man's grievances
 - monitoring and reviewing important programmes and projects of the Government of India as well as projects flagged by State Governments.
- The PRAGATI platform uniquely bundles **three latest technologies:**
 - Digital data management
 - Video-conferencing
 - Geo-spatial technology.
- It also offers a unique combination in the direction of **cooperative federalism** since

it brings on one stage the Secretaries of Government of India and the Chief Secretaries of the States.

• It has three objectives:

- Grievance Redressal
- Programme Implementation
- Project Monitoring

Key features of the PRAGATI application are as follows:

- It is a **three-tier system** (PMO, Union Government Secretaries, and Chief Secretaries of the States).
- Prime Minister will hold a **monthly programme** (on Fourth Wednesday at 3.30 PM-to be known as **PRAGATI Day**) where he will interact with the Government of India Secretaries, and Chief Secretaries through Video-conferencing enabled by data and geo-informatics visuals.
- The system has been designed in-house by the PMO team with the help of National Informatics Center (NIC).

22. Pradhanmantri Jan Vikas Karykram (PMJVK) (PIB)

- **Context:** Union Minister for Minority Affairs has said during the last about 6 years, the Government has constructed basic infrastructure in needy areas across the country under "**Pradhanmantri Jan Vikas Karykram**" (PMJVK).

Analysis

- **This topic has already been covered in detail in 15th Sep file.**

23. Ethanol Blended with Petrol Programme (PIB)

- **Context:** Meeting held by Department of Food & Public Distribution with States and Industry Associations to implement Scheme

to enhance ethanol distillation capacity in the country for producing 1st Generation (1G) ethanol.

Analysis

- The Government has fixed a target of 10% blending of fuel grade ethanol with petrol by 2022 and 20% blending by 2025.
- This has been done with a view:
 - to boost agricultural economy,
 - to reduce dependence on imported fossil fuel,
 - to save foreign exchange on account of crude oil import bill and
 - to reduce the air pollution.
- To meet out the requirement of ethanol, the Government has notified a “Scheme for extending financial assistance to project proponents for enhancement of their ethanol distillation capacity or to set up distilleries for producing 1st Generation (1G) ethanol from feed stocks such sugarcane, rice available with Food Corporation of India, **maize** etc. vide notification dated 14th January, 2021.
- The participants were explained about the benefits of **Ethanol Blended with Petrol**

Programme. It was informed that:

- excess sugar of about 60 Lakh Tonne will be diverted to ethanol, **helping sugar mills to timely payments of cane dues to farmers,**
- additional utilisation of food-grains of about 135 Lakh Tonne will help in increasing the income of farmers,
- investment by entrepreneurs will help in creation of employment in rural areas,
- distributed ethanol production will help in reduction of transportation cost of ethanol.

- **Prices of ethanol are fixed on the basis of prices of raw materials and not on the basis of prices of crude oil.**
- OMCs being the assured buyer for ethanol has also given comfort for purchase of ethanol from distilleries for next 10 years.
- Some State Governments have also included ethanol projects under priority sector.

Different Generations of Biofuels

- Biofuel is any fuel that is derived from biomass—that is, plant or algae or animal waste.
- Since such feedstock material can be replenished readily, biofuel is considered to be a source of renewable energy, unlike fossil fuels such as petroleum, coal, and natural gas.
- **First-generation biofuel:** They are produced from food crops.
- **Second-generation biofuel:** They are derived from low-value biomass that possesses a high cellulose content, including wood chips, crop residues, and municipal waste.
- **Third-generation biofuel:** They are obtained by the use of algae and cyanobacteria.
 - Some estimates state that algae and cyanobacteria could yield between 10 and 100 times more fuel per unit area than second-generation biofuels.
- **Fourth-generation biofuel:** Fourth-generation technology combines genetically optimized feedstocks, which are designed to capture large amounts of carbon, with genomically synthesized microbes, which are made to efficiently make fuels.
 - Key to the process is the capture and sequestration of CO₂, a process that

renders fourth-generation biofuels a carbon negative source of fuel.

- Plant-based biofuels in principle make little net contribution to global warming and climate change; the carbon dioxide (a major greenhouse gas) that enters the air during combustion will have been removed from the air earlier as growing plants engage in photosynthesis. Such a material is said to be “carbon neutral.”
- **For further details, refer to 19th Dec file.**

24. Agreement for financial support to STARS project (PIB)

- **Context:** Agreement for the financial support of the implementation of Strengthening Teaching-Learning and Results for States (STARS) project of Ministry of Education was signed between Department of Economic Affairs (DEA) and World Bank along with Ministry of Education.

Analysis

- STARS project would be implemented as a new **Centrally Sponsored Scheme** under Department of School Education and Literacy (DoSEL), MOE.
- The project covers 6 States viz **Himachal Pradesh, Rajasthan, Maharashtra, Madhya Pradesh, Kerala and Odisha.** The identified States will be supported for various interventions for improving the quality of education.
- The Program envisions improving the overall monitoring and measurement activities in the Indian school education system through interventions in selected states.
- STARS will draw on existing structure under **Samagra Shiksha** with the DoSEL,

MoE as the main implementing agency at the national level.

- At the State level, the project will be implemented through the integrated State Implementation Society (SIS) for Samagra Shiksha.
- The proposed World Bank support under STARS is primarily in the form of a results-based financing instrument called Program for Results (PforR). This will ensure major reforms at the State level through a set of disbursement-linked indicators (DLIs). A State Incentive Grant (SIG) will be used to encourage States to meet desired project outcomes.
- This Scheme has already been covered in detail in 15th Oct file.
- **For Samagra Shiksha, refer to 15th Sep file.**

25. Traditional Knowledge Digital Library (TKDL) (PIB)

- **Context:** The Council of Scientific and Industrial Research (CSIR) has launched a new campaign of highlighting 80 success stories from the organization as it is set to turn 80 years old in 2022.
- This campaign was launched recently as CSIR's Traditional Knowledge Digital Library (TKDL) completes two decades of safeguarding India's Traditional Knowledge.

Analysis

- In 2001, the Council of Scientific and Industrial Research (CSIR) jointly with Department of Indian Systems of Medicine & Homeopathy (ISM&H, now Ministry of Ayurveda, Yoga & Naturopathy, Unani, Siddha, Sowa Rigpa and Homoeopathy (AYUSH) developed the Traditional Knowledge Digital Library (TKDL).

- TKDL is a pioneering initiative of India to protect Indian traditional medicinal knowledge and prevent its misappropriation at International Patent Offices.
 - The grant of a US patent to wound healing properties of turmeric flags the danger of complacency in proactively guarding the traditional knowledge.
- The **problem related to Indian TK** is further compounded by the fact that **India's traditional medicinal knowledge exists in languages such as Sanskrit, Hindi, Arabic, Urdu, Tamil etc.** that too in ancient local dialects that are no more in practice.
 - Thus, the published Indian TK literature is neither accessible nor understood by patent examiners at international patent offices.
- Traditional Knowledge Digital Library has overcome the language and format barrier by systematically and scientifically converting and structuring the available contents of the ancient texts on Indian Systems of Medicines i.e. Ayurveda, Siddha, Unani and Sowa Rigpa as well as Yoga, **into five international languages, namely, English, Japanese, French, German and Spanish**, with the help of information technology tools and an innovative classification system - Traditional Knowledge Resource Classification (TKRC).
- TKDL has also set international specifications and standards for setting up of TK databases based on TKDL specifications.
 - This was adopted in 2003 by the Committee in fifth session of the Intergovernmental Committee (IGC) of WIPO on Intellectual Property and Genetic Resources, Traditional Knowledge and Expression of folklore.
- Currently, TKDL is based on books of Indian Systems of Medicine, which are available in open domain and can be sourced by any individual/organization at national/international level.
 - TKDL **acts as a bridge between these books** (prior-art evidences) **and International patent examiners.**
- At present, as per the approval of Cabinet Committee on Economic Affairs, access of TKDL is available to many international Patent Offices under TKDL Access (Non-disclosure) Agreement.
 - As per the terms and conditions of the Access agreement, examiners of patent office can utilize TKDL for search and examination purposes only and cannot reveal the contents of TKDL to any third party unless it is necessary for the purpose of citation.
- In addition, pre-grant oppositions are being filed at various International Patent Offices, along with prior-art evidences from TKDL. Significant impact has already been realized.
 - So far more than 230 patent applications have either been set aside/ withdrawn/ amended, based on the prior art evidences present in the TKDL database without any cost and in few weeks/months of time, whereas earlier India had to spend about seven crores towards legal fee only for getting few claims of Basmati rice patent revoked.
- TKDL is proving to be an effective deterrent against bio-piracy and has been recognized internationally as a unique effort.



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Indices, Reports, Surveys, Committees and Organisations

1. Digital Payments Index (DPI) (TH)

- **Context:** The Reserve Bank of India (RBI) has constructed a composite Digital Payments Index (DPI) to capture the extent of digitisation of payments across the country.

Analysis

- The RBI-DPI has been constructed with March 2018 as the base period. DPI score for March 2018 is set at 100.
- The DPI for March 2019 and March 2020 works out to 153.47 and 207.84 respectively, indicating appreciable growth.
- The RBI-DPI comprises five broad parameters: Payment Performance (weight 45%), Payment Enablers (weight 25%), Payment Infrastructure – Supply-side factors (15%), Payment Infrastructure – Demand-side factors and (10%), and Consumer Centricity (5%).
- Each of these parameters has sub-parameters which, in turn, consist of various measurable indicators.
- RBI-DPI will be published on the RBI's website on a semi-annual basis from March 2021 onwards with a lag of four months.

2. Central Vigilance Commission (CVC) and the Integrity Index (TH)

- **Context:** The commission found during a review that several vigilance cases had been pending in some organisations.
- The Central Vigilance Commission (CVC) has directed the chief executives and the chief vigilance officers of government

organisations to finalise by May 31 the pending cases initiated between January 2011 and December 2018.

- As the apex integrity institution, the Commission is mandated to fight corruption and to ensure integrity in public administration.

Analysis

Background

- CVC is conceived to be the apex vigilance institution to promote integrity in the governance processes by:
 - Creation of a credible deterrence against corruption through prompt enforcement of anti-corruption laws and regulations
 - Undertaking effective preventive measures to minimize the scope of corruption.
 - Raising public awareness to inculcate ethical values and reduce society's tolerance towards corruption.
- The Central Vigilance Commission was set up by a Government Resolution in 1964 on the recommendations of the Committee on Prevention of Corruption, headed by Shri K. Santhanam, to advise and guide Central Government agencies in the field of vigilance.
- It was accorded the status of **independent statutory authority** through the **Central Vigilance Commission Act, 2003**.
- **The Commission shall consist of:** A Central Vigilance Commissioner – Chairperson and **not more than two Vigilance Commissioners** as Members.
- They are appointed by the President by warrant under his hand and seal on the recommendation of a three member committee consisting of the Prime Minister

as its head, the Union Minister of home affairs and the Leader of the Opposition in the Lok Sabha.

- **They hold office for a term of four years or until they attain the age of sixty-five years, whichever is earlier.**
- After their tenure, they are not eligible for further employment under the Central or a state government.
- The salary, allowances and other conditions of service of the Central Vigilance Commissioner are similar to those of the Chairman of UPSC and that of the vigilance commissioner are similar to those of a member of UPSC.

Roles & Functions (important ones only)

- **Exercise superintendence over the functioning of the Delhi Special Police Establishment (CBI) insofar as it relates to the investigation of offences under the Prevention of Corruption Act, 1988; or an offence under the Cr.PC for certain categories of public servants.**
- Give directions to the Delhi Special Police Establishment (CBI) for superintendence insofar as it relates to the investigation of offences under the Prevention of Corruption Act, 1988.
- Review the progress of investigations conducted by the DSPE into offences alleged to have been committed under the Prevention of Corruption Act, 1988 or an offence under the Cr.PC
- Exercise superintendence over the vigilance administrations of the various Central Government Ministries, Departments and Organizations of the Central Government

- CVC has all the powers of a Civil court while conducting any inquiry.

Commission's Jurisdiction under CVC Act

- Members of All India Service serving in connection with the affairs of the Union and Group A officers of the Central Government.
- Officers of the rank of Scale V and above in the **Public Sector Banks**.
- Officers in Grade D and above in **Reserve Bank of India, NABARD and SIDBI**.
- Chief Executives and Executives on the Board and other officers of E-8 and above in Schedule 'A' and 'B' Public Sector Undertakings.
- Chief Executives and Executives on the Board and other officers of E-7 and above in Schedule 'C' and 'D' Public Sector Undertakings.
- Managers and above in General Insurance Companies.
- Senior Divisional Managers and above in Life Insurance Corporations.
- **Other Officers drawing salary of Rs.8700/- p.m. and above on Central Government** in Societies and other Local Authorities.

Have you heard about Integrity Index?

- The **Integrity Index for public organisations is an initiative of the Central Vigilance Commission (CVC)** which will be based on bench marking of governance processes by internal and external stakeholders.
- The Indian Institute of Management Ahmedabad is the consulting partner engaged by the Central Vigilance Commission (CVC) to develop a generic framework for computing Integrity Index of Public organizations.

- It is undertaking a research-based approach to create an integrity index that various organizations can use to measure themselves and which will evolve with changing needs.
- The objective of this exercise is to define what constitutes integrity of public organisations, to identify the different factors of integrity and their inter-linkages and to create an objective and reliable tool that can measure the performance of organisations on this benchmark.
- **'Integrity index': will help the Government departments in India to assess where they stand on anti-corruption measures.**

Definition of Integrity (Additional Information for GS4)

- When there is a congruence among our thoughts, words and actions, the integrity gets manifested.
- Integrity includes but goes beyond honesty. Honesty is telling the truth- in other words, conforming our words to reality. Integrity is conforming reality to our words- in other words, keeping promises and fulfilling expectations
- Integrity is the basis of Trust
- Integrity is the uprightness of character

3. Asian Development Bank (ADB)(PIB)

- **Context:** The **Asian Development Bank (ADB)** and the Government of India signed a \$100 million loan to modernise and upgrade the power distribution system to enhance the quality and reliability of electricity supply in Bengaluru city in the state of Karnataka.
- **Asian Development Bank was covered comprehensively in 2 Dec file.**

4. Rashtriya Kamdhenu Aayog(RKA)(PIB)

- **Context:** Rastriya Kamdhenu Aayog announces Kamdhenu Gau-Vigyan Prachar-Prasar Exam

Analysis

- **Rashtriya Kamdhenu Aayog(RKA)** is a high-powered permanent body constituted vide a resolution in 2019.
- **It comes under the Department of Animal Husbandry and Dairying, Ministry of Fisheries, Animal Husbandry and Dairying**
- Even though, the country is largest producer of milk, the average milk yield in India is only 50% of the world average.
 - The low productivity is largely due to deterioration in genetic stock, poor nutrition and unscientific management.
- The Rashtriya Kamdhenu Aayog has been constituted for:
 - conservation, protection and development of cows and their progeny;
 - proper implementation of laws with respect to prohibition of slaughter and / or cruelty to cows and
 - giving direction to the cattle development programmes.
- **The Rashtriya Kamdhenu Aayog is aimed at achieving following:**
 - Sustainable development and genetic upgradation of genetic resources of cows in India.
 - Conservation and development of Indigenous Breeds of cows and improved management of cows of the country.
 - Enhanced production and productivity throughout country, leading to higher

farm income and better quality of life for the dairy farmers.

- Protection and promotion of the interest of dairy cooperatives, Livestock Development Agencies, farmer producer companies and dairy industries in the country.
- Effective implementation of laws for welfare of the cows and its progenies in the country and proper working of Gaushals, Gosadans and Pinjrapoles and other organizations/institutes for protection and development of cows and their progenies.

5. New Development Bank (NDB) (PIB)

- **Context:** The Government of India, the Government of Andhra Pradesh, and the **New Development Bank (NDB)** signed loan agreements of up to USD 323 million each for two projects.
- The NDB was established based on the Inter-Governmental agreement among the BRICS countries (Brazil, the Russian Federation, India, China, and South Africa) signed on July 15, 2014.
- The Bank's purpose is to mobilize resources for infrastructure and sustainable development projects in BRICS and other emerging market economies and developing countries.
- For details, refer to 17th Dec file.

6. International Solar Alliance (ISA) (PIB)

- **Context:** India welcomed Germany's decision to join the International Solar Alliance (ISA), and expressed its desire to further strengthen cooperation with Germany under the platform of Coalition for Disaster Resilient Infrastructure (CDRI).

- For details, refer to 8th Sep file.

7. Bureau of Indian Standards (BIS), ISI mark and Eco Mark (PIB)

- **Context:** Bureau of Indian Standards celebrated the 74th foundation day on 6th January 2021.
- The Government has recently brought "Toys" and "Helmets" under mandatory BIS certification.

Analysis

- The Bureau of Indian Standards (BIS) is the national Standards Body of India working **under the aegis of Ministry of Consumer Affairs, Food & Public Distribution.**
- The organisation was formerly the **Indian Standards Institution (ISI)** which came into being on the 06 January 1947 and in June 1947 Dr. Lal C. Verman took over as its **first Director.**
- In the mid-1980s, it was felt necessary to confer a statutory status to ISI's functioning which led to the enactment of the BIS Act 1986 and the ISI was renamed as the Bureau of Indian Standards (BIS) to promote quality certification of goods, with a clearly defined statutory powers.
 - The Act has now been revised as BIS Act, 2016 and establishes BIS as the National Standards Body.
- The Bureau is a Body Corporate consisting of 25 members representing both Central and State governments, Members of Parliament, industry, scientific and research institutions, consumer organizations and professional bodies; with **Union Minister of Consumer Affairs, Food and Public Distribution as its President** and with Minister of State for Consumer Affairs,

Food and Public Distribution as its Vice-President.

- The BIS Act 2016, Rules and Regulations framed there under authorizes BIS to undertake conformity **assessment of products, services, systems and processes**.
- The Product Certification Schemes of BIS aims at providing **Third Party assurance** of quality, safety and reliability of products to the customer.
- BIS has been providing traceability and tangibility benefits to the national economy in a number of ways – providing safe reliable quality goods; minimizing health hazards to consumers; promoting exports and imports substitute; control over proliferation of varieties etc. through standardization, certification and testing.
- **Keeping in view, the interest of consumers as well as the industry, BIS is involved in various activities as given below:**
 - Standards Formulation
 - Product Certification Scheme
 - Compulsory Registration Scheme
 - Foreign Manufacturers Certification Scheme
 - Hall Marking Scheme
 - Laboratory Services
 - Laboratory Recognition Scheme
 - Sale of Indian Standards etc.

What is the ISI mark all about?

- ISI stands for the Indian Standards Institute, a body set up when India gained Independence to create standards needed for orderly commercial growth and maintaining quality in industrial production.
- By the mid-80s the country's socio-economic climate had changed, triggering

the need to set up a stronger body, the Bureau of Indian Standards (BIS), which then took over ISI.

- But the term "ISI mark" continues to be used to mean that a certain product conforms to the quality standards set up by the government.

Who can use the ISI mark?

- This certification programme is basically **voluntary**. Any manufacturer who feels confident enough that his product has the ability to meet the BIS standard can apply for product certification.
- Although, the scheme itself is voluntary in nature, the Government of India, on considerations of public health and safety, security, infrastructure requirements and mass consumption has enforced compulsory certification on various products through Orders issued from time to time under various Acts.
- In order to ensure enhanced consumer safety & compliance to statutory provisions, some products like gas cylinders, regulators and valves, BIS certification scheme requires each lot or batch to be inspected by BIS certification officers before release of the product.

Are there standards for all products?

- There are at least 16 broad categories, including textiles, packaged water, food, automobile components, plastic products and electronics, for which BIS has laid down standards.
- If anyone wants to add a new category to the current list, they can apply for it.
- For example, there is a standard for windshield wipers of four-wheelers, for the quality of silver foil used in sweets, for

precast concrete slabs used in pavements and even for hooks and fasteners.

What if standards slip once the certification is obtained?

- BIS has to check conformity to the standards by regular surveillance of the licensee's performance including surprise inspection and testing of samples, drawn both from the factory and the market.
- For launching prosecution regarding the misuse of ISI mark, testing of the sample of the product is not required.

Genuine ISI mark

Standard Mark



Licence Number

(A seven digit number, represented as CML-_____)

- The Standard Mark for every product is unique and is notified in the Gazette of India.

Licence Number

- Licence number (a seven digit number or ten digit number or 6 digit number [for Assaying and Hallmarking Centre]), is also given along with the Standard Mark.
- This **helps in identifying the unit** which has manufactured the product/marked the product at a specific location.

Eco Mark Scheme

- Eco-mark is a **voluntary labelling scheme** for easily identifying environment friendly products.
- The Eco-mark scheme defines as an environmentally friendly product, any

product which is made, used or disposed of in a way that significantly reduces the harm it would otherwise cause the environment.

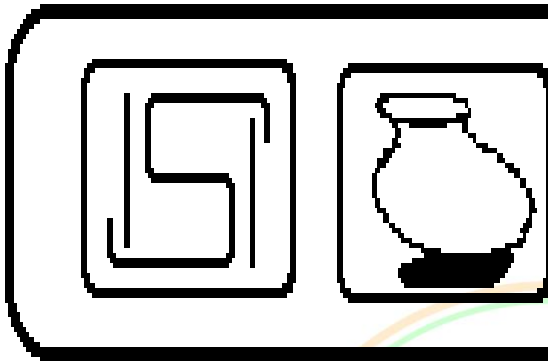
- The definition factors in all aspects of the supply chain, taking a cradle-to-grave approach, which includes raw material extraction, manufacturing and disposal.
- What sets eco-mark apart from other labels is that not only does the product have to meet strict environmental requirements, but it also has to meet strict quality requirements.
- The scheme is one of India's earliest efforts in environmental standards, launched in 1991, even before the 1992 Rio Summit in which India participated.
- The scheme was launched by the Ministry of Environment and Forests, and is administered by the Bureau of Indian Standards (BIS), which also administers the Indian Standards Institute (ISI) mark quality label, a requirement for any product to gain the Eco-mark label.
- The Eco-mark Scheme covers various product categories like Soaps and Detergents, Paints, Food Items, lubricating oils, Packaging materials/Package, Architectural Paints and Powder Coatings, Batteries, Electrical and electronic goods, Food Additives, Wood Substitutes, Cosmetics, Aerosols and Propellants, Plastic Products, Textiles, Fire-extinguisher, Leather and Coir & Coir Products.
- Products certified as eligible for the Eco Mark shall also carry the ISI Mark (except for leather) for quality, safety and performance of the product and shall be licensed to carry the ECO Mark for a

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prescribed time period after which it shall be reassessed.

- For this purpose the Standard Mark of Bureau would be a single mark having a combination of the ISI Mark and the ECO Logo which is illustrated below:



8. Food and Agriculture Organization's (FAO): World food price index (TH)

- **Context:** Food and Agriculture Organization's (FAO) food price index, which measures monthly changes for a basket of cereals, oilseeds, dairy products, meat and sugar, averaged 107.5 points last month versus 105.2 in November.
- FAO Food Price Index has hit a three-year high in 2020, following additional gains in December.
- The **FAO Food Price Index (FFPI)** is a measure of the monthly change in international prices of a basket of food commodities. It consists of the average of five commodity group price indices weighted by the average export shares of each of the groups over 2014-2016.

Analysis

- The Food and Agriculture Organization (FAO) is a specialized agency of the United

Nations that leads international efforts to defeat hunger.

- Its goal is to achieve food security for all and make sure that people have regular access to enough high-quality food to lead active, healthy lives. With over 194 member states, FAO works in over 130 countries worldwide.
- Established in 1945, the Food and Agriculture Organisation (FAO) has its headquarters in Rome, Italy.

9. World Organization for Animal Health (OIE) and Avian influenza (TH)

- **Context:** The World Organization for Animal Health, which collaborates with the World Health Organization (WHO) and the Food and Agriculture Organization (FAO), says HPAI virus strains H5N1, H5N2, H5N8, H7N8 have been identified in outbreaks, indicating active circulation.

Analysis

- Infection histories point to H5N1 and H7N9 viruses posing a threat to human health as well.
- The two virus types identified so far in the outbreaks — H5N1 and H5N8 — come under the category of Highly Pathogenic Avian Influenza (HPAI), which is of major concern to those keeping birds, because it leads to disease and death of fowl and causes economic havoc. H5N1 is a known threat to humans as well.
- The spread of the disease in a variety of birds in several geographical regions, and the seasonal movement of migratory birds, have prompted the Centre to issue an alert to States to adhere to the National Action Plan for Prevention, Control and Containment of Avian Influenza 2021.

- Avian Influenza (AI) is a highly contagious viral disease, affecting a variety of birds, including those connected with human consumption — chickens, ducks, turkeys, quails — as well as pet birds and wild birds.
- The FAO says wild birds act as a natural reservoir of AI viruses. Their migratory movement could bring these pathogens to poultry, waterfowl and other domestic birds through contact. **The response to an outbreak is a containment strategy, which is primarily centred around removing the diseased birds through culling.** Such mass destruction causes a severe impact on farmers.

The World Organisation for Animal Health (OIE) (Office International des Epizooties)

- It is an **intergovernmental organisation** responsible for improving animal health worldwide.
- It has around 182 Member Countries **including India.**
- It is headquartered in Paris, France.

Objectives

- Each Member Country undertakes to report the animal diseases that it detects on its territory. The OIE then disseminates the information to other countries, which can take the necessary preventive action.
 - This objective applies to disease occurrences **both naturally occurring and deliberately caused.**
- The OIE **collects and analyses the latest scientific information** on animal disease control.
- The OIE **provides technical support to Member Countries** requesting assistance with animal disease control and eradication

operations, including diseases transmissible to humans.

- The OIE develops normative documents relating to rules that Member Countries can use to protect themselves from the introduction of diseases and pathogens, without setting up unjustified sanitary barriers.
- OIE standards are **recognized by the World Trade Organization as reference international sanitary rules.**
- The OIE Member Countries have decided to provide a better guarantee of the safety of food of animal origin by creating **greater synergy between the activities of the OIE and those of the Codex Alimentarius Commission.**

How does the organisation function?

- The organisation is placed under the authority and control of a **World Assembly of Delegates consisting of Delegates** designated by the Governments of all Member Countries.
- **The day-to-day operation of the OIE is managed at the Headquarters**
- The Headquarters implements the resolutions passed by the International Committee and developed with the support of Commissions elected by the Delegates
- The main functions of the Assembly are:
 - **to adopt international standards in the field of animal health**, especially for international trade.
 - **to adopt resolutions on the control of the major animal diseases.**

10. South Asian Association for Regional Cooperation (SAARC) (TH)

- **Context:** An editorial.

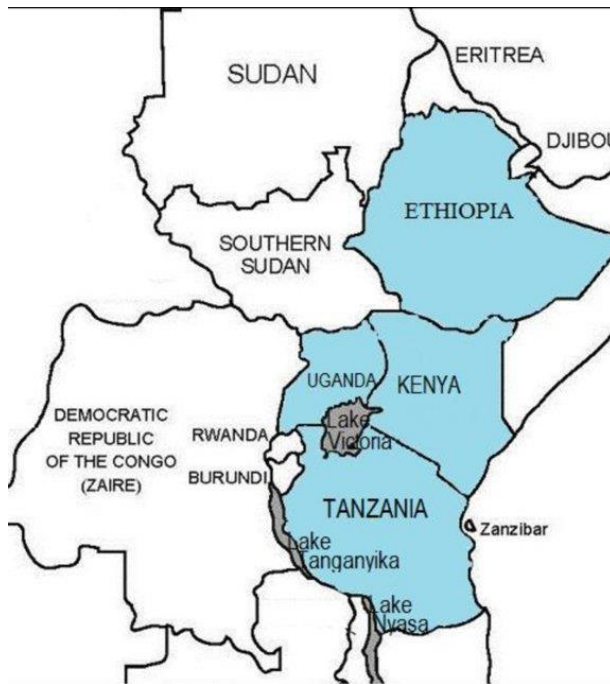
Analysis

- Thirty-six years after it first began, the South Asian Association for Regional Cooperation (SAARC), appears to be all but dead in the water.
 - The year 2020 marked the sixth year since the leaders of the eight nations that make up SAARC were able to meet.
 - Further evidence of its perilous position, if any was needed, came on the SAARC charter day on December 8, where Prime Minister of India made it clear that **India's position on cross-border terrorism from Pakistan that led New Delhi to refuse to attend the SAARC summit in 2016 in Islamabad, is still in place.**
 - This indicates that the grouping, which **cannot convene unless all leaders agree to meet**, is unlikely to do so in the near future.
 - India's problems with Pakistan on:
 - terrorism,
 - territorial claims and on
 - its role in blocking SAARC initiatives on connectivity and trade are well known.
 - Even so, India's refusal to allow Pakistan to host the SAARC summit because of those problems is akin to giving Pakistan a 'veto' over the entire SAARC process.
 - South Asia is the world's least integrated region; less than 5% of the trade of SAARC countries is within.
 - A South Asian Free Trade Zone agreed on, in 2006, remains, in reality, a chimera.
 - The last SAARC summit, scheduled to be held in Islamabad in November 2016, was postponed after the terrorist attacks in Uri.
- China's quest**
- At the border, it is clear that tensions with Pakistan and Nepal amplify the threat perception from China, while other SAARC members (minus Bhutan), **all of whom are Belt and Road Initiative (BRI) partners of China**, will be hard placed to help individually.
 - Significantly, from 2005-14, China actually wanted to join SAARC.
 - Every SAARC summit during that decade period saw a discussion on whether China could be upgraded to member status (from observer status).
 - On each occasion, it was fought back by India and most other countries in the grouping, with the logic that despite sharing boundaries with three South Asian countries, China is not South Asian.

Other important concepts from the editorial!

East Africa Single Joint Visa

- The East Africa Tourist Visa is a single-entry visa for foreigners visiting **Kenya, Rwanda and Uganda simultaneously.**
- It is multi-entry within the three countries; however, this expires automatically if a traveler goes outside of the three (3) countries.



- The 11 stated areas of cooperation are:
 - agriculture;
 - education, culture, and sports;
 - health, population, and child welfare;
 - the environment and meteorology;
 - rural development (including the SAARC Youth Volunteers Program);
 - tourism;
 - transport;
 - science and technology;
 - communications;
 - women development; and
 - the prevention of drug trafficking and drug abuse.

- The charter stipulates that decisions are to be unanimous and that “bilateral and contentious issues” are to be avoided.

Health Silk Road

- In January 2017, China signed a memorandum of understanding with the World Health Organization (WHO) committing to the construction of a “**Health Silk Road**” that would **aim to improve public health in countries along China’s Belt and Road.**

SAARC

- The South Asian Association for Regional Cooperation (SAARC) was established with the signing of the SAARC Charter in Dhaka in December 1985; **the idea was initiated by General Zia Ur Rehman of Bangladesh.**
- SAARC comprises of eight Member States:
 - Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan and Sri Lanka are the **founding members.**
 - Afghanistan joined in 2007.
- It also has nine Observers, namely China, EU, Iran, Republic of Korea, Australia, Japan, Mauritius, Myanmar and USA.
- The Secretariat of the Association was set up in Kathmandu in January 1987.

11. Organisations in news: APEDA and IFAD (PIB)

- **Context:** The **Agricultural and Processed Food Products Export Development Authority (APEDA)** in association with Andhra Pradesh Drought Mitigation Project (APDMP), an externally aided project funded by **International Fund for Agricultural Development (IFAD)**, organized a Virtual Buyer Seller Meet with Millet Exporters and FPOs of Millet for establishing marketing linkages.

Analysis

Agricultural and Processed Food Products Export Development Authority (APEDA)

- The **Agricultural and Processed Food Products Export Development Authority (APEDA)** is a **statutory body** established under the **Ministry of Commerce and Industry.**

- The Authority replaced the **Processed Food Export Promotion Council (PFEPCC)**.

Some of the important Functions are:

- In accordance with the Agricultural and Processed Food Products Export Development Authority Act, 1985, (2 of 1986) the following functions have been assigned to the Authority.
- Development of industries relating to the scheduled products for export by way of providing financial assistance or otherwise;
- Registration of persons as exporters of the scheduled products on payment of such fees as may be prescribed;
- Fixing of standards and specifications for the scheduled products for the purpose of exports;
- Carrying out inspection of meat and meat products in slaughter houses, processing plants, storage premises etc.;
- Improving of packaging and marketing of the Scheduled products.

APEDA is mandated with the responsibility of export promotion and development of the following scheduled products:

- Fruits, Vegetables and their Products.
- Meat and Meat Products.
- Poultry and Poultry Products.
- Dairy Products.
- Confectionery, Biscuits and Bakery Products.
- Honey, Jaggery and Sugar Products.
- Cocoa and its products, chocolates of all kinds.
- Alcoholic and Non-Alcoholic Beverages.
- Cereal and Cereal Products.
- Groundnuts, Peanuts and Walnuts.
- Pickles, Papads and Chutneys.

- Guar Gum.
- Floriculture and Floriculture Products.
- Herbal and Medicinal Plants.

- In addition to this, APEDA has been entrusted with the responsibility to monitor **import of sugar**.

International Fund for Agricultural Development (IFAD)

- **International Fund for Agricultural Development (IFAD)**, United Nations (UN) specialized agency that supports increased food production in poor communities.
- Partly in response to severe famines in the southern Sahara in the early 1970s, the 1974 World Food Conference adopted a resolution that established IFAD in November 1977.
- The organization is headquartered in Rome, Italy.
- IFAD's mandate is to provide funding and other resources for programs that help poor farmers and pastoralists as well as landless and indigenous peoples in rural areas.

12. Food Corporation of India (FCI)(PIB)

- **Context:** 57th Foundation day of FCI.

Analysis

- The **Food Corporation of India (FCI)** was setup under the Food Corporation's Act 1964, in order to fulfill following objectives of the Food Policy:
 - Effective price support operations for safeguarding the interests of the farmers.
 - Distribution of foodgrains throughout the country for public distribution system.
 - Maintaining satisfactory level of operational and buffer stocks of

foodgrains to ensure National Food Security.

- Since its inception, FCI has played a significant role in India's success in transforming the crisis management-oriented food security into a stable security system.
- FCI's Objectives are:
 - **To provide farmers remunerative prices;**
 - To make food grains available at reasonable prices, particularly to vulnerable section of the society;
 - To maintain buffer stocks as measure of Food Security;
 - To intervene in market for price stabilization.

Welfare Schemes

- Besides, Targeted Public Distribution System (TPDS) & National Food Security Act (NFSA) ((Ministry of Consumer Affairs, Food & Public Distribution), Food Corporation of India is also issuing food-grains under various welfare schemes.

Mid-Day Meal Scheme (Ministry of Education)

- The scheme is already covered in detail in 4th Nov file.

Wheat Based Nutrition Programme (WBNP)

- This Scheme is implemented by the **Ministry of Women & Child Development.**
- The foodgrains allotted under this Scheme are utilized by the States/UTs under the Integrated Child Development Scheme (ICDS) for providing nutritious/ energy food to children below 6 years of age and expectant/lactating women.

Scheme for Supply of Foodgrains for SC/ST/OBC Hostels

- The residents of the hostels having 2/3rd students belonging to SC/ST/OBC are eligible to get 15 kg foodgrains per resident per month.
- Allocations of foodgrains under the scheme are made by the Department of Food and Public Distribution, **Ministry of Consumer Affairs, Food & Public Distribution**, based on the requests received from the State/UT Governments.

Scheme for Supply of Foodgrains to Welfare Institutions

- With a view to meet the requirement of Welfare Institutions viz. Charitable Institutions such as beggar homes, nariniketans and other similar welfare institutions not covered under TPDS or under any other Welfare Schemes, an additional allocation of foodgrains (rice and wheat) not exceeding 5% of the BPL allocation is made to States/UTs at BPL prices by the Department of Food and Public Distribution, **Ministry of Consumer Affairs, Food & Public Distribution.**

Annapurna Scheme

- The **Ministry of Rural Development** launched the scheme in 2000-01.
- Indigent senior citizens of 65 years of age or above who are not getting pension under the National Old Age Pension Scheme (NOAPS) are provided 10 kgs. of foodgrains per person per month free of cost under the scheme.

Rajiv Gandhi Scheme for Empowerment of Adolescent Girls (RGSEAG) – 'SABLA'

- The **Ministry of Women & Child Development** launched the SABLA Scheme on 19.11.2010 by merging two

- schemes namely Nutrition Programme for Adolescent Girls (NPAG) and Kishori Shakti Yojana (KSY) in to a single scheme to be implemented in 200 selected districts across the country aims at empowering adolescent girls of 11-18 years by improvement of their nutritional and health status and upgrading various skills like home skills, life skills and vocational skills.
- The requirement of food grains under the scheme for nutrition is @ 100 grams of grains per beneficiary per day for 300 days in a year.

Supply of foodgrains to Defence and Para-Military forces

- FCI also supply foodgrains to the defencepersonnels and para-military forces on quarterly basis.
- The **Ministry of Consumer Affairs, Food & Public Distribution** on receipt of requirement of foodgrains from Ministry of Defence makes the allotment of foodgrains.

13. Central Adoption Resource Authority (CARA)(PIB)

- **Context:** CARA Celebrates its 6th Annual Day.
- CARA celebrates its Annual Day every year on the 15th January.

Analysis

- Central Adoption Resource Authority (CARA) is a statutory body of Ministry of Women & Child Development.
 - CARA was granted the status of a Statutory body under **the Juvenile Justice Act, 2015** for facilitating adoption in the country.
- It functions as the nodal body for adoption of Indian children.

- It is mandated to monitor and regulate in-country and inter-country adoptions.
- CARA is designated as the Central Authority to deal with inter-country adoptions in accordance with the provisions of the **Hague Convention on Inter-country Adoption, 1993**, ratified by Government of India in 2003.
- CARA primarily deals with adoption of orphan, abandoned and surrendered children through its associated /recognised adoption agencies.
- CARA now comes under the umbrella of the ICPS (the Integrated Child Protection Scheme) agencies.

Hague Convention

- It is a multilateral treaty developed by the Hague Conference on Private International Law (HCCH) to provide an expeditious method to return a child internationally abducted by a parent from one member country to another.
- The Convention applies to children aged **under 16 years.**

Integrated Child Protection Services

- It is a **sub-scheme under Umbrella Scheme "Integrated Child Development Services (ICDS)"** being implemented by the **Ministry of Women and Child Development.**
- The purpose of the scheme is to provide for **children in difficult circumstances**, as well as to reduce the risks and vulnerabilities children have in various situations and actions that lead to abuse, neglect, exploitation, abandonment and separation of children.
- **The specific objectives of the scheme are:**

- To institutionalize essential services and strengthen structures
- To enhance capacities at all systems and persons involved in service delivery
- To create database and knowledge base for child protection services
- To strengthen child protection at family and community level
- To coordinate and network with government institutions and non-government institutions to ensure effective implementation of the scheme
- To raise public awareness about child rights, child vulnerability and child protection services.
- The term of the non-official members of the Startup Advisory Council is for a period of **two years**.
- The nominees of the concerned Ministries/ Departments/Organisations, not below the rank of Joint Secretary to the Government of India, are **ex-officio members of the Council**.

The council shall, *inter alia*, suggest measures to:

14. National Startup Advisory Council (PIB)

- **Context:** The Central Government has now decided to nominate the non-official members on the National Startup Advisory Council representing various stakeholders.

Analysis

- The National Startup Advisory Council is **chaired by Minister for Commerce & Industry**.
- The Council **consists of the non-official members, nominated by Central Government** from various categories like founders of successful startups, veterans who have grown and scaled companies in India, persons capable of representing interests of investors into startups, persons capable of representing interests of incubators and accelerators and representatives of associations of stakeholders of startups and representatives of industry associations.

- Foster a culture of innovation amongst citizens and students in particular;
- Promote innovation in all sectors of economy across the country, including semi-urban and rural areas;
- Support creative and innovative ideas through incubation and research and development to transform them into valuable products, processes or solutions to improve productivity and efficiency;
- Create an environment of absorption of innovation in industry;
- **Facilitate public organizations to assimilate innovation with a view to improving public service delivery;**
- **Promote creation, protection and commercialization of intellectual property rights;**
- **Make it easier to start, operate, grow and exit businesses by reducing regulatory compliances and costs;**
- **Promote ease of access to capital for startups;**
- **Incentivize domestic capital for investments into startups;**
- **Mobilize global capital for investments in Indian startups;**
- **Keep control of startups with original promoters;**

- Provide access to global markets for Indian startups.

15. Narcotics Control Bureau (NCB) (TH)

- **Context:** The Narcotics Control Bureau (NCB) arrested aide of gangster Dawood Ibrahim, in connection with a drugs case.
- **Analysis**
- The government's policy on Narcotic Drugs and Psychotropic Substances flows from constitutional provisions contained in Article 47 of the Indian Constitution. It is also guided by the international conventions on the subject.
- India is a signatory to:
 - **Convention on Narcotic Drugs 1961**, as amended by the 1972 Protocol
 - **Conventions on Psychotropic Substances, 1971**
 - **United Nations Convention against Illicit Traffic in Narcotic Drugs and Psychotropic Substances, 1988.**
- The National Policy on Narcotic Drugs and Psychotropic Substances **is based on the Directive Principles, contained in Article 47 of the Indian Constitution**, which direct the State to endeavour **to bring about prohibition of the consumption, except for medicinal purposes, of intoxicating drugs injurious to health.**
- **Prohibition on the consumption of intoxicating drugs, except for medicinal purposes** comes from these 3 Central Legislations:
 - Drugs and Cosmetics Act, 1940,
 - The Narcotic Drugs and Psychotropic Substances Act, 1985, and

- The Prevention of Illicit Traffic in Narcotic Drugs and Psychotropic Substances Act, 1988.

- The responsibility of drug abuse control, which is a central function, is carried out through a number of Ministries, Departments and Organisations.
- These include the **Ministry of Finance, Department of Revenue which has the nodal co-ordination role as administrator of the Narcotic Drugs and Psychotropic Substances Act, 1985 and the Prevention of Illicit Traffic in Narcotic Drugs and Psychotropic Substances Act, 1988.**

Narcotics Control Bureau (NCB)

- The Narcotics Control Bureau was set up as apex drug law enforcement agency with view to coordinate actions of various central/state agencies in the matters related with drug law in the country.
- **It is a statutory body under The Narcotic Drugs and Psychotropic Substances Act, 1985.**
 - This act made an express provision for constituting a Central Authority for the purpose of exercising the powers and functions of the Central Government under the Act.
- The Bureau is subject to the supervision and control of the **Ministry of Home Affairs, Government of India.**
- India is signatory to various international drug related UN conventions and **the responsibility of implementation of the provision of these international conventions also lies with NCB.**
- It exercises the powers and functions of the Central Government for taking measures with respect to:

- Co-ordination of actions by various offices, State Governments and other authorities under the N.D.P.S. Act, Customs Act, Drugs and Cosmetics Act and any other law for the time being in force in connection with the enforcement provisions of the NDPS Act, 1985.
 - Implementation of the obligation in respect of counter measures against illicit traffic under the various international conventions and protocols that are in force at present or which may be ratified or acceded to by India in future.
 - Assistance to concerned authorities in foreign countries and concerned international organisations to facilitate coordination and universal action for prevention and suppression of illicit traffic in these drugs and substances.
 - Coordination of actions taken by the other concerned Ministries, Departments and Organizations in respect of matters relating to drug abuse.
- conditions and living standards throughout the world.
 - Established in 1919 by the **Treaty of Versailles** as an affiliated agency of the League of Nations, the ILO became **the first affiliated specialized agency of the United Nations in 1946.**
 - In recognition of its activities, the ILO was awarded the **Nobel Prize for Peace in 1969.**
 - The functions of the ILO include the development and promotion of standards for national legislation to protect and improve working conditions and standards of living.
 - Among intergovernmental organizations the **ILO is unique in that its approximately 187 member states are represented not only by delegates of their governments but also by delegates of those states' employers and workers, especially trade unions.**
 - The ILO also helps to protect the rights of international migrants and organized labour.
 - The International Labour Office is in Geneva, Switzerland.
 - Among the ILO's many publications are the **International Labour Review and the Year Book of Labour Statistics.**
 - There are eight Core Conventions of the ILO (also called fundamental/human rights conventions) which are as follows.
 - Forced Labour Convention (No. 29)
 - Abolition of Forced Labour Convention (No.105)
 - Equal Remuneration Convention (No.100)
 - Discrimination (Employment Occupation) Convention (No.111)

16. International Labour Organization (ILO) (TH)

- **Context:** A joint platform of 10 central trade unions in India said that it would write to the International Labour Organisation on the four labour codes passed by the Centre.
- The unions said that the Centre did not hold tripartite consultations.

Analysis

International Labour Organization (ILO)

- It is a **specialized agency** of the United Nations (UN) dedicated to improving labour

- Freedom of Association and Protection of Right to Organised Convention (No.87)
- Right to Organise and Collective Bargaining Convention (No.98)
- **Minimum Age Convention (No.138)**
- **Worst forms of Child Labour Convention (No.182)**

17. Innovation Index (PIB)

- **Context:**NITI Aayog released the second edition of the India Innovation Index-2020.
- The index demonstrates the government's continued commitment towards transforming the country into an innovation-driven economy.
- It aims to rank States and UTs based on their scores, recognise opportunities and challenges, and assist in tailoring government policies to foster innovation.
- In the India Innovation Index-2020, the States and Union Territories have been divided into 17 Major States, 10 North-East and Hill States and nine Union Territories and Small States for effectively comparing their performance.
- In the 2020 ranking, Karnataka retained its first position in the Major States category followed by Maharashtra at 2nd spot while Tamil Nadu slid to 3rd position.
- In the North East and Hill States category, Himachal Pradesh stands at first position followed by Uttarakhand and Manipur. Delhi stands at the first position while Chandigarh retained its second spot in the Union Territories and small States category.

Analysis

- The First Indian Innovation Index was released in October 2019.

- NITI Aayog aim is to sync Indian Innovation Index with the Global Innovation Index which has 80 parameters compared to 36 in India.
- The India Innovation Index 2020 has seen new indicators being added, major being the expenditure by states on R&D and new business registration in the state.
- **Through the index, prepared jointly by the Aayog and the Institute of Competitiveness**, the government ranks the states and union territories based on their relative performance of supporting innovation, and empowers them to improve their innovation policies by highlighting their strengths and weaknesses.

Benefits of Such an Index

- Innovation can help India boost its manufacturing competitiveness and exports
- Innovation is widely recognized as a central driver of economic growth and development.
- It increases the competitive federalism among the States and Union Territories.

About Global Innovation Index

- The aim of the Global Innovation Index is to provide insightful data on innovation and, in turn, to assist economies in evaluating their innovation performance and making informed innovation policy considerations.
- **GII is now considered a yardstick for measuring innovation by the UN General Assembly**, as noted in its resolution for achieving Sustainable Development Goals (SDGs) at its 74th session in 2019.
- Economies invest resources to analyze their GII results in cross-ministerial task forces and use the GII to design appropriate innovation and intellectual property (IP) policies.

- The GII is co-published by Cornell University, INSEAD, and the World Intellectual Property Organization (WIPO), a specialized agency of the United Nations.
- Global Innovation Index 2020 report is titled 'Who Will Finance Innovation?'
- **For further details, refer to 3rd Sep file.**

18. All about the Law Commission of India (TH)

- **Context:** The Supreme Court on Monday asked the Home and Law Ministries to explain the nearly three-year-long lapse in making appointments to the Law Commission.
- The posts of Chairperson and Members have been vacant ever since the 21st Law Commission under the former Supreme Court judge, Justice B.S. Chauhan, completed its tenure on August 31, 2018.

Analysis

- The Law Commission of India is a **non-statutory body** constituted by the order of the Government of India from time to time.
- Though law commission is appointed by the President, it's under administrative control of Department of Legal Affairs, Ministry of Law and Justice.
- The Government of India established the **First Law Commission of Independent India in 1955** with the then Attorney-General of India, Mr. M. C. Setalvad, as its Chairman.
- Since then, twenty more Law Commissions have been appointed, each with a three-year term and with different terms of reference.
- None of these recommendations is binding upon the Government.

- It is usually headed by a former Supreme Court judge or a former Chief Justice of a High Court.
- The 21st commission, under Justice B.S. Chauhan (retd), had submitted reports and working papers on key issues such as simultaneous polls to the Lok Sabha and the Assemblies and a uniform civil code.
 - While the Law Commission had supported simultaneous polls, it had said that the time was not ripe for a common code.
- In the pre-independence era, India's first Law Commission was established in 1834 via Charter Act of 1833 under the Chairmanship of Lord Macaulay.
 - This law commission had recommended codification of the Penal Code, the Criminal Procedure Code and a few other matters.
- After that, three more law commissions were established in British Era.
 - The Indian Code of Civil Procedure, the Indian Contract Act, the Indian Evidence Act, the Transfer of Property Act. etc. are products of the labour of the first four Law Commissions.

Important Articles

- **Article 372:** The continuation of pre-Constitution Laws till they are amended or repealed.
- **Article 39A:** It says that State shall secure that the operation of the legal system promotes justice.

Ministry of Law and Justice

- Ministry of Law and Justice is the oldest limb of the Government of India dating back to 1833 when the Charter Act 1833 enacted by the British Parliament.

- The said Act vested for the first time legislative power in a single authority, namely the Governor General in Council.
- The Governor General in Council enacted laws for the country from 1834 to 1920.
- After the commencement of the Government of India Act 1919 the legislative power was exercised by the Indian Legislature constituted thereunder.
- With the passing of the Indian Independence Act 1947 India became a Dominion and the Dominion Legislature made laws from 1947 to 1949 under the provisions of section 100 of the Government of India Act 1935 as adapted by the India (Provisional Constitution) Order 1947.
- Under the Constitution of India which came into force on the 26th January 1950, the legislative power is now vested in Parliament.

19. International Energy Agency (IEA) (PIB)

- **Context:** India signs Strategic Partnership Agreement with **International Energy Agency (IEA)**.

International Energy Agency (IEA)

- Founded in 1974, the IEA was initially designed to help countries co-ordinate a collective response to major disruptions in the supply of oil, such as the crisis of 1973/4.
- While this remains a key aspect of its work, the IEA has evolved and expanded significantly to examine the **full spectrum of energy issues** including oil, gas and coal supply and demand, renewable energy technologies, electricity markets, energy

efficiency, access to energy, demand side management and much more.

- **The four main areas of IEA focus are:**

- **Energy Security:** Promoting diversity, efficiency, flexibility and reliability for all fuels and energy sources;
- **Economic Development:** Supporting free markets to foster economic growth and eliminate energy poverty;
- **Environmental Awareness:** Analysing policy options to offset the impact of energy production and use on the environment, especially for tackling climate change and air pollution; and
- **Engagement Worldwide:** Working closely with partner countries, especially major emerging economies, to find solutions to shared energy and environmental concerns.

- **Global Energy Review, World Energy Outlook and Key World Energy Statistics** are some of the important

publications of IEA.

Structure

- The Governing Board is the main decision-making body of the IEA.
- It is composed of energy ministers or their senior representatives from each Member country.
- The Governing Board holds three to four meetings at the Director General (or equivalent) level each year to discuss global energy developments.
 - The **IEA Ministerial Meeting takes place every two years.**
- The IEA is made up of 30 member countries.
 - In addition, thanks to its successful open-door policy to emerging

countries, the IEA family also includes eight association countries.

Criteria for membership

- To be a member country of the IEA, a **country must also be a member country of the OECD** (The Organisation for Economic Co-operation and Development).
 - However, membership in the OECD **does not automatically result in membership in the IEA.**
 - **China and India are not the members of IEA.**

- ❖ An IEA collective action would be initiated in response to a significant global oil supply disruption and would involve IEA Member Countries making additional volumes of crude and/or product available to the global market (either through increasing supply **or reducing demand**), with each country's share based on national consumption as part of the IEA total oil consumption.

Member countries

Australia
Austria
Belgium
Canada
Czech Republic
Denmark
Estonia
Finland
France
Germany
Greece
Hungary
Ireland
Italy
Japan

Korea
Luxembourg
Mexico
New Zealand
Norway
Poland
Portugal
Slovak Republic
Spain
Sweden
Switzerland
The Netherlands
Turkey
United Kingdom
United States

Associator

Brazil
China
India
Indonesia
Morocco
Singapore
South Africa
Thailand

- In addition, it must demonstrate several requirements. These are:
 - Crude oil and/or product reserves equivalent to 90 days of the previous year's net imports;
 - A demand restraint programme to reduce national oil consumption by up to 10%;
 - Legislation and organisation to operate the Co-ordinated Emergency Response Measures (CERM) on a national basis;
 - Legislation and measures to ensure that all oil companies under its jurisdiction report information upon request;
 - Measures in place to ensure the capability of contributing its share of an IEA collective action.

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Miscellaneous

1. Justice Clocks (PIB)

- To make effective use of database created through National Judicial Data Grid (NJDG) and to make the information available to public, LED Display Message Sign Board System called Justice Clocks have been installed in 18 High Courts.
- **The purpose of Justice Clock is to bring awareness to the public about justice sector, advertising the various schemes of the department and to give status of various fields to the public.**

2. One Nation One Application: National e-Vidhan Application (NeVA) (PIB)

- 'e-Vidhan' is one of the 44 Mission Mode Projects (MMPs) under Digital India Programme to make the working of the all the legislatures paperless.
- The Ministry of Parliamentary Affairs has been made the 'Nodal Ministry' for the implementation of e-Vidhan MMP re-designating it as National e-Vidhan Application (NeVA).
- **e-Vidhan software of Himachal Pradesh Vidhan Sabha was upgraded as National eVidhan Application (NeVA)**, a single application covering all 39 Houses (Lok Sabha+ Rajya Sabha+ 31 Assemblies+ 6 Councils).

3. National Youth Parliament Scheme (PIB)

- A new portal based National Youth Parliament Scheme (NYPS) has been developed for better implementation of the Youth Parliament Programme by improving upon process.
- The Ministry of Parliamentary Affairs has been conducting youth parliament competitions around 8000 schools/ Universities and

colleges in the country to inculcate democratic values and ethos among youth.

4. National Metrology Conclave 2021 (PIB)

- The Prime Minister of India will dedicate 'National Atomic Timescale', and 'Bhartiya NirdeshakDravya' to the nation, and lay the foundation stone of the 'National Environmental Standards Laboratory' at the National Metrology Conclave on 4th January 2021.
- The **National Atomic Timescale** generates Indian Standard Time with an accuracy of 2.8 nanosecond.
- **Bhartiya NirdeshakDravya** is supporting testing and calibration of laboratories for quality assurance, at par with international standards.
- The **National Environmental Standards Laboratory** will aid self-reliance in the certification of ambient air and industrial emission monitoring equipment.
- **National Metrology Conclave 2021** is being organised by Council of Scientific and Industrial Research-National Physical Laboratory (CSIR-NPL), New Delhi, which is entering into its 75th year of inception.
- The theme of the conclave is 'Metrology for the Inclusive Growth of the Nation'.

5. Police K9 Cell (TH)

- A special '**Police K9 Cell**' was established in November 2019 under the Police Modernization Division of the Ministry of Home Affairs with the mandate of 'Mainstreaming and Augmentation of Police Service K9s i.e. Police Dogs in the country'.

6. Swasthya (PIB)

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- It is a first of its kind e-portal of the **Ministry of Tribal Affairs**, providing all health and nutrition related information of the tribal population of India in a single platform.

7. C40 Cities (TH)

- C40 is a network of world's 97 (as on 3rd Jan 2021) megacities committed to addressing climate change. C40 supports cities to collaborate effectively, share knowledge and drive meaningful, measurable and sustainable action on climate change.
- Indian cities that are a part of this initiative: Chennai, Delhi NCR and Kolkata. Bengaluru and Jaipur are temporarily inactive.

8. Woolly rhino from the Ice Age found in Russia (TH)

- Recent years have seen major discoveries of mammoths, woolly rhinos, Ice Age foal, and cave lion cubs as the permafrost increasingly melts across vast areas of Siberia because of global warming.

9. New insights on Malaria (TH)

- Malaria is caused by Plasmodium parasites and is carried to humans via the bites of infected female Anopheles mosquitoes.
- A new study (PLOS Pathogens) has shown that if a mosquito has multiple bouts of blood meal, it can shorten the incubation period of the parasites and increase the malaria transmission potential. This poses new challenges to the current malaria elimination strategy.
- Malaria-transmitting mosquitoes in endemic regions feed on blood roughly every two to three days and the study shows that this natural behaviour strongly promotes the

transmission potential of malaria parasites, in previously unappreciated ways.

- The study found that malaria transmission potential in the sub-Saharan Africa region is higher than previously thought, making disease elimination even more difficult.
- It also noted that parasites can be transmitted by younger mosquitoes, which are less susceptible to insecticides.
- For further details on this topic, refer to 3rd Dec file.

10. The first life forms (TH)

- Chemists have come up with a new proposition for how life may have begun.
- In a study, the researchers showed a simple compound **diamidophosphate** could have knitted together the building blocks of DNA to form the primordial structures.
- The possibility is that DNA and RNA arose together and that the first life forms were a mixture of the two.

11. Tampon Tax (TH)

- UK began 2021 by abolishing a 5 per cent Value Added Tax (VAT) on women's sanitary products, often referred to as the "**tampon tax**" and which many activists had described as sexist.
- It now joins the list of countries which have already eliminated this tax, which includes India, Australia and Canada.
- The measure is part of a wider UK government effort called '**End Period Poverty**'.

12. Prayaas Initiative (TH)

- The Indian Oil Corporation (IOC) launched a new initiative — Prayaas — to address the

needs of the local communities near its fuel stations.

- The personnel from the IOC's Delhi State Office visited night shelters located near their fuel stations and distributed blankets.

13. National Integrated Database of Hospitality Industry (NIDHI) (PIB)

- Ministry of Tourism has created the **National Integrated Database of Hospitality Industry (NIDHI)** to get a clear picture of the geographical spread of the Hospitality Sector, its size, structure and existing capacity.
- It will serve as a common repository of data from Ministry of Tourism, State Departments of Tourism and Industry and enable the Central and State Governments to deliver better support and services including policies and strategies.

14. System for Assessment, Awareness & Training for Hospitality Industry: (SAATHI) (PIB)

- In order to ensure adherence with the COVID-19 safety and hygiene protocol, Ministry of Tourism has undertaken an initiative called **SAATHI (System for Assessment, Awareness & Training for Hospitality Industry)** in association with the Quality Council of India (QCI) for effective implementation of Guidelines/ SOPs issued with reference to COVID-19 and beyond for safe operations of Hotels, Restaurants, B&Bs and other units.

Quality Council of India (QCI)

- It was set up in 1997 jointly by the Government of India and the Indian Industry represented by the three premier industry associations i.e. Associated Chambers of Commerce and Industry of India

(ASSOCHAM), Confederation of Indian Industry (CII) and Federation of Indian Chambers of Commerce and Industry (FICCI).

- It aims to establish and operate national accreditation structure and promote quality through National Quality Campaign.
- The Department of Industrial Policy & Promotion, Ministry of Commerce & Industry, is the nodal ministry for QCI.

15. East Container Terminal (ECT) (TH)

- **Sri Lanka, Japan and India** signed an agreement to jointly develop the East Container Terminal at the Colombo Port.
- The East Container Terminal (ECT) is located some 3 km away from the China-backed international financial city, known popularly as "port city", being built on reclaimed land on Colombo's sea front.

16. Toycathon 2021 (PIB)

- Ministry of Education, Ministry of Women and Child Development (MWCD), Ministry of Textile, Ministry of Commerce and Industries, Ministry of MSME, Ministry of I&B and All India Council for Technical Education (AICTE) have jointly launched Toycathon-2021.
- This is a special kind of hackathon where students and teachers from schools and colleges, design experts, toy experts and startups will get together to crowd source ideas for developing toys and games that are based on Indian culture and ethos, local folklore and heroes, and Indian value systems.
- While this will greatly **help India develop into a global hub for toys and games (at present India imports 80 per cent of toys)**, it will also help our children to understand the

ethos and values of Indian culture as envisaged in the National Education Policy 2020.

17. Swasth Vayu (PIB)

- Swasth Vayu is the non-invasive ventilator developed by **CSIR-National Aerospace Laboratories (NAL)**.

18. Magneto-telluric (MT) (PIB)

- Magneto-telluric (MT) is a geophysical method which uses natural time variation of the Earth's magnetic and electric fields to understand geological (underground) structure and processes.
- These measurements can help to ascertain the presence of fluid, which generally enhances the possibility of triggering of earthquakes.

19. Global Economic Prospects (GEP) Report (TH)

- Global economic output is projected to grow by 4% in 2021 assuming widespread roll-out of a COVID-19 vaccine throughout the year, as per the **World Bank's Global Economic Prospects (GEP) report** released recently.

Other Major World Bank Publications

- Global Economic Prospects**, World Development Indicators, World Development Report, International Debt Statistics, Migration and Development Brief, Ease of Doing Business Index, Human Capital Index (HCI), Human Capital Project (HCP) etc. are among the major publications of the World Bank.

20. Longitudinal Ageing Study of India (LASI) Wave-1 (PIB)

- Union Minister for Health & Family Welfare released INDIA REPORT on Longitudinal

Ageing Study of India (LASI) Wave-1 today on the virtual platform.

- LASI is a full-scale national survey of scientific investigation of the health, economic, and social determinants and consequences of population ageing in India.

21. Dedicated Freight Corridor (DFC) Project (PIB)

- Prime Minister Shri Narendra Modi dedicated to the nation the 306 km long Rewari - Madar section of the Western Dedicated Freight Corridor (WDFC) today through video conference.

- Refer in details, 28th Dec file.**

22. New Industrial Development Scheme for Jammu & Kashmir (J&K IDS, 2021) (PIB)

- Ministry of Commerce & Industry has formulated **New Industrial Development Scheme for Jammu & Kashmir (J&K IDS, 2021)** as Central Sector Scheme for the development of Industries in the UT of Jammu & Kashmir.
- The main purpose of the scheme is to generate employment which directly leads to the socio-economic development of the area.
- For the first time, any industrial incentive scheme is taking the industrial development to the block level.
- Scheme while encouraging new investment, also nurtures the existing industries in J&K by providing them working capital support at the rate of 5% for 5 years.

23. National Internet Exchange of India (NIXI) (PIB)

- Context:** The **National Internet Exchange of India (NIXI)** announced that it will offer a free IDN (Internationalized Domain Name) in any

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of their preferred 22 official Indian language along with every IN domain booked by the registrant.

- This offer has been created to stimulate the adoption of □□□□ (IDN) domain name and proliferation of local language content.

Analysis

- NIXI is a not-for-profit Organization under section 8 of the Companies Act 2013.
- NIXI was set up for peering of ISPs among themselves for the purpose of routing the domestic traffic within the country, instead of taking it all the way to US/Abroad, thereby resulting in better quality of service (reduced latency) and reduced bandwidth charges for ISPs by saving on International Bandwidth.
- .IN is India's Country Code Top Level domain (ccTLD). The Govt. of India delegated the operations of INRegistry to NIXI in 2004.
 - The INRegistry operates and manages India's .IN ccTLD.
- National Internet Exchange of India (NIXI) is spreading the internet technology to the citizens of India through the following activities:
 - i) Internet Exchanges through which the internet data is exchanged amongst ISPs and between ISPs and CDNs.
 - ii) IN Registry, managing and operation of IN country code domain and □□□□ IDN domain for India.
 - iii) IRINN, managing and operating Internet protocol (IPv4/IPv6).

24. Digital Calendar and Diary of Government of India (PIB)

- **Context:** Union Minister for Information and Broadcasting launched the **Digital Calendar and Diary of Government of India**, along

with their Android and iOS mobile applications (in selected local languages).

Analysis

- While the earlier physical version of Government of India Calendar had a reach up to the Panchayat level in the country, the digital avatar of the calendar in form of this app will be available to anyone across the world.
- The Government of India Calendar application contains the following features:
 - Latest information on various schemes, events and publications of Government of India
 - Official holidays and various important dates.
 - Inspirational and motivational messages from great personalities of our nation.
 - Provision for taking notes digitally which will be stored with cutting edge security and privacy measures
 - Provision for scheduling of meetings and setting reminders for important tasks and events.
 - Accessibility features for visually impaired Divyangjans in coming days fulfilling the goal of Prime Minister's "Accessible India"/"Sugamya Bharat Abhiyan".

25. Chameli Devi Jain Award 2020 (TH)

- The Media Foundation has begun accepting nominations for the Chameli Devi Jain Award 2020 for outstanding woman media person.
- Journalists in the print, digital, broadcast and current affairs documentary film media are eligible for the award, including photographers, cartoonists and newspaper designers.

- It was first awarded in 1982 to an outstanding woman media person, who had made a difference through writing with “depth, dedication, courage and compassion”.
- It is also to promote national integration, spirit of communal harmony, brotherhood, courage and adventure.
- The basic aim is to propagate the spirit, essence and concept of Ek Bharat Shreshtha Bharat.

26. Mukundpura CM2 (TH)

- **It is a meteorite that fell near Jaipur in 2017.**
- It was classified to be a carbonaceous chondrite.
- This is a type of stony meteorite, considered the most primitive meteorite and a remnant of the first solid bodies to accrete in the solar system.
- The composition of carbonaceous chondrites is also similar to the Sun.

27. National Youth Festival (PIB)

- **National Youth Festival** is celebrated every year from 12th to 16th January.
- 12th January being the birth anniversary of Swami Vivekananda, is observed as **National Youth Day**.
- This year, the 2nd National Youth Parliament Festival (NYPF) is also being organized along with the National Youth Festival.
 - The objective of National Youth Parliament Festival is to hear the voice of youth between 18 and less than 25 years of age, who will join various careers in coming years, including public services.
- The **objective of the National Youth Festival** is to bring youth of the country together to showcase their talents; provide them an arena, by creating a mini-India, where youth interact in formal and informal settings and exchange their social and cultural uniqueness.

- Due to COVID-19, the 24th National Youth Festival is being held in virtual mode.
- ‘YUVAAH – UtsahNaye Bharat Ka’ is the theme of this year’s festival, which suggests, the youth bring alive the celebration of New India.

28. Sea Vigil 21 (PIB)

- **Context:** second edition of largest coastal defence exercise.

Analysis

- The second edition of the **biennial** pan-India coastal defence exercise ‘Sea Vigil-21’ will be conducted on 12-13 January 2021.
- The exercise, inaugural edition of which was conducted in January 2019; will be undertaken along the entire 7516 km coastline and Exclusive Economic Zone of India and will involve all the 13 coastal States and Union Territories along with other maritime stakeholders, **including the fishing and coastal communities**.
- The exercise is a build up towards the major Theatre level exercise TROPEX [Theatre-level Readiness Operational Exercise] which Indian Navy conducts every two years.
- SEA VIGIL and TROPEX together will cover the entire spectrum of maritime security challenges, including transition from peace to conflict.
- Assets of the Indian Navy, Coast Guard, Customs and other maritime agencies will participate in SEA VIGIL.

29. Management Effectiveness Evaluation (MEE) (PIB)

- Minister for Environment, Forest and Climate Change released **Management Effectiveness Evaluation (MEE)** of 146 National Park and Wildlife Sanctuaries in the Country.
- In order to assess the efficacy of Protected Areas, evaluation of management effectiveness is required.
- At present, India has a network of 903 Protected Areas in the country covering about 5% of the total geographic area of the country.

30. Khadi Prakritik Paint (PIB)

- Innovative new paint developed by Khadi and Village Industries Commission launched.
- The eco-friendly, non-toxic paint, is a first-of-its-kind product, with **anti-fungal, anti-bacterial properties**.
- Based on **cow dung as its main ingredient**, the paint is cost-effective and odorless, and has been **certified by Bureau of Indian Standards**.
- Khadi Prakritik Paint is **available in two forms** – distemper paint and plastic emulsion paint.
- Production of Khadi Prakritik Paint is aligned with the vision of increasing farmers' income.
- The paint is **free from heavy metals** like lead, mercury, chromium, arsenic, cadmium and others.

31. CollabCAD Software (PIB)

- National Informatics Centre (NIC), MeitY along with Central Board of Secondary Education (CBSE), Ministry of Education is jointly launching **CollabCAD Software**, a collaborative network, computer-enabled

software system, providing a total engineering solution from 2D drafting & detailing to 3D product design for students and faculty of Engineering Graphics Curriculum.

- This initiative aims to provide a great platform to students across the country to create and modify 3D digital designs with a free flow of creativity and imagination.
- This software would also enable students to collaborate over designs across the network and concurrently access the same design data for storage and visualization.

32. SWITCH UAV (TH)

- The Indian Army has signed a \$20-million contract with ideaForge, a player in unmanned aerial vehicle (UAV) technology, to procure undisclosed quantities of a high-altitude variant of **SWITCH UAV, an indigenous system used in surveillance operations**.
- SWITCH UAV is an indigenous system developed by Indian startup ideaforge.
- It is built to cater to the most demanding surveillance operations of the Indian forces.
- This fixed-wing vertical take-off and landing UAV can be deployed at high altitudes and under harsh environments for day and night surveillance



33. Naga Nakti Bird Sanctuary (TH)

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- **Context:** Kalrav, Bihar's first Bird Festival at **Naga Nakti Bird Sanctuary** in Jamui District.

Analysis

- The Naga Dam (791 ha) and Nakti Dam (332 ha) are two sanctuaries so close to each other that they can be taken as one bird area in Bihar. These dams were built to supply water to local farms.
- The site falls in Biome Indo-Gangetic Plains.

34. Parakram Diwas (PIB)

- In order to honour and remember Netaji Subhas Chandra Bose's indomitable spirit and selfless service to the nation, Government of India has decided to celebrate his birthday on the 23rd day of January every year as "**Parakram Diwas.**"

35. Indo-French Exercise Desert Knight-21 (PIB)

- Indian Air Force and French Air and Space Force will conduct a bilateral Air exercise, **Desert Knight-21** at Air Force Station Jodhpur from 20 to 24 Jan 21.
- **Mains Question:** How is food security different from nutrition security? Do you think that the time has come to switch the focus of our approach from food security to nutrition security?

36. Inequality Virus Report (TH)

- Indian billionaires increased their wealth by 35% during the lockdown, ranking India after U.S., China, Germany, Russia and France, according to Oxfam's '**Inequality Virus Report**' released on the opening day of the World Economic Forum in Davos.

37. Indian Telegraph Act, 1885 (TH)

- The Union Home Ministry issued orders to suspend Internet in some areas in Delhi under a rarely used provision of a British-era Act.
- The order issued under the Temporary Suspension of Telecom Services (Public Emergency or Public Safety Rules 2017) of the **Indian Telegraph Act, 1885**, had been issued only twice before — in Delhi on December 19 and 20, 2019, at the height of the protests against the Citizenship (Amendment) Act.
- The rules framed in 2017 empower the Union Home Secretary and a State's Home Secretary to pass directions to suspend the telecom services, including the Internet, "due to public emergency or public safety."

38. Pandit Govind Ballabh Pant (PIB)

- Bharat Ratna **Pandit Govind Ballabh Pant**, Premier of United Provinces (1937 - 1939), First Chief Minister of Uttar Pradesh (1946 - 1954) and Union Home Minister (1955 - 1961) was a recipient of the highest civilian award for Public Service, the Bharat Ratna in 1957, besides being the leader of the Rajya Sabha.

39. Prabuddha Bharata (PIB)

- **Context:** Prime Minister of India will address the 125th anniversary celebrations of '**Prabuddha Bharata**', a monthly journal of the Ramakrishna Order, started by Swami Vivekananda in 1896.

Analysis

- The journal 'Prabuddha Bharata' has been an important medium for spreading the message of India's ancient spiritual wisdom.
- Its publication was started from Chennai (erstwhile Madras), where it continued to be

published for two years, after which it was published from Almora.

- Later, in April 1899, the place of publication of the Journal was shifted to Advaita Ashrama and it has been continuously published from there since then.
- Some of the greatest personalities have left their imprint on the pages of 'Prabuddha Bharata' through their writings on Indian culture, spirituality, philosophy, history, psychology, art, and other social issues. Luminaries like Netaji Subhas Chandra Bose, Bal Gangadhar Tilak, Sister Nivedita, Sri Aurobindo, Former President Sarvepalli Radhakrishnan, among others, have contributed to the Journal over the years.

40. Export of Chili and Turmeric (PIB)

- **Context:** 14th Buyer Seller Meet (BSM) conducted by Spices Board in FY 2020-21, covering Chili and Turmeric.
- India is the world's largest exporter of chili and turmeric, the exports of which have recorded a steady progress, over the years.
- During 2019-20, chili and chili products contributed to more than 40 per cent in volume and 29 per cent in value of India's total spice exports.
- Turmeric held a share of 11 per cent in volume and 6 per cent in value of the export basket.