



DIKSHANT TODAY

SEPTEMBER 2022



What's special

- ↻ National Anti-Doping Bill 2022
- ↻ Prevention of Money Laundering Act (PMLA)
- ↻ International North South Transport Corridor
- ↻ Nepal's new citizenship law
- ↻ 'One Nation One Fertilizer' policy
- ↻ UN Intergovernmental Conference (IGC-5)
- ↻ Europe's great drought
- ↻ "SMILE-75 Initiative"
- ↻ Practice Question For Upsc Prelims Exam
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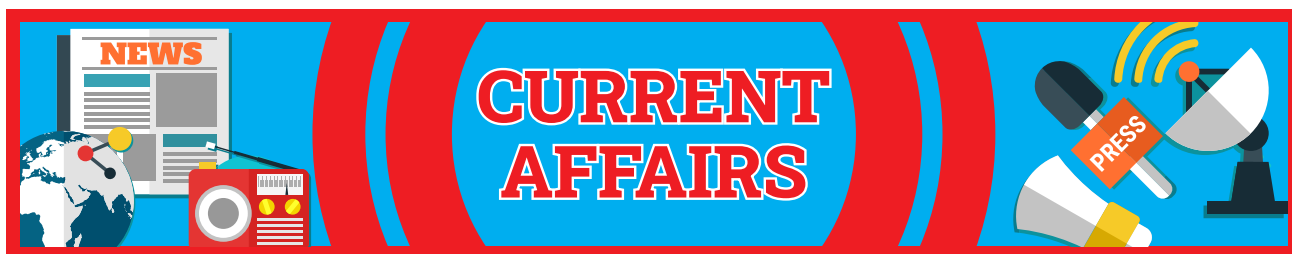
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POLITY AND GOVERNANCE

PM AND PRESIDENT'S PHOTOS IN GOVT ADS



Why in news?

- ⇒ Recently, the Madras High Court directed the Tamil Nadu government to include the photographs of the President of India and Prime Minister Narendra Modi in advertisements on the 44th Chess Olympiad underway in Chennai.
- ⇒ The HC relied on a 2015 Supreme Court ruling that issued guidelines on government spending on advertisements.

What was the 2015 ruling?

- ⇒ In Common Cause v Union of India, the Supreme Court sought to regulate the way the government spends on advertisements.
- ⇒ It essentially regulated the 2007 New Advertisement Policy of the Government of India.
- ⇒ The petitioners had argued that there is arbitrary spending on advertisements by the government. The allegations ranged from wastage of public money for political mileage to using advertisements as a tool to manipulate media.

What was the observations made by the court?

- ⇒ Since the primary cause of government advertisement is to use public funds to inform the public of their rights, obligations, and entitlements as well as to explain Government policies, programs, services and initiatives, however, when these requisites are not fulfilled in a government advertisement then the whole purpose would be frustrated.
- ⇒ Patronization of any particular media house(s) must be avoided and award of advertisements must be on an equal basis to all newspapers who may, however, be categorized depending upon their circulation.

- ⇒ The DAVP (Directorate of Advertising and Visual Publicity) guidelines do not deal with the said aspect of the matter and hence the necessity of incorporating the same in the present directions to ensure the independence, impartiality and the neutrality of the fourth estate which is vital to the growth and sustenance of democracy will have to be weighed and considered by us.
- ⇒ A three-judge Bench had set up a committee to suggest a better policy.

What did the committee suggest?

- ⇒ The three-member committee suggested a fresh policy, the Government Advertisements (Content Regulation) Guidelines 2014 with five broad principles:
 - a) Advertising campaigns are to be related to government responsibilities
 - b) Materials should be presented in an objective, fair manner and designed to meet objectives of the campaign
 - c) Advertisements must not directed at promoting political interests of a party
 - d) Campaigns must be justified and undertaken in a cost-effective manner
 - e) Advertisements must comply with legal requirements and financial regulations

What did the Supreme Court rule?

- ⇒ It largely accepted the committee report except on a few issues, the appointment of an ombudsman to oversee the implementation of the guidelines, a special performance audit of government spending, and an embargo on publication of advertisements on the eve of elections.
- ⇒ The ruling mandated that government advertisements will not contain a political party's symbol, logo or flag and are required to be politically neutral and must refrain from glorifying political personalities.

What about photographs in advertisements?

- ⇒ The Supreme Court agreed with the committee's suggestion "that photographs of leaders should be avoided and only the photographs of the President/ Prime Minister or Governor/ Chief Minister shall be used for effective government messaging".
- ⇒ Then Attorney General Mukul Rohatgi had opposed the recommendation arguing that if the PM's photograph is allowed in the advertisement, then the same right should be available to his cabinet colleagues as the PM is the "first among the equals".

⇒ The court, while restricting the recommendation to the photos of the President and Prime Minister, added the photograph of the Chief Justice of India to that list of exceptions.

Review in 2018:

⇒ In 2018, the Centre and states including Karnataka, West Bengal, Assam, Tamil Nadu, Uttar Pradesh, Odisha and Chhattisgarh sought a review of the verdict on the ground that not permitting the publication of the CM’s photograph would violate the federal structure.

⇒ An SC Bench comprising Justices Gogoi and P C Ghose relaxed the bar, allowing pictures of Union ministers, Chief Ministers, Governors and State ministers in government advertisements.

What are the takeaways from the SC and HC verdicts?

⇒ The SC ruling stepped into content regulation, which is a facet of the right to freedom of speech and expression, and was also in the domain of making policy. This raised questions on the judiciary stepping on the executive’s domain.

⇒ The SC ruling did not mandate publication of the photograph of the PM and President, but only restricts publication of photos of government officials other than the President, PM, CJI, CM and the Governor.

⇒ In an opposition-ruled state such as Tamil Nadu, exclusion of the PM’s photos is seen as a political move. The HC said that considering the “national interest” in the issue, the “excuses taken by the state” cannot be accepted.

PARLIAMENT PASSES THE NATIONAL ANTI-DOPING BILL 2022



Why in news?

⇒ Recently, the Parliament passed the National Anti-Doping Bill, 2022, a legislation providing a statutory framework for the functioning of the National Anti-Doping Agency and scaling up the network of dope testing laboratories in the country.

⇒ The timing of the bill assumes significance, as it comes close on the heels of an incident in which five members of India’s contingent for the 2022 Commonwealth Games failed their anti-doping tests.

Background:

⇒ The National Anti-Doping Bill was introduced in Lok Sabha on 17th December, 2021 and passed on 27th July, 2022 with some Official Amendments proposed on the basis of the suggestions/recommendations received from the Parliamentary Standing Committee and some other key stakeholders.

⇒ The bill, piloted by Sports and Youth Affairs Minister Anurag Thakur, was passed in the Rajya Sabha through a voice vote. With this, the Bill stands passed in the Parliament.

The salient features of the Bill are as follows:

⇒ Statutory framework in the form of legislation for prohibition of doping in sports and enforcing anti-doping activities in the country. The proposed Bill intends to accomplish: -

1. Building institutional capabilities in anti-doping and enabling hosting of major sports events;
2. Protecting rights of all sportspersons;
3. Ensuring time-bound justice to athletes;
4. Enhancing cooperation among agencies in fighting doping in sports;
5. Reinforcing India’s commitment to international obligations for clean sports;
6. Independent mechanism for anti-doping adjudication;
7. Providing legal sanctity to National Anti Doping Agency (NADA) & National Dope Testing Laboratory (NDTL);
8. Establishing more Dope Testing Labs;
9. Creating job opportunities both, directly & indirectly; and
10. Creating opportunities for academic research, science and manufacturing relating to Anti-Doping.
11. Establishing standards for the manufacturing of nutritional supplements for sports in India.

What’s the National Anti-Doping Bill, 2022?

⇒ The National Anti-Doping Bill, 2022 was introduced by Sports Minister Anurag Thakur in the Lok Sabha in December 2021, but was later referred to a Standing Committee, over some concerns.

⇒ The bill will facilitate the operation of the National Anti-Doping Agency, the National Dope Testing Laboratory and other allied bodies.

⇒ Currently, anti-doping activities are implemented by the National Anti-Doping Agency, which was established as a society.

Empowering NADA:

⇒ The bill will now permit the National Anti-Doping Agency (NADA) to conduct raids to catch doping offenders.

⇒ The NADA will have the power of “levying sanctions for anti-doping rule violations, the disciplinary procedures to be adopted and the powers of

inspection, sample collection and sharing and free flow of information.”

- Presently, NADA isn't empowered to conduct raids if it suspects or has proof of sportspersons indulging in doping activities at any premises, including national camps.

National Board for Anti-Doping:

- The National Board for Anti-Doping in Sports will be established to make recommendations to the government on anti-doping regulations and compliance with international commitments on anti-doping. The board will oversee the activities of NADA and issue directions to it.
- With the passage of the bill, any rule violation with regard to anti-doping policies will result in disqualification of a sportsperson's results, including forfeiture of medals, points, and prizes, ineligibility to participate in a competition or event for a prescribed period, and financial sanctions.

Does India really have a doping crisis?

- The bill comes in the backdrop of a number of high-profile Indian athletes failing dope tests.
- Jumper Aishwarya Babu, a medal hopeful for the Commonwealth Games, failed her doping test during the National Inter-State Athletics Championships held in July 2022.
- Sprinter S Dhanalakshmi was also barred for allegedly using illegal chemical substances, which came to light after her test was carried out by the Athletics Integrity Unit (AIU). She was the country's only participant in the women's 100m race, and a member of the 400m relay team.
- Earlier in May, India's top discus thrower Kamalpreet Kaur was provisionally suspended for failing a dope test conducted by the Athletics Integrity Unit (AIU).
- Kaur had made rapid strides last year and set a national record of 66.59 metre at the Indian Grand Prix IV in June to seal her berth at the Tokyo Olympics. She finished second in her group at Tokyo to advance to the final round, where she finished sixth with a best throw of 63.70 m.
- Doping is clearly an issue in India, as it was ranked third in the World Anti-Doping Agency (WADA) report released in 2021. With 152 cases across disciplines, the country is marginally below leaders Russia (167) and Italy (157).

BAIL UNDER PREVENTION OF MONEY LAUNDERING ACT (PMLA)

Why in news?

- Recently, the Supreme Court in the case of Vijay Madanlal Chaudhary vs Union of India gave the judicial stamp of approval to the twin conditions of bail under Section 45(1) of the Prevention of Money Laundering Act, 2002 (PMLA).

- The conditions were contested as being arbitrary and draconian in as much as they reverse the presumption of innocence at the stage of bail.



- The judgment is of immense importance given that delay or denial in grant of bail was recently identified by the Supreme Court in the case of Satender Kumar Antil vs CBI as being a leading factor in the perpetration of injustice in our criminal justice system.

What are the conditions under Section 45(1) of the PMLA?

- The PMLA was enacted with the objective to prevent money laundering. The Act provides for a higher threshold for the grant of bail as compared to the standard procedure under the Code of Criminal Procedure (CrPC).
- Section 45(1) of the PMLA requires that before a person is released on bail or bond, the public prosecutor must initially be given an opportunity to oppose the application and secondly, when the application is opposed, the court must be satisfied that there are reasonable grounds for believing that the accused is not guilty of the offence and is not likely to commit any crime while out on bail.

Are there other Acts which impose such conditions?

- A similar provision is provided for in Section 43D(5) of the Unlawful Activities (Prevention) Act, 1967 which requires the court to provide an opportunity to the public prosecutor to oppose the bail application and to not release the accused on bail if there are reasonable grounds for believing that the accusation is prima facie true.
- Section 37(1) of the Narcotic Drugs and Psychotropic Substances Act, 1985 too is in pari materia with Section 45(1) of the PMLA.
- Previously, Section 20(8) of the Terrorist and Disruptive Activities Act, 1987 (TADA) also carried similar conditions for grant of bail.

What was the earlier position of the court on Section 45(1)?

- The validity of the twin requirements under Section 20(8) of the TADA Act had been upheld by the Supreme

- Court in the case of Kartar Singh vs State of Punjab (1994) on the grounds that the courts have to balance the interest of the victims and the community as well as the safety of the nation with the liberty of the accused.
- In the case of Nikesh Tarachand Shah vs Union of India (2018), however, the Court differentiated between the wordings of Section 20(8) of the TADA Act and Section 45(1) in two important regards that Section 20(8) of the TADA Act applied to a 'most heinous' offence and that the previously un-amended Section 45(1) under challenge in the Nikesh Shah case did not pertain to an offence under the PMLA Act but only to a predatory offence listed in Schedule A.
 - The Supreme Court, in that case, held Section 45(1) to be unconstitutional and violative of Articles 14 and 21 of the Indian Constitution and struck it down.

Why has the Supreme Court reversed its position now?

- Post the Supreme Court's judgment in the Nikesh Shah case, Section 45(1) was amended vide Act 13 of 2018 and the revised section made the twin conditions for grant of bail applicable to all offences under the PMLA.
- This amended section was again challenged before the Supreme Court in the recent Vijay Madanlal case. The Supreme Court has held that as Section 45 was not obliterated from the statute book but was merely held to be unconstitutional, the Parliament was free to revive the provision by curing the defect.
- With respect to the first differentiation made between Section 20(8) of TADA and Section 45(1) of the PMLA, the three-judge bench of the Supreme Court in Vijay Madanlal case held that money laundering could not be considered as any lesser an offence than the offence of terrorism sought to be tackled under TADA.
- It stated that the offence of money laundering had a "direct impact on the financial systems and sovereignty and integrity of the countries," and held it to be a heinous crime.


What are the implications of the Supreme Court's judgment?

- The twin conditions, when examined independently require the Court to take a judicial call on the potential guilt of the offender based on the material supplied by the accused in the bail application and the opposition made to the same by the prosecution.
- In doing so, the provision overturns the settled principle of presumption of innocence which dictates that an undertrial remains innocent until he is proven guilty.
- These safeguards have been built into the procedure under the CrPC so as to ensure that the due process values enshrined in our Constitution find practical application.

- The Vijay Madanlal case decision comes from a three-judge bench of the Supreme Court and therefore conclusively overrules the judgment by the division bench of the Supreme Court in the Nikesh Shah case.
- In upholding Section 45(1) of the PMLA, the Court has made the twin conditions for the grant of bail constitutionally valid in the name of national security related expediency. It is trite to say that under such stringent conditions, jail becomes the rule while bail is the exception.

WITHDRAWAL OF PERSONAL DATA PROTECTION BILL 2022

THE STORY SO FAR

<p>2018 JUL: First draft is presented by an expert panel headed by Justice B N Srikrishna OCT: MeitY starts drafting the Bill</p> <p>2019 DEC: JPC is formed with BJP MP Meenakshi Lekhi as its chairperson</p> <p>2020 SEP: The committee seeks more time to present its report; extension is granted</p>	 <p>2021 JUL: P P Chaudhary appointed new chairperson after Lekhi is inducted into the Cabinet. DEC: JPC report is tabled in Parliament; stirs a debate over data localisation</p> <p>2022 AUG: Bill is withdrawn</p>
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Why in news?

- Recently, the government has withdrawn the Personal Data Protection Bill from Parliament as it considers a "comprehensive legal framework" to regulate the online space, including bringing separate laws on data privacy, the overall Internet ecosystem, cybersecurity, telecom regulations, and harnessing non-personal data to boost innovation in the country.

Why is this development significant?

- The government has taken this step after nearly four years of the Bill being in the works. It had gone through multiple iterations, including a review by a Joint Committee of Parliament (JCP), and faced major pushback from a range of stakeholders including big tech companies such as Facebook and Google, and privacy and civil society activists.
- The tech companies had, in particular, questioned a proposed provision in the Bill called data localisation, under which it would have been mandatory for companies to store a copy of certain sensitive personal data within India, and the export of undefined "critical" personal data from the country would be prohibited.
- The activists had criticised, in particular, a provision that allowed the central government and its agencies blanket exemptions from adhering to any and all provisions of the Bill.
- The delays in the Bill had been criticised by several stakeholders, who had pointed out that it was a matter of grave concern that India, one of the world's largest Internet markets, did not have a basic framework to protect people's privacy.

Why has the Bill been withdrawn?

- A data protection law for India has been in the works since 2018, when a panel led by Justice Srikrishna, a retired judge of the Supreme Court, drew up a draft version of a Bill. The draft was reviewed by the JCP, which submitted its recommendations along with a draft Bill in November 2021.
- The Union IT Minister explained that the Personal Data Protection Bill, 2019 was deliberated in great detail by the Joint Committee of Parliament. 81 amendments were proposed and 12 recommendations were made towards a comprehensive legal framework on the digital ecosystem.
- Considering the report of the JCP, a comprehensive legal framework is being worked upon. Hence, in the circumstances, it is proposed to withdraw 'The Personal Data Protection Bill, 2019' and present a new Bill that fits into the comprehensive legal framework."
- The Bill was also seen as being too "compliance intensive" by startups of the country. The revamped Bill will be much easier to comply with, especially for startups.

Timeline of the draft Bill:

- The Justice Srikrishna panel was set up in 2017 in the backdrop of the Supreme Court's verdict holding privacy is a fundamental right, and its direction to the government to draw up a data protection framework for the country. The Srikrishna Committee released a white paper that same year, outlining the areas it would be looking at.
- In July 2018, the committee submitted a draft data protection Bill to the Ministry of Electronics and IT, which said that it would draft a fresh Bill borrowing from the ideas presented in the Srikrishna Committee Bill.
- In December 2019, the Bill was referred to the JCP, which was then headed by the BJP's Meenakshi Lekhi. As the committee started a clause-by-clause analysis of the Bill, it also sought and received extensions for presenting its report in September 2020 and March 2021.
- In July 2021, BJP MP PP Chaudhary was appointed chairperson of the JCP after Lekhi was made Minister of State for External Affairs. The JCP received yet another extension to submit its report after Chaudhary's appointment.

What did the JCP recommend?

- The JCP proposed 81 amendments to the Bill finalised by the Srikrishna panel, and 12 recommendations including expanding the scope of the proposed law to cover discussions on non-personal data, thereby changing the mandate of the Bill from personal data protection to broader data protection.
- In its most basic form, non-personal data are any set of data that does not contain personally identifiable information.

- The JCP's report also recommended changes on issues such as regulation of social media companies, and on using only "trusted hardware" in smartphones, etc. It proposed that social media companies that do not act as intermediaries should be treated as content publishers, making them liable for the content they host.

Revamped Bill:

- The new data protection Bill will do away with some recommendations by the JCP such as including "trusted hardware", and local storage of some kinds of personal data within the boundaries of India.
- Instead, it will add these ideas to the larger framework for the Internet ecosystem, which will replace the Information Technology Act of 2000. All these separate laws, it is learnt, will be presented at the same time.
- The new Bill could also do away with classification of personal data from the perspective of data localisation, and only use classification for awarding damages to people whose personal data may have been compromised by an entity.

Way Forward:

- The government is aiming to bring the legislation in Parliament's Winter Session.
- The new Bill would incorporate the broader ideas of data protection as recommended by the JCP, and would be in line with the Supreme Court's landmark privacy judgment of 2017.
- Given the significant number of amendments suggested by the JCP, it was necessary to comprehensively redraw the contours of the proposed law.

JUSTICE U.U. LALIT SWORN IN AS 49TH CHIEF JUSTICE OF INDIA



Why in news?

- Recently, Justice Uday Umesh Lalit was sworn in as the new Chief Justice of India. President Droupadi Murmu administered the oath to India's 49th chief justice at the Rashtrapati Bhavan.

Tenure:

- He is set to have a brief tenure of less than three months as the CJI as he will retire on November 8. The

retirement age of judges of the Supreme Court is 65.

- He will also only be the second CJI to have been appointed directly from the Bar, without serving as a judge of a high court.

About Justice Uday Umesh Lalit:

- India's new CJI was born on November 9, 1957, and enrolled as an advocate in 1983. CJI Lalit practised in the Bombay High Court till December 1985 and then shifted his practice to Delhi in 1986. In 2004, he was designated as a senior advocate by the Supreme Court.
- CJI Lalit was appointed as a special public prosecutor for the CBI to conduct the trial in the 2G spectrum allocation case and was part of several important verdicts.
- He was part of the five-judge constitution bench which held the practice of divorce through instant 'triple talaq' among Muslims as "illegal" and "unconstitutional".

Who can become the Chief Justice of India?

- Apart from being an Indian citizen, the person must
- Have been for at least five years a Judge of a High Court or of two or more such Courts in succession or (b) have been for at least ten years an advocate of a High Court or of two or more such Courts in succession, or
- Be, in the opinion of the President, a distinguished jurist.

Who appoints the CJI?

- The Chief Justice of India and the other judges of the Supreme Court are appointed by the President under clause (2) of Article 124 of the Indian Constitution.
- It is mentioned in Article 124 that appointment by the President is to be done "after consultation" with judges of the Supreme Court, as the President may "deem necessary".
- Article 217, which deals with the appointment of High Court judges, says the President should consult the CJI, Governor, and Chief Justice of the High Court concerned.
- Further, the tenure of a CJI is until they attain the age of 65 years, while High Court judges retire at 62 years.

What is the system followed for recommending and appointing judges?

- The more than two decades-old collegium system is followed in the appointment of judges, consisting of five seniormost judges of the Supreme Court and the High Courts.
- The government gets a background inquiry done by the Intelligence Bureau (IB) at times from the names first suggested for appointment by the collegium. While the government can also raise objections, usually the collegium's will prevails.
- The term "collegium" is not mentioned in the constitution, which only speaks of consultation by the President.

First Judges Case:

- Given the ambiguity of the word "consult", this method of appointment has often been challenged in the courts, leading to cases such as the First Judges Case where it was held that recommendation made by the CJI to the President can be refused for "cogent reasons". This meant the President or the executive would be in a more influential position in deciding appointments.
- With subsequent cases and judgements, this changed. The Supreme Court laid down guidelines for appointments and transfers – leading to the present form of the collegium in which decisions are to be taken by a majority of the five seniormost judges, a result of the "Third Judges Case".
- And so, in the last few years, the common understanding was that the independence of the judiciary from the executive was to be guarded in matters of appointments.

Seniority as a norm:

- Usually, the seniormost judge of the court after the chief justice (in terms of the years served) is recommended as the successor. This convention was memorably discarded by former Prime Minister Indira Gandhi, who appointed Justice AN Ray as CJI in 1973 over his seniors for a CJI more favourable to her regime.
- According to the government's Memorandum of procedure for the appointment of Supreme Court Judges, seniority is to be the norm. It says the Union Minister of Law, Justice and Company Affairs seeks the recommendation of the outgoing Chief Justice of India for the appointment of the next CJI.
- After the collegium's recommendations are finalised and received from the CJI, the Law Minister will put up the recommendation to the Prime Minister who will advise the President on the matter of appointment.

What is the criticism of the collegium system?

- The main issue with the collegium system is that it has little transparency.
- The 230th report of the Law Commission of India submitted in 2009, pointed to the possibility of nepotism prevailing, saying: "Sometimes it appears that this high office (HC Judge) is patronised. A person whose near relation or well-wisher is or had been a judge in the higher courts or is a senior advocate or is a political higher-up, stands a better chance of elevation. It is not necessary that such a person must be competent because sometimes even less competent persons are inducted. There is no dearth of such examples. Such persons should not be appointed, at least in the same HC."

National Judicial Appointments Commission:

- An alternative was proposed in form of the National Judicial Appointments Commission, which suggested

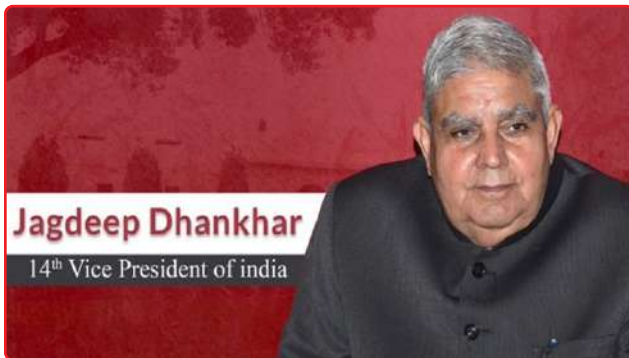
a body for making appointments, comprising the CJI and two seniormost judges, the law minister, and two "eminent" persons selected by a panel including the Prime Minister, the CJI and the leader of the largest Opposition party in the Lok Sabha.

- While the bill introduced for it was passed by the Parliament, it was ultimately struck down by the Supreme Court in 2015. A Memorandum of Procedure was to be drafted for the appointment procedure, said the court at the time.

What is the procedure for removal of CJI?

- A Judge of the Supreme Court shall not be removed from his office except by an order of the President passed after an address by each House of Parliament supported by a majority of the total membership of that House and by a majority of not less than two-thirds of the members of that House present and voting", with the address in the same session presented to the President for removal on one of the two grounds – proved misbehaviour or incapacity.

JAGDEEP DHANKHAR ELECTED AS THE 14TH VICE-PRESIDENT OF INDIA



Why in news?

- National Democratic Alliance (NDA) candidate and former West Bengal governor Jagdeep Dhankhar was elected as the 14th Vice-President of India defeating joint opposition candidate Margaret Alva.

Victory margin:

- Jagdeep Dhankhar received 528 votes while Margaret Alva got 182 votes.
- Jagdeep Dhankhar's victory margin by securing 72.8% of the 725 valid votes cast during the V-P polls is the highest margin in the last six vice-presidential polls since 1997.
- While KR Narayanan still leads the list for having the highest victory margin by securing 700 of the 701 votes cast in 1992, Dhankhar's performance in the latest polls outshined Naidu's 2017 performance by 2%.
- Congress' Mohammad Hamid Ansari won 60.51% votes of the total 762 valid votes in the 2007 Vice-President Election. He remained V-P from 2007 to 2017.

- In the 2017 V-P polls, Venkaiah Naidu won with 67.89% votes of the total 760 valid votes.

About Jagdeep Dhankhar:

- He is the second Vice-President from Rajasthan after Bhairon Singh Shekhawat.
- Being born in an agrarian household in a remote village in Rajasthan, Jagdeep Dhankhar became one of the leading lawyers in Rajasthan and practiced in both the Rajasthan High Court and the Supreme Court. He also headed the Rajasthan High Court Bar Association.
- He went on to become the Governor of West Bengal in 2019.
- He has championed issues related to Other Backward Classes (OBC), including the grant of OBC status to the Jat community in Rajasthan.

How the Vice-President of India is elected?

- The Vice-President is elected by an electoral college. Members of both Houses of Parliament, Lok Sabha and Rajya Sabha, make up the electoral college.
- The election is conducted using the proportional representation system and a single transferable vote. The voting is held through a secret ballot.
- Nominated members of Parliament can't vote in the Presidential election. But they can do so to elect the Vice-President.
- A candidate needs 20 electors as proposers and at least another 20 electors as seconders for his nomination. The candidate also has to make a security deposit of ₹15,000.

Who can become Vice-President?

- A person must be at least 35 years old to be considered for the position of Vice-President.
- They must also be Indian citizens and fulfil all of the requirements for membership in the Rajya Sabha.
- If a person holds a profit-making position with the government of India or a state government, they are no longer eligible to become a Vice-President.

How votes are counted?

- The number of first-choice votes received by each candidate is determined.
- The calculated numbers are added together; the total is divided by two, and one is added to the quotient, disregarding any remainder. The resulting number is the quota required for a candidate to run in the election.
- If the total number of votes credited to any candidate at the end of the first or any subsequent count is equal to or greater than the quota, that candidate is declared elected.

REVIEW OF GUARDIANSHIP AND ADOPTION LAWS

Why in news?

- Recently, a Parliamentary panel has recommended conferring equal rights on mothers as guardians under

the Hindu Minority and Guardianship Act (HMGA), 1956 instead of treating them as subordinates to their husband, and has called for joint custody of children during marital disputes.

- It has also proposed allowing the LGBTQI community to adopt children.



What are the recommendations of the Parliamentary panel on guardianship and child custody?

- The department-related Parliamentary Standing Committee on Personnel, Public Grievances, Law and Justice tabled its report recently in both Houses of Parliament on the 'Review of Guardianship and Adoption Laws'.
- In its report the committee has said that there is an "urgent need to amend the HMGA (Hindu Minority and Guardianship Act, 1956) and accord equal treatment to both mother and father as natural guardians as the law violated the right to equality and right against discrimination envisaged under Articles 14 and 15 of the Constitution."
- In cases of marital dispute, the panel says there is a need to relook at child custody which is typically restricted to just one parent where mothers tend to get preference.
- It says courts should be empowered to grant joint custody to both parents when such a decision is conducive for the welfare of the child, or award sole custody to one parent with visitation rights to the other.
- On adoption, the Committee has said that there is a need for a new legislation that harmonises the Juvenile Justice (Care and Protection of Children) Act, 2015 and the Hindu Adoptions and Maintenance Act (HAMA), 1956 and that such a law should cover the LGBTQI community as well.

What does the law say on guardianship? How do courts grant child custody?

- Indian laws accord superiority to the father in case of guardianship of a minor.
- Under the religious law of Hindus, or the Hindu Minority and Guardianship Act, (HMGA) 1956, the natural guardian of a Hindu minor in respect of the minor's person or property "is the father, and after

him, the mother: provided the custody of a minor who has not completed the age of five years shall ordinarily be with the mother."

- The Muslim Personal Law (Shariat) Application Act, 1937 says that the Shariat or the religious law will apply in case of guardianship according to which the father is the natural guardian, but custody vests with the mother until the son reaches the age of seven and the daughter reaches puberty though the father's right to general supervision and control exists.
- The concept of Hizanat in Muslim law states that the welfare of the child is above all else. This is the reason why Muslim law gives preference to the mother over the father in matters of custody of children in their tender years.

Supreme Court's view:

- The Supreme Court's landmark judgment in Githa Hariharan vs Reserve Bank of India in 1999 challenged the HMGA for violating the guarantee of equality of sexes under Article 14 of the Constitution of India and the court held that the term "after" should not be taken to mean "after the lifetime of the father ", but rather "in the absence of the father".
- But the judgment failed to recognise both parents as equal guardians, subordinating a mother's role to that of the father. Though the judgment sets a precedent for courts, it has not led to an amendment to the HMGA.
- The panel's proposals on guardianship have been made by the Law Commission of India in its 257th report on "Reforms in Guardianship and Custody Laws in India" in May 2015 as well as its 133rd report in August, 1989 on "Removal of discrimination against women in matters relating to guardianship and custody of minor children and elaboration of the welfare principle"

What about cases of marital disputes?

- In cases of marital disputes, some courts such as the Punjab and Haryana High Court and Bombay High Court have framed rules to grant joint custody or shared parenting.
- But instead of this "patchwork" there is a need to amend the law, including the Guardians and Wards Act, 1890 to introduce concepts such as joint custody.

Can queer and transgender people adopt children in India?

- The Adoption Regulations, 2017 is silent on adoption by LGBTQI people and neither bans nor allows them to adopt a child.
- Its eligibility criteria for prospective adoptive parents says that they should be physically, mentally and emotionally stable, financially capable and should not have any life-threatening medical condition. Single men can only adopt a boy while a woman can adopt a child of any gender.

- A child can be given for adoption to a couple only if they have been in a marital relationship for at least two years. The HAMA which applies to Hindus, Sikhs, Jains and Buddhists allows men and women to adopt if they are of sound mind and are not minors. Activists say LGBTQI people who seek adoption face institutional discrimination because of stigma.
- Therefore, the law should be amended to include them as eligible candidates including when they apply as non-single parents such as when they are in civil unions or married for which there is no legal recognition in the country as yet even though the Supreme Court legalised gay sex in 2018.

ELECTRICITY AMENDMENT BILL 2022

Why in news?

- Recently, 27 lakh power sector employees and engineers protested against the Electricity (Amendment) Bill, 2022, which was introduced in Lok Sabha.
- A Bill to amend the Electricity Act to allow non-discriminatory open access to distribution networks of power suppliers was introduced amid protests by the Opposition, which claimed that it seeks to take away certain rights of state governments.



Features of the Bill

- The Bill is aimed at allowing privatisation of electricity on the lines of communication.
- As per the Centre, if the Bill is passed in both the Houses, customers will have the option to choose the supplier of electricity just like one can choose for telephone, mobile and internet services.
- The Bill seeks to amend section 42 of the Electricity Act to facilitate non-discriminatory open access to the distribution network of a distribution licensee.
- Further, the bill seeks to amend section 14 of the Act to facilitate the use of distribution networks by all licensees under provisions of non-discriminatory open access with the objective of enabling competition, enhancing efficiency of distribution licensees for improving services and ensuring sustainability of the power sector.
- The bill also provides for inserting a new section 60A in the Act so as to enable management of power

purchase and cross-subsidy in case of multiple distribution licensees in the same area of supply.

- The bill also seeks to amend section 62 of the Act so as to make provisions regarding graded revision in tariff over a year and for mandatory fixing of the maximum ceiling as well as minimum tariff by the Appropriate (electricity regulatory) Commission.
- The draft law also provides for amending section 166 of the Act so as to strengthen the functions to be discharged by the Forum of Regulators.
- The bill will also amend section 152 of the Act so as to facilitate decriminalisation of offence as it would be mandatory to accept compounding.

Why are people protesting the Bill?

- State employees groups are worried among other things about the passing of the Bill resulting in major losses to government discoms, job losses and a few private companies establishing a monopoly in the power sector.
- After all, about 80 per cent of the cost of supply is on account of power purchase, which will be the same for all distribution licensees operating in an area. Besides, having different retailers will open a plethora of operational issues.
- The United Kingdom is a prime example. As per a report of UK auditors, due to adoption of such faulty models the consumers had to pay in excess of 2.6 billion pounds. The cost of such transfers was charged to the ordinary consumer. While the private companies failed, consumers were hit the most.

Claim of multiple choice misleading:

- The claim of providing a choice of multiple service providers to power consumers in the Electricity Amendment Bill 2022, is "misleading" and will make state-run discoms loss making entities.
- As per the bill, only government discoms will have universal power supply obligation therefore private licensees will prefer to supply the electricity in profit making areas only i.e. industrial and commercial consumers.
- Thus profit making areas will be snatched from government discoms and government discoms by default will become loss making companies and in the coming days will not have money to purchase electricity from generators.
- About 85 per cent of consumers are farmers and domestic consumers and all these consumers are getting subsidized electricity. There cannot be any competition in such loss making subsidized consumers. Therefore multiple licensees will not be the consumers' choice. Actually this will be the suppliers' choice. Private licensees will be operating only in profit making areas.

Way Forward:

- Introducing the Bill, power minister RK Singh urged Lok Sabha Speaker to refer it to a parliamentary

standing committee for wider consultations to address Opposition concerns.

- ⇒ The Bill was then referred to the standing committee.

CRIMINAL PROCEDURE (IDENTIFICATION) ACT, 2022



Why in news?

- ⇒ The Criminal Procedure (Identification) Act, 2022 provides legal sanction to law enforcement agencies for “taking measurements of convicts and other persons for the purposes of identification and investigation of criminal matters”.
- ⇒ While the legislation was enacted earlier in 2022, the Ministry of Home Affairs notified it to come into effect from August 4, 2022. It also repeals the existing Identification of Prisoners Act, 1920.

What is the use of identification details in criminal trials?

- ⇒ Measurements and photographs for identification have three main purposes:
 - a) To establish the identity of the culprit against the person being arrested,
 - b) To identify suspected repetition of similar offences by the same person and
 - c) To establish a previous conviction.

What was the previous Identification of Prisoners Act, 1920?

- ⇒ Even though the police has powers of arrest, mere arrest does not give them the right to search a person. The police requires legal sanction to search the person and collect evidence. These legal sanctions are designed so as to maintain a balance between the rights of an individual and the interests of society in prosecution and prevention of offences.
- ⇒ The Identification of Prisoners Act, 1920 became a necessity when the recording of newer forms of evidence such as fingerprints, footprints and measurements started becoming more accurate and reliable.

What was the need to replace this Act?

- ⇒ Over the years, the need to amend/update the Identification of Prisoners Act, 1920 has been voiced several times. In 1980, the 87th Report of the Law

Commission of India undertook a review of this legislation and recommended several amendments.

- ⇒ This was done in the backdrop of the State of UP vs Ram Babu Misra case, where the Supreme Court had highlighted the need for amending this law.
- ⇒ The first set of recommendations laid out the need to amend the Act to expand the scope of measurements to include “palm impressions”, “specimen of signature or writing” and “specimen of voice”. The second set of recommendations raised the need of allowing measurements to be taken for proceedings other than those under the Code of Criminal Procedure (CrPC).
- ⇒ The Law Commission Report also notes that the need for an amendment is reflected by the numerous amendments made to the Act by several States.

What are the main highlights and differences in both the legislations?

- ⇒ Like the Identification of Prisoners Act, 1920, the new Criminal Procedure (Identification) Act, 2022 provides for legal sanction to law enforcement agencies for the collection of measurements.
- ⇒ The purpose is to create a useable database of these measurements. While at the State level, each State is required to notify an appropriate agency to collect and preserve this database of measurements, at the national level, the National Crime Records Bureau (NCRB) is the designated agency to manage, process, share and disseminate the records collected at the State level.

What are some of the concerns with the present legislation?

- ⇒ Since the Identification of Prisoners Act, 1920 was a colonial legislation, its duplication in the Criminal Procedure (Identification) Act, 2022, a post-independence legislation has raised some concerns related to the protection of fundamental rights.
- ⇒ The legislation comes in the backdrop of the right to privacy being recognised as a fundamental right. A fundamental facet of the right to privacy is protection from the invasion of one’s physical privacy.
- ⇒ As per the Puttaswamy judgment, for a privacy intrusive measure to be constitutional, there is a need for the measure to be taken in pursuance of a legitimate aim of the state, be backed by the law and be “necessary and proportionate” to the aim being sought to be achieved.
- ⇒ In this case, while the first two tests are satisfied, as “prevention and investigation of crime” is a legitimate aim of the state and “measurements” are being taken under a valid legislation, the satisfaction of the third test of necessity and proportionality has been challenged on multiple counts.

Vague Measurements:

- ⇒ First, while the need for expansion of the “measurements” that can be taken is well justified, the inclusion of derivative data such as “analysis”

and “behavioural attributes” have raised concerns that data processing may go beyond recording of core “measurements”. That is some of these measurements could be processed for predictive policing.

- While this is a legitimate concern, and purposes for which the “measurements” can be processed need to be better defined, merely recording core measurements without conducting the required forensics on them would severely limit the usability of these “measurements”.
- Second, unlike the Identification of Prisoners Act, 1920 which provided that “measurements” will be taken for those either convicted or arrested for offences that entail imprisonment of one year or upwards, the current law allows for “measurements” to be taken if a person has been convicted/arrested for any offence, including petty offences.
- The necessity of taking measurements of such persons for investigation of offences is unclear, and such discretion is likely to result in abuse of the law at lower levels and overburdening of the systems used for collection and storage of these “measurements”.
- Given that these records will be stored for 75 years from the time of collection, the law has been criticised as being disproportionate.

Mass surveillance:

- The new legislation allows that a person who has been arrested for an offence that is punishable by less than seven years of imprisonment, and is not an offence against women and children, “may not be obliged to allow taking of his biological samples”.
- This is definitely an improvement over the earlier law which did not allow for any such refusal. It also helps allay concerns of disproportionate collection.
- However, given the option to not submit for “measurements” is limited to biological samples and is available at the discretion of the police officer, this exception provides restricted relief.
- Another worry expressed by experts is that such collection can also result in mass surveillance, with the database under this law being combined with other databases such as those of the Crime and Criminal Tracking Network and Systems (CCTNS).

Right against self-incrimination:

- Lastly, concerns are being raised that the present law violates the right against self-incrimination enshrined in Article 20(3) of the Constitution of India. However, this argument is nebulous since the Supreme Court has already settled this point.
- In the State of Bombay vs Kathi Kalu Oghad, the Supreme Court had conclusively held that “non-communicative” evidence i.e. evidence which does not convey information within the personal knowledge of the accused cannot be understood to be leading to self-incrimination. Therefore, no challenge lies to the law on this ground.

What is the way ahead?

- The Opposition has raised objections to a law of such import not being submitted for public consultation or referred to parliamentary standing committees, as was done for the DNA Technology (Use and Application) Regulation Bill, 2019 which has benefited from such scrutiny.
- The Central government has responded to the criticisms of the law stating that privacy and data protection related concerns will be addressed in the Rules formulated under the legislation and through model Prison Manuals that States can refer to.
- The immediate future of this law is unclear. A writ petition has been filed challenging the constitutionality of the law before the Delhi High Court. The court has issued notice to the Central government for filing a reply.

PASSENGER NAME RECORD INFORMATION REGULATIONS, 2022

Why in news?

- The Passenger Name Record Information Regulations, 2022, notified by the Central Board of Indirect Taxes and Customs (CBIC) under the Ministry of Finance, requires airlines to mandatorily provide details of all international passengers on flights arriving into and departing from India to the Customs department.
- This is for preventing and prosecuting offences under the Customs Act, 1962 relating to “smuggling of contraband such as narcotics, psychotropic substances, gold, arms & ammunition etc that directly impact national security.”

What is the process?

- Airlines will have to transfer the “passenger name record information” from their reservation system to the database of the Customs department.
- This includes details such as PNR (Passenger Name Record) locator code, date of reservation, date of intended travel, all available contact, billing information including credit card number, seat information as well as historical changes to the PNR.
- The CBIC will set up a database, the National Customs Targeting Centre-Passenger (or the database set up by CBIC), to collect passenger information for their “risk analysis”. Such data can also be sought by other law enforcement agencies or government departments of India or any other country.
- The information will have to be shared at least 24 hours before departure and failure to comply will invite a minimum penalty of ₹25,000 and maximum of ₹50,000 for every act of non-compliance.

How has it been received by airlines?

- The regulations come five years after the Finance Bill, 2017 proposed amending the Customs Act, 1962 to allow exchange of passenger data.

- The International Air Transport Association (IATA), a trade association representing 290 airlines globally, says it “welcomes the notifying of the PNR regulations by the CBIC, thereby establishing a proper legal framework for the implementation of the PNR data program for India.”
- It adds that this should now “bring an end to the non-standard passenger data requests from the airlines, by multiple agencies at various airports/stations.” Airlines say the government must hold consultations, frame detailed guidelines and provide a feasible timeline for implementation.
- They also say that since they only pass on the information submitted by passengers, if data fields are missing or if details provided are fake, they should not be penalised.

How were Indian agencies collecting passenger information earlier?

- Earlier, the Bureau of Immigration collected passenger details under Advance Passenger Information System (APIS) following an amendment in 2008 by the Ministry of Home Affairs to the Foreigners Act, 1946. This allowed collection of data pertaining to foreigners, but not Indian citizens traveling in and out of the country.
- The APIS is contained in the Departure Control System of an airline and captures data when passengers check-in at airports and transfers the details to the destination country 15 minutes before flight departure.
- But PNR information is captured by the airline’s reservation system from the time a passenger buys a ticket and offers richer data for risk management such as whether a passenger is travelling alone, or whether s/he paid in cash and if there were multiple changes in a passenger’s itinerary. Such information can be shared 24 to 48 hours before departure allowing intelligence agencies enough time to carry out risk analysis.
- Globally Customs is the lead agency for collecting PNR-related information, and is better suited than immigration agencies because of the organised nature of crimes and terrorist activities. Moreover, the Customs department in India is considered to be far ahead in their use of IT systems for risk assessment.

What happens to the privacy of passengers?

- The format for data exchange between airlines and the Customs systems is a standard electronic message format endorsed jointly by the World Customs Organisation (WCO), International Civil Aviation Organisation (ICAO) and the IATA.
- Such data will be retained for a maximum period of five years after which it will be disposed of by de-personalisation or anonymisation but can be “re-personalised and unmasked when used in

connection with an identifiable case, threat or risk for the specified purposes”.

- Collecting data on everyone to then do an undetermined risk analysis, rather than selecting a few passengers is problematic. De-anonymising data is a big area of concern on two grounds – it raises questions about the type of anonymisation which can be easily reversed; secondly, there needs to be a high barrier for permitting de-anonymisation and has to be done only on very serious grounds.
- Moreover, all of this is happening when there is no line of sight on a data protection law and what happens to passengers if the data is breached. The Centre on August 3 withdrew the Personal Data Protection Bill, 2019 three years after it was tabled in the Lok Sabha in December 2019.

THE CENTRE VS STATE TUSSELE OVER IAS POSTINGS



Context:

- The Government of India (GOI) painfully admitted recently that fewer and fewer All India Services (AIS) officers working in States were coming forward to opt for a tenure with the Centre.

Details:

- An overwhelming majority would like to be in the comfort zone of their State cadres and vegetate there rather than migrate, albeit even for one short spell of three to five years to New Delhi and its neighbourhood to work for the Union Government.
- This is no reflection on the Centre’s ability or willingness to offer incentives to maintain the morale of Indian Administrative Services (IAS) and Indian Police Service (IPS) officers who choose to work for it on deputation.

Positives in working for the GOI:

- These include a psychological satisfaction of contributing to the formulation of national policy on many critical issues, such as education, health care or preservation of the environment.
- This throws up many opportunities for foreign travel and a chance to be deputed to work for international agencies. These prospects do not, however, seem to

be attractive enough for many officers to crave for a posting in Delhi.

- ⇒ Several factors account for this reluctance. These include the rigour of the GOI routine, long hours of work and the need for extreme clinical care in the preparation and submission of reports going up the hierarchy sometimes up to the Prime Minister himself.

Concerns:

- ⇒ There are only a few who are fortunate enough to be allotted to their home State or closer. Not surprisingly, many willing to go to Delhi on deputation are those assigned to the Northeastern States.
- ⇒ Officers shying away from going to Delhi is not a new phenomenon, but is one that has lately assumed grave proportions. This is a serious situation if one reckons that the manpower demands of GOI ministries (at the level of Deputy Secretaries and Directors who generally come from the IAS) are growing.
- ⇒ There is no doubt now as there is a lateral entry scheme meant for qualified personnel from the public and private sectors. Their number is too small to make even a marginal difference to the deteriorating vacancy position at the Centre.

Vacancies in Government agencies:

- ⇒ The case of the Indian Police Service (IPS) is equally bad. There are far too many vacancies in the Central Police Establishment comprising the paramilitary forces such as the Central Reserve Police Force (CRPF), Border Security Force (BSF) and Central Industrial Security Force (CISF), and investigating agencies like the Central Bureau of Investigation (CBI) and National Investigation Agency (NIA).
- ⇒ One organisation particularly affected is the CBI. When this is the case, ironically, the non-IPS direct recruits to the para military forces are permanently at war with the Home Ministry (MHA), demanding a greater share of the jobs in the higher echelons.
- ⇒ The Cadre rules now in place do not permit such expansion of opportunities for the non-IPS officers. A major grouse of the latter is that none of them can ever rise to head the forces.
- ⇒ The rationale is that they lack the experience at the grassroots of policing essential to operate in unison with the local civil authorities.
- ⇒ The AIS structure is unique to India and is too delicate to handle during a crisis. No public administration practitioner or scholar abroad can comprehend its nuances.

The AIS appointments:

- ⇒ The selection of AIS officers is done through the Union Public Service Commission (UPSC), which holds an annual examination that attracts 3,00,000 to 4,00,000 young aspirants, competing for less than 1,000 positions. The appointing authority for those

shortlisted from the written examination, followed by an oral interview, is currently the Central government.

- ⇒ Appointment officers are allotted to various States, the number of officers depending on each State's requirement. Thereafter, they spend most of their career in those States, intervened by short spells of deputation to the Centre.
- ⇒ While they are functioning under a State government, disciplinary authority is vested in the former, except that a State cannot impose a major penalty on a delinquent AIS officer for any misconduct.
- ⇒ Suspension of an officer from the service by a State government will have to be ratified by the Centre before the end of three months. This is meant to be a safeguard against any arbitrary action by a State government.

Conclusion:

- ⇒ Crass politics triumphing over enlightened public administration has become the order of the day. It is in this context that the Centre's dialogue with the States over amending the AIS rules assumes importance.
- ⇒ Such amendment would empower the Centre to commandeer the services of any officer serving in the States to work for the former, with or without the concurrence of the State concerned or the consent of the particular officer.
- ⇒ However, it is debatable whether the States will agree to this change. Intriguing times are, therefore, ahead of all of us who are convinced that we need a stable system of civil services to bolster democratic and responsive public administration in our country.

THE RECENT BLOCKING OF THE VLC MEDIA PLAYER



Context:

- ⇒ The website of VideoLAN Client (VLC) has been banned in India.
- ⇒ The VLC states that according to its statistics, its website has been banned since February 2022.

What is VideoLan?

- ⇒ VLC gained popularity in India in the late 90s when advancements in information technology led to the penetration of personal computers in Indian homes.

It continues to be one of the most popular media players.

- Apart from being free and open source, VLC easily integrates with other platforms and streaming services and supports all file formats without requiring additional codecs.

Why VLC was banned?

- Civil society organisations have repeatedly filed RTI applications with the Ministry of Electronics and Information Technology (MeitY). These applications have been met with similar responses stating that “no information is available” with the Ministry.
- This is despite the fact that when trying to access the website previously, the message “The website has been blocked as per order of Ministry of Electronics and Information Technology under IT Act, 2000”, was displayed. Lack of authoritative information from the government has led to speculation that VLC was banned along with the 54 Chinese applications.
- Although VLC is not a Chinese app, reports from cybersecurity firms, such as Symantec, in April 2022 suggested that Cicada, a hacker group allegedly backed by China, has been using the VLC Media Player to deploy a malicious malware loader. It is being suggested that this was part of a longer cyberattack campaign that started in mid-2021 and was still active in February 2022.
- Cicada’s targets were spread over a number of regions, including India. This is also being used to explain why the present ban is a soft ban rather than a hard ban. While the VLC website has been banned, the VLC app continues to be available for download on Google and Apple stores.
- This is probably because the app stores’ servers where the mobile apps are hosted are considered safer than servers where the desktop versions are hosted.

In which situations can online content be blocked to the public?

- There are two routes through which content can be blocked online – executive and judicial.
- First, given the reach of the internet and its potential to cause significant harm to online users, governments across the world reserve the power to monitor and issue directions for regulation of the online content being available in their jurisdictions.
- The Government of India gets this power from Section 69A of the Information Technology Act, 2000. Section 69A allows the government to direct an intermediary to “block for access by the public any information generated, transmitted, received, stored or hosted in any computer resource” if it is “necessary or expedient to do so, in the interest of sovereignty and integrity of India, defence of India, security of the state, friendly relations with foreign states or public order or for preventing incitement to the commission of any cognisable offence”.

- Section 69A draws its power from Article 19(2) of the Constitution which allows the government to place reasonable restrictions on the fundamental right to freedom of speech and expression.

- Second, courts in India, also have the power to direct intermediaries to make content unavailable in India to provide effective remedy to the victim/plaintiff.

- For example, courts may order internet service providers to block websites which provide access to pirated content and violate the plaintiff’s copyright.

What is the procedure for blocking access to content online?

- A detailed procedure for blocking content is provided by the Information Technology (Procedure and Safeguards for Blocking for Access of Information by Public) Rules, 2009 (IT Rules, 2009) that have been formulated under Section 69A of the Information Technology Act, 2000.
- Only the Central government can exercise this power of directing intermediaries to block access to online content directly, and not the State governments.
- The procedure typically provides that Central or State agencies will appoint a “nodal officer” who will forward the blocking order to the “designated officer” of the Central government.
- The designated officer, as part of a committee, examines the request of the nodal officer. The committee comprises representatives from the Ministries of Law and Justice, Information and Broadcasting, Home Affairs, and the Cert-In.
- The creator/host of the content in question is given a notice to submit clarifications and replies. The committee then makes a recommendation on whether the request of the nodal officer should be accepted or not.
- If this recommendation is approved by the MeitY, the designated officer can direct the intermediary to remove content.

How can this process be improved?

- Civil society organisations have been advocating for certain reforms to the IT Rules, 2009 for some time now.

Transparency:

- The first is on the aspect of transparency. As witnessed in the case of VideoLan’s website blocking, there is no clarity on why its website has been blocked. Reasons for the same continue to be articulated on conjecture.
- Rule 16 of the IT Rules, 2009 provides that strict confidentiality is to be maintained with respect to any requests or actions under the IT Rules, 2009.
- This should be revisited and an element of transparency should be introduced whereby VideoLAN is given a reason for why such an order was made, something that has been done in the recent order in the Tanul Thakur case.

Opportunity of hearing:

- Second, even though the IT Rules provide for an opportunity of hearing to the creator/host of content, given VideoLAN's cluelessness it seems that this opportunity may not be afforded to affected parties in all cases.
- The lack of an opportunity to submit clarifications/ replies by the creator/host violates the principles of natural justice.
- It can also lead to erroneous decision making by the committee, which may not be in possession of the full facts, that can have significant financial consequences for the blocked online service provider.

Review mechanism:

- Third, a recent RTI has disclosed that the Review Committee, which is required to meet every two months to review orders of the committee, has not disagreed with a single decision of the committee.
- This raises doubts on the effectiveness of the review mechanism which has been provided as a safeguard against excesses of the committee.

Non-Compliance:

- Fourth, given that non-compliance with directions under the IT Rules can lead to loss of immunity from liability for content being hosted, it has been argued that intermediaries over-comply with these directions, which can have chilling effects on free speech.

Way Forward:

- The Supreme Court in Shreya Singhal has upheld the procedure enshrined in IT Rules, 2009 on the basis that it provides for adequate application of mind and transparency. The government would do well to follow its own rules, in form as well as spirit.

DRAFT INDIAN PORTS BILL, 2022**Why in news?**

- Recently, Ministry of Ports, Shipping and Waterways has prepared the draft Indian Ports Bill, 2022 ("IP Bill 2022").
- The draft IP Bill 2022 seeks to repeal and replace the existing 1908 Act.

Purpose:

- The bill seeks to consolidate and amend the laws relating to ports
 - a) for the prevention and containment of pollution at ports,
 - b) to ensure compliance with the country's obligation under the maritime treaties and international instruments to which India is a party;
 - c) take measures for conservation of ports;
 - d) to empower and establish State Maritime Boards for effective administration, control and management of non-major ports in India;

- e) provide for adjudicatory mechanisms for redressal of port related disputes and to establish a national council for fostering structured growth and development of the port sector, and
- f) ensure optimum utilization of the coastline of India, as may be necessary, and to provide for matters ancillary and incidental thereto, or connected therewith.

**The primary objectives of the proposed bill are four-fold:**

- a) promote integrated planning between States inter-se and Centre-States through a purely consultative and recommendatory framework;
- b) ensure prevention of pollution measures for all ports in India while incorporating India's obligations under international treaties;
- c) address lacunae in the dispute resolution framework required for burgeoning ports sector;
- d) usher-in transparency and cooperation in development and other aspects through use of data.

Key Highlights:

- The proposed bill will homogenize and streamline the development of the maritime sector, along with, promoting ease of doing business by eliminating unnecessary delays, disagreements and defining responsibilities.
- It will incorporate State Maritime Boards in the national framework.
- Additionally, Maritime State Development Council will ensure cooperative federalism where Centre and State/UT Governments will work together towards preparing progressive road map for the country.
- The redundant provisions of the Act have been deleted or replaced with contemporaneous provisions. Further, existing penalties in the Act which are outdated have been updated with respect to amounts and offences relevant to present day scenario.

Indian Ports:

- India has a 7,500 km long coastline, 14,500 km of potentially navigable waterways and strategic location on key international maritime trade routes.
- About 95% of India's trade by volume and 65% by value is done through maritime transport facilitated by ports.

- Under the aegis of the Sagarmala project of Ministry of Ports, Shipping and Waterways, several initiatives on port-led development have been identified and launched.
- The ongoing developments and committed investments (public and private) in ports needs to be aided by scientific and consultative planning, with a keen focus on ever increasing safety, security and environmental issues.

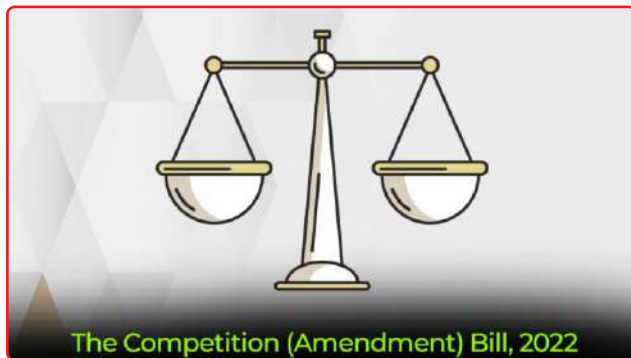
Way Forward:

- The Indian Ports Act, 1908 ("Act") is more than 110 years old. It has become imperative that the Act is revamped to reflect the present-day frameworks, incorporate India's international obligations, address emerging environmental concerns, and aid the consultative development of the ports sector in the national interest.
- This bill will lead to increased economic activity, wider markets, and a significant increase in associated employment possibilities, resulting in achieving the vision of Atmanirbhar Bharat of Prime Minister.

THE COMPETITION (AMENDMENT) BILL, 2022

Context:

- The Indian Competition Act was passed in 2002, but it came into effect only seven years later. The Competition Commission primarily pursues three issues of anti-competitive practices in the market: anti-competitive agreements, abuse of dominance and combinations.



- As the dynamics of the market changes rapidly due to technological advancements, artificial intelligence, and the increasing importance of factors other than price, amendments became necessary to sustain and promote market competition.
- Therefore, a review committee was established in 2019 which proposed several major amendments. The long-awaited Bill to amend the Competition Act, 2002, was finally tabled in the Lok Sabha recently.

What is the major change in dealing with new-age market combinations?

- Any acquisition, merger or amalgamation may constitute a combination.

- Section 5 currently says parties indulging in merger, acquisition, or amalgamation need to notify the Commission of the combination only on the basis of 'asset' or 'turnover'. The new Bill proposes to add a 'deal value' threshold.
- It will be mandatory to notify the Commission of any transaction with a deal value in excess of ₹2,000 crore and if either of the parties has 'substantial business operations in India'.
- The Commission shall frame regulations to prescribe the requirements for assessing whether an enterprise has 'substantial business operations in India'.
- This change will strengthen the Commission's review mechanism, particularly in the digital and infrastructure space, a majority of which were not reported earlier, as the asset or turnover values did not meet the jurisdictional thresholds.
- When business entities are willing to execute a combination, they must inform the Commission. The Commission may approve or disapprove the combination, keeping in mind the appreciable adverse effect on competition that is likely to be caused.

Approval time:

- The Commission earlier had 210 days to approve the combination, after which it is automatically approved.
- The new Bill seeks to accelerate the timeline from 210 working days to only 150 working days with a conservatory period of 30 days for extensions.
- This will speed up the clearance of combinations and increase the importance of pre-filing consultations with the Commission.

What is gun-jumping?

- Parties should not go ahead with a combination prior to its approval.
- If the combining parties close a notified transaction before the approval, or have consummated a reportable transaction without bringing it to the Commission's knowledge, it is seen as gun-jumping.
- The penalty for gun-jumping was a total of 1% of the asset or turnover. This is now proposed to be 1% of the deal value.

What challenge do combining parties face in open market purchases?

- There have been several gun-jumping cases owing to the combining parties' inability to defer the consummation of open market purchases.
- Many of them argue that acquisitions involving open market purchase of target shares must be completed quickly, lest the stock value and total consideration undergo a change. If parties wait for the Commission's clearance, the transaction may become unaffordable.
- Similar to the European Union merger regulations, the present amendment Bill also proposes to exempt open market purchases and stock market transactions from the requirement to notify them to the Commission in advance.

➤ This is subject to the condition that the acquirer does not exercise voting or ownership rights until the transaction is approved and the same is notified to the Commission subsequently.

Does the amendment Bill address the issue of Hub-and-Spoke Cartels?

- A Hub-and-Spoke arrangement is a kind of cartelisation in which vertically related players act as a hub and place horizontal restrictions on suppliers or retailers (spokes).
- Currently, the prohibition on anti-competitive agreements only covers entities with similar trades that engage in anti-competitive practices. This ignores hub-and-spoke cartels operated at different levels of the vertical chain by distributors and suppliers.
- To combat this, the amendment broadens the scope of 'anti-competitive agreements' to catch entities that facilitate cartelisation even if they are not engaged in identical trade practices.

What is the amendment to the 'settlements' and 'commitments' mechanisms?

- The new amendment proposes a framework for settlements and commitments for cases relating to vertical agreements and abuse of dominance.
- In the case of vertical agreements and abuse of dominance, the parties may apply for a 'commitment' before the Director General (DG) submits the report. 'Settlement' will be considered after the report is submitted and before the Commission decides.
- According to the amendment, the Commission's decision regarding commitment or settlement will not be appealable after hearing all stakeholders in the case. The Commission will come out with regulations regarding procedural aspects.

What are the other major amendments?

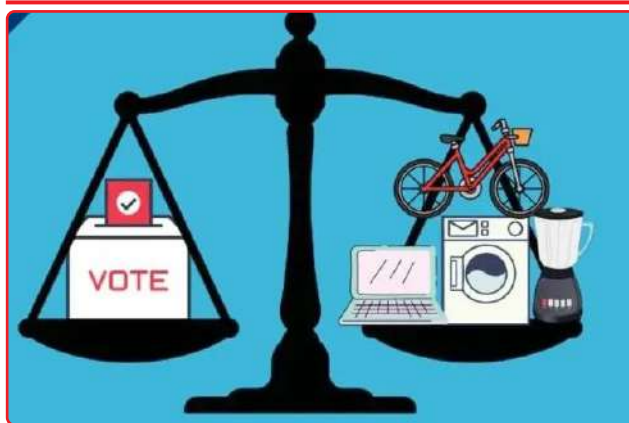
- In the amendment Bill, a provision called 'Leniency Plus' allows the commission to give an additional waiver of penalties to an applicant who discloses the existence of another cartel in an unrelated market, provided the information enables the Commission to form a prima facie opinion about the existence of the cartel.
- Other noteworthy amendments include the appointment of the DG by the Commission rather than the Central government, giving the Commission greater control. According to the Bill, the DG has the power to conduct investigations, including raids.
- The Commission will only consider information filed within three years of the occurrence of the cause of action. As part of the Bill, penalties and penalty guidelines are proposed to be amended.
- For any false information filed, a penalty of five crore will be imposed, and for failure to comply with the Commission directions, a penalty of ₹10 crore will be imposed.

➤ Additionally, the Commission will develop guidelines regarding the amount of penalties for various competition violations. For an appeal to be heard by the National Company Law Tribunal (NCLT) against the Commission's order, the party will have to deposit 25% of the penalty amount.

What next?

- By implementing these amendments, the Commission should be better equipped to handle certain aspects of the new-age market and transform its functioning to be more robust.
- The proposed amendments are undoubtedly needed; however, these are heavily dependent on regulations that will be notified by the Commission later.
- These regulations will influence the proposals. Also, the government needs to recognise that market dynamics change constantly, so it is necessary to update laws regularly.

'FREEBIES', A JUDICIAL LEAD AND A MULTI-LAYERED ISSUE



Context:

➤ The Prime Minister's recent comment on "freebies" handed out by governments has reignited the debate on the economic rationale for granting subsidies.

Subsidies vs. freebies:

- Market fundamentalists have seized the opportunity to point yet again that subsidies are, per se, undesirable for they contribute to suboptimal outcomes for the economy.
- This unbridled affront on subsidies does not make a distinction between transfer payments that are made for running social welfare schemes.
- When this debate began to go astray, it needed a strong reminder by the Supreme Court of India that in the on-going debate on subsidies and "freebies", a distinction had to be made between expenditure made on social welfare schemes and "irrational freebies" offered to voters during elections.

Need for subsidies:

- The lead given by the Supreme Court to engage in a

- discussion on subsidies must be seen as the starting point to deal with an issue that is truly multi-layered.
- This becomes evident from a close reading of the Union Budget and the manner in which the various governments have presented data pertaining to subsidies and transfer payments.
 - A more critical aspect is to understand why it is imperative for the Government to continue with agricultural subsidies and extend support to ensure that health and educational services are available to all.

What can be considered "subsidies"?

- Although 'subsidy' is among the most discussed issues, a legally acceptable definition of this instrument is hard to come by. One exception is the Agreement on Subsidies and Countervailing Measures (ASCM) of the World Trade Organization.
- According to ASCM, a subsidy shall be deemed to exist if there is a financial contribution by a government or any public body where government practice involves a direct transfer of funds (e.g., grants, loans and equity infusion), and/or government revenue that is otherwise due is foregone or not collected, and/or a government provides goods or services.
- 'Subsidy' can also be any form of income or price support granted by the government. This is a comprehensive definition of what subsidies are, for it includes not only direct transfer payments by the governments but also taxes and charges that are not collected. This aspect has gone under the radar in the on-going discussion.

ASCM in Union Budget:

- The Union Budget has provided data on direct subsidies and transfer payments from 2006-07 in a statement titled "Revenue Foregone under the Central Tax System" annexed to the Receipts Budget.
- Thus, the Union Budget includes all categories of subsidies that figure under the ASCM definition. However, from the Union Budget 2015-16 onwards, the title of the annexure was changed to "Statement of Revenue Impact of Tax Incentives under the Central Tax System".
- So, replacing the term "revenue foregone" with "tax incentives" in the title of the Annexure was just a change in semantics.

Policy and measures:

Tax preferences:

- Tax policy includes a range of measures that include special tax rates, exemptions, deductions, rebates, deferrals, and credits, all of which affect the level and distribution of tax.
- These measures are often called "tax preferences", which are built into both direct and indirect tax regimes for realising specific benefits serving the greater public good.

- For instance, the Income-tax Act includes "tax preferences" to promote savings by individuals and for enhancing exports, creation of infrastructure facilities and scientific research and development by corporates.
- On the other hand, customs duty concessions are intended to promote exports. The more substantive point here is that tax preferences are considered as implicit (indirect) subsidies to preferred tax payers; therefore, they merit attention in the current debate on justification of subsidies.

Revenue foregone in the case of direct taxes:

- Data on revenue foregone was first provided along with the Receipts Budget of 2006-07 covering both direct and indirect taxes.
- The significance of revenue foregone in the case of direct taxes was underlined in a 2016 Comptroller and Auditor General of India (CAG) report in 2016, which showed that revenue foregone in 2010-11 was 21% of direct tax revenue and had decreased to 15% in 2014-15.
- However, a subsequent report showed that the share had climbed again to reach 22% of tax revenue in 2019-20.

Facets of the "tax preferences:

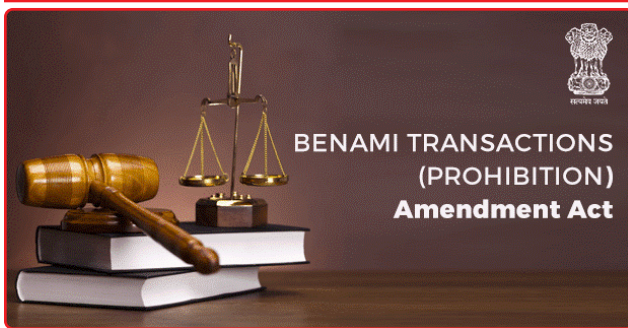
- There are several important facets of the "tax preferences" provided by the Government in respect of direct taxes that are germane to this debate on subsidies.
- First, as compared to individuals, corporates have been enjoying a larger share for all years except in 2019-20 when the share of individuals inexplicably increased. The figures of 2019-20 are significant also because "tax preferences" for corporates registered an increase, even as corporate taxes were reduced.
- And, finally, while the Finance Minister spoke about eliminating "tax preferences" available to income-tax payers in lieu of lower tax slabs, which is optional at present, the corporate sector enjoys "tax preferences" as well as lower tax rates.

Fading support:

- This brings to a much larger issue of targeting agricultural subsidies and also support provided to public health and education for making these services available to all.
- Market fundamentalists have forever opposed these subsidies/support by arguing that they are a wasteful use of resources. But this argument has gained currency since every Central government in the past three decades has adopted policies to whittle down support to these sectors extended by the government.
- Public health and education have consistently been undermined to create space for private players. And, in agriculture, the Government had brought the controversial farm laws for dealing with the issue of increasing farm subsidies.

An underinvestment:

- While adopting policies targeting these sectors, successive governments have paid little attention to the dismal reality of under-investment in these sectors.
- Public expenditure on health has struggled to cross 1.5% of GDP, which is significantly lower than those in other major economies. In education, the Kothari Commission's target set in 1966, that public investment should be increased to "6 percent of the national income as early as possible" is but a distant dream.
- That agriculture has remained the neglected sector hardly needs to be emphasised. The most galling fact is the astonishingly low share of the country's investment that this sector receives. At the turn of the millennium its share was 10%; in recent years, it has almost halved.
- As the crisis in agriculture has deepened as a result of this chronic underinvestment, subsidies have been the palliatives extended by the Government for farmers to merely protect their livelihoods.

BENAMI TRANSACTION AMENDMENT ACT 2016**Why in news?**

- Recently, the Supreme Court of India stated the provision of the Benami Transaction Amendment Act unconstitutional on the grounds of being manifestly arbitrary.
- Some of the provisions dealt with a three-year jail term and a penalty.

Details:

- Chief Justice stated that the Benami Transactions Amendment Act of 2016 should not be applied retrospectively.
- Section 3(2) suggests that whoever enters in a benami transaction is punishable with imprisonment for a term which might get extended upto three years with a fine, without a fine or both.
- The bench further remarked that the amendment of 2016 is not procedural.

What is the 1988 Benami Property Act?

- Benami Transactions (Prohibition) Act, 1988 or 1988 Benami Property Act is an act of the Indian parliament

that disallows certain financial transactions.

- This act labels a 'benami' transaction as any transaction in which property is transferred to one person for the amount paid by another person.
- In legal terms, it means any transaction in which property is transferred to one person for a consideration paid or provided is called a 'benami transaction'.

What is Benami Transaction Amendment Act 2016?

- In 2016, the government of India amended the Benami Transaction Amendment Act.
- The motive of this amendment was to curb black money in India. This amendment came into effect in November 2016.
- This new law amended the Benami Transactions Act, 1988 and renamed the same as Prohibition of Benami Property Act (PBPT), 1988.

What was the motive behind Benami Transaction Act 2016?

- Apart from curbing the black money, the motive of the Amendment Act was to strengthen the Benami Act, of 1988.

Key points:

- Many transactions in real estate involve unaccounted investments, making it difficult to track.
- Benami Act can help the government stop black money from circulating in the system.
- Government can increase tax revenue by bringing down corruption and false trade practices.
- It can increase transparency and honesty in Indian businesses.

Who is benamidar?

- Benamidar is a person who helps another person to enter benami transactions.
- This person may also get liable to pay a fine of up to 25 per cent of the fair market value of such benami property or get jailed for 1 to 7 years.

Why is Benami Property Act unconstitutional?

- Chief Justice of India, stated that this provision violated Article 20(1) of the Indian Constitution.
- According to Article 20(1), no person should be convicted of an offence or violation which was not in force at the time of the commission of the act charged as an offence.
- Benami Provisions Act 2016 has section 5, which states that any property which is a subject matter of a benami transaction shall be liable to be confiscated by the central government. The Supreme Court announced that this provision cannot be applied retrospectively.
- Chief Justice Ramana dismissed the government's version that acquisition, confiscation of property, and forfeiture were not like prosecution and can not be restricted under Article 20.

AMENDMENT IN THE INDIAN TELEGRAPH RIGHT OF WAY (ROW) RULES, 2016



Why in news?

- Recently, Ministry of Communications released amendment in the Indian Telegraph Right of Way (RoW) Rules, 2016 to facilitate faster and easier deployment of Telecom Infrastructure and launched a new 5G RoW application 'form' on GatiShakti Sanchar Portal to enable faster 5G roll-out in India.

4 ways for ensuring faster rollout of 5G services:

The 4 basic ingredients for ensuring faster rollout of 5G services across the country are

- allocation of spectrum,
- reforms in the processing of RoW permission,
- co-operative federalism and
- rollout of services.

GatiSakti Sanchar Portal:

- GatiSakti Sanchar Portal was launched by DoT in May, 2022 in line with PM's vision of development of infrastructure services in an integrated manner.
- The IT systems of all States/UTs and major infrastructure central ministries such as Railway, Highways have been integrated with the portal to make India ready for 5G launch.
- 13 States/UTs have also implemented deemed approval clause in their RoW Policies ensuring speedy approvals. These measures have resulted in major reduction in average time for approval of RoW applications, from 435 days in 2019 to 16 days in July, 2022.

The salient features of the amendments are as follows:

Expansion of telecom infrastructure:

- To facilitate faster 5G roll-out, RoW application procedures for small cell has now been simplified. Telecom licensees will be able to use street infrastructure to deploy telecom equipment at a nominal cost of Rs. 150/annum in rural areas and Rs. 300/annum in urban areas.
- To facilitate faster fiberisation, street infrastructure may be utilized at a nominal cost of Rs. 100/annum to install overground optical fibre.

- The amendments create distinction between 'poles' and 'mobile towers'. Overground infrastructure of height up to 8 meters shall be treated as poles and will need minimal regulatory permissions for deployment.

Improving ease of doing business:

- Telecom licensees had to submit RoW applications on different platforms of State/UTs. The amendments provide for a single window clearance system for RoW applications.
- Gati Shakti Sanchar Portal of Ministry of Communications will be the single window portal for all telecom related RoW applications.
- Single window clearance will reduce multiplicity of compliance and facilitate easier approvals.

Rationalization of fees/charges:

Rationalization of administrative fees:

- Telecom licensees are required to pay administrative fees for the RoW permissions. As technology improves, significant telecom equipment will be deployed on poles. To reduce the cost of compliance, the administrative fees have been rationalized as follows:
 - No administrative fee shall be charged by Central Government or its agencies for establishment of poles on the land owned/controlled by them.
 - For State/UTs, the administrative fee for establishment of poles shall be limited to Rs. 1,000 per pole.
 - Administrative Fee for laying overground optical fiber shall be limited to Rs. 1,000/ Km.

Uniformity in calculation of area:

- Telecom licensees have to pay charges proportionate to the area occupied by telecom infrastructure. At present, different agencies use different methodology to calculate the area.
- The amendments now prescribe a methodology to calculate the area occupied by telecom infrastructure. This will bring uniformity in computation of area and associated charges for the telecom infrastructure across the country.

Rationalizing cost of restoration:

- In case of restoration, Telecom licensees either have to undertake the restoration themselves or pay the concerned authority for restoration work. To ease this process, two major reforms have been introduced.
 - If the Telecom licensee undertakes the restoration work, a Bank Guarantee amounting to 100% of restoration cost needs to be submitted to the concerned agency. This amount has now been rationalized. Telecom Licensee shall be required to submit a BG for an amount of 20% of the restoration cost only.
 - If the Telecom Licensee wishes to pay the concerned agencies, the cost of restoration shall be calculated

at the rates prescribed by Central Public Works Department (CPWD) or Public Works Department (PWD) of the State/UTs.

- No compensation for establishment of poles: Telecom licensees shall not be required to pay compensation for land for establishment of poles.

Incentivizing use of technology:

- Technology is now available for laying Optical Fiber without digging a full trench. Therefore, in case of fiber laid using horizontal directional digging technology, Telecom Licensee shall have to pay restoration charges only for the pits, and not for the entire route.
- These reform measures are aimed at bringing down the time and cost of deployment of telecom infrastructure.

Telecom infrastructure over private property:

- For installing telecom infrastructure on private property, Telecom licensees may enter into agreement with private property owners and they will not require any permission from any government authority.
- In such cases, Telecom licensees shall be required to give only prior intimation along with structural suitability certificate.

Way Forward:

- These measures are expected to facilitate rapid expansion and upgradation of telecom networks and therefore improvement in the quality of services.
- With these series of reforms, the country is now ready for launch of 5G services by October, 2022.

ARMED FORCES (SPECIAL POWERS) ACT



Context:

- The statement made by the Prime Minister, in April 2022 to the people of the North-east to the effect that the Government intends withdrawing the much-dreaded Armed Forces (Special Powers) Act 1958, or AFSPA, completely from the region.
- It follows its partial withdrawal from parts of Assam, Nagaland, Arunachal Pradesh and Manipur in March.

Background:

- The Prime Minister was addressing a 'Peace, Unity

and Development' rally in Diphu in Assam's Karbi Anglong district.

- In the north-east, Nagaland has largely borne the brunt of this draconian law after it was imposed in the late 1950s when insurgency raised its head in the State.

Ordinance route:

- The genesis of the law can be traced to the Armed Forces (Special Powers) Ordinance 1942 which was enacted by the British to subjugate the rebels in the country during the Quit India movement, particularly in Assam and Bengal in October 1942.
- The law continues to be enforced in its new format as the Armed Forces (Special Powers) Act 1958.
- Indubitably, the need for the law was required in the 1950s when Naga insurgents resorted to large-scale violence.

Naga Framework Agreement:

- While there was some semblance of peace having been restored after the Shillong Peace Accord with the Naga insurgents in 1975.
- The situation took an ugly turn after the breakaway group led by Isak Chishi Swu and Thuingaleng Muivah formed the Nationalist Socialist Council of Nagalim (Isak-Muivah), better known as the NSCN(I-M), in January 1980, and resorted to large-scale violence across the States of Nagaland and Manipur.
- Thuingaleng Muivah is a Tangkhul Naga from Ukhrul district of Manipur while Isak Chishi Swu was a Sumi Naga from Zunheboto in Nagaland.
- Isak Chishi Swu died in June 2016 after the Naga Framework Agreement had been signed between the Government and the NSCN (I-M) in August 2015.
- It is believed that the agreement was rushed through given Isak Swu's health condition. The agreement has been hanging fire since then as the Government has not agreed to permit a separate flag and constitution for Nagaland which the NSCN (I-M) is determined to have.

Misuse of AFSPA:

- A generation has lived with AFSPA in Manipur and Nagaland. Residents in these States have been victims of the aberrations committed by security forces for decades.
- While AFSPA gives sweeping powers to the security forces to shoot and kill anyone on suspicion and even search or arrest any person without warrant, no prosecution against them is possible for any wrongdoing without the previous sanction of the Central government.
- While the Armed Forces (Special Powers) Ordinance 1942, authorized, any officer not below the rank of Captain in (the Indian) Military forces to use such force as may be necessary, even to the causing death against any person.

- AFSPA 1958 empowers even a non-commissioned officer (may be a Lance Naik, a Naik or Havildar) to "fire upon or otherwise use force; even to the causing of death"; no prosecution against them is possible without the consent of the Central Government.
- It is the consent from the Central government that is delaying any further action being taken against the commandos of the Army's 21 Para (Special Forces) who killed six locals initially in a case of mistaken identity in Mon district of Nagaland on December 4, 2021.

Supreme Court's stand:

- Meanwhile, the Supreme Court of India passed an interim order recently on a petition filed by the wives of the commandos found guilty by the SIT.
- Armed with unbridled power, aberrations by security forces operating in the States are bound to take place.
- When the Extrajudicial Execution Victim Families' Association Manipur (EEVFAM) approached the top court in 2012 to have 1,528 cases of alleged fake encounters investigated through the Central Bureau of Investigation (Extra Judicial Execution Victim Families Association (EEVFAM) vs Union of India & Anr.), it was found that the first six cases investigated were indeed fake encounters.
- This prompted the Court to conclude that the veracity of the allegations made by the Association was beyond suspicion. Having come under the scanner, the AFSPA drew critical comments from the Supreme Court.

Past failures:

- The iron lady of Manipur, Irom Chanu Sharmila, went on a 16-year long hunger strike starting from November 2000. Hailed as a heroine for nearly two decades, she fell from glory when people were disapproving of her breaking the fast.
- On being asked to comment on the withdrawal of AFSPA in several parts of Manipur, Assam and Nagaland, she was of the opinion that this was a new beginning and a result of decades-long fight.
- The Justice B.P. Jeevan Reddy Commission that was tasked with reviewing the provisions of AFSPA submitted its report on June 6, 2005 with the recommendation that AFSPA be withdrawn. Surprisingly, it had suggested making amendments to the Unlawful Activities (Prevention) Act, 1967 (UAPA) to achieve the purpose of AFSPA. The report was subsequently shelved.
- Former Union Home Minister P. Chidambaram was of the firm opinion that AFSPA should be withdrawn. But stiff resistance from the Defence Ministry which was headed by A.K. Antony scuttled the proposal. The Indian Army offered stiff opposition to any proposal to do away with the much-detested law.

Periodical review:

- The present dispensation at the Centre has been hailed for its bold decision to rescind the law as

the Army would have still offered resistance to its withdrawal.

- In Nagaland, AFSPA has been removed from the jurisdiction of 15 police stations in seven districts, while in Assam, it has been removed completely from 23 districts; one district will be covered partially under the Act. In Manipur, 15 police station areas of six districts will be excluded.
- However, there needs to be a comprehensive and serious periodical review undertaken by the Centre till the entire North-east is freed from the tentacles of AFSPA.

Way Forward:

- Investigations into the 1,528 alleged fake encounters also need to be fast tracked and taken to their logical conclusion.
- If necessary, there needs to be incarceration of the guilty, thereby sending out a clear message that those who murder under the cloak of the uniform of the security forces cannot expect to go scot free if there are violations.

PRADHAN MANTRI JAN DHAN YOJANA (PMJDY) COMPLETES EIGHT YEARS



Why in news?

- Pradhan Mantri Jan Dhan Yojna (PMJDY), one of the biggest financial inclusion initiatives in the world recently completed 8 years of its implementation.
- PMJDY was announced by Prime Minister, Narendra Modi in his Independence Day address on 15th August 2014.
- While launching the programme on 28th August, he had described the occasion as a festival to celebrate the liberation of the poor from a vicious cycle.

What is financial inclusion?

- The Ministry of Finance, through its financial inclusion led interventions, is committed to provide financial inclusiveness and support to the marginalised and hitherto socio-economically neglected classes.

- Financial Inclusion stands for delivery of appropriate financial services at an affordable cost, on timely basis to vulnerable groups such as low-income groups and weaker sections who lack access to even the most basic banking services.
- It is important as it provides an avenue to the poor for bringing their savings into the formal financial system, an avenue to remit money to their families in villages besides taking them out of the clutches of the usurious money lenders.

Background:

- Pradhan Mantri Jan Dhan Yojana (PMJDY) is National Mission for Financial Inclusion to ensure access to financial services, namely, Banking/ Savings & Deposit Accounts, Remittance, Credit, Insurance, Pension in an affordable manner.

Objectives:

- Ensure access of financial products & services at an affordable cost
- Use of technology to lower cost & widen reach

Basic tenets of the scheme:

- Banking the unbanked - Opening of basic savings bank deposit (BSBD) account with minimal paperwork, relaxed KYC, e-KYC, account opening in camp mode, zero balance & zero charges
- Securing the unsecured - Issuance of Indigenous Debit cards for cash withdrawals & payments at merchant locations, with free accident insurance coverage of Rs. 2 lakh
- Funding the unfunded - Other financial products like micro-insurance, overdraft for consumption, micro-pension & micro-credit

Initial Features:

The scheme was launched based upon the following 6 pillars:

- Universal access to banking services – Branch and BC
- Basic savings bank accounts with overdraft facility of Rs. 10,000/- to every eligible adult
- Financial Literacy Programme– Promoting savings, use of ATMs, getting ready for credit, availing insurance and pensions, using basic mobile phones for banking
- Creation of Credit Guarantee Fund – To provide banks some guarantee against defaults
- Insurance – Accident cover up to Rs. 1,00,000 and life cover of Rs. 30,000 on account opened between 15 Aug 2014 to 31 January 2015
- Pension scheme for Unorganized sector

Important approach adopted in PMJDY based on past experience:

- Accounts opened are online accounts in core banking system of banks, in place of earlier method of offline accounts opening with technology lock-in with the vendor

- Inter-operability through RuPay debit card or Aadhaar enabled Payment System (AePS)
- Fixed-point Business Correspondents
- Simplified KYC / e-KYC in place of cumbersome KYC formalities

Extension of PMJDY with New features

- The Government decided to extend the comprehensive PMJDY programme beyond 28.8.2018 with some modifications:
- Focus shift from 'Every Household' to Every Unbanked Adult'
- **RuPay Card Insurance** - Free accidental insurance cover on RuPay cards increased from Rs. 1 lakh to Rs. 2 lakh for PMJDY accounts opened after 28.8.2018.
- Enhancement in overdraft facilities - OD limit doubled from Rs 5,000/- to Rs 10,000/-; OD upto Rs 2,000/- (without conditions). Increase in upper age limit for OD from 60 to 65 years

Impact of PMJDY

- PMJDY has been the foundation stone for people-centric economic initiatives. Whether it is direct benefit transfers, COVID-19 financial assistance, PM-KISAN, increased wages under MGNREGA, life and health insurance cover, the first step of all these initiatives is to provide every adult with a bank account, which PMJDY has nearly completed.
- One in 2 accounts opened between Mar'14 to Mar'20 was a PMJDY account. Within 10 days of nationwide lockdown more than about 20 crore women PMJDY accounts were credited with ex-gratia.
- Jandhan provides an avenue to the poor for bringing their savings into the formal financial system, an avenue to remit money to their families in villages besides taking them out of the clutches of the usurious money lenders.
- PMJDY has brought the unbanked into the banking system, expanded the financial architecture of India and brought financial inclusion to almost every adult.

Achievements under PMJDY- As on 10th August'22:

PMJDY Accounts:

- As on 10th August '22 number of total PMJDY Accounts: 46.25 crore; 55.59% (25.71 crore) Jan-Dhan account holders are women and 66.79% (30.89 crore) Jan Dhan accounts are in rural and semi-urban areas
- During first year of scheme 17.90 crore PMJDY accounts were opened
- Continuous increase in no of accounts under PMJDY
- PMJDY Accounts have grown three-fold from 14.72 crore in Mar'15 to 46.25 crore as on 10-08-2022. Undoubtedly a remarkable journey for the Financial Inclusion Programme.

Jan Dhan Darshak App

- A mobile application, was launched to provide a citizen centric platform for locating banking touch

- points such as bank branches, ATMs, Bank Mitras, Post Offices, etc. in the country.
- Over 8 lakh banking touchpoints have been mapped on the GIS App.
- This app is also being used for identifying villages which are not served by banking touchpoints within 5 km. these identified villages are then allocated to various banks by concerned SLBCs for opening of banking outlets. The efforts have resulted in significant decrease in number of such villages.

Way Forward:

- Endeavour to ensure coverage of PMJDY account holders under micro insurance schemes. Eligible PMJDY accountholders will be sought to be covered under PMJJBY and PMSBY. Banks have already been communicated about the same.
- Promotion of digital payments including RuPay debit card usage amongst PMJDY accountholders through creation of acceptance infrastructure across India
- Improving access of PMJDY account holders to Micro-credit and micro investment such as flexi-recurring deposit etc.

CONCERNS AROUND AADHAAR-VOTER ID LINKAGE



Context:

- Reports have surfaced online of instances where block level officers have asked individuals to link their Aadhaar with their Voter IDs, failing which their Voter IDs could be cancelled.
- This comes in the aftermath of the Election Commission's (EC) campaign to promote the linkage of Voter ID and Aadhaar that began on August 1.
- In the first ten days since its launch, the campaign saw almost 2.5 crore Aadhaar holders voluntarily submitting their details to the EC.

Why does the government want this?

- The EC conducts regular exercises to maintain an updated and accurate record of the voter base.
- A part of this exercise is to weed out duplication of voters, such as migrant workers who may have been registered more than once on the electoral rolls in different constituencies or for persons registered multiple times within the same constituency.

- As per the government, linkage of Aadhaar with voter IDs will assist in ensuring that only one Voter ID is issued per citizen of India.

Is the linking of Aadhaar with one's Voter ID mandatory?

- In December 2021, Parliament passed the Election Laws (Amendment) Act, 2021 to amend the Representation of the People Act, 1950, inter alia.
- Section 23(4) was inserted in the Representation of the People Act, 1950.
- It states that the electoral registration officer may "for the purpose of establishing the identity of any person" or "for the purposes of authentication of entries in electoral roll of more than one constituency or more than once in the same constituency" for citizens already enrolled, require them to furnish their Aadhaar numbers.

Rule 26B:

- To reflect this amendment, in June 2022, the government notified changes to the Registration of Electors Rules, 1960.
- Rule 26B was added to provide that "every person whose name is listed in the roll may intimate his Aadhar number to the registration officer".
- Although, the use of discretionary language throughout the amendments have been accompanied by assurances by both the government and the EC that linkage of the Aadhaar with Voter ID is optional, this does not seem to be reflected in Form 6B issued under the new Rule 26B.
- Form 6B provides the format in which Aadhaar information may be submitted to the electoral registration officer. Form 6B provides the voter to either submit their Aadhaar number or any other listed document.
- However, the option to submit other listed documents is exercisable only if the voter is "not able to furnish their Aadhaar number because they do not have an Aadhaar number".
- To that extent, the element of choice that has been incorporated in the amendments seem to be negated or at the very least thrown into confusion.

Why is the mandatory linking of Aadhaar to the Voter ID an issue?

- The preference to use Aadhaar for verification and authentication, both by the state and private sector, stems from two reasons.
 - First, at the end of 2021, 99.7% of the adult Indian population had an Aadhaar card. This coverage exceeds that of any other officially valid document such as driver's licence, ration cards, PAN cards etc that are mostly applied for specific purposes.
 - Second, since Aadhaar allows for biometric authentication, Aadhaar based authentication and verification is considered more reliable, quicker and cost efficient when compared to other IDs.

Puttaswamy judgment:

- But these reasons do not suffice the mandating of Aadhaar except in limited circumstances as per the Puttaswamy judgment. It needs to be considered whether such mandatory linkage of Aadhaar with Voter ID would pass the test of being “necessary and proportionate” to the purpose of de-duplication which is sought to be achieved.
- In Puttaswamy, one of the questions that the Supreme Court explored was whether the mandatory linking of Aadhaar with bank accounts was constitutional or not. The Court observed that the mandatory linking of Aadhaar with bank accounts was not only for new bank accounts but also existing ones, failing which the individual will not be able to operate their bank account.
- The Court held that depriving a person of their right to property for non-linkage fell foul of the test of proportionality. Even though the situation at hand is slightly different in that other means of verification and authentication are allowed if the person does not hold an Aadhaar, given the wide coverage of Aadhaar, the current design would in effect mandate Aadhaar linkage.
- In this context, it needs to be considered whether requiring an Aadhaar holder to mandatorily provide Aadhaar for authentication or verification would not be considered violative of their informational autonomy (right to privacy) which would allow them to decide which official document they want to use for verification and authentication.
- Moreover, in Lal Babu Hussein (1995), the Supreme Court had held that the Right to vote cannot be disallowed by insisting only on four proofs of identity, voters can rely on any other proof of identity and obtain the right to vote.

What are the operational difficulties?

- First, the preference to Aadhaar for the purposes of determining voters is puzzling as Aadhaar is only a proof of residence and not a proof of citizenship. Therefore, verifying voter identity against this will only help in tackling duplication but will not remove voters who are not citizens of India from the electoral rolls.
- Second, the estimate of error rates in biometric based authentication differ widely. As per the Unique Identification Authority of India in 2018, Aadhaar based biometric authentication had a 12% error rate.
- This led the Supreme Court to hold in Puttaswamy that a person would not be denied of benefits in case Aadhaar based authentication could not take place. This concern is also reflected in the previous experiences of using Aadhaar to clean electoral rolls.
- A similar exercise undertaken in 2015 in Andhra and Telangana led to the disenfranchisement of around 30 lakh voters before the Supreme Court stalled the process of linkage.

Right to privacy and surveillance:

- Lastly, civil society has highlighted that linking of the two databases of electoral rolls and Aadhaar could lead to the linkage of Aadhaar’s “demographic” information with voter ID information, and lead to violation of the right to privacy and surveillance measures by the state.
- This, however, would seem to be the case with the use of any other officially valid document to verify or authenticate the identity of the voter. This would leave the EC with the option of verifying its information only through door-to-door checks.
- It also needs to be noted that the Puttaswamy judgment, after reviewing the Aadhaar architecture, held that the use of biometric based authentication and verification, did not lead to the creation of a “surveillance state”. To address these concerns, one needs to have enforceable data protection principles that regulate how authentication data will be used.

What is the way forward?

- Even as the amendments have been made and the EC has launched a campaign for linkage, a writ petition has filed with the Supreme Court challenging the same.
- It challenges the amendments as being violative of the right to privacy. The Supreme Court has transferred the writ to the Delhi High Court.
- In the meantime, it is important that the government clarifies through correction in Form 6B that the linking is not mandatory and expedites the enactment of a data protection legislation that allays concerns of unauthorised processing of personal data held by the government.

**REVISITING THE S. SUBRAMANIAM
BALAJI VS TAMIL NADU JUDGMENT**

**Why in news?**

- Recently, the Supreme Court referred to a three-judge Bench a series of petitions seeking a judicial direction that political parties who make “wild” promises of largesse should also reveal in their poll manifestos where they will get the money to pay for them.
- The reference is a shift from the court’s own stand in the S. Subramaniam Balaji vs Tamil Nadu judgment of 2013.

What happened?

- In the Balaji case judgment, a Division Bench of the Supreme Court had held that making promises in election manifestos do not amount to a 'corrupt practice' under Section 123 of the Representation of People Act (RP).
- However, the Supreme Court is now worried that freebies promised by political parties to win elections could bleed the public exchequer dry.
- The Court said that parties who form the government riding the wave created by their pre-poll promises of "free gifts" are bleeding the State finances dry by actually trying to fulfil their outlandish promises using public money.
- The Supreme Court has therefore decided to revisit the Balaji verdict.

What triggered the Balaji case?

- The course of events started in 2006, during the run-up to the Tamil Nadu Assembly elections. The Dravida Munnetra Kazhagam (DMK) released its election manifesto announcing a scheme of free distribution of colour television sets (CTVs) to "each and every household" which did not have one if the party was voted to power.
- The party justified that the TV would "provide recreation and general knowledge to household women, more particularly, those living in the rural areas".
- The party swept to power in the polls and decided to implement its scheme and portioned off ₹750 crore from the budget for the project. The government finally distributed 30,000 TV sets across the State.

Freebies by AIADMK:

- In 2011, rival All India Anna Dravida Munnetra Kazhagam (AIADMK) and its alliance also announced its election manifesto with free gifts to "equalise" the gifts offered by the DMK.
- AIADMK promised grinders, mixies, electric fans, laptop computers, four gram gold thalis, a cheque of ₹50,000 for women's marriage, green houses, 20 kg of rice to ration card holders (even to those above the poverty line) and free cattle and sheep.
- Mr. Balaji, a resident of Tamil Nadu, challenged the schemes introduced by the parties in the Madras High Court. He said the expenditure to be incurred by the State from the exchequer was "unauthorised, impermissible and ultra vires the constitutional mandates". The High Court dismissed his case, following which he had moved the apex court.

How did the case play out?

- The petitioner said the State cannot act in furtherance of "eccentric principles of socialistic philanthropy". He argued that the promises of free distribution of non-essential commodities in an election manifesto amounts to electoral bribe under Section 123 of the RP Act.

- The Comptroller and Auditor General of India has a duty to examine expenditures even before they are deployed. Money can be taken out of the Consolidated Fund of the State only for "public purposes". The distribution of goods to certain sections of people was violative of Article 14 of the Constitution.

What was the response of the State of Tamil Nadu?

- In response, the State of Tamil Nadu countered that promises of political parties do not constitute corrupt practice. Political parties are not the State and 'freebies' is a nebulous term which has no legal status.
- The promises implemented by the party after forming the government is an obligation under the Directives Principles of State Policy. The State is only doing its duty to promote the welfare of its people.
- The promises are implemented by framing various schemes/guidelines/eligibility criteria etc. as well as with the approval of the legislature. Thus, it cannot be construed as a waste of public money or be prohibited by any statute or scheme.

Judgement:

- The court's judgment held that promises by a political party cannot constitute a 'corrupt practice' on its part. It would be "misleading" to construe that all promises in the election manifesto would amount to corrupt practice.
- The manifesto of a political party is a statement of its policy. The question of implementing the manifesto arises only if the political party forms a government. It is the promise of a future government and not of an individual candidate. However, the court agreed that freebies create an "uneven playing field".
- It had asked the Election Commission of India to consult political parties and issue guidelines on the election manifesto and make it a part of the Model Code of Conduct.

Why is the Court's move to review the Balaji judgment significant?

- In its order, the court foresees that "freebies may create a situation wherein the State government cannot provide basic amenities due to lack of funds and the State is pushed towards imminent bankruptcy".
- The court said it wants a transparent debate before the three-judge Bench on whether an "enforceable" judicial order can stop political parties from promising and distributing 'irrational freebies'.
- The case is unique as the Supreme Court is exploring whether judicial parameters can be set on a purely political act of promising freebies.

INTERNATIONAL RELATION

**INTERNATIONAL NORTH SOUTH
TRANSPORT CORRIDOR (INSTC)**

Why in news?

- Recently, two 40-ft containers of wood laminate sheets crossed the Caspian Sea from Russia's Astrakhan port, entered Iran's Anzali port, continued their southward journey towards the Arabian Sea, entered the waters at Bandar Abbas and eventually reach Nhava Shiva port in Mumbai.



- The journey signalled the launch of the International North South Transport Corridor (INSTC), a 7,200-km multi-modal transport corridor that combines road, rail and maritime routes connecting Russia and India via central Asia and Iran.
- The corridor is expected to consolidate the emerging Eurasian Free Trade Area.

What INSTC translates for India?

- The INSTC's launch provides missing pieces of the puzzle about India's refusal to condemn Russia's invasion of Ukraine.
- India's decision had then been explained in terms of its military reliance on Russia, its aim to keep open alternative supplies of precious oil and gas, and a legacy of its non-alignment.
- What was neglected is India's brewing investment in transcontinental infrastructure, signalled by its involvement in the INSTC alongside Russia and Iran, both of which are subject to sanctions by Western governments.

Background:

- The legal framework for the INSTC is provided by a trilateral agreement signed by India, Iran and Russia at the Euro-Asian Conference on Transport in 2000.
- Since then Kazakhstan, Belarus, Oman, Tajikistan, Azerbaijan, Armenia and Syria have signed instruments of accession to become members of the INSTC.
- Once fully operational, the INSTC is expected to reduce freight costs by 30% and journey time by 40% in comparison with the conventional deep sea route via the Suez Canal. Indeed, the need for an alternative route was deeply felt in 2021, when the Ever Given container ship was stuck in the Suez, halting maritime traffic between the Mediterranean Sea and the Red Sea.

India's investment in the INSTC:

- India's investment in the INSTC is exemplified by its involvement in Iran's Chabahar port and the construction of a 500-km Chabahar-Zahedan railway line. Once completed, this infrastructure will allow India access to Afghanistan and central Asia, a prospect strengthened by the Taliban government's support for the project.
 - The India Ports Global Limited, a joint venture between the Jawaharlal Nehru Port Trust and Kandla Port Trust, will develop the port along with Iran's Aria Banader. IRCON International will contribute to constructing the railway line.
 - A special economic zone around Chabahar will offer Indian companies the opportunity to set up a range of industries; for example, NALCO proposes to set up an aluminium smelter.
 - Lines of credit will be extended to Iran by Exim Bank. The INSTC, thus, provides an opportunity for the internationalisation of India's infrastructural state, with state-run businesses taking the lead and paving the way for private companies.
 - For India, the INSTC achieves several things all at once.
 - Firstly, India can now bypass Pakistan to access Afghanistan, central Asia and beyond.
 - Second, the INSTC can shape a north-south transport corridor that can complement the east-west axis of the China-led Belt and Road Initiative (BRI).
 - The launch of the INSTC was overshadowed by the Quad Summit held in May 2022 at which the leaders of the Quad re-emphasised the principles of a free and open Indo-Pacific.
 - The Quad Summit declaration went beyond outlining commitments to freedom, rule of law and territorial integrity to reinforce a central purpose of the collective – providing the region with public goods.
 - New initiatives designed to deepen cooperation across the region were announced, which encompassed maritime security, climate change and regional infrastructure.
- ### Sift in Indian foreign policy from Non-alignment to multi-alignment:
- India's founding role in both the INSTC and the Quad exemplify its departure from non-alignment to multi-alignment. The INSTC offers a platform for India to closely collaborate with Russia, Iran and Central Asian republics.
 - That two of its partners are subject to Western sanctions hasn't prevented India from collaborating with the U.S., Japan and Australia as part of the Quad to create and safeguard a free and open Indo-Pacific.
 - Indian policymaking in international affairs has often been criticised for its moral indecisiveness, diplomatic reticence and ideological confusion. These critics have failed to observe the subtle shifts

in Indian foreign policy from non-alignment to multi-alignment.

Way Forward:

- The INSTC has received far less media attention than initiatives such as the Quad, the BRI and the New Development Bank.
- However, as a transcontinental multi-modal corridor that aims to bring Eurasia closer together, the INSTC is a laudable initiative in its own right. That it helps India consolidate its multi-alignment strategy sweetens the deal.

INDIA SIGNS SIX PACTS WITH MALDIVES



Why in news?

- Recently, Maldivian President Ibrahim Solih visited India.
- India and Maldives inked six agreements to expand cooperation in several key areas with Indian Prime Minister asserting that India has been and will continue to be the ‘first responder’ to any need or crisis facing the island nation.

Key Highlights:

- The two sides signed six agreements, including one on cybersecurity and another on creating a network of police facilities in the archipelago.
- The Indian side unveiled additional financial assistance of more than \$250 million for the Maldives, one of the main beneficiaries of India’s ‘Neighbourhood First’ policy.

Infrastructure projects:

- The two leaders reviewed infrastructure projects being implemented in the Maldives to develop roads, ports, airports and housing under India’s development cooperation portfolio of more than \$2 billion.
- They also virtually launched the first pouring of concrete for the Greater Male Connectivity Project, being built with an Indian grant of \$100 million and a soft loan of \$400 million.
- The Indian side extended a new line of credit of \$100 million to fund revised costs of existing projects under a previous \$800-million line of credit provided in 2018.

- Indian companies are currently engaged in two projects to build 4,000 social housing units in Greater Male.

Defence & Security:

- India announced it will provide a landing craft assault (LCA) to the Maldives National Defence Force (MNDF), and another warship to replace CGS Huravee, which itself is a naval patrol vessel gifted by India in 2006.
- India will also provide 24 utility vehicles to MNDF.
- This equipment will boost the maritime surveillance and security capacity of MNDF.
- India has provided other defence hardware in the past and helped build a coastal radar network in the Maldives that became operational in March.

Cyber-security:

- The agreements signed included memorandums of understanding on cooperation in cyber-security, training of Maldivian local government officials, collaboration in data sharing and marine research for forecasting of potential fishing zones, and cooperation in disaster management.

Police infrastructure:

- India’s Exim Bank and the Maldives finance ministry signed an agreement for buyer’s credit financing worth \$41 million to create police infrastructure on 61 islands, while a letter of intent was finalised for buyer’s credit funding worth \$119 million for building 2,000 social housing units in Hulhumale.

‘India Out’ campaign:

- Maldivian President is visiting India at a time when the Maldives is witnessing an ‘India Out’ campaign backed by hardliners and the opposition party of former president Abdulla Yameen.
- He lauded India for its support when his country’s borders were close due to the Covid-19 pandemic.

INDIA TO HOST UNSC SPECIAL MEETING ON COUNTER-TERRORISM

Why in news?

- India will host diplomats of the UN Security Council in October for a special meeting on counter-terrorism in India on 29 October, 2022.



India's tenure & Current Members at UNSC:

- India is halfway through the second year of its two-year term as an elected non-permanent member of the UN Security Council.
- India's tenure at the Council will end in December 2022, when the country will also preside as President of the powerful UN organ for the month.
- India chairs the Security Council Counter-Terrorism Committee for 2022 and will in October host diplomats of the 15-nation Security Council.
- Current members of the Security Council are Albania, Brazil, Gabon, Ghana, India, Ireland, Kenya, Mexico, Norway and the UAE, along with five permanent members China, France, Russia, the UK and the US.

Focus areas:

- The United Nations Security Council Counter-Terrorism Committee (CTC) said the special meeting will specifically focus on three significant areas where emerging technologies are experiencing rapid development, growing use by member states (including for security and counter-terrorism purposes), and the increasing threat of abuse for terrorism purposes, namely
 - Internet and social media,
 - terrorism financing, and
 - unmanned aerial systems (UAS).

Venue:

- It is not very frequent that the Counter-Terrorism Committee meets outside of New York, but the meeting in India will be the seventh time that this is happening.
- The most recent special meeting of the CTC outside of United Nations headquarters took place in Madrid, Spain, in July 2015, focusing on foreign terrorist fighters (FTFs).

Counter-terrorism:

- With the prevalence of technology and rapid rise in digitisation, the use of new and emerging technologies to counter-terrorism is a topic of growing interest among the member states, policymakers and researchers, particularly in the context of the increasing role played by technology in terrorism and counter-terrorism.
- This is addressed by the Security Council in a number of counter-terrorism-related resolutions, most recently resolution 2617 (2021), which explicitly cited emerging technologies.

India's first woman envoy at UN:

- India's then Permanent Representative to the UN Ambassador T S Tirumurti had in January 2022 assumed the Chair of the Security Council Counter-Terrorism Committee for 2022.
- Ambassador Ruchira Kamboj, the country's new envoy to the UN, now assumes that role.

About Counter-Terrorism Committee (CTC):

- The Counter-Terrorism Committee (CTC) was established in 2001 in the wake of the 9/11 terrorist attacks. UNSC Resolution 1373 (2001) had established the Counter-Terrorism Committee as a subsidiary body of the Council.
- On the eve of assuming Chair of the CTC in December 2021, India had voted in favour of a resolution to renew the mandate of the Counter-Terrorism Committee Executive Directorate (CTED).
- The UN Security Council, through its written silence procedure, renewed the mandate of the Executive Directorate until 31 December, 2025.

Way Forward:

- As the Chair of the CTC for 2022, India will make determined efforts to further enhance the role of the CTC in strengthening the multilateral response to counter-terrorism, and more importantly, ensuring that global response to the threat of terrorism remains unambiguous, undivided and effective, India had said in its explanation of vote to renew the CTED mandate.

AMENDMENT TO RESTRICT ABORTIONS IN KANSAS, U.S.

**Why in news?**

- Recently, in a referendum, voters in the conservative state of Kansas in the U.S. decided to protect rights to abortion.

Details:

- This was the first electoral test in any state after the U.S. Supreme Court overturned Roe vs Wade in June, ending the constitutional right to abortion guaranteed by a 1973 judgment.
- The 'Kansas No State Constitutional Right to Abortion and Legislative Power to Regulate Abortion Amendment' was defeated, with almost 59% of voters saying no, according to projections, thus maintaining the legal precedent set by Hodes & Nauser vs Schmidt (2019) that the Kansas Bill of Rights provides a right to abortion.

What did the amendment propose?

- The amendment, which was to be inserted in Section 22 of the Kansas Bill of Rights, proposed to change the

constitution to provide that the state “does not require government funding of abortion and does not create or secure a right to abortion.”

- It would have allowed elected state representatives and state senators to “pass laws regarding abortion, including, but not limited to, laws that account for circumstance of pregnancy resulting from rape or incest, or circumstances of necessity to save the life of the mother.”

What does it mean for other states and political parties?

- The surprise win in one of the most conservative states in the country highlights the “gap between what a majority of voters want and what a number of Republican candidates and lawmakers are pushing, both in Kansas and in several other states sure to play a key role in the upcoming mid-term elections.”
- The amendment’s failure in the conservative state will boost Democrats’ hopes that the abortion rights issue will lead voters to the party in the November 8 elections.
- President Joe Biden said the Kansas vote “makes clear what we know: the majority of Americans agree that women should have access to abortion and should have the right to make their own health care decisions.”

How is the situation on the ground?

- According to the Center for Reproductive Rights, at the time of the Roe overturning, high courts in 10 states “recognised that their state constitutions protected abortion rights independently from and more strongly than the federal constitution.” These protections can be overturned only through referendums.
- The Kansas referendum win is important because things are difficult on the ground in a conservative state like Kansas, where there has been “continuing efforts to restrict abortion access”.
- A Center for Reproductive Rights report on state constitutions points out that there are only four medical abortion clinics in Kansas, and that 98% of Kansas counties have no clinics that provide abortions.
- It allows pregnancies to be terminated up to 22 weeks with other restrictions, including a compulsory 24-hour waiting period and parental consent for children.
- Abortion is currently illegal in seven states including Oklahoma, Missouri, Louisiana, Mississippi, Alabama, South Dakota and Arkansas, and other states are working to enforce abortion bans like Kentucky.

Background:

- In July, the House of Representatives voted to restore abortion rights nationwide. It also passed a second bill to prohibit punishment for a woman or child who decides to travel to another state to get an abortion. But the bills do not have a chance of becoming law as support is lacking in the 50-50 Senate.

INDIA BEGINS COOPERATION WITH COMBINED MARITIME FORCES



Why in news?

- Recently, India formally commenced cooperation with the Bahrain-based multilateral partnership, Combined Maritime Forces (CMF).
- India joined the US-backed Combined Military Forces-Bahrain (CMF-B), a counterterrorism coalition aimed at protecting international waters as an associate member.

Background:

- At the India-US 2+2 in April 2022, India had announced that it would join the CMF as an Associate Partner, which will strengthen cooperation in regional security in the Western Indian Ocean.

About Combined Maritime Forces (CMF):

- CMF is a multi-national naval partnership to promote security, stability and prosperity across approximately 3.2 million square miles of international waters, which encompass some of the world’s most important shipping lanes.
- Established in 2001 with only 12 members, the coalition, then called the Combined Maritime Forces (CMF).
- India becomes the 35th member of the maritime partnership that also includes Australia, Bahrain, Denmark, Egypt, France, Germany, Greece, Iraq, Italy, Japan, Jordan, Republic of Korea, Kuwait, the Netherlands and New Zealand.
- It is commanded by a U.S. Navy Vice Admiral, who also serves as Commander U.S. Naval Forces CENTCOM and U.S. Fifth Fleet.
- All three commands are co-located at U.S. Naval Support Activity Bahrain. In the immediate neighbourhood, Pakistan is a full member of CMF.

Task forces:

- The work of the CMF-B is divided into four combined task forces – the CTF 150, CTF 151, CTF 152, and CTF 153.
- The CTF 150 focuses on ensuring maritime security in the Gulf of Oman and the Indian Ocean.

⇒ Participating nations have included Australia, Canada, Denmark, France, Germany, Italy, Netherlands, New Zealand, Pakistan, Spain, Saudi Arabia, the United Kingdom, and the United States. Command of CTF 150 generally rotates between nations on a four-monthly basis. It's currently being commanded by the Pakistan Navy.

CTF 151 focuses on counterpiracy.

⇒ The CTF 152 aims to ensure maritime security in the Arabian Gulf (also known as Persian Gulf) and is currently being commanded by the Kuwait Navy.

⇒ The CTF 153 which was established in April 2022 focuses on ensuring maritime security in the Red Sea and the Gulf of Aden, and is currently being commanded by the US Navy.

Way Forward:

⇒ Under this framework, India has in the past cooperated with CMF on various occasions. For instance, the CMF's CTF 151 has coordinated with Indian and Chinese warships deployed on anti-piracy duties to patrol the Maritime Security Transit Corridor.

⇒ Currently, India has two ships deployed round the clock between the Gulf of Aden and the Persian Gulf for anti-piracy and anti-smuggling operations.

⇒ Indian Navy has a Liaison Officer posted at the US Central Command (CENTCOM) in Bahrain who will also function as the point person for cooperation with the CMF.

A NEW GLOBAL VISION FOR G20



Context:

⇒ While India has taken a clear view of the role of the G20, there is concern that the agenda, themes and focus areas which India will set for 2023 lack vision.

⇒ The G20 plays an important role in shaping and strengthening global architecture and governance on all major international economic issues.

⇒ It recognises that global prosperity is interdependent and economic opportunities and challenges are interlinked. The challenge is to craft new approaches to overcome the acute global discord.

Focus area:

⇒ However, according to the Ministry of External Affairs, in 190 meetings, India will strengthen international support for priorities of vital importance to developing countries in diverse social and economic sectors, ranging from energy, agriculture, trade, digital economy, health and environment to employment, tourism, anti-corruption and women empowerment, including in focus areas that impact the most vulnerable and disadvantaged.

⇒ Without specificity, India has lost a chance to nudge the G20 and regional organisations towards its focus areas.

Collaboration not commitments:

⇒ The fractured world makes trade-offs, the essence of current multilateralism, difficult and suggests a new model of international cooperation:

⇒ First, multilateral commitments on aid and trade are faltering. Governance in a world that is steadily becoming more equal needs institutional innovation.

⇒ This is because the role of the United Nations and the World Trade Organization in securing cooperation between donor and recipient country groups is losing centrality. There are now three socio-economic systems; the G7, China-Russia, and India and the others and they will jointly set the global agenda.

⇒ Second, Ukraine's long shadow, rival finance, the expanding influence of the trade and value chains dominated by the U.S. and China, and the reluctance of developing countries to take sides in the strategic competition as they have a real choice requires fresh thinking on the nature and form of collaboration from the G20.

⇒ Third, the primary role of the G20, which accounts for 95% of the world's patents, 85% of global GDP, 75% of international trade and 65% of the world population, needs to be reoriented to prevent a clash of ideas to the detriment of the global good.

Common concerns:

⇒ India should seek collaboration on limited focus areas around science and technology, building on resolutions of the United Nations General Assembly (UNGA) and other multilateral bodies.

New Conceptual frame:

a) First, the presumed equality that are all in the same boat, recognised in the case of climate change, needs to be expanded to other areas with a global impact redefining 'common concerns'.

b) Second, emerging economies are no longer to be considered the source of problems needing external solutions but source of solutions to shared problems.

c) Third, the BRICS provides an appropriate model for governance institutions suitable for the 21st century where a narrow group of states dominated by one power will not shape the agenda.

Vienna Declaration on Human Rights 1993:

- The starting point should be building on the global consensus in the Vienna Declaration on Human Rights 1993 reaffirming the indivisibility of all human rights.
- There is a growing recognition of economic and social rights for example, in the 2030 Agenda for Sustainable Development. Ensuring adequate food, housing, education, health, water and sanitation and work for all should guide international cooperation.
- Principles of common but differentiated responsibilities for improving the quality of life of all households can guide deliberations in other fora on problems that seem intractable in multilateralism based on trade and aid.

Employment & Environment:

- Second, the global agenda has been tilted towards investment, whereas science and technology are the driving force for economic diversification, sustainably urbanising the world, and ushering the hydrogen economy and new crop varieties as the answer to both human well-being and global climate change.
- Innovation supports dematerialising production and consumption and moving towards renewable sources of energy. The shift in lifestyles in the post-war period created urban jobs in services and retail that made up for the losses to high productivity manufacturing, and climate change.
- A forum to exchange experiences on societal benefits and growth as complementary goals would lead to fresh thinking on employment and environment.

Digital-information-technology revolution:

- Third, harnessing the potential of the digital-information-technology revolution requires redefining digital access as a “universal service” that goes beyond physical connectivity to sharing specific opportunities available.
- For global society to reap the fruits of the new set of network technologies, open access software should be offered for more cost-effective service delivery options, good governance and sustainable development.

Space:

- Fourth, space is the next frontier for finding solutions to problems of natural resource management ranging from climate change-related natural disasters, supporting agricultural innovation to urban and infrastructure planning.
- Analysing Earth observation data will require regional and international collaboration through existing centres which have massive computing capacities, machine learning and artificial intelligence.
- Open access to geospatial data, data products and services and lower costs of geospatial information

technology facilities do not require huge financial resources.

Public health:

- Fifth, public health has to learn from the COVID-19 fiasco with infectious diseases representing a market failure.
- A major global challenge is the rapidly growing antimicrobial resistance which needs new antibiotics and collaboration between existing biotechnology facilities.

Strategic thinking:

- Sixth, overriding priority to development suggests avoiding strategic competition. Countries in the region will support building on the 1971 UNGA Declaration designating for all time the Indian Ocean as a zone of peace and non-extension into the region of rivalries and conflicts that are foreign to it.
- Lastly, a Global Financial Transaction Tax, considered by the G20 in 2011, needs to be revived to be paid to a Green Technology Fund for Least Developed Countries.

INDIA'S TALKS WITH NATO

Why in news?

- India held its first political dialogue with the North Atlantic Treaty Organisation (NATO) in Brussels on December 12, 2019.
- The idea was to ensure the dialogue was primarily political in character, and to avoid making any commitment on military or other bilateral cooperation.
- Accordingly, the Indian delegation attempted to assess cooperation on regional and global issues of mutual interest.



What is NATO?

- The North Atlantic Treaty Organisation, or NATO, is a political and military alliance of 28 European countries and two countries in North America (United States and Canada).
- It was set up in 1949 by the US, Canada, and several western European nations to ensure their collective security against the Soviet Union. It was the US's first peacetime military alliance outside the western hemisphere.

- ⇒ Thirty countries are currently members of NATO, which is headquartered in Brussels, Belgium.
- ⇒ The headquarters of the Allied Command Operations is near Mons, also in Belgium.

What is important about NATO's collective defence?

- ⇒ Members of NATO are committed to mutual defence in response to an attack by any external party.
- ⇒ Collective defence lies at the very heart of NATO, "a unique and enduring principle that binds its members together, committing them to protect each other and setting a spirit of solidarity within the Alliance".
- ⇒ This is laid out in Article 5 of the North Atlantic Treaty, the founding treaty of NATO.
- ⇒ Article 5 reads: "The Parties agree that an armed attack against one or more of them in Europe or North America shall be considered an attack against them all and consequently they agree that, if such an armed attack occurs, each of them, in exercise of the right of individual or collective self-defence recognized by Article 51 of the Charter of the United Nations, will assist the Party or Parties so attacked by taking forthwith, individually and in concert with the other Parties, such action as it deems necessary, including the use of armed force, to restore and maintain the security of the North Atlantic area."

What are the origins of NATO?

- ⇒ At the end of WWII, as battered European nations started to rebuild their economies, the US, which believed that an economically strong, re-armed, and integrated Europe was critical to prevent the westward expansion of communist USSR, embarked on a programme to supply economic aid to the continent on a massive scale.
- ⇒ The European Recovery Programme, known as the Marshall Plan after President Harry S Truman's Secretary of State George C Marshall, promoted the idea of shared interests and cooperation between the US and Europe. The USSR declined to participate in the Marshall Plan, and discouraged eastern European states in its sphere of influence from receiving American economic assistance.
- ⇒ In the 1946-49 Greek Civil War, the US and UK worked to thwart the Soviet-backed communist takeover of Greece. The western nations threw their weight behind Turkey as it stood up to Soviet pressure over control of the Bosphorus and Dardanelles Strait (which connect the Black Sea and Sea of Marmara, and the Sea of Marmara and Aegean Sea, respectively) and in 1947-48, the US committed itself to containing the communist uprisings in Turkey and Greece.
- ⇒ In 1948, Stalin's government sponsored a coup in (erstwhile) Czechoslovakia, which led to the installation of a communist regime in a country sharing borders with both Soviet-controlled East Germany and the pro-West West Germany.

- ⇒ In 1948-49, the Soviets blockaded West Berlin to force the US, UK, and France to give up their post-war jurisdictions in the country, leading to a major crisis and an 11-month airlift of supplies by Western countries to keep their part of the city going.
- ⇒ All these events led the US to conclude that an American-European alliance against the USSR was necessary. The Europeans too were convinced of the need for a collective security solution.

Formation of NATO:

- ⇒ In March 1948, the UK, France, Belgium, Netherlands and Luxembourg signed the Brussels Treaty of collective defence, which meant that if any of the signatories faced an attack, they would be defended by all the others.
- ⇒ A few months later, the US Congress passed the Vandenberg Resolution, a landmark action "advising the President to seek US and free world security through support of mutual defence arrangements that operated within the UN Charter but outside the Security Council, where the Soviet veto would thwart collective defence arrangements".
- ⇒ The Vandenberg Resolution was the stepping stone to NATO. The US believed the treaty would be more effective if it included, apart from the signatories of the Brussels Treaty, countries of the North Atlantic – Canada, Iceland, Denmark, Norway, Ireland, and Portugal.
- ⇒ From the American perspective, these countries were the links between the two shores of the Atlantic Ocean, and could help facilitate military action if it was needed.
- ⇒ The treaty was signed in Washington DC on April 4, 1949. It had 12 signatories initially: the US, UK, Canada, France, Denmark, Belgium, Norway, Portugal, the Netherlands, Italy, Iceland, and Luxembourg.

What is the significance of India's talks with NATO?

- ⇒ India's talks with NATO hold significance given that the North Atlantic alliance has been engaging both China and Pakistan in bilateral dialogue. There was a view here that given the role of China and Pakistan in India's strategic imperatives, reaching out to NATO would add a key dimension to India's growing engagement with US and Europe.
- ⇒ Until December 2019, NATO had held nine rounds of talks with China, and the Chinese Ambassador in Brussels and NATO's Deputy Secretary General engaged with each other every quarter.
- ⇒ NATO had also been in political dialogue and military cooperation with Pakistan; it opened selective training for Pakistani officers and its military delegation visited Pakistan in November 2019 for military staff talks.

- The first round of dialogue was finalised for December 12, 2019 by the Indian mission in Brussels after it received a draft agenda for the meeting from NATO.
- Upon receipt of the draft agenda, an inter-ministerial meeting was convened with representatives from the External Affairs and Defence ministries, and the National Security Council Secretariat.
- The government was of the view that engaging NATO in a political dialogue would provide India an opportunity to bring about a balance in NATO's perceptions about the situation in regions and issues of concerns to India.

Was there any common ground?

- In India's assessment, there was a convergence in the perspectives of both India and NATO on China, terrorism, and Afghanistan, including Pakistan's role in Afghanistan.
- From NATO's perspective, it was not China, but Russia whose aggressive actions continued to be the main threat to Euro-Atlantic security, and that NATO had faced difficulties to convene meetings of NATO-Russia Council due to Russian refusal to place issues such as Ukraine and Intermediate-Range Nuclear Forces Treaty on the agenda.
- Given the divergence among NATO countries, its view on China was seen as mixed; while it did deliberate on China's rise, the conclusion was that China presented both a challenge and an opportunity.
- In Afghanistan, NATO saw the Taliban as a political entity, which was not in line with India's stance. This was almost two years before the Taliban announced an interim government in Afghanistan in September 2021.
- However, the Indian side felt maritime security was a principal area of conversation in the future, given a substantial common ground with NATO.

India's view:

- In its first round of talks with NATO, India realised it did not share a common ground with the grouping on Russia and the Taliban. With NATO's views on China also mixed, given the divergent views of its members, India's Quad membership is aimed at countering Beijing.
- Otherwise, the alliance's engagement with China and Pakistan separately would leave it with lopsided perspectives on regional and global security matters of concern to India.

What are the next steps?

- On its part, the NATO delegation is learnt to have expressed keenness to continue engagement with India on a mutually agreed agenda. In NATO's view, India, given its geo-strategic position and unique perspectives on various issues, was relevant to international security and could be an important partner in informing the alliance about India's own region and beyond, sources said.

- The two sides also discussed a possible second round in New Delhi in 2020, which was delayed due to the Covid-19 pandemic.
- As far as India is concerned, it may consider proposals emanating from NATO, if any, on bilateral cooperation in areas of interest to India, based on the progress achieved in the initial rounds.
- While many say it is logical to follow up and formalise the talks, some caution because of sensitivities attached to the perception of NATO – seen by some as expansionist in nature.

55 YEARS OF THE ASSOCIATION OF SOUTHEAST ASIAN NATIONS (ASEAN)



Context:

- On 8 August 2022, ASEAN celebrated its 55th anniversary, which coincides with the 77th anniversary of the atomic bombings of Nagasaki.
- The ASEAN Ministerial Meeting (AMM) in August marked its anniversary with relative ease. Cambodia as chair restored credibility since it was under its chairmanship in 2012 that ASEAN saw no agreement at the AMM.

ASEAN: Through the years:

- ASEAN deserves praise for having manoeuvred through the dynamic changes in the international order since its inception. The ASEAN grouping was created in 1967 when the Vietnam War was at its peak.
- The Philippines and Thailand, ASEAN charter members were United States (US) allies through SEATO. They were apprehensive about the spread of communism and wanted to develop without being distracted by security concerns.
- They externalised their security largely to a US umbrella and built for themselves a region which could seek its social, cultural, and economic development.
- In 1984, Brunei post-independence joined the ASEAN five.

ASEAN Regional Forum:

- In 1989, ASEAN was somewhat challenged by the emergence of the Asia Pacific Economic Cooperation

(APEC). Though seven ASEAN countries are its members, it was not an ASEAN-centric body.

- ASEAN realised that security often played a detrimental role, affecting its objectives. Therefore, the first ASEAN-centric body with members from outside was established in 1994 when the ASEAN Regional Forum was formed. This remains the largest of the ASEAN-centric bodies, with 27 members.
- Following the creation of the ARF, in the next five years, Vietnam, Laos, Myanmar, and Cambodia joined ASEAN. Since 1999, no new country has joined, though Timor-Leste is eagerly waiting.

Indo-Pacific:

- ASEAN is in an important focal position in the Indo-Pacific as the entire contention over the South China Sea washes up on its shores. The transformation of a functional Asia-Pacific to a more strategic Indo-Pacific challenges ASEAN.
- In 2023, Indonesia will chair the G20, while Thailand will chair the APEC. The liberal functional approach asked ASEAN to periodically review its functioning and seek greater cohesion and efficacy.

Significant decisions:

- Among the significant decisions was the creation of the Treaty on Amity and Cooperation 1976, which was among its members and then open to all willing countries. It now has 43 adherents.
- In 2015, ASEAN created the Economic Community, Political Community, and Socio-cultural Community. Most ASEAN activity and with its partners is conducted through these pillars.
- ASEAN engagement with other ASEAN-centric bodies, like the East Asia Summit (EAS) also tries to model itself on these three aspects. The ASEAN secretariat is organised to focus on these through differentiated responsibilities.

Emerging challenges:

- However, over the last decade during which the American imprint on the region became lighter and the Chinese aggressive intent grew, ASEAN faced larger strategic and competitive attitudes of some of its partners.
- Since ASEAN lacked the wherewithal to engage in a power tussle, it devised its way to deal with the emerging China-US rivalry, the Quad, and AUKUS. ASEAN would very much like it if such a rivalry fades away because they would not want to choose sides.
- However, ASEAN believes that they can engage China, for instance, for two decades to seek a code of conduct in the South China Sea and not feel the need to seek rival support.
- Currently, the grouping faces similar issues like the rest of the world: The challenge of the pandemic, economic recovery, the impact of sanctions on Russia, and the resultant problems of the Ukraine crisis.

China-Taiwan crisis:

- The strong Chinese reaction regarding Taiwan coincided with the 55th ASEAN ministerial meeting and the attendant EAS and ARF meeting. Unsurprisingly, Taiwan overshadowed other aspects of the discussion.
- It was sufficiently concerned for a separate statement to be issued by the AMM on the cross-strait situation in which they sought peaceful negotiations to avoid miscommunications and miscalculations.
- The union is acutely aware that just as they were adversely impacted by the Ukraine crisis despite the geographical distance, a crisis in Taiwan can have a remarkable impact on the region which may then become closely aligned to the possible area of hostilities.

ASEAN Vision beyond 2025:

- ASEAN works towards keeping a strategic autonomy which includes keeping silent on things it believes will rile some of its friends.
- However, as the world drifts towards bipolarity between the US and China, ASEAN should be aware that a multipolar world is more conducive to their model of cooperation, just as it is for India and others. Strategic autonomy has a larger validity in a multipolar world.
- To handle the uncertainties, members of the High-Level Task Force, are seeking an ASEAN Vision beyond 2025. By the end of 2022, the task force will present an idea of the common vision of ASEAN 2025–2035.

ASEAN and India:

- India and ASEAN are also marking the 30th anniversary of their dialogue partnership. The special India–ASEAN Foreign Ministers meeting in June showed considerable cohesiveness between Indian and ASEAN positions.
- ASEAN is increasing its partnerships and has added the UK as its 11th dialogue partner in 2021 and in 2022, Brazil and the United Arab Emirates (UAE) have been brought in as sectoral partners.
- ASEAN has Sectoral Dialogue Partnerships with Norway, Switzerland and Türkiye, as well as Development Partnerships with Chile, France, Germany, and Italy.

India- ASEAN Cooperation:

- India and ASEAN can cooperate more closely towards an economic and functional relationship which can deal with all the current issues while trying to keep the increasing strategic polarisation out of the matrix. India's Act East Policy has balanced the engagement through the three pillars and increased defence economic and cultural engagement substantively.
- India–ASEAN trade and FDI are both expanding and need not compete with ASEAN's similar engagement with others particularly Japan, Korea, and China.

- ASEAN should recognise that India is seeking a partnership with them, not a donor relationship. A partnership implies mutual responsibilities. India is a consistent supporter of ASEAN cohesiveness and places faith in its centrality. International dynamics requires ASEAN to do more by itself for its unity and to manifest its centrality.
- In November, at the India-ASEAN summit, the likelihood of India being accorded the status of a comprehensive strategic partner is high. Among the most important things to pursue is resilient value chains which India and ASEAN can develop, keeping in view the ASEAN- India Trade in Goods Agreement that is now due for review.

Future roadmap for India- ASEAN engagement:

- Several ASEAN countries have similar problems as India. In this, the role of impact investment to achieve the SDGs could be considered since this is a private sector initiative and works well in triangular situations as well.
- Of particular interest would be the health sector where public health and covering last mile connectivity for it can be usefully dealt with under such investments.
- Protection of children is another important area since India and many ASEAN countries have youthful populations and a large number of children. Protecting children and their rights, ensuring their education and health and making them good citizens will be major contributions to the future of the region.
- These things can be done outside direct government engagement. An India-ASEAN Wise People’s Group to complement the High-Level Task Force (HLTF) should look at the next five years on challenges of public health, digital vision, economic and social impact, and achieving the SDGs. It should be convened on a Track 1.5 basis.
- This will bring in the vitality of the private sector, the civil society and India’s exemplary government programmes which can be an important model for several partners in ASEAN.

Context:

- The conflict between Armenia and Azerbaijan over Nagorno-Karabakh has been at the centre of three major wars and multiple clashes for decades.
- The recent flare-up began after Azerbaijan claimed that it had captured the territory in Karabakh in a retaliatory campaign, after an Armenian attack killed one Azerbaijani soldier.

Details:

- The Nagorno-Karabakh conflict remains stalemated despite the several ceasefire agreements reached in the past. Both Baku and Yerevan claim absolute historic ownership of the region which is located within the boundaries of Azerbaijan but is populated largely by ethnic Armenians.
- Following Azerbaijan’s announcement of capturing Karabakh, the military in Nagorno-Karabakh disputed the claim and accused Azerbaijan of killing two soldiers, declaring a “partial mobilisation” in response to the clash.
- Armenia has called on the international community to help stop Azerbaijan’s “aggressive actions” claiming that it continues its “policy of terror” against the population of Nagorno-Karabakh.
- Russia has also accused Azerbaijan of breaking the ceasefire agreement of 2020 and claimed that it was “taking measures to stabilise the situation” with Armenian and Azerbaijani representatives.

What does the 2020 agreement say?

- The nine-point agreement of November 10, 2020 was signed by Armenian Prime Minister Nikol Pashinyan, Azerbaijani President Ilham Aliyev, and Russian President Vladimir Putin.
- The agreement imposed an immediate ceasefire, a timeline for withdrawal from Azerbaijan’s occupied regions, the introduction of Russian peacekeepers, and the need for new transport corridors.
- However, this failed to initiate a peace agreement because it altered the power balance between the two countries and lacked clarity on several issues resulting in the subsequent ceasefire violations on both sides.

Why are ceasefire agreements not working?

- The recurring ceasefire violations have been triggered due to several unresolved issues. The major issues include delimiting the border between the two countries, the nature of new transportation corridors in the region, and the future of Nagorno-Karabakh and its current ethnic Armenian population.

Border issue:

- First, the issue of delineating the shared international border. Following the 2020 agreement, a substantial amount of territory was handed over from Armenian Karabakh to Azerbaijan making the once soft border between Armenia and Nagorno-Karabakh, a hard international border.

AZERBAIJAN-ARMENIA CONFLICT OVER NAGORNO-KARABAKH



- However, Armenia and Azerbaijan have never agreed upon a boundary between them in the past and the 2020 ceasefire statement did not make it clear on how exactly the border should be drawn out.

Transport routes:

- The overland route that goes from Stepanakert (a city within the Nagorno-Karabakh region) to Armenia has become an issue between the two countries.
- The 2020 agreement states that the parties should build an alternative road within three years, after which the Russian peacekeepers deployed along the current route would relocate to the new one.
- Presently, there is only one road which is the Lachin corridor, which runs past the outposts through Azerbaijan's mountainous Lachin region to Shusha, which Azerbaijani forces retook in the 2020 war.
- The construction of the road would allow Azerbaijan to take back control of Lachin city and surrounding areas. However, Azerbaijan has accused Armenia of stalling operations of laying its several-kilometre section of the new road.

Status of Nagorno-Karabakh:

- The ethnically Armenian enclave of Nagorno-Karabakh, which is also known as the Republic of Artsakh, has expressed frustration over Armenia's willingness to make concessions to Azerbaijan as part of a larger prospective peace settlement. While Armenia supports the aspirations for independence of Nagorno-Karabakh, Azerbaijan seeks to preserve its national and territorial integrity.
- According to the 2020 agreement, point one claims that the parties to the conflict must "stop in their current positions" while point four states that the Russian peacekeeping forces would be deployed concurrently with the withdrawal of the Armenian troops.
- However, the two sides interpret these points differently with Armenia stating that the first point allows them to keep their forces in Karabakh and that they have complied with the fourth point by withdrawing armed forces from the seven Azerbaijani districts around Karabakh.
- Conversely, Azerbaijan says that Armenian forces should have withdrawn from Karabakh as soon as the Russians were deployed on the ground, arguing that the force is illegal and has urged the Russian peacekeepers to disarm it.

Exchange of prisoners:

- According to the eighth point, the two sides were to exchange prisoners of war, hostages and other detained persons, and dead bodies.
- While there has been a series of prisoner exchanges in the last two years, the Azerbaijan side still has many captives while Armenia has just a few.

What is Russia's role?

- The presence of Russian peacekeeping forces in the region has also become a matter of concern.
- According to the 2020 agreement, the Russian peacekeeping forces are to be deployed for five years making it the first time Russian troops were deployed on the ground in almost thirty years. However, their mandate is yet to be defined, questioning their presence in the region.
- Additionally, the frustration over the peacekeeping forces has intensified due to their inaction in stopping ceasefire violations.

Will the ceasefire hold?

- While the 2020 agreement has the potential to open opportunities for new transport connections and economic cooperation, the discord between Armenia and Azerbaijan would hinder this process. Further, the agreement has been criticised for being biased.
- Apart from this, the agreement also fails to address unresolved issues between the two countries. Thus, until these lacunae are filled the recurring ceasefire violations are likely to continue.

60 YEARS OF DIPLOMATIC RELATIONS WITH THE EUROPEAN UNION (EU)



Context:

- While India celebrates its 75th year of Independence, it also celebrates 60 years of diplomatic relations with the European Union (EU).

Timeline:

- A cooperation agreement signed in 1994 took the bilateral relationship beyond trade and economic cooperation. The first India-EU Summit, in June 2000, marked a watershed in the evolution of the relationship.
- At the fifth India-EU Summit in 2004, the relationship was upgraded to a 'Strategic Partnership'.
- The two sides adopted a Joint Action Plan in 2005 towards strengthening dialogue and consultation mechanisms in the political and economic spheres, enhancing trade and investment, and bringing peoples and cultures together.

15th India-EU Summit:

- The 15th India-EU Summit, in July 2020, provided a common road map to guide joint action and further strengthen the partnership over the next five years.
- The road map highlights engagement across five domains: foreign policy and security cooperation; trade and economy; sustainable modernisation partnership; global governance; and people-to-people relations.

Areas of cooperation:

- Bilateral trade between the two surpassed \$116 billion in 2021-22. The EU is India's second largest trading partner after the U.S., and the second largest destination for Indian exports.
- There are 6,000 European companies in the country that directly and indirectly create 6.7 million jobs. Beyond the economic partnership, India and the EU have several avenues of collaboration.
- For example, the 'green strategic partnership' between India and Denmark aims to address climate change, biodiversity loss and pollution, and the India-Nordic Summit in May focused on green technologies and industry transformation that are vital for sustainable and inclusive growth. All this will act as a catalyst for enhanced cooperation between the two regions.

Defence sector:

- Cooperation with the EU in the defence sector has also increased substantially. This is critical for India at this juncture, to reduce its hardware dependence on Russia in the backdrop of the Ukraine conflict and seek diversification of its armament imports from other regions with latest technologies in wake of its confrontation with China.
- India and the EU regularly conduct joint military and naval exercises which reflects on their commitment to a free, open, inclusive and rules-based order in the Indo-Pacific.
- The first maritime security dialogue between the two in 2021 focused on cooperation in maritime domain awareness, capacity-building, and joint naval activities.
- France's on-time delivery of 36 Rafale fighter jets and willingness to offer Barracuda nuclear attack submarines to the Indian Navy reflects the growing level of trust in their relationships.
- Leading European defence equipment manufacturers are willing to partner with Indian companies for defence projects aligned with the 'Make in India' programme.

Innovation ecosystem:

- Another rapidly growing area of engagement is the start-up and innovation ecosystem across India and Europe. Furthermore, the Science and Technology Joint Steering Committee between the two focus on areas such as healthcare, Artificial Intelligence, and earth sciences.

- In 2020, there was an agreement for research and development cooperation in the peaceful uses of nuclear energy between the European Atomic Energy Community and the Government of India.

Challenges:

Russia:

- Both have differing opinions and divergent interests in some areas. India's reluctance to explicitly condemn Russia's intervention in Ukraine, and the country's increasing economic cooperation with Russia, has been one area of disagreement.
- India has called out the EU's double standards on the same, for the EU purchases 45% of its gas imports from Russia in 2021.

China:

- There is also ambiguity on the EU's strategy in tackling the rise of China. Its muted response during the Galwan clash is a case in point.
- India's economic, political and demographic weight could be deftly leveraged by the EU to counterbalance China's influence across the region. But there seems to be some hesitancy about this.

Way Forward:

- India and the EU should not let such divergences of views overwhelm the many areas of convergence among them. The proactive resumption of the ambitious India-EU free trade and investment agreement in 2021 is a step in the right direction.
- European partners acknowledge India as an important pillar in ensuring stability in the Indo-Pacific region. The EU wants to be more than just a trading bloc and is seeking alliances with like-minded countries like India.

INDIA-CHINA BORDER DISPUTE



Context:

- Historical legacy, combined with the expansionist agenda of China, has not only resulted in continuing border dispute between India and China but also lack of clarity on the Line of Actual Control (LAC).

Background:

- The term LAC, which was first coined by former Chinese premier Zhou Enlai in his 1959 letter to Jawaharlal Nehru, was accepted by India as late as 1991, followed by the agreement of Peace and Tranquility signed in 1993.
- The current day LAC is quite close to the Chinese-claimed borders, which is a huge disadvantage to India.
- India has insisted that China must revert to physical locations held as of September 8, 1962, and that it should be held as the basis for delineation of the LAC, while negotiations can continue on final settlement of the border.

What is the real issue surrounding delineation of the LAC?

- The delineation of the LAC has also not been done based on the accepted norms of control as mentioned in the 1993 agreement. This has resulted in the existence of a number of areas of differing perceptions all across the LAC which is the primary cause of conflict.
- Not only this, China has been altering its claim lines multiple times and trying to push them more towards India, thus clearly manifesting its salami slicing on the lines it did in the maritime domain. It has even changed its documented stance and has been looking for justifications for the conflict escalation.
- China should not have developed infrastructure in the Indian-claimed areas. Leave aside this, had it been a good neighbour, it should not have built infrastructure in the areas of differing perception. The infrastructure is being developed at an unprecedented pace by China in these areas. These are potential sovereignty markers which will be a restricting factor for future negotiations.
- While troops of both sides are face-to-face with each other, including the deployment in the depth areas, the discussions so far have failed to prevent the current Chinese incursions along the LAC in eastern Ladakh.
- Not only have higher-level military talks failed to break the deadlock, the political engagements at the level of foreign ministers and defence ministers also have not been able to resolve the current flare-up. The enhanced air activity beyond the specified limits are indirect declarations for future conflict escalation.

India's claim:

- India and China had Tibet between them. Therefore, the boundary between India and Tibet would have been a relevant border between India and China even after the forceful capture of Tibet by Beijing.
- India claims the length of border as 3,488 kms whereas China claims only 2,000 kms as it excludes Aksai Chin as part of the Indian border, in addition to the marginal differences in some other areas.

Sectoral division:

- The India-China border can be divided into three areas - western sector, middle sector, and eastern sector.

Western sector:

- This sector comprises the area between Ladakh to Tibet and the Kunlun mountain range and also extends from Wakhan (Afghanistan edge) to the Karakoram Pass, thereafter following the alignment of the Kunlun mountain range.
- The border length of the western sector is 1,597 kms. India's claim is based on the Treaty of 1842 which was signed between the representative of Maharaja Gulab Singh, former ruler of J&K, with Lama Gurusahib of Lhasa and the representative of the Chinese emperor.
- It needs to be understood that China was ruled by the Qing dynasty till 1911 before it was replaced by Chinese nationalists led government, called the Republic of China (ROC) in 1912. In 1949, power shifted to the People's Republic of China (PRC).
- The 1842 treaty line was further modified as the Johnson-Ardagh line of 1897. It is this alignment which is the basis of the Indian-claimed border and was formally stated in 1954.
- Though China was not a signatory of this line (in any case, it was not a treaty), it used this alignment even beyond 1933 in various official and unofficial communications. This was de-facto acceptance of this line which puts the entire Aksai Chin as part of India being a successor state of British India.
- The British were primarily concerned with their own interests and wanted to checkmate the growing Russian influence as part of the Great Game. The British propounded the Kunlun mountain range as the eastern border with Tibet while they drew the Durand Line with Afghanistan as their western border in 1893.

Changing British stance:

- The western sector has been a witness of the changing British stance wherein, in 1899, they drew a fresh line as border alignment, known as the Macartney-McDonald Line that excludes the Aksai Chin. China has been claiming their borders based on this alignment.
- The British changed their stance again in 1905 and 1912 and accepted the Ardagh Line of 1897 as a boundary. But no formal intimation was given to China. However, China used this alignment from 1897 as late as post 1930, which is indicative of its acceptance of this line.
- By all standards, this area is the most challenging task for the border negotiations. The China-Pakistan collusivity, Karakoram highway, CPEC corridor and the renewed infrastructure development with increased settlement of the civil population has further reduced the flexibility of negotiations.

- China Land Border Law, which came into effect on January 1, 2022, has already changed the tenets of territorial disputes to sovereignty disputes.

Middle Sector:

- This comprises the states of Himachal Pradesh and Uttarakhand. This is the least disputed sector and covers 545 km of Indian borders. Except for the larger claim of China in the Barahoti sector in Uttarakhand, other claims and counterclaims are miniscule.
- These areas have higher chances of both the LAC and the International Border being delineated.
- But the Chinese approach to go for a final boundary settlement in one go has come as a stumbling block as it has been attempting to seek major concessions in the western sector in lieu of acceptance of the McMohan Line in the eastern sector.
- China is also undertaking fast-paced infrastructure development opposite these areas. India also needs to develop credible and quality roads up to the passes besides laterally connecting them.

Eastern Sector:

- The eastern sector conventionally refers to Sikkim and Arunachal Pradesh, but both these states have Bhutan separating them. Though Sikkim has a land border of only 220 km and has been witness to both the 1962 as well as 1967 Nathula-Chola conflicts, the situation has normalised a lot after it joined the Indian state on May 16, 1975.
- With ambassadorial relations restored with China in 1976, this border of Sikkim has been relatively peaceful. China finally recognised Sikkim as part of India in 2003 in a reciprocal statement by India to re-emphasise Tibet being part of China.
- Though there are some areas of conflict between India, China and Bhutan, this area also has huge potential for settlement of the border as well as LAC. An understanding with Bhutan will also be essential for the resolution.

Arunachal Pradesh:

- Areas opposite Arunachal Pradesh and others also have huge historical baggage. They relate to the dispatch of a British expeditionary force under Francis Younghusband in 1903-04 which resulted in the Aglo-Tibetan Treaty of 1904. This treaty had indicated unease in China's Qing dynasty, but nothing was done as it had started weakening.
- Direct discourse between the British and Tibetans continued till 1908. In 1911, in the last year of the Qing dynasty, Tibetans revolted and asked for British intervention.
- A tripartite conference was held at Shimla between the representatives of British India (McMohan), Tibet and China. Deliberation commenced in November 1913 and the McMohan Line was drawn and initialed by all the three representatives in the draft document on April 27, 1914. This document was not formally

signed by Chinese representatives in the main document.

- The land border, as per this line, covers a length of 1,126 km. This document was finally signed by Britain and Tibet on July 3, 1914.
- The border in Arunachal Pradesh, as per the McMohan Line, has been a part of China's formal offer for border settlement but not by itself. It has been proposed only in lieu of seeking a concession in the Aksai Chin area in Ladakh. The LAC also has a large number of areas of differing perceptions which remain a cause of regular skirmishes or local conflicts.
- China has made large encroachments in this area and a fair number of them during the 1962 war. It has also established Wangdung camp south of Samdurong Chu on the Indian side, which led to a major response by India in 1987. While India has improved its forward positions in a number of areas, Wangdung camp continues to be under Chinese occupation.

Way Forward:

- India-China have historical legacies to their border dispute. A unilateral war launched by China in 1962 and activities thereafter have led to mutual distrust.
- No success has been achieved even after 73 years of the People's Republic of China assuming the current form of government either on LAC alignment or on the border issue.
- The expansionist agenda of China has reached new crescendos with LAC incursions in Ladakh, which is also not getting resolved as Beijing is not agreeing to go back to April-May 2020 positions.
- The stance is similar wherein it did not go back to the September 8, 1962 positions for delineation of LAC. Only an empowered and capable India with a pragmatic approach can resolve the border issue with China.

INDO-U.S. MARITIME PARTNERSHIP IS STILL A WORK IN PROGRESS



Context:

- The docking of the USNS Charles Drew, a United States Navy dry cargo ship, for repairs at an Indian facility in Chennai last week, marks an important first in the India-U.S. military relationship.

- Although bilateral strategic ties have advanced considerably over the past decade, reciprocal repair of military vessels was still a milestone that had not been crossed.
- With the arrival of Charles Drew at the Larsen and Toubro (L&T) facility at the Kattupalli dockyard, India and the U.S. seem to have moved past a self-imposed restriction.

Functional implication:

- During the bilateral 2+2 dialogue held in April 2022, the two countries agreed to explore the possibilities of using Indian shipyards for the repair and maintenance of ships of the U.S. Military Sealift Command (MSC). After the meeting, the MSC carried out an exhaustive audit of Indian yards, and cleared the facility at Kattupalli for the repair of U.S. military vessels.
- The docking of a U.S. military vessel at an Indian facility has both functional and geopolitical implications.
- Functionally, it signals a more efficient leveraging of the Logistics Exchange Memorandum of Agreement (LEMOA), the military logistics agreement India signed with the U.S. in 2017. Thus far, India-U.S. cooperation under the pact had largely been confined to the exchange of fuel and stores during joint exercises and relief operations.
- With the arrival of a U.S. military vessel at an Indian dockyard, the template of logistics cooperation seems to have broadened. There is a good possibility now that India would seek reciprocal access to repair facilities at U.S. bases in Asia and beyond.
- Many in India, meanwhile, are seeing the U.S. ship's docking as a global endorsement of Indian shipbuilding and ship-repair capabilities.

Boost for 'Atmanirbhar Bharat' and 'Make-in-India':

- In recent years, India has sought to showcase its private shipyards, in particular the L&T, which has developed significant ship design and construction capability at its yards in Hazira (Gujarat) and Kattupalli.
- At a time when the Indian Navy has taken delivery of the INS Vikrant, the country's first indigenously constructed aircraft carrier, the spirits of Indian shipbuilders are already riding high.
- As Indian observers see it, the presence of the USNS Charles Drew in an Indian dockyard is a boost for 'Atmanirbhar Bharat' and 'Make-in-India'.

The political signal:

- Politically, it signals a consolidation of the India-U.S. partnership, and the Quadrilateral (India, Japan, Australia and the United States) Security Dialogue.
- Despite its intention to strengthen logistics exchanges among Quad members, India has desisted from offering foreign warships access to Indian facilities.

- Notwithstanding the odd refuelling of foreign warships and aircraft in Indian facilities, India's military establishment has been wary of any moves that would create the impression of an anti-China alliance.
- Yet, Indian decision makers evidently are willing to be more ambitious with the India-U.S. strategic relationship. India's decision to open up repair facilities for the U.S. military suggests greater Indian readiness to accommodate the maritime interests of India's Quad partners.

Strategic implications for U.S.

- For U.S., the strategic implications of the docking in India are no less tangible. This is an incremental step forward in the U.S. moving to bolster its military presence in the Eastern Indian Ocean.
- Recent assessments of the evolving security picture in the Indian Ocean point to the possibility of China's military expansion in the Asian littorals, holding at risk U.S. and European assets.
- Reportedly, the North Atlantic Treaty Organization (NATO) has been readying to play a more active security role in the region. India's offer of repair services for U.S. military vessels could kickstart a process that would culminate in India opening up its naval bases for friendly foreign warships.
- At a time when India has shied away from backing the U.S. position in the Russia-Ukraine war, greater India-U.S. synergy in the Indian Ocean littorals could galvanise the supporters of closer bilateral ties.
- It would revive talk about the bilateral as a defining partnership in the Indian Ocean, and of India's potential to counter China in the Indian Ocean.
- Coming on the heels of the delivery of the first two U.S. manufactured MH-60R (Multi Role Helicopters) to India, the visit of the USNS Charles Drew has given Indian and U.S. observers much to be optimistic about.

Combined Maritime Forces Cooperation:

- Meanwhile, the Indian Navy has formally commenced its cooperation with the Bahrain-based multilateral partnership, Combined Maritime Forces (CMF), as an 'associate member'.
- This comes months after India had announced its intention to join the grouping in furtherance of its regional security goals. India's political and military leadership is seeing this as a demonstration of Indian commitment towards the collective responsibility of ensuring security in the shared commons.
- The India-U.S. relationship is still some way from crossing a critical threshold. For all the hype in the media surrounding India's membership of the CMF, the modalities of the engagement are still being worked out. The Indian Navy, it seems, has stopped short of formally joining the group, of which the Pakistan Navy is a key member.

➤ Despite increased engagement with the U.S. Navy, India's liaison officer at the U.S. Navy component (NAVCENT, or the U.S. Naval Forces Central Command) in the U.S. Central Command (CENTCOM) is still the military attaché at the Indian Embassy in Bahrain.

Limited in scope now:

- Even with the docking of the U.S. vessel at Kattupalli, Indian analysts ought to recognise that the U.S. military sealift command has no warships.
- The MSC is charged with delivering supplies to U.S. bases, and deals only with transport vessels of the U.S. Navy. The agreement with India for the repair of U.S. military vessels is limited to cargo ships.
- U.S. decision makers are unlikely to seek Indian facilities for repair and replenishment of U.S. destroyers and frigates in the near future until New Delhi is clear about the need for strategic cooperation with the U.S. Navy.

Way Forward:

- By many accounts, then, the India-U.S. maritime relationship remains a work in progress. There has doubtless been some movement ahead, but it is far from clear whether navy-to-navy ties are headed towards a wide-ranging and comprehensive partnership in the Indian Ocean littorals.

INDIAN BUREAUCRAT APPOINTED TO INAUGURAL INTERNET GOVERNANCE FORUM LEADERSHIP PANEL



Why in news?

- Secretary in the Ministry of Electronics and Information Technology Alkesh Kumar Sharma is among 10 eminent persons from around the world appointed by UN Secretary General Antonio Guterres on his inaugural Internet Governance Forum (IGF) Leadership Panel.

What is Internet Governance Forum (IGF) Leadership Panel?

- In line with the mandate of the IGF and as recommended in the Secretary-General's Roadmap for Digital Cooperation, the Secretary-General has established the Panel as a strategic, empowered, and multistakeholder body to support and strengthen the IGF.

➤ The Panel will address strategic and urgent issues and highlight Forum discussions and possible follow-up actions, in order to promote greater impact and dissemination of IGF discussions according to its Terms of Reference.

Composition:

- The 10 members of the Panel have been appointed by the Secretary-General following an open call for nominations, and in line with an equitably distributed, multistakeholder configuration of ministerial-level Government representatives, executive-level representatives of the private sector, civil society and the technical community, as well as "at-large" prominent persons in the field of digital policy.
- In addition, the Panel consists of five ex-officio members, including Secretary-General's Envoy on Technology Amandeep Singh Gill as well as senior representatives of the current, immediately previous, and immediately upcoming IGF host countries.
- They will serve a two-year term during the 2022-23 IGF cycles

Tunis Agenda:

- The IGF is an outcome of the Tunis phase of the World Summit on the Information Society that took place in 2005.
- In the Tunis Agenda, Governments asked the Secretary-General to convene a "new forum for policy dialogue" to discuss issues related to key elements of Internet governance.
- The mandate of the Forum was extended for another 10 years in December 2015, during the high-level meeting of the General Assembly on the overall review of the implementation of the World Summit on the Information Society outcomes.
- The 17th edition of the Forum will take place from November 28 to December 2 in Addis Ababa, Ethiopia.

IMPACT OF FIFA SUSPENSION ON INDIAN FOOTBALL

Why in news?

- Recently, world football's governing body FIFA suspended the All India Football Federation (AIFF) indefinitely for "undue interference by a third party" in the process to finalise a new constitution and elect office-bearers.

Committee of Administrators (CoA):

- The third party in question was the Supreme Court of India-appointed Committee of Administrators (CoA), comprising Justice (retd.) Anil Dave, former Chief Election Commissioner S.Y. Quraishi and former Indian football captain Bhaskar Ganguly, formed in May to temporarily assume charge of AIFF after the previous establishment, led by president Praful Patel, was deemed to have overstayed the National Sports Development Code of India-mandated 12-year tenure.

- If AIFF's suspension is not revoked in time, India will lose the rights to host the U-17 Women's World Cup in October.



What constitutes undue interference?

- International sports federations like FIFA view any governance structure where an unelected body wields power at a national sports federation like AIFF as third-party interference.
- In exceptional cases where such a body, in the present case, the CoA, takes charge, it is required to play a temporary, enabling role in line with the statutes of the international body.
- Ever since the CoA presented the draft constitution to FIFA on July 13, the latter has suggested multiple changes. Chief among them was a repeal of CoA's decision to give players and State associations equal representation (50%) in the electoral college (36 votes each).
- The Sports Code mandates a minimum of 25% representation for players in decision-making
- FIFA also took issue with the move to elect an interim body for three months just for the conduct of the World Cup, while the constitution is finalised parallelly.

How did the CoA react?

- The CoA expressed "surprise and disappointment" that FIFA's decision had come even as extensive discussions were ongoing between FIFA, CoA and the Union Sports Ministry.
- The CoA said it was agreeable to conduct elections with an electoral college consisting of just 36 State representatives and give players representation as nominated members in the Executive Committee as desired by FIFA.
- The CoA also assured FIFA that the interim Executive Committee would function independently and will not be supervised by the former.
- However, the electoral college after the FIFA suspension was announced, had as many as 69 members, including 36 players. It is understood that changes to the draft constitution to bring it in line with FIFA recommendations will need the Supreme Court's nod.

What are the repercussions of the suspension?

- While the biggest threat is to the conduct of the U-17 Women's World Cup, Gokulam Kerala FC not being

allowed to play in the ongoing AFC Women's Club Championship in Uzbekistan is the first significant blow.

- ATK Mohun Bagan's participation in the AFC Cup (September 7) is also in doubt, so are India's scheduled international friendlies against Vietnam and Singapore next month.
- Developmental funding from FIFA and the Asian Football Confederation will stop. Indian clubs cannot sign foreign players and Indian officials will not be eligible for international assignments.

Will the court intervention set a precedent for other sports in India?

- In 2022 alone, table tennis, hockey and judo have been placed under court-appointed CoAs for not following the Sports Code.
- A day after AIFF's suspension, the Delhi High Court brought the Indian Olympic Association (IOA) under a CoA.
- But the Supreme Court ordered a status quo after the Union government stated that the International Olympic Committee could see the development as "third-party interference".

Will it change future sports governance models in the country?

- Regardless of the turn each of the above cases take, there is an underlying acceptance in the Indian sports administration fraternity that adherence to the Sports Code is non-negotiable. Whether courts should intervene is a matter for debate.
- But both FIFA and FIH (world hockey's governing body) did not object to court-appointed committees. FIFA had a problem only with the terms of reference. FIH, on the other hand, was welcoming and went to the extent of saying, "the order of a court is not an interference."

NEPAL'S NEW CITIZENSHIP LAW



Context:

- Recently, Nepal President Bidhya Devi Bhandari sent back the Citizenship Amendment Act, 2006 to the Pratinidhi Sabha (House of Representatives), the lower house of the Nepal Parliament, urging the members to reconsider the Act.

➤ Ahead of the election season, this clash between the President and the Pratinidhi Sabha has ignited a heated debate over the question of citizenship in Nepal.

What is the issue of citizenship in Nepal about?

- Nepal transitioned into a democracy beginning with the fall of the monarchy in 2006 and the subsequent election of the Maoist government in 2008. The emergence of the multiparty system was followed by the adoption of a constitution on September 20, 2015.
- All Nepalese citizens born before this date got naturalised citizenship. But their children remained without citizenship as that was to be guided by a federal law which has not yet been framed.
- This amendment Act is expected to pave the way to citizenship for many such stateless youth as well as their parents.

What are the issues with the Act?

- The main criticism against the Citizenship Amendment Act, 2006 is that it goes against established parameters of gender justice. A cursory reading also reveals contradictions among various sections of the law.
- According to Article 11(2b), a person born to a father or a mother with Nepalese citizenship can get citizenship by descent.
- Article 11(5) of the constitution says a person who is born to a Nepalese mother (who has lived in the country) and an unidentified father will also get citizenship by descent. But this section appears humiliating for a mother as she has to declare that her husband is unidentified for the child to be eligible for citizenship. In case of a Nepalese father, such declarations are not required.
- Article 11(7) which says that a child born to a Nepalese mother and a father holding a foreign citizenship can get "naturalised citizenship" in accordance with the laws of Nepal appears to contradict Article 11(2b). It places a condition of permanent residency on the mother (and the child) which will determine the grant of citizenship for the child.

Why has the President refused to sign the Act?

- Ms. Bhandari is the first female President of Nepal. Her refusal to sign the Act has drawn attention to certain sections in the constitution that thrusts greater responsibility on women.
- For example, Article 11 (5) says that a person who is born to a Nepalese mother and an unidentified father can be granted citizenship by descent.
- Next, it says that in case the unidentified father turns out to be a foreigner, the citizenship by descent would be converted to naturalised citizenship.
- Furthermore, it supports punitive action against the mother if the father is found later.

Why has the amendment been framed thus?

- There is an unarticulated concern in the orthodox sections of the country that as Nepalese men, particularly from the Terai region, continue to marry women from northern India, Nepalese identity would be undermined.
- Because of this "Beti-Roti" (Nepalese men marrying Indian women) issue, many women could not become citizens of Nepal as they were subjected to the infamous seven-year cooling off period before they could apply for citizenship in Nepal.
- As such women were stateless, children of such families were also often found to be without Nepalese citizenship. However, the new amendments have done away with the cooling off period for these stateless women. This will benefit the children of such families where the mother and children remained stateless for years.
- This has however created a division among the major political parties. The Communist Party of Nepal (Unified Marxist-Leninist) wanted to retain the cooling off period while the ruling Nepali Congress and the Maoist party of Pushpa Kamal Dahal Prachanda supported the removal of the cooling off period.
- It is understood that the Prime Minister of Nepal will go to the upcoming polls with the Act as the achievement of his government despite opposition from President.

What is the road ahead for the Act?

- Nepal Citizenshipless Struggle Committee held a protest in Kathmandu demanding that President Bhandari should ratify the Act that was passed again by the Pratinidhi Sabha for the second time.
- They argue that women of Indian origin, who were deprived of rights because of the cooling off period and bureaucratic procrastination, and their children will be stuck in a stateless condition if the Act is not recognised by the President's office.

REINVIGORATING THE CHABAHAR PORT

Why in news?

- Recently, the Union government has shown its interest in using Iran's Chabahar port to connect to Afghanistan and Central Asia for trade, with the visit of the Union Minister of Ports, Shipping & Waterways Sarbananda Sonowal to the port.

Why is Chabahar back in the news?

- During the Chabahar visit, he reviewed the progress in the work on the terminal and handed over six mobile harbour cranes "to improve efficiency" and "invigorate the potential of Chabahar" in the loading and unloading operations at the port.
- It was hoped that the visit would be a chance to "strengthen ties and the maritime relationship" between the two countries.



What is India's strategic vision for Chabahar?

When the first agreement for Chabahar was signed by then Prime Minister Atal Bihari Vajpayee in 2003, the plan had a three-fold objective:

- to build India's first offshore port and to project Indian infrastructure prowess in the Gulf;
- to circumvent trade through Pakistan, given the tense ties with India's neighbour and build a long term, sustainable sea trade route; and
- to find an alternative land route to Afghanistan, which India had rebuilt ties with after the defeat of the Taliban in 2001.

Zaranj -Delaram Highway:

- Subsequently, Prime Minister Manmohan Singh's government constructed the Zaranj -Delaram Highway in Afghanistan's South, which would help connect the trade route from the border of Iran to the main trade routes to Herat and Kabul, handing it over to the Karzai government in 2009.

Developments after 2016:

- In 2016, Prime Minister Narendra Modi travelled to Tehran and signed the agreement to develop Chabahar port, as well as the trilateral agreement for trade through Chabahar with Afghanistan's President Ashraf Ghani.
- Since the India Ports Global Chabahar Free Zone (IPGCFZ) authority took over the operations of the port in 2018, it has handled 215 vessels, 16,000 TEUs (Twenty-foot Equivalent Units) and four million tons of bulk and general cargo.
- In the last few years, a fourth strategic objective for the Chabahar route has appeared, with China's Belt and Road Initiative making inroads in the region.
- The government hopes to provide Central Asia with an alternate route to the China-Pakistan Economic Corridor (CPEC) through Iran for future trade
- It is India's vision to make the Shahid Beheshti port "a transit hub" and link it to the International North South Trade Corridor (INSTC), that also connects to Russia and Europe.

Why is the Chabahar dream taking so long to realise?

- Since the beginning, the development of the Shahid Beheshti terminal in Chabahar as well as surrounding infrastructure has hit geopolitical road-block after road-block; the biggest issue has been over Iran's relationship with western countries, especially the United States.
- In years when western sanctions against Iran increased, the Chabahar project has been put on the back-burner, while in the years when nuclear talks that resulted in the Joint Comprehensive Plan of Action (JCPOA) in 2015 came into being, the Chabahar port has been easier to work on.
- In 2018, the U.S. Trump administration put paid to India's plans by walking out of the JCPOA and slapping new sanctions on dealing with Iran. This led to the Indian government "zeroing out" all its oil imports from Iran, earlier a major supplier to India, causing a strain in ties.
- Despite the fact that the U.S. made a special "carve-out" on sanctions for Chabahar, on the ground, it has been difficult to source equipment for the port construction from infrastructure companies that continue to fear secondary sanctions, as well as to engage shipping and insurance companies for trade through Chabahar.
- The India government also snapped ties with Afghanistan after the Taliban takeover in August 2021, which put an end to the humanitarian aid of wheat and pulses that was being sent to Kabul via Chabahar. When India restarted wheat aid to Afghanistan in 2022, it negotiated with Pakistan to use the land route instead.

Way Forward:

- With the government now reopening the Indian Embassy in Kabul, and establishing ties with the Taliban government, it is possible that the Chabahar route will once again be employed, another reason for the recent flurry of activity at the Iranian port terminal that India has pinned so many hopes on.

ECONOMY

THE RBI'S LATEST HIKE IN REPO RATE

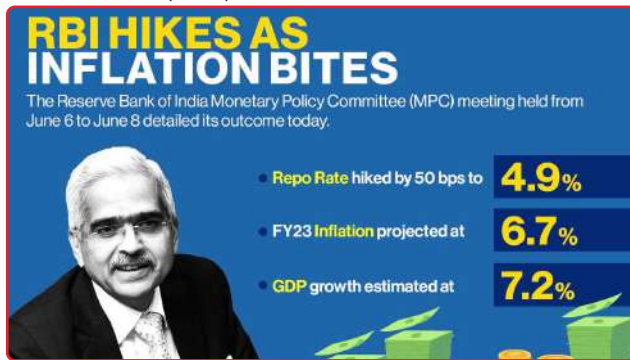
Why in news?

- With an eye on inflation amid the prevailing global uncertainties, the Reserve Bank of India (RBI) announced a 50 basis point hike in the repo rates, the rate at which RBI lends to commercial banks thereby taking the cumulative rate hike over the last three months to 140 basis points.

Why the 50 basis point hike?

- As it decided to go for a second 50 basis point hike within two months, elevated levels of inflation

remained the key concern for RBI's monetary policy committee (MPC).



- With inflation expected to remain above the upper threshold in Q2 and Q3, the MPC stressed that sustained high inflation could destabilise inflation expectations and harm growth in the medium term.
- The MPC, therefore, judged that further calibrated withdrawal of monetary accommodation is warranted to keep inflation expectations anchored and contain the second-round effects.
- Accordingly, the MPC decided to increase the policy repo rate by 50 basis points to 5.4 per cent.
- Even as the consumer price inflation has eased from its surge in April, the MPC noted that it remains uncomfortably high and above the upper threshold of the target

Why is RBI not drawing comfort from softening inflation?

- Even as RBI Governor stated that CPI inflation has peaked and RBI has projected inflation to soften and come down to 5 per cent in Q1 FY23, RBI went ahead with a 50-basis point hike as it said that currently inflation remains at unacceptable levels and global uncertainties prevail.
- The MPC feels that there are global challenges on the front of inflationary surges, tightening of financial conditions, sharp appreciation of the US dollar, and lower growth across geographies, and hence, monetary policy has to act.
- The MPC's actions are in line with the current global inflation scenario and has leaned in favour of anchoring inflationary expectations to work out solutions to free the growth potential of the economy.

How will it impact borrowers and depositors?

- This is set to further hit existing home loan customers and prospective borrowers, as it will result in a hike in lending rates.
- At the same time, conservative investors who like to park their funds in bank fixed deposits, will benefit as banks are expected to raise their deposit rates following the rate hike. The deposit rate hike, however, will also be dependent upon the credit demand in the economy and the need for banks to raise additional funds.

- Banks and housing finance companies have already raised their lending rates between 70 to 90 basis points following the 90 basis point hike in repo rate by RBI in May and June. Now banks and HFCs are expected to raise the rates again.
- Following the 140 basis point hike in the repo rate over the last three months, if the lending rates were to rise by 150 basis points, it will have a significant impact on EMIs.

Will there be more rate hikes?

- RBI has projected an inflation of 6.7 per cent for the year 2022-23 and has said that the inflation will come down to 5 per cent in Q1FY23.
- It has, however, said that its future actions would depend upon the evolving situation. Given its enhanced concerns around inflation, market participants feel that the central bank may go for additional rate hikes of 50-60 basis points over the remaining part of the year.
- The MPC also decided to remain focused on withdrawal of accommodation to ensure that inflation remains within the target going forward, while supporting growth.

What is the view on growth?

- Even as there are concerns over global growth and risks of recession in some developed economies, the RBI retained its GDP growth forecast of 7.2 per cent for the current financial year and has projected it to grow by 6.7 per cent for Q1FY23.
- While indicators such as production of consumer durables, domestic air passenger traffic and sale of passenger vehicles suggest improvement in urban demand, the RBI said that urban consumption will benefit from the demand for contact-intensive services, better performance of corporates, and improving consumer optimism.
- As high frequency indicators of the services sector like railway freight traffic, port freight traffic, e-way bills, toll collections and commercial vehicle sales remained robust in June and July, RBI said that investment activity has been picking up.
- While PMI manufacturing rose to an 8-month high in July, PMI services indicated continued expansion in July.

What is the view on liquidity?

- As a result of the repo rate hike of 50bps, the standing deposit facility rate now stands at 5.15 per cent and cumulatively, it has been raised by 180 basis points in FY23.
- While the hikes in SDF rate has led to a gradual decline in systemic liquidity, the deposit rates have also firmed up and that will improve the availability of funds with banks, amidst a pickup in credit.
- To maintain adequate liquidity in the system, RBI will conduct two-way fine tuning operations in the form of Variable Rate Repo (VRR) and Variable Rate Reverse Repo (VRRR) operations of different maturities.

SURVEY DATA ON POVERTY AND BROAD POLICY POINTERS

Context:

- Based on multidimensional poverty measurement, the Poverty Ratio (Head Count Ratio) in Tamil Nadu declined from 4.89% in 2015-16 to 1.57% in 2020-21, based on the fourth and fifth rounds of the National Family Health Survey (NFHS) data.
- Academics have questioned the quality of NFHS data for various reasons, based on the previous four rounds of NFHS databases. Such questions may be raised against the NFHS 5 database also.



On the MPI:

- NITI Aayog, armed with a fairly large sample survey data of NFHS 4 (with more than six lakh households in India), estimated the Multidimensional Poverty Index (MPI) and published the baseline report in 2021.
- The rationale for the MPI was derived from the concept that poverty is the outcome of simultaneous deprivations in multiple functions such as attainments in health, education, and standard of living.
- The NITI Aayog identified 12 indicators in these three sectors and calculated the weighted average of deprivations in each of these 12 indicators for all men and women surveyed in NFHS 4.
- If an individual's aggregate weighted deprivation score was more than 0.33, they were considered multi-dimensionally poor.
- The non-poor may also be deprived in a few of these indicators, but not as much to be classified as multi-dimensionally poor.
- The proportion of the population with a deprivation score greater than 0.33 to the total population is defined as the Poverty Ratio or Head Count Ratio.
- The authors have estimated the MPI and its components for Tamil Nadu using NFHS 5 and compared it with the estimates based on NFHS 4 given by NITI Aayog.
- Another interesting aspect of this approach is the estimation of the Intensity of Poverty. This is the weighted-average deprivation score of the multi-dimensionally poor.

Case of Tamil Nadu:

- For instance, the Intensity of Poverty in Tamil Nadu declined from 39.97% to 38.78% during this period, indicating that the summary measure of multiple deprivations of the poor has only marginally declined in these five years, and has to be underlined for policy focus.
- The MPI is a product of Head Count Ratio and Intensity of Poverty. The MPI for Tamil Nadu declined from 0.020 to 0.006. This sharp decline in MPI is largely due to a greater decline in Head Count Ratio compared to Intensity of Poverty.
- This gives a clue that any further decline in MPI in Tamil Nadu should happen only by addressing all the dimensions of poverty and reducing its intensity substantially across the State.

Direction of intervention:

- The deprivation estimation also indicates that the overall population that has been identified as deprived in most of the indicators individually is higher than the population identified as multidimensionally poor.
- This once again reiterates the point that people may be deprived severely in a few functions, but may not be multidimensionally poor. This adds another aspect of public policy intervention, i.e., attacking poverty in Tamil Nadu should not only be multidimensional but also universal.
- Only this approach can address deprivations in all the indicators. This will also surely and squarely reduce the Intensity of Poverty in Tamil Nadu.
- Statistically, the Head Count Ratio and Intensity of Poverty can be calculated for each district and segregated by gender, rural and urban, and other dimensions.
- Therefore, the usefulness of the MPI and its components is enormous in terms of understanding poverty in its totality as well as the granular details that are essential for sectoral and spatial policy and programmatic interventions.
- The strength of the MPI as an instrument for data-driven public policy depends on the quality of survey data, namely the NFHS data.

Quality of NFHS data:

- The quality of survey data has been widely debated in academia. The National Sample Survey Organisation's (NSSO) sample surveys have been debated among economists and statisticians, both in terms of sampling and non-sample errors, right from its initial days in the 1950s.
- Following several review reports on the NSSO's methodologies, the NSSO has been attempting to improve sampling design and reduce non-sampling errors, particularly with reference to recall periods for providing consumption expenditure by households. All these are well documented.

- Demographers have done a different kind of quality check for NFHS 5 data for Tamil Nadu. For instance, in Tamil Nadu, the NFHS data was collected in two time periods: 8,382 households (30%) in the pre-pandemic period and 19,547 households (70%) in the post-lockdown period, aggregating to 27,929 households for the State.
- The combined survey data from two different time periods separated by a major pandemic have to be approached with caution while interpreting the statistics derived from the entire database.
- Assuming that survey data are from a single time period, it is normal to compare the results of survey data on specific indicators, with the programmatic data derived from official records.
- There are claims that the deprivation indicators in terms of drinking water and sanitation are on a higher level in Tamil Nadu than the claims made by the respective State government departments. Such issues are common in survey data.
- For instance, consumption expenditure on foodgrain derived from NSSO data would not be in agreement with the estimation of food consumption, as per the System of National Accounts.

Data use and quality:

- The quality of survey data has always been a contentious issue in academic and policy debates for various (well-founded) reasons. However, this has not stopped academicians and policymakers from inferring policy directions because such data at a reasonably aggregate level (say at the level of a State), should be useful.
- As mentioned earlier, in Tamil Nadu, the sharp decline in Head Count Ratio and a marginal decline in Intensity of Poverty in NFHS 5 compared to NFHS 4, cannot be brushed aside.
- From this, it can be inferred that in order to reduce the Intensity of Poverty, there is need to address deprivations across the entire population, that is there should be a universal approach instead of a targeted approach to addressing it.

Way Forward:

- The survey data gives only broad policy pointers whereas programmatic interventions should be curated with ground-level realities. At the same time, continuous engagement with survey data in terms of improving the sample design and response quality has to be sustained.
- Analysing the data and finding the incongruence of inferences from different databases on an issue would help improve data gathering systems.

AN INDIA BLOCKCHAIN PLATFORM

Context:

- In recent years, India has made a significant effort to become a digital society by building a large citizen-scale digital public infrastructure.

- The Government of India and Reserve Bank of India (RBI) have been promoting simplification and transparency to increase the speed of interaction between individuals, markets, and the government.
- With the commencement of the Digital India mission in 2015, payments, provident fund, passports, driving licences, crossing tolls, and checking land records all have been transformed with modular applications built on Aadhaar, UPI, and the India Stack.



Limitations of public digital infrastructure:

- It is well established that digital infrastructure should be designed based on principles of availability, affordability, value, and trust.
- The invisible rules underlying technology can be made visible using design principles, legislative frameworks, governance frameworks, and public engagement. But when looked at the current digital ecosystem, it's identified that existing different digital infrastructures are not interconnected as a design; a technical integration is required to make them conversant and interoperable.
- Today, information has to travel across multiple systems to complete the interaction, and rely on private databases, which makes the validation of data more complex as the network grows, driving up costs and creating inefficiencies.

Web 3.0 to address challenges:

- It is becoming increasingly essential for developing nations to iteratively build innovative solutions on top of existing digital infrastructure.
- The Web 3.0 architecture establishes a new version of the Internet protocol incorporating token-based economics, transparency, and decentralisation.
- It is critical to understand that Web3 is not only the cryptocurrencies, but also NFTs or non-fungible tokens, representing physical assets or digital twins. A user can access all ecosystem benefits using a distributed token where they can show proof of ownership, tax history, and payment instruments.
- Since the Web 3.0 ecosystem is less zero-sum, user lock-in is not the primary goal for new companies, and key operations can be encoded in "smart contracts" that are auditable, immutable, and easier for an early adopter to complete.

- A blockchain-based infrastructure can provide all of these attributes without the need of trusting any particular actor to verify a ledger's history. The blockchain records could be visible, compiled, and audited by the regulators in real time.

Increasing global adoption of blockchain infrastructure:

- According to the management consulting company Gartner, by 2023, 35 per cent of enterprise blockchain applications will be integrated with decentralised applications and services. Many countries have already begun establishing their blockchain policies and infrastructure.
- Estonia, the world's blockchain capital, is using blockchain infrastructure to verify and process all e-governance services offered to the general public.
- China launched a program in 2020 called BSN (Blockchain-based Service Network) to deploy blockchain applications in the cloud at a streamlined rate.
- In Britain, the Centre for Digital Built Britain, a partnership between the University of Cambridge and the UK government's Department for Business, Energy, and Business Strategy, is running the National Digital Twin program (NDTp) to foster collaboration between owners and developers of digital twins in the built environment.
- The Brazilian government recently launched the Brazilian Blockchain Network to bring participating institutions in governance and the technological system that facilitates blockchain adoption in solutions for the public good.

Decentralized finance (DeFi) platforms:

- There are also well-established decentralised finance (DeFi) platforms that rely on blockchain infrastructure like Ethereum, however, pegged to the base cryptocurrencies owned by that platform.
- As is well known, these platforms have multi-country presence and usage, and do not come under any particular regulatory ambit.
- DeFi allows users to borrow and lend cryptocurrencies on a short-term basis at algorithmically determined rates. DeFi users are rewarded with tokens that confer governance rights, which are analogous to seats on the protocol's board.

Case of India:

- Recently, blockchain provider Solana launched a prototype smartphone with hardware and security that can support decentralised apps for people interested in crypto wallets, Web3, and NFTs.
- Many Indian technology firms are building layer 2 chains (L2) on top of the base proven layer 1 chains (L1), while providing value-adds like scale, throughput, etc., mainly through bundling the transactions. These implementations convey the story of blockchain technology driving the future of Web 3.0.

The digital roads that India must build using blockchain:

- The Indian digital community, including fintechs, academia, think tanks, and institutions, should focus on supporting research in standards, interoperability, and efficient handling of current known issues with the distributed technologies, e.g., scalability and performance, consensus mechanisms, and auto-detection of vulnerabilities.
- Also, at present, end-user devices such as smartphones do not support blockchain-based technology and, as a result, the last mile is always outside the network. However, the day is not far when smartphone manufacturers will deliver blockchain compliant devices by adding extensions.
- The blockchain models today are either permissioned, which suffice for the need of a consortium, or are public like Ethereum which are unregulated and rely on intrinsic standards.

Solutions for India:

- The ideal solution to solving most of the known issues of decentralised technologies lies in the middle path, i.e., a national platform operating at L1 that interconnects blockchains (both permissioned and public), application providers (decentralized applications and existing), token service providers, and infrastructure managers. Together they can form a reliable and efficient network for the Indian digital economy.
- The ecosystem can further deploy relevant and purpose-specific applications at L2 for very little cost and effort, while the L1 continues to handle the heavy lifting for all the L2s operating on layer 1.
- All L2 chains on this public infrastructure L1 will communicate with each other, thus replicating the communication (and avoiding the need for complex integrations with each other) on the Internet for existing Indian digital infrastructures.

Way Forward:

- The need of the hour is to work on an indigenous solution of the people, for the people, and by the people; an India Blockchain Platform, even if it takes years to design and implement.
- A digital infrastructure based on blockchain technology will transform the digital ecosystem in India, and will enable the future of digital services, platforms, applications, content, and solutions.

DIGITAL LENDING LANDSCAPE

Why in news?

- Recently, the Reserve Bank of India (RBI) instituted a framework for regulating the digital lending landscape in the country.

Details:

- It pointed to concerns such as unbridled engagement of third parties, mis-selling, breach of data privacy,

unfair business conduct, charging of exorbitant interest rates, and unethical recovery practices bothering consumer confidence and said that they had to be mitigated.

- ⇒ The latest set of regulations are based on recommendations received from its Working Group on 'Digital Lending including lending through online platforms and mobile apps' (WGDL) which was constituted last January.



What is the digital lending landscape like?

- ⇒ Digital lending utilises automated technologies and algorithms for decision making, customer acquisition, disbursements and recovery. Not only does it lower costs but also ensures speedy disbursement.
- ⇒ Lending Service Providers (LSPs) act in partnership with Non-Banking Financial Companies (NBFCs) who disburse credit (or a line of credit) to the customer using the former's platform, making it a multi-sided platform.
- ⇒ In order to cement their presence in a space with multiple peers, LSPs often resort to reckless lending practices by endowing credit beyond a borrower's repayment capacity. The risk is mitigated by spreading it to all users by charging higher interest rates.
- ⇒ The absence of standardised disclosure and regulatory norms made it cumbersome to assess a participant's operational legitimacy. Between January and the end of February in 2021, there were about 1,100 lending apps available for Indian android users of which about 600 were illegal. They were either unregulated by the RBI or had NBFC partners with an asset size of less than ₹1,000 crore, prompting doubts on its operability.
- ⇒ The space is largely dominated by NBFCs. Its customers particularly include small borrowers without a documented credit history and thus, not served by traditional financial institutions.
- ⇒ As for their utility, it primarily lies with short-term loans having tenures of up to 30 days, constituting about 37.5% of the overall product mix, compared to 0.7% for banks, as per the WGDL.

What are the new regulations?

- ⇒ The central premise is transparency. Lending must be carried out by entities that are either regulated by the

RBI or possess permission to operate under a relevant law. Considering the large-scale outsourcing in the industry, this would also help address regulatory arbitrage.

- ⇒ The RBI has mandated that all loan disbursements and repayments are to be executed directly between the bank accounts of the borrower and the entity. Thus, it eliminates the presence of a nodal pass-through or pool account of the LSP.
- ⇒ Henceforth, before executing the contract, lenders would have to inform the borrower in a standardised format about all fees, charges as well as the annual percentage rate (APR). The latter refers to the annual rate that is charged for borrowing a loan and is inclusive of processing fees, penalties and all other charges associated with it. This would also help borrowers make better comparisons with industry peers. Further, LSPs cannot raise the credit limit of their customers without prior consent.
- ⇒ Also, to address the need for a dedicated resolution framework, entities would have to appoint a grievance redressal officer. The ecosystem would also fall under the purview of the RBI's Integrated Ombudsman Scheme (RB-IOIS) should the complaint not be resolved within 30 days of receipt.

Will data also have to be regulated?

- ⇒ All data collected by the apps should be "need-based" and must be with prior and explicit consent of the borrower. Users can also revoke previously granted consent. The information to be collected must be stated in the privacy policy during enrolment.
- ⇒ Considering the multi-sided nature of the business, the RBI has put forth that user consent would be mandatory for sharing any personal information with a third-party.
- ⇒ This regulation would also address concerns emanating from TechFin (companies that are primarily tech-based service providers, say e-commerce, and also offer financial services).
- ⇒ They are known to leverage their existing user data from non-financial business to offer more suitable financial services, which may involve third parties and vice-versa.

What is the outlook for the industry?

- ⇒ The share of digital lending may be small at present, but given their scalability they may potentially become significant players soon. Implications here may have a spillover effect on the broader financial system.

'KERALA SAVARI', INDIA'S FIRST ONLINE TAXI SERVICE

Why in news?

- ⇒ Kerala has soft launched 'Kerala Savari', the country's first online taxi service owned by a State government,

to ensure fair and decent service to passengers along with fair remuneration to auto-taxi workers.

- Operated by the Motor Workers Welfare Board under the aegis of the Labour Department, the Kerala Savari ensures safe travel for the public at 'government approved fares' without any 'surge pricing'.



Why has the State government decided to launch this initiative?

- The alleged unfair trade practices and violation of consumer rights by private app-based cab aggregators have come as a major concern for governments.
- Recently, the Central Consumer Protection Authority (CCPA) had issued notices to cab aggregators Ola and Uber for unfair trade practices and violation of consumer rights.
- Passengers often complain about the deficiency in services including charging exorbitant fares during peak hours, unprofessional behaviour from the part of drivers, lack of proper response from customer support, and undue levy of cancellation charges despite the cab driver refusing to accept the ride booked by the passenger etc.
- It is against this backdrop that the Kerala government has decided to come up with an app-based platform to offer auto-taxi service for the public.
- As private companies are purely focusing on profit making, the government-controlled online taxi service is a service-oriented scheme, a win-win situation for both passengers and taxi-auto drivers and owners.

What are the main attractions of 'Kerala Savari'?

- Private cab aggregators used to make a killing with surge pricing during peak hours or in the event of rains. The passengers were often forced to pay through their nose during these critical times. But there will be no fluctuation in fares on Kerala Savari irrespective of day or night or rain.
- When private app-based taxi companies increase the charges for services up to two to three times during emergencies, neither passengers nor workers benefit from it. But Kerala Savari only charges an 8% service charge in addition to the rate set by the government, whereas the private cab aggregators charge up to 20 to 30% service charge.

- The taxi owner will get the approved fare on 'Kerala Savari,' while cab owners working for private online companies would often get a fare which is below the government-approved rate.
- Furthermore, of the 8% service charge collected from passengers, 6% will go to the technical partner, and the remaining 2% will go to the implementation of this scheme and for providing promotional incentives to passengers and drivers. The government will not be benefiting from this scheme.

What are the security-related features of 'Kerala Savari'?

- One of the major issues that arise with app-based taxi services is that of the security of passengers. Kerala Savari is claimed as a safe and reliable online service for women, children, and senior citizens.
- This consideration has been given importance in app designing and driver registration. A police clearance certificate is mandatory for drivers joining the scheme apart from the required proper training.
- A panic button system has been introduced in the app. This button can be pressed in the event of a car accident or in cases of any other danger. One can do it completely privately. If the driver presses the panic button the passenger will not be alarmed and the same goes for when the passenger presses the panic button.
- When one presses the button, there is an option to select the Police, Fire Force, and Motor Vehicle Department numbers. If you are in such a dangerous situation that you cannot select any option, press the button for a few seconds and you will be directly connected to the police control room.
- It has also been decided to install GPS in vehicles at a subsidised rate. This will be implemented in a phased manner. A 24-hour call centre has been prepared for this purpose.
- A state-of-the-art call centre is functioning at the district office of the Motor Workers Welfare Board. The call centre works in such a way that all service-related issues can be resolved immediately.

Will the new government initiative end the monopoly of private cab aggregators?

- Kerala has over five lakh autorickshaws and one lakh cabs. The State government plans to bring all auto-taxi workers engaged in the sector under the new platform. Since smartphone literacy is high in Kerala, the State is hopeful of bringing them under the scheme in a short span of time.
- In addition, the Kerala government has also decided to provide fuel, insurance, and tyre subsidies for vehicle owners in the future and has already initiated talks with major companies in this regard.
- After the evaluation of the first phase of the project in Thiruvananthapuram, it will be extended to the entire State in a phased manner.

- Kerala Savari is expected to reach Kollam, Ernakulam, Thrissur, Kozhikode, and Kannur municipal limits within a month.

'ONE NATION ONE FERTILIZER' POLICY



Why in news?

- Recently, the Union Ministry of Chemicals and Fertilisers issued a memo announcing the implementation of the "One Nation One Fertiliser" scheme under which a single brand and logo for fertilisers will have to be used by all manufacturers under the Centre's fertiliser subsidy scheme newly renamed as a Prime Minister's scheme- "Pradhanmantri Bhartiya Janurvarak Pariyojna" (PMBJP).
- The announcement drew criticism from Congress which called it a way for the Prime Minister to promote himself, terming it the "One Nation, One Man, One Fertiliser" scheme.
- Party leaders also asked how the scheme would benefit farmers and if it would stop fertiliser companies from engaging in extension activities as they would be selling under a single official brand name.

What is the 'One Nation One Fertiliser' scheme?

- Under the scheme, all fertiliser companies, State Trading Entities (STEs) and Fertiliser Marketing Entities (FMEs) will be required to use a single "Bharat" brand for fertilisers and logo under the PMBJP.
- The single brand name for UREA, DAP, MOP and NPKS etc. would be BHARAT UREA, BHARAT DAP, BHARAT MOP and BHARAT NPK etc. respectively for all Fertiliser Companies, State Trading Entities (STEs) and Fertiliser Marketing Entities (FMEs).

The memo outlines the specifications of the new packaging for companies-

- The new "Bharat" brand name and PMBJP logo will cover two-thirds of the front of the fertiliser packet
 - The manufacturing brands can only display their name, logo, and other information on the remaining one-third space.
- The government has also asked fertiliser companies not to procure old design bags from September 15,

adding that the rollout of the new bags under One Nation One Fertiliser would begin from October 2.

What is the Centre's rationale behind it?

High cost of subsidy:

- The price of the most used fertiliser, urea, is controlled by the government, meaning all manufacturing companies sell at a fixed MRP, which is just 10-20 per cent of production costs. The government provides 80-90 per cent of the cost of production to the manufacturers in the form of a subsidy.
- The fertiliser subsidy bill of the government is huge each year (expected to be over Rs. 2 lakh crore in 2022-23) and only second to the food subsidy in terms of expenditure.
- For other fertilisers like Diammonium phosphate (DAP) and Muriate of Potash (MOP), while prices are not officially controlled by the government, they do fall under a subsidy system, meaning the manufacturers sell around a tacitly fixed MRP. But companies were until now selling the product under their own brand identity and not that of the government.
- Industry experts say that the government possibly felt that farmers should know the financial burden it incurs in providing fertilisers at a cheaper rate.

Freight subsidies:

- Besides paying subsidies to companies for the cost of production, the government also pays manufacturers freight subsidies- or the cost of ferrying their products to the end-user.
- So, another argument for the launch of single-brand fertilisers is to reduce transport subsidies, estimated to be over ₹6,000 crore per year. While the government decides where manufacturers can sell their products under the Fertiliser (Movement) Control Order, 1973, due to the freight subsidy provided, manufacturers don't hesitate to sell across longer distances.

Branding:

- Brand-wise demand for fertilisers in specific areas is one of the reasons for this movement.
- One rationale is that if manufacturers stop selling urea distinctively under individual brands, there would be no need for Indian Farmers Fertiliser Cooperative (IFFCO) to move fertilisers across states, thus reining in the fertiliser subsidy expenditure.

What are the criticisms?

- Critics argue that completely commoditising fertilisers could impact their quality, discourage manufacturers from bringing newer and more efficient products into the market if there is less scope for building a unique brand identity, and leave them as mere importers or contractors of fertilisers.
- Besides, the government has expressed targets to become "Atmanirbhar" or self-sufficient in fertilisers, which are currently imported in large proportions. Meeting these targets would also mean encouraging Indian firms to stay in the business. Many private

players such as the Tatas and Indo Gulf Fertilisers, have exited the urea business in recent years.

- Many manufacturers have also expressed reluctance to spend on a brand they do not own.
- Another argument is that a government brand will add another layer of regulation to the fertiliser manufacturing sector where almost every aspect- from product pricing to cost structure to geographical distribution and sale- is controlled by the government.

Pricing in fertiliser sector:

- Contextualising this, industry experts and economists have been calling for more reforms in the fertiliser sector for a while in order to reduce the huge subsidy bill and maintain a nutrient balance in fertilisers containing nitrogen, phosphorus and potassium (N, P, and K), which is currently skewed in the direction of urea.
- The prices of fertilisers remained fairly stagnant in the 1980s and 1990s and when the prices were increased, the government faced stiff opposition. In the face of this, the price increase on urea was reversed.
- This change, and the fixing of the MRP for urea on multiple occasions, disturbed the relative prices of various fertilisers and resulted in a big shift in favour of urea, which till date costs a fraction of the price of others like DAP and MOP. The subsidy on urea also led to its diversion for non-agricultural purposes.
- The government in 2010 introduced the Nutrient Based Subsidy (NBS) system to address the growing imbalance in fertiliser use in many States but only non-nitrogenous fertilisers (P and K) moved to NBS and urea was left out. This meant that the price of urea once again could not be decontrolled. The fertiliser subsidy bill, meanwhile, kept going up.

Direct Benefit Transfer (DBT):

- The Chief Economic Advisor noted in the Economic Survey of 2016 that the fertiliser sector is highly regulated, which causes a major distortion in the sector.
- The subsidy which is intended to help small farmers, the Survey said, is actually benefiting a small proportion of them- "24 per cent is spent on inefficient urea producers of the remaining, 41 per cent is diverted to non-agricultural uses and abroad; of the remaining, 24 per cent is consumed by larger farmers."
- Experts thus call for Direct Benefit Transfer (DBT) to farmers and decontrolling the price of fertilisers, so that the system empowers farmers by giving them a range of choices and motivates manufacturers to make better products. All of this in turn would help reduce the subsidy bill.
- While the government has tried DBT in fertilisers on a pilot basis, the massive subsidy targets announced by the government till 2026 don't seem to indicate a full-fledged rollout of the DBT system soon.

SECURITY

ATAGS, THE INDIGENOUS HOWITZER USED IN INDEPENDENCE DAY 21-GUN SALUTE



Why in news?

- In a first, an indigenously developed howitzer gun, ATAG, became part of the 21-gun salute during the Independence Day ceremony at the Red Fort.
- Developed by the DRDO, the Advanced Towed Artillery Gun System (ATAGS) was used alongside the traditional British- origin '25 Pounders' artillery guns.

The 21-gun salute tradition:

- When the National Anthem is played by the Military Band after the unfurling of the Tricolour at the Red Fort by the Prime Minister, a 21-volley gun salute is fired by a ceremonial battery from an artillery regiment.
- The tradition of gun salutes originates from the Western navies where guns from the ports and those from incoming ships used to be fired in a particular manner to convey that there was no belligerent intention. This tradition was carried forward as a way of paying respects or for according official welcome to the Crown, royals, military commanders and heads of states.
- India inherited the tradition from the British rulers who had gun salutes comprising 101 volleys, 31 volleys and 21 volleys, and so on depending on the hierarchy.
- In India, artillery gun salutes are fired on the Republic Day, the Independence Day and also at the time of oath taking ceremony of the President, among other occasions.
- Over the years, this 21-gun salute was fired by the World War era howitzers of British make known as 'Ordnance Quick Fire 25 Pounder' or just '25 Pounder'.

Inclusion of ATAGS:

- In 2022, two Advanced Towed Artillery Gun System (ATAGS) howitzers joined the battery that fired along with other 25 Pounders, officials have said.
- The ATAGS is an indigenous 155 mm x 52 calibre howitzer gun developed by the Defence Research and Development Organisation (DRDO) with its Pune-

based facility Armament Research and Development Establishment (ARDE) being the nodal agency.

- Howitzers is an umbrella term for a category of long-range artillery guns. Some practice firing sessions of the ATAGS were held in the run up to the Independence Day celebrations.
- Including the ATAGS in the symbolic activity of 21-gun salute is a crucial step in the journey and is significant towards its induction into the Army.
- The ATAGS project was started in 2013 by DRDO to replace older guns in service in the Indian Army with a modern 155 mm artillery gun.

ATAGS features:

- The armament system of ATAGS mainly comprises barrel, breech mechanism, muzzle brake and recoil mechanism to fire 155 mm calibre ammunition held by Army with a longer range, accuracy and precision and provides greater firepower.
- The ATAGS is configured with all electric drive to ensure maintenance free and reliable operation over a longer period of time.
- It has advanced features in terms of high mobility, quick deployability, auxiliary power mode, advanced communication system, automatic command and control system with night firing capability in the direct fire mode.
- The specialised gun system is compatible with C4I (command, control, communications, computers, and intelligence) systems like the Artillery Combat Command and Control System (ACCCS) called Shakti for technical fire control, fire planning, deployment management, and operational logistics management of the Army.

Future role:

- The development process of ATAGS by the DRDO coincides with development of Howitzer Dhanush for Advanced Weapons and Equipment India of the erstwhile Ordnance Factory Board.
- In 2019, the Army and the Ministry of Defence gave bulk production clearance to produce 114 Dhanush.
- The two flagship products under Make in India; ATAGS and Dhanush will successfully replace the older systems from the artillery in coming days.

**MADE IN INDIA F-INSAS, NIPUN, LCA
HANDED OVER TO INDIAN ARMY**

Why in news?

- Recently, Defence Minister handed over the much-awaited indigenously manufactured Future Infantry Soldier as a System (F-INSAS) to the Indian Army.
- The latest anti-personnel mine Nipun, the Made in India Landing Craft Assault (LCA) as well as a drone system to help keep an eye on enemy troops in the forward areas along the Line of Actual control were also handed over.



What is F-INSAS?

- The F-INSAS project aims at modernising infantry and enhancing the operational capability of the soldier.
- Under it, soldiers are to be equipped with modern systems which will be lightweight, all-weather-all-terrain, economical and would require low maintenance.
- It looks to transform the soldiers deployed in the border areas into 'a self-contained fighting machine'.
- The F-INSAS system includes an AK-203 assault rifle, a Russian-origin gas-operated, magazine-fed, select fire assault rifle with a range of 300 metre as well as a ballistic helmet, ballistic goggles, a bulletproof jacket, elbow-pads, and knee pads.
- The helmet and bulletproof jacket offers protection against lethal weapons such as a 9mm bullet even from point blank range and from AK-47 rifle.
- Infantry soldiers will also be provided holographic vision mounted on their rifles to aid with target and acquisition with a 200 metre range.
- F-INSAS also includes a hands-free head-set which will help enhance the operational capabilities of an infantry soldier and improve communication effectively.

Background:

- The project was conceptualised in the early 2000s by the Defence Research and Development Organisation (DRDO) in line with the targets of the Army's Infantry Soldier Modernisation Programme with an aim to optimise the soldier's performance across the full spectrum and duration of a military operation.
- In order to develop F-INSAS, infantry modernisation programmes from the US, France, Germany and Israel were studied and quality requirements set by the army.

Anti-personnel landmine Nipun:

- The anti-personnel Nipun landmines are a replacement for the vintage NMM 14 mines.
- Anti-personnel mines are to be used against humans as against anti-tank mines which are aimed at heavy vehicles.
- They are more potent and effective than the existing anti-personnel mines and will enhance the protection provided to the troops on the borders.

⇒ The Nipun landmines have been developed by the combined efforts of the Armament Research and Development Establishment, Pune, and the Indian industry.

The Landing Craft Assault:

- ⇒ The Landing Craft Assault (LCA) is a replacement for the boats with 'limited capabilities' operating in Pangong Tso lake.
- ⇒ The LCA is much more versatile and has overcome the limitations of launch, speed and capacity.
- ⇒ It has enhanced the capability to operate across the water obstacles in Eastern Ladakh.

Way Forward:

- ⇒ The aim of F-INSAS is to equip the infantry soldier for the modern-day network-centric warfare scenario.
- ⇒ The concept of network-centric warfare denotes the effective use of information technology and computer networking tools to form networks of various force elements in play on the battlefield.
- ⇒ The government's push for indigenous production in the defence sector may be seen as a backdrop for the introduction of indigenous systems.
- ⇒ This is in accordance with Prime Minister Narendra Modi's pledge for Aatmanirbhar Bharat, which has also been translated into efforts by the Ministry of Defense to achieve self-reliance in defence.

INDIA TO GET US-MADE MQ-9B DRONES

Why in news?

- ⇒ India is in "advanced stages" of negotiations with the United States to procure the Predator armed drones for over \$3 billion.
- ⇒ If all goes as planned, India will soon possess 30 MQ-9B Predator armed drones, cranking up its surveillance apparatus along the frontier with China as well as in the Indian Ocean region.

Background:

- ⇒ The deal was reportedly discussed in the fourth two-plus-two foreign and defence ministerial dialogue between India and the US in Washington in April.



Predator drone MQ-9B:

- ⇒ The MQ-9B drone is the first hunter-killer unmanned aerial vehicle (UAV) designed for long-endurance and high-altitude surveillance.

⇒ The Reaper has a 950-shaft-horsepower (712 kW) turboprop engine, allowing it to carry 15 times more ordnance payload and cruise at about three times the speed of its predecessor.

- ⇒ The craft can be flown for over 27 hours in the air at a maximum altitude of 50,000 feet.
- ⇒ The drones possess the capabilities to be used for long-endurance intelligence, surveillance and reconnaissance missions over a wide-area. Easy configuration of the drone makes it easier to operate the aircraft during missions.

Conception:

- ⇒ They were conceived in the early 1990s for aerial reconnaissance and forward observation roles after the failure of the GNAT 750 in operations over Bosnia and Herzegovina in 1993 and 1994.
- ⇒ By 1995, the RQ-1 Predator became more commonly used and was used in combat in the US war in Afghanistan, Iraq, Pakistan, the 2011 Libyan civil war, and the 2014 intervention in Syria.
- ⇒ In 1999, the United States Air Force wanted a more advanced version of the RQ-1 Predator and so General Atomics began work on the Predator B, which entered operations in 2007 as the MQ-9 Reaper.
- ⇒ Today, MQ-9B has two variants – SkyGuardian and SeaGuardian. The latter is fitted with special equipment intended for maritime surveillance and anti-submarine warfare.

Who else uses these drones?

- ⇒ The US Air Force extensively uses the MQ-9 drones and it has been reported that most recently the Americans used the drone to fire the Hellfire R9X missile that killed the leader of Al-Qaeda, Ayman al-Zawahiri in Afghanistan's Kabul.
- ⇒ Besides this, it has been reported that the MQ-9 Reaper was used in the killing of Iranian General Qasem Soleimani outside the Baghdad airport in January 2020. Soleimani was the top commander of Iran's paramilitary Islamic Revolutionary Guard Corps and headed its elite Quds Force. He was in-charge of operations in the Middle East.

India's deal for the drones:

- ⇒ India has long been wanting to purchase the Predator drones and the deal first took root while Donald Trump was in power in America in 2017. In 2017, when Narendra Modi had visited the US, the two heads had discussed the deal. However, that deal didn't materialise at all.
- ⇒ In March 2021, it was announced that the Indian Navy, Army and Air Force would finally jointly procure 30 armed versions of the American unmanned aerial system in a \$3-billion deal.

Why does India want these drones?

- ⇒ The addition of the Predator drones in the Indian arsenal is important as the nation continues to

have strained relations with two of its neighbours; Pakistan and China.

- The need for this weaponry became even more prominent after the skirmishes between Indian and Chinese forces at the border in 2020.
- In fact, India has considerably stepped up its surveillance along the Line of Actual Control (LAC) using a fleet of unmanned drones and the addition of the MQ-9B drones from the US would be a big upgrade in its monitoring programme.
- Moreover, the Indian Navy wants to be able to keep an eye on the movements of Chinese warships and submarines in the Indian Ocean and these drones would be just perfect for the task.
- China's increasing naval activity in the Indian Ocean Region, including the docking of the Yuan Wang 5 ship in Sri Lanka, makes the need for the Reaper drone even more significant for India.

INDIA IS SHARPENING ITS MOUNTAIN WARFARE PROWESS



Why in news?

- The Indian Army is planning to induct indigenous light tanks 'Zorawar' in the next few years, in a bid to sharpen its mountain warfare prowess.
- Additionally, it has also initiated a fresh case to procure Autonomous Surveillance and Armed Drone Swarm (ASAD-S) with high ranges to destroy targets in depth areas and plans to induct Surveillance and Targeting System (ISAT-S) for surveillance and engaging targets beyond the line of sight.

Indian Light Tank Zorawar

- Earlier in 2022, the defence ministry had given in-principle approval for development of a light tank for the army. This happened after the army floated a Request for Information (RFI) to procure around 350 25-tonne light tanks under the Make in India initiative.
- Indian Light Tank Zorawar has been designed to operate in high-altitude areas, marginal terrains to the island territories and will be "highly transportable for rapid deployment to meet any operational situation".
- The will have in-built niche technologies, including AI, drone integration, active protection system, and

a high degree of situational awareness, adding that it will boost the government's Atmanirbhar Bharat initiative.

Need for Zorawar:

- The Indian Light Tank is required to address sector-specific operational requirements, especially in high-altitude areas and marginal terrains.
- The agile tanks will have equal firepower as medium tanks, will be equipped with counter-drone systems to take care of aerial threats, communication systems and missiles.
- It is expected that the first prototype will be developed within the next two to three years by the Indian industry and any technology advancements will be further integrated into them.

Swarm Drones & Smart Munitions:

- The army has procured swarm drones from two Indian start-up companies and has initiated a Make-II or industry-funded case for Autonomous Surveillance and Armed Drone Swarm (ASAD-S), which includes a version for high-altitude areas.
- Swarm drones comprise a number of drones controlled from the same station which can communicate among themselves as well as the control station and can carry a variety of payloads in a single mission, and can take out enemy defences by undertaking collaborative attack.
- The swarming algorithms and Artificial Intelligence software enable them to operate autonomously with minimum human intervention and identify targets using AI software, thus speeding up the engagement process.

Why Swarm Drones are a necessity for India?

- The drone technology has proved to be a force multiplier in military operations, adding that the application of swarm drones in various recent conflicts across the world especially in Armenia, Azerbaijan, Syria and strikes on oilfields in Saudi Arabia and the recent Russia-Ukraine conflict underlined the potency of this technology.
- Taking note of the security situation at the northern and western borders of India, induction of swarm drones will provide tactical commanders with surveillance inputs and they can engage varied targets such as artillery and air defence equipment and enemy command and control centres.
- It can be employed in both offensive and defensive operations, providing a decisive edge to the tactical commanders employing them.

Integrated Surveillance and Targeting System (ISAT-S):

- The army also plans to develop and induct the Integrated Surveillance and Targeting System (ISAT-S) to overcome limitations faced by mechanised

forces in irregular terrains and provide an operational advantage and flexibility to the mechanised columns.

- The system will consist of a surveillance drone and smart munitions launched from vehicle platforms to execute various surveillance tasks and engage armoured fighting vehicle targets beyond the line of sight. The surveillance drone would fix and launch smart munitions automatically on identification of targets for precision kill.

Modernisation Plans:

- The army's Armoured Corps has undertaken a modernisation programme with the induction of a range of indigenous platforms and ammunition as well as upgrading its Russian-origin existing tanks.
- This includes procuring anti-tank guided missiles for the main battle tank Arjun. Development trials of the indigenous ATGM have already been successfully conducted.
- The army will also be inducting the state-of-the-art futuristic tank, Future Ready Combat Vehicle (FRCV) in 2030, which will come along with performance-based logistics, transfer of technology, engineering support package, and other maintenance and training requirements.
- The FRCV will integrate AI, drones, an active protection system, a high degree of situational awareness, and manned-unmanned teaming capability.
- The army has placed an order for 118 main battle tanks Arjun MK-1A which is integrated with 71 new features, and will acquire missile firing capability from the main gun.

- With the commissioning of Vikrant, India will have two operational aircraft carriers, which will bolster the maritime security of the nation.

INS Vikrant:

- Designed by the Indian Navy's in-house Warship Design Bureau (WDB) and built by the Cochin Shipyard, a public sector shipyard, INS Vikrant has been built with state-of-the-art automation features and is the largest ship ever built in the maritime history of India.
- It has a displacement of 43,000 tonnes and can hit a maximum speed of 28 knots. It has an operation range of 7500 Nautical Miles.
- It has a beam of 62 meters and a height of 59 meters. It has 14 decks, five in the superstructure, and 2,300 compartments which can house a crew of 1,700, including special cabins for women officers.
- It has ship aircraft lifts (to take jets from hangar to deck) with a carrying capacity of 30 tonnes each, designed to operate without impeding the flight operations on deck.

Technology:

- The carrier is designed with a very high degree of automation for machinery operations, ship navigation and survivability. The carrier is equipped with the latest state of the art equipment and systems.
- It boasts a fully-fledged state of the art medical complex with the latest medical equipment facilities including major modular OT, emergency modular OT, physiotherapy clinic, ICU, laboratories, CT scanner, X-Ray machines, dental complex, isolation ward and telemedicine facilities.
- INS Vikrant, with its ski-jump ramp technology with two take-off runways and a landing strip with three arrestor wires can operate Short Take-Off but Arrested Landing (STOVAR) craft.

Fighter planes & Weapon system:

- However, the Indian Navy is in the process of acquiring a fleet of deck-based fighter jets (Boeing's F/A-18E Super Hornet and Dassault Aviation's Rafale-M (Marine) aircraft are on the shortlist).
- It will also operate Kamov-31 helicopters, MH-60R multi-role helicopters, and other indigenously built advanced light helicopters, as per the report.
- Some of its weapons and equipment have been imported.
- The long range surface-to-air missiles (LRSAM) are Israeli while Russia supplied the aviation complex and the MiG 29-K jets.
- The propulsion system's integration has been done by Italian Fincantieri. The ship's four engines, LM 2500 gas turbines, are from US company General Electric, but HAL played a role in the integration of engines.
- Integration of all weapon systems would be through an indigenous Combat Management System (CMS).

INS VIKRANT VS. AIRCRAFT CARRIERS FROM CHINA AND THE US



Why in news?

- Recently, India will get its first Indigenous Aircraft Carrier with Prime Minister Narendra Modi set to commission INS Vikrant.
- The unveiling of INS Vikrant, the first indigenously designed and built aircraft carrier, at Kochi's Cochin Shipyard Limited is set to mark a significant step towards strengthening India's self-reliance especially in the strategic sector of defence.

INS Vikramaditya:

- INS Vikramaditya is currently the Indian Navy's only operation aircraft carrier.
- It is a refurbished Russian Kiev-class carrier, originally named Baku when in the Soviet Navy in the late 1980s.
- It was decommissioned in 1996, refurbished and entered the service of the Indian Navy on 16 November, 2013. It serves on the Western seas.
- The INS Vikramaditya is propelled by eight turbo-pressurized boilers and four geared steam turbines generating a total output power of 180,000shp.
- These boilers power four enormous propellers, each greater in diameter than twice the height of an average male.

Key features:

- INS Vikramaditya has an overall length of about 284 meters and a maximum beam of about 60 meters, stretching as much as three football fields put together.
- Standing about 20 storeys tall from keel to the highest point, the ship has a total of 22 decks.
- Capable of hosting over 1,600 personnel, INS Vikramaditya has a capacity of over 8,000 tonnes of LSHSD and capable of operations up to a range of over 7,000 nautical miles or 13,000 kms.
- The 44,500-tonne vessel has specialized recovery equipment capable of carrying MiG 29K/Sea Harrier, Kamov 31, Kamov 28, Sea King, ALH-Dhruv and Chetak helicopters.
- The Indian Navy currently operates 45 MiG-29Ks, including variants and some two-seaters on it.

US' USS Gerald R Ford:

- The USS Gerald R. Ford was commissioned in 2017.
- The USS Gerald R. Ford spans 1,106 feet and has a displacement of a whopping 112,000 tons, making it the largest warship in the world.
- It has the capacity to hold over 4,500 crew.
- The USS Gerald R. Ford comes with a slew of surface-to-air missiles including the RIM-7 Sea Sparrow and the RIM-116, and M2 machine guns.
- It can carry more than 75 aircraft including the Lockheed Martin F-35 and Boeing F/A-18E/F Super Hornet fighter jets, and Sikorsky MH-60R helicopters.

China's Fujian:

- China in June launched its third aircraft carrier Fujian at a brief ceremony in Shanghai's Jiangnan Shipyard. Much like INS Vikrant is for India, Fujian is China's first domestically-designed and built catapult aircraft carrier.
- Constructed by the China State Shipbuilding Corporation Limited, the Fujian has a displacement of more than 80,000 tonnes – nearly double of Vikrant and 20,000 tonnes more than China's other two aircraft carriers the Liaoning and Shandong.

- All three of China's carriers use conventional engines rather than nuclear reactors, which limits the power they can generate and the time they can spend at sea. It is equipped with electromagnetic catapults and arresting devices.

CATOBAR System:

- Fujian has a completely flat deck and three catapult in keeping with China's attempts to adopt the catapult-assisted take-off but arrested recovery (CATOBAR) system used on US aircraft carriers.
- The Fujian has thus replaced the STOBAR system, and the ski-jump ramp it requires, used on both Liaoning and Shandong.
- The J-15 aircraft which China currently operates for its aircraft carriers were regarded a major problem for the PLAN as each plane weighed about 18 tonnes, too heavy for carriers in the long run. The planes were considered to be a big drag.
- Fujian would get an improved version of the J-15 heavy fighter compatible with a catapult launch, another electronic warfare version of the same jet, a stealth fighter called the J-35, and a fixed-wing EW aircraft called the KJ-600.
- A CATOBAR system can launch jets with bigger payloads and more fuel. It can also launch larger aircraft, like those suited for airborne early warning and control.

Electromagnetic Aircraft Launch System (EMALS):

- The Fujian has an electromagnetic aircraft launch system (EMALS) which functions on powerful magnetic fields generated by electromagnetic induction motors to propel lighter objects, uses fewer resources and recharges faster, as per Eurasian Times
- The Type 003 warship with a hull number of 18 is the first carrier in China's fleet to use an electromagnetic catapult to launch planes from the deck, which is faster than the older steam catapult system.
- EMALS was regarded by Indian naval experts as a major leap forward by the Chinese navy as currently, only the US has such an advanced one. It is more energy-efficient and reduces maintenance.

China's Liaoning and Shandong:

- China's first aircraft carrier, the Liaoning, was a refit of the Soviet-era ship commissioned in 2012, followed by the indigenously built 2nd aircraft carrier Shandong in 2019.
- The Type 001 Liaoning and Type 002 Shandong, are about 1,000 feet long and displaced 60,000 to 70,000 tonnes.
- China plans to have around five aircraft carriers. China is expected to build a nuclear-powered aircraft carrier next.

Way Forward:

- With the INS Vikrant's unveiling India will be catapulted into an exclusive club – nations (US, UK,

Russia, France, and China) with the ability to design and build an aircraft carrier with a displacement of over 40,000 tonnes.

- The new warship will offer an “incomparable military instrument with its ability to project Air Power over long distances, including Air Interdiction, Anti-Surface Warfare, offensive and defensive Counter-Air, Airborne Anti-Submarine Warfare and Airborne Early Warning.

ENVIRONMENT

NDC COMPLIANCE NOT ENOUGH, WORLD MAY STILL BE 2.5°C WARMER BY 2100: STUDY

Why in news?

- According to a new research, Nationally Determined Contributions (NDCs) which countries agreed as part of the Paris Agreement, will not be enough to arrest global warming. In fact, Earth can still be hotter by 2.4 degrees Celsius in 2100.
- The global community also need to prepare for even further rises in temperature, warned researchers.

Extreme events:

- The Intergovernmental Panel on Climate Change reports also have limited coverage of temperature rise of 3°C or higher.
- The focus has been mainly on lower-end risks such as 1.5°C or 2°C warming.
- Climate change can trigger famine and undernutrition, extreme weather events, conflicts and vector-borne diseases and can topple the global food supply by disrupting the world’s most agriculturally productive areas.



Worst-case scenario:

- Understanding the worst-case scenario is important because the current trajectory can raise temperatures to between 2.1°C and 3.9°C by 2100, the report highlighted.
- Climate models currently in the news do not consider important factors such as the release of methane and carbon dioxide from the thawing of the Arctic permafrost and the carbon loss due to intense droughts and fires in the Amazon forest.

- More research is needed in these areas. The report suggested that a warming of 3°C or more by the end of the century is a marker for extreme climate change.

Fragile State Index:

- The experts define global catastrophic risk as the probability of losing 25 per cent of the population worldwide and the severe disruption of food and other global critical systems within years or decades.
- A global decimation risk is a probability of losing 10 per cent or more of the global population and the severe disruption of food and other global critical systems within years or decades, they added.
- According to the 2021 Fragile State Index (FSI), India is vulnerable to climate risks. FSI is an annual report published by the United States think tank the Fund for Peace and the American magazine Foreign Policy.
- India scored 77 points and was placed under the elevated warning level. The scoreboard ranges from 10 to 120, with ten given to sustainable nations and 120 to those under alert.

Recommendations:

The researchers have charted a proposal for addressing the concerns highlighted in the report. These include:

- Understanding extreme climate change dynamics and impacts in the long term
- Exploring pathways to mass morbidity and mortality triggered by climate
- Investigating social fragilities such as vulnerabilities, risk cascades and risk responses
- Synthesising the research findings into integrated catastrophe assessments.

Way Forward:

- The countries would have to evaluate the indirect impacts of climate change as they are understudied.
- There is a need for an interdisciplinary endeavour to understand how climate change can trigger human mass morbidity and mortality.
- There is need for interventions to reduce the likelihood of conflicts, such as – nuclear disarmament, banning the development of new dangerous weapons such as lethal autonomous weapons and support for adaptation in vulnerable countries and international diplomacy.
- The immediate focus should be on slashing emissions.

CABINET APPROVES INDIA'S UPDATED NDC TO BE COMMUNICATED TO THE UNFCCC

Why in news?

- The Union Cabinet has approved India’s updated Nationally Determined Contribution (NDC) to be communicated to the United Nations Framework Convention on Climate Change (UNFCCC).

Mandate:

- The updated NDC seeks to enhance India’s contributions towards achievement of the

strengthening of global response to the threat of climate change, as agreed under the Paris Agreement. Such action will also help India usher in low emissions growth pathways.

- It would protect the interests of the country and safeguard its future development needs based on the principles and provisions of the UNFCCC.

CABINET DECISIONS
03 AUGUST 2022

REACHING NET-ZERO EMISSION BY 2070

Cabinet approves India's updated Nationally Determined Contribution to be communicated to UNFCCC

- India now committed to reduce Emissions Intensity of its GDP by 45% by 2030
- Updated NDC to enhance India's contributions towards strengthening of global response to climate change

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CABINET DECISIONS
03 AUGUST 2022

REACHING NET-ZERO EMISSION BY 2070

Cabinet approves India's updated Nationally Determined Contribution to be communicated to UNFCCC

- Approval translates Prime Minister's 'Panchamrit' announced at COP 26 into enhanced climate targets
- A step towards achieving India's long term goal of reaching net-zero by 2070

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Panchamrit at COP26:

- India at the 26th session of the Conference of the Parties (COP26) to the United Nations Framework Convention on Climate Change (UNFCCC) held in Glasgow, United Kingdom, expressed to intensify its climate action by presenting to the world five nectar elements (Panchamrit) of India's climate action.

- This update to India's existing NDC translates the 'Panchamrit' announced at COP 26 into enhanced climate targets. The update is also a step towards achieving India's long term goal of reaching net-zero by 2070.

2015 NDC:

- Earlier, India submitted its Intended Nationally Determined Contribution (NDC) to UNFCCC on October 2, 2015.
- The 2015 NDC comprised eight goals.
- Three of these have quantitative targets upto 2030 namely,
 - cumulative electric power installed capacity from non-fossil sources to reach 40%;
 - reduce the emissions intensity of GDP by 33 to 35 percent compared to 2005 levels and
 - creation of additional carbon sink of 2.5 to 3 billion tonnes of CO2 equivalent through additional forest and tree cover.

Updated NDC:

- As per the updated NDC, India now stands committed to reduce Emissions Intensity of its GDP by 45 percent by 2030, from 2005 level and achieve about 50 percent cumulative electric power installed capacity from non-fossil fuel-based energy resources by 2030.
- India's updated NDC has been prepared after carefully considering our national circumstances and the principle of common but differentiated responsibilities and respective capabilities (CBDR-RC).
- It also reaffirms commitment to work towards a low carbon emission pathway, while simultaneously endeavoring to achieve sustainable development goals.

LIFE

- Recognizing that lifestyle has a big role in climate change, the Prime Minister of India, at COP 26, proposed a 'One-Word Movement', to the global community. This one word is LIFE...L, I, F, E, i.e. Lifestyle For Environment.
- The vision of LIFE is to live a lifestyle that is in tune with our planet and does not harm it. India's updated NDC also captures this citizen centric approach to combat climate change.

Cleaner Energy:

- The updated NDC also represents the framework for India's transition to cleaner energy for the period 2021-2030.
- The updated framework, together with many other initiatives of the Government, including tax concessions and incentives such as Production Linked Incentive scheme for promotion of manufacturing and adoption of renewable energy, will provide an opportunity for enhancing India's manufacturing capabilities and enhancing exports.

⇒ It will lead to an overall increase in green jobs such as in renewable energy, clean energy industries- in automotives, manufacturing of low emissions products like Electric Vehicles and super-efficient appliances, and innovative technologies such as green hydrogen, etc.

Implementation of updated NDC:

- ⇒ India's updated NDC will be implemented over the period 2021-2030 through programs and schemes of relevant Ministries /departments and with due support from States and Union Territories.
- ⇒ The Government has launched many schemes and programs to scale up India's actions on both adaptation and mitigation.
- ⇒ Appropriate measures are being taken under these schemes and programs across many sectors, including water, agriculture, forest, energy and enterprise, sustainable mobility and housing, waste management, circular economy and resource efficiency, etc.
- ⇒ As a result of the aforesaid measures, India has progressively continued decoupling of economic growth from greenhouse gas emissions.
- ⇒ The Net Zero target by 2030 by Indian Railways alone will lead to a reduction of emissions by 60 million tonnes annually. Similarly, India's massive LED bulb campaign is reducing emissions by 40 million tonnes annually.

Way Forward:

- ⇒ India's NDC do not bind it to any sector specific mitigation obligation or action. India's goal is to reduce overall emission intensity and improve energy efficiency of its economy over time and at the same time protecting the vulnerable sectors of economy and segments of our society.

FOREST LOSSES OCCUR PRIMARILY IN LOWER-INCOME TROPICAL COUNTRIES: STUDY



Why in news?

- ⇒ Deforestation has worried policymakers for decades as a catalyst to global warming. Now a recent study has drawn a correlation between forest cover and the economic strength of countries.

⇒ Higher-income countries, especially those outside the tropics usually gain in forest cover while lower-income, tropical countries primarily lose them. The gross forest loss outweighed the gross forest gain.

Key Finding:

- ⇒ A decline in forest cover, along with the population increase over the period, has led to a decrease in forest cover by over 60 per cent. Such a massive decline threatens the future of biodiversity and impacts the lives of 1.6 million people in developing countries who depend on forests.
- ⇒ Tropical countries such as Indonesia, Myanmar and the Democratic Republic of Congo (DR Congo) are in the early transition phase and are losing forests quickly.
- ⇒ Indonesia, Brazil, DR Congo, Myanmar, Paraguay, Colombia, Bolivia, Argentina, Angola and Venezuela are the top net forest-losing countries in terms of area.

Factors responsible:

- ⇒ Unprecedented commercial logging, large-scale clearing for mining, expansion of oil palm plantations, decentralisation of forest management and socio-political transitions are the dominant drivers of forest loss in these countries.
- ⇒ Logging and non-mechanised forest clearing for agriculture resulted in the persistent forest loss in DR Congo. Myanmar's cases of forest loss are also similar to DR Congo.
- ⇒ In Colombia, armed conflicts, cattle ranching and agricultural expansions are the major causes of forest degradation.

Forest gaining countries:

- ⇒ Australia, India, the USA, China, Russia, Vietnam, Spain, France, Sweden and Iran are the top ten net forest-gaining countries in terms of area.
- ⇒ Proactive conservation policies, sustainable forest management, reforestation and afforestation programmes have accelerated forest gains in these regions.

Basis of study:

- ⇒ The researchers used the global land use dataset to examine how global forests have changed over space and time.
- ⇒ They have also taken data from a country boundary geographic information system format from the Database of Global Administrative Areas (GADM). GADM is a regional classification of countries by the World Bank based on income levels, population and gross domestic product.
- ⇒ The change in the spatiotemporal pattern of global forests supports the forest transition theory, with most forest losses occurring mainly in the lower-income countries in the tropics and forest gains in higher-income countries.

Forest transition:

- Forest transition refers to a geographic theory describing a reversal or turnaround in land-use trends for a given territory from a period of net forest area loss to a period of net forest area gain.
- Monitoring the world's forests is integral to fulfil various global environmental and social initiatives – including the Sustainable Development Goals, the Paris Climate Agreement and the Global Biodiversity Framework.

Way Forward:

- The study results highlight the need to strengthen the support given to lower-income countries, especially in the tropics, to help them improve their capacity to minimise forest losses.
- Higher-income countries need to reduce their dependence on imported forest products from tropical countries to help them address the challenges related to forest loss, the findings of the study noted.

RARE CLOUDED LEOPARD

Why in news?

- Recently, the Buxa Tiger Reserve in West Bengal posted a picture of a clouded leopard, one of the most ancient and mysterious of the cat species.
- It was sighted the International Clouded Leopard Day observed on 4 August.



Vulnerable Species:

- The clouded leopard was officially recorded in 1821 but little is known about it more than two centuries later.
- The International Union for Conservation of Nature (IUCN), which works in the field of nature conservation and sustainable use of natural resources, has listed this uncommon cat as vulnerable.
- Its population had a sharp decline in the second half of the 20th century because of poaching and deforestation. Less than 10,000 clouded leopards are believed to be living in the wild.

What's the clouded leopard?

- The clouded leopard (*Neofelis nebulosa*) is named after the distinctive "clouds" on its coat – ellipses

partially edged in black, with the insides a darker colour than the background colour of the pelt.

- The base of the fur is a pale yellow to rich brown, making the darker cloud-like markings look even more distinctive.
- The limbs and underbelly are marked with large black ovals, and the back of its neck is conspicuously marked with two thick black bars.
- It's a medium-sized cat, about two to three feet long with an exceptionally long tail and the longest canine teeth of any living feline. It is smaller than the regular leopard which is 4.25 to 6.25 feet long.
- The clouded leopard is mostly related to the snow leopards and is in the same taxonomic subfamily, Pantherinae, as tigers, lions, jaguars, and true leopards. However, it does not roar and unlike smaller cats, it doesn't purr.

Habitat:

- "Cloudeds" are rarely seen in the wild and their habitat remains mysterious. They roam the hunting grounds of Asia from the rain forests of Indonesia to the foothills of the Nepali Himalayas, says The National Geographic.
- They are found in Bhutan, Nepal, northeast India, Burma, Thailand, Vietnam, Malaysia, Cambodia, Laos, Bangladesh, and Borneo. They are believed to be extinct in Taiwan and China.
- Although population numbers are thought to be lower outside protected areas, their populations are probably healthiest in Borneo because of the absence of tigers and leopards.
- In India, these cats inhabit the forests of the northeast and now one has been seen in West Bengal. However, the clouded leopard is not as easily spotted as the other leopards.

Is the 'clouded' in Buxa the first on record in India?

- No. in 2021, a team of researchers recorded photographic evidence of clouded leopards in a community-owned forest in Nagaland along the Indo-Myanmar border.
- Clouded leopards are known to inhabit low-elevation evergreen rainforests. Found at a height of 3,700 metres – one of the highest reported altitudes where the animal has been sighted in the world so far – made the discovery even more significant.

AMENDMENT TO ENERGY CONSERVATION ACT

Why in news?

- In order to facilitate the achievement of more ambitious climate change targets and ensure a faster transition to a low-carbon economy, the government is seeking to strengthen a 20-year law, called the Energy Conservation Act of 2001, which has powered the first phase of India's shift to a more energy-efficient future.



Objectives:

- The Bill to amend the Energy Conservation Act, 2001, which was introduced in Parliament, has two main objectives.
- First, it seeks to make it compulsory for a select group of industrial, commercial and even residential consumers to use green energy. A prescribed minimum proportion of the energy they use must come from renewable or non-fossil fuel sources.
- And second, it seeks to establish a domestic carbon market and facilitate trade in carbon credits.
- Importantly, the amendment Bill seeks to widen the scope of energy conservation to include large residential buildings as well. Till now, the energy conservation rules applied mainly on industrial and commercial complexes.

Energy Conservation:

- The 2001 law defined standards for energy conservation and efficiency to be followed by a select group of industries and commercial complexes. Efficiency standards were also prescribed for equipment and appliances like air conditioners or refrigerators.
- This law set up the Bureau of Energy Efficiency (BEE) to promote the use of more efficient processes and equipment in order to save energy. The star ratings on various household appliances and the largescale shift to LED bulbs were some of the successful initiatives of BEE that have resulted in massive energy savings over a period of time.
- The overall objective has been to improve energy efficiency across sectors, so that much more productivity can be obtained from the same amount of energy. Over the years, India's energy intensity, or the amount of energy consumption per unit of GDP, has declined significantly.

New provisions:

- The amendment Bill seeks to build upon the progress made so far. For example, just like the standards for appliances and equipment, energy consumption standards would be specified for motor vehicles, ships and other water vessels, industrial units, and buildings.
- In the case of vehicles and water vessels, fuel consumption norms would be defined.

- New sustainable building codes are to be defined which every building with a certain threshold of energy consumption, whether industrial, commercial or residential, would have to adhere to.
- Every such building would have to ensure that at least a part of its total energy consumption comes from renewable or non-fossil fuel sources. This would help in reducing the proportion of fossil-fuel based energy being used in the economy and push the demand for renewable or other non-fossil fuels.

What are carbon markets?

- The creation of a domestic carbon market is one of the most significant provisions of the proposed amendment Bill. Carbon markets allow the trade of carbon credits with the overall objective of bringing down emissions. These markets create incentives to reduce emissions or improve energy efficiency.
- For example, an industrial unit which outperforms the emission standards stands to gain credits. Another unit which is struggling to attain the prescribed standards can buy these credits and show compliance to these standards. The unit that did better on the standards earns money by selling credits, while the buying unit is able to fulfill its operating obligations.
- Under the Kyoto Protocol, the predecessor to the Paris Agreement, carbon markets have worked at the international level as well. The Kyoto Protocol had prescribed emission reduction targets for a group of developed countries.
- Other countries did not have such targets, but if they did reduce their emissions, they could earn carbon credits. These carbon credits could then be sold off to those developed countries which had an obligation to reduce emissions but were unable to.
- This system functioned well for a few years. But the market collapsed because of the lack of demand for carbon credits. As the world negotiated a new climate treaty in place of the Kyoto Protocol, the developed countries no longer felt the need to adhere to their targets under the Kyoto Protocol. A similar carbon market is envisaged to work under the successor Paris Agreement, but its details are still being worked out.

Domestic carbon markets:

- Domestic or regional carbon markets are already functioning in several places, most notably in Europe, where an emission trading scheme (ETS) works on similar principles.
- Industrial units in Europe have prescribed emission standards to adhere to, and they buy and sell credits based on their performance. China, too, has a domestic carbon market.
- A similar scheme for incentivising energy efficiency has been running in India for over a decade now.
- This BEE scheme, called PAT, (or perform, achieve and trade) allows units to earn efficiency certificates if

they outperform the prescribed efficiency standards. The laggards can buy these certificates to continue operating.

- However, the new carbon market that is proposed to be created through this amendment to the Energy Conservation Act would be much wider in scope.

CHILE'S GIANT SINKHOLE



Why in news?

- A giant sinkhole in Chile which first appeared in July has now grown large enough to swallow India Gate.

Details:

- At the time of its discovery, the sinkhole covered a diameter of 105 feet. That number has now increased to 160 feet.
- The National Geology and Mining Service, also called Sernageomin, has sent experts to examine the hole which appeared in an area located 800 kilometres north of Chile's capital city of Santiago.
- Owing to the size of the sinkhole, work has been stopped at a nearby copper mine.

Why do sinkholes appear?

- As per the United States Geological Survey (USGS), a sinkhole is a depression in the ground that has no external surface drainage. Basically, when it rains, all of the water gets collected in the sinkhole which typically drains into the subsurface layer of the Earth.
- The sinkholes are more likely to appear in areas that have soluble rocks like salt beds and domes, gypsum, limestone below the land's surface. These rocks can naturally dissolve into the groundwater that circulates through these holes.
- So, landscapes that have more soluble rocks underneath their soil are highly susceptible to huge underground spaces and caverns. As these rocks dissolve more into the water and are carried away, the cracks widen up until the ground above them collapses.
- Similarly, developmental projects and other infrastructural activities can cause water to collect in certain areas and was away any supporting layer of rocks which can result in sinkholes.

How was the sinkhole in Chile discovered?

- The hole appeared on land where Canada-based company Lundin Mining was running a copper mining operation.
- The sinkhole has remained stable since it was detected and the company is closely monitoring the nearby Alcaparrosa mine. Work has been suspended in the mine.

Other sinkholes:

- In February 2022, a huge sinkhole developed in a stream located in south Kashmir. The hole disrupted the entire flow of the stream as water from it was draining into the sinkhole.
- In 2021, a sinkhole appeared in Mexico's Santa Maria Zacatepec. The pit was about 400 feet wide and 150 feet deep. The Mexican government sent soldiers to prevent people from going near the hole.

What's next?

- The National Service of Geology and Mining or Sernageomin said that it is still carrying out an investigation to determine the cause of the sinkhole.
- Sernageomin has installed water extraction pumps at the mine and will soon investigate the mine's underground chambers for potential over-extraction.

CHELLANAM'S NEW TETRAPOD-BASED SEAWALL



Context:

- Over the past few years, Chellanam, an idyllic coastal village in Kerala's Ernakulam district, would unfailingly hit the headlines during the monsoons for massive sea incursion and widespread destruction of homes.
- However, this monsoon, despite heavy spells of rain lashing Ernakulam district from May, Chellanam has remained largely unaffected due to the construction of a new tetrapod-based seawall.

Background:

- Earlier, the conventional seawall of Chellanam failed to check sea ingress which resulted in massive ruin and destruction. This triggered one of the longest-running protest campaigns, which is now well past 1,000 days, demanding a permanent solution.

- ⇒ Coastal erosion, which intensified after Cyclone Ockhi in 2017 further worsened with Cyclone Tauktae last year, leaving many residents in relief camps for extended periods.
- ⇒ Since then, many of them chose to either seek rented accommodation for shorter durations or relocate forever by selling off their small holdings under the State Fisheries Department's Punargeham project in the face of periodic onslaught by the sea which rendered their homes uninhabitable.
- ⇒ Now, due to the tetrapod-based seawall, residents of the coastal village vouch that even those stretches that were most vulnerable to sea erosion have remained by and large safe.

What are the contours of the seawall project?

- ⇒ The construction of the tetrapod-based seawall forms the foundation of the ₹344 crore coastal conservation project being implemented by the State government in Chellanam.
- ⇒ The six networks of groynes being erected along the Chellanam Bazar area, which used to face the wrath of the sea in the past, are also part of the project.
- ⇒ In the first phase, the wall is being constructed in a little over seven-km stretch between Chellanam harbour and Puthanthodu.
- ⇒ The project was launched on the basis of a study conducted by the Chennai-based National Centre for Coastal Research (NCCR) while the work is being supervised by the Anti-Sea Erosion Project Management unit of the Irrigation department.
- ⇒ Tetrapods are being set upon a 2.5-metre foundation of granite and at a height of 6.1-metre from sea level as per the norms set by the NCCR. A three-metre-wide walkway is being readied over the tetrapod seawall along a stretch of 6.6-km in the first phase.

How much has the project progressed?

- ⇒ Although the project was formally inaugurated by Chief Minister in July, work had commenced a few months before that.
- ⇒ On an average, Kozhikode-based Uralungal Labour Contract Co-operative Society (ULCCS) deploys about 350 tetrapods of different tonnage depending on the depth of the sea along the coast.

What lies ahead?

- ⇒ Demand is already rife for the launch of the project's second phase to extend the seawall along the remaining 10-km stretch of the coastal part between Kannamali and Kaithaveli.
- ⇒ It is understood that the estimate for the next phase is being drawn up right now.
- ⇒ In addition, a detailed project report (DPR) for a ₹941-crore scheme to develop Chellanam into a model, eco-friendly fishing village has also been submitted to the State government by the Kerala University of Fisheries and Ocean Studies (KUFOS) and Kerala State Coastal Area Development Corporation (KSCADC).

How has the project been perceived?

- ⇒ There are still voices of dissent. The Chellanam Janakeeya Vedi, which has been at the forefront of the protest demanding a permanent solution to sea erosion, dismisses the tetrapod-seawall as a temporary solution at best.
- ⇒ The group is peeved about the 'publicity' garnered by the success of the project, which it sees as a "political ploy by the government to hide its failures". Beach nourishment reducing the depth of the sea along the shore alone offers a permanent solution, it contends.
- ⇒ Meanwhile, environmentalists have warned that large scale extraction of stones to manufacture tetrapods could aggravate the natural disasters that the State has been witnessing lately.

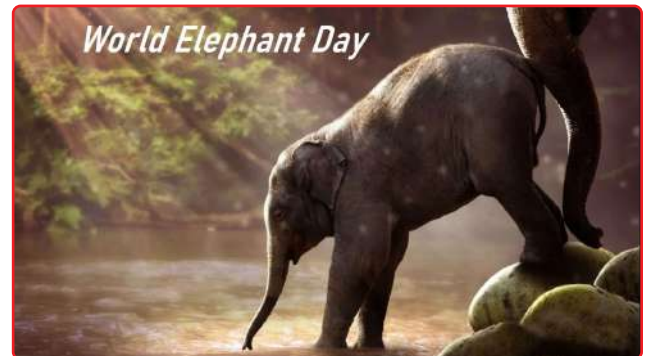
WORLD ELEPHANT DAY – 2022

Why in news?

- ⇒ Recently, the World Elephant day - 2022 was celebrated at Periyar, Kerala.

About World elephant day:

- ⇒ World elephant day is observed on August 12 every year, to create awareness about elephants.
- ⇒ The inaugural world elephant day was launched to bring attention to the dire plight of Asian and African elephants.
- ⇒ World Elephant Day was officially founded, supported, and launched by Patricia Sims and the Elephant Reintroduction Foundation on August 12, 2012.
- ⇒ Elephants are listed as endangered species and their population has shrunk over the past few decades.



New releases:

- ⇒ The Union Minister released "Elephant Reserves of India: An Atlas", "Elephant Reserves of India: Land Use Land Cover Classification", "Caring for elephants: Managing health and welfare in captivity" and the Special edition of "Trumpet".
- ⇒ Commemorating 30 years of completion of Project Elephant, a poster on elephant conservation in India was released.

Gaj Gaurav award:

- ⇒ For the first time in an initiative taken by the Union Minister, Gaj Gaurav award was conferred for the

commendable efforts of local communities, frontline staff and mahouts working at grass root level to conserve elephants in wild and captivity.

- In 2022 the Malasar Community belonging to the Anamalai of Tamil Nadu and mahouts of Kerala and Assam were awarded the Gaj Gaurav award.
- Prizes were also given to school students for several competitions held on the theme "Living with elephants".

Elephants in India:

- The current population estimates indicate that there are about 50,000 - 60000 Asian elephants in the world. More than 60% of the population is held in India.
- The population of 29,964 elephants as recorded in the last elephant census conducted in 2017 speaks volumes of the passion for wildlife conservation ingrained in Indian culture.
- India has 31 Elephant Reserves. In the last 3 years, Dandeli Elephant Reserve has been notified by the state of Karnataka, Singphan Elephant Reserve by Nagaland and Lemru Elephant Reserve in Chhattisgarh. This has brought the total area under Elephant Reserves in India to about 76,508 sqkm across 14 states of the country.
- India is going to witness the establishment of one more Elephant Reserve, the Agasthiyamalai in Tamil Nadu, adding yet another 1197 sqkm of Protected Area dedicated for protection and conservation of elephants in India.
- Indian Elephant has also been listed in the Appendix I of the Convention of the Migratory species in the recently concluded Conference of Parties of CMS 13 at Gandhi Nagar, Gujarat in February 2020.

Way Forward:

- Elephant is the Natural Heritage Animal of India and India also celebrates this day to spread awareness towards conservation of the species.

RISING CLOUDBURST INCIDENTS ACROSS INDIA



Why in news?

- Many people have been killed in destruction caused by cloudbursts and flash floods in different parts of Himachal Pradesh and Uttarakhand recently.

- Isolated areas in these two states have reported heavy rainfall during this time, triggering landslides and flash floods that have disrupted rail and road traffic, and resulted in house and wall collapses.

What are cloudbursts?

- A cloudburst is a localised but intense rainfall activity. Short spells of very heavy rainfall over a small geographical area can cause widespread destruction, especially in hilly regions where this phenomenon is the most common.
- Not all instances of very heavy rainfall, however, are cloudbursts.
- A cloudburst has a very specific definition: Rainfall of 10 cm or more in an hour over a roughly 10 km x 10-km area is classified as a cloudburst event. By this definition, 5 cm of rainfall in a half- hour period over the same area would also be categorized as a cloudburst.

Extreme events:

- To put this in perspective, in a normal year, India, as a whole, receives about 116 cm of rainfall over the entire year. This means if the entire rainfall everywhere in India during a year was spread evenly over its area, the total accumulated water would be 116 cm high.
- There are, of course, huge geographical variations in rainfall within the country, and some areas receive over 10 times more than that amount in a year. But on average, any place in India can be expected to receive about 116 cm of rain in a year.
- During a cloudburst event, a place receives about 10% of this annual rainfall within an hour. It is a worse situation than what Mumbai had experienced on July 26, 2005, which is one of the most extreme instances of rainfall in India in recent years.
- At that time, Mumbai had received 94 cm of rain over a 24-hour period, resulting in deaths of over 400 people and more than USD 1 billion in economic losses.

How common are cloudbursts?

- Cloudbursts are not uncommon events, particularly during the monsoon months. Most of these happen in the Himalayan states where the local topology, wind systems, and temperature gradients between the lower and upper atmosphere facilitate the occurrence of such events.
- However, not every event that is described as a cloudburst is actually, by definition, a cloudburst. That is because these events are highly localized. They take place in very small areas which are often devoid of rainfall measuring instruments.
- The consequences of these events, however, are not confined to the small areas. Because of the nature of terrain, the heavy rainfall events often trigger landslides and flash floods, causing extensive destruction downstream.
- This is the reason why every sudden downpour that leads to destruction of life and property in the hilly

areas gets described as a “cloudburst”, irrespective of whether the amount of rainfall meets the defining criteria. At the same time, it is also possible that actual cloudburst events in remote locations aren't recorded.

Can cloudbursts be forecast?

- The India Meteorological Department forecasts rainfall events well in advance, but it does not predict the quantum of rainfall, in fact, no meteorological agency does. The forecasts can be about light, heavy, or very heavy rainfall, but weather scientists do not have the capability to predict exactly how much rain is likely to fall at any given place.
- Additionally, the forecasts are for a relatively large geographical area, usually a region, a state, a meteorological sub-division, or at best a district. As they zoom in over smaller areas, the forecasts get more and more uncertain.
- Theoretically, it is not impossible to forecast rainfall over a very small area as well, but it requires a very dense network of weather instruments, and computing capabilities that seem unfeasible with current technologies.
- As a result, specific cloudburst events cannot be forecast. No forecast ever mentions a possibility of a cloudburst. But there are warnings for heavy to very heavy rainfall events, and these are routinely forecast four to five days in advance.
- Possibility of extremely heavy rainfall, which could result in cloudburst kind of situations, are forecast six to 12 hours in advance.

Are cloudburst incidents increasing?

- There is no long-term trend that suggests that cloudbursts, as defined by the IMD, are rising. What is well established, however, is that incidents of extreme rainfall, as also other extreme weather events, are increasing, not just in India but across the world.
- While the overall amount of rainfall in India has not changed substantially, an increasing proportion of rainfall is happening in a short span of time. That means that the wet spells are very wet, and are interspersed with prolonged dry spells even in the rainy season.
- This kind of pattern, attributed to climate change, does suggest that cloudburst events might also be on the rise.

NAMING HEATWAVES

Why in news?

- As the world reels under the impact of climate change and heatwaves wreak havoc in several countries, leading to wildfires, drying up of rivers, and unpredictable droughts, scientists have for the first time given it a name.
- Just as cyclones have a name, the Spanish heatwave has been named Joe.



proMETEO Project:

- The name has been bestowed to tie meteorological forecasts to health impacts under a pilot project by proMETEO that was officially launched a few months back to classify heatwaves, as they become more intense and more frequent the world over.
- Warm summer combined with a hot air front from North Africa have sent temperatures soaring across Spain in July 2022, with the highest recorded temperature climbing up to 43 degrees Celsius near Seville in southern Spain and in Badajoz, towards the west of the country.
- Scientists have named this heat spell 'Joe' under the pilot program that has been launched to test the feasibility of implementing a warning system for one year to alert of the arrival of a heat wave and its possible effects on health.

Categorization of heat waves:

- By categorizing heat waves according to their level of impact on health and naming those that may pose a greater risk, citizens will be able to take effective measures to protect themselves against extreme heat.
- The heatwaves will be categorized on a three-level scale and named in reverse alphabetical order. The first five will be called Zoe, Yago, Xenia, Wenceslao, and Vega.

Heatwave in Spain:

- In recent weeks, several wildfires have broken out in Spain, which registered its earliest heatwave in over 40 years with temperatures rising to 43 degrees in cities like Seville and Cordoba. A prolonged dry spell and the extreme heat made July the hottest month in Spain since at least 1961.
- Meanwhile, Spanish reservoirs are at just 40 per cent of capacity on average in early August, well below the ten-year average of around 60 per cent, official data shows.

'WORST IN 500 YEARS': EUROPE'S GREAT DROUGHT

Why in news?

- The recent drought in Europe has been billed as the worst in 500 years. It is being said that never has a

European summer been so dry since 1540, when a year-long drought killed tens of thousands of people.

- The dry spell in 2022 follows a record-breaking heatwave that saw temperatures in many countries rise to historic highs.



Impact:

- Some of Europe’s biggest rivers; Rhine, Po, Loire, Danube which are usually formidable waterways, are unable to support even mid-sized boats.
- As water levels have fallen, remains of sunken ships and ominously named hunger stones, rocks engraved by previous generations during earlier periods of extraordinary dryness have come out of erstwhile depths.
- The impact has been debilitating. Water transport has suffered badly, and is having cascading effects. Power production has been hit, leading to electricity shortages and a further increase in energy prices already pushed high by the war in Ukraine.
- Food is sharply more expensive in many countries, and drinking water is being rationed in some regions.

Worst in 500 years:

- Earlier European droughts such as those in 2003, 2010, and 2018, too were compared to the 1540 event. Much like now, the 2018 drought was described as the “worst in 500 years”.
- But this year could turn out to be worse than 2018, though data were still being analysed.
- The “worst in 500 years” description may be still not settled, but the impacts of this event are expected to be far worse than anything experienced in the recent past.
- Europe has been facing large scale climatic anomalies for over six months, precipitation has been far less than usual, while temperatures have soared to unprecedented levels. And this has come on top of the massive energy and food-supply implications of the Ukraine war.

Waterways and power:

- Apart from agriculture and drinking water supplies, the most visible impact has been the disruption in Europe’s waterways.
- Europe depends heavily on its rivers to move cargo in an economical manner, including coal to power

plants. With water levels down to less than a metre in some stretches, most large ships have been rendered unusable.

- Supply disruptions in coal has hit power generation. Lack of adequate water has affected the operation of nuclear power plants, which use large amounts of water as coolant.
- The result has been a shortage of electricity and an unprecedented rise in energy prices. Household energy costs in the UK are projected to double by October from the levels of April. There is talk of power blackouts in winter.

Analytical report:

- An “analytical report” of the Global Drought Observatory (GDO), an agency of the European Commission, said about 64% of the continent’s landmass was experiencing drought conditions. And the situation was only “worsening” as of that date.
- Nearly 90% of the geographical area in Switzerland and France, about 83% in Germany, and close to 75% in Italy, was facing agricultural drought. Some areas, especially the UK, have received rain, but it has made only a marginal difference to the overall situation.
- The situation is unlikely to improve substantially in the coming months. The GDO’s report suggests that the prevailing conditions could extend up to November.

Drought part of natural climate system:

- Droughts are part of the natural climate system, and are not uncommon in Europe. It is the severity of this drought that is making it stand out. The extraordinary dry spell has been the result of a prolonged and significant deviation from normal weather patterns.
- Rainfall has been scanty in several countries. The UK had its driest July since 1935, and France since 1959. The Netherlands, which receives plenty of rainfall, is having one of the driest years ever, and Germany received only half its normal rain in July. In fact, rainfall has been below normal since the winter.
- In addition, unusually high temperatures have led to increased evaporation of surface water and soil moisture.
- The severity of the current drought can also, at least partially, be attributed to the fact that it has appeared so soon after the 2018 event. Many areas in Europe were still to recover from that drought. Soil moisture had not been restored to normal, and the current dry spell has sapped it further of moisture.

Drought in China, US too:

- Many parts of China too are headed towards a serious drought, being described as the worst in 60 years. The country’s longest river, Yangtze, which caters to about a third of the Chinese population, is seeing water levels drop to record lows.
- Two of the country’s biggest freshwater lakes, Poyang and Dongting, have touched their lowest levels since 1951.

- ⇒ The water scarcity is leading to problems similar to those in Europe. Power shortages in some areas have begun to force factories to shut, adding to the strain on global supply chains.
- ⇒ Over 40% of the area in the United States too is under drought conditions currently, affecting about 130 million people, according to the US government.

GOVERNMENT NOTIFIES BATTERY WASTE MANAGEMENT RULES, 2022

Why in news?

- ⇒ Recently, the Ministry of Environment, Forest and Climate Change, published the Battery Waste Management Rules, 2022 to ensure environmentally sound management of waste batteries.
- ⇒ Notification of these rules is a transformative step towards implementation of the announcement made by Prime Minister in his address to the Nation on Independence Day on 15th August, 2021 to promote Circular Economy in full earnest.



Government notifies Battery Waste Management Rules, 2022

Key Highlights:

- ⇒ New rules will replace Batteries (Management and Handling) Rules, 2001.
- ⇒ The rules cover all types of batteries, viz. Electric Vehicle batteries, portable batteries, automotive batteries and industrial batteries.

Extended Producer Responsibility (EPR):

- ⇒ The rules function based on the concept of Extended Producer Responsibility (EPR) where the producers (including importers) of batteries are responsible for collection and recycling/refurbishment of waste batteries and use of recovered materials from wastes into new batteries.
- ⇒ EPR mandates that all waste batteries to be collected and sent for recycling/refurbishment, and its prohibits disposal in landfills and incineration. To meet the EPR obligations, producers may engage themselves or authorise any other entity for collection, recycling or refurbishment of waste batteries.
- ⇒ The rules will enable setting up a mechanism and centralized online portal for exchange of EPR certificates between producers and recyclers/refurbishers to fulfil the obligations of producers.

Recycling/refurbishment:

- ⇒ The rules promote setting up of new industries and entrepreneurship in collection and recycling/refurbishment of waste batteries.
- ⇒ Mandating the minimum percentage of recovery of materials from waste batteries under the rules will bring new technologies and investment in recycling and refurbishment industry and create new business opportunities.
- ⇒ Prescribing the use of certain amount of recycled materials in making of new batteries will reduce the dependency on new raw materials and save natural resources.
- ⇒ Online registration & reporting, auditing, and committee for monitoring the implementation of rules and to take measures required for removal of difficulties are salient features of rules for ensuring effective implementation and compliance.

Polluter Pays Principle:

- ⇒ On the principle of Polluter Pays Principle, environmental compensation will be imposed for non-fulfilment of Extended Producer Responsibility targets, responsibilities and obligations set out in the rules.
- ⇒ The funds collected under environmental compensation shall be utilised in collection and refurbishing or recycling of uncollected and non-recycled waste batteries.

UN INTERGOVERNMENTAL CONFERENCE (IGC-5)



Why in news?

- ⇒ Recently, two weeks of negotiations at the United Nations aimed at securing protections for marine life in international waters concluded without a consensus.
- ⇒ UN member states have been trying for the last 15 years to agree on a legally binding document and were expected to finalise it at the fifth session of the UN Intergovernmental Conference (IGC-5), held in New York from August 15- August 26, 2022.

BBNJ:

- ⇒ A final text on the conservation and sustainable use of marine Biodiversity Beyond National Jurisdiction (BBNJ) was anticipated from the session.

- BBNJ, commonly called the high seas, are those areas beyond exclusive economic zones. It makes up nearly 70 per cent of the ocean.
- BBNJ treaty, if agreed upon, would have significantly contributed to the direct management and conservation of marine biodiversity, including its genetic components.
- The treaty would have led to rules for protecting marine biodiversity in two-thirds of the world's ocean areas outside national jurisdictions. IGC-5 made more progress than negotiations over the last decade.

Concerns:

- A High Ambition Coalition, launched in February 2022 included parties committed at the highest political level, to achieve an ambitious outcome of the ongoing negotiations on a Treaty of the high seas. But, the coalition did not show enough ambition or urgency.
- The 2022 UN Oceans Conference held in Lisbon, Portugal, in June 2022 had also called for the new BBNJ treaty.
- Despite the progress, delegates were unable to reach a consensus on a new high seas treaty addressing marine biodiversity in areas beyond national jurisdiction.
- This is disappointing, considering the severe threat to the high seas, including overfishing, marine pollution, habitat destruction and acidification.

Major disagreements:

IGC-5 focused on four main components:

- a) marine genetic resources (MGR) and sharing benefits from marine life;
- b) area-based management tools, including marine protected areas;
- c) environmental impact assessments (EIA) and
- d) capacity building and the transfer of marine technology (CB&TT).

Marine Genetic Resources (MGR):

- Discussions around MGRs and sharing benefits from research and developing resources from marine life in the international waters have remained among the most contentious issues.
- While these issues were discussed almost daily, differences remained in establishing an access and benefit-sharing (ABS) mechanism, monetary benefit-sharing and intellectual property rights. These differences were visible during IGC-4, too.

Area-based management tools:

- A key focus of the treaty was to permit the creation of marine protected areas. But, the delegates disagreed on this. If agreed, this could have covered 30 per cent of the Earth's ocean by 2030, as stated by the UN Convention on Biological Diversity.
- The treaty could have, thus, contributed to the UN Biodiversity Conference scheduled from December 7-December 19 2022, in Montreal.

- In this decade of Ocean Science for Sustainable Development, the treaty could have been a valuable tool for humanity to rethink its relationship with the world's oceans.

Environmental Impact Assessments (EIA):

- EIA provisions of the BBNJ agreement offer the opportunity to update and modernise the practice of ecological assessment in ocean areas beyond national jurisdiction, stated the High Seas Alliance (HSA).
- HAS is a partnership of 40 non-profits, including the IUCN, to build a strong common voice and constituency for conserving the high seas. But, there were differences in EIA, too, according to the Earth Negotiations Bulletin.

Consensus on capacity building:

- The delegates acknowledged the need for building capacities and strengthening skills to explore the ocean. CB&TT are essential and the delegates agreed to establish a committee on CB&TT. But, they disagreed on funding modalities.
- The draft text was revised and released twice by IGC President during the meeting. Some member states, including India, are keen on adopting the most recent revised text, as the basis for further negotiations.

What's next?

- HSA called for the second part of IGC-5 to deliver a coherent and effective framework for EIAs. It also demanded sustainable benefit-sharing mechanisms.
- So, the second part of the IGC-5 session, which may be resumed in 2023, is likely to result in the new high seas treaty.

SAVE THE WHALE SHARK CAMPAIGN



Why in news?

- Recently, the Delhi-based non-profit, Wildlife Trust of India (WTI) launched 'Save the Whale Shark Campaign' along Karnataka, Kerala and Lakshadweep in Mangaluru.

About whale shark:

- The whale shark (Rhincodon typus) is the largest fish on Earth and a keystone species in marine ecosystems.
- It can grow to a length of approximately 18 metres and weigh as much as 21 tonnes.

Habitat:

- Although distributed widely across tropical and warm temperate seas, limited information is available on the population trends of this species, especially along the Indian coastline.
- The whale shark is distributed all along the Indian coast. However, the largest whale shark aggregation is along the Gujarat coast.

Conservation status:

- The fish is listed as a Schedule I animal under the Wild Life (Protection) Act, 1972.
- The International Union for Conservation of Nature (IUCN) has noted that whale shark populations are on the decline and its global status is notified as 'Endangered'.

Threats:

- According to IUCN, the main threat to these plankton feeders is accidental entanglement in fishing nets. This can result in mortality.
- The only way to curb such mortality is to ensure the release of the entangled whale sharks from the fishing net without any delay. For this, the primary target group, which is the fishers needs to be sensitised.
- WTI has been running a project in Gujarat for the last 20 years which has resulted in fisher folk releasing 852 whale sharks in the Arabian Sea.

Beyond Gujarat:

- WTI with the support of IUCN had conducted a survey along the west coast (excluding Gujarat) during 2012-13 and found that the highest number of Whale Shark sightings (after Gujarat coast) were near the waters of Lakshadweep.
- Whale shark landings and stranding are largely reported from Kerala.
- The main goal of this project is to reduce and eradicate whale shark death in the incidental catch in fishing nets by the voluntary release of the whale shark.
- This initiative targets the marine fishers along these two states and the island of Lakshadweep.

Way Forward:

- Sensitisation and awareness is the only solution.

SOCIAL ISSUES**DATA ON ACCIDENTAL DEATHS AND SUICIDES IN INDIA: NCRB****Why in news?**

- Recently, the National Crime Records Bureau (NCRB) has released "Accidental Deaths and Suicides in India".
- At the national level, the number of suicides increased by 7.17 per cent from the years 2020 to 2021. However, the number of suicides in the daily wage group rose by 11.52 per cent during this period.

Daily Wage Workers:

- Marking a steady increase since 2014, the share of daily wagers among those who die by suicide in the country has crossed the quarter mark for the first time, one in four of the recorded 1,64,033 suicide victims during 2021 was a daily wage earner.
- The report shows that daily wage earners remained the largest profession-wise group among suicide victims in 2021, accounting for 42,004 suicides (25.6 per cent).
- The report lists the daily wage numbers separately from those of agricultural labourers, who have been grouped in a sub-category under the category of "Persons engaged in farming sector".
- In 2020, too, daily wage earners accounted for the highest share, with 37,666 (24.6 per cent) of the 1,53,052 recorded suicides in the country.
- In 2019, before the Covid outbreak, the share of daily wage earners was 23.4 per cent (32,563) of the recorded 1,39,123 suicides.

RIISING SUICIDE RATE OF DAILY WAGE WORKERS

Source: NCRB

Persons engaged in farming sector:

- According to the report, 10,881 suicides were recorded in the "Persons engaged in farming sector" group in 2021, including 5,318 under "farmer/cultivator" and 5,563 "agricultural labourers".
- Significantly, while the number of suicides committed by "farmer/cultivator" has dipped – 5,579 in 2020 and 5,957 in 2019, those by "agriculture labourers" has risen sharply from 5,098 in 2020 and 4,324 in 2019.
- The overall share of "Persons engaged in farming sector" among the total recorded suicides stood at 6.6 per cent during 2021.
- The report defines "farmer/cultivator" as a person whose "profession is farming and includes those who cultivate on their own land as well as those who cultivate on leased land/other's land with or without the assistance of agricultural labourers".
- The "agricultural labourer" has been defined as a "person who primarily work in farming sector (agriculture/horticulture) whose main source of income is from agriculture labour activities".

Key Findings:

- The NCRB categorises suicide data under nine profession-wise groups: students, professional/

salaried persons, daily wage earner, retired persons, unemployed persons, self-employed persons, house wife, persons engaged in farming sector and other persons.

- Among these groups, the highest increase of 16.73 per cent was recorded by “self-employed persons”: 20,231 in 2021, 17,332 in 2020 and 16,098 in 2019. The share of “self-employed persons” among total suicides in the country also increased to 12.3 per cent in 2021 from 11.3 per cent a year ago.
- The “unemployed persons” group was the only one that saw a decline in suicides, with the number dipping by 12.38 per cent from 15,652 in 2020 to 13,714 suicides in 2021.
- The “House wife” category accounted for 14.1 per cent of the total suicides during 2021, their number increased by 3.6 per cent from 22,374 in 2020 to 23,179 in 2021.
- The report shows that the number of student suicides stood at 13,089 in 2021, up from 12,526 in 2020. In 2021, the number of suicides by “retired persons” stood at 1,518 while 23,547 suicides were recorded in the “other persons” category.
- According to the report, “Family Problems (other than marriage related problems)” with 33.2 per cent, “Marriage Related Problems” (4.8 per cent) and “Illness” (18.6 per cent) together accounted for 56.6 per cent of total suicides in the country in 2021.

Professioncategory	2020	2021	% Share in total Suicides in 2021	% Increase in suicides during 2021
Daily Wage Earner	37666	42004	25.6	11.52
Other Persons	20543	23547	14.4	14.62
House wife	22374	23179	14.1	3.60
Self Employed Persons	17332	20231	12.3	16.73
Professional/Salaried Persons	14825	15870	9.7	7.05
Unemployed Persons	15652	13714	8.4	-12.38
Students	12526	13089	8	4.49
Persons Engaged in Farming Sector	10677	10881	6.6	1.91
Retired Persons	1457	1518	0.9	4.19
Total	153052	164033	100	7.17

Male-female ratio of suicide:

- Nearly 68.1 per cent of the male victims were married whereas the ratio was 63.7 per cent for the female victims.
- 11.0 per cent victims of suicide were illiterate, 15.8 per cent victims of suicide were educated up to primary level, 19.1 per cent of the suicide victims were educated up to middle level and 24.0 per cent of the suicide victims were educated up to matric level.
- Only 4.6 per cent of total suicides victims were graduate and above.
- The report pegs the overall male-female ratio of suicide victims at 72.5:27.5 during 2021.

State-wise:

- From the nationwide number in 2021, the maximum of 22,207 suicides were recorded in Maharashtra,

followed by Tamil Nadu (18,925), Madhya Pradesh (14,956), West Bengal (13,500) and Karnataka (13,056).

- Among Union Territories, Delhi recorded the highest number of 2,840 suicides.
- The States and UTs which have reported higher percentage increase in suicides in 2021 over 2020 were Telangana (26.2 per cent), UP (23.5 per cent), Puducherry (23.5 per cent), Andhra Pradesh (14.5 per cent), Kerala (12.3 per cent), Tamil Nadu (12.1 per cent), Maharashtra (11.5 per cent) and Manipur (11.4 per cent) while highest percentage decrease was reported in Lakshadweep (50.0 per cent), Uttarakhand (24.0 per cent), Jharkhand (15.0 per cent), Jammu & Kashmir (13.9 per cent) and A & N Islands (11.7 per cent).

THE SPECIAL MARRIAGE ACT, 1954

Why in news?

- Recently, the Supreme Court dismissed a writ petition challenging provisions of the Special Marriage Act (SMA), 1954 requiring couples to give a notice declaring their intent to marry 30 days before their marriage.
- The Supreme Court dismissed a writ petition challenging the Constitutional validity of certain provisions of the SMA under which couples seek refuge for inter-faith and inter-caste marriages.



What does the petition seek? What did the court say?

- The writ petition has called these provisions violative of the right to privacy guaranteed under Article 21 of the Constitution as they require couples to give a notice of 30 days before the date of marriage inviting objections from the public.
- The writ petition has also said that the provisions contravene Article 14 on prohibition of discrimination on grounds of religion, race, caste and sex as well as Article 15 on right to equality as these requirements are absent in personal laws.
- A Bench of Justices rejected the writ petition on the grounds that the petitioner was no longer an aggrieved party as she had already solemnised her marriage under SMA. The petitioner said that they were now deliberating on an alternative approach

to initiate this litigation such as through a public interest litigation involving other victims.

- Another writ petition in Nandini Praveen vs Union of India & Others filed on similar grounds was admitted by the Supreme Court in 2020 and the government's reply to is awaited.

What are the provisions that have been challenged?

- Section 5 of the SMA requires couples getting married under it to give a notice to the Marriage Officer 30 days before the date of marriage. The writ seeks striking down of provisions that follow in Section 6 to Section 10.
- Section 6 requires such a notice to be then entered into the Marriage Notice Book maintained by the Marriage Officer, which can be inspected by "any person desirous of inspecting the same". These notices have to be also affixed at a "conspicuous place" in the office of the Marriage Officer so that anyone can raise an objection to the marriage.
- Section 7 provides the process for making an objection such as if either party has a living spouse, is incapable of giving consent due to "unsoundness of mind" or is suffering from mental disorder resulting in the person being unfit for marriage or procreation.
- Section 8 specifies the inquiry procedure to be followed after an objection has been submitted.

How do these provisions make couples vulnerable?

- These public notices have been used by anti-social elements to harass couples getting married.
- In Athira's (petitioner) case, who got married in 2019 under SMA, her marriage notice containing her address was circulated on Facebook and WhatsApp calling on people to visit her parents and make them "aware" about her marriage.
- While Athira had the support of her parents, for many others who often marry without their parent's consent this can be life-threatening.
- There have been instances, where marriage officers have gone over and beyond the law and sent such notices to the parents of the couple leading to a Muslim woman in Delhi being confined to her house by her parents in March 2020 until her boyfriend filed a habeas corpus in the Delhi High Court.

Different provisions:

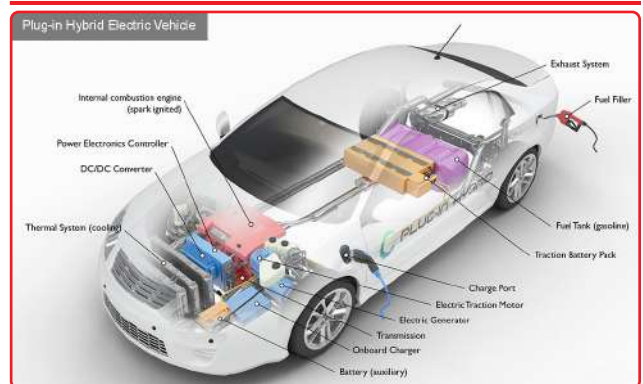
- Following another petition, the Sub-Divisional Magistrate (SDM) was slapped with a contempt notice and the Delhi government issued a warning to all SDMs in the State.
- The Haryana government has laid down 16 pre-requisites which ask couples to issue a notice in a newspaper and that such notices be sent to their parents. In certain States, couples have to seek a no-objection certificate from their parents.
- The Maharashtra Department of Registration and Stamps publicly shares the details of couples

marrying under SMA on its website and so did the Kerala government until Athira came forward and pointed out that this allowed communal elements to access personal details and threaten and harass couples.

- Many also complain about the behaviour of the staff at the SDM's office who often delete or delay applications and dissuade couples from marrying under SMA and ask them to convert at an Arya Samaj temple.
- With as many as 11 States passing anti-conversion (or so called love-jihad) laws, parents and the State are now armed to punish and harass such couples.

SCIENCE & TECHNOLOGY

TECHNOLOGY POWERING HYBRID ELECTRIC VEHICLES



Why in news?

- In recent months, automakers Maruti Suzuki, Toyota and Honda have launched hybrid electric vehicles in India, offering car buyers more choices in the nascent electric vehicle market.
- These new hybrid electric vehicles from different automakers, are relying on hybrid technology and its advantages over conventional internal combustion engine (ICE)-powered vehicles to change car buyers' minds.

What is a hybrid electric vehicle?

- A hybrid electric vehicle (HEV) uses an ICE (a petrol/diesel engine) and one or more electric motors to run. It is powered by the electric motor alone, which uses energy stored in batteries, by the ICE, or both.
- The powertrain of the HEV is more complex than a regular ICE-powered car as it has EV components and a conventional ICE.
- That means a typical HEV will have a low-voltage auxiliary battery, a traction battery pack to store electricity for the electric motor, an electric generator, an AC/DC converter, a power electronics controller, a thermal system to maintain working temperature, an ICE, a fuel tank, a fuel filler, a transmission and an exhaust system.

How do HEV powertrains work?

- HEV powertrains are designed to power cars in a series, parallel or series-parallel (power split) methods.
- A series HEV uses only the electric motor to drive the wheels, while the ICE powers the generator, which in turn recharges the battery.
- A parallel HEV, based on the driving condition, uses the best power source to power the vehicle. It will alternate between the electric motor and the ICE to keep the car moving.
- A series-parallel HEV offers a combination of both models and allows to split power, wherein power is routed from the ICE alone or from the battery to the electric motor to drive the vehicle. Moreover, in all three designs, the battery is charged through regenerative braking technology.

How does regenerative braking work?

- A regenerative braking system (RBS) used in automotive applications has several advantages like better braking efficiency in stop-and-go traffic which enhances fuel economy and also helps in reducing carbon emissions.
- Besides, RBS also helps in energy optimisation resulting in minimum energy wastage.

Types of RBS:

- Based on the type of RBS, the energy recovery happens in multiple ways.
 - a) A kinetic system can recover the energy lost during braking and then use this energy to recharge the high-voltage battery of the vehicle.
 - b) An electric system generates electricity through a motor during sudden braking.
 - c) Lastly, a hydraulic system uses pressurised tanks to store the vehicle's kinetic energy and can offer a high energy recovery rate which is ideal for heavy vehicles.

Efficiency:

- The efficiency of HEVs and EVs will in large part be determined by their ability to recover as much energy as possible while braking, with a higher degree of energy recovery lowering fuel consumption. The amount of recoverable energy depends upon factors like vehicle speed and stopping pattern.
- The adoption of regenerative braking technology in the auto industry is increasing on account of the operating efficiency of vehicles through reduced fuel consumption and the extended range of batteries.
- Maruti Suzuki, Toyota and Honda have introduced HEVs with multiple powertrain choices, including self-charging strong-hybrid electric vehicles (SHEVs) that use RBS for self-charging the HEVs. As per a study by iCAT, a government testing agency, SHEVs can run 40% of the distance and 60% of the time as an EV with the petrol engine shut off.

- While regenerative braking systems are already available in most EVs, the technology is also used in electric railways. Rail transit can be described as frequent acceleration and braking of trains across many stations.
- This increases the potential for braking energy recovery using energy storage systems, which can recuperate and reuse braking energy from metro cars, further enhancing energy efficiency.
- A portion of a train's energy consumption can be saved by using traction systems that allow regenerative braking.

What are the different types of HEVs?

- The HEVs can be categorised into micro, mild and full hybrid vehicles, based on the degree of hybridisation. The hybrid variants of the Maruti Suzuki's Grand Vitara and the Toyota's Urban Cruiser Hyryder can be classified as full and mild hybrids.
- A full HEV will have a larger battery and a more powerful electric motor compared with a mild HEV. As a result, a full HEV can power the vehicle for longer distances using just electric mode, whereas a mild HEV cannot drive using only the electric motor and uses the battery at traffic lights or in stop-and-go traffic to support the ICE.
- Micro hybrids do not offer electric torque assistance as they lack an electric motor, but they have an idle stop-start system and energy management functions. Full HEVs offer better fuel economy compared with the other two types of HEVs but they also cost more than them.
- Then there are plug-in hybrid electric vehicles (PHEVs) that are just like full HEVs, but they can be charged using a wall outlet, as they have an onboard charger and a charging port.
- PHEVs generally use the electric motor until the battery is almost drained, and then automatically switch to the ICE. PHEVs accounted for about 23% of 1.95 million global EV shipments in the first quarter of 2022, as per market research firm Counterpoint.

What are the main advantages of using hybrid technology?

- Fuel efficiency is a major factor for most people considering buying a car. Most vehicles with hybrid technology offer better fuel efficiency, more power, and minimum emissions.
- The design of hybrid vehicles for reduced engine size and car weight as compared to ICE vehicles, translates into increased mileage to favour the demand for these vehicles.
- Moreover, with the increase in total power and torque, HEVs can deliver instant torque and provide high torque even at low speeds.

What are some challenges of hybrid technology?

- In a price-sensitive market like India, one of the major challenges for HEVs is the high vehicle cost. Battery,

a vital component of an HEV, increases the cost of the vehicle, making it pricier than vehicles powered only by an ICE. The RBS also adds to the higher cost of an HEV.

Are HEVs helping the auto industry transition from ICE vehicles to EVs?

- The automotive industry is transitioning, with an increasing focus on hybrid and battery electric vehicles (BEVs or EVs). Meanwhile, the rise in fossil fuel prices, increase in the adoption of clean mobility solutions, and stringent government norms for emission control drive the growth of the global EV market.
- SHEVs will play a critical role not only in reducing fossil fuel consumption, carbon emissions and pollution but also in creating a local EV parts manufacturing eco-system while simultaneously protecting the huge existing investments and jobs related to ICE parts manufacturing thus ensuring a faster and disruption-free technology transition.

ALPHAFOLD: 3D STRUCTURE OF PROTEIN

Why in news?

- DeepMind, a company based in London and owned by Google, announced recently that it had predicted the three-dimensional structures of more than 200 million proteins using AlphaFold. This is the entire protein universe known to scientists today.

What is AlphaFold?

- AlphaFold is an AI-based protein structure prediction tool. It is based on a computer system called deep neural network. Inspired by the human brain, neural networks use a large amount of input data and provides the desired output exactly like how a human brain would.



- The real work is done by the black box between the input and the output layers, called the hidden networks. AlphaFold is fed with protein sequences as input.
- When protein sequences enter through one end, the predicted three-dimensional structures come out through the other. It is like a magician pulling a rabbit out of a hat.

How does AlphaFold work?

- It uses processes based on “training, learning, retraining and relearning.” The first step uses the available structures of 1,70,000 proteins in the Protein Data Bank (PDB) to train the computer model. Then, it uses the results of that training to learn the structural predictions of proteins not in the PDB.
- Once that is done, it uses the high-accuracy predictions from the first step to retrain and relearn to gain higher accuracy of the earlier predictions.
- By using this method, AlphaFold has now predicted the structures of the entire 214 million unique protein sequences deposited in the Universal Protein Resource (UniProt) database.

What are the implications of this development?

- Proteins are the business ends of biology, meaning proteins carry out all the functions inside a living cell. Therefore, knowing protein structure and function is essential to understanding human diseases.
- Scientists predict protein structures using x-ray crystallography, nuclear magnetic resonance spectroscopy, or cryogenic electron microscopy. These techniques are not just time-consuming, they often take years and are based mainly on trial-and-error methods.
- The development of AlphaFold changes all of that. It is a watershed movement in science and structural biology in particular.
- AlphaFold has already helped hundreds of scientists accelerate their discoveries in vaccine and drug development since the first public release of the database nearly a year back.

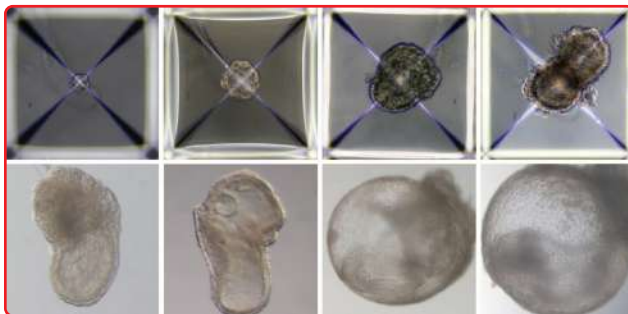
What does this development mean for India?

- India is no stranger to the field and has produced some fine structural biologists. The Indian community of structural biology is strong and skilled. It needs to quickly take advantage of the AlphaFold database and learn how to use the structures to design better vaccines and drugs. This is especially important in the present context.
- Understanding the accurate structures of COVID-19 virus proteins in days rather than years will accelerate vaccine and drug development against the virus. India will also need to speed up its implementation of public-private partnerships in the sciences.
- The public-private partnership between the European Molecular Biology Laboratory's European Bioinformatics Institute and DeepMind made the 25-terabyte AlphaFold dataset accessible to everyone in the scientific community at no cost.
- Learning from this, India could facilitate joint collaborations with the prevalent hardware muscle and data science talent in the private sector and specialists in academic institutions to pave the way for data science innovations.

Is AlphaFold one-of-a-kind tool in predicting protein structures?

- Although a tour-de-force in structural biology, like any other method, AlphaFold is neither flawless nor the only AI-based protein structure prediction tool.
- RoseTTaFold, developed by David Baker at the University of Washington in Seattle, U.S., is another tool. Although less accurate than AlphaFold, it can predict the structure of protein complexes.
- The development of AlphaFold is sure to make many scientists feel vulnerable, especially when they compare their efforts from years of hard work in the lab to that of a computer system. However, this is the time to adjust and take advantage of the new reality.
- Doing this will reinvigorate scientific research and accelerate discovery.

ISRAELI SCIENTISTS CREATE WORLD'S FIRST SYNTHETIC EMBRYO, WITHOUT SPERM



Why in news?

- Recently, scientists have developed the world's first synthetic embryo outside the womb using stem cells cultured in a petri dish. These cells were cultured without the use of fertilized eggs, bypassing the need for sperm.
- The study offers hopes of growing tissues and organs for transplantation using synthetic embryo models.

Naïve pluripotent cells:

- They team tried to emulate what an embryo does and built on two previous advances which include an efficient method for reprogramming stem cells back to a naïve state and using an electronically controlled device that keeps the embryos bathed in a nutrient solution inside of beakers that move continuously, simulating the way nutrients are supplied by material blood flow to the placenta.
- The study the potential of naïve pluripotent cells to self-organize and functionally reconstitute and model the entire mammalian embryo. The team grew the embryo from mouse stem cells that had been cultured for years in a petri dish.

How they managed to create synthetic embryos?

- The researchers separated the stem cells into three groups, one contained cells intended to develop

into embryonic organs themselves and the other two groups were pretreated for only 48 hours to overexpress one of two types of genes: master regulators of either the placenta or the yolk sac.

- They were then mixed in the electronically controlled device, in which just about 0.5% or 50 of around 10,000 went on to form spheres, each of which later became an elongated, embryo-like structure.
- They were able to observe the placenta and yolk sacs forming outside the embryos and the model's development proceeding as in a natural embryo.
- The synthetic embryos continued to develop for 8.5 days nearly half of the mouse's 20-day gestation at which stage all the early organ progenitors had formed, including a beating heart, blood stem cell circulation, and a brain with well-shaped folds, a neural tube, and an intestinal tract.

Outcome:

- When compared to natural mouse embryos, the synthetic models displayed a 95 percent similarity in both the shape of internal structures and the gene expression patterns of different cell types. The organs seen in the models gave every indication of being functional.

Way Forward:

- They are now looking to understand how stem cells know what to do how they self-assemble into organs and find their way to their assigned spots inside an embryo.
- Synthetic embryo could one day prove useful for modeling birth and implantation defects of human embryos.

FAILURE OF SSLV-D1

Isro's failed SSLV mission



09.18am
SSLV carrying EOS-2 and Azaadisaat satellites from Sriharikota launched

10.00am
Data loss reported 12 minutes into terminal stage of rocket

2.30pm
"Orbit achieved was less than expected, which makes it unstable", says Isro

2.45pm
Isro says satellites placed in wrong orbit, no longer usable

Why in news?

- The Indian Space Research Organisation (ISRO) said the satellites onboard its maiden Small Satellite Launch Vehicle "are no longer usable" after the

SSLV-D1 placed them in an elliptical orbit instead of a circular one.

Details:

- ⇒ The SSLV was launched carrying two satellites, including an earth observation micro-satellite called EOS-02 from the first launch pad at the Satish Dhawan Space Centre in Sriharikota.
- ⇒ After a successful lift-off and separation of its three stages, the flight deviated from its script.

Velocity Trimming Module (VTM):

- ⇒ The Velocity Trimming Module (VTM), which inserts the satellite into their desired orbits, is being cited as the cause of failure as it did not fire in the terminal stage. The VTM was to fire up for 30 seconds but it was barely ignited for one.
- ⇒ ISRO while declaring that all stages performed well, had initially hinted at data loss and did not straight away declare the mission a success.
- ⇒ SSLV-D1 placed the satellites into 356 km x 76 km elliptical orbit instead of 356 km circular orbit.

Unstable Orbit:

- ⇒ An unstable orbit means that the satellite's performance will be affected and there are chances that it could collide with others or in the worst-case scenario, crash back on the planet.
- ⇒ This marks the loss of two big satellites, the Earth Observation Satellite (EOS-02) and the AzadiSAT, a CubeSat developed by 750 girl students to mark the 75th year of India's Independence.
- ⇒ The satellites likely ended up over the Pacific between Australia and New Zealand.

What it translates?

- ⇒ The future of SSLV, ISRO's answer to the small satellite launch market, also looks grim, as the inaugural flight has not given the desired result. Developed at Rs 169 crore, the launch vehicle was pegged to be ready for flight in just 72 hours and could carry satellites up to 500 kilograms into space.
- ⇒ This is the second loss for ISRO in the span of just one year, which has had a perfect track record of launching satellites and missions into not just Low Earth orbit (LEO), but also in deep space.
- ⇒ The unstable delivery comes just months after the successful launch of the PSLV-C53 mission that deployed the Earth Observation Satellite.

GSLV-F10 mission:

- ⇒ ISRO had hit upon another loss in 2021 when its GSLV-F10 mission was lost minutes after liftoff.
- ⇒ ISRO lost the mission just 297.3 seconds after lift-off to a "technical anomaly", which it later said was due to a deviation in performance of the Cryogenic Upper Stage (CUS) of the launch vehicle.
- ⇒ Subsequent to lift-off the build-up of pressure in the propellant (Liquid Hydrogen or LH2) tank during the flight was not normal leading to a lower tank pressure at the time of ignition of the engine.

- ⇒ This led to an insufficient flow of Liquid Hydrogen into the engine thrust chamber and the reduction in LH2 tank pressure was due to a leak in the respective Vent and Relief Valve (VRV), which is used for relieving the excess tank pressure during flight.

Way Forward:

- ⇒ ISRO will set up a committee to review the failure. A committee would analyse and recommend. With the implementation of the recommendations, ISRO will come back soon with SSLV-D2.

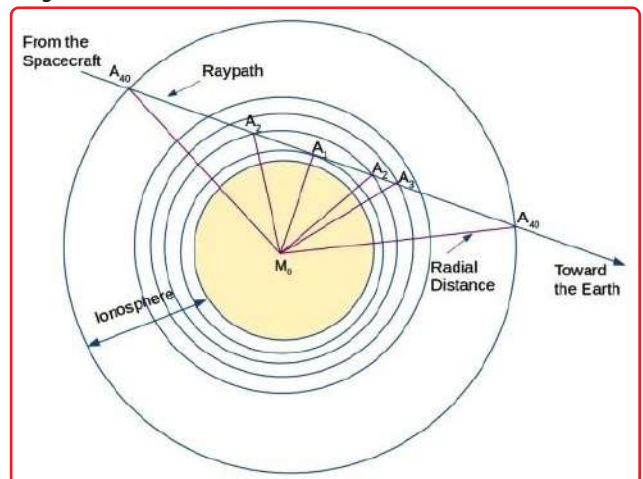
SSLV-D1 LAUNCH BY ISRO CHANDRAYAAN-2 FOUND PLASMA DENSITY IN THE MOON'S IONOSPHERE

Why in news?

- ⇒ Recently, the Chandrayaan-2 found that there is a plasma density in the Moon's ionosphere.

What is the latest finding?

- ⇒ The spacecraft hovering in lunar orbit discovered that the Moon's ionosphere has a plasma density in the wake region, which is at least one order of magnitude more than what is present on the day side.
- ⇒ The spacecraft has been studying the lunar surface ever since it arrived in orbit in 2019.
- ⇒ The observed plasma density in the Lunar wake region opens new dimensions in understanding the lunar dark side plasma environment.
- ⇒ In the wake region, neither the solar radiation nor the solar wind interacts directly with the available neutral particles, but still, the plasma is getting generated.



Ray-tracing of radio signals in the lunar ionosphere. A1 is the point of impact factor on the given ray path. (Photo: ISRO)

Dual Frequency Radio Science (DFRS):

- ⇒ The spacecraft used its Dual Frequency Radio Science (DFRS), designed to study the lunar ionosphere. The instrument uses two coherent signals at the

S-band (2240 MHz) and X-band (8496 MHz) of radio frequencies, transmitted from the Chandrayaan-2 orbiter and received at the ground station at Byalalu, Bangalore to explore the lunar plasma ambience using the radio occultation (RO) technique.

- The measurements made using DFRS have shown that the moon's ionosphere has a plasma density of 104 per cubic centimetre in the wake region, which is at least one order of magnitude more than that present on the day side.
- ISRO said that simultaneous measurements by two coherent radio signals help to mitigate the effect of the Earth's atmosphere and any uncertainties due to various sources during the experiments.
- A total of 12 such radio occultation experiments were conducted in campaign mode on four different occasions.

Large electron content:

- The Indian space agency said that large electron content is also seen near lunar polar regions during solar twilight conditions.
- Numerical simulations of the dark side of plasma environment using a 3-dimensional Lunar Ionospheric Model (3D-LIM) developed at SPL that the production of ions by charge exchange reactions may play a pivotal role in producing a significantly large plasma density in the Lunar wake region, which can sustain for a longer period.
- The model suggests that the dominant ions in the wake region are argon and neon, which have a comparatively longer lifetime than the molecular ions of carbon dioxide and water that are dominant in other regions.

Background:

- The Chandrayaan-2 orbiter, which will be used with the Chandrayaan-3 mission, had previously looked at the Sun and found an abundance of magnesium, aluminum, and silicon in the solar corona and observed around 100 microflares, providing new insights about coronal mass heating.

Way Forward:

- These observations are unique in nature as they show post-sunset enhancements in the iEDPs compared to dayside, as reported by earlier missions.
- These results further confirm recent predictions from the theoretical model for the lunar ionosphere.

7.3% OF INDIANS OWNED DIGITAL CURRENCY IN 2021, 7TH HIGHEST IN WORLD: UN

Why in news?

- Over seven per cent of India's population owns digital currency, according to the UN, which said that the use of cryptocurrency rose globally at an unprecedented rate during the COVID-19 pandemic.



Top users of cryptocurrencies:

- The UN trade and development body UNCTAD said that in 2021, developing countries accounted for 15 of the top 20 economies when it comes to the share of the population that owns cryptocurrencies.
- Ukraine topped the list with 12.7 per cent, followed by Russia (11.9 per cent), Venezuela (10.3 per cent), Singapore (9.4 per cent), Kenya (8.5 per cent) and the US (8.3 per cent).
- In India, 7.3 per cent of the population owned digital currency in 2021, ranking seventh in the list of top 20 global economies for digital currency ownership as share of population.

"All that glitters is not gold: The high cost of leaving cryptocurrencies unregulated":

- Global use of cryptocurrencies has increased exponentially during the COVID-19 pandemic, including in developing countries.
- In three policy briefs published, it said that while these private digital currencies have rewarded some and facilitate remittances, they are an unstable financial asset that can also bring social risks and costs.
- The policy brief titled "All that glitters is not gold: The high cost of leaving cryptocurrencies unregulated" examines the reasons for the rapid uptake of cryptocurrencies in developing countries, including facilitation of remittances and as a hedge against currency and inflation risks.
- It said that recent digital currency shocks in the market suggest that there are private risks to holding crypto, but if the central bank steps in to protect financial stability, then the problem becomes a public one.
- If cryptocurrencies become a widespread means of payment and even replace domestic currencies unofficially (a process called cryptoisation), this could jeopardise the monetary sovereignty of countries, it said.
- In developing countries with unmet demand for reserve currencies, stablecoins pose particular risks. For some of these reasons, the International Monetary Fund has expressed the view that cryptocurrencies pose risks as legal tender.

“Public payment systems: Responding to the financial stability and security-related risks of cryptocurrencies”:

- The policy brief titled “Public payment systems in the digital era: Responding to the financial stability and security-related risks of cryptocurrencies” focuses on the implications of cryptocurrencies for the stability and security of monetary systems, and to financial stability.
- It is argued that a domestic digital payment system that serves as a public good could fulfil at least some of the reasons for crypto use and limit the expansion of cryptocurrencies in developing countries, it said, adding that depending on national capabilities and needs, monetary authorities could provide a central bank digital currency or, more readily, a fast retail payment system.
- Given the risk of accentuating the digital divide in developing countries, UNCTAD urges authorities to maintain the issuance and distribution of cash.

How cryptocurrencies can undermine domestic resource mobilisation in developing countries?

- The policy brief titled, “The cost of doing too little too late: How cryptocurrencies can undermine domestic resource mobilisation in developing countries” discusses how cryptocurrencies have become a new channel undermining domestic resource mobilisation in developing countries.
- While cryptocurrencies can facilitate remittances, they may also enable tax evasion and avoidance through illicit flows, just as if to a tax haven where ownership is not easily identifiable.
- In this way, cryptocurrencies may also curb the effectiveness of capital controls, a key instrument for developing countries to preserve their policy space and macroeconomic stability.

Way Forward:

- UNCTAD urged authorities to take actions to curb the expansion of cryptocurrencies in developing countries, including ensuring comprehensive financial regulation of cryptocurrencies through regulating crypto exchanges, digital wallets and decentralised finance, and banning regulated financial institutions from holding cryptocurrencies (including stablecoins) or offering related products to clients.
- It also called for restricting advertisements related to cryptocurrencies, as for other high-risk financial assets; providing a safe, reliable and affordable public payment system adapted to the digital era; implementing global tax coordination regarding cryptocurrency tax treatments, regulation and information sharing and redesigning capital controls to take account of the decentralised, borderless and pseudonymous features of cryptocurrencies.

INDIA'S FIRST SALINE WATER LANTERN



Why in news?

- Recently, Ministry of Earth Science has launched India's first Saline Water Lantern which uses the sea water as the electrolyte between specially designed electrodes to power the LED lamps.
- Union Minister Dr Jitendra Singh unveiled the first-of-its kind lantern named “Roshni” during a visit to SAGAR ANVESHIKA, a Coastal Research Vessel, operated and used by the National Institute of Ocean Technology (NIOT), Chennai for coastal research.

Scope:

- The Saline Water Lantern will bring “Ease of Living” to the poor and needy, particularly the fishing community living along the 7500 Kilometres long coastal line of India.
- Saline Water Lantern will also boost and supplement Prime Minister's UJALA scheme launched in 2015 for distribution of LED bulbs across the country.
- Roshini Lamps along with Power Ministry's schemes like Solar Study Lamps will be driving a vibrant renewable energy programme aimed at achieving energy security, energy access and reducing the carbon footprints of the national economy.
- This technology can also be used in hinterlands, where sea water is not available, as any saline water or normal water mixed with the common salt can be used to power the lantern, which is not only cost-effective, but very easy to operate.

Low Temperature Thermal Desalination (LTTD) technology:

- He also reviewed the progress of NIOT developed Low Temperature Thermal Desalination (LTTD) technology for conversion of sea water to potable water, which has been successfully demonstrated in Lakshadweep islands.
- Three desalination plants based on the LTTD technology have been developed and demonstrated at Kavaratti, Agati and Minicoy Islands of Union Territory of Lakshadweep. The capacity of each of these LTTD plants is 1 Lakh litre of potable water per day.

- Based on the success of these plants, Ministry of Home Affairs (MHA) through Union Territory (UT) Lakshadweep has entrusted the work of establishing 6 more LTTD plants at Amini, Androth, Chetlet, Kadmat, Kalpeni and Kiltan with a capacity of 1.5 lakhs litres/day.
- The LTTD technology is found suitable for Lakshadweep islands where the required temperature difference of about 15°C between sea surface water and deep-sea water is found in the vicinity of Lakshadweep coasts only as of now.
- The cost of desalination plant depends on a number of factors inter alia which includes technology used and location of plant. The total cost of the six LTTD plants in Lakshadweep islands is ₹ 187.75 cr.

Way Forward:

- The Ministry lauded the NIOT team for inventing the Roshini Lamp and advised them to transfer the technology to the industry for mass production of this multipurpose lamp which can be of immense help in rural and remote areas and in the times of the disasters.

RUSSIA UNVEILS MODEL OF ITS NEW SPACE STATION ROSS

Why in news?

- Weeks after the Russian space agency declared that there are plans to quit the partnership with the west on the International Space Station by 2024, Roscosmos unveiled a physical model of its new space station.
- The latest development also indicates the Russian plans to withdraw from the alliance in space with the US, the European Space Agency and the Canadian Space Agency are going forward and it is taking the Chinese way in building their own flying laboratory in Earth's orbit.



What is the Russian space station?

- Roscosmos presented a model of the planned space station, dubbed "ROSS" at "Army-2022", a military-industrial exhibition outside Moscow.
- The new space station would be launched in two phases and that the first phase would see a four-module space station begin operations and science experimentation.

- This will be followed by a further two modules and a service platform and, when completed, it would be capable of housing up to four cosmonauts as well as scientific equipment.
- The space station plans show Russian prowess in building their own orbital outpost, especially with the experience of living and working on the ISS for over two decades.
- The launch of the first stage is planned for 2025-26 and no later than 2030. The launch of the second and final stage is planned for 2030-35.

Wider view:

- The new station would afford Russian cosmonauts a much wider view of the Earth for monitoring purposes than they enjoy in their current segment.
- The Russian station, unlike the ISS will not have a permanent human presence and that it would be staffed twice a year for extended periods.

Reducing dependency on West:

- The plans to construct its own space station have been in the works in Russia for a while, and the Ukraine war followed by western sanctions pushed it ahead.
- Russia is pushing to reduce its dependency on Western nations and forge ahead on its own or cooperate with countries like China and Iran when it comes to space exploration.
- Meanwhile, the West has accused Russia of prosecuting an unprovoked imperial-style war of aggression against Ukraine and imposed harsh sanctions aimed at breaking the Russian military modernisation and space campaigns.

Background:

- Yuri Borisov, whom President Vladimir Putin appointed to head Roscosmos, has said Russia will quit the ISS after 2024 and is working to develop its own orbital station.
- The ISS has been a hub of international experiments, deep space exploration campaigns, and a center to test future science required by humans in their campaigns on Moon and Mars.

International Space Station (ISS):

- The ISS is the most complex international scientific and engineering project in history and the largest structure humans have ever put into space.
- This high-flying satellite is a laboratory for new technologies and an observation platform for astronomical, environmental and geological research.
- The ISS is built with the cooperation of scientists from five international space agencies – NASA of the US, Roscosmos of Russia, JAXA of Japan, Canadian Space Agency and the European Space Agency.
- Each agency has a role to play and a share in the upkeep of the ISS. Both in terms of expense and effort, it is not a feat that a single country can support.

- ⇒ Russia's part in the collaboration is the module responsible for making course corrections to the orbit of the ISS.

DRDO DEVELOPS 'FACE RECOGNITION SYSTEM UNDER DISGUISE' (FRSD)



Context:

- ⇒ The National Crime Records Bureau had floated a tender for deployment of a facial recognition system that can detect faces with masks or disguises during the pandemic.
- ⇒ Recently, Defence Research and Development Organisation (DRDO) has indeed developed such a system.

Details:

- ⇒ Dubbed Face Recognition System under Disguise (FRSD), the system claims to detect faces through several "disguises like face masks, beard, moustache, wigs, sunglasses, head-scarves, monkey-caps, hats, etc".
- ⇒ The Ministry of Defence (MoD) recently released a report called 'AI in Defence', which revealed FRSD and other three facial recognition systems developed by organisations under MoD for the Indian Army.
- ⇒ Since these technologies may not just be reserved for military activities, but also be deployed in public places, it is necessary to throw light on how and why they are being used.

Face Recognition System under Disguise (FRSD):

- ⇒ Instead of human eyes, the FRSD relies on algorithms to identify the person from patchy, low-resolution surveillance camera feeds. The algorithm can also be used by security agencies for robust face search across large repositories.
- ⇒ The system can be deployed in restricted/ secure zones for live video surveillance. It can also be deployed in public places to recognise anti-social elements.
- ⇒ It takes into consideration different lighting conditions, shadows on the face, crowd occlusions and so on for identification.
- ⇒ DRDO has developed the system keeping in mind that it should be scalable across servers and graphic processing units.

- ⇒ The system comes with a flexible video analytics suite with a number of additional surveillance applications like people counting, geo-fencing, fire detection and collision detection.

Project Seeker:

- ⇒ Project Seeker is a facial recognition system developed by entities under the MoD.
- ⇒ Developed and deployed by the Indian Army, it has been designed for population monitoring, surveillance and garrison security, according to the MoD report.
- ⇒ It doesn't require internet connectivity, can accrue intelligence data from multiple sources and be set up remotely with a field-ready system anywhere.
- ⇒ It can be deployed in 'disturbed' areas for continuous surveillance and monitoring, as well as at civilian establishments 'for ensuring state-of-the-art security'.
- ⇒ The Seeker system is a self-contained, AI-based facial recognition, surveillance, monitoring, and analysis system for identification & tracking of threats for counter-terrorism, continuous surveillance, and monitoring of disturbed areas.
- ⇒ The system can be deployed in 'critical military' or 'civilian establishments' for added security.
- ⇒ Using intelligence data from various sources, the Army aims to track the movement of terrorists and 'anti-national' elements. There is no legal definition for the term 'anti-national', and has not been defined in Statutes.



Robot at border:

- ⇒ Apart from Project Seeker, the Indian Army has also developed Silent Sentry, which is a fully, facial recognition capable, 3D-printed rail-mounted robot that slides on a rail and can be installed on fences and anti-filtration obstacle system (AIOS).
- ⇒ The robot which communicates through WiFi is embedded with artificial intelligence for detecting human beings and faces.
- ⇒ The video feed received from the robot is analysed by an AI software utilising object recognition. The software detects movement and human presence automatically, generates an audio alarm and stores the photographs with time and date log.
- ⇒ On detection of a human, a background facial recognition algorithm is activated, which tries to

determine the identity of a person from a stored database. The facial feature information is then stored in the database.

Driver fatigue monitoring system:

- BEML Ltd, a public sector company under the MoD, has developed a driver fatigue monitoring system which uses facial recognition. Assessing driver fatigue in critical conditions is an indispensable tool, especially in the Armed Forces.
- The report said that the system detects the onset of drowsiness in a driver while the vehicle is in motion.
- A camera inside the cabin films the driver continuously, and an algorithm analyses the footage frame by frame and determines whether the driver's eyes are open or closed.
- Detection is done by continuously looking out for symptoms of drowsiness, while considering physical cues including yawning, drooping eyelids, closed eyes and increased blink durations by using the percentage of eyelid closure over the pupil over time (PERCLOS) algorithm.
- As dazzling as these technologies may sound, at the end of the day, these are all based on algorithms and the software that is being deployed.

Concerns:

- There are concerns over mis-identification due to poor accuracy in correctly identifying faces.
- For instance, in a test conducted in 2018, Amazon's facial recognition tech known as Rekognition incorrectly matched 28 members of US Congress, identifying them as other people who have been arrested for a crime.

Reliability:

- Two siblings wearing masks can very well have similar looking upper-half of the face. They can be wrongly identified. This can even lead to communities being targeted.
- Any decision taken on account of any misinformation might lead to dire consequences. Facial recognition, as a practice, in its application, can also have shortcomings of its own.
- Therefore, the data thus received needs to be subject to a process where the Armed Forces need to further scan and filter the retrieved data.

Privacy:

- Over the years, the deployment of facial recognition technology by state governments and the Centre for governance and policing has been under the scanner of civil society groups and digital rights activists, who worry about privacy infringement.
- Although the usage of the system will be more concentrated on foreigners, queries are raised on the data collection practices, and on whether its usage aligns with the Right to Privacy judgement.
- There is no legal framework which mandates transparency in data collection for the above purpose.

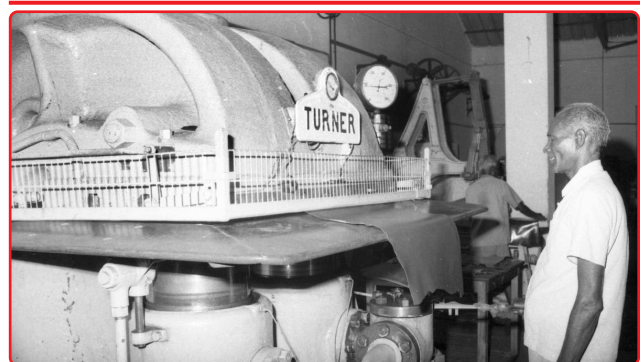
The opacity regarding the use of personal data can be a violation of the right to privacy as given in the case of Justice K.S. Puttaswamy (Retd.) versus Union of India.

- Furthermore, the Army is also keen to monitor social media pages. Such surveillance will intersect with already existing state surveillance and might not fall within the purview of roles of Armed Forces.

Legality:

- The data collected from facial recognition solutions comes within the purview of "Biometric Data" and is classified as "sensitive personal data under the Information Technology (Reasonable security practices and procedures and sensitive personal data of information) Rules, 2011 ("SPDI Rules").
- However, regulations have carved out exemptions for government agencies to collect and use such data without the consent of the data subject, with the underlying presumption being that such use of data is for the general public good and national security.
- The recent notification of the Criminal Procedure (Identification) Act, 2022 also allows authorities to collect and share biometric information."

INDIA AT 75 | HIGH POINTS IN SCIENCE, TECHNOLOGY AND INNOVATION



Context:

- Reflecting on 75 years of Independence makes one proud of the socio-economic developments of India. The long period of colonial rule had robbed India of most of its wealth, and, more importantly, the skills required to sustain economic growth.
- Starting off as a poor country in 1947, with its GDP a mere ₹2.7 lakh crore, and food grain production a meagre 50 million tonnes, the challenges of educating the people, feeding the population, implementing democracy, promoting industry and trade, and ensuring the country's security remained daunting.

Establishment of CSIR:

- It is against this backdrop that the responsibility of developing the science, technology and innovation ecosystem fell upon the Council of Scientific and Industrial Research (CSIR), which had been founded in 1942.

- The immediate priority of the CSIR was to establish a number of national laboratories under its umbrella, and also promote similar organisations independently.
- The CSIR started five of its own laboratories with support from the government and industry and raising resources through crowdsourcing.
- Similarly, in collaboration with the Sir Dorabji Tata Trust and the Government of Bombay, the Government of India (through the CSIR) started the Tata Institute of Fundamental Research, with the CSIR providing substantial financial support in the initial years.

National Calendar:

- Among the first examples of finding science and technology-based solutions was the harmonisation of existing varied calendar systems. A committee under the Chairmanship of Meghnad Saha was formed to address this issue.
- The committee's report was published by the CSIR in 1955, which then led to its acceptance as the national calendar, now one of the national identity elements.

Indelible ink:

- Another example in the early years of Independence was to address the challenges in conducting democratic elections, preventing frauds, including double voting by the same person.
- The CSIR's National Physical Laboratory developed the indelible ink made up of silver nitrate to address this concern.
- The indelible ink is used even today and exported to many countries, undoubtedly remaining one of the prized gifts of the CSIR to the nation.

Industries:

- At the time of Independence, India did not have well-established industries in many sectors. The informal work sector was also highly unorganised without their skills being developed for any particular industrial segment.
- A key mandate of the CSIR was, therefore, to help develop local industries by making contemporary technologies available and training requisite manpower.
- Human resource development across all sectors, dominantly that in science, technology and innovation, has been the hallmark of CSIR.

Example of leather industry:

- A prominent example of the CSIR's contributions in this context has been in developing the leather industry. The making of finished leather products had remained elusive in the absence of a well-established leather industry and relevant technologies. Consequently, the leather industry employed less than 25,000 people at the time of Independence.
- In the 1970s, the Government took the decision of banning the export of raw hides and skins, and also imposing 25% export duty on semi-finished leather

products. These decisions were a major turning point as far as the development of the leather industry in India was concerned.

- In more than 50 years since then, the leather industry now has a workforce of more than 4.5 million, a large percentage of them being women, and a thriving market for Indian leather products around the world. Indian exports in this sector are close to \$6 billion. The CSIR's footprint in this sector has been transformative.
- First, when the CSIR-Central Leather Research Institute (CLRI) was established in 1948, it developed technologies for finished leather products, such as the first ever indigenous manufacture of leather chemicals, making the transition from semi-finished to finished leather possible.
- Further, the CSIR-CLRI routinely trained the next generation manpower for the leather industry. As a result, more than 40% personnel employed in the leather industry have been trained directly or indirectly in the CSIR-CLRI.

Successes in technologies:

- The Green Revolution has been one of the crowning glories of science, technology and innovation. Similarly, the emergence of the generic pharmaceutical industry in India also has a fascinating history.
- During the Green Revolution, the CSIR's footprint could be seen in the development of agrochemicals and the mechanisation of agriculture.
- The chemicals industry needed the necessary thrust for its maturation although the Bengal Chemicals and Pharmaceuticals Ltd. had been formed by Acharya Prafulla Chandra Ray long before Independence.
- Two public sector companies were founded, post-Independence, based on technologies developed in the CSIR's laboratories – the Hindustan Insecticides Ltd. and Hindustan Organic Chemicals Ltd., the former to make agrochemicals.
- Similarly, production of anti-HIV drugs by processes developed in CSIR laboratories provided the necessary impetus to the growth of generic pharmaceutical companies.
- The mechanisation of agriculture was achieved through the indigenous development of the Swaraj tractor at the CSIR-Central Mechanical Engineering Research Institute (CMERI), leading to the formation of Punjab Tractors Ltd. in 1970.

Path to self-reliance:

- A significant impact of the CSIR is also seen in the food and nutrition industry, in the aerospace sector, in the health and biotechnology industry, in protecting India's traditional knowledge systems, and in promoting crops for enhancing farmers' incomes.
- For example, in the 1950s, when solving the infant food problem appeared impossible, the CSIR successfully developed technologies to convert buffalo milk into

powder and commercialised it with the help of Amul Industries.

- The Aroma Mission of the CSIR in recent times has been transforming the lives of thousands of farmers across the country. The cultivation of lavender in the Union Territory of Jammu and Kashmir has been attracting attention worldwide as India's 'Purple Revolution'.
- Thus, there are many examples of science, technology and innovation, which have allowed India to take definitive steps towards becoming an Atmanirbhar country.

Way Forward:

- Even the growing affluence of Indian society is attributed to science, technology and innovation-led developments, the challenges for the future remain intimidating.
- Reducing dependence on natural resources, making all industrial processes circular so that no footprint of human activity is left, making technologies environmentally friendly, providing sufficient opportunities to all for living either in cities or in villages will remain priorities of science and technology.
- Moreover, the ancient wisdom of integrating science and spirituality by enhancing our understanding of nature in association with that of the human mind and spirit will be the fond hope of the science and technology community of India.

Why in news?

- Scientists have found evidence of asteroid impact. The asteroid crashed into the Atlantic Ocean, leaving behind a massive 8.5-kilometer-wide crater in the seabed.
- The crater has been found nearly 400 meters below the seabed, nearly 400 kilometers off the coast of Guinea, West Africa.

Key Findings:

- Researchers using computer simulation managed to scope out the crater and identify the causes and effects of the massive crash.
- The simulation indicated that the crater was formed by the collision of a 400-meter-wide asteroid in 500-800 meters of water, that could have generated a tsunami over one kilometer high, as well as an earthquake of magnitude 6.5 or above.
- The energy released would have been around 1000 times greater than that from the January 2022 eruption and tsunami in Tonga.
- These are preliminary simulations and need to be refined, but they provide important new insights into the possible ocean depths in this area at the time of impact.

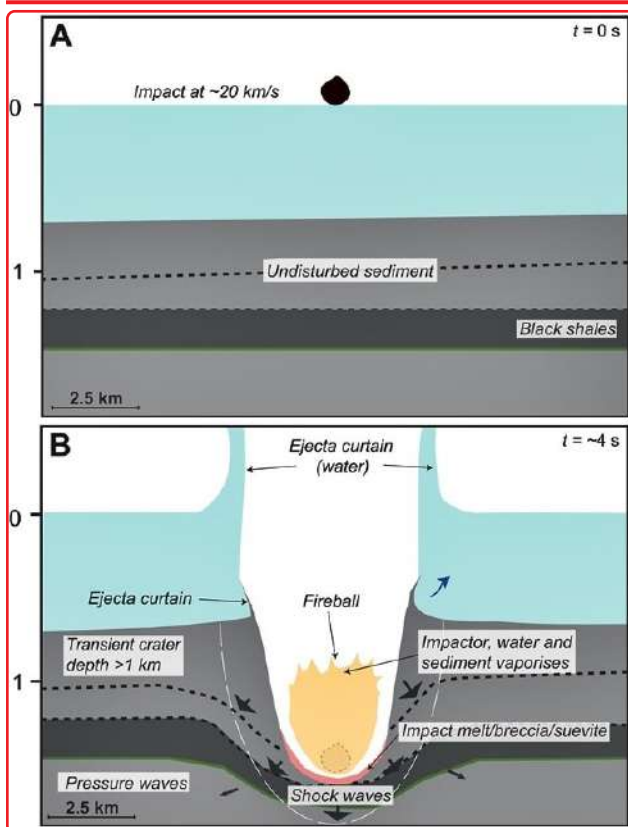
Nadir crater:

- The crater was discovered by Dr. Uisdean Nicholson, a geologist at Heriot-Watt University in Edinburgh when he was examining the seismic reflection from the seabed of the Atlantic.
- Instead of flat sedimentary sequences in the seismic reflection, he found an 8.5km depression under the seabed, with very unusual characteristics.
- It has particular features that point to an asteroid. It has a raised rim and a very prominent central uplift, which is consistent for large impact craters. It also has what looks like ejecta outside the crater, with very chaotic sedimentary deposits extending for tens of kilometers outside of the crater.
- Naming it Nadir crater after a nearby seamount, the researcher maintains that the characteristics are just not consistent with other crater-forming processes like salt withdrawal or the collapse of a volcano.

Was it part of the same asteroid that wiped out dinosaurs?

- Analysis of seismic data revealed that sediments impacted by the asteroid correspond with the Cretaceous-Paleogene boundary, however, they are not yet sure due to the resolution of the seismic data. The period corresponds to the age when the asteroid that wiped out dinosaurs from Earth came crashing down.
- It is speculated that it could be part of the impact cluster or a breakup of a common parent asteroid.
- The Nadir Crater is an incredibly exciting discovery of a second impact close in time to the Cretaceous

UNDERSEA CRATER FOUND IN ATLANTIC



Paleogene extinction. So far only 200 such impact sites have been found in the 4.5-billion-year history of the planet.

What's next?

- The scientists are hopeful that if they are able to drill into the seabed and collect samples, they could prove the theory of the asteroid impact that likely happened 66 million years ago - around the same time that the Chicxulub asteroid hit Earth and wiped out the dinosaurs.

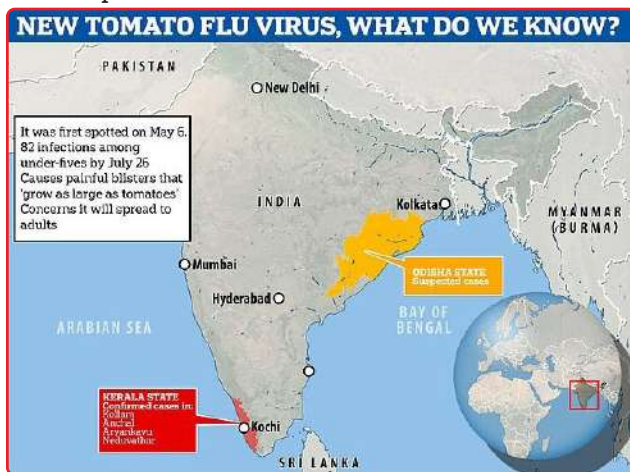
TOMATO FLU OUTBREAK IN INDIA

Why in news?

- While India continues to battle COVID-19 and monkey pox, a new virus known as tomato flu, or tomato fever, has emerged in India in the state of Kerala in children younger than five years.
- The rare viral infection is in an endemic state and is considered non-life threatening.

States affected:

- According to reports, 82 kids below five years of age have been infected so far. Tomato flu is a self-limiting illness and no specific drug exists to treat it.
- Additionally, 26 children (aged 1–9 years) have been reported as having the disease in Odisha by the Regional Medical Research Centre in Bhubaneswar.
- To date, apart from Kerala, Tamil Nadu, and Odisha, no other regions in India have been affected by the virus. However, precautionary measures are being taken by the Kerala health department to monitor the spread of the viral infection and prevent its spread in other parts of India.



Symptoms:

- The virus could also be a new variant of the viral hand, foot, and mouth disease, a common infectious disease targeting mostly children aged 1–5 years and immunocompromised adults.
- Although the tomato flu virus shows symptoms similar to those of COVID-19 (both are associated with fever, fatigue, and body aches initially, and some

patients with COVID-19 also report rashes on the skin), the virus is not related to SARS-CoV-2. Tomato flu could be an after-effect of chikungunya or dengue fever in children rather than a viral infection.

- Symptoms include, besides fever, fatigue, and body aches, rashes that lead to skin irritation.
- As with other viral infections, further symptoms include, nausea, vomiting, diarrhoea, dehydration, swelling of joints, body aches, and common influenza-like symptoms, which are similar to those manifested in dengue.

Origin:

- The tomato flu was first identified in the Kollam district of Kerala on 6 May, 2022.
- The disease gets its name on the basis of the eruption of red and painful blisters throughout the body that gradually enlarge to the size of a tomato. These blisters resemble those seen with the monkeypox virus in young individuals.

Treatment:

- Owing to its similarity to chikungunya and dengue as well as hand, foot, and mouth disease, treatment is also similar to them; isolation, rest, plenty of fluids, and hot water sponge for the relief of irritation and rashes.
- Supportive therapy of paracetamol for fever and body ache and other symptomatic treatments are required.

Susceptible group:

- According to the study, children are at increased risk of exposure to tomato flu as viral infections are common in this age group and likely to spread through close contact.
- Young children are also prone to this infection through use of nappies, touching unclean surfaces, as well as putting things directly into the mouth.

Prevention:

- Isolation should be followed for five to seven days from symptom onset to prevent the spread of infection to other children or adults.
- The best solution for prevention is the maintenance of proper hygiene and sanitisation of the surrounding necessities and environment as well as preventing the infected child from sharing toys, clothes, food, or other items with other non-infected children.
- Drug repurposing and vaccination are the most efficacious and ensure the safety of public health from viral infections, especially in children, older people, immunocompromised people, and those with underlying health issues.

Way Forward:

- Given the similarities to hand, foot, and mouth disease, if the outbreak of tomato flu in children is not controlled and prevented, transmission might lead to serious consequences by spreading in adults as well. Similar to other types of influenza, tomato flu is very contagious.

- Hence, it is mandatory to follow careful isolation of confirmed or suspected cases and other precautionary steps to prevent the outbreak of the tomato flu virus from Kerala to other parts of India.

IMPROVING RICE YIELD WITH AN ADDITIONAL GENE

Why in news?

- A transcriptional regulator that boosts grain yields and shortens the growth duration of rice has been in news.
- The supercharged biotech rice yields 40% more grain.

Details:

- This report points out that giving a Chinese rice variety a second copy of one of its own genes has boosted its yield by up to 40%.
- When a second copy of a single gene (called OsDREB1C) is added to rice, it improves photosynthesis and nitrogen use, speeds up flowering and absorbing nitrogen more efficiently—offering larger and more abundant grains.
- The change helps the plant absorb more fertilizer, boosts photosynthesis, and accelerates flowering, all of which could contribute to larger harvests.



Green Revolution and aftermath in India:

- The Green Revolution of the 1960s brought about a marked improvement in the yield of agricultural crops such as rice and wheat.
- It was based on the use of newly developed high-yielding crop varieties in conjunction with the intense use of irrigation, chemical fertilizers and pesticides. India saw a three-fold increase in rice yield per hectare.
- Now, fifty years later, some negative effects of this intense methodology are becoming apparent—nitrogen fertilizers and agrochemicals pose environmental hazards; water is often in short supply; and agricultural soil is increasingly fatigued.
- To obtain more food for the world's growing population, forests and grasslands would have to be converted to farms in order to produce food. This, in turn, would enormously strain our ecosystems.

India's rice exports:

- India is the world's largest exporter of rice. It exported 18.75 million metric tons to over 150 countries during the year 2021-22, thereby earning \$6.11 billion.
- With growing demand in the coming years, strategies should be found to increase the production and export of rice.
- Vietnam turns out to be the second most producer of rice, and it produced 6.5 million tonnes in 2021-2022. It has to be much more than the 18.75 million tons for India to continue and expand its role as the world's largest producer and exporter of rice.

Gene modulation:

- A key point is that the researchers have added the same gene again, and not any foreign one. This is best described as genetic modulation. It is not a genetic modification (GM) and neither is the result a transgenic plant, carrying elements from another donor.
- This is particularly relevant to India, which must aim to continue its world position in the production of rice and marketing.
- India has exempted crops with certain kinds of genetic modifications from the regulations previously imposed on the commercialisation of all genetically modified crops.
- For example, BT cotton involves the transfer of the gene from the bacterium called *Bacillus thuringiensis* (BT) to be transferred to normal cotton. India's Agriculture Ministry has pointed out in 2019 that they have allowed transfer of this foreign gene to normal cotton, produce the BT cotton, which is then manufactured and sold both in India and abroad.
- India will import 1.2 million tons of genetically modified (GM) soyabeans for livestock feed. Now, if the ministry allows the import of GM soyabean from abroad, why should it not allow the manufacture of this in India itself.

Way Forward:

- India has some excellent rice researchers located in Andhra Pradesh, Karnataka, Punjab and Haryana, and genetic engineers in several laboratories across the country.
- The Ministry of Agriculture can come together with the Department of Biotechnology (DBT) and nutritionists from the Indian Council of Medical Research (ICMR) can support these researchers to augment India's role as the major rice exporter in the world.

QUBITS FOR CLIMATE CHANGE

Context:

- Technology-driven solutions to mitigate the adverse impact of climate change have become increasingly significant.



- At present, nation-states and tech firms alike are deliberating the use of emerging technologies to respond to rising temperatures, unusual rainfall patterns, depleting water tables, and extreme weather conditions.

Scope of Quantum technology:

- Quantum technology has immense potential to power solutions for the climate crisis. Quantum applications and processes can play a critical role in our sustainable future, ensure compliance with emission standards, improve climate-related decision-making, and provide long-term solutions for a better environment.
- As the advances in quantum computing continue to soar, it is imperative that the investments expand and the ethical use of technology is streamlined with research and development to combat climate change.

Pragmatic applications of quantum technologies in climate action:

- Quantum computers deploy qubits rather than classical logical bits that aid in magnified computing power, exponential processing capabilities, and outcomes that are based on probabilities rather than binary decisions.
- This makes it easy for quantum computers to generate simulations that are otherwise complex and beyond the scope of classical computers.
- For instance, when coupled with Artificial Intelligence (AI), a quantum computer can assist in simulating tests for a water quality innovation with far more accuracy.
- They can also help in improving sustainability across the spectrum of the economy.

Power storage and supply:

- Electricity generation is one of the leading causes of greenhouse gas (GHG) emissions and a practical application of quantum computing in the realm of energy could be its ability to optimise power generation through simulations and map demand/supply with more accuracy.
- In addition to this, quantum capabilities can also identify leaks and gaps in power supply, dramatically impacting how it is stored, transmitted, and distributed.

- In India, 15 percent to 20 percent of renewable energy is wasted every year as the grid cannot manage energy fluctuations. These issues arise because of the variation in the wind speed and solar intensity, which can be predicted only up to a certain accuracy right now.
- Similarly, nearly 20 percent of electricity is lost in transmission. Smart grids that use quantum algorithms can help reduce AT&T losses.
- Quantum applications based on more incisive optimisation algorithms can reduce the wastage of power. The emerging technology can also be deployed to produce more effective solar panels by cutting solar losses and helping in the green energy transition.

Construction materials:

- The construction and building sector accounts for nearly 40 percent of the GHG emissions around the world. This opens up avenues for designing new sustainable materials, bringing down emission levels, and helping reduce pollution. Quantum technologies can aid in the design of such materials.
- Error-corrected quantum computers, which are at least 10 years away from now, can help synthesise new molecular structures that result in a low carbon footprint.
- Models derived from quantum chemistry can be useful in replacing materials like cement, aluminium, and steel that are energy intensive, account for high emissions in their production, and produce a large number of emissions while in use.
- These new materials would be lighter and more robust, improving the longevity of infrastructure and reducing the frequency of maintenance and replacement.

Transportation and logistics:

- Transportation of goods and materials with the help of trucks, trains, aeroplanes, and waterways and the movement of people via cars, buses, trains, and other private vehicles accounts for nearly 20 percent of the global GHG emissions.
- Modern transportation involves the use of fluid dynamics which gets restricted in efficiency because classical computing cannot simulate large surfaces.
- This implies that a lot of such simulations are to be carried out as physical prototypes, which not only lead to GHG emissions but also are limited to only a few use cases.
- Such problems can be rectified by the use of quantum simulations which can provide better designs and reduce losses based on the system's constraints. Aircraft manufacturers like Boeing and Airbus are also contemplating quantum-led innovation which can reduce fuel consumption.

Quantum computing for improved environmental decision-making

- Quantum computers can be used with other emerging technologies like AI and machine learning to improve evidence-based decision-making. They can run a high number of simulations in parallel that allows for swift testing, comparison, error correction, and deployment of a product or a service.
- For instance, many nations in the European Union are opting for cleaner fuel by replacing coal with liquified natural gas (LNG) which emits 40 percent less GHGs compared to black coal. However, most of the European states have to import LNG which poses challenges around finding the most optimal route, frequency of shipments, and employing the best possible ways that reduce transportation losses.
- Since classical computing is faced with limitations, tech giants like IBM have stepped in to assist oil and gas conglomerates like ExxonMobil to work on quantum computing-based decisions. This will save many natural resources and cut down on losses that otherwise are detrimental to the environment.

Extreme weather events:

- When quantum computing algorithms are used along with predictive data modelling, forest fires can be pre-empted and flood mitigation can be scaled immensely.
- Other than this, extreme weather conditions that often impact power supply and surge in demand can also be predicted and addressed accordingly.

Agriculture sector:

- The emerging technology will also be useful for the fertiliser industry. At present, fertiliser production accounts for nearly 2 percent of the global GHG tally.
- And with the use of quantum computers, the process of nitrogen fixation can be made more sustainable and eco-friendly.
- Researchers and scientists are using quantum modelling to fathom the process of natural nitrogen fixation used by soil bacteria which can later be developed synthetically to curb soil pollution and lower the energy demand in the production of chemical nitrogen-based fertilisers.

The way ahead:

- At present, there is only limited discussion on the use of quantum technologies to mitigate the climate crisis. While governments have rolled out strategies, missions, and programmes for advancing quantum technologies, most nation-states have not concluded on the practical applications of the technology.
- Political leaders should be aligned toward solving these pressing issues with the help of quantum technologies. In this matter, multilateral groupings like the QUAD and G20 can provide a platform for deliberation and discussion.
- Along with technological development, working on ethical frameworks for the use of quantum technologies will also be important. Instead, the

quantum community should work alongside environmentalists and decision-makers to lay down frameworks, accords, rules, and guidelines for the ethical use of quantum technologies.

PEGASUS MALWARE REPORT



Why in news?

- Recently, the Supreme Court said that the panel that it had constituted to look into the Pegasus issue had found no conclusive evidence of the Israeli-origin spyware on the 29 phones it examined.
- The Court, which said it was studying the detailed reported from the panel, also noted that the Central government had continued the stance that it had taken in front of the court, of not cooperating with the probe with the panel too.

Why was the panel constituted?

- The Supreme Court had constituted the panel on October 27, 2021 after several pleas came before it for a probe into allegations that Central agencies had used Pegasus to spy on politicians, journalists and others.
- The Centre had, at that time, refused to submit a detailed affidavit on the allegations, as asked for by the court.
- The panel consists of a three-member technical committee supervised by retired Justice R.V Raveendran. The members are Naveen Kumar Chaudhary of National Forensic Sciences University in Gandhinagar; Prabakaran P of Amrita Vishwa Vidyapeetham in Kerala, and Ashwin Anil Gumaste of IIT-Bombay.
- The panel informed the court in an interim report in May 2022 that it had come up with its own protocols and software to test phones for Pegasus infection.

The panel's report:

The panel had been working on two key aspects:

- The technical details of the probe into the allegations of Pegasus use; and
 - The enhancement of the current laws surrounding digital surveillance, cyber security, and privacy rights.
- On the first aspect, as per the CJI's reading of the report, five of the 29 phones that were submitted for

examination had shown signs of malware infection, but not necessarily Pegasus.

- The report itself has three parts: the technical details of the phone analysis, the report of the technical committee, and the report of the supervising judge.
- Justice (ret'd) Raveendran has called for a special investigation agency for investigating cyber attacks.

What is the Centre's stance?

- The Centre had earlier refused the Supreme Court's order to submit a detailed affidavit regarding the use of Pegasus, arguing that such a public affidavit would compromise national security.
- The Centre had also wanted the panel probing the issue to be under it, which the court denied citing the possibility of bias.
- The panel had also mentioned in its report that there was no cooperation from the Centre on the probe.

How was Pegasus used in India?

- Reports that appeared in July 2021 from the Pegasus Project, which includes The Wire in India, The Guardian in the U.K., and The Washington Post in the U.S., said that in India, at least 40 journalists, Cabinet Ministers, and holders of constitutional positions were possibly subjected to surveillance using Pegasus.
- The reports were based on a database of about 50,000 phone numbers accessed by the Paris-based non-profit Forbidden Stories and Amnesty International. These numbers were reportedly of interest to clients of the NSO Group (developer of the Pegasus software).
- According to The Guardian, Amnesty International's Security Lab tested 67 of the phones linked to the Indian numbers in the database and found that "23 were successfully infected and 14 showed signs of attempted penetration".
- Since Pegasus is graded as a cyberweapon and can only be sold to authorised government entities as per Israeli law, most reports have suggested that the governments in these countries are the clients.
- On January 28, the New York Times published an article, which claimed that Pegasus was part of a \$2-billion "package of sophisticated weapons and intelligence gear" transaction between India and Israel after Narendra Modi became the first Indian Prime Minister to visit Israel.
- The article claimed that it was after this deal that India changed its historically pro-Palestine stance and voted in Israel's favour in 2019 at the U.N.'s Economic and Social Council to deny observer status to a Palestinian human rights organization.

THE CYBER THREAT TO MOBILE BANKING

Context:

- Global cybersecurity firm Kaspersky warns of an increase in cyberattacks on Android and iOS devices

in the Asia Pacific (APAC) as more people switch to mobile banking in the region.

- The mobile banking Trojans are dangerous malware that can steal money from mobile users' bank accounts by disguising the malicious application as a legitimate app to lure unsuspecting people into installing the malware.
- A Trojan is a malicious code or software that looks legitimate but can take control of your device, including smartphones.



Vulnerability in India:

- According to a 2020 Statista survey of five thousand odd households across 25 States in India, two-third respondents said they had a smartphone.
- Of these, half said they sent and received money digitally, and about 31% said they had a mobile app for banking. Nearly 14% said they used their mobile phones for banking-related purposes. This number further jumped as the COVID-19 pandemic made a lot more people switch to digital modes of payment instead of transacting with cash.
- This acceleration brings along with it a vulnerability: an increased threat of cyberattacks on mobile devices.

Malware campaigns:

Anubis:

- One mobile banking trojan, called Anubis, has been targeting Android users since 2017, and its worldwide campaigns have hit users in Russia, Turkey, India, China, Colombia, France, Germany, the U.S., Denmark, and Vietnam.
- The malware has continued to be one of the most common mobile banking trojans with one in 10 unique Kaspersky users encountering a banking threat from the malware.
- The perpetrators infect the device through legitimate-looking and high-ranking malicious apps on Google Play, smishing (phishing messages sent through SMS), and BianLian malware, another mobile banking Trojan.

Roaming Mantis:

- Roaming Mantis is another prolific malware targeting mobile banking users. The group attacks Android devices and spreads the malicious code by hijacking

domain name systems (DNS) through smishing exploits.

- Kaspersky's research team has been tracking the malware since 2018; and between the start of 2021 to the first half of 2022 alone, they detected nearly half a million attacks in the APAC region.
- While this threat group is known for targeting Android devices, their recent campaign has shown interest in iOS users.
- The group targets users by sending smishing texts with a short description and a URL landing page. If a user clicks on the link and opens the landing page, they are redirected to a phishing page.
- For iOS users, the landing page mimics Apple's official website; while Android devices download another malware. And once the individual inputs their login credentials and proceed to the two-factor authentication, the attacker gets to know the user's device and login details.

Interoperability compounds problems:

- Mobile payment platforms like Google Pay, Paytm, PhonePe, Square, PayPal, and Alipay have benefited from the shift in consumers' adoption of mobile banking.
- As a result, they have also permanently changed the payments game to their advantage. But these platforms are operating in a closed-loop payment world where a Google Pay user can send money to another bank account via only the search giant's payment platform.
- This is similar to how Visa and Mastercard operate as they let payment transactions happen only within their own networks, not between each other.
- This business model could change driven partly by regulators that prefer open, standardised platforms that lower barriers to entry.

Changing business model:

- Some countries are already making payment platform providers change their business model. China, for instance, has ordered its internet companies to offer their rival firm's link and payment services on their platforms.
- In India, a new law demands all licensed mobile payment platforms to be capable of providing interoperability between wallets. The push from regulators to make payment platforms interoperable comes at a time when the demand for technical experts is a serious concern in the banking industry.
- The shortage of technology, engineering, data and security experts needed by banks to realise their digital aspirations tends to hide a much wider problem: banks' appeal as first-choice employers of all kinds of talent has faded.
- The lack of adequate cybersecurity and the dearth of talent in banking could potentially lead to a further rise in cyberattacks on user devices. And until

this mismatch is fixed, it helps to be careful and extremely cautious when using a mobile device to make payments.

Way Forward:

- Apart from the usual digital hygiene practices like keeping the phone up-to-date and rebooting regularly, consumers can ensure they use their phones for banking only when the device is connected to a secure VPN.

CULTURE

TAJ MAHAL WON'T BE ILLUMINATED FOR INDEPENDENCE DAY



Context:

- The government's Har Ghar Tiranga campaign has people coming out in hordes, waving the national flag. And almost every monument in India is illuminated as the 75th Independence Day draws close.
- The Centre, state governments, and even private establishments have decided to light up buildings with tricolour lights.
- However, one of the wonders of the world, Agra's Taj Mahal will have to suffice with natural light.
- The Supreme Court has passed a directive to protect the monument and one of the measures involved a ban on lighting it at night.

When was the Taj last lit up?

- The Taj Mahal was one of the first monuments in the country to be lit up after sundown. About 77 years ago, a grand celebration was held inside the monument by military personnel for winning World War II. It is during this celebration that the Taj Mahal was illuminated with floodlights.
- A few low-level security lighting posts were installed at the World Heritage Site in 2015 with the twin purpose of illuminating the Taj and wooing tourists at night.
- However, what has stayed in mind is when renowned pianist Yanni performed on 20 March 1997 and the illuminated Taj made for the perfect backdrop, as hundreds watched in awe. Lit up in pink, blue, and yellow, it was a riot of colours.

An insect Attack:

- But once the concert was over and the morning dawned, it brought with it problems of its own. The following morning, the Taj Mahal was ridden with dead insects. According to the chemical wing of the ASI, they had damaged the white marble of the monument.
- The insects were drawn by the lights and as these insects sat on the floors and walls, they defecated on the marble structure's surface. This left a coloured pigment which eroded the marble.
- After Yanni's concert, the Supreme court imposed restrictions saying no programmes should be held in the 500- metre area around the monument.

Experts view:

- Heritage experts have expressed concerns over the illumination of the monument time and again, saying the lights attract insects, which may jeopardise the structure of the Taj.
- A study was conducted in the mid-90s which rejected the proposal to illuminate the monument, citing harm to its surface.
- Taj Mahal does not need lighting at all. It is a marble structure and can be seen in all its glory in natural night. It is absolutely unwise to illuminate it with artificial lighting, which attracts insects.

Environmental threats:

- In 2018, the white marble of the Taj Mahal was found turning yellow and green because of high levels of pollution in Agra. The stagnation of the Yamuna River was causing algae deposits on the surface of the Taj, which has left ASI in worry.
- In 2018, the Supreme Court slammed the Uttar Pradesh government for not taking enough measures to preserve the monument. A year later, it once again asked the state to file a fresh vision document, detailing the manner in which the monument would be preserved and protected.
- A few months later it warned that there will be no "second chance" to preserve the Taj Mahal.

About Taj Mahal:

- The Taj Mahal, which was constructed in 1632 by Emperor Shah Jahan in memory of his wife Mumtaz Mahal, had been initially named 'Roza-e-Munavvara' which means Unique Building, but was then renamed by Shah Jahan as Taj Mahal as a loving tribute to his wife for whom his love surpassed all belief.
- The Taj was constructed when Shah Jahan's most beloved wife Arzuman Banu Begum, popularly known as Mumtaz Mahal, died giving birth to her 14th child near Burhanpur in Madhya Pradesh where she had been accompanying Shah Jahan on one of his military campaigns. Mumtaz died at the age of 39.
- The Taj had been designed by Ustad Ahmad Lahori and Ustad Abdul Karim, which was approved by Shah Jahan.
- The Taj was declared World Heritage building in 1983.

MISCELLANEOUS**MINERAL SECURITY PARTNERSHIP (MSP)****Why in news?**

- India relies heavily on China for rare earth minerals which is one of the leading producers globally with an estimated 70 per cent of the global production.
- In order to break the dominance and reduce dependence on China in mining and processing rare earth minerals, the United States recently announced the formation of a global alliance called the Mineral Security Partnership (MSP).

Member Countries:

- Apart from the US, the other countries to have joined this partnership are: Australia, Canada, Finland, France, Germany, Japan, the Republic of Korea, Sweden, the UK, and the European Commission.
- The MSP will help catalyse investment from governments and the private sector for strategic opportunities that adhere to the highest environmental, social, and governance standards.

Indian concerns:

- However, there have been growing concerns in India over being left out of the US-led partnership that seeks to end dependency on China.
- India's apprehension is quite justified given that the country has been pushing for EV and electronics, for which rare earth minerals are needed.

What is MSP?

- Minerals Security Partnership (MSP) is an ambitious new alliance formed by the US to secure supply chains of critical minerals. It comes in the backdrop of recorded demand for critical minerals, which are essential for clean energy and other technologies.
- The goal of the alliance is to ensure that critical minerals are produced, processed, and recycled in a manner that supports the ability of countries to realise the full economic development benefit of their geological endowments.
- The focus would be on the supply chains of minerals such as Cobalt, Nickel, Lithium and also the 17 "rare earth" minerals.

What is a critical mineral?

- There is no global definition of critical minerals, but essentially, they are mineral deposits with high economic vulnerability and high global supply chain risk.
- Rare earth (RE) comprises seventeen elements and are classified as light RE elements (LREE) and heavy RE elements (HREE).
- There is an immense range of these of course and many countries already have their own specific lists of what they currently consider critical minerals – depending on their industrial production requirements.
- But globally, there is a gap between projected supply and projected demand for many critical minerals by the end of this decade, especially in cobalt and lithium.

What are major critical minerals?

- The major critical minerals are Graphite, Lithium and Cobalt.
- They are used for making EV batteries and are also critical for making semiconductors and high-end electronics manufacturing.

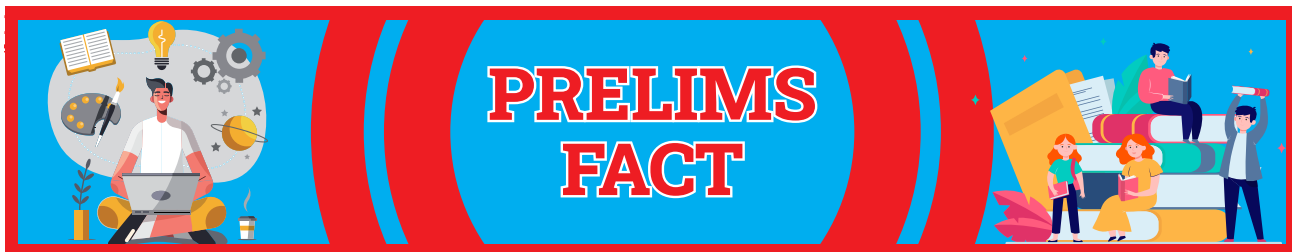
- These minerals are also used in manufacturing fighter jets, drones, radio sets and other critical equipment, hence it is critical for aerospace, communications and defence industries.

Who are the top producers of critical minerals?

- The major producers of critical minerals globally are Chile, Indonesia, Congo, China, Australia and South Africa.
- In terms of processing, China rules the roost. While others include Indonesia, Chile and Japan.
- Notably, none of these countries, except Japan and Australia, are represented in the MSP.

India's concerns:

- Some of the rare earth elements available India are: Lanthanum, Cerium, Neodymium, Praseodymium and Samarium. While others classified as heavy RE elements such as Dysprosium, Terbium, Europium are not available in extractable quantity.
- India relies heavily on China for HREE, which is one of the leading producers with an estimated 70 per cent of the global production.
- India is exploring the possibility of how India can join the 11-member group.



POLITY & GOVERNANCE

WEAPONS OF MASS DESTRUCTION AND THEIR DELIVERY SYSTEMS AMENDMENT BILL, 2022



Why in news?

- Recently, the Parliament passed a bill, which seeks to ban funding of weapons of mass destruction and also empowers the Centre to freeze, seize or attach financial assets and economic resources of people engaged in such activities.

Details:

- The Weapons of Mass Destruction and their Delivery Systems (Prohibition of Unlawful Activities) Amendment Bill, 2022, piloted by External Affairs Minister S Jaishankar, was passed by the Rajya Sabha with a voice vote.
- The bill was approved by the Lok Sabha in April.

Key Highlights:

- The Weapons of Mass Destruction and their Delivery Systems (Prohibition of Unlawful Activities) Act, passed in 2005, only banned manufacture of weapons of mass destruction.
- The amendment bill seeks to insert a new Section 12A in the existing law which states that "no person shall finance any activity which is prohibited under this Act, or under the United Nations (Security Council) Act, 1947 or any other relevant Act for the time being in force, or by an order issued under any such Act, in relation to weapons of mass destruction and their delivery systems."

Background:

- The Bill amends the Weapons of Mass Destruction and their Delivery Systems (Prohibition of Unlawful Activities) Act, 2005.
- The 2005 Act prohibits unlawful activities (such as manufacturing, transport, or transfer) related to

weapons of mass destruction, and their means of delivery. Weapons of mass destruction are biological, chemical, or nuclear weapons.

ANAEMIA MUKT BHARAT (AMB) STRATEGY

Context:

The Government of India implements Anaemia Mukta Bharat (AMB) strategy under POSHAN Abhiyaan with the target for reducing anaemia in the six population groups –

- Children (6-59 months),
- Children (5-9 years),
- Adolescents girls and boys (10-19 years),
- Pregnant women,
- Lactating women and
- Women of Reproductive Age (WRA) group (15-49 years) in life cycle approach.

Anemia Mukta Bharat will use a 6x6x6 strategy to combat anemia



Major interventions:

Some of the major interventions by Ministry of Health and Family Welfare (MoHFW) to address anaemia under AMB include:

- Prophylactic Iron and Folic Acid Supplementation.
- Deworming.
- Intensified year-round Behaviour Change Communication (BCC) Campaign and delayed cord clamping.
- Testing of anaemia using digital methods and point of care treatment.
- Addressing non-nutritional causes of anaemia in endemic pockets with special focus on malaria, hemoglobinopathies and fluorosis.
- Convergence and coordination with line department and other ministries.
- Engaging National Centre of Excellence and Advanced research on Anaemia Control for capacity building of health care providers.

➔ Monitoring progress in States/UTs using Anaemia Mukht Bharat Dashboard.

Statists on prevalence of anaemia:

- ➔ As per the fifth round of National Family Health Survey (NFHS), conducted by MoHFW during the year 2019-21, the prevalence of anaemia among women age 15-49 is 57.0 percent as compared to 53.1 percent in NFHS-4, (2015-16).
- ➔ However, thirteen (13) States/UTs namely Andhra Pradesh, Andaman and Nicobar Island, Arunachal Pradesh, Chandigarh, Dadra and Nagar Haveli and Daman and Diu, Haryana, Himachal Pradesh, Lakshadweep, Meghalaya, NCT of Delhi, Tamil Nadu, Uttar Pradesh and Uttarakhand have reported decline in prevalence of anaemia among women age 15-49 in NFHS-5 as compared to NFHS-4.

LOK SABHA PASSES CENTRAL UNIVERSITIES (AMENDMENT), BILL 2022



Why in news?

➔ Recently, the Lok Sabha passed Central Universities (Amendment), Bill 2022 for conversion of the National Rail and Transportation Institute (NRTI), a Deemed to be University into Gati Shakti Vishwavidyalaya (GSV), an autonomous Central University under the administrative control of the Ministry of Railways.

Background:

- ➔ The bill seeks to amend Central Universities Act, 2009, which was enacted to establish and incorporate universities for teaching and research in various states.
- ➔ The National Rail and Transportation University is located in Vadodara.

Objects and reasons:

➔ The statement of objects and reasons of the bill states that the proposed University will reverse brain

drain and create critical capability and capacity by developing masters and doctoral degrees in transportation and go a long way in making the nation self-reliant in the transportation sector through its programmes for skilling and digitising India.

Scope of Gati Shakti University:

- ➔ It will carry out critically-needed research and development by creating innovative technologies to encourage local manufacturing and substitute the imports of expensive technology, equipment and products.
- ➔ It will also take additional measures for providing high-quality teaching, research and skill development in diverse disciplines related to transportation, technology and management including establishing centres in India and abroad.
- ➔ The scope of the proposed University will also extend beyond the railways to cover entire transport sector to support the ambitious growth and modernisation of the sector.

Way Forward:

➔ The students of future would need to learn about environment, commerce, and social sciences, in addition to STEM to succeed in the infrastructure sector and a world-class, multi-disciplinary, multi-dimensional futuristic institution called Gati Shakti University has been envisioned.

SEVENTH MEETING OF GOVERNING COUNCIL OF NITI AAYOG



Why in news?

➔ Recently, the seventh meeting of the Governing Council (GC) of NITI Aayog was held. This was the first physical meeting of the Governing Council since the onset of the pandemic, with the 2021 meeting held via video conferencing.

Details:

- ➔ The Prime Minister, heralded the collective efforts of all the States in the spirit of cooperative federalism as the force that helped India emerge from the Covid pandemic.
- ➔ The meeting was attended by 23 Chief Ministers, 3 Lieutenant Governors and 2 Administrators and Union Ministers.
- ➔ The meeting was moderated by Defence Minister Shri Rajnath Singh.

Agenda:

In 2022, the Governing Council discussed four key agenda items:

- a) crop diversification and achieving self-sufficiency in pulses, oilseeds and other agri-commodities;
- b) implementation of National Education Policy (NEP) in school education;
- c) implementation of National Education Policy in higher education; and
- d) urban governance.

Key Highlights:

- The Prime Minister highlighted the importance of all of the above issues, especially the need for India to focus on modernized agriculture, animal husbandry, and food processing to become self-sufficient and a global leader in the agriculture sector.
- He said rapid urbanization can become India's strength instead of weakness by leveraging technology to ensure ease of living, transparent service delivery, and improvement in the quality of life for every citizen of urban India.
- He also asked the states to focus on promoting 3Ts -Trade, Tourism, Technology with a view to reducing imports and increasing exports.

Way Forward:

- NITI Aayog will study the states' concerns, challenges, and best practices and subsequently plan the way forward.

ENERGY CONSERVATION (AMENDMENT) BILL, 2022



Why in news?

- Recently, a bill seeking to mandate the use of non-fossil energy sources such as biomass, ethanol and green hydrogen was passed by the Lok Sabha.
- Piloting the Energy Conservation (Amendment) Bill, 2022, Power Minister R K Singh said this is the bill for the future and urged the members to approve it.

Objects and Reasons of the Bill:

- With the passage of time, and in the context of the energy transition with special focus on the promotion of new and renewable energy and National Green Hydrogen Mission, a need has arisen to further amend the said Act to facilitate the achievement of 'Panchamrit' as five nectar elements presented by India in Conference of Parties -26 in Glasgow last year.

Key Highlights:

- The Bill provides for penalties for violations by industrial units or vessels, and on manufacturers if a vehicle fails to comply with fuel consumption norms.
- The amendments also seek to promote renewable energy and the development of a domestic carbon market to battle climate change.
- It also seeks to introduce new concepts such as carbon trading and mandate the use of non-fossil sources to ensure faster decarbonisation of the Indian economy and help achieve sustainable development goals in line with the Paris Agreement.

Way Forward:

- The bill was later passed by the House after rejecting amendments moved by some Opposition members.

FIRST 'HAR GHAR JAL' CERTIFIED STATE & UT IN INDIA



Why in news?

- Goa and Dadra & Nagar Haveli and Daman & Diu (D&NH and D&D) becomes the first 'Har Ghar Jal' certified State and UT in the country respectively.

'No One is Left Out':

- In these two places, people from all the villages have declared their village as 'Har Ghar Jal' through a resolution passed by Gram Sabha, certifying that all households in the villages have access to safe drinking water through taps, ensuring that 'No One is Left Out'.
- All 2.63 lakh rural households of Goa & 85,156 of Dadra & Nagar Haveli and Daman & Diu have access to potable water through tap connection.

Jal Jeevan Mission:

- Jal Jeevan Mission is a flagship programme of Government of India which was announced from the ramparts of Red Fort by visionary Prime Minister on August 15, 2019.
- The mission aims to make provision of potable tap water supply in adequate quantity, of prescribed quality and on regular & long-term basis to every rural household of the country by 2024.
- The program is implemented by Government of India in partnership with States/UTs.

How certification is given?

- The process of certification has been detailed out in the Margdarshika of Jal Jeevan Mission according to which first of all, the field engineer submits a completion certificate regarding water supply scheme to the Panchayat during Gram Sabha meeting.
- The villages confirm through a resolution of the Gram Sabha, that every household is getting regular supply of water of prescribed quality and not a single household is left out.
- They also confirm that all schools, anganwadi centers and other public institutions also getting tap water.

Village Water and Sanitation Committee (VWSC):

- Village Water and Sanitation Committee (VWSC) or paani samiti has been constituted in all the 378 villages of Goa and 96 villages of D&NH and D&D.
- VWSC is responsible for operation, maintenance and repair of water supply infrastructure developed under 'Har Ghar Jal' programme.
- This sub-committee of Gram Panchayat also has the responsibility to collect user charge which will be deposited in the bank account and shall be used to pay honorarium of the pump operator and carry out minor repair work from time-to-time.

Water Quality:

- Water Quality is an important aspect of the mission and to ensure the same, at least five women in every village are trained to carry out water testing.
- Today more than 10 lakh women in the country have been trained to use Field Test Kits (FTKs) for testing the quality of water supplied in rural households. More than 57 lakh water samples have been tested by these women using Field Testing Kits (FTKs).

Progress so far:

- Following Prime Minister's vision of "Sabka Saath, Sabka Vikas, Sabka Vishwas aur Sabka Prayas", more than 52% rural households in the country are now connected with tap water which was only 17% at the time of launch of this transformational mission on August 15, 2019.

CENTRE MAKES PUBLIC DRAFT OF 'URBAN REGENERATION POLICY' OF DELHI

Why in news?

- Recently, the Centre made public the draft of the "urban regeneration policy", under which areas or residential blocks built more than five decades ago but currently in dilapidated state will be regenerated through amalgamation of plots and other incentives.

Mandate:

- The draft, which seeks amendments to the DDA Act, 1957, states many existing areas in Delhi have developed over the last more than 100 years and some of them do not meet the norms for healthy and safe urban habitations.

- These areas can be utilised optimally through redevelopment or urban regeneration.



Key Highlights:

- There would be provisions to avoid multiple stamp duty and registration charges on deed of exchanges during implementation of land pooling and regeneration processes.
- A special purpose vehicle will be formed by the land owners of a sector or a block for the purpose of implementation of land pooling and urban regeneration.
- Once a block is notified as eligible for urban regeneration, it shall be obligatory for all land and property owners of the block to mandatorily participate their land and property in urban regeneration.
- Authority or the local body as the case may be, shall take over all land vested in it may summarily evict occupants from the said land, to implement the land pooling or urban regeneration policy, as the case may be.
- No compensation shall be paid in this regard, except as notified in the policy.
- The authority or the urban local body concerned shall notify such blocks that become eligible for implementation of urban regeneration by virtue of having achieved the minimum threshold of voluntarily participation as specified in the Urban Regeneration Policy.

Current Policy:

- According to the draft, at present, there is no policy for urban regeneration except for the provisions for redevelopment in the Master Plan for Delhi (MPD)-2021.

GRAMEEN UDYAMI PROJECT LAUNCHED

Why in news?

- National Skill Development Corporation (NSDC) in partnership with Seva Bharti and Yuva Vikas Society, launched the second phase of Grameen Udyami Project.

Mandate:

- Under the initiative, the endeavour is to multiskill India's youth and impart functional skills to them for enabling livelihoods.

- Prime Minister has emphasised on the involvement of tribal communities in the workforce, ensuring their holistic development to make them self-reliant and contained within their respective geographies.



What is Grameen Udyami?

- Grameen Udyami is a unique multiskilling project, funded by NSDC that aims to train 450 tribal students in Madhya Pradesh and Jharkhand.
- The project is being implemented in six states—Maharashtra, Rajasthan, Chhattisgarh, Madhya Pradesh, Jharkhand, and Gujarat.

Training:

- The phase-II of the pilot project launched in Ranchi is being implemented by Yuva Vikas Society, through Seva Bharti Kendra in Ranchi. NSDC under the aegis of MSDE has supported in setting up of labs and classrooms through Sector Skill Councils (SSCs) in Seva Bharti Kendra Skill Development Center.

The training under the project will be conducted in the following Job roles, which are relevant to the local economy.

- Electrician & Solar PV Installation Technician
- Plumbing & Masonry
- 2-Wheeler Repair & Maintenance
- IT/ITES with e-Governance
- Farm Mechanization

Sansadiya Parisankul Yojana:

- Grameen Udyami Yojana is implemented under Sansadiya Parisankul Yojana.
- Further, Scheduled Tribe organizations called for a 'Parliamentary ST Cluster Development Project' which has been initiated. Under which, 49 clusters in 15 states of India have been selected by 40 tribal MPs of Lok Sabha and Rajya Sabha.
- Under their leadership, the scheme in respective clusters will be implemented. One development associate is appointed by the MPs in each cluster.

Following objectives must be achieved under the project:

- Increase in Rural/Local Economy
- Enhance employment opportunities
- Reduce forced migration due to lack of local opportunities
- Conservation of natural resources

Way Forward:

- Due to lack of skill and education, organized sectors have very poor contribution in tribal livelihood as compared to the national average. Therefore, initiatives like Grameen Udyami project are critical for their betterment and to ensure their livelihood generation.

LIFETIME PERKS FOR FORMER CJIS, SC JUDGES

Why in news?

- Recently, the Centre amended the Supreme Court Judges Rules to provide chauffeurs and domestic help for retired Chief Justices of India and Supreme Court judges for their entire lifetime.

Details:

- Retired CJIs would also get secretarial assistants.
- The staff would be paid the salary and allowances of regular employees of the Supreme Court.
- The first series of amendments in the Rules had allowed retired Chief Justices of India and Supreme Court judges chauffeurs, secretarial assistants and security cover only for a year. There was no mention of "domestic help", who would be an employee in the level of junior court assistant.

Exit benefits | The government has announced a slew of extra retirement benefits for Chief Justices of India and Supreme Court judges



- Domestic help and chauffeur for lifetime for retired CJIs and SC judges



- Personal security guard for 5 years for retired CJI and 3 years for SC judges



- Lifetime secretarial assistant for retired CJI



- Courtesies at airport lounges as per protocol to retired CJIs and SC judges



- Monthly phone/Internet bill reimbursement up to ₹4,200

Key Highlights:

- The benefit of 24-four hour security cover has been extended to five years for retired Chief Justices and three years for retired judges of the Supreme Court. The judiciary had recently raised concerns about attacks on judges.
- Besides, former CJIs and retired judges of the top court can get their monthly mobile phone and Internet bills reimbursed to the extent of Rs. 4,200.
- A retired CJI is also entitled to a rent-free Type VII accommodation, other than the designated official residence, in New Delhi for six months immediately after retirement.
- The amended Rules mandate that retired Chief Justices and judges should be extended courtesies as per protocol at ceremonial lounges of airports.

Condition applied:

- However said these post-retirement benefits would be available only if the retirees were not getting similar facilities from any High Court or government body.
- The government is one of the biggest litigants in the Supreme Court.
- There has been public debate on whether post-retirement benefits dangled by the government could influence the judicial work of serving judges.

COMMON SERVICE CENTRES TO PROVIDE PEOPLE ACCESS TO JUDICIAL SERVICES

Why in news?

- The Online government services provider Common Service Centres (CSC) has teamed up with the Union law ministry to offer host of judicial services through eCourts project to people.



Details:

- CSC e-Governance Services India Ltd, an SPV under the Ministry of Electronics & IT, has partnered with the Department of Justice, Ministry of Law & Justice to provide citizens access to judicial services through the eCourts project for citizens across the country.
- Currently, 3,414 district and taluka courts and 39 high courts are available on eCourts.
- Citizens can seamlessly access information of their cases in these courts or the location of these courts at their nearest CSC.

How it will work?

- Provision of eCourts services through CSC will ensure transparency and last mile access of judicial services to citizens, he opined.
- The eCourt services currently available to citizens at the grassroots through over 5 lakh CSCs across the country include information about the court cases in district and high courts, identification of court location and eCourts Mobile Application.
- To avail information about the court cases, citizens can visit their nearest CSC along with the 16-digit case CNR number assigned to their case.

Services offered:

- They can check their next date of hearing or location of courts and download and print the court judgment.

- Additionally, citizens can also use the computer system available at the CSC to access the eCourts website.
- The CSC will charge Rs 30 for providing the status of the case and Rs 45 for providing case status along with the copy of last judgment.

eCourts:

- The eCourts is a pan-India project conceptualised on the recommendations of the eCommittee of the Supreme Court for digitization of the Indian judiciary for providing citizens with better access to legal services.

INTERNATIONAL RELATION

INDIA GIFTS DORNIER AIRCRAFT TO SRI LANKA



Why in news?

- Recently, India gifted a Dornier maritime reconnaissance aircraft to Sri Lanka.
- Sri Lankan President Ranil Wickremesinghe was present at the impressive handover ceremony which took place on a day when India celebrated its 76th Independence Day.

Maritime security:

- It will enable the island nation to tackle multiple challenges like human and drug trafficking, smuggling and other organised forms of crime in its coastal waters more effectively.
- Such cooperation is envisaged to add further capability and capacity to Sri Lanka and is in line with the vision of Security and Growth for All in the Region (SAGAR).
- The maritime security has been identified as a key pillar of the Colombo Security Conclave.

What's next?

- The aircraft is being provided to Sri Lanka from the inventory of the Indian Navy to help the country meet its immediate security requirement.
- India will provide to Sri Lanka two Dornier aircraft which are being manufactured by state-run aerospace major Hindustan Aeronautics Limited (HAL).
- Once these two HAL-manufactured aircraft are handed over, then the Dornier aircraft will return to the Indian Navy.

- This is the start of cooperation between the Sri Lanka Air Force, Sri Lanka Navy with the Indian Navy in maritime surveillance.

INDIA, IRAN SIGN MOU FOR SMOOTH MOVEMENT OF SEAFARERS



Why in new?

- As talks over the development of Chabahar Port gain momentum, India and Iran signed a memorandum of understanding (MoU) mutually recognising certificates of competency in unlimited voyages of seafarers from both the nations as per the provisions of International Convention on Standards of Training, Certification and Watch Keeping for Seafarers (1978).

Aim:

- The signing of the MoU is aimed at smoothening the movement of seafarers from both the countries.

First tangible development:

- The seafarer agreement, along with the handover of six mobile harbour cranes to the port authority, is the first tangible development after years of dormancy owing to the unfulfilled potential of the port and Covid-related restrictions.
- Chabahar Port is slated to be India's gateway for trade with central Asian and European nations, along with increased engagement with Russia, once its potential is leveraged by linking it to INSTC.
- It was developed with Indian assistance and is currently operated by state-owned India Ports Global.

Background:

- Union Ports, Shipping and Waterways Minister Sarbananda Sonowal is on a four-day visit to Iran to review the progress on the development of the Shahid Behesti terminal of Chabahar Port, a crucial cog in the potentially game-changing International North South Transport Corridor (INSTC).
- In 2020, India supplied 75,000 tonnes of wheat to Afghanistan as part of humanitarian assistance programme as well as provided for 40,000 litres of Malathion 96% ULV pesticides to Iran via Chabahar

port in a concerted effort to mitigate locust threat to agriculture and enhance food security in the region.

INDIA SIGNS HEADQUARTERS AGREEMENT WITH CDRI, ENABLES INTERNATIONAL STATUS



Why in news?

- Recently, the Coalition for Disaster Resilient Infrastructure (CDRI) and the Government of India (GoI) signed a headquarters agreement.

What it translates?

- The agreement will enable the status of an 'Independent and International Legal Entity' for CDRI with a Charter endorsed by 31 countries and eight international organisations in less than two years.
- The agreement will enable the institution to pursue functions internationally with all rights, immunities, and privileges, as per the United Nations (Privileges & Immunities) Act, 1947.
- This will further enable the organization to fulfill its commitments and engagements on the resilience of infrastructure.

About CDRI:

- CDRI was launched by Prime Minister of India Narendra Modi at the UN Climate Action Summit in New York on 23 September 2019.
- The Coalition for Disaster Resilient Infrastructure (CDRI) is a partnership of national governments, UN agencies and programmes, multilateral development banks and financing mechanisms, the private sector, and knowledge institutions that aims to promote the resilience of new and existing infrastructure systems to climate and disaster risks in support of sustainable development.
- CDRI promotes rapid development of resilient infrastructure to respond to the Sustainable Development Goals' imperatives of expanding universal access to basic services, enabling prosperity and decent work.

TAIWAN LOOKING AT 'TEA CULTURE' TO BOOST CULTURAL TIES WITH INDIA

Why in news?

- Taiwan is looking at using its 'tea culture' as a new source of soft power diplomacy to boost cultural and

people-to-people connect with India's Northeastern region.

- ⇒ Taiwan produces distinctive varieties of tea and the common tea culture between the two countries can act as a catalyst to deepen bilateral cultural ties.



'Chai pe Charcha with Taiwan':

- ⇒ 'Chai pe Charcha with Taiwan' which was attended by Taiwanese tea experts, diplomats, India entrepreneurs in the tea industry, academics and a group of students from Taiwan.
- ⇒ The initiative to enhance cultural ties between the two countries comes amid escalating tensions between Taiwan and China following US House Speaker Nancy Pelosi's recent visit to the self-governing island.

'Wisdom Tea Platform':

- ⇒ Currently, a team of students and experts in tea processing from Taiwan's National Chung Hsing University is visiting India.
- ⇒ The university, one of oldest and largest educational institutions in Taiwan, started the 'Wisdom Tea Platform' for promoting tea research and collaboration between industries and academics.
- ⇒ The platform organised a series of workshops and events promoting tea and developing tea-related products.
- ⇒ It also provided courses for students and the general public to learn about tea culture in Taiwan. It also trains tea masters for promoting tea art and helping industries improve their products.

What's next?

- ⇒ Under the 'Wisdom Tea' initiative, Taiwan is now exploring ways to boost people-to-people connect with India.
- ⇒ It has already established contact with Tea Board of India and Tocklai Tea Research Institute in Assam.
- ⇒ This is the first time in history Taiwanese students learning tea processing in India, and first time Taiwanese tea experts working in India since the introduction of Assam tea to Taiwan a century ago.



Why in news?

- ⇒ Recently, the Union Minister for Commerce & Industry, announced that India has achieved a landmark milestone, wherein 75000 startups have been recognized in the country.
- ⇒ The Department for Promotion of Industry and Internal Trade (DPIIT) has recognized more than 75,000 startups- a milestone which coincides with 75th year of independence.

Key Highlights:

- ⇒ Out of the total recognized startups, around 12% cater to IT services, 9% to Healthcare and Life Sciences, 7% to education, 5% to professional and commercial services and 5% to agriculture.
- ⇒ An impressive, 7.46 lakh jobs have been created by the Indian startup ecosystem, so far, which has been a 110% yearly increase over the last 6 years.
- ⇒ The fact that about 49% of our startups are from Tier II & Tier III today is a validation of the tremendous potential of our country's youth.

Background:

- ⇒ During the Independence Day speech from the Red Fort on 15th August 2015, Prime Minister Narendra Modi had envisioned a new India which taps on the entrepreneurial potential of its people.

National Startup Day:

- ⇒ On 16th January 2016, the date which has now been declared as the National Startup Day, a program was initiated to lay out an action plan to build a strong ecosystem for nurturing innovation and startups in the country.
- ⇒ 6 years hence, the action plan has successfully guided into making India the 3rd largest ecosystem. While the initial ten thousand startups were recognized in 808 days, the latest ten thousand were achieved in only 156 days. With more than 80 Startups getting recognized per day- highest rate in the world, the future of the startup culture is very promising and encouraging.

Role of Startup India program:

- ⇒ Startup India program which was primarily setup to provide an enabling environment for the startups, has today evolved into the launchpad for them.

ECONOMY

INDIA ACHIEVES LANDMARK MILESTONE, OVER 75000 STARTUPS RECOGNISED

- From providing funding to tax incentives, from support on intellectual property rights to eased public procurement, from enabling regulatory reforms to access to international fests and events, Startup India program has become synonymous with sustainable economic growth.

INDO-ISRAEL CENTER OF EXCELLENCE FOR VEGETABLES

Why in news?

- Recently, the Union Minister of Agriculture and Farmers Welfare, laid the foundation stone of the Indo-Israel Center of Excellence for Vegetables in Chandauli (Uttar Pradesh) through video conferencing.

Significance:



- The Indo-Israel Center of Excellence for Vegetables will play an important role in the development of Chandauli district as well as Purvanchal region.
- Here seeds and plants of improved vegetables will be cultivated and distributed to the farmers. Farmers can also sponsor the development of plants for themselves.
- By using the latest methods of farming, farmers will be able to get better yield and also export vegetables. Nursery of other agricultural produce including vegetables will be prepared at this Center of excellence to promote the Agriculture sector globally.

Why Chandauli?

- The climate of Chandauli district, which is known as the rice bowl of UP, is suitable for setting up the Center of Excellence for Vegetables.
- There are 9 agro-climatic zones in the State which are favourable for the cultivation of various horticultural crops throughout the year.
- Seedling production of tomato, pepper, brinjal, chilli, cucumber, tomato, pepper, brinjal, chilli and exotic vegetables is proposed to be done in the hi-tech climate controlled greenhouse to be set up in the Center of Excellence for Vegetables, while cultivation of cucumber, cauliflowers, baby corn, sweet corn and exotic vegetables is proposed in the open field.

Micro-irrigation:

- Along with micro-irrigation in the open, a trial

demonstration of farming with fertigation and chemigation systems will be done.

- There will also be a demonstration of installation of seepage, sprinkler irrigation and other plastic culture applications.

About Centers of Excellence (CoEs):

- The technology for the Center is provided by Israeli experts under the India-Israel Action Plan (IIAP) with funds for building infrastructure for demonstration purposes from MIDH.
- Centers of Excellence (CoEs) are being set up in the States based on Israeli technologies.
- These Centers of Excellence act as demonstration and training centers for the latest technologies in the field of Horticulture. They also serve as a source of planting material for fruits and vegetables in protected cultivation.

CABINET APPROVES INTEREST SUBVENTION OF 1.5% PER ANNUM ON SHORT TERM AGRICULTURE LOAN



Why in news?

- Recently, the Union Cabinet has approved to restore Interest Subvention on short term agriculture loans to 1.5% for all financial institutions.

Details:

- The Interest Subvention of 1.5% will be provided to lending institutions (Public Sector Banks, Private Sector Bank, Small Finance Banks, Regional Rural Banks, Cooperative Banks and Computerized PACS directly ceded with commercial banks) for the financial year 2022-23 to 2024-25 for lending short term agri-loans upto Rs 3 lakh to the farmers.
- This increase in Interest Subvention support requires additional budgetary provisions of Rs 34,856 crore for the period of 2022-23 to 2024-25 under the scheme.

Benefits:

- Increase in Interest Subvention will ensure sustainability of credit flow in the agriculture sector as well as ensure financial health and viability of the lending institutions especially Regional Rural Banks & Cooperative Banks, ensuring adequate agriculture credit in rural economy.

- Banks will be able to absorb increase in cost of funds and will be encouraged to grant loans to farmers for short term agriculture requirements and enable more farmers to get the benefit of agriculture credit.
- This will also lead to generation of employment since short term agri-loans are provided for all activities including Animal Husbandry, Dairying, Poultry, fisheries.
- Farmers will continue to avail short term agriculture credit at interest rate of 4% per annum while repaying the loan in time.

Background:

- Ensuring hassle-free credit availability at cheaper rate to farmers has been the top priority of Government of India. Accordingly, Kisan Credit Card scheme was introduced for farmers, to empower them to purchase agriculture products and services on credit at any time.
- To ensure that the farmers have to pay a minimal interest rate to the bank, the Government of India introduced Interest Subvention Scheme (ISS), now renamed as Modified Interest Subvention Scheme (MISS), to provide short term credit to farmers at subsidized interest rates.

Outlay of the scheme:

- Under this scheme, short term agriculture loan upto Rs. 3.00 lakh is available to farmers engaged in Agriculture and other allied activities including Animal Husbandry, Dairying, Poultry, fisheries etc. at the rate of 7% p.a.
- An additional 3% subvention (Prompt Repayment Incentive - PRI) is also given to the farmers for prompt and timely repayment of loans. Therefore, if a farmer repays his loan on time, he gets credit at the rate of 4% p.a.
- For enabling this facility to the farmers, Government of India provides Interest Subvention (IS) to the Financial Institutions offering this scheme. This support is 100% funded by the Centre, it is also the second largest scheme of DA&FW as per budget outlay and coverage of beneficiaries.

Way Forward:

- Keeping in view the changing economic scenario, especially increase in the interest rate and lending rates for the financial institutions especially Cooperative Banks and Regional Rural Banks, the Government has reviewed the rate of Interest subvention provided to these Financial Institutions.

UDAN SCHEME OF MINISTRY OF CIVIL AVIATION COMPLETES 5 YEARS OF SUCCESS

Why in news?

- Recently, the Ministry of Civil Aviation's flagship program Regional Connectivity Scheme UDAN (Ude Deshka Aam Nagrik) has completed 5 years of success

since the launch of its first flight by Prime Minister on 27th April 2017.

Background:

- The scheme was initiated on 21st October 2016 with the objective to fulfil the aspirations of the common citizen by following the vision of 'Ude Deshka Aam Nagrik', with an enhanced aviation infrastructure and air connectivity in tier II and tier III cities.



Achievements:

- In the last five years, UDAN has significantly increased the regional air-connectivity in the country.
- There were 74 operational airports in 2014. Because of the UDAN scheme this number has increased to 141 by now.
- 68 underserved/unserved destinations which include 58 Airports, 8 Heliports & 2 Water Aerodromes have been connected under UDAN scheme.
- With 425 new routes initiated under the scheme, UDAN has provided air connectivity to more than 29 States/ UTs across the length and breadth of the country. The scheme has also provided a much-needed platform to the regional carriers to scale up their operations.
- 220 destinations (airports/ heliports/ water aerodromes) under UDAN are targeted to be completed by 2026 with 1000 routes to provide air connectivity to unconnected destinations in the country. Under UDAN, 954 routes have already been awarded to connect 156 airports.

RCS-UDAN:

- RCS-UDAN was formulated based on the review of The National Civil Aviation Policy (NCAP)-2016 and it was planned to remain in force for a period of 10 years. It has a self-financing mechanism with the development of Regional Connectivity Fund (RCF).
- Under this Scheme, RCF was created, which funds the VGF requirements of the scheme through a levy on certain domestic flights. This way, funds generated from the sector themselves stimulate the growth and development of the sector.
- UDAN Scheme has benefitted a diverse set of stakeholders. Passengers have got the benefits of air connectivity, airlines have received concessions for operating regional routes, unserved regions

have received the direct and indirect benefits of air connectivity for their economic development.

- UDAN created a framework based on the need and led to the formulation of:
 - a) Lifeline UDAN (for transportation of medical cargo during pandemic).
 - b) Krishi UDAN (value realization of agriculture products especially in Northeastern Region {NER} and tribal districts).
 - c) International UDAN routes for NER to explore International Connectivity from / to Guwahati and Imphal.
 - d) Lifeline UDAN - Lifeline UDAN initiative commenced in March 2020 during COVID-19 period and it helped to operate 588 flights transporting almost 1000 Tonnes of voluminous cargo and essential medical services to various parts of the country.

Award & Honours:

- RCS-UDAN was awarded Prime Minister's Award for Excellence in Public Administration under Innovation Category for the year 2020.
- Republic Day Tableau for 26th January 2022 on UDAN was adjudged as the Best Tableau by the Ministry of Defence.

FIRST AQUACULTURE PROJECT OF TDB-DST



Why in news?

- Realizing the potential of Fisheries sector, Technology Development Board, a statutory body under Department of Science and Technology, supports M/s Fountainhead Agro Farms Private Limited, Navi Mumbai, Maharashtra for 'Advanced, Intensive, All Male Tilapia Aquaculture Project with Israeli Technology'.
- The board has penned an mutual agreement, to provide loan assistance of Rs. 8.42 crores out of the total project cost of Rs. 29.78 crores to the company.

Tilapia:

- 'Tilapia' has emerged to be one of the most productive and internationally traded food fish in the world.
- The culture of tilapia has become commercially popular in many parts of the world and the fishery experts have dubbed the tilapia as "aquatic chicken"

due to its quick growth and low maintenance cultivation.

Aquaculture Project:

- In order to facilitate the culture of Tilapia in India in responsible manner, M/s Fountainhead Agro Farms Private Limited envisages setting up of a complete production line (from breeding to full fish) in Mudhol (Karnataka).
- The company aims to produce 500 tons of Tilapia, to be grown from the imported parent broodstock 'Hermon' from Nir David Fish Breeding Farm, Israel.
- Hermon is a hybrid of two selected strains of Tilapia, namely Oreochromis Niloticus (Male) and Oreochromis Aureus (Female), and is known for special characteristics such as high growth rate; resistance to low temperature; light (attractive) colour; all hybrid fry progeny of males only, without the conventional system of usage of hormones.

Potential of fishing sector in India:

- Fisheries is one of the fastest growing sectors amongst the primary producing sectors. The sector plays a vital role in economic and overall development of the country, also referred as the "sunrise sector", it is poised to bring in immense potential through equitable and inclusive growth.
- The sector is recognized as a powerful engine for providing employment to 14.5 million people and sustaining livelihood for 28 million fishermen community of the country.
- Thus, the sector urges young entrepreneurs of the country to come forward and offer solutions, resolving on-ground challenges through technology interventions and innovative solutions.

Pradhan Mantri Matsya Sampada Yojana (PMMSY):

- To promote fishing, the cabinet, came up with 'Pradhan Mantri Matsya Sampada Yojana (PMMSY)' to bring about 'Blue Revolution' through sustainable and responsible development of fisheries sector in India. The scheme targets to enhance fish production to 220 lakh metric tons by 2024-25, at an average annual growth rate of about 9%.
- The ambitious scheme also aims to double the export earnings to ₹1,00,000 crore and generate about 55 lakhs direct and indirect employment opportunities in fisheries sector over a period of next five years.

MITHILA MAKHANA REGISTERED WITH GI TAG

Why in news?

- Recently, the government has awarded Geographical Indication (GI) tag to Mithila Makhana, a move that is expected to help growers get the maximum price for their premium produce.
- Due to geographical indication tag to mithila makhana in the festive season, people outside Bihar will be able to use this auspicious material with reverence.

Significance of GI tag:

- Once a product gets this tag, any person or company cannot sell a similar item under that name. This tag is valid for a period of 10 years following which it can be renewed.
- The other benefits of GI registration include legal protection to that item, prevention against unauthorised use by others, and promoting exports.



Process of registration of GI products:

- Typically, such a name conveys an assurance of quality and distinctiveness, which is essentially attributable to the place of its origin.
- There is a proper process of registration of GI products which includes filing of application, preliminary scrutiny and examination, show cause notice, publication in the geographical indications journal, opposition to registration, and registration.
- Any association of persons, producers, organisation or authority established by or under the law can apply. The applicant must represent the interest of the producers. It is a legal right under which the GI holder can prohibit others from using the same name.

About GI Tag:

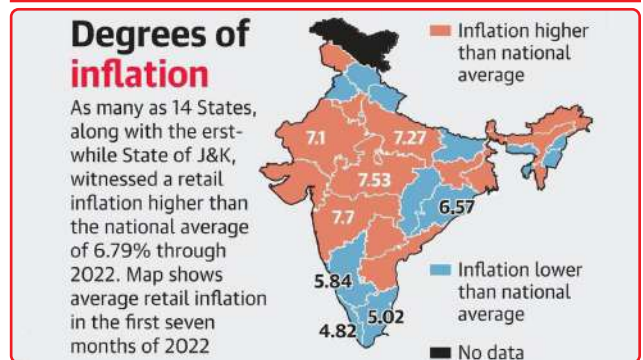
- A GI is primarily an agricultural, natural or a manufactured product (handicrafts and industrial goods) originating from a definite geographical territory.
- The famous goods which carry this tag include Basmati rice, Darjeeling Tea, Chanderi Fabric, Mysore Silk, Kullu Shawl, Kangra Tea, Thanjavur Paintings, Allahabad Surkha, Farrukhabad Prints, Lucknow Zardozi, and Kashmir Walnut Wood Carving.

About makhana:

- Popularly known as makhana, foxnut comes from the plant prickly water lily (*Euryale ferox*) which grows in the stagnant water of wetlands or ponds.
- Bihar is currently the world's biggest producer of makhana with a 90 percent share.
- Almost 90 per cent of production comes from 9 districts of Bihar i.e., Darbhanga, Madhubani, Purnea, Saharsa, Katihar, Supaul, Sitamarhi, Araria and Kishanganj.

- Makhana is often marketed as an organic, gluten-free snack and superfood due to its nutritional value.

TELANGANA, WEST BENGAL AND SIKKIM TOP INFLATION CHARTS



Why in news?

- India's retail inflation surged past 6% in January, but there are wide disparities in the pace of price rise experienced by consumers across the country, with a dozen States clocking an average inflation of less than 6% and another 12 States averaging more than 7% through 2022 so far.

Key Highlights:

- While headline inflation measured by the Consumer Price Index has averaged 6.8% in the first seven months of 2022, well above the 6% upper tolerance threshold set by policy makers, consumers in Telangana, West Bengal and Sikkim faced the steepest spike in prices, with their combined retail inflation for rural and urban areas averaging 8.32%, 8.06%, and 8.01%, respectively.
- As many as 14 States, along with the erstwhile State of Jammu & Kashmir, have witnessed price rise higher than the national average through 2022, with all but two of these States seeing higher than 7% inflation.
- Some of the other major States where inflation has stayed sharply elevated include Maharashtra and Haryana (7.7%), Madhya Pradesh (7.52%), Assam (7.37%), Uttar Pradesh (7.27%), Gujarat and J&K (7.2%), as well as Rajasthan (7.1%).
- Retail prices in States like Kerala (4.8%), Tamil Nadu (5.01%), Punjab (5.35%), Delhi (5.56%), and Karnataka (5.84%) have been rising at less than 6%.
- Smaller States like Manipur, Goa and Meghalaya have had an average inflation of less than 4% through this period, at 1.07%, 3.66%, and 3.84%, respectively.

Factors responsible for variation in the States' inflation rates:

- One is food prices, where non-producing States have higher inflation as transport prices get added.
- Second is that some States lowered fuel prices while others didn't, which also made a difference.

- Arunachal Pradesh, for which only a rural consumer price index is calculated by the National Statistical Office, has averaged 7.3% inflation this year, peaking at 9.2% in April when the headline retail inflation for the country had hit a 95-month high of 7.79%.
- In Andhra Pradesh and Jharkhand, consumers have faced an inflation of 6.9% so far in 2022, just a tad higher than the national inflation average of 6.8%.
- Price rise in Bihar (6.07%), Chhattisgarh (6.4%), Uttarakhand (6.5%) and Odisha (6.6%) has been below the national average but above the Central bank's tolerance threshold for inflation.

SECURITY

JOINT EXERCISE AL NAJAH-IV



Why in news?

- The 4th Edition of India Oman Joint Military Exercise 'AL NAJAH-IV' between contingents of Indian Army and the Royal Army of Oman is scheduled to take place from 01 to 13 August 2022.
- It will be held at the Foreign Training Node of Mahajan Field Firing Ranges (Rajasthan).
- The Royal Army of Oman contingent comprising 60 personnel from the Sultan of Oman Parachute Regiment have. The Indian Army is represented by troops from the 18 MECHANISED INFANTRY Battalion.

Background:

- The previous edition of Ex AL NAJAH IV was organised at Muscat from 12 to 25 March 2019.

Key Highlights:

- The scope of the exercise includes professional interaction, mutual understanding of drills & procedures, establishment of joint command & control structures and elimination of terrorist threats.
- The joint exercise would focus on Counter Terrorism Operations, Regional Security Operations and Peace Keeping Operations under United Nations charter apart from organising joint physical training schedules, tactical drills, techniques and procedures.
- A comprehensive training programme to culminate in a 48 hours long validation exercise involving

establishing of joint mobile vehicle check posts, joint cordon and search operations followed by joint room intervention drills in a built up area has been worked out.

Way Forward:

- The joint military exercise aims to enhance the level of defence co-operation between Indian Army and Royal Army of Oman and will further manifest in enhancing the bilateral relations between the two nations.
- The Sultanate of Oman is a strategic partner of India in the Gulf and an important interlocutor at the Gulf Cooperation Council (AGCC), Arab League, and Indian Ocean Rim Association (IORA) fora.

3RD EDITION OF EX VINBAX - 2022



Why in news?

- The Third Edition of Vietnam-India Bilateral Army Exercise "Ex VINBAX 2022" is scheduled to be conducted at Chandimandir from August 1 to 20, 2022.

Theme

- The theme of Ex VINBAX - 2022 is employment and deployment of an Engineer Company and a Medical Team as part of United Nations Contingent for Peace Keeping Operations.

Key Highlights

- The conduct of Ex VINBAX - 2022 as a field training exercise with enhanced scope from previous editions of bilateral exercise will strengthen mutual confidence, inter-operability and enable sharing of best practices between the Indian Army and Vietnam People's Army.
- The joint exercise will also provide an opportunity to the troops of both the Contingents to learn about the social and cultural heritage of each other. Indian Army is being represented by troops from the 105 Engineer Regiment.
- A 48 hours Validation Exercise is part of the schedule to assess the standards achieved by both contingents while executing technical military operations under similar scenarios in UN missions.
- A Humanitarian Assistance and Disaster Relief demonstration and equipment display will showcase India's capacity to undertake rescue and relief

operations during natural and manmade disasters utilising indigenous solutions.

Background

- The exercise is a sequel to previously conducted bilateral exercise in Vietnam in 2019 and a major milestone in strengthening the bilateral relations between India and Vietnam.

India-Vietnam relations

- India and Vietnam share a Comprehensive Strategic Partnership and defence cooperation is a key pillar of this partnership. Vietnam is an important partner in India's Act East policy and the Indo-Pacific vision.
- The Indo-Vietnam Cooperation assumes significance in view of the US and several world powers' efforts to ensure a free, open and thriving Indo-Pacific region, especially at a time when China has shown scant respect for international laws to resolve the territorial disputes in the South China Sea.
- Vietnam is the 15th largest trade partner of India and India is its 10th largest partner with bilateral trade standing at USD 11.12 billion in 2020-21.

INDIAN NAVY'S ALL WOMAN AIRCREW CREATES HISTORY



Why in news?

- Five officers from the Indian Navy made history when they completed the first all-women independent maritime reconnaissance and surveillance mission in the North Arabian Sea onboard a state-of-the-art Dornier 228 aircraft.

Details

- The five officers: Lieutenant Commander Aanchal Sharma, Lt Shivangi and Lt Apurva Gite, and Tactical and Sensor Officers, Lt Pooja Panda and SLT Pooja Shekhawat – are from Navy's INAS 314, a frontline Naval Air Squadron, based at Naval Air Enclave at Porbandar.
- INAS 314, the sixth Dornier aircraft squadron, was commissioned at Gujarat's Porbandar coast in November 2019.
- The squadron has a very strategic location and serves a crucial role in surveillance in the North Arabian Sea.

Empowering women

- The Navy has been a frontrunner in driving transformation in the Armed Forces from inducting women pilots, their inclusion into the helicopter stream and conducting an all-women sailing circumnavigation expedition across the globe in 2018.
- In 2018, six naval officers had scripted history when they became the first all-woman military team and the first Asian women's team to circumnavigate the globe.

Women in Agniveer

- Even in the recently-concluded registration for the Agniveer scheme, the Navy received over 80,000 applications from women candidates.
- As of now, the Navy has 30 women officers at present sailing on different Indian Navy ships.

EX VAJRA PRAHAR 2022



Why in news?

- Recently, the 13th Edition of the Indo-US Joint Special Forces exercise "Ex Vajra Prahar 2022" commenced at the Special Forces Training School (SFTS), Bakloh (HP).

Participants

- The US contingent is represented by personnel from the 1st Special Forces Group (SFG) and Special Tactics Squadron (STS) of US Special Forces and the Indian Army contingent is formed by drawing Special Forces personnel under the aegis of SFTS.

Key Highlights

- The Vajra Prahar series of joint exercise aims to share best practices and experiences in areas such as joint mission planning and operational tactics as also to improve inter-operability between the Special Forces of both the Nations.
- During the course of next 21 days, teams of both armies would jointly train, plan and execute a series of Special Operations, Counter Terrorist Operations, Air Borne operations in simulated conventional and unconventional scenarios in mountainous terrain.

Background

- This annual exercise is hosted alternatively between India and the United States.
- The 12th edition was conducted at Joint Base Lewis Mcchord, Washington (USA) in October 2021.

Way Forward

- This joint exercise is a significant step in strengthening the traditional bond of friendship between the special forces of both Nations as well as improve bilateral defence cooperation between India and the USA.

INDIAN AIR FORCE TO PARTICIPATE IN 'UDARASHAKTI'



Why in news?

- Recently, a contingent of the Indian Air Force left for Malaysia to participate in a bilateral exercise named 'Udarashakti'.

Key Highlights

- Indian Air Force is participating in the air exercise with Su-30 MKI and C-17 aircraft while the Royal Malaysian Air Force will be flying Su 30 MKM aircraft.
- The exercise will give an opportunity to IAF contingent members to share and learn best practices with some of the best professionals from RMAF, while also discussing mutual combat capabilities.
- The four days of exercise will witness conduct of various aerial combat drills between the two Air Forces.

Way Forward

- Ex Udarashakti will fortify the long-standing bond of friendship and enhance the avenues of defence cooperation between the two Air Forces, thereby augmenting security in the region.

INDO – US SPECIAL FORCES JOINT EXERCISE



Why in news?

- Recently, the 13th Edition of India - USA Joint Special

Forces Exercise VAJRA PRAHAR 2022 culminated at Bakloh, Himachal Pradesh.

Background:

- This annual exercise is hosted alternatively between India and the United States.
- The 12th edition was conducted at Joint Base Lewis Mc Chord, Washington (USA) in October 2021.

Key Highlights:

- The 21-day joint training provided an opportunity for the Special Forces from both nations to train in Air Borne Operations, Special Operations and Counter Terrorism operations in a joint environment under United Nations Charter.
- The exercise was conducted in two phases; the first phase involved combat conditioning and tactical level special missions training exercises and the second phase included 48 hours of validation of training received by both contingents in the first phase.

Way Forward:

- Exercise VAJRA PRAHAR with the US Special Forces is significant in terms of security challenges faced by both Nations in the backdrop of the current global situation.
- The joint military exercise has further strengthened the traditional bond of friendship between the special forces of both Nations as well as improved bilateral defence cooperation between India and the USA.

ENVIRONMENT

INDIAN OIL SIGNS MOU WITH NTCA FOR TRANSCONTINENTAL RELOCATION OF 'CHEETAH'



Why in news?

- Indian Oil signed an MoU with National Tiger Conservation Authority (NTCA) for transcontinental relocation of 'Cheetah' in its historical range in India.
- This is in continuation with the MoU signed on 20th July 2022 between Government of India and Government of the Republic of Namibia on wildlife conservation and sustainable biodiversity utilization, for establishing the cheetah into the historical range in India.

Details

- Indian Oil will be contributing Rs.50.22 crore in 4 years for the project components viz. Cheetah Introduction, its Habitat Management & Protection, Eco Development, Staff Training and Veterinary Healthcare.
- Indian Oil is the first corporate which has come forward to support the "Project Cheetah" under CSR, as the project has not only national importance but is also essential for balancing the ecosystem.

Conserving India's natural habitat and heritage:

- Cheetah restoration will be part of a prototype for restoration of original cheetah habitats and their biodiversity, helping to stem the degradation and rapid loss of biodiversity.
- This project is in sync with Indian Oil's strong environmental conscience and aligns with the company's focus on conserving India's natural habitat and heritage.
- Indian Oil adopted Indian Single Horned Rhino as its mascot in 2021 and, since then, has been at the forefront of India's Rhino conservation endeavors.

Reintroduction of Cheetah:

- Under this project, a source population of 8-10 Cheetahs will be flown in from Namibia and South Africa and will be introduced at Kuno National Park, Madhya Pradesh.
- The subspecies of Cheetah which got extinct in India was Asiatic Cheetah (*Acinonyx jubatus venaticus*) and the subspecies being introduced back in the country is African Cheetah (*Acinonyx jubatus jubatus*). Research has shown that genes of these two subspecies are the same.
- It is a national project involving National Tiger Conservation Authority (NTCA), Govt. of India and the State Govt. of Madhya Pradesh.
- NTCA is the nodal agency authorized by MoEF&CC for funding, supervision and hand holding. Indian Oil will contribute its CSR funds to NTCA, which shall co-ordinate with the State Govt. of Madhya Pradesh and other agencies involved in the project.

FIRST HIMALAYAN SPICE GARDEN INAUGURATED



Why in news?

- A Himalayan spice garden, a first of its kind in the entire Indian Himalayan Region and country, was inaugurated by noted historian Shekhar Pathak in Uttarakhand's Ranikhet.

Objective:

- The main objective of the establishment of this spice garden was to popularize and create awareness about various spices of the Indian Himalayan region.

Stakeholders:

- The garden has been established over an area of around 4 acres in Ranikhet, with funding from the Japanese International Cooperation Agency (JICA) over a period of two years.
- It has been developed by the research wing of the Uttarakhand Forest Department.

Key Highlights:

- It showcases major Himalayan spices ranging from Kesar from Kashmir to famed Tejpat, Timoor and Wild Heeng, found in the Bhairoghathi area of Uttarkashi District.
- It presently houses more than 30 different spices out of which there are 8 spices from the Allium family (onion) of the Himalayan region.
- Apart from other spices, it has Kala jeera (which grows at very high altitude area only and is more nutrient/spicy than common one), Jakhya (one of the most popular spices of Garhwal region, used for tempering Daal and vegetables), Gandrayani (Pungent spice used as a flavouring agent in vegetable and daal).
- The garden has Badri tulsi (*Origanum vulgare*), Lakhori Mirchi of Almora (having a very distinct yellow colour and unique to Almora, this chilli is extremely hot and has antidiabetic, antibacterial properties and rich in vitamin C) and Jambu (Leaves used for seasoning and also as vegetable and in soup).

Interpretation Centre:

- The garden has an interpretation centre also where information about these spices has been displayed.

WILD LIFE (PROTECTION) AMENDMENT BILL, 2021



Why in news?

- Recently, the Wild Life (Protection) Amendment Bill, 2021 was passed by Lok Sabha.

- The bill, first introduced in Lok Sabha by the Minister of Environment, Forest and Climate Change on December 17, 2021, amends the Wild Life (Protection) Act, 1972.

Details

- It aims for better management of protected areas and provides for certain permitted activities such as grazing or movement of livestock, and bona fide use of drinking and household water by local communities.
- The bill was introduced to amend the Wild Life Protection Act of 1972 by implementing the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) and expanding the number of species protected by the convention.

CITES

- CITES is an international agreement signed between governments in 1973 to ensure that international trade in wild animals and plants does not threaten the species.
- The convention classifies plants and animal species into three categories based on threat assessments.
- It is a convention that requires countries to regulate the trade of all listed specimens through permits and regulate the possession of live animal specimens so it does not threaten the survival of the species.

Key Highlights

Number of schedules

- The previous Wild Life (Protection) Act, 1972 had six schedules for specially protected plants (one), specially protected animals (four), and one vermin species (small animals that carry disease and destroy food).
- The amended bill reduces the total number of schedules to four by eliminating the schedule for vermin species and reducing the number of schedules for specially protected animals to two. It also inserts a new schedule for specimens listed under CITES.

Regulation of trade:

- The Bill provides for the central government to designate an authority which grants export or import licences for the trading in specimens. Anyone who trades in a scheduled specimen must inform the appropriate authority of the transaction's specifics.
- The authority may use an identification mark for a specimen which, the bill, prohibits any person from removing or modifying.
- Additionally, people possessing live specimens of scheduled animals must obtain a registration certificate from the Management Authority.
- The Bill gives the government the authority to control or outlaw the import, trade, and possession of invasive alien species, or those that are not indigenous to India.

Penalty:

- The bill increases the penalty for violations of the provisions of the bill. Under the 1972 act, the general

fine was up to ₹25,000 which has been increased to ₹1,00,000.

- For violating the provisions meant for specially protected animals, the previous fine was up to ₹10,000 and now has been increased to at least ₹25,000.

Other provisions:

- The bill will also ensure greater control and regulation of wildlife sanctuaries and empower the government to notify a conservation reserve, an area located next to sanctuaries or national parks to protect the flora and fauna.
- The Act entrusts the Chief Wild Life Warden to control, manage and maintain all sanctuaries in a state and that the actions must be in accordance with the management plans for the sanctuary.
- Additionally, the bill provides for any person to voluntarily surrender any captive animals or animal products for which no compensation will be awarded and the items will become the property of the state government.

INDIAN VIRTUAL HERBARIUM

Why in news?

- In the 'Mann Ki Baat' episode on July 31, 2022, the Prime Minister spoke about the novel initiative and said that Indian Virtual Herbarium is an interesting collection of plants and preserved parts of plants.

What is Indian Virtual Herbarium?

- Developed by scientists of the Botanical Survey of India (BSI), Indian Virtual Herbarium was inaugurated on July 1 in Kolkata.
- With details of about one lakh plant specimens, Indian Virtual Herbarium, the biggest virtual database of flora in the country.
- While herbarium specimens are considered important tools for plant taxonomy, conservation, habitat loss and even climate change, Prime Minister has recently described Indian Virtual Herbarium as an example of how digital tools can help us connect to our roots.

Features

- Each record in the digital herbarium includes an image of the preserved plant specimen, scientific name, collection locality, and collection date, collector name, and barcode number.
- The digital herbarium also includes features to extract the data State-wise and users can search plants of their own States which will help them to identify regional plants and in building regional checklists.
- There are approximately three million plant specimens in the country which are with different herbaria that are located at zonal centers of BSI and at the Central National Herbarium located at Acharya Jagadish Chandra Bose Indian Botanic Garden at Howrah in West Bengal.



Botanical history:

- The Indian Virtual Herbarium is also deeply linked with the botanical history of the country.
- The portal provides most valuable historical collections of botanists like William Roxburgh, Nathaniel Wallich, Joseph Dalton Hooker among others who are considered founding fathers of botany in India.
- The digital herbarium has some of the oldest botanical specimens dating as early as 1696.
- *Cyperus procerus* was collected between 15 and 20th June, 1696, near Chennai. The oldest type specimen *Lepidagathis scariosa* was collected in 1817 by Robert Wight.
- Type specimens are those collections which help in new discoveries and are considered of great significance by botanists and taxonomists. Researchers need to examine the types of the names in order to confirm their identities.

Way Forward:

- As a priority, the Indian Virtual Herbarium has digitized information with images of 29,615 type specimens on its platform.
- The herbarium provides information on plants in different categories such as Cryptogams (spore bearing plants), Phanerogams (seed bearing plants). Both the groups are again divided into two categories which includes genera; specimen and type specimens.
- By the end of 2022 the number of digitized species will increase to two lakh.

NASA HIGHLIGHTS LOSS OF MANGROVE COVER ON KATCHAL ISLAND

Why in news?

- The United States National Aeronautics and Space Administration (NASA) recently highlighted the loss of mangrove cover on Katchal island, a part of India's Nicobar archipelago.
- It did so while citing a study that showed the extent to which mangroves had been lost globally over the past two decades.

Loss in Katchal Island:

- The NASA Earth Observatory showed a map of the island shot from a satellite. The map shows the real extent of tidal wetlands lost between 1992 and 2019 on Katchal Island in the Nicobar Islands in the eastern Indian Ocean.
- After the magnitude-9.2 Aceh-Andaman earthquake in December 2004, the islands experienced up to 3 meters (10 feet) of land subsidence. This submerged many mangrove ecosystems, resulting in a loss of more than 90 percent of mangrove extent in some areas.

Propagule:

- The mangrove cover on Katchal will not come back. But in other places, mangroves have reappeared since they propagate themselves through propagules.
- A propagule is a vegetative structure that can become detached from a plant and give rise to a new plant. Examples include a bud, sucker, or spore.

Key Findings:

- High-resolution mapping of losses and gains of Earth's tidal wetlands found that 4,000 square kilometres of tidal wetlands were lost between 1999 and 2019.
- The study also noted that mangroves had the highest ratio of loss to gain among the three types of tidal wetlands it studied. The other two were tidal flats and marshes.
- Mangroves showed an estimated net decrease of 3,700 square kilometres between 1999 and 2019. However, tidal wetlands were overall very dynamic.
- The data suggests a net loss of tidal wetlands on deltas globally, though gains of 2,100 square kilometres alongside losses of 2,300 square kilometres indicate the considerable dynamism of these systems.

Threats to tidal wetlands:

- Some 27 per cent of the losses and gains were directly caused by human activity. Humans can alter wetlands through development, water diversion projects, or by converting the land to agriculture or aquaculture. But they can also expand wetlands through restoration projects.
- Other causes of wetland change were sea level rise, shoreline erosion, storms, altered sediment flow and

subsidence. These can be either indirectly caused by humans or the result of natural coastal processes.

- The study also found that outside of Asia, tidal wetlands in Africa had the highest ratio of loss to gain. The loss was most severe in in Nigeria, Mozambique and Guinea-Bissau.

ASIA'S LARGEST COMPRESSED BIOGAS PLANT



Why in news?

- Compressed Biogas (CBG) plant in Sangrur district of Punjab, largest in Asia, has now started commercial production.

Details:

- The plant has a total capacity of 33.23 tonne CBG per day. It was commissioned at village Bhuttal Kalan (Sangrur) in April 2022.
- The plant has now started commercial production of CBG, which is being supplied to Indian Oil Corporation Ltd (IOCL) outlet.

Strengthening rural economy:

- Besides, PEDDA (Punjab Energy Development Agency) has also allocated 42 additional CBG projects of total capacity 492.58 Tonnes Per Day (TPD) based on paddy straw and other agro-residue to develop a lasting and sustainable solution to prevent stubble burning while also strengthening the rural economy.
- These projects are expected to fetch private investment of around Rs 1,200 crore, besides generating employment opportunities for 8,000 skilled and unskilled individuals.
- With these projects, emission of greenhouse gases will also be reduced and the rural economy will get a boost by providing additional income to farmers from agro residue.

Upcoming projects:

- Two more plants of total capacity 14.25 tonnes CBG per day are likely to be completed in 2022-23.
- Remaining projects are expected to be commissioned within next three years. All these projects will consume nearly 16.5 lakh tonne paddy straw per annum to produce 492.58 tonne CBG per day.
- Apart from this, fermented organic manure produced from these CBG plants as by-product will be used for

organic farming. This will further help local allied industries to flourish.

CBG projects based on agro-waste:

- There is a huge potential of CBG projects based on agro-waste in Punjab.
- The Hindustan Petroleum Corporation Ltd (HPCL) is setting up a project of capacity 100 KL 2G ethanol per day based on paddy straw and other agro-residue in Bathinda district. It will be completed by February 2023. This project will consume about 2 lakh tonne paddy straw per annum.
- About 300 more projects having capacity of 10 TPD each can be set up in the state.

Incentives by state government:

- For this, Punjab government is providing various incentives, including exemption of stamp duty and registration charges, change of land use and external development charge and one stop clearances system through 'Invest Punjab' under the state's new and renewable energy policy.

CENTRE NOTIFIES INDIA'S 31ST ELEPHANT RESERVE IN TAMIL NADU

Why in news?

- Recently, the Union Minister for Environment, Forest and Climate Change announced the notification of one more elephant reserve (ER) in the country in Tamil Nadu during a programme in the Periyar Wildlife Sanctuary in Kerala.

Details



- The new reserve will be spread over an area of 1,197 square kilometres in Agasthiyamalai.
- This will be the 31st ER in the country after Singphan ER in Nagaland was notified in 2018.

Facts about Indian elephant:

- The Indian elephant (*Elephas maximus*) is found in the central and southern Western Ghats, North East India, eastern India and northern India and in some parts of southern peninsular India.
- It is included in Schedule I of the Indian Wildlife (Protection) Act, 1972 and in Appendix I of the Convention on International Trade in Endangered Species of Flora and Fauna (CITES).

⇒ The Indian elephant is found in 16 states in the country and is showing an increasing trend across its distributional range.

Census:

- ⇒ The population of the animals had become critically low in 1992. That is when Project Elephant was launched to ensure the protection of the pachyderms and their environment.
- ⇒ According to the latest elephant census conducted in 2017, the population of elephants in India has reached up to about 27,312. However, the minister in his address said the population of elephants was near 30,000, with about 29,900 individuals.
- ⇒ According to the 2017 census, Karnataka had the highest number of elephants (6,049), followed by Assam (5,719) and Kerala (3,054).

RAMSAR TAG FOR 75 INDIAN WETLANDS ON 75TH YEAR OF INDEPENDENCE

Why in news?

⇒ Recently, as per the Union Environment Ministry, eleven Indian sites have been added to the Ramsar list, taking the number of wetlands of international importance in the country to 75 in the 75th year of Independence.

What is Ramsar List?

⇒ The Ramsar list aims at "developing and maintaining an international network of wetlands which are important for the conservation of global biological diversity and for sustaining human life through the maintenance of their ecosystem components, processes and benefits".



⇒ The Ramsar convention, which was initiated in the year 1971, is an intergovernmental treaty for the

- conservation and sustainable use of Ramsar sites.
- ⇒ The convention of wetlands is named after the city of Ramsar in Iran where it was first signed. India has the highest number of Ramsar sites among the South Asian nations.
- ⇒ The list begins with the inclusion of Chilika lake and Keoladeo National Park, the first Ramsar-recognised sites in the country.
- ⇒ India is one of the contracting parties to the Ramsar Convention, signed in Ramsar, Iran, in 1971. New Delhi signed it on February 1, 1982.

Key Highlights:

- ⇒ Of the 11 sites, four are in Tamil Nadu, three in Odisha, two in Jammu and Kashmir and one each in Madhya Pradesh and Maharashtra.
- ⇒ Twenty-eight Indian sites have been declared wetlands of international importance this year itself.
- ⇒ A total of 26 sites were added to the Ramsar list from 1982 to 2013. Since 2014, 49 sites have bagged the coveted tag.

New Indian wetlands of international importance:

Tamil Nadu:

- a) Chitrangudi Bird Sanctuary
- b) Suchindram Theroor Wetland Complex
- c) Vaduvur Bird Sanctuary
- d) Kanjirankulam Bird Sanctuary

Odisha:

- a) Tampara Lake
- b) Hirakud Reservoir
- c) Ansupa Lake

Jammu and Kashmir:

- a) Hygam Wetland Conservation Reserve
- b) Shallbugh Wetland Conservation Reserve

Maharashtra:

- ⇒ Thane Creek

Madhya Pradesh:

- ⇒ Yashwant Sagar

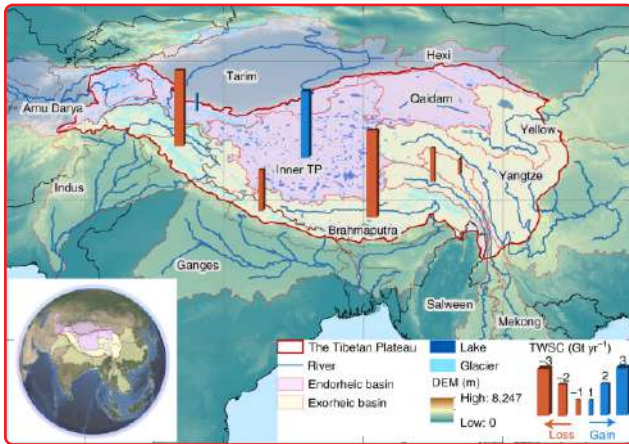
Way Forward

- ⇒ Tamil Nadu has the maximum number of Ramsar sites (14), followed by Uttar Pradesh (10).
- ⇒ The 75 Ramsar sites in the country cover an area of 13,26,677 hectares.
- ⇒ The designation of these sites would help in conservation and management of wetlands and wise use of their resources.

TIBETAN PLATEAU TO EXPERIENCE SIGNIFICANT WATER LOSS THIS CENTURY

Why in news?

- ⇒ The Tibetan Plateau will experience significant water loss this century due to global warming, according to recent research that warns of severe supply stress in a climate change 'hotspot'.



Background:

- The reservoirs of the Tibetan Plateau, which covers much of southern China and northern India, are fed by monsoons and currently supply most of the water demand for nearly two billion people.
- But the plateau's complex terrain has made it difficult for scientists to predict how warming temperatures and altered weather patterns linked to climate change will affect the region's water stores.

Satellite image:

- Researchers based in China and the United States used satellite-based measurements to determine the net change in water and ice mass over the past two decades.
- They added in direct measurements of glaciers, lakes and sub-surface water levels to estimate changes in the water mass, then used a machine learning technique to predict storage changes under scenarios such as higher air temperature and reduced cloud cover.

Key findings:

- They found that due to an increasingly warm and wet climate, the Tibetan Plateau has lost just over 10 billion tonnes of water a year since 2002.
- They projected changes in water storage across the plateau under a middle-of-the-road emissions scenario, where levels of carbon pollution stay roughly at current levels before falling gradually after 2050.
- They found two river basins were particularly vulnerable to water loss.
- For the Amu Darya, central Asia's largest river, water loss could be equivalent to 119 per cent of the current demand.
- Communities reliant on the Indus basement for water supply could see a loss equivalent to 79 per cent of current demand.

Way Forward:

- They recommended that governments begin to explore alternative water supply options, including more groundwater extraction, to make up for the anticipated shortfall.

- The substantial reductions in carbon emissions over the next decade would limit global warming and the predicted collapse of the Tibetan Plateau water towers.
- But even in a best-case scenario, further losses are likely unavoidable, which will require substantial adaptation to decreasing water resources in this vulnerable, highly populated region of the world.

DELHI'S PM2.5 LEVELS WORST IN THE WORLD'

Why in news?

- The recent report, 'Air Quality and Health in Cities', released by U.S.-based Health Effects Institute analyses pollution and global health effects for more than 7,000 cities around the world, focusing on two of the most harmful pollutants - fine particulate matter (PM2.5) and nitrogen dioxide (NO₂).

Details:

- The report, using data from 2010 to 2019, found that global patterns for exposures to the two key air pollutants were "strikingly different."
- While exposures to PM2.5 pollution tend to be higher in cities located in low- and middle-income countries, exposure to NO₂ is high across cities in high-income as well as low- and middle-income countries.

Key Highlights:

- A global analysis of air quality found that Indian cities, while recording particulate matter emissions (PM2.5) that are among the highest in the world, do relatively better on nitrogen dioxide (NO₂) emissions.
- Delhi and Kolkata were ranked first and second in the list of top 10 most polluted cities when PM2.5 levels were compared, with Delhi and Kolkata reporting an average annual exposure of (relative to population) of 110 ug/m³ and 84 ug/m³ respectively.
- ug/m³ refers to microgram per cubic metre.



Nitrogen dioxide (NO₂) emissions

- However no Indian city appeared in the list of top 10 – or even top 20 - polluted cities when NO₂ levels were compared. This list saw Shanghai at the top with an average annual exposure of 41 ug/m³. Average NO₂ levels for Delhi, Kolkata and Mumbai ranged from 20-30 ug/m³.

- ⇒ Other cities with high NO₂ population levels included Moscow, Beijing, Paris, Istanbul and Seoul.
- ⇒ In 2019, 86% of the more than 7,000 cities analysed in the report exceeded the WHO's 10 ug/m³ guideline for NO₂, impacting about 2.6 billion people.

Causes for NO₂ emissions:

- ⇒ NO₂ comes mainly from the burning of fuels in older vehicles, power plants, industrial facilities and residential cooking and heating.
- ⇒ As city residents tend to live closer to busy roads with dense traffic, they are often exposed to higher NO₂ pollution than residents of rural areas.

Paradoxical situation in India:

- ⇒ This paradoxical situation in India was likely due to the relatively lower adoption of high-efficiency engine vehicles.
- ⇒ Complete combustion of fuel results in higher NOx (nitrogen oxides) where incomplete combustion sees other kinds of emissions.
- ⇒ Due to their highly reactive nature, nitrogen oxides also contributed to the formation of other pollutants, including ozone and particulate matter. NO₂ also has a shorter lifetime compared with PM2.5 and other air pollutants.
- ⇒ As a result, NO₂ levels show very high variability in space and time, levels can vary significantly even across a few kilometres. In comparison, PM2.5 levels tend to show less spatial variation.
- ⇒ In 2019, the global average NO₂ exposure was 15.5 ug/m³, but exposure levels varied considerably across cities
- ⇒ Ground monitoring of air quality remains limited in many regions of the world, obscuring the true degree of NO₂ pollution in countries such as India.

INDIAN TEAM DELIBERATING ON OCEAN DIVERSITY PACT



Why in news?

- ⇒ A delegation from India and other member countries of the United Nations are in New York to deliberate on a one-of-its-kind agreement to conserve marine biodiversity in the high seas, namely the oceans that extend beyond countries' territorial waters.

Background:

- ⇒ The agreement follows a resolution by the UN General Assembly in May and is expected to be the final in a series set in motion since 2018 to draft an international legally binding instrument under the 1982 United Nations Convention on the Law of the Sea (UNCLOS).
- ⇒ The high seas comprise nearly 45% of the Earth's surface.

Focus areas:

- ⇒ Studies on sustainable utilisation of deep sea bio-resources will be the main focus.
- ⇒ A key aspect of the agreement is deciding on the rights of companies that undertake exploration for biological resources in the high seas. Do companies have absolute rights on any discovery or extraction in these regions or should they share their gains, in terms of intellectual property and royalties with a UN-prescribed body.
- ⇒ Typically, the focus of mining activity in the sea has been for gas hydrates, precious metals and other fossil fuel resources.
- ⇒ However, with advances in biotechnology and genetic engineering, several companies see potential in exotic microbes and other organisms that abide in the deep ocean and could be used for drugs and vaccines.

Indian initiatives:

- ⇒ In June 2021, the Union Cabinet approved a 'Blue Economy' policy for India, a nearly Rs. 4,000-crore programme spread over five years.
- ⇒ This among other things will develop a manned submersible vessel as well as work on "bio-prospecting of deep-sea flora and fauna including microbes".

Way Forward:

- ⇒ There was a "race" among international corporations for biological resources from the sea, making it critical to have an agreement on benefit-sharing.
- ⇒ These resources are the common heritage of mankind and can't be allowed to be monopolised by a few entities. Hence, an international agreement that spells out obligations and permissible activities is important.

MINIOPTERUS PHILLIPSI, A NEW LONG-FINGERED BAT SPECIES DISCOVERED

Why in news?

- ⇒ Recently, an international team of researchers has found a new species of long-fingered bats in India and Sri Lanka, close on the heels of the discovery of a thick-thumbed bat species in Meghalaya.

Naming:

- ⇒ They named the new species of long-fingered bats as *Miniopterus phillipsi*.



- It was named after W W A Philips (1892-1981) in recognition of his contributions to studies on the mammals of Sri Lanka and South Asia.

Background:

- The specimens for this species were collected from Idulgashinna cave in Uva Province in Sri Lanka and are now deposited in the Natural History Museum of the neighbouring country.
- The initial research was carried out in Sri Lanka in 2019 and it took three years to be completed in both Sri Lanka and India.

Habitat in India:

- The researchers found that the population of long-fingered bats in Robber's cave in Mahabaleshwar in the Western Ghats of India also belongs to this species, which was earlier mistaken as Eastern bent-winged bats.
- The long-fingered bats belonging to the family Miniopteridae are part of a large group comprising at least 40 species worldwide.
- They have similar morphology and overlapping dimensions rendering species identification problematic.
- The Long-fingered bats are obligatory cave and tunnel dwellers living in large colonies and this new species is also no exception.

Way Forward:

- A team of scientists had recently discovered a new species of thick-thumbed bat from a bamboo forest in Meghalaya and named it after the state.
- While in Sri Lanka it is relatively widespread, more studies are needed to determine its exact distribution range in India.

2050 NET-ZERO TARGET CAN BOOST INDIA'S GDP BY 7.3% BY 2032: REPORT

Why in news?

- Recently, the High-level Policy Commission launched the 'Getting India to Net Zero' report.
- The report comes ahead of a pivotal moment for Asian and Indian leadership especially, with India assuming the G20 presidency in 2023 and the Asia Pacific Group hosting COP28.



Details:

- A modelling and research commissioned by the High-level Policy Commission on Getting Asia to Net Zero, achieving net zero emissions by 2070 could boost India's economy by as much as 4.7 per cent above the projected baseline growth in GDP terms by 2036 worth a total of USD 371 billion.
- Launched in May, the commission has four members -- former Australian prime minister Kevin Rudd, former United Nations secretary general Ban Ki-Moon, former vice chairman of Niti Aayog Arvind Panagariya, and global head and director of Climate Business, International Finance Corporation, Vivek Pathak.

Notable benefits of Net zero for Indians:

- The transition will see a net increase in employment opportunities, creating 15 million jobs beyond a baseline scenario by 2047.
- Households could save as much as USD 9.7 billion in energy costs by 2060.

Challenges for India:

- Yet, achieving net zero emissions will require India to grapple with a series of challenges, the foremost being finance: according to the modelling, India will need around USD 10.1 trillion in cumulative economy-wide investment to meet its 2070 target.
- While India could decarbonise using carbon revenues or other domestic tax-raising mechanisms to fund green investments, leveraging international support would free up domestic finance for development, poverty reduction and management of social impacts, helping mitigate the negative impacts on households from higher prices and taxes.

India's Net zero target:

- At the 26th Conference of Parties to the United Nations Framework Convention on Climate Change in Glasgow, Prime Minister Narendra Modi announced that India will achieve net zero emissions by 2070. Net zero means achieving a balance between the greenhouse gases put into the atmosphere and those taken out.
- The commission said policies, especially to boost renewables and electrification, could make net zero possible by mid-century.

- Ending new coal as soon as possible by 2023 and transitioning from unabated coal power by 2040 would be particularly impactful for reaching net zero emissions closer to mid-century.
- The time is ripe for India to formalise and implement its 2030 and 2070 emission targets and to continue to strengthen them. India is already feeling some of the worst impacts from emissions and pollution, with extreme heat, floods, premature deaths and more.

Way Forward:

- India promises to emerge not only as a model for healthy, sustainable and strong economic growth, but also as a global manufacturing hub for the global net-zero economy.
- As the host of the G20 in 2023, India can showcase its action and encourage other countries to follow suit, cooperate and invest.

- The first is Zero Budget Natural Farming, which involves chemical-free farming on 10 km on either side of the river, and the promotion of cow dung as fertiliser through the GOBARdhan scheme.
- The Monetization and Reuse of Sludge & Wastewater is the second, which seeks to reuse treated water for irrigation, industries and revenue generation for Urban Local Bodies (ULBs).
- Arth Ganga will also involve Livelihood Generation Opportunities, by creating haats where people can sell local products, medicinal plants and ayurveda.
- The fourth is to increase public participation by increasing synergies between the stakeholders involved with the river.
- The model also wants to promote the cultural heritage and tourism of Ganga and its surroundings, through boat tourism, adventure sports and by conducting yoga activities.
- Lastly, the model seeks to promote institutional building by empowering local administration for improved water governance.

'ARTH GANGA', NEW MODEL FOR THE RIVER'S SUSTAINABLE DEVELOPMENT



Why in news?

- Recently, the Director General of the National Mission for Clean Ganga, spoke about the Arth Ganga model during his virtual keynote address to the Stockholm World Water Week 2022.

The concept

- PM Modi first introduced the concept during the first National Ganga Council meeting in Kanpur in 2019, where he urged for a shift from Namami Gange, to clean the Ganga, to the model of Arth Ganga.
- The latter focuses on the sustainable development of the Ganga and its surrounding areas, by focusing on economic activities related to the river.
- At its core, the Arth Ganga model seeks to use economics to bridge people with the river.
- It strives to contribute at least 3% of the GDP from the Ganga Basin itself.
- The Arth Ganga project's interventions are in accordance with India's commitments towards the UN sustainable development goals.

Key Features:

- Under Arth Ganga, the government is working on six verticals.

World Water Week

- World Water Week occurs late August or early September every year. In 2022, it takes place from August 23 to September 1.
- Since 1991, the Stockholm International Water Institute has been organising the World Water Week every year to address global water concerns.

FIRST ELEVATED WILDLIFE CORRIDOR



Why in news?

- India is paving a new way for wildlife protection. The upcoming Delhi-Dehradun Expressway, which will provide for an elevated wildlife corridor is India's first and Asia's largest.

Background:

- The corridor is one of the highlights of the Delhi-Saharanpur-Dehradun economic corridor, the foundation stone for which was laid by Prime Minister Narendra Modi in December 2021.
- The construction of the last 20-kilometre stretch of the highway has started and the project is expected to be completed by March 2024.

What is a wildlife corridor?

- A wildlife corridor is an area of habitat that provides passage for wildlife across artificial obstacles such as dams, roads, and railways. It is also known as a habitat corridor or a green corridor.
- In addition to connecting wildlife to habitats, the corridors also facilitate the migration and interbreeding of animals.

Key Highlights:

- The 12-kilometre elevated wildlife corridor will connect Ganeshpur-Mohand in Saharanpur district in Uttar Pradesh with Dehradun in Uttarakhand.
- It will run along the stretch of National Highway 72A that sits between the Shivalik forest range known for abundant wildlife, including elephants.
- While the existing two-lane highway will be used to allow the free movement of animals, the elevated corridor is expected to cut journey time drastically.
- The elevated highway will be the country's first such road passing through a forest area.
- The wildlife corridor includes a 340-metre Daat Kali tunnel, which is part of the last 20-km stretch of the highway passing through the Rajaji national park.

How will the expressway help commuters?

- Once completed, the Delhi-Saharanpur-Dehradun Economic corridor will reduce the distance between the two cities from 235 km to 210 km and cut the travel time from the current six and a half hours to two and a half hours. Wayside amenities will be provided along the highway.
- The corridor will connect Delhi's Akshardham to Uttarakhand's Dehradun via cities like Saharanpur, Bhagpat, Shamli and Ghaziabad.
- The movement of vehicles often causes an inconvenience to wildlife in the Shivalik hills and the economic corridor aims to change that.

SCIENCE & TECHNOLOGY

URANIUM CONCENTRATION IN GROUNDWATER IN BIHAR

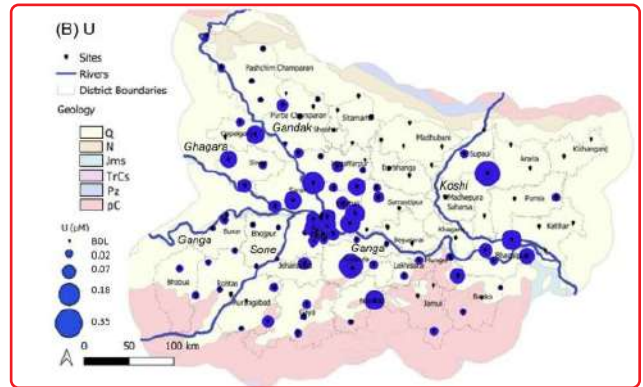
Why in news?

- The high concentration of uranium in groundwater in certain districts in Bihar has left the authorities worried and 100 water samples from ten districts have been sent to Central Ground Water Board (CGWB) center in Lucknow for scientific analysis.

ICP-MS Method:

- The water samples have been sent for isotopic uranium analysis through Inductively Coupled Plasma Mass Spectrometry (ICP-MS) method which measures isotopic ratios at a reasonably high accuracy.
- Districts from where the groundwater samples have been recently collected are Nalanda, Nawada,

Katihar, Madhepura, Vaishali, Supaul, Aurangabad, Gaya, Saran and Jehanabad.



Permissible Limit by WHO:

- The Bureau of Indian Standard has not mentioned any standard for uranium in drinking water, while the World Health Organisation have set drinking the water standards for uranium in drinking water as 30 g/L.
- Uranium concentrations are elevated mostly in the north west-south east band along and to the east of Gandak river and south of the Ganga river towards Jharkhand, particularly in Gopalganj Siwan, Saran, Patna, Nalanda and Nawada districts

Affected districts:

- During 2019-20 the CGWB had collected a total 14377 groundwater samples from shallow wells water sources across the country for the quantification of presence of uranium.
- From Bihar 634 samples were analysed and it was found that concentration of the heavy metal in 11 samples was beyond the permissible limit set by WHO.
- The analysis found that districts where groundwater had high uranium are Saran, Bhabhua, Khagaria, Madhepura, Nawada, Sheikhpura, Purnea, Kishanganj and Begusarai.

Health Hazard:

- Uranium contamination in groundwater is a matter of serious concern as it is hazardous to the health of those exposed.
- High exposure may cause bone toxicity and impaired renal function and cancer.
- Uranium is a chemo-toxic and nephrotoxic heavy metal. This chemotoxicity affects the kidneys and bones in particular.

RESEARCHERS IDENTIFY FUNGUS FOR PYRENE REMEDIATION

Why in news?

- Researchers at the Council of Scientific & Industrial Research-Indian Institute of Petroleum (CSIR-IIP), Dehradun, have identified a fungus capable

of removing toxic, recalcitrant, and carcinogenic polycyclic aromatic hydrocarbons (PAHs) from the environment.



PAHs:

- The rapid pace of economic development and industrialisation has resulted in the release of several PAHs into the environment.
- The PAHs are ubiquitous environmental pollutants originating from multiple sources, including combustion of petrogenic fossil fuels, and incomplete incineration of municipal wastes and biomass.

Pyrene:

- Pyrene, possessing four benzene rings, belongs to the highly toxic class of PAHs, with carcinogenic and mutagenic properties.
- It gets lodged into the environmental matrices like soil, water and atmosphere, resulting in widespread environmental pollution, necessitating adequate remediation of contaminated environmental matrices.

Trametesmaxima IIPLC-32:

- The researchers at IIP identified a white-rot fungus Trametesmaxima IIPLC-32, which has the potential to cause microbial degradation of pyrene.
- According to researchers, growing on dead plants, this fungus causes pyrene degradation using special enzymes.

Observations:

- The researchers used gas chromatographic-mass spectrometer and serotome analysis for their study. Gas chromatographic-mass spectrometric identification of prominent metabolites helped determine the pyrene degradation pathway.
- As found by researchers, the pyrene concentration decreased by 79.8 percent, 65.37 percent and 56.37 percent within 16 days from the initial levels of 10 mg per litre, 25 mg per litre and 50 mg per litre, respectively. The serotome analysis revealed the presence of 81 extracellular proteins.
- Knowledge of serotome analysis in pyrene degradation helped understand the degradation mechanism of pyrene.

Way Forward:

- As revealed by the study, the fungus T.maxima may prove to be helpful in the remediation of especially pyrene. The recommendation from the study is that T.maxima IIPLC-32 can be tried in the future for the bioremediation of PAH-contaminated aquatic environments.

750 GIRLS FROM RURAL INDIA CREATED 8-KG MICROSATELLITE AZAADISAT



Why in news?

- On 7 August, 750 girls from rural India will make history, as the Indian Space Research Organisation's (ISRO) newly developed Small Satellite Launch Vehicle (SSLV) leaves for its maiden spaceflight from Sriharikota in Andhra Pradesh.
- Onboard the SSLV will be AzaadiSAT, an eight-kilogramme microsatellite carrying 75 small payloads developed by schoolgirls from 75 rural schools across India.

What's the microsatellite about?

- On its first flight, the SSLV will carry one of India's experimental Earth Observation Satellites, EOS-02 – that will have applications in mapping and developing various GIS (Geographic Information System) applications.
- At an altitude of 356 kilometres from Earth, it will part with AzaadiSAT which will get injected into the Lower Earth Orbit (LEO).
- The eight-kg satellite has 75 Femto experiments, selfie cameras to click pictures of its solar panels, and long-range communication transponders.
- The mission life of the satellite is six months.

How did the girls develop AzaadiSat?

- The satellite was developed by an all-girls team from rural corners of India and the project was coordinated by Space Kidz India (SKI), a space start-up.
- The girls, mostly from Class 8 to Class 12, were selected from 75 government schools. The first-of-its-kind space mission in the country was undertaken with the idea to promote women in STEM (science, technology, engineering, and mathematics).

- The Chennai-based organisation, Space Kidz, led the work on AzaadiSAT along with NITI Aayog, teaching the girls to build small experiments.
- The main systems, including the onboard computer, flight software, electrical power system, telemetry and telecommand were developed and tested by the SKI.

What is AzaadiSAT's mission?

- AzaadiSAT will be a normal orbital satellite.
- A key aim of AzaadiSAT will be to demonstrate the LoRA (long-range radio) transponder for creating a space-based LoRA gateway, which will be mostly used for amateur radio communication during this mission.
- The indigenous nano-satellite subsystems built by students will be demonstrated. And the selfie camera, which will take pictures of the satellite and send it back to earth, can help study the impact of solar winds on the surface of the satellite and solar panels.
- AzaadiSAT will carry a recorded version of the national anthem sung by Rabindranath Tagore, which will play in space as a tribute to the country.

What about the SSLV?

- The SSLV, carrying AzaadiSAT, is the smallest vehicle at 110-tonne mass at ISRO.
- It will take only 72 hours to integrate, unlike the 70 days taken now for a launch vehicle. Only six people will be required to do the job, instead of 60 people. The entire job will be done in a very short time and the cost will be only around Rs 30 crore.
- With a growing market for the global launch services for small satellites, ISRO's SSLV would make for an attractive option because of its low cost, ability to launch on demand, and capacity to carry multiple loads.
- It will cater to a market for the launch of small satellites into low earth orbits, which has emerged in recent years, from developing countries, private corporations, and universities.
- Operating SSLV on smaller and more commercial missions will free up the massively used Polar Satellite Launch Vehicle (PSLV) for bigger missions to space.

'HIM DRONE-A-THON'

Why in news?

- Recently, the Indian Army in collaboration with the Drone Federation of India has launched the 'Him Drone-a-thon' programme.
- This initiative in line with Atmanirbharta in defence manufacturing is aimed to catalyse and provide focused opportunities to the Indian drone ecosystem to develop path-breaking drone capabilities for meeting requirements of frontline troops.



What is 'Him Drone-a-thon' programme?

- The 'Him Drone-a-thon' programme is pan India sustained connect between all stake holders including industry, academia, software developers and drone product manufacturers.
- It will be conducted in stages with quantifiable parameters (like altitude, weight, range, endurance etc) being progressively enhanced based on demonstrated capabilities.
- Broad activities planned include interactions & ideation between users, development agencies, academia etc, seeking of industry responses, visits by development agencies to operational locations to understand the ground perspective & requirements, handholding of development agencies for internal development & on-ground trials and actual conduct & evaluation of drone products.

As a start point, development in the following categories are included:-

- Logistics/ Load carrying Drone in High Altitude Areas.
- Autonomous Surveillance/ Search & Rescue Drone.
- Micro/ Nano Drones for Fighting in Built Up Areas.

Way Forward:

- The Indian Army's support to the indigenous drone ecosystem is based on the principle that 'good available indigenously' is better than the 'best available globally'.
- However, gradual enhancement in technology demanded by defence forces is likely to incentivise manufacture of better and more capable drone products.

TECHNOLOGY INNOVATION HUBS (TIH)

Why in news?

- Recently, experts from the India and United States interacted to bring out the best plans for joint research projects that would be implemented through the Technology Innovation Hubs (TIH), at DST-NSF Joint Research and Development Projects Kick-off Workshop.

Agenda:

- The workshop was organised by IIT Delhi in association with DST to discuss how the projects to

be implemented by the six TIHs identified under NM-ICPS for collaborative research and development with NSF-supported institutions would leverage unique resources, such as testbeds and datasets available in India and in the US, expand collaborations on critical technologies and encourage student and researcher exchange programs.

- A total of 35 joint projects have been identified which will be implemented by the Technology Innovation Hubs (TIHs) and research institutions from USA.



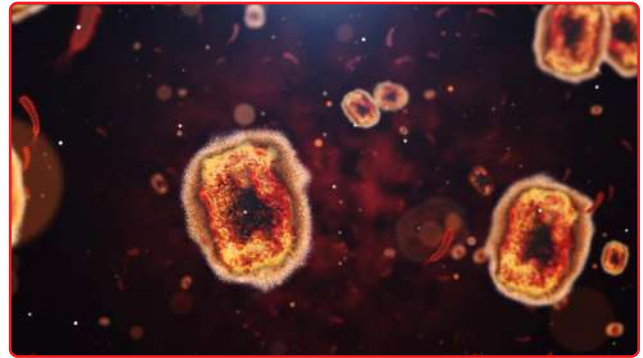
National Mission on Interdisciplinary Cyber-Physical Systems:

- Six TIHs under NM-ICPS have been identified for collaborative research and development with NSF-supported institutions. These projects aim at adding the component of international collaboration to existing research projects in both countries.
- The Hubs are part of a five-year, nearly \$430 million investment by DST under the National Mission on Interdisciplinary Cyber-Physical Systems and comprise academic researchers and industry partners.

Background:

- Department of Science and Technology (DST), Government of India, and National Science Foundation (NSF) joined hands for collaborative research and development in Sept 2021 in thematic areas of Agriculture, Autonomous systems technologies and applications, Health and Environment, Rehabilitation and assistive robotics, and Smart cities covering various cyber-physical systems.
- DST is implementing National Mission-Interdisciplinary Cyber-Physical Systems (NMI-CPS) with an outlay of Rs. 3,660.00 crore for a period of five years to encourage innovation in new age technologies.
- As part of the Mission implementation, 25 Technology Innovation Hubs (TIHs) have been established in reputed institutes across the country in advanced technologies to create a strong foundation and a seamless ecosystem for Cyber-Physical Systems, leading a platform for policymakers, researchers/innovators, premier institutes, start-ups, entrepreneurs, investors, industries and global connect as well.

NOVEL LANGYA HENIPAVIRUS



Why in news?

- Recently, China confirmed 35 human infections with the zoonotic Langya virus (LayV).
- The cases were discovered in the provinces of Shandong and Henan on the Chinese mainland, according to information from the Taiwan Center for Disease Control (TCDC).

Details:

- The authorities have chosen to start using nucleic acid testing procedures to find the virus and track its spread.
- Nearly 2% of goats and 5% of dogs and other domestic animals have tested positive for the virus after a thorough serological survey.
- The virus can cause renal and hepatic failure and most likely is transmitted from animals to humans.

What is Langya henipavirus (LayV)?

- No human deaths have been reported due to LayV, which has a distinct genome. Infectious diseases transmitted between animals and humans are called zoonotic diseases.
- The disease may have been transmitted from shrews, small insectivorous mammals resembling a mouse. Shrews are the natural habitat of the virus.
- Nipah and Hendra virus also belong to the same genus, henipavirus, from the Paramyxoviridae family. Paramyxoviridae is a family of single-stranded Ribonucleic acid (RNA) viruses that cause different types of viral infections.
- These viruses are found in bats, rodents and shrews and are known to infect humans and potentially cause fatal diseases.

Symptoms of the virus:

- The symptoms that the 26 individuals experienced were fever, exhaustion, a cough, appetite loss, muscle discomfort, nausea, headaches, and vomiting.
- Additionally, they revealed a reduction in white blood cells, liver failure, renal failure, and a low platelet count.

What's next?

- The CDC is in the process of setting up domestic laboratories to perform genome sequencing and increase surveillance.

- ⇒ CDC aims to research routes of transmission and collaborate with the executive branch of the Chinese state agency, Council of Agriculture. This will help identify whether similar diseases are found in species that are native to the region.

INDIGENOUS VACCINE FOR LUMPY SKIN DISEASE

Lumpy skin disease

Incubation period

- Between 4 and 14 days post-infection

Initial period

- High fever (41°C)
- Swollen lymph glands

- Animal may develop large, firm nodules of 5 cm in diameter in the skin
- Depression, anorexia, rhinitis, conjunctivitis, excess salivation

Marked decrease in milk production

Morbidity

Why in news?

- ⇒ Recently, the Union Minister for Agriculture and Farmers Welfare, launched the indigenous vaccine Lumpi-ProVacInd to protect livestock from Lumpy Skin disease.

Lumpi-ProVacInd:

- ⇒ The vaccine has been developed by the National Equine Research Center, Hisar (Haryana) in collaboration with the Indian Veterinary Research Institute, Izzatnagar (Bareilly).
- ⇒ The cost of per dose is Rs 1-2 and the immunity induced by homologous live attenuated LSD vaccines usually persists for a minimum period of one year.

Spread of LSD:

- ⇒ The Centre plans to commercialise this vaccine at the earliest in order to control the Lumpy Skin Disease (LSD), which has led to the death of cattle in six states.
- ⇒ Rajasthan has reported 2,111 deaths of cattle, followed by Gujarat at 1,679, Punjab at 672, Himachal Pradesh at 38, Andaman & Nicobar at 29 and Uttarakhand at 26.

Homologous vaccines:

- ⇒ Sheepox virus (SPV) and goat pox virus (GPV) -based vaccine (heterologous vaccine) is usually authorized to induce cross-protection against LSD in cattle, where homologous LSD vaccine is not available.
- ⇒ The Centre has also authorised the use of goatpox vaccine to control LSD in cattle. However, heterologous vaccines provide partial protection and are not as efficacious as homologous vaccines.
- ⇒ The scientists at NRCE isolated the virus in 2019 itself and were in a process of developing a live-attenuated vaccine since then.
- ⇒ After initial safety and immunogenicity trials of the vaccine in laboratory animals at NRCE, Hisar, the

experimental trials were conducted in calves at IVRI Mukteshwar.

- ⇒ The safety of the vaccine has also been ascertained in the field in cattle and buffaloes of all age groups including lactating and pregnant ones.

What is Lumpy Skin Disease (LSD)?

- ⇒ LSD is primarily a disease in cattle. Emerging evidence suggests that the LSD virus can also cause mild illness in buffalo, camels, deer and horses.
- ⇒ Due to its recent spread in unnatural hosts, there are growing concerns about its zoonotic implication, although confirmatory evidence of human infection is lacking.
- ⇒ As per the UN's Food and Agriculture Organization (FAO), LSD is 'a vector-borne pox disease' that is 'characterised by the appearance of skin nodules'. The cattle owners and authorities in India are worried because of the severe outbreak.

What are the symptoms?

- ⇒ The infected animals immediately start losing weight and may have fever and lesions in the mouth. The milk yield will also be reduced.
- ⇒ Other symptoms include excessive nasal and salivary secretion.
- ⇒ Pregnant cows and buffaloes often suffer miscarriage and in some cases, diseased animals can die due to it as well.

SPARK, ISRO'S NEW VIRTUAL MUSEUM

Why in news?

- ⇒ Recently, the Indian Space Research Organisation (ISRO), unveiled 'SPARK', a virtual space tech park, as part of the Azadi Ka Amrit Mahotsav celebrations, commemorating India's 75th year of Independence.



What is SPARK?

- ⇒ The virtual space museum hosts several documents, images and videos related to launch vehicles, satellites, scientific missions as well as pioneers of India's space sector.
- ⇒ SPARK is ISRO's first-ever 3D virtual space tech park. It includes a museum, a theatre, an observatory, a garden with life-sized rockets, a lakeside cafe area and a children's play area along with several other interactions.

Features:

- The webpage gives options on the top left corner to enter the different areas in the park such as the museum, the theatre, or the lobby.
- The application helps visitors to navigate using dedicated arrows along with options to zoom in and zoom out for a 360° immersive experience.
- Inside the main museum building, one can navigate through the virtual facility to explore various exhibits on ISRO's achievements, satellites and launch vehicles.
- In the open area of the park, next to a giant sundial stands a bus, 'Space on Wheels'. It offers information about ISRO's various outreach programmes.

Informative tours:

- Different areas of the park provide information on iconic scientists who have played important roles in ISRO's journey through the years. Dr Homi Jehangir Bhabha, Dr Vikram Sarabhai, Dr APJ Abdul Kalam, Prof Raja Ramanna, Prof Yash Pal, Prof MGK Menon, and Prof Satish Dhawan among others have found mention in the space park.
- Detailed tours of different galleries inform the visitor about ISRO's various satellite programmes, and offer images, videos and documents related to various launch vehicles.

NASA'S INSIGHT MISSION FINDS MARTIAN EQUATOR CONTAINS LITTLE OR NO ICE

Why in news?

- Martian equator contains little or no ice, according to a new analysis of seismic data from NASA's Mars InSight mission.
- The findings describes the dry conditions in the top 300 metres of the subsurface beneath the landing site near the Martian equator.



Key Findings:

- It found that the Mars may have harboured oceans of water early in its history. Many experts suspected that much of the water became part of the minerals that make up underground cement.
- Cements by their very nature hold rocks and sediments together, protecting them from destructive erosion.

- The lack of cemented sediments suggests a water scarcity in the 300 metres below InSight's landing site near the equator. The below-freezing average temperature at the Mars equator means that conditions would be cold enough to freeze water if it were there.
- Many planetary scientists, including Manga, have long suspected that the Martian subsurface would be full of ice. Their suspicions have melted away. Still, big ice sheets and frozen ground ice remain at the Martian poles.

About InSight mission:

- The InSight spacecraft landed on Elysium Planitia, a flat, smooth, plain near the Martian equator, in 2018. Its instruments included a seismometer that measures vibrations caused by marsquakes and crashing meteorites.

What's next?

- Scientists want to probe the subsurface because if life exists on Mars, that is where it would be. There is no liquid water on the surface, and subsurface life would be protected from radiation.
- Following a sample-return mission, a NASA priority for the next decade is the Mars Life Explorer mission concept.
- The goal is to drill two metres into the Martian crust at high latitude to search for life where ice, rock, and the atmosphere come together.

HIV DRUGS SHORTAGE IS A CHALLENGE TO ENDING AIDS IN INDIA

Context:



- In June, PLHIV (People Living with HIV) networks across the country started witnessing an acute shortage of certain Antiretroviral (ARV) drugs in Anti-Retroviral Therapy (ART) centres. Among them were pediatric formulations and dolutegravir, the backbone of HIV treatment.
- The PLHIV have been protesting peacefully for the past 23 days continuously on the premises of the National AIDS Control Organisation (NACO).
- It is calling attention to the need for emergency procurement of ARVs and the unintended consequences of a weak and ineffective supply chain.

Why antiretroviral therapy need to be consistent?

- People living with HIV need access to treatment with a combination of drugs known as antiretroviral therapy to suppress the virus, preserve their health, and prevent transmission of the virus to an HIV-negative partner. Staying on anti-retroviral therapy continuously is crucial to keep the virus suppressed.
- But the virus can mutate into a resistant form if treatment delivery is poor or patchy.
- Governments such as the Indian government have made considerable advances in providing access to testing and antiretroviral therapy (ART) for people living with HIV.
- While there has been a reduction in AIDS-related deaths since 2004, progress has stalled in recent years, highlighting the need to address health system challenges such as disruptions in the medicine supply chain to end AIDS.

Bureaucratic delays:

- The National AIDS Control Organisation (NACO) under the Ministry of Health and Family Welfare is the nodal agency responsible for overlooking and coordinating activities of the National AIDS Control Programme (NACP) along with the Central Medical Services Society, which is responsible for centralised tendering and pooled procurement of different HIV products, including Antiretroviral drugs.
- The tender for pooled procurement of life-saving antiretroviral medicines has faced bureaucratic delays in 2014, 2017, and now again in 2022.

Lack of treatment:

- A few days ago, NACO, in its public communication, claimed that 95% of PLHIVs have not faced any shortages. But by its own admission, the current shortages affect 5% of 14.5 lakh people. People living with HIV report that ART centres are struggling to keep them on treatment.
- PLHIVs receive a minimum “one month’s dose” from ART centres. Some have had their regimen changed due to the unavailability of certain ARVs and are worried if these changes are based on the World Health Organization’s guidelines and compromise their future treatment options.
- Shortages of health products in the supply chain of health programmes are not India’s problem alone and are commonly experienced in low- and middle-income settings. However, India has IT-enabled and community monitoring tools at its disposal.

Way Forward:

- What is urgently needed is the political will from the Ministry of Health to take necessary measures to ensure that drug shortages, as happened over the last decade, are not experienced by its programmes, such as HIV and TB, in the future.

- If ignored, the consequences impact the right to health and drive drug resistance, a significant public health challenge for the country.

WHO ANNOUNCES NEW NAMES FOR MONKEYPOX VIRUS VARIANTS USING ROMAN NUMERALS



Why in news?

- Recently, a group of global experts convened by the World Health Organisation (WHO) agreed on new names for monkeypox virus variants, as part of ongoing efforts to align the names of the monkeypox disease, virus and variants with current best practices.
- The experts agreed to name the clades using Roman numerals.

Background:

- The monkeypox virus was named upon first discovery in 1958 before current best practices in naming diseases and viruses were adopted.
- Major variants were identified by the geographic regions where they were known to circulate.

What is the Current best practice followed?

- Current best practise is that newly-identified viruses, related diseases, and virus variants should be given names with the aim to avoid causing offense to any cultural, social, national, regional, professional, or ethnic groups, and to minimize any negative impact on trade, travel, tourism or animal welfare.
- Experts in pox virology, evolutionary biology and representatives of research institutes from across the globe reviewed the phylogeny and nomenclature of known and new monkeypox virus variants or clades.
- They discussed the characteristics and evolution of monkeypox virus variants, their apparent phylogenetic and clinical differences, and potential consequences for public health and future virological and evolutionary research.

Clade:

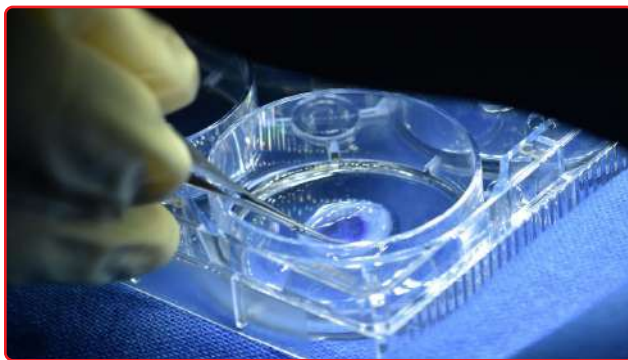
- The group reached a consensus on a new nomenclature for the virus clades that is in line with best practices. They agreed on how the virus clades should be recorded and classified on genome sequence repository sites.

- The consensus was reached to now refer to the former Congo Basin (Central African) clade as Clade one (I) and the former West African clade as Clade two (II).
- Thus, the new naming convention comprises Clade I, Clade IIa, and Clade IIb, with the latter referring primarily to the group of variants mainly circulating in the 2022 global outbreak.

What's next?

- The naming of lineages will be proposed by scientists as the outbreak evolves. Experts will be reconvened as needed.
- The new names for the clades will come into effect immediately while work continues on the disease and virus names.

RESEARCHERS DEVELOP 3D PRINTED ARTIFICIAL CORNEA



Why in news?

- Recently, researchers from Hyderabad have 3D-printed an artificial cornea and transplanted it into a rabbit's eye.

Collaboration:

- A team of clinicians and scientists from the LV Prasad Eye Institute (LVPEI), Hyderabad, Indian Institute of Technology (IIT) Hyderabad, and Centre for Cellular and Molecular Biology (CCMB), have collaborated to develop the 3D-printed cornea from the human donor corneal tissue which would have otherwise been discarded for not meeting optical standards for clinical transportation.

Corneal damage:

- Corneal damage is the leading cause of blindness worldwide with more than 1.5 million new cases of corneal blindness reported every year.
- Pointing at the wide gap between the demand and supply of donor corneal tissue worldwide, and lack of adequate eye banking networks, they said that less than 5% of new cases every year are treated by corneal transplantations due to donor tissue shortage.

Natural:

- While corneal substitutes are being actively researched throughout the world, they are either animal-based or synthetic.

- The recent researchers said that their product is completely natural, contains no synthetic components, and is free of animal residues.
- It is developed indigenously through government and philanthropic funding.

Key Highlights:

- With recent advancements in regenerative medicine and tissue engineering, the researchers used decellularised corneal tissue matrix and stem cells derived from the human eye to develop a unique biomimetic hydrogel (patent pending) that was used as the background material for the 3D-printed cornea.
- Because the 3D-printed cornea is composed of materials deriving from human corneal tissue, it is biocompatible, natural, and free of animal residues.
- In addition, since the tissue used for this technology is derived from donor corneas that do not meet the optical standards for clinical transplantation, this method also finds unique use for the donated corneas that would otherwise be discarded.

Made in India:

- Corneal transplantation is the current standard of care for cases with severe disease and vision loss. The made-in-India product could offer an alternative solution to corneal blindness.
- Each donor cornea can aid in the preparation of three 3D-printed corneas.
- The cornea can be printed in various diameters from 3 mm to 13 mm and can be customised based on the specifications of the patient.

Way Forward:

- This can be a ground-breaking and disruptive innovation in treating diseases like corneal scarring (where the cornea becomes opaque) or Keratoconus (where the cornea gradually becomes thin with time).
- The printed corneas need to undergo further clinical testing and development before they can be used in patients, which could take several years. The team is hopeful of a positive outcome.

ASTEROIDS TO BRING WATER TO EARTH



Why in news?

- Recently, scientists from Japan suggested that water

and organic materials might have been brought to Earth from the outer edges of the solar system.

- The scientists made the hypothesis after analysing samples from the asteroid Ryugu, collected by the Japan Aerospace Exploration Agency's (JAXA) Hayabusa-2 probe, which had brought 5.4 grams of rocks and dust from the asteroid to Earth in December 2020.

What was the Hayabusa-2 mission?

- The Hayabusa-2 mission was launched in December 2014 when the spacecraft was sent on a six-year voyage to study the asteroid Ryugu. The spacecraft, which was approximately the size of a refrigerator, traveled more than 5 billion kilometers during its journey.
- The spacecraft arrived at the asteroid in mid-2018 after which it deployed two rovers and a small lander onto the surface.
- In 2019, the spacecraft fired an impactor into the asteroid's surface to create an artificial crater with a diameter of a little more than 10 metres, which allowed it to collect the samples.
- In December 2020, Hayabusa-2 delivered a small capsule that contained the rock and dust samples when it was 220,000 km from the Earth's atmosphere, which safely landed in the South Australian outback.
- Hayabusa-2's predecessor, the Hayabusa mission, brought back samples from the asteroid Itokawa in 2010.

What were the findings of the study?

- Since the capsule landed on Earth, scientists have been studying the invaluable material, weighing merely a few grams, but approximately 4.6 billion years old in order to explore the foundations of the solar system. Their analyses of the samples have helped us explore the origins of life on our planet.
- In June, a group of scientists found that the materials contained amino acids, and suggested that these building blocks of life might have formed in space.
- The current study states that "Volatile and organic-rich C-type asteroids may have been one of the main sources of Earth's water," which is essential for the emergence of life. While the delivery of volatiles (water and organics) to Earth has been a subject of debate amongst scientists, the materials found in the Ryugu particles probably represent one important source of volatiles.
- The study claimed that the organic material collected probably originated from the fringes of the Solar System, but was "unlikely to be the only source of volatiles delivered to the early Earth".
- While the composition of particles collected from Ryugu closely matches water on Earth, the study notes there were slight differences, leading scientists to hypothesise that our planet's water might have also originated from places other than asteroids.

What is an asteroid?

- Asteroids are rocky objects that orbit the Sun, much smaller than planets. They are also called minor planets.
- According to NASA, there are 994,383 known asteroids, the remnants from the formation of the solar system over 4.6 billion years ago.

Asteroids are divided into three classes:

- First are those found in the main asteroid belt between Mars and Jupiter, which is estimated to contain somewhere between 1.1-1.9 million asteroids.
- The second group is that of trojans, which are asteroids that share an orbit with a larger planet. NASA reports the presence of Jupiter, Neptune and Mars trojans. In 2011, they reported an Earth trojan as well.
- The third classification is Near-Earth Asteroids (NEA), which have orbits that pass close to the Earth.

Potentially hazardous asteroids (PHAs):

- Those that cross the Earth's orbit are called Earth-crossers. More than 10,000 such asteroids are known, out of which over 1,400 are classified as potentially hazardous asteroids (PHAs).
- Ryugu is also classified as a PHA and was discovered in 1999 and was given the name by the Minor Planet Center in 2015.
- It is 300 million kilometres from Earth and it took Hayabusa-2 over 42 months to reach it.

Why do scientists study asteroids?

- Since asteroids are one of the oldest celestial bodies in the Solar System, scientists study them to look for information about the formation and history of planets and the sun.
- Another reason for tracking them is to look for asteroids that could possibly crash into Earth, leading to potentially hazardous consequences.
- NASA's OSIRIS-REX mission had collected samples from the asteroid Bennu in October 2020, which will be brought to Earth in 2023.
- Scientists are interested in studying asteroids such as Bennu, because it hasn't undergone drastic changes since its formation over billions of years ago and therefore it contains chemicals and rocks dating back to the birth of the solar system. It is also relatively close to the Earth.

CENTRES TO BE SET UP FOR PEOPLE EXPOSED TO CHEMICAL, NUCLEAR ATTACKS

Why in news?

- In a first, the Union Health Ministry has drawn up a proposal to set up two tertiary level centres for the treatment of people exposed to chemical, biological, radiological and nuclear incidents or attacks.

Details:

- It is aimed at managing medical emergencies arising out of incidents such as the Bhopal gas tragedy, Visakhapatnam HPCL refinery blast, Tughlaqabad gas leak, Kanpur ammonia gas leak and other industrial accidents.
- The detailed project report for setting up of these two chemical, biological, radiological and nuclear (CBRN) facilities at Stanley Medical College in Chennai, Tamil Nadu and Jhajjar Campus, AIIMS has been readied.



Facilities:

- The two facilities are to be set up over one-and-half years at an estimated cost of Rs 230 crore.
- Each of them is expected to be a 50 bedded facility, including 16 ICU Beds, 20 isolation beds and 10 pre- and post-operation rooms. A bone marrow transplant centre with four beds will also be set up in these facilities.
- There will also be a decontamination shower facility comprising decontamination modules with hot, cold and chemical showers along with other necessary decontamination treatment and operation theatre.
- These facilities will also have ambulance services.

Way Forward:

- The rationale behind establishing such centres is to strengthen health centres in the civilian domain with facilities to handle CBRN cases.
- These facilities are planned to be established in already existing health facilities, around atomic power plant establishments and major metropolitan cities vulnerable to industrial accidents and terrorist actions.

FIRST HOSPITAL IN INDIA TO INTRODUCE BRAIN MAPPING TECHNOLOGY

Why in news?

- In a first of its kind technology, with combination of decades of research with cutting edge technology, IBS Hospital launched the first brain mapping device connectomics/ Quicktome in the country.

What is Quicktome?

- Quicktome uses sophisticated algorithms to analyze millions of data points and build a brain map

personalised for each patient – from a standard, non-invasive MRI scan.

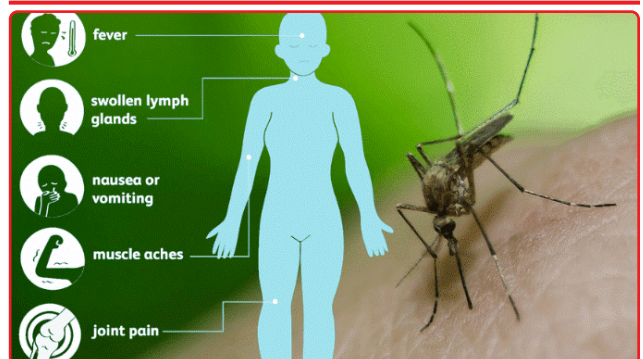


- The maps, which doctors can view on their computers, offer a level of anatomical detail typically not available in a clinical setting, allowing surgeons to incorporate advanced brain network data into neurosurgical planning.
- For instance, a mental illness need not necessarily be a nebulous ailment which ought to be diagnosed through patient history and interview, but these brain network biomarkers can accurately highlight the regions of an anomaly and instantly provide quantitative data to assist in decision making for further course of treatment.

Significance:

- With the advent of such personalised brain mapping, treatment for brain tumor and other brain surgeries have become much safer and due to the accuracy, damage to important brain areas can be avoided.
- This is one such breakthrough in preoperative imaging in the field of medical science, which can offer cutting edge algorithms and cloud computing. This new technology has the potential to transform precision neurosurgery into a practical one.

WEST NILE VIRUS



Why in news?

- The West Nile virus, which causes potentially dangerous diseases of the central nervous system in human beings, has been found in two people in New York City and detected in a record number of mosquitoes across all five boroughs.

Details:

- The news comes at a time when the city is already battling a monkeypox outbreak alongside the Covid-19 pandemic.
- Across the U.S., 54 cases of West Nile virus infection and four deaths have been reported so far in 2022.
- The infection has also soared in Italy. Europe has reported over 100 cases of the virus so far this year, with Italy having the highest number among all the countries.

The NYC outbreak:

- The West Nile virus was first detected in New York City more than 20 years ago.
- In the last decade, an average of 16 persons per year are diagnosed with the West Nile neuroinvasive disease – a severe illness that targets the brain and the spinal cord, causing muscle weakness and altered mental status.
- The virus is now considered endemic in New York State and shows up in at least parts of it every year in the summer months.

Transmission of the West Nile virus:

- Humans can contract the West Nile virus through an infected mosquito bite.
- The virus is not contagious. However, there is a rare possibility of human-to-human transmission through blood transfusion, organ transplant, or through placenta to the foetus.
- It is usually the Culex species of mosquitoes that carry the West Nile virus.
- It has also been detected in birds. The West Nile virus can make birds like crows and jays sick and eventually kill them. There is no evidence of humans catching the virus directly from birds.

What are the symptoms of the viral infection?

- Most cases of the West Nile virus do not present any symptoms.
- According to CDC, around one in five people infected with the virus show flu-like symptoms like fever, body ache, vomiting, diarrhoea, and rashes.
- About one in 150 people are severely affected by the virus and develop serious illnesses related to the central nervous system, like encephalitis and meningitis.
- Other symptoms of severe illness can include high fever, headache, neck stiffness, disorientation, coma, tremors, convulsions, muscle weakness, vision loss, numbness and paralysis.

What treatment is available?

- Currently, there are no vaccines available to treat infection by the West Nile virus. In most cases, the infection heals itself.
- Medication may be needed to treat the flu-like symptoms caused by the virus. Most health departments recommend covering the body and

using mosquito repellents to prevent West Nile virus infections.

INDIA'S FIRST INDIGENOUSLY DEVELOPED HYDROGEN FUEL CELL BUS

Why in news?

- Recently, Ministry of Science & Technology launched India's first truly indigenously developed Hydrogen Fuel Cell Bus developed by KPIT-CSIR in Pune.
- Green hydrogen is an excellent clean energy vector that enables deep decarbonization of difficult-to-abate emissions from the refining industry, fertiliser industry, steel industry, cement industry and also from the heavy commercial transportation sector.

How it works?

- The fuel cell utilizes Hydrogen and Air to generate electricity to power the bus and the only effluent from the bus is water, therefore making it possibly the most environmentally friendly mode of transportation.
- For comparison, a single diesel bus plying on long distance routes typically emits 100 tons of CO₂ annually and there are over a million such buses in India.
- The high efficiency of fuel cell vehicles and the high energy density of hydrogen ensures that the operational costs in rupees per kilometre for fuel cell trucks and buses are lower than diesel powered vehicles and this can bring freight revolution in India.

Eliminating the on-road emissions:

- About 12-14% CO₂ emissions and particulate emissions come from diesel powered heavy commercial vehicles and these are decentralised emissions and hence difficult to capture.
- Hydrogen fuelled vehicles provide an excellent means to eliminate the on-road emissions from this sector. India is also aiming to increase inland waterways for freight and passenger transport.
- By achieving these goals, India can pole-vault from being net importer of fossil energy to becoming net exporter of clean hydrogen energy and thus, providing global leadership to India in hydrogen space by becoming a large green hydrogen producer and supplier of equipment for green hydrogen.

Bisphenol-A pilot plant inaugurated:

- The Bisphenol-A pilot plant in CSIR-NCL was inaugurated and these pilot plants have successfully demonstrated novel process technologies developed by NCL under CSIR's Covid-19 mission program and Bulk Chemicals mission program.
- Bisphenol-A (BPA) is an important feedstock for the production of epoxy resins, polycarbonate and other engineering plastics.
- The global market for Bisphenol-A is projected to reach 7.1 Million Tons by 2027, growing at a CAGR of 2% over the analysis period 2020-2027. The entire estimated annual demand of 1, 35,000 tons in India is imported today.
- The CSIR-NCL's technology will enable import substitution of this important raw material and help in India's Atmanirbhar initiative.

INDIA'S FIRST COMMERCIAL OBSERVATORY TO MONITOR SPACE ACTIVITY



Why in news?

- A space industry start-up named Digantara will build India's first commercial space situational awareness observatory in the Garhwal region of Uttarakhand to track objects as small as 10 cm in size orbiting the planet.

Significance:

- The Space Situational Awareness (SSA) observatory would let India track any activity in space including that of space debris and military satellites hovering over the region.
- Currently, the United States is a dominant player in monitoring space debris with observatories in multiple locations and commercial companies providing additional inputs from across the world.

Key features:

- The high-quality observations, along with those of its partner ground-based sensor network, would help improve its ability to monitor events occurring in deep space, especially in the geostationary, medium-Earth, and high-Earth orbits.
- With this data, it would be able to reduce the potential for collisions between satellites and other spacecraft

by making more accurate predictions of their location, speed, and trajectory.

Collision avoidance systems:

- There is an increasing need for efficient collision avoidance systems in highly congested orbital regions like low earth orbit and geosynchronous earth orbit.
- The addition of the new observatory will be a part of Digantara's network of observational facilities and was expected to work in tandem with the currently planned constellation of space-based sensors.
- This will improve the effectiveness of tracking and identifying pre-existing resident space objects (RSO), and will result in the creation of a hybrid data pool that will serve both the commercial and the defence sectors of the space industry.

Way Forward:

- The observatory will also give India indigenous capabilities to monitor space activity over the subcontinent.
- If, for example, Chinese satellites are seen over one particular region of India for a long time, having indigenous capability to monitor such activities and not being dependent on countries like the US is a plus for India.

DRDO & INDIAN NAVY SUCCESSFULLY FLIGHT-TEST VL-SRSAM

Why in news?

- Recently, the Defence Research & Development Organisation (DRDO) and Indian Navy successfully flight tested Vertical Launch Short Range Surface-to-Air Missile (VL-SRSAM) from the Integrated Test Range (ITR), Chandipur off the coast of Odisha.
- The VL-SRSAM, a ship borne weapon system, is meant for neutralising various aerial threats at close ranges including sea-skimming targets.



Details:

- The flight test was carried out from an Indian Naval Ship against a high-speed unmanned aerial target for demonstration of vertical launch capability.
- The missiles, equipped with indigenous Radio Frequency (RF) seeker, intercepted the target with high accuracy.

⇒ The VL-SRSAM system has been indigenously designed and developed by DRDO.

Salient Features:

- ⇒ The missile has been designed to strike high-speed airborne targets at the range of 40 to 50 km and at an altitude of around 15 km.
- ⇒ Cruciform wings: They are four small wings arranged like a cross on four sides and give the projective a stable aerodynamic posture.
- ⇒ Thrust Vectoring: It is the ability to change the direction of the thrust from its engine, control the angular velocity and the attitude of the missile.
- ⇒ Canisterised system: The inside environment is controlled, thus making its transport and storage easier and improving the shelf life of weapons.

Way Forward:

- ⇒ During the test launch, flight path and vehicle performance parameters were monitored using flight data, captured by various Range instruments such as Radar, Electro-optical tracking system (EOTS) and Telemetry systems deployed by ITR, Chandipur.
- ⇒ It will further strengthen the Indian Navy for neutralising various aerial threats at close ranges including sea-skimming targets.

WEBB TELESCOPE DETECTS CARBON DIOXIDE FOR FIRST TIME ON PLANET OUTSIDE SOLAR SYSTEM



Why in news?

- ⇒ The James Webb Telescope, located 15,00,000 kilometers away from Earth, has zoomed in on a planet outside the solar system and found carbon dioxide.
- ⇒ This is the first clear evidence of CO2 on a planet outside the solar system. The planet is the gas giant WASP-39 b.

Details:

- ⇒ The planet is located 700 light-years away from Earth and provides the first key insights into the composition and formation of an exoplanet outside our system.
- ⇒ NASA has so far catalogued over 5000 exoplanets outside our solar system as they continue to hunt for probable candidates that could have signs of life.

NIRSpec:

- ⇒ Researchers used Webb's Near-Infrared Spectrograph (NIRSpec) to observe the planet and noticed a small hill between 4.1 and 4.6 microns, which provides detailed evidence for carbon dioxide ever detected in a planet outside the solar system.
- ⇒ Previous observations of the planet using Hubble had confirmed the presence of water vapor, sodium, and potassium in the planet's atmosphere.

What is WASP-39 b?

- ⇒ WASP-39 b is a hot gas giant which is around one-quarter that of Jupiter and the same size as Saturn. The planet has a diameter of 1.3 times greater than Jupiter and has high temperatures ranging up to 900 degrees Celsius.
- ⇒ The planet orbits very close to its star only about one-eighth the distance between the Sun and Mercury completing one circuit in just over four Earth-days.
- ⇒ The planet was first discovered over a decade ago in 2011 and was confirmed by the transit method, when the brightness of the star periodically dims due to the presence of a planet around it.
- ⇒ During the transit, some of the starlight is eclipsed by the planet completely (causing the overall dimming) and some is transmitted through the planet's atmosphere.

SRBSDV FIJI VIRUS & PADDY DWARFING



Why in news?

- ⇒ Recently, the Indian Agriculture Research Institute (IARI) has stated that the disease-causing 'dwarfing' in rice plants across Haryana and Punjab is due to the Southern Rice Black-Streaked Dwarf Virus (SRBSDV), belonging to the genus Fijivirus.

What is SRBSDV?

- ⇒ SRBSDV is a virus with ten double-stranded RNA segments.
- ⇒ It is transmitted by a white-backed plant hopper (WBPH). Apart from rice, it can also be found in several weed species.
- ⇒ IARI conducted surveys in 24 fields across Sonipat, Panipat, Karnal, Kurukshetra, Ambala, and Yamunanagar.

- The survey showed that the damage in the field ranged from 2 to 20 per cent. The highest damage was recorded in the fields of Panipat, with 20 per cent of the plants damaged by the virus.
- The case of SRBSDV was first recorded in Southern China in 2001.

What is paddy dwarfing?

- The main symptoms of a plant suffering from the rice dwarf disease are stunting and the appearance of white chlorotic specks on its foliage. The height of the plant is restricted to 1/2 - 1/3rd as compared to normal plants.
- These plants have shallow roots and can be uprooted easily. It is observed across almost all rice varieties, basmati and non-basmati.
- However, the symptoms are more prominent in early sown paddy crops.

What steps can be taken to prevent rice dwarfing?

- There is no exclusive corrective measure for viral diseases. But IARI has suggested the farmers monitor their fields continuously for the presence of WBPH.
- The plants must be tilted and tapped twice or thrice at the base in a week.
- If WBPH is seen floating in the water, insecticides like buprofezin, acetamiprid, dinotefuran or flonicamid can be sprayed.
- Punjab Agriculture University (PAU) has suggested that the paddy plants be transplanted. This will not only save the plants from diseases but also help in saving water.

CLOUD SEEDING



Why in news?

- The United Arab Emirates (UAE), located in one of the hottest and driest regions on earth, has been leading the effort to seed clouds and increase precipitation.
- The precipitation in UAE remains at less than 100 millimetres (3.9 inches) a year on average.

Why cloud seeding?

- The effects of climate change, combined with a growing population and economy diversifying into tourism and other areas have pushed up demand for water in the UAE, which has relied on expensive

- desalination plants that make use of seawater.
- Scientists in Abu Dhabi combine shooting hygroscopic, or water-attracting, salt flares with releasing salt nanoparticles, a newer technology, into the clouds to stimulate and accelerate the condensation process and hopefully produce droplets big enough to then fall as rain.
- Cloud seeding increases rainfall rates by approximately 10% to 30% per year.
- Other countries in the region, including Saudi Arabia and Iran, have announced similar plans as they face historic droughts.

Challenges:

- As a twin-turboprop aircraft takes off under the burning desert sun with dozens of salt canisters attached to its wings, meteorological officials scans weather maps on computers screens for cloud formations.
- At 9,000 feet above sea level, the plane releases salt flares into the most promising white clouds, hoping to trigger rainfall.
- Cloud seeding requires the existence of rainy clouds, and this is a problem as it is not always the case.

INDIAN SCIENTISTS FIND HOW BLACK FEVER CAUSING PARASITE SPREADS



Why in news?

- In a major medical breakthrough, Indian scientists have discovered how the Leishmania parasite, which causes black fever, targets and spreads faster in the body.

What is Visceral Leishmaniasis?

- Visceral Leishmaniasis, also known as Kala-Azar or black fever, is spread by sandfly bites, which carry 'Leishmania donovani' a parasite in their hair.
- The vector flies live in muddy areas.
- In 2020, ten countries like Brazil, China, Ethiopia, Eritrea, India, Kenya, Somalia, South Sudan, Sudan, and Yemen, accounted for more than 90 per cent of all new kala-azar cases reported to the WHO.
- The symptoms of kala-azar include anemia, weight loss, spleen and liver enlargement, and irregular fever episodes lasting several days.

Basics of research:

- The scientists have long been looking at understanding the mechanism of the parasite to devise better treatment strategies.
- For the discovery of a drug-like candidate with higher efficacy and less toxicity, a better understanding of the interactions between host and parasite is essential.
- Leishmaniasis infects humans and replicates intracellular within macrophages, the cells that normally engaged in protecting the host from pathogens.

Key Findings:

- They discovered that Leishmania parasites modulate the host signaling mechanisms to suppress the host's protective immune responses.
- The Leishmania parasite hijacks SUMOylation, a key regulator of various cellular, nuclear, metabolic, and immunological processes, to spread in the body.
- The study revealed the involvement of the SUMOylation pathway in the modulation of protective immune responses and thus favoring parasite survival and that targeting of SUMOylation pathway can provide a starting point for the design and development of novel therapeutic interventions to combat leishmaniasis.

Way Forward:

- With increasing resistance to antileishmanial drugs, it seems promising to target host-directed approaches for therapeutic interventions and drug development.
- This discovery will open avenues for the development of novel drugs with a targeted approach for the control of this neglected disease.

- The "SMILE-75 Initiative" was launched by Union Minister for Social Justice & Empowerment at a Shelter Home (Rain Basera) near Nizammudin Metro Station in New Delhi.

Objective:

- Through this project, the Ministry envisions to develop a support mechanism for holistic rehabilitation of those engaged in the act of begging and build an India where no person is forced to beg in order to survive and fulfill their basic needs.
- The objective of SMILE- 75 is to make our cities/ town and municipal areas begging-free and make a strategy for comprehensive rehabilitation of the persons engaged in the act of begging through the coordinated action of various stakeholders.

Key Highlights:

- Under the SMILE-75 initiative, seventy five (75) Municipal Corporations in collaboration with NGOs and other stakeholders will cover several comprehensive welfare measures for persons who are engaged in the act of begging with focus extensively on rehabilitation, provision of medical facilities, counselling, awareness, education, skill development, economic linkages and convergence with other Government welfare programmes etc.
- The Ministry of Social Justice & Empowerment has allocated a total budget of ₹ 100 crore for the SMILE project for coming years till 2025-26.

Stakeholders:

- The Ministry of Social Justice & Empowerment understands the important role of Local Urban Bodies, Civil Society Organisations/Non-Government Organisations to address this persisting social issue with concerted efforts.

SOCIAL ISSUE**"SMILE-75 INITIATIVE"****Why in news?**

- In the spirit of Azadi ka Amrit Mahotsav, the Ministry of Social Justice & Empowerment, has identified 75 Municipal Corporations to implement comprehensive rehabilitation of persons engaged in the act of begging under "SMILE: Support for Marginalised Individuals for Livelihood and Enterprise" named as "SMILE-75 Initiative".

PAALAN 1000 CAMPAIGN**Why in news?**

- Recently, the Union Minister of State for Health Bharati Pravin Pawar virtually launched a new campaign, Paalan 1000 National Campaign and parenting application in Mumbai.
- The mobile application focuses on the development of children in the first two years.

Key Highlights;

- The app, which will provide caregivers with practical advice on what they can do in their everyday routine and will help resolve various doubts of parents, was launched at the Early Childhood Development Conclave.
- First thousand days encompasses the conception as well as the first two years of a child's life and during this period, the growing child needs right nutrition, stimulation, love and support.
- The 'Paalan 1000 Journey of the First 1000 Days' combines early years coaching for parents, families and other caregivers with services designed to meet families' basic needs.

Way Forward:

- India has taken rapid strides in reducing child mortality since 2014 from 45 per 1000 live births to 35 per 1000 live births in 2019.
- The child survival cannot be addressed in isolation as it is intricately linked to the health of the mother. Therefore, the concept of 'Continuum of Care', that emphasises care during critical life stages in order to improve child survival, is being followed under the national programme.

TRANSGENDER PERSONS TO GET COMPOSITE HEALTHCARE SERVICES UNDER AB-PMJAY



Why in news?

- Transgender persons will now get composite healthcare services under the Ayushman Bharat-PMJAY with a MoU being signed between the National Health Authority and the Department of Social Justice and Empowerment.
- The MoU as one of its kind in the country which will give impetus to ensuring rightful and respectable place for transgenders.

Key Highlights:

- The MoU will extend all healthcare benefits to transgender persons (holding a transgender certificate issued by the National Portal for transgender persons) across the country.
- The ministry of social justice and empowerment (MOSJE) will fund ₹ 5 lakh insurance cover per transgender beneficiary per annum.

- A comprehensive package is being prepared for transgender category including the existing AB PM-JAY packages and specific packages like Sex Reassignment Surgery (SRS) and treatment for transgenders.
- They will be eligible to seek treatment in any of the AB PM-JAY empanelled hospitals across the country, where specific packages are available.
- The scheme would cover all transgender persons not receiving such benefits from other centre/state sponsored schemes.

Way Forward:

- Noting the transgender community suffers stigma and exclusion, the provisioning of healthcare services under AB-PMJAY is a significant and firm step towards an inclusive society.
- The government is working in a decisive way to not only recognise rights of the transgender community but has taken various systematic steps for their welfare.

CULTURE

ARUNACHAL'S WANCHO COMMUNITY TO DIGITISE ANCIENT FOLKTALES

Why in news?

- With the assistance of a UK-based researcher, the elders of the Wancho community in a remote part of Arunachal Pradesh have taken on the challenge of digitising their age-old folktales.



Details:

- The researcher, Tara Douglas, spent more than three years in this little-known area of the Patkai hills even throughout the COVID-19 pandemic documenting the folklore, to digitally archive the tales.

Wancho tribe:

- Arunachal Pradesh with recorded 26 major tribes, 110 sub-tribes, and many unrecorded sub-tribes is a research hub for anthropologists.
- The Wancho tribe, with a population of nearly 57,000 members, inhabits mostly the Longding district that borders Myanmar.

Culture & tradition:

- The Wanchos have a rich tradition of oral stories, memories, and songs.
- The knowledge of the ancestors that has accumulated over generations is a record of life as it has been lived for centuries over here.
- It is the history of the cultural practices and rituals, the precise knowledge of livelihood practices, of plants, animals, the climate and geography. It is the collective memories of the community.

Preservation effort:

- The pattern of life is changing rapidly as the district becomes more integrated and accessible to the outside world.
- Before the demise of the tradition bearers of the village and the disappearance of the knowledge that they hold, the elders are recording their memories.

PARADISEC:

- The Wancho folk tales are stored in the Pacific and Regional Archive for Digital Sources in Endangered Cultures (PARADISEC), a digital record of some of the small cultures and languages of the world.
- PARADISEC is a consortium of three universities - the University of Sydney, the University of Melbourne, and the Australian National University.

Way Forward:

- The objective of the project is to record, document, and translate a collection of the oral narratives from two indigenous communities of North East India - the Wancho in Arunachal Pradesh and the Tangkhul in Manipur, and then to work with members of the community to adapt one selected story from each group into a short animated film.

MISCELLANEOUS**INDIA KI UDAAN PROJECT****Why in news?**

- Capturing the milestones India has achieved in its journey of 75 years since Independence, Google unveiled a vibrant online project drawing from rich

archives and featuring artistic illustrations to tell the story of the country.

- Named 'India ki Udaan', the project executed by Google Arts & Culture celebrates the country's achievements and is "themed on the unwavering and undying spirit of India over these past 75 years".

Collaboration:

- As part of the countrywide celebrations, Google also announced its collaboration with the Ministry of Culture focused "on reaching informative online content that showcases the contributions of Indians and the evolution of India since 1947 to support the Government's year-long 'Azadi Ka Amrit Mahotsav' programme".

Doodle4Google contest:

- It also announced that its popular Doodle4Google contest for 2022, themed on 'In the next 25 years, my India will ', is now open for entries to students of classes 1-10.
- The winner of this year's Doodle4Google will see their artwork on the Google homepage in India on 14 November, and win a Rs 5,00,000 college scholarship, a ₹ 2,00,000 technology package for their school/non-profit organisation, a recognition of achievement, Google hardware, and fun Google collectibles.

Key Highlights:

- The centrepiece of its celebrations is a new online collection titled 'India Ki Udaan' available on the Google Arts & Culture website.
- The collection pays tribute to India's rich cultural history and includes iconic moments from the last 75 years for people to relive, experience, and be inspired by.
- Published in English and Hindi, it allows anyone to explore more than 120 illustrations and 21 stories created by 10 talented artists, alongside exhibitions from various institutions across India including the Ministry of Tourism, Museum of Art & Photography, Heritage Directorate of the Indian Railways, the Indian Academy of Sciences and Dastkari Haat Samiti.

Way Forward:

- This initiative offers a unique view of India's remarkable moments and lets people discover some of the most memorable moments in India's modern history, its iconic personalities, its proudest scientific and sporting achievements, and how women in India continue to inspire the world.

CSIR GETS ITS FIRST WOMAN DIRECTOR GENERAL IN NALLATHAMBY KALAISELVI**Why in news?**

- Senior electrochemical scientist Nallathamby Kalaiselvi has become the first woman director general of the Council of Scientific and Industrial Research (CSIR), a consortium of 38 state-run research institutes across the country.

- She succeeds Shekhar Mande, who superannuated in April.



Tenure:

- Her appointment is for a period of two years with effect from the date of assumption of charge of the post or until further orders, whichever is earlier.

About Nallathamby Kalaiselvi:

- Known for her work in the field of lithium ion batteries, Kalaiselvi is at present director of the CSIR-Central Electrochemical Research Institute at Karaikudi in Tamil Nadu.
- She will also hold the charge as secretary, Department of Scientific and Industrial Research.
- Kalaiselvi has risen through the ranks in CSIR and had broken the proverbial glass ceiling by becoming the first woman scientist to head the Central Electrochemical Research Institute (CSIR-CECRI) in February 2019.
- She is currently involved in the development of practically viable Sodium-ion/Lithium-sulfur batteries and supercapacitors.

PRADHAN MANTRI AWAS YOJANA- URBAN (PMAY-U) MISSION EXTENDED



Why in news?

- Recently, the Union Cabinet has approved the proposal of Ministry of Housing and Urban Affairs (MoHUA) for continuation of Pradhan Mantri Awas Yojana-Urban (PMAY-U) up to 31st December 2024 wherein financial assistance is to be provided for the completion of already sanctioned 122.69 lakh houses till 31st March 2022.

What is Pradhan Mantri Awas Yojana-Urban (PMAY-U)?

- PMAY-U: Housing for All is one of the major flagship programmes being implemented by Government of India to provide all weather pucca houses to all eligible beneficiaries in the urban areas of the country through States/UTs/Central Nodal Agencies.
- Launched in June, 2015, the original deadline for the scheme - Housing for All' Mission - aimed at providing pucca houses to all eligible urban beneficiaries was March 2022.
- The scheme covers the entire urban area of the country, i.e., all statutory towns as per Census 2011 and towns notified subsequently, including Notified Planning/ Development Areas.
- The scheme is being implemented through four verticals:
 - a) Beneficiary Led Construction/ Enhancement (BLC),
 - b) Affordable Housing in Partnership (AHP),
 - c) In-situ Slum Redevelopment (ISSR) and
 - d) Credit Linked Subsidy Scheme (CLSS).
- While Govt of India provides financial assistance, State Govt/UTs implement the scheme including selection of beneficiaries.

Background:

- During the period of 2004-2014, 8.04 lakh houses were completed under Urban Housing Scheme.
- In 2014, the issue of providing houses to all eligible Urban dwellers in saturation mode was brought into focus and the scheme of PMAY-Urban was conceptualised.
- In 2017, the original projected demand was 100 lakh houses. Against this original projected demand, 102 lakh houses have been grounded/under construction.

Central Assistance:

- Central Assistance approved since 2015 is Rs. 2.03 lakh crore against Rs. 20,000 crore in 2004-2014.
- Upto 31st March 2022, Central Assistance/subsidy of ₹1,18,020.46 crore has already been released and ₹85,406 crore will be released as Central Assistance/ subsidy till 31st December 2024.

Way Forward:

- The continuation of the scheme based on the request of States/UTs upto 31st December 2024 will help in completion of already sanctioned houses under BLC, AHP & ISSR verticals.

NEPAL'S FIRST-EVER HUMAN MILK BANK

Why in news?

- Recently, the Nepal President Bidhya Devi Bhandari inaugurated the Nepal's first-ever human milk bank at a maternity and women's hospital to give premature and other at-risk infants access to the vast benefits of breast milk when they need it the most.



Collaboration:

- The centre has been established in partnership between the Government of Nepal, the European Union and UNICEF.

Key Highlights:

- 'Amrit Kosh,' the human milk bank at the Paropakar Maternity and Women's Hospital has the facilities to collect, pasteurise, test, and store safe donor human milk from lactating mothers and then provide it to infants in need.
- The milk bank is an important step towards ensuring baby-friendly health systems and gives premature, low birthweight, and other at-risk infants access to the vast benefits of breast milk when they need it the most.

Premature babies & mortality:

- Every year, around 15 million premature babies are born around the globe. In lower-middle-income countries like Nepal, an estimated 81,000 premature babies are born.
- Infants face the highest risk of dying in their first month of life while premature and low birth-weight babies face even a greater risk.
- According to the Nepal Multiple Indicator Cluster Survey (NMICS) 2019, the neonatal mortality rate (number of deaths per 1,000 live births during the first 28 days of life) in Nepal is 16.
- Similarly, the infant mortality rate (number of deaths per 1000 live births, which are under 1 year of age) is 25 and the under-five mortality rate is 28 per 1,000 live births.

Importance of Breastfeeding:

- Human breast milk contains antibodies which cannot be found in any other sources. Exclusive breast feeding has the potential to prevent 13 per cent of the death of children aged under-five globally each year, according to experts.
- Early initiation of breast feeding within the first hour of birth in addition to exclusive breast feeding can cut down 22 per cent of all newborn deaths worldwide.



PRACTICE QUESTION FOR UPSC PRELIMS EXAM

1. Consider the following statement regarding the 4th edition of Joint Military Exercise 'AL NAJAH-IV' 2022:
 1. The exercise is held between India and Oman.
 2. The joint exercise would focus on Counter Terrorism Operations, Regional Security Operations and Peace Keeping Operations.
 3. This exercise is organised at Muscat.
 Choose the correct option from the code given below:

a) 1 and 2	b) 2 and 3
c) 1 and 3	d) 1, 2 and 3

2. Consider the following statement:
 1. Indian Air force raised its first LCH squadron in Bengaluru.
 2. India acquire Apache attack helicopter from US.
 3. The Army has three Aviation Brigades at Leh, Missamari and Jodhpur.
 Choose the correct option from the code given below:

a) 1 and 2	b) 2 and 3
c) 1 and 3	d) 1, 2 and 3

3. Consider the following statement:
 1. "Ex VINBAX 2022" exercise are held between India and Vietnam.
 2. Vietnam is the 15th largest trade partner of India and India.
 Choose the correct option from the codes given below:

a) 1 Only	b) 2 Only
c) 1 and 2	d) None of the above

4. Consider the following statement regarding International North South Transport Corridor (INSTC):
 1. It is a trilateral agreement signed between China, Oman and Kazakhstan.
 2. India is not the member of INSTC.
 Choose the correct option from the codes given below:

a) 1 Only	b) 2 Only
c) 1 and 2	d) None of the above

5. Consider the following statement:
 1. India's Public Stockholding (PSH) policy is based on procuring food from farmers at MSP.
 2. Public Stockholding (PSH) policy does not provide subsidy to the underprivileged.
 Choose the correct option from the codes given below:

a) 1 Only	b) 2 Only
c) 1 and 2	d) None of the above

6. Recently, Parliament passed The Weapons of Mass Destruction and their Delivery Systems (Prohibition of Unlawful Activities) Amendment Bill, 2022. Consider the following statement:
 1. The amendment bill seeks to insert a new Section 12A in the existing law.
 2. The Bill amends the Weapons of Mass Destruction and their Delivery Systems (Prohibition of Unlawful Activities) Act, 2005.
 3. Biological weapons is not included in weapon of mass destruction.
 Choose the correct option from the codes given below:

a) 1 and 2	b) 2 and 3
c) 1 and 3	d) 1, 2 and 3

7. Consider the following statement:
 1. Faster rotation of the Earth will not impact smartphones, computers and communication systems.
 2. The reason for faster rotation can be melting of the glaciers and climate change at large.
 3. The Chandler wobble is a small deviation in the Earth's axis of rotation.
 Choose the correct option from the codes given below:

a) 1 and 2	b) 2 and 3
c) 1 and 3	d) 1, 2 and 3

8. Consider the following statement:
 1. Polycyclic Aromatic Hydrocarbons are environmental pollutants.
 2. Pyrene, possessing four benzene rings.
 Choose the correct option from the codes given below:

a) 1 Only	b) 2 Only
c) 1 and 2	d) None of the above

9. Consider the following statement regarding Supreme Court ruling on the photographs of the President of India and Prime Minister in advertisements:
 1. Court allowed that government advertisement could contain a political party's symbol, logo or flag.
 2. Court agreed that photographs of leaders to be avoided in government messaging.
 Choose the correct option from the codes given below:

a) 1 Only	b) 2 Only
c) 1 and 2	d) None of the above

- a) 1 Only b) 2 Only
c) 1 and 2 d) None of the above
10. Consider the following statement regarding AlphaFold protein:
1. It is a watershed movement in structural biology in particular.
2. It is the only AI based protein structure prediction tools.
Choose the correct option from the codes given below:
a) 1 Only b) 2 Only
c) 1 and 2 d) None of the above
11. Globally, birds are already facing extinction threats due to climate change. Consider the following statement:
1. Species threatened with extinction tend to possess more extreme trait combinations than those not at risk of extinction.
2. Specialist birds have a limited diet and can dwell in only specific habitats.
3. Vultures are generalist birds and can inhabit a range of habitats.
Choose the correct option from the codes given below:
a) 1 and 2 b) 2 and 3
c) 1 and 3 d) 1, 2 and 3
12. Consider the following statement regarding Small Satellite Launch Vehicle (SSLV):
1. SSLV is the first launch vehicle of the Indian Space Research Organisation.
2. It will free ISRO's workhorse Polar Satellite Launch Vehicle for bigger missions.
3. It is designed to attract the emerging small satellite market.
Choose the correct option from the codes given below:
a) 1 and 2 b) 2 and 3
c) 1 and 3 d) 1, 2 and 3
13. Consider the following statement:
1. Indian Oil is the first corporate which has come forward to support the "Project Cheetah" under CSR.
2. Indian Oil adopted Indian Single Horned Rhino as its mascot in 2021.
Choose the correct option from the codes given below:
a) 1 Only b) 2 Only
c) 1 and 2 d) None of the above
14. Consider the following statement and choose the incorrect option:
a) Rice could emerge as the next challenge for global food supply as a shortage of rain in different parts of India.
b) Total rice planted area has declined 13% during this season.
c) Drop in rice production will complicate India's inflation fight and trigger restrictions on exports.
d) India accounts for more than 50% of global rice trade.
15. Consider the following statement regarding Hellfire R9X missile:
1. This missile is also known as 'Ninja Missile'.
2. Operation Geronimo was successfully conducted with the help of this missile.
Choose the correct option from the codes given below:
a) 1 Only b) 2 Only
c) 1 and 2 d) None of the above
16. Consider the following statement:
1. India has achieved a landmark milestone, wherein 75000 startups have been recognized in the country.
2. 16th January has now been declared as the National Startup Day.
3. Skill India program which was primarily setup to provide an enabling environment for the startups.
Choose the correct option from the codes given below:
a) 1 and 2 b) 2 and 3
c) 1 and 3 d) 1, 2 and 3
17. Consider the following statement:
1. Wild Life (Protection) Act, 1972 had four schedules.
2. Recent amendment reduces the number of schedule from the vermin species and protected animals.
3. Recent amendment also inserts a new schedule for specimens listed under CITES.
Choose the correct option from the codes given below:
a) 1 and 2 b) 2 and 3
c) 1 and 3 d) 1, 2 and 3
18. Consider the following statement regarding tabletop airport in Uttar Pradesh:
1. Chitrakoot is set to get its first tabletop airport.
2. Chitrakoot will be the first operational airport of Bundelkhand.
Choose the correct option from the codes given below:
a) 1 Only b) 2 Only
c) 1 and 2 d) None of the above
19. Which among the following had quantitative targets upto 2030 under Nationally Determined Contribution (NDC):
a) Cumulative electric power
b) Reduce the emissions intensity of GDP by 33 to 35 percent
c) Creation of additional carbon sink of 2.5 to 3 billion tonnes of CO2.
d) All the above
20. Among the United Nation States, Which among the following Countries recognised Taiwan
1. Guatemala 2. Haiti
3. Honduras 4. Marshall Islands

- Choose the correct option from the codes given below:
- a) 1, 2, 3 and 4 b) 2, 3 and 4
c) 1 and 3 d) 2 and 4
21. Consider the following statement regarding North Eastern Space Applications Centre (NESAC):
1. It is as an autonomous institution under Dept. of Space (DOS).
 2. It is engaged in executing remote sensing application projects for natural resources management.
 3. It is located at Shimla.
- Choose the correct option from the codes given below:
- a) 1 and 2 b) 2 and 3
c) 1 and 3 d) 1, 2 and 3
22. Consider the following statement:
1. Space X launched its man space mission on its New Shepard spacecraft.
 2. It took the first Egyptian and Portuguese-origin passengers to space.
 3. Sara Sabry became to first Egyptian and Mário Ferreira the first Portuguese to journey to space.
- Choose the correct option from the codes given below:
- a) 1 and 2 b) 2 and 3
c) 1 and 3 d) 1, 2 and 3
23. Consider the following statement:
1. South Korea became the seventh country in the world to launch a mission to the Moon.
 2. South Korean Lunar Orbiter is nicknamed as Danuri.
- Choose the correct option from the codes given below:
- a) 1 Only b) 2 Only
c) 1 and 2 d) None of the above
24. Consider the following statement:
1. There is a provision for the appointment of Chief Justice of India (CJI) in the constitution.
 2. The outgoing CJI appoints the next CJI of India.
- Choose the correct option from the codes given below:
- a) 1 Only b) 2 Only
c) 1 and 2 d) None of the above
25. Consider the following statement regarding the impact of climate change:
1. Earth's temperature is rising exponentially.
 2. Food and water security are threatened.
 3. Global economy could lose up to \$6 trillion by 2050 if no climate action is taken.
- Choose the correct option from the codes given below:
- a) 1 and 2 b) 2 and 3
c) 1 and 3 d) 1, 2 and 3
26. Consider the following statement regarding India ki Udaan Project:
1. This project is executed by Google Arts & Culture.
 2. Google also announced its popular Doodle4Google contest for 2022.
 3. Google also announced its collaboration with the Ministry of Tourism.
- Choose the correct option from the codes given below:
- a) 1 and 2 b) 2 and 3
c) 1 and 3 d) 1, 2 and 3
27. Consider the following statement regarding exercise "Skylight":
1. It was conducted by Indian Air force to boost its space domain capabilities.
 2. This was a pan-India exercise covering the islands of Andaman and Lakshadweep.
 3. GSAT-7B is going to be Indian Army satellite.
- Choose the correct option from the codes given below:
- a) 1 and 2 b) 2 and 3
c) 1 and 3 d) 1, 2 and 3
28. Consider the following statement:
1. A Himalayan spice garden is inaugurated in Ranikhet, Uttarakhand.
 2. The garden has been established with funding from the Japanese International Cooperation Agency (JICA).
- Choose the correct option from the codes given below:
- a) 1 Only b) 2 Only
c) 1 and 2 d) None of the above
29. Consider the following statement regarding micro-satellite "AzadiSAT":
1. This project was coordinated by Space Kidz India.
 2. The aim of this satellite will be to demonstrate the LoRA (long-range radio) transponder.
 3. It will carry a recorded version of the national anthem sung by Rabindranath Tagore.
- Choose the correct option from the codes given below:
- a) 1 and 2 b) 2 and 3
c) 1 and 3 d) 1, 2 and 3
30. Consider the following statement regarding clouded leopard:
1. It is mostly related to the snow leopards.
 2. IUCN listed this uncommon cat as Extinct.
- Choose the correct option from the codes given below:
- a) 1 Only b) 2 Only
c) 1 and 2 d) None of the above
31. Recently concentration of uranium had been evident from groundwater in India. Consider the following statement:
1. Water sample with uranium concentration is analysed through Inductively Coupled Plasma Mass Spectrometry (ICP-MS) method.
 2. In certain district of Bihar, high concentration of uranium had been evident from groundwater.

3. World Health Organisation have set drinking the water standards for uranium in drinking water as 40 g/L.
Choose the correct option from the codes given below:
- a) 1 and 2 b) 2 and 3
c) 1 and 3 d) 1, 2 and 3
32. Consider the following statement:
1. Currently Madhya Pradesh does not produce green energy.
 2. Madhya Pradesh has set an ambitious target of generating 20,000 Megawatt (MW) of green power by 2030.
 3. Madhya Pradesh is setting up of a solar plant in the Chambal region.
- Choose the correct option from the codes given below:
- a) 1 and 2 b) 2 and 3
c) 1 and 3 d) 1, 2 and 3
33. Consider the following statement regarding Indian Virtual Herbarium:
1. Scientists of the Botanical Survey of India (BSI) develop it
 2. It is the biggest virtual database of flora in the country.
- Choose the correct option from the codes given below:
- a) 1 Only b) 2 Only
c) 1 and 2 d) None of the above
34. Consider the following statement regarding Mineral Security Partnership (MSP):
1. India is a member of this alliance.
 2. The goal of the alliance is to produce rare earth mineral, Titanium in abundance.
- Choose the correct option from the codes given below:
- a) 1 Only b) 2 Only
c) 1 and 2 d) None of the above
35. Consider the following statement regarding "Critical Mineral":
1. Rare earth (RE) comprises seventeen elements.
 2. The major critical minerals are Graphite, Lithium and Cobalt.P
 3. India is one of the major producer of critical mineral.
- Choose the correct option from the codes given below:
- a) 1 and 2 b) 2 and 3
c) 1 and 3 d) 1, 2 and 3
36. Consider the following statement regarding the evolution of Collegium system:
1. The First Judges case, the court held that the consultation with the CJI should be "full and effective.
 2. Third Judges Case in 1998 expanded the judicial collegium to its present composition of the CJI and four of his senior-most judges.
 3. The Third Judges case introduced the collegium system.
Choose the correct option from the codes given below:
a) 1 and 2 b) 2 and 3
c) 1 and 3 d) 1, 2 and 3
37. Consider the following statement:
1. Belize Barrier Reef is the world's largest reef system.
 2. Corals are marine invertebrates or animals which do not possess a spine.
 3. Each coral is called a polyp.
- Choose the correct option from the codes given below:
- a) 1 and 2 b) 2 and 3
c) 1 and 3 d) 1, 2 and 3
38. Consider the following statement:
1. Corals share a symbiotic relationship with single-celled algae called zooxanthellae.
 2. Bleached corals can survive depending on the levels of bleaching.
- Choose the correct option from the codes given below:
- a) 1 Only b) 2 Only
c) 1 and 2 d) None of the above
39. Consider the following statement regarding Combined Maritime Forces (CMF):
1. Pakistan joined this force as an associate partner.
 2. India is full member of this force.
- Choose the correct option from the codes given below:
- a) 1 Only b) 2 Only
c) 1 and 2 d) None of the above
40. Consider the following statement:
1. Velocity Trimming Module (VTM) inserts the satellite into their desired orbits.
 2. GSLV-F10 mission of ISRO was a successful mission.
- Choose the correct option from the codes given below:
- a) 1 Only b) 2 Only
c) 1 and 2 d) None of the above
41. Consider the following statement:
1. Indo-Israel Center of Excellence for Vegetables is to be set up in Chandauli.
 2. The climate of Chandauli is known as the rice bowl of UP.
 3. There are 4 agro-climatic zones in the State.
- Choose the correct option from the codes given below:
- a) 1 and 2 b) 2 and 3
c) 1 and 3 d) 1, 2 and 3
42. Consider the following statement:
1. Exercise Vajra Prahar is conducted between India and Israel.
 2. 13th Edition of Ex Vajra Prahar 2022 was held at Bakloh (Himachal Pradesh).

3. 12th edition of this exercise was conducted at Joint Base Lewis Mcchord.
Choose the correct option from the codes given below:
a) 1 and 2 b) 2 and 3
c) 1 and 3 d) 1, 2 and 3
43. Consider the following statement regarding Energy Conservation (Amendment) Bill, 2022:
1. It seeks to introduce new concepts such as carbon trading.
2. It seek to promote renewable energy and the development of a domestic carbon market to battle climate change.
Choose the correct option from the codes given below:
a) 1 Only b) 2 Only
c) 1 and 2 d) None of the above
44. Consider the following statement:
1. Khayyam is a remote sensing satellite of Turkey.
2. A Chinese Long March 5 rocket launched Khayyam
Choose the correct option from the codes given below:
a) 1 Only b) 2 Only
c) 1 and 2 d) None of the above
45. Consider the following statement:
1. Recently, Manipur Assembly resolved to implement the National Register of Citizens (NRC).
2. Manipur is the only north-eastern States to be brought under inner line permitsystem.
Choose the correct option from the codes given below:
a) 1 Only b) 2 Only
c) 1 and 2 d) None of the above
46. Consider the following statement regarding AGM-88 HARM missile:
1. It is a tactical weapon fired from fighter aircraft.
2. It is a high-speed anti-radiation missile.
3. It is an air-to-air missile.
Choose the correct option from the codes given below:
a) 1 and 2 b) 2 and 3
c) 1 and 3 d) 1, 2 and 3
47. Consider the following statement regarding Langya Virus:
1. Few of the African countries confirmed the first human infection of this virus.
2. The disease may have been transmitted from shrews, small insectivorous mammals.
3. Nipah and Hendra virus also belong to the same genus.
Choose the correct option from the codes given below:
a) 1 and 2 b) 2 and 3
c) 1 and 3 d) 1, 2 and 3
48. Consider the following statement:
1. There is a loss of mangrove cover on Katchal Island.
2. Katchal Island are part of India's Nicobar archipelago.
Choose the correct option from the codes given below:
a) 1 Only b) 2 Only
c) 1 and 2 d) None of the above
49. Consider the following statement regarding Sinkhole:
1. It is a depression in the ground that has no external surface drainage.
2. It is more likely to appear in areas that have soluble rocks.
3. A huge sinkhole developed in a stream located in south Kashmir in 2022.
Choose the correct option from the codes given below:
a) 1 and 2 b) 2 and 3
c) 1 and 3 d) 1, 2 and 3
50. Consider the following statement regarding threat to Tidal Wetland:
1. Nearly 27 per cent of the losses and gains were directly caused by human activity.
2. Sea level rise, shoreline erosion, storms, altered sediment flow and subsidence are some other cause of Tidal Wetland.
3. Tidal wetlands in Australia had the highest ratio of loss to gain.
Choose the correct option from the codes given below:
a) 1 and 2 b) 2 and 3
c) 1 and 3 d) 1, 2 and 3
51. Consider the following statement regarding new US bill on Climate Change:
1. It provides a tax deduction to low and middle-income households to go electric.
2. The Bill provides significant investment in renewable energy.
3. There is no funding to benefit from zero-emission technologies.
Choose the correct option from the codes given below:
a) 1 and 2 b) 2 and 3
c) 1 and 3 d) 1, 2 and 3
52. Consider the following statement regarding Pradhan Mantri Awas Yojana-Urban (PMAY-U):
1. The scheme was launched in 2018.
2. It aims to provide all weather pucca houses to all eligible beneficiaries in the urban areas of the country.
3. The scheme covers the entire urban area of the country.
Choose the correct option from the codes given below:

- a) 1 and 2 b) 2 and 3
c) 1 and 3 d) 1, 2 and 3
53. Consider the following statement regarding Lumpy Skin Disease (LSD):
1. It is a disease in cattle.
 2. Rajasthan reports the highest death of cattle in India.
- Choose the correct option from the codes given below:
- a) 1 Only b) 2 Only
c) 1 and 2 d) None of the above
54. Consider the following statement:
1. Nuclear power used in the production of electricity is non-renewable source of energy.
 2. Raw material that is used to generate nuclear power through a process called fission is renewable energy.
- Choose the correct option from the codes given below:
- a) 1 Only b) 2 Only
c) 1 and 2 d) None of the above
55. Consider the following statement:
1. The new US bill on climate action will reduce 50-52% emissions below 2005 levels by 2030.
 2. US is a leading producer of solar energy.
- Choose the correct option from the codes given below:
- a) 1 Only b) 2 Only
c) 1 and 2 d) None of the above
56. Consider the following statement regarding Criminal Procedure (Identification) Act, 2022:
1. It repeals the existing Identification of Prisoners Act, 1920.
 2. It establish the identity of the culprit against the person being arrested.
 3. It does not establish a previous conviction.
- Choose the correct option from the codes given below:
- a) 1 and 2 b) 2 and 3
c) 1 and 3 d) 1, 2 and 3
57. Consider the following statement regarding NITI Aayog Multidimensional Poverty Index (MPI) report:
1. The NITI Aayog identified 8 indicators.
 2. If an individual's aggregate weighted deprivation score was more than 0.33, they were considered multi-dimensionally poor.
 3. The proportion of the population with a deprivation score greater than 0.33 to the total population is defined as the Poverty Ratio or Head Count Ratio.
- Choose the correct option from the codes given below:
- a) 1 and 2 b) 2 and 3
c) 1 and 3 d) 1, 2 and 3
58. Consider the following statement:
1. Ukraine top the list in the share of the population that owns cryptocurrencies.
 2. India ranked seventh in the global economies for digital currency ownership as share of population.
- Choose the correct option from the codes given below:
- a) 1 Only b) 2 Only
c) 1 and 2 d) None of the above
59. Consider the following statement:
1. Landfills is the largest source of methane emissions globally.
 2. America is the world's biggest methane polluters.
- Choose the correct option from the codes given below:
- a) 1 Only b) 2 Only
c) 1 and 2 d) None of the above
60. Consider the following statement:
1. Samuel Evans Stokes was the only American to be jailed in India's struggle for Independence.
 2. Benjamin Guy Horniman was the editor of Bombay Chronicle.
 3. Gandhiji gave Madeleine Slade the name Sarala.
- Choose the correct option from the codes given below:
- a) 1 and 2 b) 2 and 3
c) 1 and 3 d) 1, 2 and 3
61. Consider the following statement regarding 'Udarashakti':
1. Indian Air force contingency took part in this mission.
 2. This exercise was held between India and Australia.
- Choose the correct option from the codes given below:
- a) 1 Only b) 2 Only
c) 1 and 2 d) None of the above.
62. Consider the following statement regarding SPARK:
1. This was the virtual space mission of NASA.
 2. It is first 3D virtual space tech park.
- Choose the correct option from the codes given below:
- a) 1 Only b) 2 Only
c) 1 and 2 d) None of the above.
63. Consider the following statement:
1. Asia largest compressed gas plant is started in Punjab.
 2. The plant will supply gas to Indian Oil Corporation Ltd (IOCL).
- Choose the correct option from the codes given below:
- a) 1 Only b) 2 Only
c) 1 and 2 d) None of the above.
64. Consider the following statement regarding World Elephant Day:
1. The day is observed on August 12.
 2. Indian Elephant has also been listed in the Appendix I of the Convention of the Migratory species.

3. Elephant is the Natural Heritage Animal of India. Choose the correct option from the codes given below:
- a) 1 and 2 b) 2 and 3
c) 1 and 3 d) 1, 2 and 3
65. Consider the following statement regarding NATO:
1. It was set up in 1949 by the US, Canada, and several western European nations.
 2. The headquarters of the Allied Command Operations is in Belgium.
 3. It is only a political alliance of 30 countries.
- Choose the correct option from the codes given below:
- a) 1 and 2 b) 2 and 3
c) 1 and 3 d) 1, 2 and 3
66. Consider the following statement regarding Elephant Reserve in India:
1. Recently Periyar Wildlife Sanctuary in Kerala is notified as new Elephant reserve.
 2. Total number of elephant reserve in the country is 31.
 3. Singphan elephant reserve is in Assam.
- Choose the correct option from the codes given below:
- a) 1 and 2 b) 2 and 3
c) 1 and 3 d) 1, 2 and 3
67. Consider the following statement regarding Indian Elephant:
1. Their presence is absent in southern Western Ghats.
 2. It is included in Schedule I of the Indian Wildlife (Protection) Act, 1972.
 3. It is also included in Appendix I of the Convention on International Trade in Endangered Species of Flora and Fauna (CITES).
- Choose the correct option from the codes given below:
- a) 1 and 2 b) 2 and 3
c) 1 and 3 d) 1, 2 and 3
68. Consider the following statement:
1. Environment Ministry hadn't notified National Coastal Zone Management Authority (NCZMA) as a permanent body.
 2. The State Coastal Zone Management Authorities (SCZMA) had not been reconstituted in Karnataka.
- Choose the correct option from the codes given below:
- a) 1 Only b) 2 Only
c) 1 and 2 d) None of the above
69. Consider the following statement:
1. "Roshni" is the first Saline Water Lantern in India.
 2. The Saline Water Lantern will bring "Ease of Living" to the poor, particularly the fishing community.
 3. Saline Water Lantern will also boost and supplement Prime Minister's UJALA scheme.
- Choose the correct option from the codes given below:
- a) 1 and 2 b) 2 and 3
c) 1 and 3 d) 1, 2 and 3
70. Consider the following statement:
1. Twenty-eight Indian sites have been declared wetlands of international importance this year.
 2. Odisha had the highest number of declared Wetland this year.
- Choose the correct option from the codes given below:
- a) 1 Only b) 2 Only
c) 1 and 2 d) None of the above
71. Consider the following statement:
1. A 3D-printed cornea is developed from the human donor corneal tissue.
 2. Corneal damage is the leading cause of blindness.
 3. Clinicians from Shankar Netralaya develop 3D-printed cornea.
- Choose the correct option from the codes given below:
- a) 1 and 2 b) 2 and 3
c) 1 and 3 d) 1, 2 and 3
72. Consider the following:
1. More plantation of Eucalyptus tree.
 2. Warm and wet climate.
 3. Carbon pollution
- The Tibetan Plateau will experience significant water loss due to
- a) 1 and 2 b) 2 and 3
c) 1 and 3 d) 1, 2 and 3
73. Consider the following statement regarding Postal Identification Number (PIN) and choose the incorrect option:
- a) PIN codes are made up of six-digit numbers.
 - b) The first number of the PIN code indicates the postal zone.
 - c) The second number of the PIN Code denotes States.
 - d) The final three digits of the PIN code are handed over to individual post offices.
74. In India, artillery gun salutes are fired on
- a) Republic Day
 - b) Independence Day
 - c) Oath taking ceremony of the President
 - d) All the above
75. Consider the following statement:
1. Police is a State subject.
 2. Model Police Act drafted by Jagdish Singh Khehar.
- Choose the correct option from the codes given below:
- a) 1 Only b) 2 Only
c) 1 and 2 d) None of the above
76. Consider the following statement regarding Defence Missile HQ-17A:

1. It is an integrated search radar, guidance radar, air defence radar and command system.
 2. The missile is based on the Russian Tor-M1 surface-to-air missile defence system.
 3. It is new surface to surface missile system.
 Choose the correct option from the codes given below:
 a) 1 and 2 b) 2 and 3
 c) 1 and 3 d) 1, 2 and 3
77. Consider the following statement regarding new campaign "Palaan":
 1. It focuses on the development of women empowerment.
 2. India has taken rapid strides in reducing child mortality from 45 to 35 per 1000 live births in 2019.
 Choose the correct option from the codes given below:
 a) 1 Only b) 2 Only
 c) 1 and 2 d) None of the above
78. Consider the following statement regarding Manthan platform:
 1. It aims to promote collaboration at scale between industry and the scientific research.
 2. The platform will facilitate knowledge transfers and interactions through Information Exchange Sessions.
 Choose the correct option from the codes given below:
 a) 1 Only b) 2 Only
 c) 1 and 2 d) None of the above
79. Consider the following statement regarding International Space Station (ISS):
 1. It is a high-flying satellite laboratory and an observation platform for astronomical, environmental and geological research.
 2. The ISS is built with the cooperation of NASA, Roscosmos, JAXA, Canadian Space Agency and the European Space Agency.
 3. Russia's part in the collaboration is the module responsible for making course corrections to the orbit of the ISS.
 Choose the correct option from the codes given below:
 a) 1 and 2 b) 2 and 3
 c) 1 and 3 d) 1, 2 and 3
80. Consider the following statement:
 1. Ethanol is an agricultural by-product.
 2. Ethanol blending will help bring down our share of oil imports.
 3. India's aim is to increase ethanol-blending ratio to 40% originally by 2030.
 Choose the correct option from the codes given below:
 a) 1 and 2 b) 2 and 3
 c) 1 and 3 d) 1, 2 and 3
81. Recently, the Union Cabinet has approved to restore Interest Subvention on short-term agriculture loans. Consider the following statement regarding the benefit of increased Interest Subvention:
 1. It will ensure sustainability of credit flow in the agriculture sector.
 2. Banks will be able to absorb increase in cost of funds.
 3. It will have no effect on employment generation.
 Choose the correct option from the codes given below:
 a) 1 and 2 b) 2 and 3
 c) 1 and 3 d) 1, 2 and 3
82. Consider the following statement regarding flagship program, Regional Connectivity Scheme UDAN:
 1. It was launched in 2014.
 2. UDAN has significantly increased the regional air-connectivity in the country.
 3. Because of the UDAN scheme, the operational airport number has increased to 141 by now.
 Choose the correct option from the codes given below:
 a) 1 and 2 b) 2 and 3
 c) 1 and 3 d) 1, 2 and 3
83. Consider the following statement:
 1. RCS-UDAN was formulated based on the review of The National Civil Aviation Policy (NCAP)-2016.
 2. RCS-UDAN was awarded Prime Minister's Award for Excellence in Public Administration under Innovation Category for the year 2020.
 Choose the correct option from the codes given below:
 a) 1 Only b) 2 Only
 c) 1 and 2 d) None of the above
84. Consider the following statement regarding the recent report, 'Air Quality and Health in Cities', released by U.S.-based Health Effects Institute:
 1. Two Indian cities appeared in the list of top 10 polluted cities when NO₂ levels were compared.
 2. Moscow and Beijing top the list when PM_{2.5} levels were compared.
 Choose the correct option from the codes given below:
 a) 1 Only b) 2 Only
 c) 1 and 2 d) None of the above
85. Consider the following statement regarding Hayabusa-2 mission:
 1. The mission was launched in 2014.
 2. The mission was sent to study outer atmosphere of Mars.
 Choose the correct option from the codes given below:
 a) 1 Only b) 2 Only
 c) 1 and 2 d) None of the above

86. Astronomers from the Indian Institute of Astrophysics (IIA) in Bengaluru have developed a new model to trace exo-moons. Consider the following statement:

1. Exo-moons play a crucial role in the habitability of rocky exoplanets in the habitable zone of their host stars.
2. Exoplanets are detected through the photometric transit method.
3. Exo-moons are artificial satellites that revolve around exoplanets.

Choose the correct option from the codes given below:

- | | |
|------------|---------------|
| a) 1 and 2 | b) 2 and 3 |
| c) 1 and 3 | d) 1, 2 and 3 |

87. Consider the following statement regarding The Great Indian Bustard (GIB):

1. It is considered India's most vulnerable bird.
2. It is a grassland species.
3. Its population is confined mostly to Rajasthan and Gujarat.

Choose the correct option from the codes given below:

- | | |
|------------|---------------|
| a) 1 and 2 | b) 2 and 3 |
| c) 1 and 3 | d) 1, 2 and 3 |

88. Consider the following statement:

1. 'Tilapia' has emerged as an internationally traded food fish in the world.
2. 'Tilapia' is also termed as "aquatic chicken".

Choose the correct option from the codes given below:

- | | |
|------------|----------------------|
| a) 1 Only | b) 2 Only |
| c) 1 and 2 | d) None of the above |

89. Great Indian Bustard is given protection against which among the following parameter?

- a) International Union for Conservation of Nature (IUCN) Red List
- b) Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)
- c) Convention on Migratory Species (CMS)
- d) All the above

90. Consider the following statement:

1. Pradhan Mantri Matsya Sampada Yojana (PMMSY) was launched to bring 'Blue Revolution'.
2. The scheme targets to enhance fish production to 20 percent by 2024-25.

Choose the correct option from the codes given below:

- | | |
|------------|----------------------|
| a) 1 Only | b) 2 Only |
| c) 1 and 2 | d) None of the above |

91. Consider the following statement regarding Remission:

1. Remission is an inherent part of a prisoner's right to life.
2. Governor has the powers of remission under Article 161 of the Constitution.
3. Prison is included in concurrent list.

Choose the correct option from the codes given below:

- | | |
|------------|---------------|
| a) 1 and 2 | b) 2 and 3 |
| c) 1 and 3 | d) 1, 2 and 3 |

92. Consider the following statement regarding Blockchain:

1. Lithuania is world blockchain capital.
2. China launched a program in 2020 called BSN (Blockchain-based Service Network).
3. The Brazilian government recently launched the Brazilian Blockchain Network.

Choose the correct option from the codes given below:

- | | |
|------------|---------------|
| a) 1 and 2 | b) 2 and 3 |
| c) 1 and 3 | d) 1, 2 and 3 |

93. Consider the following statement:

1. Nepal inaugurated first-ever human milk bank.
2. Government of Nepal, the European Union and UNICEF are part of this project.

Choose the correct option from the codes given below:

- | | |
|------------|----------------------|
| a) 1 Only | b) 2 Only |
| c) 1 and 2 | d) None of the above |

94. Consider the following statement regarding Vishnugad Pipalkoti Hydro Electric Project:

1. The project is located at Himachal Pradesh.
2. It is a hydro-power project on Mandakini River.

Choose the correct option from the codes given below:

- | | |
|------------|----------------------|
| a) 1 Only | b) 2 Only |
| c) 1 and 2 | d) None of the above |

95. Consider the following statement:

1. Lynparza is the first and only approved medicine targeting BRCA (Breast Cancer gene).
2. It is currently approved only in India.

Choose the correct option from the codes given below:

- | | |
|------------|----------------------|
| a) 1 Only | b) 2 Only |
| c) 1 and 2 | d) None of the above |

96. Consider the following statement regarding Grameen Udyami Project:

1. National Skill Development Corporation (NSDC) in partnership with Seva Bharti and Yuva Vikas Society launched this project.
2. The aim is to multiskill India's tribal youth and impart functional skill.
3. The project is implemented only in Madhya Pradesh and Jharkhand.

Choose the correct option from the codes given below:

- | | |
|------------|---------------|
| a) 1 and 2 | b) 2 and 3 |
| c) 1 and 3 | d) 1, 2 and 3 |

97. Consider the following statement:

1. Uttar Pradesh is the largest producer of Makhana.
2. Recently, the government has awarded GI tag to Makhana.

3. Makhana is often marketed as an organic, gluten-free due to its nutritional value.
Choose the correct option from the codes given below:
- a) 1 and 2 b) 2 and 3
c) 1 and 3 d) 1, 2 and 3
98. Consider the following statement:
1. Pakistan and Afghanistan are the last nations wherein polio falls in the category of endemic.
 2. As per a UNICEF report, Africa was declared free of wild polio in 2020.
- Choose the correct option from the codes given below:
- a) 1 Only b) 2 Only
c) 1 and 2 Both d) None of the above
99. Consider the following statement:
1. Uttarakhand is vulnerable to maximum number of natural hazards.
 2. Garhwal and Kumaon division fall in the "very high" vulnerable risk status.
- Choose the correct option from the codes given below:
- a) 1 Only b) 2 Only
c) 1 and 2 Both d) None of the above
100. Consider the following statement regarding Tomato Flu:
1. It was first identified in the State of Kerala.
 2. The rare viral infection is life threatening.
- Choose the correct option from the codes given below:
- a) 1 Only b) 2 Only
c) 1 and 2 Both d) None of the above
101. Consider the following statement regarding *Miniopterus phillipsi*:
1. It is a new species of long-fingered bats in India and Sri Lanka.
 2. This species is found in in Robber's cave in Mahabaleshwar in the Western Ghats of India.
 3. The long-fingered bats belonging to the family Vespertilionidae.
- Choose the correct option from the codes given below:
- a) 1 and 2 b) 2 and 3
c) 1 and 3 d) 1, 2 and 3
102. Consider the following statement:
1. Wancho community resides in the remote part of Assam.
 2. The Wancho folk tales are stored in the Pacific and Regional Archive for Digital Sources in Endangered Cultures (PARADISEC).
 3. PARADISEC is a consortium of University of Sydney, Melbourne and Australian National University.
- Choose the correct option from the codes given below:
- a) 1 and 2 b) 2 and 3
c) 1 and 3 d) 1, 2 and 3
103. Consider the following statement regarding brain-mapping device, Quicktome:
1. Institute of Brain & Spine (IBS) Hospital in New Delhi has launched the first brain mapping device in the country.
 2. It uses sophisticated algorithms to analyze millions of data points and build a brain map.
- Choose the correct option from the codes given below:
- a) 1 Only b) 2 Only
c) 1 and 2 d) None of the above
104. Consider the following statement:
1. India's first indigenously developed Hydrogen Fuel Cell Bus developed in New Delhi.
 2. The fuel cell utilizes Hydrogen and Nitrogen to generate electricity to power the bus.
- Choose the correct option from the codes given below:
- a) 1 Only b) 2 Only
c) 1 and 2 d) None of the above
105. Consider the following statement:
1. A cloudburst is a localised but intense rainfall activity.
 2. Rainfall of 20 cm or more in an half an hour over a roughly 10 km × 10-km area is classified as a cloudburst event.
- Choose the correct option from the codes given below:
- a) 1 Only b) 2 Only
c) 1 and 2 d) None of the above
106. Consider the following statement regarding West Nile virus:
1. The virus was first detected in New York City.
 2. The virus is now considered endemic in New York State.
 3. The virus directly affect the respiratory system in human being.
- Choose the correct option from the codes given below:
- a) 1 and 2 b) 2 and 3
c) 1 and 3 d) 1, 2 and 3
107. Consider the following statement:
1. Aedes mosquitoes carry the West Nile Virus.
 2. The virus is not contagious.
 3. There is no evidence of humans catching the virus directly from birds.
- Choose the correct option from the codes given below:
- a) 1 and 2 b) 2 and 3
c) 1 and 3 d) 1, 2 and 3
108. Consider the following statement:
1. Hospital-acquired diseases cause Klebsiella pneumonia.
 2. Klebsiella pneumonia escapes the body's immune system easily.

- Choose the correct option from the codes given below:
- a) 1 Only b) 2 Only
c) 1 and 2 d) None of the above.
109. Shahid Behesti terminal is developed at which among the following port?
a) Gwadar Port b) Port of Ormara
c) Port of Bandar Abbas d) Chabahar Port
110. Consider the following statement regarding heat waves:
1. The heatwaves are categorized on a three-level scale and named in reverse alphabetical order.
2. The Spanish heatwave has been named Vega.
Choose the correct option from the codes given below:
a) 1 Only b) 2 Only
c) 1 and 2 d) None of the above.
111. Consider the following statement regarding the successfully flight test of Vertical Launch Short Range Surface-to-Air Missile (VL-SRSAM):
1. It is a ship borne weaponry system.
2. The missiles is equipped with indigenous Radio Frequency (RF) seeker.
3. The VL-SRSAM system has been designed and developed by DRDO and Rafael Advanced Defense Systems.
Choose the correct option from the codes given below:
a) 1 and 2 b) 2 and 3
c) 1 and 3 d) 1, 2 and 3
112. Consider the following statement regarding GAGAN:
1. This system is developed by the Airports Authority of India only.
2. It provides a very accurate and high-level of satellite signals for precision air navigation.
3. It is a Satellite Based Augmentation System.
Choose the correct option from the codes given below:
a) 1 and 2 b) 2 and 3
c) 1 and 3 d) 1, 2 and 3
113. Recently, the Coalition for Disaster Resilient Infrastructure (CDRI) and the Government of India (GoI) signed a headquarters agreement. Consider the following statement:
1. CDRI was launched at the UN Climate Action Summit in 2019.
2. CDRI promotes rapid development of resilient infrastructure to respond to the Sustainable Development Goals.
Choose the correct option from the codes given below:
a) 1 Only b) 2 Only
c) 1 and 2 d) None of the above
114. Consider the following statement:
1. Daocheng Solar Radio Telescope (DSRT) is constructed on the Tibetan Plateau.
2. China is building the world largest circular radio telescope array.
3. Mingantu interplanetary scintillation telescope is built by China in Mangolia.
Choose the correct option from the codes given below:
a) 1 and 2 b) 2 and 3
c) 1 and 3 d) 1, 2 and 3
115. Consider the following statement regarding MQ-9B Predator armed drones:
1. It is the first hunter-killer unmanned aerial vehicle (UAV) designed for long-endurance and high-altitude surveillance.
2. This drone recently killed Abu Bakr al-Baghdadi.
Choose the correct option from the codes given below:
a) 1 Only b) 2 Only
c) 1 and 2 d) None of the above
116. Consider the following statement:
1. Xylitol is a sugar substitute.
2. Only 8-15 percent of the xylose is converted to Xylitol.
3. Industrially, Xylitol is produced with the help of catalyst, Zinc.
Choose the correct option from the codes given below:
a) 1 and 2 b) 2 and 3
c) 1 and 3 d) 1, 2 and 3
117. Consider the following statement:
1. The healthcare facilities are to be provided to Transgender persons under the Pradhan Mantri Suraksha Bima Yojana.
2. The ministry of social justice and empowerment (MOSJE) will fund Rs.5 lakh insurance cover per transgender.
3. Specific packages like Sex Reassignment Surgery (SRS) and treatment for transgenders are also provided.
Choose the correct option from the codes given below:
a) 1 and 2 b) 2 and 3
c) 1 and 3 d) 1, 2 and 3
118. Consider the following statement regarding Multi Modal Logistics Parks:
1. A tripartite agreement is signed between National Highways Logistics Management Limited (NHLML), Inland Waterways Authority of India (IWAI) and Rail Vikas Nigam Limited (RVNL) to build these park.
2. It is built under Smart Cities Mission.
3. Its objective is to centralize freight consolidation and reduce logistics cost.
Choose the correct option from the codes given below:
a) 1 and 2 b) 2 and 3
c) 1 and 3 d) 1, 2 and 3

119. Consider the following statement regarding Nitrogen Fixing Plants:
- Lightning contributes to nitrogen-fixation.
 - Legumes is the best-known nitrogen-fixing plants.
 - Legumes with rhizobium bacteria fix the atmospheric nitrogen.
- Choose the correct option from the codes given below:
- | | |
|------------|---------------|
| a) 1 and 2 | b) 2 and 3 |
| c) 1 and 3 | d) 1, 2 and 3 |
120. Consider the following statement
- Supreme Court of India recently stated provision of the Benami Transaction Amendment Act as unconstitutional.
 - Benami property act violated Article 19 of the Indian Constitution.
- Choose the correct option from the codes given below:
- | | |
|------------|----------------------|
| a) 1 Only | b) 2 Only |
| c) 1 and 2 | d) None of the above |
121. Recently, the High-level Policy Commission launched the 'Getting India to Net Zero' report. Consider the following statement:
- India will witness net increase in employment opportunities.
 - India will need around USD 10.1 trillion in cumulative economy-wide investment to meet its target.
 - India will achieve net zero emission by 2050.
- Choose the correct option from the codes given below:
- | | |
|------------|---------------|
| a) 1 and 2 | b) 2 and 3 |
| c) 1 and 3 | d) 1, 2 and 3 |
122. Consider the following statement:
- Enchanted Lake is in the Jazero crater located in Moon.
 - The lake is named after a landmark in Alaska's Katmai National Park.
 - The rock of this lake is igneous in origin.
- Choose the correct option from the codes given below:
- | | |
|------------|---------------|
| a) 1 and 2 | b) 2 and 3 |
| c) 1 and 3 | d) 1, 2 and 3 |
123. Consider the following statement:
- Candidiasis is a fungal infection.
 - The gene called CSA6 has been identified in *Candida albicans*.
- Choose the correct option from the codes given below:
- | | |
|------------|----------------------|
| a) 1 Only | b) 2 Only |
| c) 1 and 2 | d) None of the above |
124. Which of the following animal has been extinct in China?
- Giant Panda
 - Asian Elephant
 - Chinese Giant Salamanders
 - Dugong
125. Consider the following:
- | | |
|----------------------|------------------------|
| 1. Steller's sea cow | 2. Caribbean monk seal |
| 3. Crested Ibis | |
- Which among the following are the extinct sea animals?
- | | |
|------------|---------------|
| a) 1 and 2 | b) 2 and 3 |
| c) 1 and 3 | d) 1, 2 and 3 |
126. Recently, the Airports Authority of India (AAI) and LFV Air Navigation Services of Sweden signed a Memorandum of Understanding. Consider the following:
- Airspace Design and Planning
 - Digitalized Airport and Aviation
 - Training in Air Defence System.
- Choose the correct option from the codes given below:
- | | |
|------------|---------------|
| a) 1 and 2 | b) 2 and 3 |
| c) 1 and 3 | d) 1, 2 and 3 |
127. Consider the following statement regarding "Zorawar":
- The Indian Army is planning to induct MANPADS, 'Zorawar'.
 - It has been designed to operate in high-altitude areas, marginal terrains to the island territories.
 - This will have in-built niche technologies, including AI and active protection system.
- Choose the correct option from the codes given below:
- | | |
|------------|---------------|
| a) 1 and 2 | b) 2 and 3 |
| c) 1 and 3 | d) 1, 2 and 3 |
128. Consider the following statement regarding why SWARM drone is necessary for India:
- It can act as a force multiplier in military operation.
 - It can be employed in both offensive and defensive operations.
- Choose the correct option from the codes given below:
- | | |
|------------|----------------------|
| a) 1 Only | b) 2 Only |
| c) 1 and 2 | d) None of the above |
129. Consider the following statement regarding La Nina:
- It takes place due to the cooling of surface ocean water on the tropical west coast of South America.
 - It can be described as a counterpart to El Nino.
 - The combined phases of La Nina and El Nino are termed as El Nino-Southern Oscillation (ENSO).
- Choose the correct option from the codes given below:
- | | |
|------------|---------------|
| a) 1 and 2 | b) 2 and 3 |
| c) 1 and 3 | d) 1, 2 and 3 |
130. Consider the following statement regarding AFSPA:
- Justice B.P. Jeevan Reddy Commission that was tasked with reviewing the provisions of AFSPA.
 - He recommended that AFSPA should not be withdrawn.

- Choose the correct option from the codes given below:
- a) 1 Only b) 2 Only
c) 1 and 2 d) None of the above
131. Consider the following statement:
- The President of India appoints the Chief Justice of Supreme Court.
 - President should consult the CJI, Governor, and Chief Justice of the High Court while appointing the judges of High Court.
 - The tenure of a CJI is until they attain the age of 62 years.
- Choose the correct option from the codes given below:
- a) 1 and 2 b) 2 and 3
c) 1 and 3 d) 1, 2 and 3
132. Consider the following statement:
- The term “collegium” is mention in the constitution.
 - Collegium system is followed in the appointment of judges.
- Choose the correct option from the codes given below:
- a) 1 Only b) 2 Only
c) 1 and 2 d) None of the above
133. Consider the following statement:
- Mosquito repellents work on the principle of obfuscating the insect’s sense of smell.
 - The most common chemical in repellents, diethyltoluamide (DEET).
- Choose the correct option from the codes given below:
- a) 1 Only b) 2 Only
c) 1 and 2 d) None of the above
134. Supreme Court laid down few consideration of remission in *Laxman Naskar vs Union of India* (2000). Consider the following statement:
- Whether the offence is an individual act of crime that does not affect society.
 - Whether the convict has lost the potentiality to commit crime.
 - Socio-economic conditions of the convict’s family.
- Choose the correct option from the codes given below:
- a) 1 and 2 b) 2 and 3
c) 1 and 3 d) 1, 2 and 3
135. Recently, the Centre amended the Supreme Court Judges Rules to provide chauffeurs for retired Chief Justices of India and Supreme Court judges for their entire lifetime. Consider the following statement and choose the incorrect option:
- a) 24-four hour security cover has been extended to five years for retired Chief Justices and retired judges of the Supreme Court.
- b) Former CJIs and retired judges of the top court can get their monthly mobile phone and Internet bills reimbursed to the extent of Rs. 4,200.
- c) A retired CJI is also entitled to a rent-free Type VII accommodation.
- d) Retired Chief Justices and judges should be extended courtesies as per protocol at ceremonial lounges of airports.
136. Consider the following statement:
- Common Service Centres (CSC) e-Governance Services India Ltd is an Special Purpose Vehicle.
 - CSC is partner with the Ministry of Electronics & IT and Ministry of Law & Justice.
 - Citizens cannot access the information of their cases in these courts.
- Choose the correct option from the codes given below:
- a) 1 and 2 b) 2 and 3
c) 1 and 3 d) 1, 2 and 3
137. Consider the following statement regarding Central Arid Zone Research Institute (CAZRI):
- Government of India initiated Desert Afforestation Research Station at Jaisalmer in 1951.
 - It was reorganized as Desert Afforestation and Soil Conservation Station in 1957.
 - In 1966, the institute was brought under the administrative control of Indian Council of Agricultural Research.
- Choose the correct option from the codes given below:
- a) 1 and 2 b) 2 and 3
c) 1 and 3 d) 1, 2 and 3
138. Consider the following statement regarding Exercise VAJRA PRAHAR 2022:
- It is conducted between the special forces of India and US.
 - It is significant in terms of security challenges faced by both Nations in the backdrop of the current global situation.
- Choose the correct option from the codes given below:
- a) 1 Only b) 2 Only
c) 1 and 2 d) None of the above.
139. Recently, the Director General of the National Mission for Clean Ganga, spoke about the Arth Ganga model during his virtual keynote address to the Stockholm World Water Week 2022. Consider the following key features:
- It is first Zero Budget Natural Farming.
 - Monetization and Reuse of Sludge & Wastewater.
 - Promote the cultural heritage and tourism of Ganga.
- Choose the correct option from the codes given below:
- a) 1 and 2 b) 2 and 3
c) 1 and 3 d) 1, 2 and 3

140. Consider the following statement regarding World Water Week:
1. Stockholm International Water Institute has been organising the World Water Week every year.
 2. World Water Week occurs late October or early November every year.
- Choose the correct option from the codes given below:
- a) 1 Only b) 2 Only
c) 1 and 2 d) None of the above.
141. Consider the following statement regarding Southern Rice Black-Streaked Dwarf Virus (SRBSDV):
1. It is a virus with ten double-stranded RNA segments.
 2. It is transmitted by a white-backed plant hopper (WBPH).
 3. It was first recorded in Taiwan.
- Choose the correct option from the codes given below:
- a) 1 and 2 b) 2 and 3
c) 1 and 3 d) 1, 2 and 3
142. Consider the following statement regarding the rice dwarfing:
1. It is caused by fungal disease.
 2. Insecticides like buprofezin, acetamiprid, dinotefuran or flonicamid can be sprayed to prevent it.
 3. Other method is transplanting the paddy plant.
- Choose the correct option from the codes given below:
- a) 1 and 2 b) 2 and 3
c) 1 and 3 d) 1, 2 and 3
143. Consider the following statement regarding Wildlife Corridor in India:
1. Delhi-Dehradun Expressway is India's first and Asia's largest wildlife corridor.
 2. A wildlife corridor is an area of habitat that provides passage for wildlife across artificial obstacles.
- Choose the correct option from the codes given below:
- a) 1 Only b) 2 Only
c) 1 and 2 d) None of the above
144. Consider the following statement regarding Banihal-Katra railway link:
1. It is part of the Udhampur-Srinagar-Baramulla Railway Line project.
 2. This is the third longest tunnel of Indian railway.
 3. It is the world's highest rail bridge over Chenab River.
- Choose the correct option from the codes given below:
- a) 1 and 2 b) 2 and 3
c) 1 and 3 d) 1, 2 and 3
145. Consider the following statement:
1. National Crime Records Bureau (NCRB) has released "Accidental Deaths and Suicides in India".
 2. The number of suicides in the daily wage group rose by 11.52 per cent during 2020 to 2021.
 3. Tamil Nadu record the highest number of suicides in 2021.
- Choose the correct option from the codes given below:
- a) 1 and 2 b) 2 and 3
c) 1 and 3 d) 1, 2 and 3
146. Consider the following statement regarding Cloud Seeding:
1. It create artificial rainfall.
 2. Silver iodide, potassium iodide or dry ice is dumped onto the clouds causing rainfall.
 3. It works when there is no cloud in the atmosphere.
- Choose the correct option from the codes given below:
- a) 1 and 2 b) 2 and 3
c) 1 and 3 d) 1, 2 and 3
147. Consider the following statement regarding Visceral Leishmaniasis:
1. It is also known as "Break bone" disease.
 2. It is spread by sandfly bites.
 3. The vector flies live in muddy areas.
- Choose the correct option from the codes given below:
- a) 1 and 2 b) 2 and 3
c) 1 and 3 d) 1, 2 and 3
148. Consider the following statement:
1. Telangana and West Bengal witness highest inflation measured by consumer price index 2022.
 2. Jammu and Kashmir witness price rise higher than the national average in 2022.
- Choose the correct option from the codes given below:
- a) 1 Only b) 2 Only
c) 1 and 2 d) None of the above
149. Supreme Court dismissed a writ petition challenging provisions of the Special Marriage Act (SMA), 1954. Which among the following article violates the provision of SMA?
- a) Article 14 b) Article 15
c) Article 21 d) All the above
150. Consider the following statement regarding Whale Shark:
1. It is the largest fish on Earth.
 2. It is distributed widely across tropical and warm temperate seas.
 3. The largest whale shark aggregation is along the Bay of Bengal coast.
- Choose the correct option from the codes given below:
- a) 1 and 2 b) 2 and 3
c) 1 and 3 d) 1, 2 and 3

PRACTICE QUESTION FOR UPSC MAINS EXAM

1. 'India's point in asking for a waiver to export wheat from the public stock at the recent WTO's 12th Ministerial Conference (MC12) will dilute its core agenda of pushing for a permanent solution to public stockholding for food security. Comment.
2. 'It is an established fact that human health and animal health are interdependent and bound to the health of the ecosystems in which they exist. Implementing the 'One Health concept' is now imminent and most urgent in the wake of pandemic and climate change events'. Elucidate. Give a brief note on initiatives taken by India in this regard.
3. 'The Uniform Civil Code (UCC) caters to India's unification with a structural change in society to facilitate gender equality. It is a step towards integrating and strengthening secular ideals of India'. Elaborate.
4. Discuss the various aspects of the controversy over the Taiwan visit of the Speaker of the US House of Representatives, Nancy Pelosi recently. What is the genesis of the China-Taiwan tensions? Give a brief note on the 'One China' policy?
5. 'Concept of 'Lifestyle for the Environment (LiFE)' enunciated by PM Modi harnesses the power of individual and collective action across the world to address the climate crisis. The time is ripe for India to lead the LiFE movement and mainstream it'. Elaborate
6. With technological advancements, a new notion of dispute settlement known as 'Online Dispute Resolution' has emerged. It is an outgrowth of alternative dispute resolution (ADR). Discuss how in India it can speed up the delivery of justice and make it more cost-effective for public.
7. What is Personal Data Protection Bill? Why has the government withdrawn the Personal Data Protection Bill, 2019? Give a brief note on data localisation.
8. 'Though Ministry of Mines calls sand a "minor mineral" but it one of the most major geological resources of the country. Given the rising issue of illegal mining in India it is only reasonable to use technological progression to keep an effective check on mining activities, especially sand mining'. Comment.
9. 'For decades, the constant neglect and deprivation of Indigenous and Tribal People of India from policy perspectives has resulted in prevalence of several healthcare issues among them. India needs to demonstrate to them that democracy offers a caring solution to their wound'. Comment.
10. 'The media's immense power to shape narratives regarding public conceptions of justice makes it a close associate of the justice system. The media needs to aid mechanisms that aim to preserve the basic principles of the justice system'. Elaborate.
11. 'It is time to deal with the COVID-19 just like any other health condition in India and integrate COVID-19 interventions in general health services'. Do you agree with this statement? If yes, give reasons in support of your arguments.
12. "A foreigner deserves to be welcomed only when he mixes with the indigenous people as sugar does with milk." As India marks, its 75 years of Independence, in the background of above statement, highlight the role of foreigners in India's freedom struggle.
13. "A foreigner deserves to be welcomed only when he mixes with the indigenous people as sugar does with milk." As India marks, its 75 years of Independence, in the background of above statement, highlight the role of foreigners in India's freedom struggle.
14. The desire to attain independence began in the year 1929 with the call for 'Poorna Swaraj' or total independence from British colonial rule. Initially, January 26 was chosen as Independence Day. Highlight the events, which culminated in choosing 15 August as India's Independence Day?
15. 'Though much has changed, after 75 years of India's Independence, the objective of transforming 'a ruler's police into a people's police' is still pending'. Comment.
16. In his Independence Day speech in 2022, Prime Minister said that we must work towards turning India into a developed nation by 2047. What really is a developed country? What keeps India still in the category of developing nations? And what must we do to become developed?
17. What is Arctic amplification and factor responsible for this phenomenon? Discuss implications of Arctic warming on India.
18. Recently, the Supreme Court drew attention to the substantial fiscal cost of freebies. What you think about freebies are and how they differ from public welfare measures?
19. 'India plans to add 500 GW of non-fossil fuels-based energy capacity by 2030 on the road to achieve Net Zero by 2070. Offshore wind energy, shows great promise in this quest, but also comes with a raft of challenges. It will take the right mix of policies and incentives to get offshore wind energy off the ground'. Comment.
20. What is India's policy on the Rohingya? What are the government's obligations?
21. By making solar energy the 'third crop', promoting this innovation on a mission mode, the government can double farmers' income. Discuss how it can become the "inclusive growth, green growth" model.

22. On the occasion of India@75, Prime Minister called for establishing 'jan-bhagidari' for activating India 2.0., similarly there is need to embrace the power of 'abhibhavaak-bhagidari' (participation of parents) to activate Anganwadi 2.0. Discuss the issues and ways to make Anganwadi centres as centres of learning.
23. India will soon commence 5G deployment in India. In this context, discuss the advantages as well as new world challenges of 5G for police. Also give a brief note on ways to overcome challenges associated.
24. 'India will assume for the first time the Group of 20 (G20) year-long presidency in December 2022. It offers opportunity before India to emerge as the chief global diplomat as an effective instrument of global governance'. Elaborate.
25. Multiple new states have come into being in India after its independence from the British. In many cases, there has not been a dramatic shift in their socio-economic conditions. Why there is demand for a separate Mithilanchal state? Does Mithilanchal have enough resources to sustain itself as a state?
26. 'The Puttaswamy judgement of August 2017 recognised privacy as intrinsic to dignity, liberty and autonomy albeit with reasonable restrictions. It may have led to many breakthroughs, but it has also shown the limits of the Supreme Court's powers'. Comment.
27. Telemedicine is the interconnected future of healthcare. Discuss how creating and deploying Open Digital Telehealth Initiative (ODTI) will improvise telehealth services and aid in achieving the National Digital Health Mission's aim of providing accessible and affordable healthcare services for all in every nook and corner of India.
28. Japan, the world's fourth largest economy, ranked abysmally low in the Gender Gap Index 2022. With a target of transforming India into a developed country by 2047, what lessons do you think India should learn from Japan? Also discuss how investing in women's education and health may have limited impact if it is a society trapped in gender norms?
29. In the existing unsatisfactory jural environment in India, the occasional escape of the patriarchal cat from the judiciary's bag is quite expected. Discuss how inclusion of women in the judiciary would ensure that the decision-making process is more responsive, inclusive and participatory at all levels.
30. 'With unchecked surveillance by governments and private parties, the Supreme Court of India could do well to follow the extensive precedents developed abroad and enable binding orders'. Discuss

PRACTICE QUESTION FOR UPSC PRELIMS EXAM

ANSWER KEY

1. (a) 2. (b) 3. (c) 4. (d) 5. (a) 6. (a) 7. (b) 8. (c) 9. (d) 10. (a)
 11. (a) 12. (b) 13. (c) 14. (d) 15. (a) 16. (a) 17. (b) 18. (c) 19. (d) 20. (a)
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