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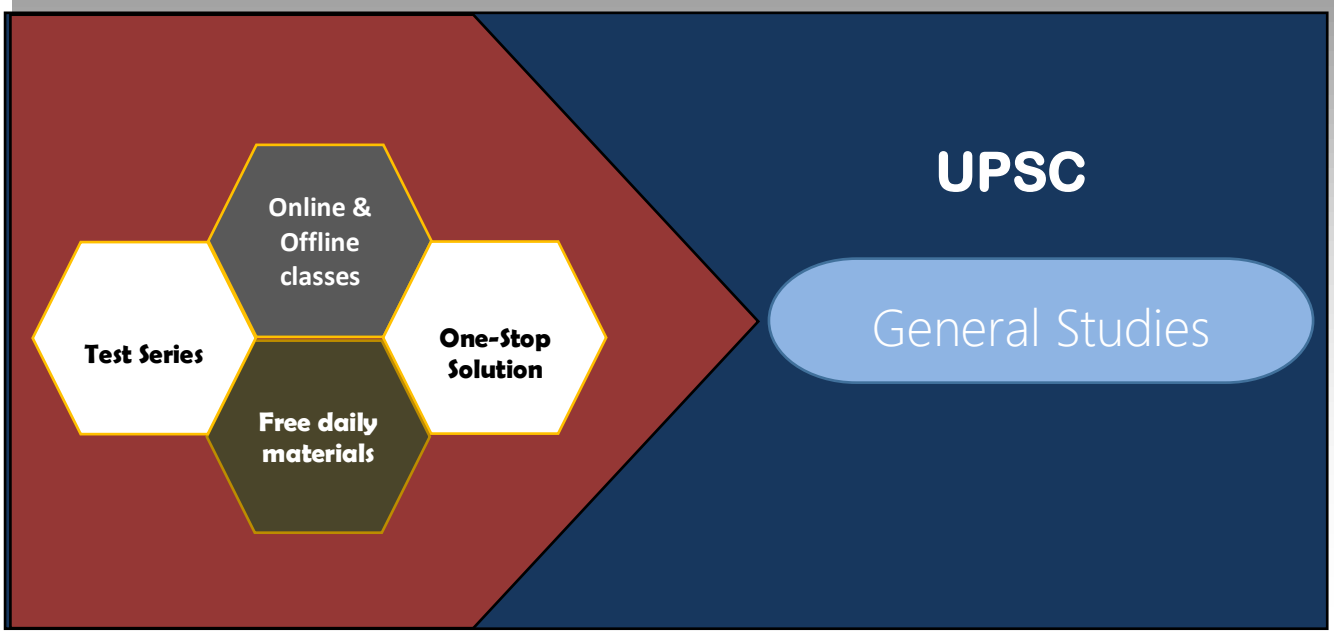
Articles of the day
THE HINDU & INDIAN EXPRESS



Contents

GS 1 : Heritage,culture ,Geography of the World and Society

1. Heatwaves in India: A Serious Concern

2. Women's Role In Constitution Building

3. World Bank Index on Life Cycle of Working Women

4. Adopt a Heritage project and Monument Mitras: The Scrutiny

5. Climate Change: Role of International Courts

6. Yaoshang festival begins in Manipur

7. Same-Sex Marriages can rock societal values: Centre

8. Antiquities abroad: What Indian, international laws say

GS 2 : Polity, Governance, International Relations

1. International Courts and Climate Change
2. Adopt a Heritage Scheme
3. Two Australian public universities to set up campuses in GIFT City
4. Understanding the Windsor framework
5. Ancient Monuments and Archaeological Sites and Remains (AMASR) (Amendment) Bill
6. Election Commission Appointments: Supreme Court's Landmark Order
7. India tops list of global internet shut-offs: Report
8. Clean-tech as the next big thing in rural India
9. Consumer Courts
10. Influenza A H3N2
11. Star-rated appliances program and iDEEKSHA Portal launched
12. Appointment of Election Commissioners
13. The hardships of a career in Ayurvedic practice
14. India-Germany Ties
15. Multilateral reforms as a priority in the G-20

16. Irregularities in the functioning of NAAC
17. India's Internal Migration
18. Gender Gap in STEM
19. India-Central Asia Joint Working Group (JWG) on Afghanistan
20. Digital India Act, 2023
21. India-Australia Ties
22. Women's Reservation Bill
23. How is Bengal tackling fatal viral infection?
24. Why is crypto trade within PMLA ambit
25. Ukraine Conflict: Implications And The Danger Of Provoking A World War
26. The rise of the ESG regulations
27. Saudi Arabia-Iran reconciliation
28. A chance for India to shape a data governance regime
29. Electricity Discoms: Public Hearings And Public Participation in Decision Making
30. Protection of Domestic Workers in India
31. The Feminist Foreign Policy (FPP) Movement
32. Increasing Student Suicides in Higher Education Institutions
33. Internationalisation of the Indian Rupee
34. Grievances of Paramilitary Forces
35. India – Bangladesh Friendship Oil Pipeline
36. India-China: Border Management Mechanism
37. Changes to Prevention of Money Laundering Act 2002 (PMLA)
38. UNSC: India's Remarkable Tenure
39. Rising Cancer Cases in India And Economic Burden
40. Chinese firm to build Solomon Islands Port Project

GS 3 : Economy, Science and Technology, Environment

1. RBI's new pilot project on Coin Vending Machines
2. Nifty India Municipal Bond Index
3. IMD is already sensing heat waves. What are they and why do they happen?
4. Cotton: Crying out for change
5. India's Forest Cover Data
6. Expected Credit Loss (ECL) regime?
7. SMART-PDS
8. Methane Global Tracker report
9. The case for open, verifiable forest cover data
10. India close to Hindu Rate of Growth: Raghuram Rajan
11. Green Hydrogen Superpower
12. How did the treaty on the high seas come through?

13. Compensatory Afforestation Fund Act of 2016
14. Space Debris: India's Contribution and Efforts to Tackle the Problem
15. Cryptocurrencies and Prevention of Money Laundering Act, 2002
16. Artificial intelligence and job displacements
17. Reintroduction of Cheetahs and Its Potential Impact
18. Water Trade
19. Landslide Atlas of India: Which states, regions are most vulnerable
20. Scientists devise 'Glowscope' to bring fluorescent microscopy to schools
21. The rise of the ESG regulations
22. India remains world's largest importer of arms: SIPRI report
23. Why are India's garbage landfill burning?
24. Waste to Energy Projects in India
25. Operation Greens Scheme: TOP Farmers Protests And A Way Ahead
26. MQ-9A 'Reaper'
27. The significance of rise in India's petroleum product exports to EU
28. Generative AI
29. Landfill fire in Kochi's Brahmapuram of Kerala
30. A grave mistake in Great Nicobar
31. Why most plastic can't be recycled
32. Additional Tier 1 Bonds and Credit Suisse's Write-Down
33. IPCC Synthesis report
34. India's Push for Semiconductors
35. Liberalised Remittance Scheme (LRS)
36. Amid an 'imminent' global water crisis, is the ocean a viable solution to water scarcity?
37. MSME growth in India
38. Role of G20 in Promoting Blue Economy
39. Wildlife Protection Act (WPA), 1972
40. Gravity-Operated Electricity Generation from Defunct Mines

GS 1 : Heritage, culture ,Geography of the World and Society

1. Heatwaves in India: A Serious Concern

Heat waves have become a major concern for India this year. The scorching summer heat has started prematurely, as per the recent IMD reports. If the record temperatures of the recent past are any indication, the heat wave is likely to become more intense. Rising temperatures lead to several health problems, from dehydration and heat exhaustion to more severe conditions like heatstroke. They also affect the economy and the environment.

What is Heat wave?

- A heatwave is a prolonged period of abnormally hot weather.
- Heatwaves usually last for several days or weeks and can occur in both dry and humid climates. They are characterized by temperatures that are significantly higher than the average for a particular region during that time of year.
- This is because climate change is causing a rise in global temperatures. As the planet heats up, it leads to more extreme weather events, such as heat waves. Its geography makes India particularly vulnerable to these events.

Heatwaves in India

- In India Heat waves typically occur from March to June, and in some rare cases, even extend till July.
- On an average, five-six heat wave events occur every year over the northern parts of the country.
- Single events can last weeks, occur consecutively, and can impact large population.
- Its geography makes India particularly vulnerable to these events.

Some of the hottest summers on record in recent years that India has experienced

- In May 2016, Phalodi in Rajasthan registered 51 degrees Celsius, the highest temperature ever recorded in the country.
- In 2021, India saw its hottest day on May 22, with the temperature touching 48 degrees Celsius in Barmer, also in Rajasthan.
- In 2022, Jaipur experienced a severe heatwave. Rajasthan's capital recorded 45 degrees Celsius in April a record for the city for the month.

- Delhi, Agra, Pilani and Rohtak are among the well-known hot cities in India, where temperatures, of late, have gone up to 43 degrees Celsius in early summer

Link: Climate change and Heat waves

- **Rising heat waves:** Climate change is directly linked to the increase in the frequency, intensity, and duration of heatwaves around the world.
- **More severe and more frequent:** As the Earth's climate continues to warm, heatwaves are becoming more severe and occurring more frequently.
- **Global warming:** This is because global warming is causing changes in the atmosphere, such as increased greenhouse gas concentrations, which trap heat and cause temperatures to rise.
- **For instance:** Climate change is also causing heatwaves to last longer. A study published in the journal Environmental Research Letters found that heatwaves are lasting an average of 2.5 days longer than they did in the middle of the 20th century.

The Socio-economic impact of heat waves

1. **Impact on Health:** Heat-related illnesses, such as heat exhaustion and heatstroke, are becoming more common, particularly among vulnerable groups such as the elderly, children, and outdoor workers.

- In addition, heat waves can exacerbate existing health problems, such as respiratory and cardiovascular diseases.

2. **Impact on the environment**

- One of the biggest problems is the depletion of water resources:
- Water sources are drying up as temperatures rise, leading to crises in many parts of the country.
- As people try to keep cool, they use more air conditioning, increasing electricity use. This leads to an increase in the use of fossil fuels, which significantly contributes to air pollution.

3. **Impact on agriculture:**

- Impact on environment in turn, leads to agricultural problems, with crops failing and farmers struggling to make a living.
- Given that around 40 per cent of India's population is engaged in agriculture, this is a significant concern.

- Reports are already coming from Punjab and Western Uttar Pradesh that the early heatwave has affected the growth of wheat crops and is expected to negatively affect the crop to the tune of 20 per cent.

4. **Impact on growth:**

- The healthcare costs associated with heat-related illnesses can be significant, particularly for vulnerable groups who may not have access to affordable healthcare.
- In addition, heat waves can lead to a decrease in worker productivity, which can impact economic growth.

What can be done to deal with such problems?

- **Increase public awareness:** People need to be educated about the impact of rising temperatures on their health, the environment, and the economy. This can be done through public campaigns, schools, and the media.
- **Increase the use of renewable energy:** India has already made significant progress in this area. However, much remains to be done. The government could incentivise individuals and businesses to invest in renewable energy, such as solar panels. This would help reduce the impact of rising temperatures, create new jobs, and stimulate economic growth.
- **Improving water management:** This could include introducing more efficient irrigation systems, better rainwater harvesting, and using recycled water for non-potable purposes. This would help to conserve water resources and reduce the impact of rising temperatures on agriculture.
- **Investing in infrastructure that can cope with extreme temperatures:** This could include the construction of roads and buildings that are designed to withstand high temperatures, as well as the development of more efficient cooling systems that use less energy.

Conclusion

- The rising heat wave in India is a serious concern that needs to be addressed urgently. The impacts of rising temperatures on human health, the environment, and the economy are significant. However, with the right strategies in place, it is possible to mitigate the impact of rising temperatures and ensure a sustainable future for the country.

2. Women's Role In Constitution Building

The process of drafting our Constitution during Partition and after a long period of colonization was a magnificent and dynamic process. Despite being part of the Assembly, voices and contributions of women have been neglected and overshadowed. The riveting work by Achyut Chetan," The Founding Mothers of the Republic" published by Cambridge University Press in 2022 serves as a means of rectifying this historical omission and giving due credit to the women who played a crucial role in shaping India's democracy.

Women In constitutional Assembly

- When the Constitution was completed, there were 11 women members of the Constituent Assembly who signed onto it.
- These drafters were G Durgabai, Ammu Swaminathan, Amrit Kaur, Dakshayani Velayudhan, Hansa Mehta, Renuka Ray, Sucheta Kripalani, Purnima Banerjee, Begum Qudsiya Aizaz Rasul, Kamala Chaudhri and Annie Mascarene.
- The Constituent Assembly first met on December 11, 1946 and had 169 sessions before all its members signed the document on January 24, 1950

How do we know what happened in the Constituent Assembly?

- **Constituent Assembly Debates (CAD) is the only source:** A rich but by no means the only source is the 12 volumes of the Constituent Assembly Debates (CAD), consisting of speeches made by members and the amendments to the draft articles.
- **CAD misses no. of reports and notes pf various committes:** However, what the CAD does not have are the reports and notes of the various committees of the CA.
- **For instance:** Much groundbreaking work was done in the Advisory Committee (chaired by Vallabhbhai Patel), which in turn had two sub-committees the Fundamental Rights Sub Committee and the Minorities Sub-Committee.

Role of Women in the constituent assembly

- **Hansa Mehta and Amrit kaur:** Hansa Mehta and Amrit Kaur were on the Advisory Committee, with both being members of the Fundamental Rights Sub Committee and Kaur serving also on the Minorities Sub-Committee.

- **G Durgabai:** G Durgabai occupied effective positions on two important committees on procedural affairs The Steering Committee and the Rules Committee.
- **Women were highly active:** Women members were present and highly active on almost all significant committees and subcommittees.
- **Women members often faced disrespect and discrimination:** For instance, Renuka Ray opposed the clause on the Right to Property which put the compensation given within the purview of courts. During the debates on the floor of the Assembly too she was constantly interrupted and heckled even by the men of the eminence and tried to deride their amendments
- **Women members made their opinions known and stood firm:** In the settings of the committees they wrote notes of dissent, Amrit Kaur and Hansa Mehta wrote notes of dissent against decisions that relegated the uniform civil code to the non-justiciable rights, allowed the state to impose conscription for compulsory military service, at each stage when the committees made their official recommendations to the higher bodies of the Assembly

For Instance: Views of Dakshayani Velayudhan on reservation

- Dakshayani Velayudhan, the only woman member from the Scheduled Castes communities, argued against reservations.
- She refused by saying "to believe that 70 million Harijans are to be considered as a minority and argued that reservations would not be in the best interests of them.
- She also argued that "the working of the Constitution will depend upon how the people will conduct themselves in the future, not on the actual execution of the law. When this Constitution is put into practice, what we want is not to punish the people for acting against the law, but for the state to take on the task of educating citizens for a transformation."

The present status of Women representation in politics worldwide

- **Representative governments increased but women count remains low:** According to UN Women, as of September 2022, there were 30 women serving as elected heads of state and/or of government in 28 countries (out of a total of 193 UN member states).
- **Dichotomy in active participation:** There is the dichotomy between the rapid increase of women's participation as voters in elections and other political activities, and the slow rise of female representation in Parliament.
- **Global average women representation:** As of May 2022, the global average of female representation in national parliaments was 26.2 percent.

- **Above average representation:** The Americas, Europe, and Sub-Saharan Africa have women's representation above the global average;
- **Below average representation:** Asia, the Pacific region, and the Middle East and Northern Africa (MENA) region, are below average.
- **Varied representation within Asian countries:**
- The South Asian countries faring worse than the others.
- IPU data of May 2022 showed that women's representation in Nepal, for example, was 34 percent, in Bangladesh 21 percent, in Pakistan 20 percent, in Bhutan 17 percent and in Sri Lanka 5 percent.
- For India, women's representation in the Lok Sabha (the Lower House) has remained slightly below 15 percent.
- The study does not include Afghanistan, but World Bank data of 2021 stated that female representation in the country's last parliament was 27 percent.

Conclusion

- As we approach 75 years of our Constitution, it's time for scholars, teachers, students, lawyers, judges and all others who engage with our constitution-making efforts to look to sources that tell a more complete story of our drafters. The quiet women and the more visible men should both be recalled, for their roles and their contributions. That would be an accurate telling of how our founding document came to be.

3. World Bank Index on Life Cycle of Working Women

The article reports on India's score in the World Bank Index on the life cycle of working women.

World Bank Index on the Life Cycle of Working Women

- It is a tool developed by the World Bank to measure and track the progress of women's economic participation and opportunities over their lifetimes.
- It is based on a set of indicators that measure factors such as laws and regulations affecting women's employment, access to finance, and gender-based violence and harassment in the workplace.

The index is divided into three categories:

1. Starting a job,
2. During employment, and
3. After employment.

- Each category includes a set of indicators that measure the specific challenges and opportunities faced by women at different stages of their careers.

- The purpose of the index is to provide policymakers and stakeholders with data and insights that can be used to inform policies and programs aimed at improving women's economic opportunities and outcomes.
- The index is updated periodically to track progress over time and identify areas where more action is needed.

India's performance

- India has scored 74.4 out of 100 in the World Bank Index on the life cycle of working women, which measures factors like laws, regulations, and practices affecting women's economic participation.
- This score places India at 140th out of 190 countries surveyed in the index.

Issues highlighted

- India has made progress in certain areas, such as maternity benefits and anti-discrimination laws.
- There are still significant gaps in areas like equal pay and access to finance.
- The report also highlights the impact of the COVID-19 pandemic on women's economic participation, with many women facing job losses and reduced hours of work.

Key recommendations

- The report concludes by recommending actions that can be taken to improve women's economic participation, such as-

1. Increasing access to childcare
2. Promoting flexible work arrangements and
3. Addressing gender-based violence and harassment in the workplace

4. Adopt a Heritage project and Monument Mitras: The Scrutiny

Businesses that enter agreements with ASI to adopt sites are going to be known as Monument Mitras. The tenfold increase in the number of sites being brought under the ambit of the controversial 'Adopt a Heritage' scheme of 2017 raises concerns. Unless the 'revamped' scheme is suspended, the nation's precious pluralistic heritage stands at the threshold of obliteration.

All you need to know about Adopt a Heritage project

- **Initiative of Ministry of Tourism:** The 'Adopt a Heritage' scheme was launched by the Indian government in September 2017 under the aegis of the Ministry of Tourism, Ministry of Culture, and Archaeological Survey of India (ASI).
- **Objective:** The main objective of the scheme is to provide world class tourist facilities at the various natural/cultural heritage sites, monuments and other tourist sites to make them tourist friendly, enhance their tourist potential and cultural importance in a planned and phased manner across the country.
- **Primary focus:** The project primarily focuses on providing basic amenities that include cleanliness, public convenience, drinking water, ease of access for tourists, signage etc. and advanced amenities like TFC, Souvenir shop, Cafeteria etc.
- **Monument Mitra:** The public, private sector companies and individuals will develop tourist amenities at heritage sites. They would become 'Monument Mitra' and adopt the sites essentially under their Corporate Social Responsibility (CSR) activity.

What are the concerns?

- **Current plan side-lines the ASI mandate:** The current plan also side-lines the mandate of the Archaeological Survey of India (ASI) and abandons The Sarnath Initiative, guidelines devised by the ASI, the Getty Trust, U.S., the British Museum, and National Culture Fund to safe keep excavated objects and present them to visitors in an engaging manner.
- **Undermine local communities and their relationships with historical sites:** Guided tours led by employees of large businesses who have received permission to adopt a monument may endanger livelihoods of those who have lived near the site and made a living by regaling visitors with stories of its colourful past.
- **Excessive wear and tear**: The potential of big businesses to underwrite a monument's illumination is also troubling. Night tourism will also pull electricity away from rural homesteads and hospitals.
- **It may alter historical character of monuments which are not under ASI:** There are some monuments selected for the scheme that are not protected by the ASI and are in States without Archaeology Directorates. One fears that businesses that sign agreements with the Union Ministry of Culture to adopt these monuments will be able to alter their historical character without much opposition.

What might Corporate India instead do to look after the nation's-built heritage?

- **Businesses can help citizens understand why monuments matter:** This can be done by earmarking CSR funds for grants for researching, writing, and publishing high quality textbooks, and developing imaginative and effective ways of teaching history.
- **For instance:** Corporates might also follow the lead taken by Sudha Murthy and N.R. Narayana Murthy in giving gifts to organizations such as the Bhandarkar Oriental Research Institute in Pune to continue their missions of writing history by rationally coordinating the textual record and the archaeological evidence.
- **Skillful conservation:** Industrial houses can support the meaningful conservation of heritage buildings by looking within. Their CSR funds can be used to purchase new equipment that release fewer noxious gases that darken and corrode marble buildings and discharge fewer effluents into rivers, thus making these water bodies less likely to serve as breeding grounds of microbes that gather on the walls of ancient buildings erected on riverbanks and cause their decay.
- **For instance:** In the past, Tata Sons, ONGC, and other companies have regularly contributed funds to organisations training individuals in much needed restoration skills and creating jobs for them.
- **Collaborative efforts:** The private sector's resources and expertise may also help the ASI and State Archaeology Directorates to secure monuments from dams, mining projects, defacement, and looting.

Climate change: Significant threat to India's historical monuments

- **Sanchi Stupa:** The 3rd-century BC Buddhist monument in Madhya Pradesh is facing a threat from increasing rainfall and humidity. The stone is deteriorating due to the changes in weather patterns, leading to the loss of carvings and sculptures.
- **Mahabalipuram Monuments:** The 7th-century rock-cut monuments in Tamil Nadu are facing a threat from sea-level rise and erosion. The monuments, which are located close to the shore, are being battered by the waves, leading to the loss of sculptures and carvings.
- **Sun Temple, Konark:** The 13th-century temple, made of Khondalite stone, is facing a threat from rising temperatures and humidity. The stone is expanding and contracting due to the changes in temperature, leading to cracks and erosion.
- **Hampi Monuments:** The 14th-century monuments in Karnataka are facing a threat from heavy rainfall and flooding. The monuments, which are made of granite, are being eroded by the rainwater, leading to the loss of carvings and sculptures.

- **Rajasthan's Shekhawati's murals:** Shekhawati is known for its beautifully painted havelis with intricate frescoes and murals. Greater fluctuations in temperature are peeling away Shekhawati's murals.
- **Ladakh's stucco houses:** Higher rainfall is leading Ladakh's stucco houses to crumble. The traditional way of building houses in Ladakh is under threat due to climate change, which is affecting the durability of the structures.
- **Taj Mahal:** The monument built in the 17th century, is facing a threat from rising pollution and changing weather patterns. The white marble is turning yellow due to air pollution.
- **Sea forts in Maharashtra:** Rising sea levels are leading to water percolation into forts along Maharashtra's coast. Salination is eating into their foundations.

Conclusion

- Currently, India's progress in diverse fields is being projected at G-20 events across the nation. By embracing forward-thinking principles of historical preservation, businesses, government agencies, and civil society groups can showcase India's genuine progress in this arena. Maybe their efforts will inspire more citizens to participate in the pressing task of safeguarding India's pluralistic heritage.

5. Climate Change: Role of International Courts

A group of 16 countries has launched a gallant effort to fight the problem of climate change an existential threat to human civilization at the United Nations (UN). Led by Vanuatu an island country in the South Pacific Ocean, the group seeks an advisory opinion from the International Court of Justice (ICJ) on the issue of climate change.

What is International Court of Justice (ICJ)?

- The ICJ is the principal judicial organ of the United Nations (UN). It was established in 1945 and is located in The Hague, Netherlands.
- It has the authority to settle legal disputes between states and to provide advisory opinions on legal questions referred to it by the UN General Assembly, the Security Council, and other authorized UN bodies.

- The ICJ is composed of 15 judges elected for nine-year terms by the UN General Assembly and the Security Council.
- Its decisions are binding and final, and the court's role is to settle legal disputes in accordance with international law.

ICJ has two types of jurisdictions: Contentious and Advisory

- **Contentious**: Contentious jurisdiction refers to the ICJ's authority to resolve legal disputes between consenting states. Decisions made under contentious jurisdiction are binding
- **Advisory**:
- Advisory jurisdiction allows the UN General Assembly (UNGA), the Security Council (SC), and other specialized bodies of the organization to request the ICJ's opinion on a legal question.
- The ICJ's advisory opinions are non-binding. However, they hold significant normative weight and serve to clarify international law on relevant issues.
- The ICJ's advisory opinion on climate change can be useful in climate-related litigation at the national level.

Emergence of Vanuatu's initiative

- **Failure to deliver concrete solutions to Climate Change:** Notwithstanding the presence of several international legal instruments on climate change such as the UNFCC, the Kyoto Protocol and the Paris Agreement, the international community has fallen short of delivering concrete solutions to the problem of climate change.
- **COP-27 Fails to Resolve Differences:** The recently concluded 27th UN Climate Change Conference (COP-27) where countries failed to narrow their differences on critical issues such as reducing greenhouse gas emissions. Countries were unable to reach a consensus on meaningful action.
- **Vulnerability of Small Island Developing (SID) states:**
- SID states such as Vanuatu are most vulnerable to rising temperatures and sea levels.
- Accordingly, in September 2021, Vanuatu launched an initiative, through the UNGA, to seek an advisory opinion from the ICJ to clarify the legal obligations of all countries to prevent and redress the adverse effects of climate change.
- Since then, the initiative has gathered momentum with more than 100 countries backing the idea. Specifically, the draft resolution piloted by Vanuatu seeks answers to the following questions from the ICJ.

The Legal questions

1. What are the international law obligations of countries toward the protection of the climate system from anthropogenic emissions of greenhouse gases for the present and future generations?

- **Answer:** The ICJ will interpret existing climate change law and use customary international law to fill gaps, including the 'no-harm' (states are under an obligation that activities within their jurisdiction do not damage other countries) principle, to clarify the Paris Agreement.

2. What are the legal consequences for states that have caused significant harm to the climate system, the SID states and other people of the present and future generations?

- **Answer:** Demands for climate reparations are made as part of climate justice, where historically high-emitting rich countries compensate developing countries affected by climate change. The ICJ can provide legal principles for the 'loss and damage' fund.

Confusion over loss and damage fund

- **Little clarity on funding:** At COP-27, it was agreed to establish a loss and damage fund to financially assist vulnerable developing countries. However, there is little clarity on which countries will provide the funding.
- **Historical responsibility yet to be determined:** Moreover, the connection between funding and the historical responsibility of developed countries in emissions is yet to be determined.

Role of International Tribunal for the Law of the Sea (ITLOS)

- **It is not just the ICJ whose advisory opinion is being sought:** The Commission of Small Island States on Climate Change and International Law, comprising countries like Antigua and Barbuda and Tuvalu, has sought the advisory opinion of the Hamburg-based ITLOS.
- **To determine obligations under UNCLOS:** ITLOS has been asked to determine countries' obligations under United Nations Convention on the Law of the Sea regarding marine pollution, which is linked to ocean warming, sea level rise, and acidification.

Conclusion

- As part of a multi-pronged approach to saving our planet, one should welcome the role of international courts. Developed countries and groupings

like the G-20 should support these laudable initiatives of the SID states. Environment and climate sustainability are important themes of G-20. India, as the president of the G-20, should take a lead given its relentless emphasis on LiFE (developing environment-friendly lifestyle) campaign.

6. Yaoshang festival begins in Manipur

The Yaoshang festival, which is Manipur's version of Holi, has begun.

Yaoshang Festival

- Yaoshang festival is celebrated every year on the full moon of Lamta (February-March) of the Meitei lunar calendar.
- It begins just after sunset followed by Yaosang Mei thaba, also known as Burning of the Straw Hut.
- Children visit neighbours to ask for monetary donations, called nakatheng.
- Yaoshang, unlike Holi, is celebrated with a traditional twist in Manipur.
- During these five days, Manipur comes alive with sporting events during the day and traditional "thabal chongba" dance in the night.

Key feature: Thabal Chongba Dance

- The thabal chongba is a traditional dance of the Meitei, where boys and girls gathered in an open ground and dance in a circle.
- But these days thabal chongba is performed throughout the month of Lamta.

7. Same-Sex Marriages can rock societal values: Centre

The Centre in the Supreme Court expressed its disagreement towards same-sex marriage, citing traditional beliefs and values.

Here are the main points of the affidavit:

- Heterosexual marriage has been the norm throughout history and is "foundational to both the existence and continuance of the state."
- Marriage in India is regarded as a "holy union," a "sacrament," and a "sanskar," and is dependent on customs, rituals, practices, cultural ethos, and societal values.
- Any "deviation" from the "statutorily, religiously and socially" accepted norm in "human relationship" can only happen through the legislature and not the Supreme Court.

Basis of Centre's opposition

- The 2018 Navtej Singh Johar judgment decriminalised homosexuality, but it did not mention/legitimise same-sex marriage.
- Same-sex marriage cannot be compared to a man and woman living as a family with children born out of the union.
- Registration of same-sex marriage would result in a violation of existing personal as well as codified law provisions.
- There is a "compelling interest" for the society and the state to limit recognition to heterosexual marriages only.

Reasons behind centre's opposition

- **Legal revamp required:** The registration of marriage of same-sex persons also results in a violation of existing personal as well as codified law provisions — such as 'degrees of prohibited relationship'; 'conditions of marriage'; 'ceremonial and ritual requirements' under the personal laws governing the individuals".
- **Definition of spouse:** In a same-sex marriage, it is neither possible nor feasible to term one as 'husband' and the other as 'wife' in the context of the legislative scheme of various personal laws.
- **Against cultural norms:** The social order in our Country is religion based which views procreation as an obligation for the execution of various religious ceremonies.
- **Property and other civil rights:** Property rights post marriage is a much-contested issues in India. Same sex marriage will not create any immunity for the law but increase complex interpretations.

Issues with such marriages

The issue of homosexual conduct to this fore in recent legal and political debate for main reasons, which are as follows:

- **Morality:** This has brought with it a change in social attitudes, so that the stigma attached to homosexuality has to a greater extent disappeared.
- **Rising activism:** Campaigns for lesbian and gay rights taken on an increasingly radical character, arguing for an end to all forms of discrimination against homosexuality.
- **Religious sanctions:** Same sex acts are punishable by death in Arab countries. No religion openly embraces same sex marriage. More or less, they are considered un-natural everywhere.
- **Social stigma:** Apart from the harsh legal scenario, homosexuals face social stigma as well. Same sex marriages are still unimaginable as any instance of sexual relations between a couple of the same sex draws hatred and disgust.

- **Patriarchy:** It must not be forgotten that the Indian society is patriarchal in nature and the fact that certain women and men have different choices, which is not sanctioned by the 'order', frightens them in a way.
- **Burden of collectivity:** Our society is very community oriented and individualism is not encouraged in the least, any expression of homosexuality is seen as an attempt to renounce tradition and promote individualism.

Arguments in favor

- **Pursuit of happiness:** Homosexuality is not an offence, it is just a way of pursuit of happiness, a way to achieve sexual happiness or desire.
- **Right to privacy:** The fundamental right to liberty (under Article-21) prohibits the state from interfering with the private personal activities of the individual.
- **Arbitrariness:** Infringement of, the right to equal protection before law requires the determination of whether there is a rational and objective basis to the classification introduced.
- **Issues with definition:** Section-377 assumes that natural sexual act is that which is performed for procreation. Hence, it thereby labels all forms of non-procreative sexual act as unnatural.
- **Discrimination:** Section-377 discriminates on the basis of sexual orientation which is forbidden under Article-15 of the Constitution. Article-15 prohibits discrimination on several grounds, which includes Sex.
- **Human rights:** The universal law of Human Rights states that social norms, tradition, custom or culture cannot be used to curb a person from asserting his fundamental and constitutional rights.
- **Many countries recognizing:** According to global think tank Council of Foreign Relations, same sex marriages are legal in at least 30 countries, including the United States, Australia, Canada and France.

Way forward

- **Dissociating from religion:** Such marriages are forbidden in almost every religion. Hence no single religion should be considered a hindrance in creating a legal sanction.
- **Doing away with discrimination:** The same-sex community needs an anti-discrimination law that empowers them to build productive lives and relationships irrespective of gender identity.
- **Letting the society evolve:** The society has to imbibe the doctrine of progressive realization of rights and it cannot be forcibly convinced by law.
- **Creating awareness:** Certainly this is not an overnight phenomenon. We are society where practice of Sati and Nikah halala was considered a religious order.

8. Antiquities abroad: What Indian, international laws say

Central idea: Indian authorities are pushing for restitution of stolen antiquities and ancient religious artefacts.

What is an antiquity?

- An antiquity is defined by the Antiquities and Art Treasures Act, 1972 as-

1. Any coin, sculpture, painting, epigraph or other work of art or craftsmanship;
2. Any article, object or thing detached from a building or cave;
3. Any article, object or thing illustrative of science, art, crafts, literature, religion, customs, morals or politics in bygone ages;
4. Any article, object or thing of historical interest that has been in existence for ***not less than one hundred years***.

- For manuscripts, records or other documents of scientific, historical, literary or aesthetic value, this duration is not less than seventy-five years.

What do international conventions say?

- The UNESCO 1970 Convention on the Means of Prohibiting and Preventing the Illicit Import, Export and Transfer of Ownership of Cultural Property defined "cultural property" as the property designated by countries having "importance for archaeology, prehistory, history, literature, art or science."
- The Convention further stated that "the illicit import, export and transfer of ownership of cultural property is one of the main causes of the impoverishment of the cultural heritage of the countries of origin of such property and that international co-operation constitutes one of the most efficient means of protecting each country's cultural property."
- The General Assembly of the UN and the UN Security Council in 2015 and 2016 also raised concerns about the illicit international traffic of cultural items and related offenses.
- An INTERPOL report in 2019 indicated that almost 50 years after the UNESCO convention, the illicit international traffic of cultural items and related offenses is increasingly prolific.

What do Indian laws say?

- In India, Item-67 of the Union List, Item-12 of the State List, and Item-40 of the Concurrent List of the Constitution deal with the country's heritage.
- The Antiquities (Export Control) Act was passed in April 1947 to ensure that no antiquity could be exported without a license.

- The Ancient Monuments and Archaeological Sites and Remains Act was enacted in 1958.
- The Antiquities and Art Treasures Act, 1972 (AATA) was implemented on April 1, 1976, after an uproar in Parliament over the theft of a bronze idol from Chamba and some important sandstone idols from other places.
- Under the AATA, it is not lawful for any person other than the Central Government or any authorized agency to export any antiquity or art treasure, and no person shall carry on the business of selling or offering to sell any antiquity except under and in accordance with the terms and conditions of a license granted by the Archaeological Survey of India (ASI).

What is the provenance of an antiquity?

- Provenance includes the list of all owners from the time the object left its maker's possession to the time it was acquired by the current owner.

How is ownership proved?

- The requesting party needs to furnish, at its expense, the documentation and other evidence necessary to establish its claim for recovery and return, according to the UNESCO 1970 declaration.
- In India, the first thing in order to prove ownership is the complaint (FIR) filed with the police. In many cases, there is no FIR for missing antiquities.
- However, other proof such as details mentioned by reputed scholars in research papers can also be helpful.

How to check for fake antiquities?

- Every person who owns, controls or is in possession of any antiquity shall register such antiquity before the registering officer and obtain a certificate in token of such registration under section 14(3) of the AATA.
- The National Mission on Monuments and Antiquities, launched in March 2007, has registered

GS 2 : Polity, Governance, International Relations

1. International Courts and Climate Change

A group of 16 countries has launched a gallant effort to fight the problem of climate change at the United Nations (UN).

What is the issue?

- Led by **Vanuatu,** an island country in the **South Pacific Ocean,** the group seeks an advisory opinion from the International Court of Justice (ICJ) on the issue of climate change.
- In the 27th UN Climate Change Conference (COP-27), countries failed to narrow their differences on critical issues such as reducing greenhouse gas emissions.
- This perfectly exemplifies the failure of the international community to get its act together on the issue of climate change.

What are the functions of the International Court of Justice (ICJ)?

- The ICJ has two types of jurisdictions - contentious and advisory.
- **Contentious jurisdiction –** It refers to resolving legal disputes between consenting states, under advisory jurisdiction.
- The UN General Assembly (UNGA), the Security Council (SC) and other specialised bodies of the organisation can request the ICJ for an opinion on a legal question.
- **Advisory jurisdiction** - Unlike decisions given under the contentious jurisdiction, the ICJ's advisory opinions are non-binding.
- The ICJ's advisory opinion on climate change will also be handy in climate-related litigation at the national level.

What are the legal questions arising out of the initiative?

- If Vanuatu's request for an advisory opinion goes through, the ICJ will have multiple questions to address regarding climate change and reparations.

- **International Obligations –** There comes a question on the international obligations of countries toward the protection of the climate system from anthropogenic emissions of greenhouse gases.
- The ICJ will interpret and clarify the existing international climate change law enshrined in various international environmental treaties.
- It will also use the general and customary international law (CIL) to fill the gaps in these treaties.
- Thus, the ICJ can use the 'no-harm' principle, an important part of CIL, to shed light on unclear provisions of the Paris Agreement.

No-harm principle – states are under an obligation that activities within their jurisdiction do not damage other countries.

- **Legal Consequences –** Another question is regarding the legal consequences for states that have caused significant harm to the climate system.

- The rich countries that have historically caused maximum greenhouse gas emissions should compensate the developing countries bearing a disproportionate brunt of climate change.
- At COP-27, while it was agreed to establish a "loss and damage" fund to financially assist vulnerable developing countries, there is little clarity on which countries will provide the funding.
- Moreover, the connection between funding and the historical responsibility of developed countries in emissions is yet to be determined.
- **Role of ITLOS –** The International Tribunal for the Law of the Sea (ITLOS) has been requested to determine the specific obligations of the countries about preventing, controlling, and reducing pollution of the marine environment.

The ITLOS is an independent judicial body established by the **United Nations Convention on the Law of the Sea** to adjudicate disputes arising out of the interpretation and application of the Convention.

What is the way forward?

- The challenges of ocean warming, sea level rise and ocean acidification are all linked to the marine environment.
- As part of a multi-pronged approach to save our planet, one should welcome the role of international courts.
- Developed countries and groupings like the G-20 should support these laudable initiatives of the SID states.
- India, as the president of the G-20, should take a lead given its relentless emphasis on LiFE campaign.

2. Adopt a Heritage Scheme

Private firms, companies, and public sector units can enter into agreements with the Union Ministry of Culture to adopt and maintain State-owned archaeological sites or monuments.

Adopt a Heritage Scheme

- It is an initiative of the **Ministry of Tourism**, in collaboration with the **Ministry of Culture** and the **Archaeological Survey of India**.
- The government invites entities, including public sector companies, private sector firms as well as individuals, to develop selected monuments and heritage and tourist sites across India.

- It includes providing and maintaining basic amenities, including drinking water, ease of access for the differently abled and senior citizens.
- The sites/monument for this scheme will be selected on the basis of tourist footfall and visibility.
- Businesses that enter such agreements are going to be known as **Monument Mitras**.
- The Monument Mitras are selected by the 'oversight and vision committee,' co-chaired by the Tourism Secretary and the Culture Secretary.
- The corporate sector is expected to use corporate social responsibility (CSR) funds for the upkeep of the site.
- The Monument Mitras, in turn, will get limited visibility on the site premises and on the Incredible India website.
- The oversight committee also has the power to terminate a memorandum of understanding in case of non-compliance or non-performance.

Issues with the scheme

- **Lack of experience –** Permitting a watch company without expertise in bridge engineering to maintain a colonial era bridge in Morbi, Gujarat, possibly contributed to heart-wrenching tragedy.
- **Sarnath initiative –** The current plan also side lines the mandate of the Archaeological Survey of India (ASI) and abandons the Sarnath Initiative.

The Sarnath initiative is the guidelines devised by the ASI, the Getty Trust, U.S., the British Museum, and National Culture Fund to safe keep excavated objects and present them to visitors in an engaging manner.

- **Redundancy –** Monuments selected, such as, the stupas at Sanchi, the Brihadeshwar temple in Thanjavur, and Akbar's palace city at Fatehpur Sikri, already have tourist infrastructure.
- **Livelihood of local communities –** The scheme undermines the local communities and their relationships with historical sites.
- Guided tours led by employees of large businesses, may endanger livelihoods of those who have lived near the site and made a living by regaling visitors with stories of its colourful past.
- **Night tourism –** Keeping these spots open from dawn to dusk has limited footfall and thus preserved them from excessive wear and tear.
- Night tourism will also pull electricity away from rural homesteads and hospitals.
- **Monuments not adopted by Monument Mitras –** The Uttar Pradesh government has started turning over such monuments to the Tourism Department to convert them into hotels.

- They include Chunar Fort, a citadel overlooking Barwasagar Lake, and several residences built by Awadh's Nawabs.
- **Corporate interest over historical preservation –** The move by U.P government confirms that the scheme is continuing to place reckless tourism and corporate interests over historical preservation.

How can we overcome the challenges?

- **Schools –** Traders and shopkeepers can give funds to school libraries for collecting archival materials including books, maps, and old photographs relevant to monuments.
- **Universities –** Corporates can give them a new lease of life to humanities and social sciences departments by instituting fellowships, endowing professorships, and supporting research training programmes.
- **Building infrastructure –** The CSR funds can be used to purchase new equipment that protect the monuments from hazards created by pollution.
- **Expertise of the private sector –** The private sector's resources and expertise may also help the ASI and State Archaeology Directorates to secure monuments from dams, mining projects, defacement, and looting.

3. Two Australian public universities to set up campuses in GIFT City

- Two Australian universities, Deakin University and the University of Wollongong, will set up campuses in Gujarat International Finance Tec-City (GIFT City).
- The move is part of the Indian government's efforts to promote internationalization and increase collaboration between Indian and foreign universities.

Procedure for Universities coming to India

- The process for getting approval for setting up a campus in India will be strictly online in the beginning. Interested institutions have to apply at the UGC portal with a non-refundable fee, and then submit some documents.
- After the applications are received, a committee formed by the Commission will examine these applications on these factors:

1. Credibility of the institution
2. Programmes to be offered by the institution
3. Their potential to strengthen academic opportunities in India
4. Proposed infrastructure

UGC (Setting up and Operation of Campuses of Foreign Higher Educational Institutions in India) Regulations 2023: Key questions answered

- **UGC approval compulsory**: All foreign universities that wish to set up their campus in India will be allowed to do so only after getting approval from the UGC.
- **Reputed institutions:** To set up a campus in Indian foreign universities will either have to be in the top 500 to apply or will have to be "highly reputed" in their respective countries (if the varsity does not participate in global rankings). If their ranking is between 500 and 100, but the subject-wise ranking is higher than overall, then in such cases, the institutions will be permitted to set up their campuses only for those ranked subjects.
- **Quality assurance:** Additionally, the UGC will reserve the right to inspect these Indian campuses of foreign HEIs at any time, and they will not be outside the purview of anti-ragging and other criminal laws.
- **Offline classes only**: All the foreign universities that open their branches in India will be allowed to conduct offline classes only, i.e. foreign universities can offer only full-time programmes in physical mode.
- **Freedom to choose admission process, fee, and faculty**: All foreign varsities will have the freedom to come up with their own admission process. However, the universities will have to ensure "quality of education imparted at their Indian campuses is on par with their main campus."
- **Admissions to all:** Foreign higher educational institutes will have the freedom to enroll Indian as well as international students on their Indian campuses.
- **International funds transfer**: To ensure that there is no chaos in funds transfer, all matters related to funding will be as per the Foreign Exchange Management Act 1999.
- **Safeguarding of students' interest:** FHEI shall not discontinue any course or programme or close the campus without the commission's prior approval. In the case of a course or programme disruption or discontinuation, the parent entity shall be responsible for providing an alternative to the affected students.
- **Equivalence with degrees awarded by Indian HEIs:** The qualifications awarded to the students in the Indian campus shall be recognised and treated as equivalent to the corresponding qualifications awarded by the FEHI in the main campus located in the country of origin.
- **Securing India's national interest:** FEHIs shall not offer any such programme or course which jeopardises the national interest of India or the standards of higher education in India. The operation of FEHIs shall not be contrary to the sovereignty and integrity of India, the security of the state, friendly relations with foreign states, public order, decency, or morality.

Why such move?

- **Increase in domestic enrolment:** India has more than 1000 universities and 42,000 colleges. Despite having one of the largest higher education systems in the world, India's Gross Enrolment Ratio (GER) in higher education is just 27.1%, among the worlds' lowest.
- **Education quality improvement:** The lack of quality in Indian education is reflected in the QS World University Rankings 2022. IIT Bombay was the top-ranking Indian institute in the list with a ranking of 177. Only eight Indian universities made it to the top 400.
- **Paving the way:** London Business School, King's College in London, the University of Cambridge, and New York University have started preliminary discussion with the GIFT City authorities and the regulator to establish facilities at the GIFT International Financial Services Centre.

Benefits of the move

- **Human capital generation:** This move would complement efforts to provide high quality human capital to India's financial services industry.
- **Decreased overseas spending:** Indian students' overseas spending is set to grow from current annual $28 billion to $80 billion annually by 2024.
- **Reduce FOREX spending:** Apart from fostering a competition in quality, International branch campuses can also help in reducing the foreign exchange outflow.
- **Prevents brain-drain:** Education attracts opportunities. Atmanirbhar Bharat push will retain the domestic talent. More than eight lakh Indians gave up their citizenship in the last seven years.
- **Increase India's soft power:** Opening the door for foreign universities can improve India's soft power as it will provide further impetus to the government's Study in India programme that seeks to attract foreign students.

Challenges

- **Regulatory challenges:** The following factors may deter foreign higher educational institutions from investing in India-

1. Multi-layer regulatory framework governing different aspects of higher education
2. Lack of a single regulatory body overlooking the collaborations/ investments and
3. Multiple approvals are required to operate in India

- **Implementation issues:** While NEP has taken the right steps to boost the education sector and pave the way for a globally-compatible education system, its implementation has been slow and requires clarity.
- **Higher possibility of Brain Drain:** A policy challenge that stands before the GoI is to facilitate such tie-ups in a way that the Indian talent chooses to and is incentivised to remain in India and the Indian educational infrastructure is developed to match global standards.

Conclusion

- The intent of the GoI, with respect to international universities setting up campuses in India, is clear from the provisions in the NEP.
- However, much clarity is awaited for the proper implementation.

4. Understanding the Windsor framework

- The UK and the European Union negotiated a deal on February 27 regarding post-Brexit trade rules for Northern Ireland.
- The Windsor framework is an attempt to address the political complexities that have impacted trade and sentiments in the region.

- The Windsor framework aims to resolve the disruptions in trade between Northern Ireland and the rest of the UK caused by the Northern Ireland Protocol.
- The Windsor framework allows for free trade between Great Britain and Northern Ireland with the use of green and red lanes for goods flowing into Northern Ireland.
    - **Green lane goods** under the framework will have fewer checks and controls, including no customs checks or rules of origin.
    - **Red lane goods** under the framework will be subjected to checks and controls in order to preserve the EU's single market.
- Further, with a view to ease the impact on farmers, agri-products like meat and dairy will have reduced checks and controls, and food retailers such as supermarkets, wholesalers, and caterers, will be allowed to move agri-food through the green lane.
- Additionally, the ban on a few chilled types of meats from Great Britain being sold in Northern Ireland will be lifted.

Critical evaluation of the framework

- The UK and EU officials believe that the latest framework would ensure greater availability of British goods such as food and medicines in Northern Ireland markets.

- The Windsor framework would also play a key role in safeguarding the position of Northern Ireland within the UK and restoring its people's sovereignty.
- However, there have been objections to the new framework centred around the "Stormont brake".
    - Stormont brake is an emergency measure that allows Northern Ireland's devolved government to halt new EU norms from being imposed and a measure that London retains the right to veto.
- Further, it is to be seen if the EU rules will be accepted in Northern Ireland as this depends on the balance of power between the Unionists and Republicans in the province.

5. Ancient Monuments and Archaeological Sites and Remains (AMASR) (Amendment) Bill

The central government is expected to reintroduce the AMASR (Amendment) Bill in Parliament during the second half of the Budget Session.

AMASR (Amendment) Bill

- The AMASR Act was passed by the Parliament in 1958.
- **Aim of AMASR –** It aims protection and preservation of archaeological and historical monuments and sites.
- It also provides for the regulation of archaeological excavations and for protection of sculptures, carvings and other such objects.
- **Amendments to AMASR –** It includes, allowing the construction of public works in prohibited areas, and the approval and impact assessment of such public works.
- The original Act prohibits construction in an area of 100 metres around protected monuments, and the central government can extend this area beyond 100 metres.
- Now, the government will be allowed to take up infrastructure projects for public works in this prohibited area.
- **Public Works –** The Bill introduces a definition of public works.
- It defines public works as the construction works related to infrastructure financed.
- Such work should be carried out by any department of the central government for public purposes, such as the safety or security of the public at large.

- **Assessment –** The Bill seeks to add the archaeological impact, visual impact and heritage impact assessment of the proposed public works to the functions and powers of the authority.

What qualifies as an Ancient Monument (AM) and Archaeological Sites (AS) and remains?

- **Ancient Monument –** AM is defined as any structure, erection, or monument, or tumulus, or cave, rock-sculpture, inscription, or monolith which is of historical, archaeological, or artistic interest.
- Such things should have been in existence for not less than 100 years.
- **Archaeological Sites –** AS mean any area which contains ruins or relics of historical or archaeological importance which have been in existence for not less than 100 years.

Current status of the Amendment Bill

- The Amendment Bill was introduced in 2017 and was passed in the Lower House in 2018 and later referred to a Select Committee.
- **Report of the Committee –** It recommended deciding the area limit for prohibiting construction on a case-by-case basis rather than drawing a blanket limit of 100 metres.
- The committee also questioned the definition of public works specified in the Amendment.
- The committee noted that the definition does not cover public utility projects, like Metro construction, that do not specifically fall under safety and security.
- The committee recommended the passage of the Act after consultation with central and State governments and various relevant departments.

6. Election Commission Appointments: Supreme Court's Landmark Order

Central Idea

- The Supreme Court of India (SC) remains the most powerful centre of political power in the country at a time when almost every political issue is a matter of adjudication before the Court. A neutral body for the selection of the Chief Election Commissioner (CEC) and other Election Commissioners was the principal relief sought in Anoop Baranwal v. Union of India, which has been granted by the Court as per Thursday's verdict. The judgment revives the era of judicial activism.

Anoop Baranwal v. Union of India: The chronology

- **PIL: Current system of appointing Election Commissioners is unconstitutional:** In January 2015, Anoop Baranwal filed a PIL on the ground that the current system for appointing members of the Election Commission of India (ECI) is unconstitutional. Currently, the Executive enjoys the power to make appointments.
- **Pleads for Independent system:** The PIL pleads for the Court to issue directions to set up an independent, Collegium-like system for ECI appointments.
- **Article 324:**
- Article 324 specifies that while the Chief Election Commissioner and Election Commissioners will be appointed by the President, this is subject to Parliamentary law (if such law exists).
- While this provision places an expectation on Parliament to draft a relevant a law, it has not done so up until now. In the absence of such a law, the President has been making appointments as per the recommendations of the Prime Minister.
- **Union government's defence:** The Union has defended the current mechanism of appointments, citing the honest record of all past Chief Commissioners.
- **Urged court not to intervene:** It has urged the Court to not intervene, submitting that the matter falls within the executive domain.
- **Recent verdict:** The Supreme Court held that a committee comprising the Prime Minister, the Leader of the Opposition and the Chief Justice of India will advise the President on appointments to the Election Commission of India until Parliament enacts a law on the subject.

What are the issues with Election commission?

- **The bone of contention:** Petitioners argued that as per Article 324(2), CEC and ECs appointments must be based on a law, but no law was enacted. Taking advantage of this scenario, the dispensation at the Centre chooses the CEC and ECs, who are often seen to act in tune with those in power and those who select them. Therefore, the petitioners pleaded for an independent body for appointments.
- **Immunity for CEC and Susceptibility of ECs:** Article 324(5) provides immunity to CEC but not to other ECs. CEC can only be removed like a Supreme Court judge. Other ECs may be more susceptible to the executive due to lack of security of tenure.
- CEC and EC's autonomy is linked to their selection process. In an electoral autocracy, executive control undermines fair elections.

Back to Basics: What is judicial activism and judicial overreach?

- **Judicial Review:** It is the process by which a court reviews the constitutionality of a statue or the application of a statute, and rules either for it or against it on that basis.
- **Judicial Activism:** It is the view that courts make political rather than legal decisions to further some agenda, rather than strictly reviewing the legality of a law under the letter of the law and prior precedent. It refers to the process in which judiciary steps into the shoes of legislature and comes up with new rules and regulations, which the legislature ought to have done earlier.
- **Judicial Overreach:** It refers to an extreme form of judicial activism where arbitrary, unreasonable and frequent interventions are made by judiciary into the legislature's domain, often with the intention of disrupting the balance of powers between executive, legislature and judiciary.

Supreme court's Judgement: A great leap

- **Great leap towards a sustainable democracy**: An independent committee consisting of the prime minister, leader of the opposition in the Lok Sabha or the leader of the largest party in opposition and the Chief Justice of India for selecting the CEC is a great leap towards a sustainable democracy.
- **Total Independence:** The far-reaching verdict also means the Election Commission will have an independent secretariat, rule-making powers, an independent budget, and equal protection from impeachment.
- **Bench remarks:** Democracy can succeed only if all stakeholders work on it to maintain the purity of the election process, so as to reflect the will of the people.

Conclusion

- The recent SC verdict regarding the selection of the commission is not a cure-all solution for electoral democracy. However, it corrects an unjust method of selection and significantly improves the legitimacy of the process.

7. India tops list of global internet shut-offs: Report

Recently, published a report by the Access Now for the #KeepItOn coalition was published on the impact of global internet shutdowns.

- Earlier, Parliament committee has released a report that directed the Department of Telecommunications (DoT) to lay down **principle of proportionality** and **procedure** to lift **internet shutdowns**.

- A **centralised database** of all **internet shutdowns** by the states can be maintained either by **DoT** or **MHA.**

#KeepItOn coalition

- It is a group of more than 280 organizations from 105 countries around the world.
- Since 2016, it has been **fighting internet shutdowns** through grassroots advocacy, direct policy-maker engagement, technical support, and legal intervention.

Key highlights of the report:

Internet shut-offs in the world:

- **Other top nations:** Ukraine, Iran, Myanmar**.**
- Authorities have used **shutdowns** to hide **serious rights violations** and breaking communications between **individuals** and **communities**.
  - This has impacted **human rights** monitoring, shutdown **tracking** and **provision** of **humanitarian aid**.
- In **Kenya**, the **social media sites** and the **government failed** to stop the flow of **misinformation** and **hate speech** despite imposing an internet shutdown.

About the internet shut-offs in India:

- **India** was on top of the list of nations that ordered **internet shutdowns** for the **fifth year** in a row.
- The **shutdowns** were ordered by government during protests, conflict, school exams, and elections.
- There was total **84 internet shutdowns** in **2022** including **49 times** in **Jammu and Kashmir** which was the **highest** of any **state** in the country.
  - They were lower than **2021** record.
- **Rajasthan** government has imposed shutdowns on **12 different occasions** followed by **West Bengal**, which has imposed shutdowns **seven times**.
- Since **2016**, India has imposed shutdowns **58**% of all globally **documented shutdowns**.
- **Telecom operators** are facing the issue of **business disruption** due to Internet shutdowns.
- It impacts **democratic movements**, and reporting **crime** and making **contact** for **support** becomes difficult.

Reason of lesser shutdown in 2022:

- **Legal challenges** against shutdowns;

- Fewer **mass protests** after the COVID-19 pandemic;
- The increasing **crackdown** on **dissent** may have **increased administrative friction** or reduced the **incentives** for **authorities** to impose shutdowns.

Rules of the shutdown in India:

- They are governed under **the Temporary Suspension of Telecom Services** (Public Emergency or Public Safety) **Rules, 2017**.
  - They are framed by the DoT.
  - It allows **temporary suspensions** due to public **emergency** or public **safety**.
  - The **Central** and **state Home Ministry** has the **power** to order **shutdowns**.
- In **Anuradha Bhasin vs Union of India**, the **Supreme Court of India** ruled that an **indefinite suspension** of **internet** services would be **illegal** under **Indian law**.
  - Also, such orders must satisfy the tests of **necessity** and **proportionality**.
  - This was amended by the Union government.

8. Clean-tech as the next big thing in rural India

Details:

- Several women from rural India have adopted clean energy-based livelihood technologies to catalyze their businesses. They use technologies like solar refrigerators, silk-reeling machines, biomass-based cold storage, bulk milk chillers, distributed renewable energy, etc.
- According to a study by Council on Energy, Environment, and Water (CEEW), it was found that out of the 13000 early users of clean tech livelihood appliances, around 80% are women.

Advantages of Distributed Renewable Energy:

- Apart from reducing gender-assigned laborious activities, Distributed Renewable Energy (DRE) helps women farmers and entrepreneurs by increasing income opportunities through mechanization.
- It is expected that by 2030, around 30 million women-owned Micro, small and medium enterprises (MSMEs) will employ nearly 150 million people.
- DRE livelihood technologies have immense potential to transform rural livelihoods, especially for women. For instance, it has a $50 billion market opportunity in India.

Associated Concerns and Measures to boost Distributed Renewable Energy:

- DRE is perceived as a high-risk purchase, particularly among women users as they have a higher starting price and women users have lower risk appetite due to socio-economic reasons.
    - To address this challenge technology providers should make early users their demo champions/sales agents to market the products and provide credibility.
- It should be remembered that people want to touch and see high-tech and high-ticket-size products.
    - Thus, hyperlocal events and demos should be organized as they create spaces for women to network, become aware of the product and connect with people for procuring, financing, and using these machines.
- Limited avenues to avail financing for clean technology products remain a major challenge.
    - Provisions should be made to enable easy finance.
    - Moreover, technology manufacturers and promoters should also provide facilities for after-sales services and buy-backs.
    - Evidence of the economic viability of the product should be displayed and promoters should offer partial default guarantees.
- Only technology provision is not enough in rural areas.
    - It is important to support forward and backward market linkages.
    - To generate higher income, it is important to help the producers find and connect to consumption hubs in urban areas.
- Women also struggle due to their limited mobility and networks outside their village.
    - In this case, women can be collectivized or a business model can be established that will allow them to sell to an intermediary and ensure a regular revenue stream.
- It should also be noted that the private sector entities often lack the kind of reach and scale that can be provided by the government.
    - Thus, there should be policy convergence among various ministries and departments.

9. Consumer Courts

The Supreme Court of India eases the norm for the selection of consumer court presidents and members.

Key Details:

- The Supreme Court on March 3rd reduced the mandatory professional experience from 20 to 10 years to preside over consumer courts.
- The Supreme Court said lawyers and professionals with a Bachelor's degree who has 10 years of experience in consumer affairs, law, public affairs, administration, economics, commerce, industry, finance, management, engineering, technology, public health or medicine will be eligible for appointment as President and member of the state consumer commission and district forums.
- It used its extraordinary powers under Article 142 to reduce the experience criteria to attract younger talent to preside over consumer courts.
- It also introduced written exams and viva voce to check the candidates' performance.
- Consumer commissions have the power of civil courts in many aspects.

Background:

- The Union government has proposed several amendments to the Consumer Protection (Qualification for appointment, method of recruitment, procedure of appointment, term of office, resignation and removal of President and Members of State Commission and District Commission) Rules, 2020.
- The Supreme Court's recent judgement would fill the vacuum until the amendments were made in the 2020 Rules.

10. Influenza A H3N2

Rising cases of cough and fever in India is linked to influenza subtype A H3N2.

Key Details:

- As per Indian Council of Medical Research (ICMR), rising cases of intense cough lasting for over a week coupled with fever, observed in most parts of the country, can be linked to influenza A H3N2, a subtype of a virus that causes flu.
- The virus appeared to lead to more hospitalisations than other influenza subtypes. There was very little difference in symptoms between COVID-19 and the illness brought on by Influenza A H3N2.
- Antibiotics cannot treat flu symptoms. The flu is caused by a virus, and antibiotics only treat bacterial infections. Taking antibiotics needlessly may increase your risk of getting an infection later that resists antibiotic treatment.
- Due to the sudden weather shift and the temperature changing from extreme cold to warm, the flu symptoms are getting more prominent in people.
- The ICMR has 30 Viral Research and Diagnostic Laboratories (VRDL) for respiratory virus surveillance.

- These VRDLs are attached to top medical colleges in different States and gather samples from patients suffering from severe acute respiratory infections (SARI).

Influenza:

- Influenza is a viral disease. It is caused by Orthomyxovirus (influenza virus) pathogen.
- It is a contagious disease, which means it can be spread easily from person to person.
- Viruses that cause influenza spread from person to person mainly by droplets of respiratory fluids sent through the air when someone infected with the virus coughs or sneezes.
- Influenza A viruses infect humans and many different animals. Influenza type A viruses are of most significance to public health due to their potential to cause an influenza pandemic.
- Influenza type A viruses are classified into subtypes according to the combinations of different virus surface proteins hemagglutinin (HA) and neuraminidase (NA).
- Fever, respiratory symptoms like cough and runny nose, as well as other symptoms including body aches, nausea, vomiting, or diarrhoea, are some of the prominent symptoms of H3N2 virus.

11. Star-rated appliances program and iDEEKSHA Portal launched

Union Minister of Power and New & Renewable Energy has recently launched the **Voluntary Star Labelling Programme** and **iDEEKSHA portal**.

Voluntary Star Labelling Programme

- It is formulated by the **Bureau of Energy Efficiency** (BEE) under **the Energy Conservation Act, 2001** to build an **energy-efficient economy**.
- It covers **34 appliances**, including the **4** newly added **energy-efficient appliances**.
- **Appliances covered**: multi-door refrigerators; table fans; wall-mounted fans; pedestal fans; induction hobs etc.

iDEEKSHA portal

- It will serve as a **one-stop platform** for all **energy efficiency** and **decarbonisation needs** of Indian **energy-intensive industries**.

- Launched under the Accelerating Smart Power and Renewable Energy (**ASPIRE**) **Technical 1 Assistance Programme**.

ASPIRE

- **ASPIRE** is a **bilateral program** implemented by **Foreign Commonwealth and Development Office**, Government of UK with **Ministry of Power** and Ministry of New and Renewable Energy.

Advantages of the Voluntary Star Labelling Programme:

- It will help India to achieve **33% reduction** in **emission intensity** before **2030**.
- It will save approx. **11.2 billion units** of **electricity** by **2030**.
    - This will **reduce CO2** emission approx. to **9 million tonnes** by **2030**.
- It will support India in **transition** towards **low carbon sustainable growth** and achieve its **ambition** of **net zero** by **2070**.

Perform, Achieve and Trade (PAT)

- It is the flagship programme implemented by BEE under the aegis of **Ministry of Power**.
- To enhance it, another program **Demonstration of Energy Efficient Project** (**DEEP**), is being implemented.
- It has covered **13 energy intensive sectors** and **1000 designated consumers**.
- It has saved a total of **24 MToE energy savings** during this period, which is equivalent to **emission reduction** of **106 MTCO2.**

Bureau of Energy Efficiency

- It is a **statutory body** under the **Ministry of Power**, Government of India.
- It develops **policies** and **strategies** to reduce the **energy intensity** of the Indian economy.
- It **coordinates** with designated **consumers** and **agencies** to **identify** and **utilize** the **existing resources** and **infrastructure** while performing the **functions** assigned under the **Energy Conservation Act.**

Other schemes of the Bureau of Energy Efficiency:

- Standards and labelling for Energy Efficient Appliances, Energy Conservation Building Codes (ECBC), Demand Side Management etc.

12. Appointment of Election Commissioners

Supreme Court (SC) ruled that the appointment of the Chief Election Commissioner (CEC) and Election Commissioners (EC) by the President will be based on the advice of a three-member high-level committee.

Current process of selection of Election Commissioners

- In Anoop Baranwal vs Union of India, the Supreme Court (SC) ruled that the appointment of the Chief Election Commissioner (CEC) and Election Commissioners (EC) by the President will be based on the advice of a three-member high-level committee.
- **Article 324 (2) –** President shall with aid and advice of Council of Ministers, appoint CEC and ECs, till Parliament enacts a law fixing the criteria for selection, conditions of service and tenure.

Dr B.R. Ambedkar – "There is no use making the tenure of the Election Commissioner a fixed and secure tenure if there is no provision in the Constitution to prevent either a fool or a knave or a person who is likely to be under the thumb of the executive."

- **Tenure –** Under the Election Commission Act, 1991, an EC can have a tenure of six years or up to the age of 65, whichever is earlier.
- Typically, the senior-most election commissioner is appointed as the CEC.
- **Removal –** Once appointed, the Chief Election Commissioner can be removed from office only through Parliamentary impeachment.
- However, no such protection of tenure is available to ECs, who can be removed by the government on the recommendation of the CEC.

What revision has the top court ordered?

- **3 Member Panel –** As per the SC's directions, a panel that includes the Prime Minister, the Leader of the Opposition in Lok Sabha and the Chief Justice of India will now advise the President regarding the appointment of Election Commissioners.
- This is similar to the appointment of the Director of the Central Bureau of Investigation.
- If the position of the Leader of the Opposition is vacant, the leader of the single largest opposition party will be on the committee.
- This system of appointment will be in force till the Parliament comes up with a specific law.
- **Funding –** The Parliament and central government to constitute an independent secretariat to deal with the expenditure of the Commission, and insulate it from any financial obligation to the government.

Positive outcomes of the verdict

- **Constituent Assembly –** The framers' belief that delegation to Parliament would solve the vexing issue of the independence of the EC instead of constitutionalising it seems particularly naive.
- **Inaction from parliament –** Parliament has not acted, and the executive controls the appointments process, is contrary to the intention underlying Article 324.
- **Role of EC in democracy –** The ever-expanding scope, powers, and functions of the Election Commission, in the context of the role of free and fair elections in sustaining constitutional democracy.
- **Right to vote –** The constitutional right to vote cannot be actualised without an infrastructure of implementation in place.
- This, inevitably, has to take the form of an Election Commission charged with the superintendence, direction and control over elections.
- **Independence of the EC –** The absence of parliamentary legislation, coupled with the affirmative power vested in the Prime Minister to appoint the CEC and the ECs affect their independence.

Negative outcomes of the ruling

- **Doctrine of separation of powers –** It flows from the Constitution, which sought to establish 3 institutional organs, namely the legislature, executive and the judiciary.
- **Against basic structure –** The Court's justification of these appointment making powers is contrary to the basic structure doctrine, which the Court itself has continuously championed.
- **National Judicial Appointments Commission (NJAC) –** In 2015, the SC observed that the NJAC is unconstitutional as a result of its violation of the basic structure doctrine.
- The NJAC sought to introduce a system that would enable a healthy system of checks and balances in the appointment of judges.
- However, the judiciary was reluctant to accept this proposal as it was viewed as a threat to judicial independence, and therefore, the basic structure, and the collegium system was reinstated**.**
- While it sought to fiercely protect its position as per the basic structure doctrine in NJAC, it acted in complete contravention of the doctrine while deciding the present matter.
- **Undermining powers –** Through this verdict, the Court has undermined the legislature and the executive, including their powers, their roles, and the duties they owe to the Indian people.

13. The hardships of a career in Ayurvedic practice

Despite the publicity campaigns to promote Ayurveda, Yoga, Unani, Siddha and Homeopathy (AYUSH), there is a trust-deficit in these systems.

AYUSH

- AYUSH systems are based on definite medical philosophies and represent a way of healthy living with established concepts on prevention of diseases and promotion of health.
- In 1995, with the objective of optimal and focused development of these systems, the Department of Indian Medicine and Homeopathy was created in the Union Ministry of Health and Family Welfare.
- In 2003, this Department was re named as Department of AYUSH.
- India has a rich heritage of medical wisdom derived from the Vedas that prevailed as Ayurveda.
- AYUSH is the principal medical practice of the country for centuries, forming part of Indian ethos and culture.

Why AYUSH is viewed with scepticism?

- **Credibility of Ayurvedic theories –** There is widespread scepticism in the public mind about the soundness of Ayurvedic theories and the fruitfulness of its practices.
- Archaic theories that are apt to arouse suspicion in the minds of educated patients are peddled as sophisticated dogmas.
- **Not in line with today's science –** The Ayurveda establishment has failed to keep pace with the intellectual and scientific advances of the times.
- **Lack of scrutiny –** Treatments are made to escape straightforward experimental scrutiny because of their supposed rootedness in such theories.
- **Lack of evidence –** A major reason for the trust-deficit in Ayurveda is its diminished evidence-based quality.
- **Slow treatment –** That Ayurveda treatments are slow to heal is another common view that characterises the public image of Ayurveda.

Status of AYUSH today

- **Contemporary to modern science –** Ayurveda has grown and adapted like any other medicine or school of medicine in the world.
- **National Ayush Mission (NAM) –** It is a flagship scheme of Ministry of AYUSH.
- The basic objective of NAM is to promote AYUSH medical systems through cost effective AYUSH services.

- It envisages flexibility of implementation of the programmes which will lead to substantial participation of the State Governments/UT.

What are the difficulties faced by the AYUSH practitioner?

- **No practical lessons –** The practitioner would discover that what has been taught to them in college training is a huge corpus of ancient medical wisdom, where only a part is practically usable.
- **Lack of ecosystem –** Ayurveda does not have a vibrant ecosystem of science and research, the poor practitioner has to depend on himself to discover treatments and approaches that actually work.
- **Affects reputation –** The process involves a lot of trial and error with patients and predictably leads to erosion of the practitioner's reputation.
- **Gimmicks –** Few practitioners who are using regular newspaper columns, television shows, and social media sites, entrap gullible patients.

What is the need for integrating various medicine fields?

- **China –** In the 1970s, it pushed traditional medicine, through its economic and political agenda to get total quality Chinese medicine outside China, which eventually was accepted by the world.
- **India –** India has a brand ambassador in yoga and wellness as our Prime Minister, and wellness is being accepted across the world.

The e-health market size is estimated to reach US$ 10.6 billion by 2025.

- **Wellness –** We should focus on pushing wellness on a larger horizon and approach it from the point where it complements whatever is going on in allopathic hospitals.
- **Post-surgery recovery –** Ayurveda can be used to complement what hospitals do, especially after surgeries when they have to recover.

What is the way forward?

- **Policy making –** Appropriate policy-making can solve a lot of these problems faced by the Ayurveda practitioners.
- **Focus on primary care –** Primary-care doctors are becoming an endangered species in India's health-care system.
- Rejuvenating primary care is a sine qua non if a country is to secure the health of its citizens.
- **Training –** Ayurveda graduates can contribute enormously towards this rejuvenation if trained properly.

- **Promotion of Ayurvedic theories –** A vigorous evidence-based appraisal of Ayurvedic theories and practices in order to sift the usable from the obsolete will help the cause.
- **Modern medicine –** Ayurveda graduates must be allowed to practise modern medicine in stipulated primary care areas.
- These reforms would help create a workforce that can function effectively to meet the primary health-care needs of both urban and rural India.

14. India-Germany Ties

Chancellor Scholz's 2 day visit to India, significantly coincided with the 1st anniversary of Russia's war on Ukraine.

History of India-Germany relations

- **Political relations –** India is one of the 1st countries to end the state of war with post-war Germany in 1951 and recognize the Federal Republic of Germany (FRG).
- Germany and India cooperate closely on the issue of UN Security Council expansion within the framework of G-4.

The G4 formed in 2005 is a group of 4 countries such as Brazil, Germany, India, and Japan, aspiring to become permanent members of the United Nations Security Council (UNSC).

- **Defence relations –** High Defence Committee (HDC) meetings at the Defence Secretary level take place annually, alternately in New Delhi and Berlin.
- India-Germany Defence Cooperation Agreement (2006) provides a framework for bilateral defence cooperation
- **Economic relations –** Germany is India's largest trading partner in Europe and 2nd most important partner in terms of technological collaborations.
- Germany is the 8th largest foreign direct investor in India since 2000.
- **Cultural relations –** The Indo-German Society is engaged in promoting inter-cultural activities of both countries by conveying information about modern India to the German public.
- Max Mueller was the first scholar of Indo-European languages to translate and publish the Upanishads and the Rigveda.
- **Strategic relations** - India and Germany have a "Strategic Partnership" since 2001.

- India is amongst a select group of countries with which Germany has Inter-Governmental Consultations at the level of Head of Governments (German Chancellor and PM).
- **Parliamentary Exchanges** – There is an Indo-German Parliamentary Friendship Group where visit by Parliamentarians from both sides take place regularly
- **Institutional Cooperation Arrangements** – Includes High Defence Committee, Indo-German Energy Forum, Indo-German Environment Forum, etc.
- Intergovernmental S&T Cooperation Agreement was signed for fostering research projects and direct partnerships between Universities of both countries

Recent developments in India-Germany ties.

Impact of Russia-Ukraine war and Russia-China nexus on India-Germany ties

- **Russia-Ukraine war –** The war has been a watershed moment in Germany's security policy, resulting in the abandonment of decades of post-war pacifism towards strategic matters.
- This is evident in Germany's pledge to boost defence spending to 2% of GDP and provide special funding to bolster the country's military.
- **China factor –** China's assertive posturing have brought into question Germany's approach of Wandel durch Handel (change through trade).
- Europe's increasing prioritisation of values-based partnerships with like-minded countries can advance India-German cooperation.
- **Trade routes –** For Germany, the stability of supply chains and trade routes linking Asia to Europe is of critical importance given its status as Europe's economic powerhouse and its reliance on exports.

Recent developments between the two countries

- **Military dependence –** As New Delhi attempts to diversify from its military dependence on Russia, Berlin reassesses its long-standing arms exports policy and could become an important defence partner for India.
- **Military exercise –** The first ever France-India-Germany military exercise drill is slated to take place in 2024 towards enhanced security and defence collaboration.
- **Trade & technologies –** Collaboration in clean energy and green technologies has emerged as the central pillar in the partnership.
- This lead to the launch of a Green and Sustainable Development Partnership.

The green and sustainable development partnership aims to effectively respond to the most pressing global challenges of today, viz. achieving the UN 2030 Agenda for Sustainable Development and addressing climate change.

Way forward

- **India's role –** Divergent positions on the war have not undermined India's regular political engagements with Europe.
- **Russia-China –** An intensification of the Russia-China axis could further embolden this alignment.
- **Germany-China –** While Germany emphasises the difficulties in decoupling from China, it is encouraging that Germany is drafting a new official China strategy amidst a wider national security strategy.
- Against the backdrop of volatile geopolitical shifts, emerging multi polar world, and Europe's enhanced courtship of India, India's ties with Germany could be vital in shaping a new global order.

15. Multilateral reforms as a priority in the G-20

India's G-20 presidency and new global order.

Background

- India announced its agenda would be inclusive, ambitious, action-oriented, and decisive as India assumed the G-20 presidency in December 2022.
- India further has stated its main objectives would be to develop global consensus over critical development and security issues thereby delivering global goods.
- These announcements have resulted in placing multilateral reform as one of the key presidential priorities for India. Additionally, the **G-20 idea bank** and **Think 20** have also proposed multilateral reforms as top priorities.
    - Also, the T20 Task Force on "Towards Reformed Multilateralism (TF7)" aims to formulate a roadmap for "Multilateralism 2.0".

Multilateralism and its significance

- Multilateralism refers to the collaboration between various nations in pursuit of a common goal which could also involve the participation of civil society groups and the private sector.
- Though there is a long history, multilateralism is mainly associated with the time after World War II.

- Various multilateral organisations such as the United Nations (UN), World Health Organization (WHO), Organisation for Economic Cooperation and Development (OECD), etc. play a key role in ensuring multilateral global order.
    - Multilateral organisations are organisations made up of three or more partner countries with the objective of working together to solve problems and create favourable circumstances for all members.

Challenges to Multilateralism

Multilateral cooperation in the current era is facing multiple crises which include:

- Loss of trust in multilateral cooperation due to persistent deadlocks.
- Multilateralism is witnessing a utility crisis as powerful and most developed countries have started to believe that multilateral cooperation is no longer beneficial for their interests.
- Furthermore, increasing great-power tensions, populist nationalism, de-globalisation, climate change emergencies, and the COVID pandemic have aggravated the crisis.
- This crisis has forced nations to resort to other arenas such as bilateral, plurilateral and minilateral groupings which are polarising global politics.

Need for reforms and associated issues

- Most of the challenges to the multilateral global order are global in nature and require collaborative solutions.
- However, reforming multilateralism would be a challenging task.
- At present, multilateralism is deeply entangled in global power politics and thus any effort or action to reform multilateral institutions will ultimately affect and bring about changes in the current distribution of power.
    - However, bringing about changes in the distribution of power in the global order is not an easy task and can have far-reaching implications.
- Furthermore, the status quo powers look at multilateral reforms as a zero-sum game.
    - i.e. if dominant global powers believe that reforms would impact their influence and dominance it becomes difficult to reach a consensus on such reforms.
- Multilateralism often appears to be at loggerheads with the realities of the changing global order which has led to the formation of new groupings and coalitions of like-minded. This has made it difficult to reform older and traditional institutions and frameworks.

Way forward for India and G-20

- In order to fix the current multilateral crises, the G-20 must step in and devise solutions.
- It is important for the G-20 to focus on building a proper narrative on multilateral reforms and G-20 can establish a separate engagement group for this purpose.
- The limitations of multilateral cooperation must be acknowledged and hence it is important for the G-20 to continue to encourage minilateral groupings as a new form of multilateralism.
    - Establishing such networks of issue-based minilateral groupings would play a key role in preventing competitive coalitions.
- Multilateral reforms demand concessions and compromises which would require mobilising the political will. This is where India as the current chair can step in.
- In order to address the issue of trust and utility, India and the G-20 must undertake efforts and resolve pressing global issues which would showcase the efficiency of the model of multilateralism.
- India must urge Brazil and South Africa, the upcoming chairs of the grouping, to also focus on multilateral reforms.

16. Irregularities in the functioning of NAAC

The chairperson of NAAC's executive committee, resigned after repeatedly demanding an independent inquiry into the functioning of the council.

National Assessment and Accreditation Council (NAAC)

- The NAAC is an autonomous body set up in 1994 under the University Grants Commission (UGC).
- **Functions –** NAAC is entrusted with assessing the quality of India's higher educational institutions.
- Following a multi-layered assessment process, it awards grades to colleges and universities.
- Its parameters include curriculum, faculty, infrastructure, research and financial well-being.
- The ratings of institutions range from A++ to C and if an institution is graded D, it means it is not accredited.

How is the accreditation process carried out?

- The first step involves an institute approaching the NAAC for assessment.
- Once the NAAC sets the process in motion, the applicant has to submit a self-study report (SSR) containing information related to quantitative and qualitative metrics.

- **Peer review –** The data is then validated by expert teams of the NAAC, followed by spot visits by peer teams comprising assessors drawn from universities across India.

Is a NAAC accreditation mandatory?

- **Voluntary –** While the UGC has over the years issued many circulars directing institutes to mandatorily undergo NAAC's assessment, the process still remains largely voluntary.
- **NEP –** The National Education Policy (NEP) (2020) has set an ambitious target of getting all higher educational institutes to obtain the highest level of accreditation over the next 15 years.

Allegations on the NAAC

- **Malpractices –** People with vested interests are indulging in malpractices, leading to the awarding of questionable grades to some institutions.
- **Input based –** The major problem with the ratings is the current approach of assessment is input-based, i.e., the NAAC relies heavily on self-assessment reports of applicant institutions.
- **Influence on the reviews –** The data is then validated by NAAC expert teams, followed by peer team visits to the institutions.
- It is alleged that the education institutions influence the peer review teams.

Why are so few institutes accredited?

- **Poor grades –** The fear of obtaining poor grades holds institutes back from applying.
- **Paramarsh –** In 2019, the UGC had launched a scheme named 'Paramarsh' to address the issue.
- Under the scheme, some of the best performing institutes were identified to serve as mentors to at least 5 institutes aspiring to get accredited.
- **Provisional Accreditation for Colleges (PAC) –** NAAC explored the possibility of issuing PAC, under which 1 year old institutes could apply for accreditation with validity of 2 years.
- **Difficult criteria –** Currently, only institutes that are at least 6 years old, or from where at least 2 batches of students have graduated, can apply and the accreditation is valid for 5 years.

17. India's Internal Migration

There is **concern in Tamil Nadu over a possible exodus of migrant workers** after videos showed purported attacks on Hindi-speaking men.

- Almost **a million migrants are estimated to work in Tamil Nadu,** and industry bodies fear the state's industrial and manufacturing sector would be severely impacted by an exodus.

Statistics about Migration

- **2011 Census:**
  - Number of **internal migrants** (both inter-state and within state) in India at 45.36 crore, making up **37% of the country's population.**
  - The **annual net migrant flows** amounted to about **1% of the working age population.**
  - India's **workforce was 48.2 crores strong.** This figure is estimated to have exceeded 50 crores in 2016.
- **Report of the Working Group on Migration, 2017:**
  - Report under the **Ministry of Housing and Urban Poverty Alleviation stated that 17 districts** accounted for the **top 25% of India's total male out-migration.**
    - Ten of these districts are in **UP,** six in **Bihar,** and one in **Odisha.**
- **Economic Survey 2016-17:**
  - Relatively **less developed states** such as **Bihar and Uttar Pradesh** have **high net out-migration.**
  - Relatively **more developed states** such as **Goa, Delhi, Maharashtra, Gujarat, Tamil Nadu, Kerala and Karnataka** reflect net immigration.
  - The **largest recipient was the Delhi region,** which **accounted for more than half of migration in 2015-16.**
  - While **Uttar Pradesh and Bihar** taken together **account for half of total out-migrants.**
- **Migration in India Report 2020-21:**
  - The report released by **Ministry of Statistics and Program Implementation in June 2022,** collated numbers for temporary visitors and migrants.
  - **0.7% of the country's population** was recorded as a '**temporary visitor**' during the July 2020-June 2021 period.
    - Temporary visitors were defined as those who arrived in households after March 2020 and **stayed continuously for a period of 15 days or more but less than 6 months.**
    - **Over 84% of these 0.7% temporary visitors moved places due to pandemic.**

- **The all-India migration rate was 28.9%** for July 2020-June 2021, with a **26.5 % migration rate in rural areas and 34.9% in urban areas.**
  - **Females recorded a higher share of migration rate** of 47.9%; 48% in rural and 47.8% in urban areas.
  - **Migration rate for males was 10.7%**, with 5.9% in rural and 22.5% in urban areas.
- 86.8% **females migrated for marriage** while 49.6% of the **males migrated in search of employment.**

Significance of Migration and Migrants

- **Labour Demand and Supply:** Migration **fills gaps in demand for and supply of labor,** efficiently allocates skilled labor, unskilled labor, and cheap labor.
- **Skill Development:** Migration enhances the knowledge and skills of migrants through **exposure and interaction with the outside world.**
- **Quality of Life:** Migration **enhances chances of employment** and economic prosperity which in turn improves quality of life.
- **Economic Remittances:** The migrants also send extra income and remittance back home, thereby **positively impacting their native place.**
- **Social Remittances:** Migration helps to improve the social life of migrants, as they **learn about new cultures, customs, and languages** which helps to **improve brotherhood among people** and ensures **greater equality** and tolerance.

Challenges Related to Migration

- **Issues faced by Marginalised Sections:**
  - Whereas the people who are poor or belong to a **marginalised section do not find it easy to mix up.**
- **Social and Psychological Aspects:**
  - Many times, migrants are **not easily accepted** by the host place and they always **remain as a second-class citizen.**
  - Any person migrating to a new country faces **multiple challenges, from cultural adaptation and language barriers** to homesickness and loneliness.
- **Exclusion from Political Rights and Social Benefits:**
  - Migrant workers are **deprived of many opportunities** to exercise their political rights like the **right to vote.**
  - Moreover, the need to provide **proof of address, Voter IDs and Aadhaar cards,** which is difficult due to the fluidity of their lives, deprive them from accessing welfare schemes and policies.

Government Initiatives Related to Migration

- In 2021, **NITI Aayog**, along with a working subgroup of officials and members of civil society, has prepared a **draft National Migrant Labour policy.**
    - The ramping up of **One Nation One Ration Card (ONORC)** project and introduction of the **Affordable Rental Housing Complexes (ARHC)**, **PM Garib Kalyan Yojna scheme** and **e-Shram portal** reflected a ray of hope.
    - However, the story of migrants is still **a tale of distress** in India.

18. Gender Gap in STEM

Women's lack of access to technology and digital tools makes them less likely to be a part of the wider domains of Science, Technology, Engineering and Mathematics (STEM).

STEM

- The acronym was introduced in 2001 by scientific administrators at the U.S. National Science Foundation (NSF).
- The NSF has predicted that 80% of the jobs created in the next decade will require some form of math and science skills.
- STEM is a curriculum based idea of educating students in 4 specific disciplines, in an interdisciplinary and applied approach.
- India is one of the countries that produce the highest number of scientists and engineers.

Under Article 51A of the Constitution of India, it is the duty of every Indian citizen to develop scientific temper, humanism and the spirit of inquiry and reform.

Why does women's underrepresentation in STEM fields matter?

- Across the world, there has been a marked absence of women in the professional realm of STEM subjects, including the IT sector, environment and climate, medical sciences, etc.
- **Lucrative for workers –** A typical STEM worker earns two-thirds more than those employed in other fields, according to Pew Research Centre.
- **Pay gap –** Therefore, the underrepresentation of women in STEM impacts the overall gender pay gap as well.

- Women are typically overrepresented in lower-paying jobs and underrepresented in higher-paying jobs such as in STEM fields.

Gender gap in STEM

- **Gender divide –** Globally, 18% of girls in higher-level education are pursuing STEM studies, compared with 35% of boys.
- Within the STEM fields, there lies a gender divide, with similar numbers of boys and girls pursuing natural sciences while far more boys looked to engineering, manufacturing and construction.
- **Low enrolment –** In India, the enrolment of girls in engineering programmes is significantly lower when compared to their male counterparts.
- However, out of students enrolled in science courses at UG, PG, MPhil and PhD levels, women at 53% of enrolment outnumbered men.
- These gains, though, don't necessarily mean there will also be an increase in employment, because of multiple factors.

Why does the gap exist?

- **Societal attitude –** The general societal attitude on women's education does not encourage families to invest in it as much as they do for boys.
- **Bias in curriculum –** UNICEF points to gender bias in curricula.

What is the status of gender gap in STEM in various countries?

- **India –** In India, more than 50% of illustrations in math and science textbooks in primary show boys and only 6% show illustrations of girls.
- **The US –** 26% of tech start-ups have at least one female founder.
- **Europe –** Only 21% of tech founders are female.
- **The UK –** Over a quarter of girls say they have been put off a career in tech as it is too male-dominated and only 22% can name a famous female working in the field.

19. India-Central Asia Joint Working Group (JWG) on Afghanistan

India will send its **next consignment of wheat as aid to Afghanistan under the Taliban regime via Chabahar port**. The decision, that was announced at the first meeting of the **India-Central Asia Joint Working Group (JWG) on Afghanistan** in Delhi.

- This comes after the agreement with Pakistan to extend for sending the wheat over the land route expired and **talks on extension have failed.**

Key Points about the JWG

- The JWG meeting comes a year after the **India-Central Asia summit** in January 2022, where the decision to hold a special contact group on Afghanistan was announced.
- The **issues of drugs, the export of terrorism and radicalism, and refugees** has been at the **top of concerns** for neighbouring countries in Central Asia.
    - According to UNODC reports, **opium production is up by nearly a third in the past year**, after the Taliban took control of Kabul.
        - More than **80% of the world's opium and heroin is smuggled out of Afghanistan,** which is a part of **Golden crescent.**
        - An estimated 3 million people, or nearly one tenth of the population of Afghanistan is addicted to opium.
- The JWG also **emphasised the "importance of formation of a truly inclusive and representative political structure** that extends the equal rights for all Afghans including minorities, women, girls.

Key Outcomes of JWG Meeting

- The joint statement said that **no terror organizations including UN designated terrorists should be provided sanctuary or allowed to use the territory of Afghanistan.**
- India also agreed to offer:
    - **Customised capacity building courses** for UNODC (**United Nations Office on Drugs and Crime**) Officials and stakeholders; and
    - **Cooperation on initiatives to counter drug trafficking** and rehabilitation efforts for Afghan drug users, especially women.

What is India's Previous Assistance Measures to Afghanistan?

- **Food Grains:**
    - In 2022, **India signed an agreement with the United Nations World Food Programme (WFP)** for the distribution of 50,000 MT of wheat that it has committed to sending to Afghanistan as part of a humanitarian assistance.
    - **India committed to delivering 75,000 MT of wheat to Afghanistan in 2020** to combat the global pandemic of COVID-19 and related issues of food security.
    - India distributed **2000 tonnes of pulses** to Afghanistan in 2018 to promote food security, particularly for children during times of drought.
- **Medical Supplies:**

- India supplied **5 lakh tablets of Hydroxy-chloroquinine, 1 Lakh tablets of Paracetamol, and 50,000 pairs of surgical gloves** to the Government of Afghanistan in 2020.
- India established a **Medical Diagnostic Centre in Kabul in 2015**, providing the latest diagnostic facilities to Afghan children and generating goodwill for India.

- **Infrastructure:**
  - Since 2001, **India has committed USD 3 billion towards rebuilding and reconstruction** of Afghanistan.

20. Digital India Act, 2023

The Union government has formally outlined the Digital India Act, 2023 which is a broad overhaul of the decades-old Information Technology Act, 2000.

Central idea: Reconsideration of Safe Harbour

- The government is reconsidering a key aspect of cyberspace — 'safe harbour'.
- Safe harbour is the principle that so-called 'intermediaries' on the internet are not responsible for what third parties post on their website.
- This is the principle that allows social media platforms to avoid liability for posts made by users.
- Safe harbour has been reined in in recent years by regulations like the Information Technology (Intermediary Guidelines and Digital Media Ethics Code) Rules, 2021, which require platforms to take down posts when ordered to do so by the government, or when required by law.

Digital India Act, 2023

- The act is a new legislation that aims to overhaul the decades-old Information Technology Act, 2000.
- The Act covers a range of topics such as Artificial Intelligence (AI), cybercrime, data protection, deepfakes, competition issues among internet platforms, and online safety.
- The Act also aims to address "new complex forms of user harms" that have emerged in the years since the IT Act's enactment, such as catfishing, doxxing, trolling, and phishing.

Why was this act enacted?

- **Data privacy:** The Digital India Act will be implemented alongside the Digital Personal Data Protection Bill, 2022, which focuses solely on processing personal data in India.

- **Lawful use of data:** It seeks to address the processing of digital personal data in a manner that recognizes both the right of the individuals to protect their personal data and the need to process personal data for lawful purposes.
- **Comprehensive regulation:** This Act and the Digital Personal Data Protection Bill will work in tandem with each other.

Key features of the Digital India Act

- Creating new regulations around newer technology, including 5G, IoT devices, cloud computing, metaverse, blockchain, and cryptocurrency.
- Reclassifying online intermediaries to separate categories instead of one general intermediary label, each one with its own set of regulations.
- Removing "safe harbour" immunity for online intermediaries for purposeful misinformation or other content violations from third parties.
- Creating digital standards and laws regarding artificial intelligence (AI) and machine learning (ML) technology.
- Criminalizing cyberbullying, identity theft, and unauthorized sharing of personal information without consent.

Significance

- The Digital India Act provides a legal framework for promoting the growth of the digital economy in India.
- It aims to create a conducive environment for the development and deployment of digital technologies across different sectors.
- The Act also addresses various challenges associated with cybersecurity and data privacy, which are critical issues in the digital age.

Conclusion

- The Digital India Act is expected to promote digital literacy and increase access to digital services for all citizens.
- It will help in creating a digital infrastructure that is secure, reliable, and accessible to everyone.
- The Act will also encourage the adoption of digital technologies in various sectors such as healthcare, education, and agriculture, leading to increased efficiency and productivity.

21. India-Australia Ties

Australian Prime Minister announced an Australia-India education qualification recognition mechanism while on his 2 day tour in Gujarat.

History of India-Australia relationship

- **Historical ties –** The historical ties between India and Australia started immediately following European settlement in Australia from 1788.
- **India-Australia Strategic Relationship –** Both countries signed a Joint Declaration on Security Cooperation in 2009.
- **Bilateral co-operation –** Bilateral mechanisms include Joint Trade, India-Australia '2+2', Energy Security Dialogue, JWGs on different issues etc.
- **Multilateral co-operation –** The inaugural Secretary-level trilateral talks between India, Australia and Japan was held in New Delhi in June 2015.
- The 1st Indonesia-Australia-India Senior Officials' Strategic Dialogue was held in Bogor, Indonesia on 27th November 2017.
- **Bilateral Trade –** India is the 5th largest trade partner of Australia with trade in goods and services.
- **Civil nuclear co-operation –** A Civil Nuclear Cooperation Agreement between the two countries was signed in 2014.
- **Defence co-operation –** The first-ever Bilateral Maritime Exercise, AUSINDEX, was conducted in Visakhapatnam in 2015.
- In 2018, Indian Air Force participated for the first time in the Exercise Pitch Black in Australia.
- INS Sahyadri participated in Kakadu, the biennial Exercise of the Australian Navy.
- The AUSTRAHIND is the exercise of the Special Forces of Army Exercise.
- **Consular cooperation –** The Mutual Legal Assistance Treaty (MLAT) and the Extradition Treaty between India and Australia, were signed in 2008.

Areas of cooperation between the two countries

- **China factor –** Ties between Australia and China were strained after Canberra banned Chinese telecom firm Huawei from the 5G network.
- China responded by imposing trade barriers on Australian exports, and by cutting off all ministerial contact.
- India has been facing an aggressive Chinese military along the border.
- New Delhi and Canberra have been assessing the Chinese challenge since 2013.
- **Economic cooperation –** The Economic Cooperation Trade Agreement (ECTA), the first free trade agreement signed by India with a developed country in a decade.

- Bilateral trade was US$ 27.5 billion in 2021; with ECTA, there is potential for it to reach around US$ 50 billion in 5 years.
- **People-to-people ties –** India is one of the top sources of skilled immigrants to Australia.
- **Clean energy –** The countries signed a Letter of Intent on New and Renewable Energy in 2022 to bring down the cost of renewable energy technologies, especially ultra-low-cost solar and clean hydrogen.
- **IRIS –** India announced matching funds of AUD 10 million for Pacific Island Countries under Infrastructure for Resilient Island States (IRIS).
- **ISA –** It also announced AUD 10 million for Pacific Island Countries under International Solar Alliance (ISA).

What is the status of cooperation in the education sector?

- **MREQ –** The Mechanism for Mutual Recognition of Educational Qualifications (MREQ) was signed this year.
- This will facilitate mobility of students between India and Australia.
- Indian students are the second largest cohort of foreign students in Australia.
- **New mechanism –** The Australia-India education qualification recognition mechanism, degrees obtained in Australia will now be recognised in India, and vice-versa.
- This move will not apply to professional qualifications such as engineering, medicine and law graduates, which will remain outside the ambit of this agreement.
- **Maitri scholarship –** It will provide financial assistance to Indian students in Australia for as long as 4 years.

- It will attract and support Indian students to study at Australian universities.

22. Women's Reservation Bill

Bharat Rashtra Samithi (BRS) leader began a day-long hunger strike in New Delhi, demanding passage of the Women's Reservation Bill (WRB).

Women's Reservation Bill (WRB)

- The Constitution 108th Amendment Bill, 2008 seeks to reserve one-third (33%) of all seats for women in the Lok Sabha and the state legislative assemblies.
- Reserved seats may be allotted by rotation to different constituencies in the state or union territory.
- Reservation of seats for women shall cease to exist 15 years after the commencement of this Amendment Act.

Timeline of the bill

- **1996 –** The WRB was 1st introduced in 1996, and was referred to a Joint Parliamentary Committee, however, the Bill lapsed with the dissolution of the Lok Sabha and had to be reintroduced.
- **1998 –** The Bill was reintroduced and yet again, it failed to get support and lapsed.
- **1999 –** The Bill was reintroduced by the NDA government in the 13th Lok Sabha and was subsequently introduced twice in the year 2003.
- **2004 –** The UPA government included it in its Common Minimum Programme and finally tabled it, this time in Rajya Sabha to prevent it from lapsing again, in 2008.
- Few recommendations made by the 1996 Geeta Mukherjee Committee were included in this version of the Bill.
- **2010 –** The Bill was passed in the Rajya Sabha and lapsed in the Lok Sabha, since then the demand for reservation for women in legislative bodies is not new.

WRB is seen as a logical extension of the 72nd and 73rd constitutional amendments (1992, 1993), which reserved one third of all seats and chairperson posts for women in rural and urban local governments.

Why did the parliament fail to pass the WRB?

- **Heated debates & sexist taunts –** The WRB has seen some of the heated debates and a fair share of sexism.
- **Quota within quota –** The 1996 committee recommended reservation for OBC women within the 1/3rd reservation for women of the Bill, however, this demand has never been incorporated.
- This has led to opponents saying that the WRB will not benefit their women.
- **Lack of political ability –** Only Odisha's Biju Janata Dal (BJD) and West Bengal's Trinamool Congress (TMC) have reserved seats for women for election candidatures.
- **Diverts attention –** Opponents contend WRB diverts attention from the larger issues of electoral reform such as criminalisation of politics and inner party democracy.

Why is WRB important?

- Women have historically suffered due to systemic inequality and barriers.
- **Caste groups –** Any scheme of women's reservation must be within the constitutional tenets and must also account for its representation across caste groups.

- **Gender quota –** Without a gender quota, women's representation will continue to remain marginal causing a massive deficit in our democracy.
- **Panchayats –** Some recent studies on panchayats have shown the positive effect of reservation on empowerment of women and on allocation of resources.

- **Vote share –** Though women's vote share has increased the number of women in positions of power has not increased.

What is the way forward?

- With its massive women population, India has a huge reservoir of potential which, if unleashed, will take the country much ahead.
- Women's reservation will jump-start the democratic process, allowing significant majority to have a say in how their lives must be governed.

23. How is Bengal tackling fatal viral infection?

Details:

- In Bengal, 19 (official figure) children below five years of age died in State-run hospitals due to acute respiratory infection (ARI). Out of the 19 children, 13 had comorbidities and 6 had only adenovirus infection.
- The state government claims that it is just a seasonal surge and there is no evidence of a viral epidemic.
- However, according to unofficial estimates, more than 100 children have died between December 2022 and March 2023 (first week).
- As per the government's statement, approximately 11000 cases of ARI in children have been registered. The government has thus set up an eight-membered task force to 'supervise the works related with the control of adenovirus and treatment of affected persons'.

Adenovirus infection:

- As per the Centre for Disease Control and Prevention of the U.S. adenoviruses are common viruses that cause a mild cold or flu-like illness.
- It spreads from an infected person to others through close personal contact. It can be transmitted through the air (coughing and sneezing) and through contacting adenovirus-infected objects or surfaces.
- It can affect any person but children with low and compromised immunity are at a much higher risk.
- The symptoms (apart from the common cold) include pneumonia, acute bronchitis, pink eye (conjunctivitis), and acute gastroenteritis.

West Bengal Situation:

- It is suggested that a recombinant of two strains of adenovirus is causing a spike in viral infections in West Bengal.
    - The two strains are human adenovirus type 3 (HAdV-3) and type 7 (HAdV-7).
- Around 88 human adenovirus (HAdV) serotypes have been found but epidemiologic reports suggest that nearly all fatal adenoviral diseases in children are associated with HAdV-7. Additionally, the HAdV-3 strain is found to be more prevalent.
- An expert also points out that most of the children who have been infected by the virus are less than the age of three years and were born during the COVID-19 pandemic. They suffer from an "immunity lag period" as they are mostly isolated at home and are more susceptible to viral infections.
- With an increasing number of cases, children from different districts are admitted to two popular paediatric institutions in Kolkata. However, an advisory was issued by the government on 28th February 2023 that no ARI cases should be referred to Kolkata without the knowledge of the medical superintendents of the hospitals.
- A large number of referrals to Kolkata has resulted in a shortage of beds.
- Moreover, referring children without stabilizing them or providing oxygen support might have caused the deaths of many children.
- The State government claims that there are around 5000 beds in 121 hospitals with almost 600 paediatricians. Furthermore, the government has announced the establishment of 5 additional paediatric hubs.

Other Details:

- In West Bengal, the Infant mortality rate(IMR) is 22 per live thousand births and the under-five mortality rate(U5MR) is at 25.4. It is better than the national average of IMR which is 35.2 and U5MR of 41.9.
- In terms of nutritional status in West Bengal:
    - The rate of Stunted children (under 5 years of age) is 33.8%.
    - The rate of Underweight children stands at 32.2%.
    - The children in the age group of 6 to 59 months that are anaemic are 69% (National Average 67.1.%).
- Apart from the above factors, maternal health is also a crucial factor in increased risk among children.
- In the context of child marriage, 41.6% of women (national average 23.3%) in the age group 20-24 years were married before turning 18 years as per NFHS-5.
- There is also a high prevalence of anaemia with 62.3% among pregnant women aged between 15-49 years (national average 52.2%).

24. Why is crypto trade within PMLA ambit?

Crypto assets have been brought under the ambit of PMLA.

Details:

- In order to regulate the crypto market, the Ministry of Finance announced that all virtual digital assets (VDAs) will come within the ambit of the Prevention of Money Laundering Act, 2002 (PMLA).
- In July 2022, it was reported that the Enforcement Directorate recorded approximately 5422 cases, attached proceeds of nearly₹104702 crore, and filed Prosecution Complaints in almost 992 cases resulting in the confiscation of about ₹869.31 crores. It also convicted 23 accused persons under PMLA (Till March 2022).

Details about the move:

- As per the notification, Indian crypto exchanges will have to report any suspicious activity associated with cryptocurrency to the Financial Intelligence Unit – India (FIU-IND).
    - FIU-IND is responsible for receiving, processing, analyzing, and disseminating information on suspicious financial transactions to law enforcement agencies and overseas FIUs.
- According to Sections 5 and 8(4) of the PMLA Act, the ED has discretionary powers to search and seize suspected property without any judicial permission.
- In India cryptocurrencies, non-fungible tokens (NFT), and other digital assets have not been regulated. But as the value of crypto assets surges and gets mainstreamed it is important to control them.
    - The value of all existing cryptocurrencies in India as of (January 2023) was nearly $804 billion. It is twice the GDP of Singapore in 2021.
    - As per a survey, almost 10 crore Indians have invested in cryptocurrencies.
    - According to another report (by Chainalysis), the illegal use of cryptocurrencies was around $20.1 billion in 2022.
    - Transactions with sanctioned entities crossed over 100000-fold, making up 44% of illegal activity in 2022.

Ways to track money laundering via crypto transactions:

- It should be noted that the technical nature of VDAs poses a new challenge and would require the intelligence unit to expand its intelligence framework.

- The Egmont group suggests the appropriate analysis of crypto wallets, their associated addresses and blockchain records, and hardware identifiers like IMEI (International Mobile Equipment Identity), IMSI (International Mobile Subscriber Identity), or SEID (Secure Element Identifier) numbers, along with the MAC addresses.

Scenario in other countries:

- As per the PwC's 'Global Crypto Regulations Report 2023', many countries across the world are at different stages of drafting similar regulations.
- Many countries like Singapore, Japan, Switzerland, and Malaysia have laws on regulatory frameworks and the U.S., U.K., Australia, and Canada are also working in this direction.
- China, Qatar, and Saudi Arabia have issued a blanket ban on cryptocurrency.
- The European Union is also working on a cross-jurisdictional regulatory and supervisory framework for crypto-assets.

25. Ukraine Conflict: Implications And The Danger Of Provoking A World War

- The Ukraine conflict has significant implications for Europe and the world. It has demonstrated that the US is the true defender of Europe and highlighted the fragile state of Europe's defence industry. The conflict has also given the US confidence to take on all challengers, leading to new ambitions in Western minds. While the conflict has taught several important lessons, the wrong lessons could also be derived, which could prove to be dangerous in the long run.

Present Situation

- While acknowledging the bravery of the Ukrainian people, significant efforts are underway in Europe, including France, Germany, and the United Kingdom, to end the ongoing war.
- Given that neither side is poised for a decisive victory, it is highly unlikely that Russia will withdraw from the territories it initially occupied.
- The initial enthusiasm has given way to a sense of exhaustion, and the conflict in Ukraine is increasingly being viewed as a US-backed NATO proxy war against Russia.
- As a result, European leaders are currently focused on negotiating a ceasefire and ending the conflict rather than prolonging it.

Implications of the war on Europe

- **Europe's struggling economy:** Despite receiving state-of-the-art weapons from the US, Europe remains at the mercy of NATO and the US due to its fragile defence industry. The prospect of a prolonged war without end is daunting for Europe's struggling economy.
- **US as the True Defender of Europe:** The Ukraine conflict has demonstrated that the US is the true defender of Europe, with the people believing that without the US, Europe would not have come together to support Ukraine.
- **US Confidence and New Ambitions:** The US's success in Europe has fuelled new ambitions and the belief that momentum now lies with them. This could potentially lead to dangerous experimentation, with Ukraine and the war in Europe not being a laboratory for similar experiments elsewhere.
- **The Danger of Overconfidence and Misadventures:** US triumphalism could lead to misadventures, as Ukraine and Europe cannot be a bellwether for what might happen in a conflict with China in the Indo-Pacific. China is not Ukraine or Russia, and Asia is not Europe.

China's strong Posture

- **China's Direct and Harsh Language Against the US and Western Countries:** China is accusing the US and other Western countries of engaging in the containment, encirclement, and suppression of China. China have openly accused the US of attempting to encircle China through its Indo-Pacific strategy, which they say is an Asia-Pacific version of NATO. China's language is unusually direct and harsh, leading to concerns that China may be preparing for a direct confrontation with the US.
- **China's Preparation for All Eventualities:** China is preparing for all possible scenarios in response to the current situation. It has warned that no amount of guardrails can prevent derailment if the US continues to speed down the wrong path. China's efforts are aimed at thwarting US attempts to restore its dominant position in world affairs.
- **Taiwan as the Flashpoint**
- Taiwan remains a flashpoint in the Indo-Pacific region, with tensions further aggravated by the recent visits of top US military leaders to Taiwan. However, newer tensions are also adding to the possibilities of a conflict in other regions in the Indo-Pacific.

The danger of provoking a world war

- Starting with a misreading or misunderstanding of the other side's intentions, all wars can begin.
- The success of the US in assisting Ukraine to withstand the Russian offensive and undercutting Russia's image of being a superpower in Europe.

- The success in Europe and the goal of returning to the post-1945 era may be the impetus for targeting China. This could lead to a direct confrontation with China and have disastrous consequences, possibly leading to a world war.

Conclusion

- The US is basking in the glow of its successful intervention in Europe and this could provoke retaliation, leading to the escalation of hostilities in other regions and potentially paving the way for another global conflict. Such an outcome would be a catastrophe of monumental proportions.

26. The rise of the ESG regulations

In recent years, people around the world have realised that businesses must be measured only on the basis of traditional economic metrics but also in terms of their environmental, social and governance (ESG) impacts.

ESG v/s CSR

- Corporate Social Responsibility (CSR) refers to a concept that suggests that it is the accountability of a modern company working within society to contribute towards their social, economic, and environmental development i.e. overall welfare of the society.
    - India already has an efficient CSR policy in place through the passage of the 2014 and 2021 amendments to the Companies Act of 2013.
    - These amendments mandate companies with a net worth of ₹500 crores or a minimum turnover of ₹1,000 crores or a net profit of ₹5 crores in a financial year to spend a minimum of 2% of their net profit over the next three years on CSR activities.
    - The activities which qualify as CSR activities are broad and include efforts to support the protection of historical monuments and promote safe drinking water.
- Whereas, Environmental, Social and Governance (ESG) regulations mandate that companies take into account their impact on the environment, commitment to social issues and the soundness of their corporate governance.
    - ESG regulations are different as compared to the CSR policy in the process as well as impact.
    - Example: The U.K. Modern Slavery Act mandates companies with business in the U.K. and with annual sales of over £36 million to publicly disclose the efforts undertaken by them to:

- Combat the risks of human trafficking, child labour and debt bondage in their supply chain.
- Constitute internal accountability mechanisms
- Analyse and evaluate supplier compliance
- Training supply chain managers over such issues

Relevance of ESG regulations in India

- India at present has numerous laws and bodies regarding environmental, social and governance aspects and various labour codes and regulations governing corporate governance practices.
- Despite such laws, regulations and bodies extending significant environmental and social safeguards, efforts are required to establish guidelines that emphasise monitoring, quantification and disclosure similar to the ESG regulations seen in other countries.
- The Securities and Exchange Board of India (SEBI) taking into account the increase in investing and the demand by investors for information on ESG risks, has revised its annual **Business Responsibility and Sustainability Report (BRSR).**
    - SEBI has made notable amendments to its BRSR in order to align with the evolving global standards and emphasizes quantifiable metrics that help companies to engage meaningfully and better investor decision making.
        - The key changes in the report include the disclosures on greenhouse gas emissions, gender and social diversity.
- Further, formulating legislation on ESG considerations in India has become the need of the hour with the increased emphasis on various ESG issues such as:
    - India's active role in global climate forums.
    - Introduction of various policies like the announcement by the Reserve Bank of India (RBI) of auctioning ₹80 billion in green bonds.

Possible implications of ESG regulations on Indian companies and the way forward

- Mandatory compliance with ESG regulations both in India and around the world would pose a significantly different challenge to the companies as compared to the CSR regulations.
- It would be extremely critical for Indian companies to comply with the ESG regulations of the countries such as the U.S., the U.K., and the European Union in order to take full advantage of these nations' growing concerns over China and play an active role in global supply chains and markets.

- Further, companies and business players who wish to maximise their opportunities in the global economy must embrace and adopt ESG requirements quickly.
- Apart from the adoption of regulations, due diligence will also play a key role to ensure that the efforts to comply with the ESG regulations are in effect.

27. Saudi Arabia-Iran reconciliation

The Saudi-Iran reconciliation in a China-brokered agreement reflects the new reality that Beijing is increasingly playing a bigger role at a time when the U.S., is preoccupied with challenges elsewhere.

History of the ties

- **Islamic sectarianism –** The rivalry between Saudi Arabia and Iran is rooted in Islamic sectarianism.
- While Iran is the foremost Shia state in the world, Saudi Arabia is considered to be the religious home of Sunni Islam.
- In modern times, this sectarian rivalry has translated into a tussle for regional hegemony.

- In both the wars in Yemen and Syria, Iran and Saudi Arabia find themselves on opposite sides.
- **US factor –** Iran is highly critical of Saudi Arabia's closeness with the United States.
- The US has crippled Iranian economy with its sanctions regime for decades.
- **Militancy –** Saudi Arabia is worried of the large network of armed militias across West Asia that Iran funds and backs, a threat to its own sovereignty as well as the regional balance of power.

What is the agreement about?

- Iran and Saudi Arabia will patch up a 7 year split by reviving a security cooperation pact, reopening embassies in each other's countries, resuming trade, investment and cultural accords.

Why was the agreement signed now?

Saudi Perspective

- **Vision 2030** – Regional peace will be crucial to turning Saudi Arabia into the global hub that Vision 2030 envisions.

- This has led to Saudi Arabia making concerted efforts to end long-standing conflicts with powers across the region, with the Iran deal the latest such move.
- **Away from US –** Furthermore, it has also led to Saudi Arabia slowly moving away from the singular influence of the United States in its foreign policy.
- While the US continues to be Saudi Arabia's biggest military supplier, in recent years, the desert kingdom has courted various powers including Russia, China and now, Iran.

Iran Perspective

- **Nuclear deal –** The agreement comes as Iran accelerates its nuclear program after 2 years of failed U.S. attempts to revive a 2015 deal that aimed to stop Tehran from producing a nuclear bomb.
- However, a brutal sanctions regime and internal tensions have made it difficult for Iran to achieve its goals.
- **Regional allies –** Finding allies in the region is of utmost importance to Iran when the Khomeini regime is perhaps at its weakest since the revolution.

What is the role of China in this agreement?

- China's role as peace broker is yet another sign of changing currents in the region.
- China has historically maintained ties with both countries and the latest deal points to China's growing political and economic clout in the region.

What are the concerns for the United States?

- The United States has for a long time wielded great influence in West Asia.
- It has been the predominant global power that has had influence over geopolitics in the conflict-ridden region.
- Crucially, this deal and China brokering it, does not portend well for the United States.

What is the impact on the agreement on other stake holders in West Asia?

- **Israel –** The move has ushered in a wave of anxiety in Israel which shares no formal diplomatic ties with either nation.
- While Israeli leaders see Iran as an enemy and an existential threat, they consider Saudi Arabia a potential partner.
- **Yemen –** Riyadh intervened in Yemen against the Houthi movement after the Iran-aligned group ousted the internationally recognized government from power.

- Restored ties between Riyadh and Tehran could facilitate agreement between Saudi and the Houthis.
- **Syria –** Iran has offered military, economic and diplomatic support to President Bashar al-Assad since his crackdown of protests in 2011 left him isolated.
- The Saudi-Iranian deal comes as a step towards Syria's return to the Arab League.
- **Lebanon –** Lebanese politics have been broadly split for years between a pro-Iran alliance led by powerful armed group Hezbollah and a pro-Saudi coalition.
- The agreement between Tehran and Riyadh has sparked hope that paralysis could end.
- **Iraq –** After the toppling of Saddam Hussein, Iran deepened its political, security and economic influence in Iraq, sparking Saudi alarm.
- Iraqis hope for a general regional detente that would allow their country to rebuild.

What is the way forward?

- The agreement is welcome in context of the human toll that the Saudi-Iran rivalry has taken.
- However, this does not mean that all problems will be immediately resolved.
- While Iran and Saudi Arabia may still fall out, for the time being, this diplomatic agreement has ushered in major change in geopolitical dynamics in West Asia.
- The agreement could be the start of a greater global geopolitical realignment.
- The announcement could not only lead to a major realignment in West Asia, it also poses a major geopolitical threat to the United States, with China acting as peace broker for the historic deal.

28. A chance for India to shape a data governance regime

Details:

- India has considerably advanced in its digital strategies and data governance. However, as the country evolves with technology and digitalisation, it is important that its approach is inclusive, transparent, secure, and conducive to sustainable development.

- The G-20 has recognized the need for international cooperation in addressing the challenges associated with the rapid growth of data and digital technologies.
- India's G-20 presidency provides it with a unique opportunity to display its digital transformation specifically in data infrastructure and data governance.

Data Empowerment and Protection Architecture (DEPA):

- Data Empowerment and Protection Architecture (DEPA) is a consent management tool which is launched by India.
- DEPA has the ability to improve citizens' data protection and privacy. It gives them greater control over the use and sharing of their personal information.
- It could build trust in digital technologies and data governance.

Associated Concerns:

- If the DEPA is not properly implemented or managed, it can increase the risk of misuse and misappropriation.
- Implementation of DEPA across different sectors and jurisdictions might be inconsistent. It could further result in ineffectiveness and confusion among citizens.
- Apart from security and privacy, there are concerns related to infrastructure, connectivity, and the availability of a skilled human workforce.
- There are also concerns associated with the misuse and commercialization of sensitive data from critical sectors like healthcare and agriculture.
- There are also concerns about ownership and governance of data generated and collected along with the rights of the data provider.
- Another major concern is data sovereignty.
    - Data sovereignty is a principle that a country has the right to control the data collection, storage, and usage within its borders. It also includes the right to informational self-determination of citizens over their data.

Measures taken and Way Ahead:

- India established the India Data Management Office (IDMO).
    - It is responsible for overseeing and implementing the country's digital strategies and data governance framework.
    - It will also promote the development of the open-source solution and ensure that data structures are a social public good.
- India stack should be designed and implemented in a way that is consistent with India's development strategies.

    - India stack is a unified software platform that provides digital public goods, and application interfaces, and ensures digital inclusion.
- Data governance should be a process in evolution that is agile and responsible. It should be built on fundamental rights, values, and norms.
- A strong and robust data protection regulatory framework with ethical data governance practices is the need of the hour. It also requires an accountable oversight mechanism.
- Many experts suggest the opening of data "silos" to capture the potential wealth of data sharing between governments, corporations, and citizens. However, others argue that it might jeopardize trust and security.
- India should explore a middle path between restrictive data sovereignty and limitless data flow. It can define the data, its sharing, and the purpose of sharing.
- It should balance the interest of all stakeholders while respecting and protecting the fundamental right to privacy.
- Investment should be made in digital infrastructure and the necessary skills for a resilient data governance regime.

29. Electricity Discoms: Public Hearings And Public Participation in Decision Making

- The scale of operations of electricity distribution companies is clear from the fact that their annual revenue requirement is 20% of the Union Budget. The article discusses the importance of public participation in the decision-making process of electricity distribution companies and the role of public hearings conducted by Electricity Regulatory Commissions (ERCs) in this regard. The central ERC recently issued a public notice where it announced that hearings would resume through in-person mode.

All you need to know about Electricity Regulatory Commissions (ERCs)

- **Independent body:** ERCs are independent statutory bodies established by the government to regulate the generation, transmission, distribution, and trading of electricity in a particular state or region.
- **Role:** The primary role of ERCs is to protect the interests of electricity consumers by ensuring that electricity is supplied to them at reasonable and affordable rates while ensuring the financial viability of the electricity sector.
- **Powers:** ERCs also have the power to issue licenses to power generation and distribution companies, set tariffs, and adjudicate disputes between stakeholders in the electricity sector.
- **To ensure transparent framework:** ERCs are an essential part of the electricity sector, ensuring that there is a fair and transparent regulatory framework that promotes competition, efficiency, and innovation.

Importance of Public Participation in the decision-making process of electricity distribution companies

- **Transparency:** Public participation promotes transparency in the decision-making process, It ensures that stakeholders are informed about the decisions being made, the rationale behind them, and the potential impact on the community.
- **Accountability:** It creates a system of checks and balances that helps ensure that decisions made are in the best interest of the public.
- **Improved Decision Making:** Public participation can provide DISCOMs with valuable insights and perspectives from the community. This can help improve decision-making by ensuring that decisions are made based on a comprehensive understanding of the issues and the needs of the community.
- **Increased Trust:** When the public is involved in the decision-making process, it helps build trust between the community and the DISCOM. This can lead to increased support for the decisions made, greater acceptance of the outcomes, and reduced potential for conflict or opposition.
- **Community Empowerment:** Public participation can empower the community to have a voice in the decisions that affect their daily lives. This can lead to a greater sense of ownership and responsibility for the outcomes, as well as increased engagement and participation in future decision-making processes.

In-person Public Hearings

1. **Pros of In-person Public Hearings**

- **Greater sense of community:** In-person hearings provide a greater sense of community and allow for face-to-face interactions, which can help build trust and foster dialogue.
- **Physical presence:** In-person hearings allow participants to physically be present in the room, which can make it easier for them to be heard and have their concerns addressed.
- **Better understanding:** In-person hearings may be more effective at conveying complex information and data, as participants can ask questions and seek clarification in real-time.
- **Increased transparency:** In-person hearings can increase transparency as they allow the public to see and hear the proceedings first-hand, and hold regulators and utilities accountable.

1. **Cons of In-person Public Hearings**

- **Accessibility:** In-person hearings may not be accessible to all members of the public, especially those who are physically unable to attend, live far away, or have other commitments.
- **Time-consuming and expensive:** In-person hearings can be time-consuming and expensive to organize and attend, which can deter participation and limit the diversity of voices represented.
- **Limited participation:** In-person hearings may limit participation to those who are comfortable with public speaking or who have the means to travel and attend the hearing, potentially excluding some marginalized groups.

Online Public Hearings

1. **Pros of Online Public Hearings**

- **Accessibility:** Online hearings are more accessible to a wider audience, as participants can attend from anywhere with an internet connection.
- **Convenience and flexibility:** Online hearings provide more convenience and flexibility for participants as they can attend from the comfort of their own homes and at their own pace.
- **Increased participation:** Online hearings may increase participation from diverse groups and those who may not be comfortable with public speaking or traveling to attend an in-person hearing.
- **Cost-effective:** Online hearings can be less expensive to organize and attend, which can allow for more resources to be dedicated to other aspects of the regulatory process.

1. **Cons of Online Public Hearings**

- **Technical difficulties:** Online hearings may be subject to technical difficulties, such as poor internet connection or difficulties with the online platform, which can hinder participation and the effectiveness of the hearing.
- **Limited sense of community:** Online hearings may lack the sense of community that in-person hearings provide, potentially limiting the opportunity for dialogue and relationship building.
- **Digital divide:** Online hearings may be inaccessible to those who do not have reliable internet access or the necessary technology to participate.
- **Privacy concerns:** Online hearings may raise privacy concerns, as participants may be uncomfortable sharing personal information or speaking out in a public forum.

What could be the best option?

- A hybrid mode with both in-person and online options is the best approach to ensure quality public participation.

- Moving back to the pre-pandemic practice of only in-person hearings takes away a convenient avenue for consumer engagement and impacts meaningful interactions that are possible in the in-person platform.
- The provision of online mode in addition to in-person hearings would strengthen public participation and plug access gaps, provide flexibility of participation to the citizen, and enable a robust avenue for public participation.

Conclusion

- Public hearings conducted in hybrid mode, with the choice of mode being left to the citizen, are best suited to improving access and ensuring quality public participation. There is a need for institutions to continue to build infrastructure and experience toward online hearings and make improvements in how online hearings are conducted.

30. Protection of Domestic Workers in India

In recent times, the violence against domestic workers have increased drastically.

Domestic workers

- **Domestic workers -** According to International Labour Organisation, domestic workers are those workers who perform work in or for a private household or households.
- They provide direct and indirect care services, and as such are key members of the care economy
- **Domestic work -** According to ILO, domestic work refers to housework such as sweeping, cleaning utensils, washing clothes, cooking, caring of children and such other work which is carried out for an employer for remuneration.
- **Status of domestic workers in India** - As of 2012, 39 lakh people were employed as domestic workers, of which at least 26 lakh were women
- A Bengaluru-based study in 2016 found 75% of domestic workers were from Scheduled Castes, 15% from OBCs and 8% from Scheduled Tribes.
- More than 12.6 million domestic workers in the country are minors, with 86% of them being girls.
- Moreover, 25% of underage domestic workers were below 14 years.

Issues faced by domestic workers

- Informal in nature
- Unpaid and underpaid
- Have no legal contract

- Have ill-defined work hours
- Face discrimination and violence, sexual harassment, and exploitation
- Face discrimination at the hands of placement agencies (agencies recruiting domestic workers) and/or traffickers
- Violence against domestic workers
- Ambiguity over domestic worker's data

International measures to protect domestic worker

- **Domestic Workers Convention (No. 189)** - ILO enacted Domestic Workers Convention (No. 189) in 2011 to protect domestic workers.
- **International Domestic Workers Day** - June 16th, celebrating the 2011 passage of the International Labor Organization Convention 189 for Decent Work for Domestic Workers.
- **Your Work Is Important** - ILO has launched a campaign "Your Work Is Important" to generate public awarenes

The ILO Forced Labour Convention, 1930 defines forced labour as work which is "exacted from any person under the menace of any penalty" and which is "not offered voluntarily".

Measures taken by Indian government

- There is no dedicated law or policy to regulate people working in the domestic work sector.
- **Unorganized Sector Social Security Act, 2008 –** The Act provided the first legal recognition meant to provide social welfare to workers—including domestic workers.
- **Code on Social Security, 2020 –** The code replaced the Unorganized Sector Social Security Act, 2008 and is yet to take effect.
- **Child Labour Act, 1986** - The Indian government prohibited minors from entering domestic housework in 2006, listing it as a form of "hazardous child labour".
- **Sexual Harassment of Women at Workplace (Prevention, Prohibition and Redressal) Act, 2013** - Includes domestic workers as a specific category of workers – with the house as a designated workplace.
- **Minimum Wages Act, 1948 –** Only certain States such as Andhra Pradesh, Jharkhand, Karnataka, Tamil nadu and Tripura have included domestic workers in the schedule of Minimum Wages Act.
- **Domestic Workers (Registration, Social Security and Welfare) Bill in 2008** - The National Commission of Women proposed the bill.
- **Domestic Workers' Welfare Bill 2016** - Recognised a private household as a workplace, and broader definition of "wages".

- Both the 2008 and 2016 bill have not been passed yet.
- **National Domestic Worker Policy** - Proposed by the Labour Ministry in 2019 to regulate placement agencies and include domestic workers under existing laws.
- India is a **signatory to ILO's 189th convention**, known as **Convention on the Domestic Workers** but has not ratified it yet.

Need of the hour

- The placement agencies need to be regulated.
- The government need to link up with social workers for protecting the domestic.
- The domestic workers protection act need to be passed.
- There is a need for authentic data for domestic workers.

31. The Feminist Foreign Policy (FPP) Movement

Germany has recently introduced new feminist guidelines that will guide its diplomacy and developmental goals and increasing FPP across the world.

FPP

FPP **- There is no singular, cohesive definition of a "feminist foreign policy" for governments.**

- FPP defines that women to be included in foreign diplomacy to promote international peace.
- The FPP calls for the state to promote good practices to achieve gender equality and to guarantee all women their human rights through diplomatic relationships.

Feminist foreign policy is a concept evolved by Margot Wallstrom, former Swedish Foreign minister

Need for feminist foreign policy

- To overcome the Systemic and structural subordination and marginalization of women that characterize the lives of countless women across the world.
- FPP to ensure people "have the same right to representation and access to resources".
- FBB mandates that gender equality to be corner stone of every diplomatic engagement, reiterating that women, girls and marginalized groups must be protected from violence.

- FBB prioritizes equal treatment and equal opportunity, while being gender-responsive across policies.
- The adoption of FFP by the South Asian nations will enhance gender equality within the region and beyond.

Status of FPP in India

- Women account for only 16% of the Indian Foreign Service and only 18% of top leadership positions in embassies around the world.
- Indian foreign policy lacks gender-inclusive and need to adopt a feminist foreign policy (FFP) framework.
- An all-woman police force from India was deployed under the aegis of the United Nations (UN) in Liberia back in 2007.
- Global Gender Gap Index 2022 – India ranks 135.

What is the status of FPP across the world?

- There are currently three countries whose foreign policies are explicitly feminist: Sweden, Canada and France as of march 2019.
- Sweden, Canada, The Netherlands, and Mexico are countries which have adopted FPP framework.

Criticism of FPP

- Sweden, for instance, faced criticism for its binary focus on women, and not people of all genders
- The countries (Canada, Sweden and Germany) having FPP also carry arms trade in other hand which is against FPP.
- The investments made to promote FPP only benefit the private firms and doesn't yield the intended aims and goals.
- Lack of funds for FPP
- Ambiguity in the definition of FPP.
- Lack of consensus in the international forums about FPP.

32. Increasing Student Suicides in Higher Education Institutions

Despite increased awareness about suicide, the suicide rates are increasing and has to be addressed.

Status of student suicide in Higher Education

- According to Ministry of Education, 33 students died by suicide across the IITs since 2018.

- In total, there were 61 cases of suicides during this period, across the IITs, NITs and IIMs.
- According to National Crime Records Bureau data, student suicides saw an increase of 4.5% in 2021, attributed in a large measure to the Covid pandemic and related anxieties.

Factors responsible for student suicides

- Academic stress
- Family reasons
- Personal reasons
- Mental health issues
- Official apathy
- Social and caste discrimination
- 85% attendance rule – if a student fails to do so then he must repeat the course.
- Intense, high-pressure educational environment, where students are unhealthily competitive.
- Relative-grading system makes the institutions more competitive.
- Due to the combination of academic pressure and the administration's indifference towards student's issues, students resort to substance abuse.

Various measures taken by higher education institutions

- Conducting workshops/seminars on happiness and wellness.
- Regular yoga sessions.
- Induction programs.
- Institutions also focus on extracurricular activities, including sports and cultural activities.
- Assign one faculty adviser per 10 students to help with their academics and monitor their progress.
- The institute appoint student counsellors for overall personality development of the students, especially those under stress.

What are the various measures taken by government of India?

- **MANODARPAN** - Covers a wide range of activities to provide psychological support to students, teachers and families for mental and emotional well-being
- **Peer-assisted learning** - Support for students, by students, and normally takes the form of regular, timetabled, coordinated group study sessions or workshop.

- **Regional languages** - Introduction of technical education in regional languages to ease academics-related stress.

What is the need of the hour?

- **Parents' participation** - The institutes should share student performance profiles (academic and non-academic activities) with their parents.
- **Early detection and alert generation** - Students live close to their peers and wing-mates for academic and non-academic activities.
- **Peers and wing-mates** - The peers and wing-mates could flag changes in behavioural traits such as missed classes, reduced participation in extracurricular activities and decreased interaction.
- **Remedial teaching and graceful exit** - Students struggling with academic pressure should be placed on academic probation for customised attention.
- **Third-party grievance redressal** - If a student is dissatisfied with the internal grievance redressal mechanism, they should have access to a third party for resolution.

33. Internationalisation of the Indian Rupee

Recently Reserve Bank India Deputy Governor emphasizes the need for better rupee volatility management to deal with risks of internationalization.

Internationalisation of Indian Rupee:

- Currency internationalization is the **widespread use of a currency** outside the borders of its original country of issue.
- It refers to the **process of making the Indian rupee a globally accepted currency**, similar to other major currencies like the **US dollar, Euro, and Japanese yen etc.,**
- This process aims to pro**mote India's economic growth and developmen**t by increasing the **use of the rupee in cross-border transactions, foreign investment, and global trade.**
- It requires the **liberalization of India's capital account**, which means allowing free flow of capital in and out of the country without any restrictions.

Present Status of Indian Rupee

- Currently, Indian rupee totals **over 80 against USD.**
- The first country to open a **special Rupee Vostro account is Russia** followed by **Sri Lanka and Mauritius** which are expected to use the Indian rupee trade settlement mechanism.

- A further assessment says that by 2040, the **Rupee will challenge China's Renminbi as the strongest global currency.**

Advantages of Internationalization of rupee

- **Currency risk is reduced for Indian businesses** when using the Rupee in international transactions.
    - Protection from currency volatility improves business growth and lowers operating costs, increasing the likelihood that Indian companies will expand internationally.
- The requirement for **maintaining foreign exchange reserves decreases.**
    - Reserves have an impact on the economy even though they help control exchange rate volatility and project external stability.
- India becomes **less susceptible to outside shocks by reducing** its reliance on foreign currency.
    - For instance, **excessive foreign currency liabilities of domestic businesses** result in a **de facto domestic tightening** during phases of monetary tightening in the US and a strengthening dollar.
    - The **discomfort of reversing capital flows** would be significantly lessened by reduced exposure to currency risk.
- The **bargaining power of Indian business would increase** as the rupee's use increased, adding weight to the Indian economy and raising India's stature and respect internationally.

Challenges of Internationalisation of rupee:

- It requires integration with global financial markets, which can pose challenges in **terms of regulatory compliance, market infrastructure, and investor protection**.
- It is the **primary challenge of internationalising the rupee** as it can **create risks for businesses and investors** that operate in multiple currencies, leading to uncertainty and higher transaction costs.
- **India's financial markets** are still relatively **underdeveloped compared to other major economies**, which can limit the range of products and services available to international investors.
- **The rupee is not yet a widely traded currency**, which means there is limited liquidity in global markets making it difficult for investors to buy and sell rupee-denominated assets, which can limit the attractiveness of the currency.
- It requires a supportive regulatory environment that balances the need for openness with the need for **financial stability and regulatory oversight** which is challenging to achieve, especially given the complexities of global financial markets.

Steps taken for the Internationalisation of the Rupee

- Recently the RBI has introduced a mechanism to facilitate international trade in rupees.
    - Enabling external commercial borrowings in Rupees (**especially Masala Bonds**).
- **The Asian Clearing Union** is also exploring a scheme of using domestic currencies for settlement.
    - An arrangement, bilateral or among trading blocs, which offers importers of each country the choice to pay in domestic currency is likely to be favoured by all countries, and therefore, is worth exploring.
- **Promotion of offshore rupee markets:** The RBI has allowed Indian banks to participate in the **offshore non-deliverable market for rupee derivatives**, which has facilitated the development of offshore rupee markets.
- **Currency swap agreements:** The RBI has signed currency swap agreements with several countries, which allow for the exchange of rupee and foreign currency between the central banks of the two countries.
- **Bilateral trade agreements**: The government has signed several bilateral trade agreements with other countries, which has facilitated greater cross-border trade and investment and increased the use of the rupee in international transactions.

Way Forward:

Therefore, Any possibility of conversation on rupee internationalization must be backed by a **sustained and stable position of the Indian Rupee**. Scale, stability and liquidity can be achieved through **strong economic fundamentals and a process-driven regulatory environment**. Overall, increase in the international use of the Indian rupee will go a long way in positioning India as a more attractive destination for foreign investment and trade.

34. Grievances of Paramilitary Forces

Old age pension is not given to paramilitary personnel who died in Pulwama attack.

Paramilitary force

A semi-militarized force whose organizational structure, tactics, training, subculture, and (often) functions are similar to those of a professional military but which is not included as part of a state's formal armed forces.

- Though paramilitary is not a military force, it is usually like military's light infantry force in terms of training, and organizational structure.

Functions of the paramilitary force

All the paramilitary forces comes under Ministry of Home Affairs.

Paramilitary Forces	Year	Functions
The Assam Rifles	1835	Assam rifles contribute in maintaining of law and order, countering insurgency.
The Central Industrial Security Forces(CISF)	1969	CISF provides integrated security cover to public sector undertaking.
The Central Reserve Police Force (CRPF)	28th December 1949	CRPF shall be to enable the government to maintain Rule of Law, and Internal Security effectively.
The Indo-Tibetan Border Police (ITBP) Force	24 October 1962	ITBP guards 3,488 km long India-China borders ranging from the Karakoram Pass in Ladakh to Jachep La in Arunachal Pradesh.
National Security Guard	22 September 1986	NSG has been given the specific role to handle all facets of terrorism in any part of the country
Border Security Forces	December 1 1965	To ensure the security of the borders of India and any matter related to it
Sashastra Seema Bal	March 1963	Sole objective of achieving 'Total security preparedness' in the remote border areas for performing a 'stay-behind' role in the event of a war.

- **Other forces –** Special Frontier Force (Cabinet Secretariat) and Indian Coast Guard (Ministry of Defence)

Various problems faced by paramilitary forces

- Poor quality of food
- Shortage of gazetted officers (GOs) and personnel
- The old pension scheme not being provided to personnel joining service after December 31, 2003
- Lack of training and skills

Various measures taken by government of India

- **Sanrakshika -** the CISF Wives Welfare Association works for the empowerment and betterment of the families of CISF personnel through various activities.
- **Centralized Public Grievance Redress and Monitoring System (CPGRAMS)** - is an online platform available to the citizens 24x7
- To lodge paramilitary personnel grievances to the public authorities on any subject related to service delivery.
- **Agniveers** - To address the shortage of personnel Six para forces may recruit 2,184 ex-Agniveers every year.

Need of the hour

- The government must listen to the public opinion relating to old age pension.
- Paramilitary forces needed to be treated in par with armed forces.
- The morale of these paramilitary military personnel needs to be kept high.
- The genuine grievances of India's paramilitary forces need to be addressed

35. India – Bangladesh Friendship Oil Pipeline

Inauguration of India-Bangladesh Friendship Pipeline

Key details:

- Prime Minister Narendra Modi and his Bangladesh counterpart Sheikh Hasina on March 18th virtually inaugurated the India-Bangladesh Friendship Pipeline.
- The 131.57-km-long pipeline will bring diesel from Assam's Numaligarh refinery's marketing depot in Siliguri to Parbatipur in northern Bangladesh.
- Out of the total length of the pipeline, Bangladesh has 126.57 km and India has five kilometres.
- The pipeline has a capacity of one million metric tonnes per annum (MMTPA).
- The total project cost for the construction of the IBFPL is Rs 377.08 crore.
- The project is built under grant assistance from the government of India.
- The project is jointly implemented by the Numaligarh Refinery Limited of India and Meghna Petroleum Limited of Bangladesh.

Numaligarh Refinery Limited of India:

- The Numaligarh Refinery Limited is a government of India enterprise based in Assam.
- It was established as a Company on 22nd April 1993 in accordance with the provisions made in the historic Assam Accord signed on 15th August 1985.

- Oil India Limited holds 69% of the shares while the Assam government holds 26% shares in it.
- NRL is a Category-I Mini Ratna PSU and it is one of 4 refineries in Assam.

36. India-China: Border Management Mechanism

- India and China appear to be moving towards a new modus vivendi to maintain peace and tranquillity along their disputed 4,000 kilometre border. They are discussing measures to ease the border situation, including creating no-patrol zones along the Line of Actual Control (LAC) and upgrading the border management mechanism.

Older arrangements and need for new measures

- **Blockades:** In 2020, the older arrangements, shaped by the agreements of 1993, 1996, 2005 and 2013, came apart in Ladakh after the Chinese massed troops in Tibet and established blockades at six points on the Line of Actual Control (LAC) to prevent Indian troops from patrolling the border.
- **Clashes:** A clash at Galwan in June 2020 led to the deaths of 20 Indian and four Chinese soldiers, the first such losses on the LAC since 1975. The Sino-Indian clash, in December 2022, at Yangtse, north-east of Tawang, suggests that new measures may be needed across the LAC, and not just in Ladakh.

Attempts to Ease the Border Situation

- **Working Mechanism for Consultation and Coordination (WMCC):** Important discussions that took place between Indian Ministry of External Affairs and the Ministry of Foreign Affairs, China, met in Beijing for the 26th Meeting of the Working WMCC on China-India Border Affairs, on February 22, 2023. This was the first in-person meeting of the WMCC that had held the previous 11 rounds since the 2020 events by video conference.
- **Other Measures:** Discussions have taken up the issue of upgrading the border management means to replace the WMCC with a mechanism that will have both military and civilian officers. The no-patrol zones could lead to a package settlement in the two remaining areas of Depsang and Charding Nala.
- **Confidence-building Measures:** The entire range of confidence-building measures since 1993 was premised on the belief that both sides largely accepted the lay of the LAC, though they had differences that related to some 18-20 points on it. The 1993 and 1996 agreements specifically spoke about the importance of identifying and resolving these differences.
- **No-patrol zones:** The no-patrol zones could be confined to the places where the two sides have overlapping claims. Chinese journalist-scholar Qian Feng

suggested that the concept of the zone of actual control could replace the "line of actual control" in some areas that had no obvious geomorphological features or population.

The Idea of Shifting the Goalposts

- The idea of creating no-patrol zones is an echo of the original proposal by Chinese Premier Zhou Enlai following a similar set of circumstances experienced today.
- In October 1959, an Indian police party was ambushed at Kongka La leading to the deaths of 10 personnel and the capture of another dozen.
- Zhou proposed to Prime Minister Jawaharlal Nehru in a letter of November 7, 1959, that both sides withdraw 20 kilometers from the so-called McMahon Line, as well as the line up to which each side exercises control in the west.

Conclusion

- Creating no-patrol zones along the LAC could be a possible solution to the border conflict, as well as upgrading the border management mechanism to include both military and civilian officers.

37. Changes to Prevention of Money Laundering Act 2002 (PMLA)

Recently finance ministry placed all transactions involving virtual digital assets (VDA) under the purview of PMLA.

Prevention of Money Laundering Act (PMLA)

- **Aim –** The main focus of the PMLA is

1. To prevent money-laundering
2. To provide for confiscation of property derived from or involved in money-laundering

Key features of PMLA

- **Confiscation of property** - The PMLA deals with the confiscation of both movable and immovable property.
- **Intermediaries** - The Act provides that every banking company, financial institution and intermediaries should maintain a record of transaction.
- **Appellate Tribunal** - The Appellate Tribunal was established by Central Government to hear appeals against the dealers of Adjudicating Authority and authorities under this Act.

- **Special Courts** - The Central Government shall constitute the Special Courts in consultation of the Chief Justice of India to try the offence of Money Laundering.
- **Location of an entity** - The third party of any entity in the country shall not be located in any country classified as 'high risk' by the Financial Action Task Force (FATF)

The Enforcement Directorate is the main agency probing allegations under PMLA

Recent changes in the PMLA

Bringing five types of activities under PMLA

- Exchange between virtual digital assets (VDA) and fiat currencies
- Exchange between one or more forms of VDA
- Transfer of VDA
- Safekeeping or administration of VDA or instruments enabling control over them
- Participation in and provision of financial services related to an issuer's offer and sale of a VDA.

Changes in the Prevention of Money-laundering (Maintenance of Records) Rules, 2005

- Defining the term - politically exposed person(PEP)
- Every banking company or financial institution must shall register the details of clients on the DARPAN Portal of Niti Aayog.
- The rules broadens the definition *of a* non-profit organization to now also include organizations that function for charitable purposes including relief to the poor, education or medical relief etc.
- The new rules add more data retention requirements to NGOs

'Politically exposed persons' (PEPs) - Individuals entrusted with prominent public functions by a foreign country, including heads of states or governments, senior politicians, senior government or judicial or military officers, senior executives of state-owned corporations, and important political party officials.

Impacts of changes in PMLA

Impact on Crypto exchanges

- If activities related to exchange of VDAs are carried out for or on behalf of another person, it shall be regarded as an activity under PMLA

- The crypto-entities are required to verify the identity of clients and beneficial owners, and maintain records of transactions for 5 years from the date of transaction
- The crypto exchanges must maintain records of identity, files and correspondences of clients for 5 years

Impact on Foreign portfolio investors

- FPIs will have to rework the mechanism for maintenance of records because of the change in threshold for determining beneficial ownership

38. UNSC: India's Remarkable Tenure

- India's two-year stint in the United Nations Security Council (UNSC) was unprecedented, with a focus on maritime security, terrorism, UN peacekeeping, reformed multilateralism, and the Global South. India served as the Chair of three important UNSC Committees, made efforts to bring conflicting parties on the same page, and raised important issues like religiophobia.

India's tenure in the UNSC from 2020 to 2022

1. **Focus on Priorities:**

- Clear priorities upon entering the Council in January 2021
- Priorities include maritime security, terrorism, UN peacekeeping, reformed multilateralism, and the Global South
- India elected Chair of three important UNSC Committees

2. **India's Role in Maritime Security:**

- Prime Minister of India chaired a UNSC meeting on maritime security
- Presidential Statement issued was the first comprehensive document on maritime security
- Document referenced UN Convention on the Law of the Sea as international law setting out the legal framework
- Statement called for freedom of navigation, anti-piracy measures, and combating terror and transnational crime at sea

3. **Conflicts on the Agenda:**

- Old conflicts festered and new conflicts arose, including Myanmar, Afghanistan, Ethiopia, Mali, Syria, Palestine, Yemen, Haiti, Libya, and the Sahel, as well as Ukraine

- The Council stood polarised and unable to act decisively
- India attempted to bring the Council together on these issues

4. **India's Involvement in Myanmar:**

- Military takeover in Myanmar occurred in February 2021
- Permanent-5 were pulling in opposing directions while ASEAN counselled caution
- India shares a nearly 1,700 kilometre-long border with Myanmar and it was crucial to stop violence, bring in stability and ensure democratic processes went forward
- India ensured balanced and comprehensive Council pronouncements, which culminated in a resolution on Myanmar (adopted under India's presidency) in December 2022.

India's Impact on the UNSC: Steadfast Diplomacy in the Face of Global Challenges

1. **India's role in Afghanistan Crisis:**

- India steered negotiations resulting in UNSC Resolution 2593 for benchmarks in Afghanistan, including stopping cross-border terrorism, protecting rights of women and minorities, ensuring an inclusive government, and providing humanitarian assistance.
- India maintains a firm position on the Taliban upholding these benchmarks.

2. **India's stance on Ukraine Conflict:**

- India's independent stand calling for dialogue and peace during the Ukraine conflict resonated with many developing countries.
- India spoke out against unilateral sanctions on oil, food, and fertilizers.
- As the conflict spilled over into India's G-20 Presidency, India is now launching an initiative to convert its proactive position into action.

3. **India's focus on counter-terrorism:**

- As Chair of the UNSC Counter-terrorism Committee (CTC), India brought the CTC meeting to India in October 2022.
- India attempted to list terrorists under UNSC Resolution 1267 sanctions but was thwarted, however, the proposal to list Abdul Rehman Makki, Deputy Amir/Chief of the Lashkar-e-Taiba was approved by the UNSC, with India as a proposer.

India on peacekeeping

- **Largest contributor including women:** India has been the largest contributor of UN peacekeepers, including as a pioneer in women peacekeeping.
- **UNITE Aware technology platform**: Its launching of the UNITE Aware technology platform to strengthen real-time protection of peacekeepers is to be noted.
- **Calling for accountability for crimes against peacekeepers:** In August 2021, India piloted the first UNSC resolution by India in more than five decades, calling for accountability for crimes against peacekeepers. India also gifted two lakh vaccines to all UN peacekeepers.

On other important issue

1. **Climate change:**

- India's focus on the developing world, especially Africa and West Asia, was enhanced, given their close historical relations.
- In December 2021, India thwarted a move by the West to wrest climate change from the UN Framework Convention on Climate Change-led process and bring it under the ambit of the UNSC, where the P-5 are also major historical polluters.
- The draft resolution was defeated in the Council when India and Russia voted against.
- A change in the climate change architecture would have shut out the voice of the Global South, especially Small Island Developing States.

2. **Contemporary issues:**

- India also raised the issue of a contemporary form of religiophobia in the Council when, while condemning phobia against Abrahamic religions, it forcefully put forth the need to combat rising hate crimes and phobias against non-Abrahamic religions as well.
- With hate crimes being fuelled abroad by vested interests, India's stand needs to be robustly taken forward.

Conclusion

- India's Presidency led to a discussion on urgent Council reform, highlighting India's strong performance and the need for its permanent presence at the horseshoe table.

39. Rising Cancer Cases in India And Economic Burden

- Cancer cases in India are predicted to cross the 15 lakh mark by 2025, highlighting concerns about the economic burden of expensive cancer treatments and the accessibility of affordable healthcare for patients.

Cancer

- Cancer is a group of diseases that arise when cells in the body begin to grow and divide uncontrollably, leading to the formation of tumors.
- Normally, cells in the body grow, divide, and die in an orderly fashion, but in cancer, this process goes awry, leading to the accumulation of abnormal cells that can form a mass or tumor.
- There are many different types of cancer, which can affect any part of the body. Some cancers, such as leukemia, do not form tumors but still involve the uncontrolled growth of abnormal cells.
- Symptoms of cancer can vary depending on the type and location of the cancer, but common signs include unexplained weight loss, fatigue, pain, and changes in the skin or the appearance of a lump or mass.

Economic Burden of Cancer Treatment

1. **Inaccessible and Increasing Costs:**

- The average medical expenditure per hospitalization case for cancer treatment was ₹68,259 in urban areas, according to the NSS 2017-18 report.
- A Parliamentary Standing Committee report expressed concern about the inaccessible and increasing cost of cancer treatment.

2. **Regulatory Challenges:**

- While anti-cancer medicine costs can be regulated, the cost of radiotherapy cannot, as it has not been declared an essential service.
- Insurance Coverage and Out-of-Pocket Expenses.

3. **Impact on Patients:**

- Cancer often strikes around the retirement age, leading to mounting debt burdens.
- The average hospital stay for 14.1% of cancer patients is more than 30 days, further increasing bills.

Insurance Coverage and Out-of-Pocket Expenses

1. **Poor Insurance Penetration:** More than 80% of hospital bills are paid out of pocket, as per the NSS 2017-18 report.
2. **Ayushman Bharat Limitations:** The Committee observed that the Ayushman Bharat insurance scheme launched in 2018 does not cover entire prescriptions, latest cancer therapies, or many diagnostic tests.
3. **State-Specific Insurance Schemes:** The Committee suggested a convergence of State and Central schemes, as some State-specific insurance schemes have been highly beneficial.

State-wise Variation in Cancer Treatment Expenditure

- State-wise average medical expenditure per hospitalization case for cancer treatment in government hospitals varies, with the lowest in Tamil Nadu and Telangana, and the highest in northern and north-eastern India.

Facts for Prelims: CAR T-cell therapy

- Unlike chemotherapy or immunotherapy, which require mass-produced injectable or oral medication, CAR T-cell therapies use a patient's own cells.
- The treatment involves modifying a patient's own T-cells, which are a type of immune cell, in a laboratory to target and attack cancer cells.
- CAR stands for chimeric antigen receptor, which refers to the genetically engineered receptor that is added to the patient's T-cells.
- The patient's T-cells are collected and genetically modified in a laboratory to express the CAR.
- The modified T-cells are then infused back into the patient's body, where they can seek out and destroy cancer cells that express the antigen targeted by the CAR.
- The cells are even more specific than targeted agents and directly activate the patient's immune system against cancer, making the treatment more clinically effective.
- This is why they're called living drugs.
- CAR T-cell therapy has shown promising results in treating certain types of blood cancers, including leukemia and lymphoma.

Conclusion

- The rising number of cancer cases in India underscores the need to address the economic burden of expensive cancer treatments and improve the accessibility of affordable healthcare for patients. Converging State and Central insurance schemes, expanding insurance coverage, and exploring ways to regulate treatment costs are essential steps to ensure that patients can

access life-saving treatments without facing insurmountable financial challenges.

40. Chinese firm to build Solomon Islands Port Project

A Chinese state-backed company has won a contract to develop Honiara, a key port in the Solomon Islands. This is a major victory for China, which is seeking to gain a strategic foothold in the South Pacific.

Why discuss this?

- The Solomon Islands have become a focal point in the diplomatic tussle between China and the US, following the signing of a secret security pact between the Solomons and Beijing in 2022.
- This has raised concerns that China may be establishing a permanent naval base in the country.

Solomon Islands

- The Solomon Islands is a sovereign country consisting of six major islands and over 900 smaller islands in Oceania, to the east of Papua New Guinea and northwest of Vanuatu.
- Its capital, Honiara, is located on the largest island, Guadalcanal.
- It is part of the ethnically Melanesian group of islands in the Pacific and lies between Papua New Guinea and Vanuatu.
- The country takes its name from the Solomon Islands archipelago, which is a collection of Melanesian islands that also includes the North Solomon Islands (a part of Papua New Guinea).
- It excludes outlying islands, such as the Santa Cruz Islands and Rennell and Bellona.

Quick recap of its past

- The islands, which were initially controlled by the British Empire during the colonial era, went through the hands of Germany and Japan.
- It then went back to the UK after the Americans took over the islands from the Japanese during World War II.
- The islands became independent in 1978 to become a constitutional monarchy under the British Crown, with a parliamentary system of government.
- Nevertheless, its inability to manage domestic ethnic conflicts led to close security relations with Australia, which is the traditional first responder to any crisis in the South Pacific.

How did China enter the picture?

- Earlier this year, the Solomon Islands established a **security agreement with China**, saying it needed Beijing's assistance with its domestic security situation.
- But the **announcement had rattled the west**, esp. the US, Australia and others in the Indo-Pacific region.
- The concerns were that the agreement could potentially lead to a **Chinese military base on the island nation** and a gain in power-projection capabilities.
- At that time, following intense scrutiny, the Solomon Islands had denied that the agreement would allow China to establish a naval base.

What is the Solomon Islands' stance?

- The government has asked all partner countries with plans to conduct naval visits or patrols to put them on hold until a **revised national mechanism** is in place.
- The revised national mechanism **applied to all foreign vessels seeking access to the country's ports**.
- The nation wanted to **build up its own naval capacity**.
- It has some **unfortunate experiences of foreign naval vessels entering its waters** without any diplomatic clearance.

What is behind China's growing influence in the region?

- There is no dispute that **China has been rapidly increasing its presence and influence** in the region for over three decades, particularly in the South Pacific.
- Certainly Beijing views the Pacific Island region as an **important component of its Belt and Road Initiative (BRI).**
- Specifically, it sees the region as a critical air freight hub in its so-called **Air Silk Road**, which connects Asia with Central and South America.

What is the rationale for the Solomon Islands' increasing proximity to China?

- The Solomon Islands had cultivated strong ties with Taiwan, which ended with the emergence of the current government in Honiara.
- In 2019, the regime change switched Taiwan for China.
- This was supposedly after Beijing offered half a billion US dollars in financial aid, roughly five times what Taiwan spent on the islands in the past two decades.
- It has been alleged by the pro-Taiwan Opposition that the incumbent government has been bribed by China.

Why is China interested in the Solomon Islands?

- **Isolating Taiwan:** The Solomon Islands was one among the six Pacific island states which had official bilateral relations with Taiwan.
- **Supporter in UN:** The small Pacific island states act as potential vote banks for mobilising support for the great powers in international fora like the United Nations.
- **Larger EEZ:** These states have disproportionately large maritime Exclusive Economic Zones when compared to their small sizes.
- **Natural resources:** Solomon Islands, in particular, have significant reserves of timber and mineral resources, along with fisheries.
- **Countering US:** But more importantly, they are strategically located for China to insert itself between America's military bases in the Pacific islands and Australia.

What does this mean for the established geopolitical configuration in the region?

- **Diminishing western influence:** The Pacific islands, in the post-World War II scenario, were exclusively under the spheres of influence of the Western powers, in particular, the US, UK, France and Australia and New Zealand.
- **Inserting into western hegemony:** All of them have territorial possessions in the region, with the three nuclear powers among them having used the region as a nuclear weapons testing ground.
- **Shifting of dependencies:** The smaller island nations of the region are heavily dependent on them, especially Australia as it is a resident power.

GS 3 : Economy, Science and Technology, Environment

1. RBI's new pilot project on Coin Vending Machines

The RBI in collaboration with banks is set to launch a pilot project to assess the functioning of a QR-code-based coin vending machine.

Coin Vending Machines

- The vending machines would dispense coins with the requisite amount being debited from the customer's account using United Payments Interface (UPI) instead of physical tendering of banknotes.
- Customers would be endowed the option of withdrawing coins in required quantities and denominations.

- The central idea here is to ease the accessibility to coins.
- With particular focus on ease and accessibility, the machines are intended to be installed at public places such as railway stations, shopping malls and marketplaces.

Why such a move?

- **Prevent hoarding of coins:** The situation with respect to coins is peculiar with the supply being very high. It is taking up a lot of storage space and is not getting properly distributed despite high demands.
- **Eliminate the physical tendering of banknotes:** It was observed that the currency being fed into the machines (for coin exchange) were often found to be fake and could not be checked right at that point of time.

How coins are significant in our economy?

- As per the latest RBI bulletin, the total value of circulation of rupee coins stood at ₹28,857 crore as of December 30 last year. The figure is an increase of 7.2% from the year-ago period.
- Circulation of small coins remained unchanged at ₹743 crore.
- The figures above could be compared to the volume of digital payments until December 2022 which stood at approximately ₹9,557.4 crore, as per the Digidhan Dashboard.
- The number is inclusive of mobile banking, internet banking, IMPS, BHIM-UPI and NEFT, among others.
- Hence the reliance on UPI for dispensing coins is particularly noteworthy.

Is it going against the digital push?

- RBI is in the midst of a pilot for the Central Bank Digital Currency (CBDC).
- But this proposal should not be viewed as a "zero-sum game of digital versus cash."
- The two can easily supplement each other by re-circulating existing coins in the economy.

2. Nifty India Municipal Bond Index

Recently, National Stock Exchange of India (NSE's) index services subsidiary, NSE Indices Limited, launched India's first-ever Municipal Bond Index at a SEBI workshop.

About Nifty India Municipal Bond Index

- It tracks the **performance of municipal bonds** issued **by Indian municipal corporations** across maturities and having investment-grade credit rating.
- The index includes municipal bonds issued as per **the Securities Exchange Board of India Issue** and **Listing of Municipal Debt Securities Regulations, 2015.**
- Presently, the index has **28 municipal bonds** issued by **10 issuers** all having credit rating in the **AA rating category**.
- The index is computed using the **total return methodology** including price return and coupon return.
    - The index has a base date of January 1, 2021, and a base value of **1,000**.
    - The index will be reviewed **quarterly**.
- The index constituents are assigned **weights** based on their **outstanding amount**.
- It will to act as a benchmark for **asset managers** and be a reference index tracked by passive funds in the form of **Exchange Traded Funds (ETFs)**, index funds and structured products.

3. IMD is already sensing heat waves. What are they and why do they happen?

Recently, India Meteorological Department (IMD) warned that the maximum temperatures over northwest, west, and central India would be 3-5° C higher than the long-term average.

About the Origin of heat waves:

- Heat waves are formed for one of **two reasons**:
    - Because warmer air is flowing in from elsewhere
    - Because something is producing it locally
- Air is **warmed locally** when the air is warmed by higher land surface temperature or because the air sinking down from above is compressed along the way, producing **hot air near the surface.**

Heat waves in India

- In spring, India typically has air flowing in from the **west-northwest.**
- In the context of **climate change**, the **Middle East** is warming faster than other regions in latitudes similarly close to the equator and serves as a source of the warm air that blows into India.
- Likewise, air flowing in from the northwest rolls in over the **mountains of Afghanistan and Pakistan**, so some of the compression happens on the leeward side of these mountains, entering India with a bristling warmth.
- The air flowing in over the oceans is expected to **bring cooler air** since land warms faster than the oceans (because the heat capacity of the land is much

lower). That's why the **Arabian Sea** is warming faster than most other ocean regions.

- The strong upper atmospheric **westerly winds** that come in from the Atlantic Ocean over to India during spring control the near-surface winds.
- Any time winds flow from the west to the east, the winds are blowing faster than the planet itself, which is **rotating from west to east**.
- The energy to run past the earth near the surface, against the surface friction, can only come from above.
- This descending air compresses and warms up to **generate some heat waves.**
- Finally, the so-called lapse rate is declining under global warming.
    - **Lapse rate:** it is the rate at which temperatures cool from the surface to the upper atmosphere.
- Global warming tends to **warm the upper atmosphere** faster than the air near the surface.
- The sinking air is warmer due to global warming and thus produces heat waves as it **sinks and compresses.**
- These are the processes that contribute to the **formation of a heat wave**, and the ways in which global warming affects them, it must be clear why once-a-decade heat wave events have started to occur once every few years, and are also more intense.
- The area covered by these heat waves is also influenced by the background pressure patterns set up by **El Niño and La Niña events**.
- The other factors that affect the formation of heat waves are the age of the **air mass** and how far it has travelled.
- Heat waves over **peninsular India** arrive from the oceans, which are closer (around 200-400 km) and are barely a day old. As a result, they are on **average less intense.**

4. Cotton: Crying out for change

Cotton farmers in Northern India suffered heavy losses in the last kharif season.

What are the reasons for less cotton productivity?

- The cotton productivity estimate was reported to be at its lowest in the North zone comprising of Punjab, Haryana and Rajasthan.
- North zone cotton, which recorded the highest cotton yield in 2019-20 is now down by over 30%.

- **Reasons –** The losses are mounting due to the rising cost of cultivation, climate induced change in pest dynamics and rampant sale of unauthorised seeds and unchecked pesticides sprays.
- **Health & Environment –** The boom and tractor mounted sprayers are back with unimaginable consequences on human health and environment.
- **Climate Change –** Climate change induced weather aberration, widespread infestation of boll devouring pink bollworm, new tobacco streak virus disease and boll rot have recently threatened cotton farmers.
- **Crop diseases –** The white fly transmitted severe cotton leaf curl virus and sudden outbreak of para wilt have worsened the situation for North zone farmers.
- **Lack of infrastructure –** The cotton sector seems to be dogged by some serious structural deficiencies.

What is the impact of low cotton productivity?

- **Imbalance in demand-supply –** Cotton productivity, has continuously been decelerating, causing imbalance in demand-supply of cotton and uncertainty in the cotton textile industry.
- **Increase in imports –** This dip in cotton production has forced the textile industry to rely on imports, which increased to 35.3 lakh bales worth ₹8,339.26 crore in 2018-19.
- The relaxation in import duty structure would hit the balance of trade in cotton, which remained favourable over the last two decades.
- **Decrease in exports –** On the other hand, cotton exports, which peaked in 2014-15, have since declined.

What are the strategies used to overcome the challenges?

- **HDPS –** The cropping system of cotton must gradually undergo a systematic change to high density planting system (HDPS).

The HDPS is a new cropping system of accommodating more plants per unit area supported by technological inputs for weed management, defoliation and mechanical picking.

- **Dibbling –** Our farmers practice dibbling based sowing of bushy-type, long duration hybrid cotton seeds at a large spacing accommodating fewer plants per acre.
- The farmers harvest seed cotton 3-4 times in a season spanning 180 to 280 days in different cotton growing zones.
- **Hybrid Cotton –** New erect type hybrid cotton genotypes have been introduced to optimise plant population.

- However, but this forms just one-fourth of what is being practiced under HDPS in countries with high cotton yield.

What is the way forward?

- **Policies –** The government-led policy paradigm on cotton must give way to progressive evidence-based policies on pricing of seeds and safeguarding intellectual property.
- **Intellectual Property Rights –** Enforcement of IPR on new varieties suitable for HDPS while ensuring farmers' rights must be strengthened to attract investment in R&D and breeding of high-density suitable genotypes.
- **Transfer of Seeds –** Exchange of pre-breeding germplasm under material transfer agreement (MTA) and access and benefit sharing (ABS) mechanism for cross border material transfer must be prioritised.
- **Price Control –** The price control of cotton seeds under the Cotton Seed Price (Control) Order, 2015 has discouraged breeding activities and stalled introduction of much needed technologies for weed management.
- This has also fuelled the growth of illegal market for herbicide tolerant (HT) cotton.

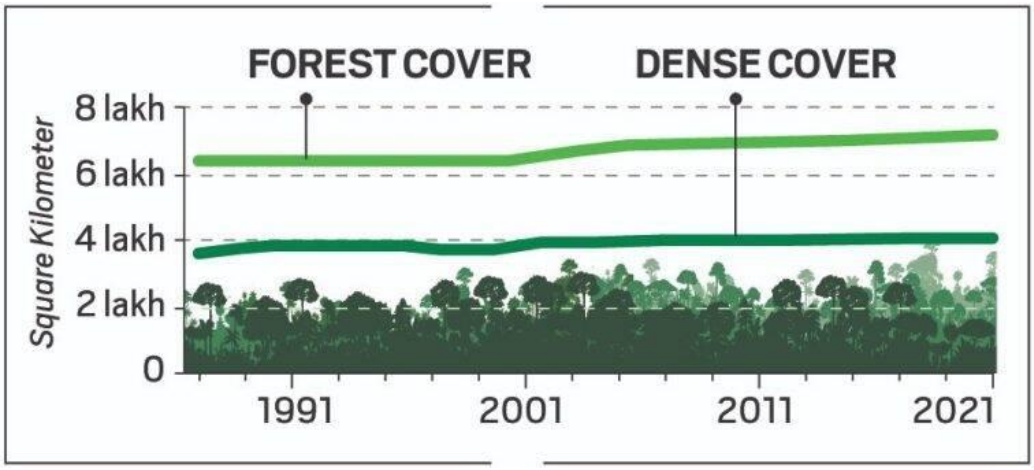
5. India's Forest Cover Data

India has a scientific system of periodic forest cover assessment, providing valuable inputs for planning, policy formulation and evidence-based decision-making.

status of forest and tree cover in India

- **FSI –** The Forest Survey of India (FSI) started publishing its biennial State of Forest reports in 1987, however, it has been mapping India's forest cover since the early 1980s.
- **India –** It counts all plots of 1 hectare or above, with at least 10% tree canopy density, irrespective of land use or ownership, within forest cover.
- This disregards the United Nation's benchmark that does not include areas predominantly under agricultural and urban land use in forests.

The global standard for forest is provided by the Food and Agriculture Organisation (FAO) of the United Nations: at least 1 hectare of land with a minimum of 10% per cent tree canopy cover. It does not include areas predominantly under agriculture or urban land use in a forest.



- **Dense and Open Forests –** All land areas with tree canopy density of 40% and above are considered dense forests and those between 10-40% are open forests.
- **Very Dense Forests –** Since 2003, a new category, very dense forest, was assigned to land with 70% or more canopy density.
- **Isolated Trees –** Since 2001, small patches of trees less than 1 hectare and not counted as forest.
- They are assessed for determining a notional area under tree cover by putting together the crowns of individual patches and trees.

How are the data from NRSA and FSI interpreted?

- The National Remote Sensing Agency (NRSA) under the Department of Space estimated India's forest cover using satellite imagery.
- **Encroachment –** Nearly the size of Haryana of forest land was diverted for non-forest use between 1951 and 1980.
- **Old forests lost –** Land recorded as forest in revenue record, proclaimed as forest under a forest law is described as Recorded Forest Area.
- Over time, some of these Recorded Forest Areas lost forest cover due to encroachment, diversion, forest fire etc.
- In 2011, it came to light that nearly one-third of Recorded Forest Areas had no forest at all.
- **National forests shrink –** Even after extensive plantation by the forest department since the 1990s, dense forests within Recorded Forest Areas added up to cover only 9.96% of India in 2021.
- That is a one-tenth slide since the FSI recorded 10.88% dense forest in 1987.
- **Natural vs manmade –** The steady replacement of natural forests with plantations are worrisome.
- Natural forests are old and therefore stock a lot more carbon in their body and in the soil.

- Plantation forests have trees of the same age, are more susceptible to fire, pests and epidemics, and often act as a barrier to natural forest regeneration.
- **Impact of technology –** The forest cover fluctuated with every change in technology and the radical refinement in 2001 made the data incomparable with the previous assessments.

What is the way forward?

- The forest maps are based on the images purchased from NRSA, another arm of the government.
- **Brazil Model –** Even though Brazil is losing forests at an alarming rate, their forest data is open and free.
- Brazil's National Institute for Space Research (INPE) maintains an open web platform, TerraBrasilis, for data on deforestation, forest cover change and forest fire.
- With environmental awareness on the rise, thousands of researchers and enthusiasts can volunteer to verify the country's forest data on the ground and be proud custodians of this vital national asset.

6. Expected Credit Loss (ECL) regime?

The Reserve Bank of India is moving closer towards ring-fencing the banking system from credit losses as it proposes to move to provision on the principles of 'expected losses' from 'incurred losses. '

Loan-Loss Provision

- The RBI defines a loan loss provision as an expense that banks set aside for defaulted loans.
- Banks set aside a portion of the expected loan repayments from all loans in their portfolio to cover the losses either completely or partially.
- In the event of a loss, instead of taking a loss in its cash flows, the bank can use its loan loss reserves to cover the loss.
- The level of loan loss provision is determined based on the level expected to protect the safety and soundness of the bank.

Expected Credit Loss (ECL) regime

- The Expected Credit Loss (ECL) regime is a new accounting standard that was introduced by the International Financial Reporting Standards (IFRS) in response to the global financial crisis of 2008.

- The ECL regime requires banks and other financial institutions to estimate and report the expected losses from their loan portfolios over the lifetime of the loans.
- Under the ECL regime, financial institutions must assess the credit risk associated with each loan and estimate the expected losses that will result from default or other credit events.
- These expected losses must be recognized in the financial institution's accounts and reported to investors and other stakeholders.
- Under this practice, a bank is required to estimate expected credit losses based on forward-looking estimations rather than wait for credit losses to be actually incurred before making corresponding loss provisions.

Benefits of the ECL regime

- ECL will result in excess provisions as compared to a shortfall in provisions, as seen in the incurred loss approach.
- It will further enhance the resilience of the banking system in line with globally accepted norms.

Issues with this regime

- It requires banks to provide for losses that have already occurred or been incurred.
- The delay in recognizing loan losses resulted in banks having to make higher levels of provisions which affected the bank's capital.
- This affected banks' resilience and posed systemic risks.
- The delays in recognizing loan losses overstated the income generated by the banks, which, coupled with dividend payouts, impacted their capital base.

7. SMART-PDS

The Union Minister Piyush Goyal urged all states and union territories to implement the SMART-PDS to ensure the smooth operation of the public distribution system. The Scheme for Modernization and Reforms through Technology in Public Distribution System (SMART-PDS) was proposed by the Department of Food and Public Distribution.

What is SMART – PDS System?

It is a system in which smart ration card is issued to the citizens. Individuals shall carry these cards to the ration shop. The card is screened for a code there. Upon verification, they place their fingerprint over a fingerprint scanner to double-check their identity.

What is the main objective of Smart PDS?

The aim of the SMART-PDS is to leverage Cloud and new-age technologies to transform the Public Distribution System's information technology to standardize the operation and implementation. Under this initiative, Smart Ration Cards are issued to make rations accessible at fair-price shops. Fingerprints of the beneficiaries are also recorded to ensure transparency in all transactions. Apart from this, the Food Corporation of India is in the process of upgrading its grain storage godowns into 5-star facilities.

Working of the Smart PDS system

The smart PDS is a joint operation of the central and state government. However, it is the responsibility of the state governments to issue smart cards. Funds should also be allocated by the state governments. Because according to the National Food Security Act, ration cards are issued by the state government.

The operational responsibility of the ration cards also lies with the state government. The Centre will only allocate rice, wheat, kerosene, and sugar to the state government and Union Territories under this scheme. It is the duty of the state governments to distribute the allocated food grains among the citizens.

Way Forward

With technological advancements, it is essential that the ration shops become digitalised for easy and quick transactions. It will also keep the entire process transparent and reduce corruption.

8. Methane Global Tracker report

The Methane Global Tracker report is the annual report released by the International Energy Agency. According to the latest report, fossil fuel companies released 120 million metric tonnes of methane into the atmosphere last year. This is just a slight decline from the unprecedented record created in 2019.

What is the report saying?

The report found that no effort has been taken by fossil fuel companies to bring down emissions. It revealed that cheap and readily available technologies can help bring down methane emissions from the energy sector by 75 per cent. Investments in such technologies are estimated to cost less than 3 per cent of the net income received by the oil and gas industry in 2022. These findings come after energy

giants like BP, Shell, ExxonMobil, etc. reported record profits in 2022, as a consequence of the Russia-Ukraine crisis.

Key Findings of the Report

- 40% of the methane emissions are from the energy sector
- 260 billion cubic metres of natural gas is wasted through methane leaks every year
- Fossil fuel companies are putting in very small efforts to tackle the problem
- We have to reduce natural gas wastage by 75% to lower the global temperature

How is methane emission adding to climate change?

Methane is responsible for 30% of the global warming happening on the earth. It is a greenhouse gas. The potential of methane to warm the earth's surface is 80 times higher than carbon dioxide. The NOAA of the US says that atmospheric levels of methane increased to 17 parts per billion in 2021.

Methane Initiatives

Global Methane Pledge: It was announced by the US and EU. It aims to reduce methane emissions by 30% in 2030 as compared to 2020.

MARS: MARS is Methane Alert and Response System. It integrates data related to methane emissions. It was launched by the United Nations Environment Programme. It is a satellite-based monitoring programme.

9. The case for open, verifiable forest cover data

India is one of the few countries to have a scientific system of periodic forest cover assessment that provides "valuable inputs for planning, policy formulation and evidence-based decision-making".

About Forest and tree cover:

- The Forest Survey of India (FSI) started **publishing its biennial State of Forest reports in 1987.**
  - It has been mapping India's forest cover since the **early 1980s.**
- India counts all plots of **1 hectare or above**, with at least **10% tree canopy density,** irrespective of land use or ownership, within forest cover.
  - This **disregards the United Nation's benchmark** that does not include areas predominantly under agricultural and urban land use in forests.
- **Open forest:** All land areas with tree canopy density of 10-40%.

- **Dense forest cover: All land areas with tree canopy density of 40% and above.**
- **Very dense forest:** All land areas with tree canopy density of 70% or more.
  - It was introduced in **2003.**
- Since 2001, **isolated or small patches of trees** — less than 1 hectare and not counted as forest — are assessed for determining a notional area under tree cover by putting together the crowns of individual patches and trees.

NRSA versus FSI

- The **National Remote Sensing Agency** (NRSA) under the **Department of Space** estimated India's forest cover using satellite imagery for periods 1971-1975 and 1980-1982 to report a **loss of 2.79% — from 16.89% to 14.10% — in just seven years.**
- Government records show that **42,380 sq km** of forest land was diverted for **non-forest use between 1951 and 1980.**
  - However, the government was **reluctant to accept such a massive loss.**
- The NRSA and the newly established FSI **"reconciled"** India's forest cover at **19.53% in 1987.**
- The FSI did not contest the NRSA finding that the dense forest cover had fallen from **14.12%** in the mid-1970s to **10.96% in 1981**, and reconciled it to **10.88% in 1987**.

Natural forests shrink

- Since the 1990s, dense forests within Recorded Forest Areas added up to cover only 9.96% of India in 2021.
  - It is a one-tenth slide since the FSI recorded 10.88% dense forest in 1987.
- This loss remains invisible due to the inclusion of **commercial plantations, orchards, village homesteads, urban housings etc** as dense forests outside Recorded Forest Areas.
  - **Example:** SFR 2021 reports 12.37% dense forest by including random green patches.
- Since 2003, nearly **20,000 sq km** of dense forests have become **non-forests.**
  - The loss is compensated by **nearly 11,000 sq km** of non-forest areas that became dense forests in successive two-year windows **since 2003.**

Natural forest vs manmade (plantation)

- The steady **replacement of natural forests with plantations** are worrisome.
  - Natural forests have evolved naturally to be diverse and, therefore, **support a lot more biodiversity.**
  - It has **many different plants to sustain numerous species**.

- Plantation forests have **trees of the same age**, are more susceptible to **fire, pests and epidemics,** and often act as a barrier to **natural forest regeneration.**
- Natural forests are old and therefore stock a lot **more carbon in their body and in the soil.**
- **2018:** The United Nations Framework Convention on Climate Change (UNFCCC) flagged India's assumption that **new forests (plantations) reach the carbon stock level of existing forests in just eight years.**
- Plantations can grow a **lot more and faster than old natural forests**.
    - This also means that plantations can **achieve additional carbon targets faster.**
- Compared to natural forests, plantations are often **harvested more readily**, **defeating carbon goals** in the long term.

- **SFR 1987:** The forest cover was estimated through satellite images at a 1:1 million scale.
    - The resolution then improved to **1:250,000**, reducing the minimum mappable unit size from 400 to 25 hectares.
- **2001:** The scale improved to **1:50,000**, bringing down the unit size to 1 hectare, and interpretation went fully digital.
- Due to this refinement of the scale, the forest cover fell within the forest area while it increased outside.
    - It is because "**many small blank, non-forested and/or degraded forest patches**" became discernible within the forest land that earlier appeared as a larger green chunk.
- Several small woodlots or plantations outside forest areas became visible.
- Between **1997 and 2005**, our forest cover jumped by **9%**, gaining **56,774 sq km**, and dense forest cover increased by **10% or 36,160 sq km.**
    - Since 2015, the total gain is **12,294 sq km**, including **5,297 sq km of dense forests**.

Making data public

- The FSI compares some interpreted data with the corresponding reference data collected from the ground under the **National Forest Inventory (NFI) programme.**
- In 2021, it claimed to have established an **overall accuracy of 95.79%** in identifying forests from non-forests.
    - However, given the limited resources, the exercise was limited to less than **6,000 sample points.**
- The FSI **never made its data freely available** for public scrutiny.
    - Inexplicably, it also **bars the media** from accessing its geo-referenced maps.

- **Brazil:** Brazil's National Institute for Space Research (INPE) maintains an open web platform, TerraBrasilis, for queries, analysis and dissemination of data on deforestation, forest cover change and forest fire.

10. India close to Hindu Rate of Growth: Raghuram Rajan

Central idea: Former RBI Governor Raghuram Rajan has warned that India is "dangerously close to the Hindu rate of growth".

Hindu Rate of Growth

- The "Hindu Rate of Growth" is a term used to describe the slow growth rate of the Indian economy between the 1950s and the 1980s.
- It was coined by the Indian economist Raj Krishna in the 1970s.
- During this period, the Indian economy grew at an average rate of around 3.5% per year, which was much lower than other developing countries like South Korea, Taiwan, and Hong Kong.
- The term is considered controversial as it suggests that the slow growth rate was a result of cultural or religious factors rather than economic policies and structural issues.
- However, the term is still used in academic and policy discussions to refer to the slow growth of the Indian economy during this period.

Features of Hindu Rate of Growth

The then features which led to the coining of this term were-

- **Low GDP growth rate:** The term refers to the period from the 1950s to the 1980s when India's economy grew at an average rate of around 3.5% per year, which was much lower than other developing countries.
- **Slow Industrialization:** The industrial sector was dominated by a few public sector companies, and the private sector was heavily regulated.
- **Stagnant Agriculture:** There was little investment in agriculture, and the sector was not given much priority in government policies.
- **License Raj:** India had a socialist economic model with heavy government regulation. The License Raj system required permits and licenses for businesses, creating a bureaucratic and corrupt system that hindered innovation and entrepreneurship.
- **Import Substitution:** India followed a policy of import substitution, where the government tried to develop domestic industries by protecting them from

foreign competition. This led to a lack of competition, low quality of products, and high prices.

- **Inefficient Public Sector:** The public sector dominated the economy, but it was inefficient, unproductive, and plagued by corruption. Public sector companies were often overstaffed and poorly managed, resulting in low productivity.
- **Lack of Foreign Investment:** India was not attractive to foreign investors during this period, and there was little foreign investment in the economy. The government imposed strict controls on foreign investment, and the regulatory environment was not conducive to foreign investment.

Concerns flagged by Rajan

Rajan noted that India's economic growth rate had been declining even before the COVID-19 pandemic hit the country.

(a) Decline in GDP growth rate

- India's economic growth rate had fallen to 4.5% in the September quarter of 2019, before the pandemic hit in early 2020.
- During the pandemic, the Indian economy contracted sharply, with GDP falling by 7.7% in the 2020-21 fiscal year.
- The economy has rebounded somewhat, with the IMF forecasting GDP growth of 9.5% for the current fiscal year.

(b) Lower growth potential than hyped

- However, Rajan noted that India's potential growth rate is likely to be lower than in the past, due to factors such as an aging population, a decline in the working-age population, and sluggish investment.
- He also cited the country's poor performance on human development indicators, such as education and health, as a constraint on growth.

Key suggestions

- Rajan called for measures to address the structural factors that are holding back growth, such as investment in infrastructure and education, and improving the ease of doing business in India.
- He also emphasized the importance of macroeconomic stability and maintaining fiscal discipline, to avoid inflation and currency depreciation.
- He also called for measures to address inequality, such as better targeting of subsidies to those who need them most.

Conclusion

- Overall, Rajan's remarks suggest that India faces significant challenges in maintaining high levels of economic growth, and that structural reforms will be needed to address these challenges.

11. Green Hydrogen Superpower

Green hydrogen is a critical industrial fuel of the 21st century and India is well-positioned to show leadership.

Green hydrogen

- It is a type of hydrogen produced by splitting water through electrolysis, using electrolyser powered entirely by renewable power sources.
- **Advantages –** It could replace fossil fuels and decarbonize a range of sectors such as petroleum refining, fertiliser production, steel production, chemicals, transport, etc.
- **Disadvantages –** It is not commercially viable at present and is expensive to be manufactured.

All about Green Hydrogen.

National Green Hydrogen Mission

- The National Green Hydrogen Mission was first announced by the Prime Minister in his Independence Day speech in 2021.
- **Objectives –** The mission is aimed at making India a global hub for the production of green hydrogen.
- The mission also aims to:

1. Creation of export opportunities for green hydrogen.
2. Decarbonisation of the energy sector.
3. Development of indigenous manufacturing capacities.

All about National Green Hydrogen Mission.

What are India's commitments?

- **Electricity –** India has committed to 50% electricity capacity from non-fossil sources by 2030.
- Most industrial greenhouse gas emissions in India come from steel, cement, fertilizers and petrochemicals.
- **Green hydrogen –** India is targeting at least 5 million tonnes of production of green hydrogen by 2030, which is larger than that of any single economy.

How can the targets be achieved?

- **Domestic demand –** If we are not a big player domestically, we cannot be a major player in the international market.
- **SIGHT –** The mission introduces a Strategic Interventions for Green Hydrogen Transition (SIGHT) fund for five years, with ₹13,000 crore as direct support to consume green hydrogen.
- This will encourage heavy industries to increase demand, offering economies of scale by which suppliers can reduce prices.
- **Government procurement –** A share of government procurement of steel could be nudged towards green steel, which could help India to later position itself as a green steel exporter.
- **Investments –** India can be an attractive destination for domestic and foreign investment.
- A mission secretariat can ensure project clearance is streamlined and reduce financial risks.
- **Electrolyser manufacturing –** The SIGHT fund offers ₹4,500 crore to support electrolyser manufacturing under the performance-linked incentive scheme.
- Not targeting value addition would result in electrolyser technologies and production again getting concentrated.
- China could end up controlling 38% of electrolyser capacity by 2030.
- **Bilateral partnerships –** India must cooperate with like-minded countries on trade, value chains, research and development, and standards.
- **Trade in local currency –** Using yen or euro for trade, could reduce the cost of capital and help us become export competitive.
- **Rules for green hydrogen economy –** India must coordinate with major economies to develop rules for a global green hydrogen economy.
- Attempts for rules and standards are being driven by private corporations rather than structured intergovernmental processes.

What is the way forward?

- **G20 –** India's G20 presidency is an opportunity to craft rules for a global green hydrogen economy.
- These rules must address operational threats, industrial competitiveness and strategic threats.
- **Global network –** India should promote a global network on green hydrogen via which companies could collaborate.
- **India's geography –** With abundant sunshine and significant wind energy resources, India is geographically blessed to become one of the lowest-cost producers of green hydrogen.
- India is well-positioned to show leadership, in our collective interest and that of the planet.

12. How did the treaty on the high seas come through?

The members of the United Nations (UN) have recently agreed on a treaty for protecting marine life in international waters that lie outside the jurisdiction of any country.

Background

- The U.N. Convention on the Law of the Sea (UNCLOS) was adopted in 1982 and came into force in 1994.
    - UNCLOS set out rules to govern the oceans and the use of its resources, but there was no comprehensive legal framework that covered the high seas.
- As climate change and global warming became global concerns, there was a need to formulate an international legal framework to safeguard high seas and marine life.
- The UNGA after years of informal talks decided to develop a legally binding instrument within the framework of UNCLOS in 2015.
- An Intergovernmental Conference (IGC) was convened to come up with a legal instrument on Marine Biodiversity of Areas Beyond National Jurisdiction (BBNJ).
- Recently, the UN members reached an agreement on this treaty to protect the world's oceans after about 15 years of negotiations. However, the treaty has still not been formally adopted as members are yet to ratify it.

High seas

- As per the **Geneva Convention on the High Seas** (1958), those parts of the sea that are not included in the territorial waters or the internal waters of a country are called the high seas.
- No individual country is responsible for the management, conservation and protection of resources on the high seas as they do not come under their jurisdiction.
- Close to about two-thirds of the world's oceans are considered international waters, wherein all countries have the right to undertake fishing and research.
- However, only about 1% of these waters have been protected which leaves the marine biodiversity in these high seas at risk of exploitation.

Significance of high seas

- Since the high seas account for over 60% of the world's oceans they cover about half of the Earth's surface.

- The high seas are a hub of marine life and they house close to 2.7 lakh known species and many are yet to be discovered.
- Due to their sheer scale, the high seas have become extremely crucial for human survival and well-being.

Threat to the high seas

- Since the oceans absorb the majority of the heat from the atmosphere they are affected by phenomena such as El Nino, and ocean acidification.
- Studies have revealed that thousands of marine species would be at risk of extinction by 2100 if current trends in ocean warming and acidification persist.
- Climate change has also increased marine heat waves 20-fold which could cause extreme events like cyclones and mass mortality events.
- Further, the high seas are increasingly under threat from various anthropogenic activities such as pollution, seabed mining, overfishing, chemical spills, geoengineering, disposal of untreated waste and introduction of invasive species which endanger marine flora and fauna.

The High Seas Treaty

- The draft agreement of the Treaty acknowledges the need to combat the issues of biodiversity loss and degradation of ecosystems of the ocean.
- The High Seas Treaty is a **legally binding pact** that aims to conserve and ensure the sustainable use of ocean biodiversity.
- The treaty provides a legal framework for establishing **marine protected areas (MPAs)** to protect against the loss of wildlife and share out the genetic resources of the high seas.
    - The treaty places **30% of the world's oceans into protected areas** and includes provisions to increase investments in marine conservation.
- The treaty will facilitate the constitution of an **access- and benefit-sharing committee** to frame guidelines to manage and look after the conservation of ocean life.
- The treaty will introduce arrangements for sharing marine genetic resources like biological material from plants and animals in the ocean.
- The treaty also mandates that activities concerning marine genetic resources on the high seas must be carried out in the interests of all States, for the benefit of humanity and exclusively for peaceful purposes.
- The treaty further puts in place various rules for conducting environmental impact assessments for commercial activities in the oceans.

Significance of the treaty

- The treaty also helps strengthen multilateral cooperation to preserve crucial marine life and biodiversity.
- The treaty will play a critical role in enforcing the 30×30 pledge and historic Biodiversity Deal made by the member nations at the UN biodiversity conference in December 2022, to protect a third of the sea (and land) by 2030.
    - Without such a treaty, the target would fail since there was no legal mechanism to set up MPAs on the high seas.
- Furthermore, the treaty is also vital for achieving ocean-related goals and targets of the 2030 Agenda for Sustainable Development, and the Kunming-Montreal Global Biodiversity Framework (GBF).

13. Compensatory Afforestation Fund Act of 2016

About Compensatory Afforestation :

- It seeks **to ensure that forest lands getting 'diverted' for non-forest purposes,** like industrial or infrastructure development, **is mandatorily accompanied by afforestation effort** on at least an equal area of land.
- This compensatory afforestation was made a legal requirement through the **Compensatory Afforestation Fund Act of 2016.**

About THE COMPENSATORY AFFORESTATION FUND ACT, 2016 :

- The Compensatory Afforestation Fund Act was passed by the centre in **2016** and the related rules were notified in 2018.
- The Act was enacted **to manage the funds collected for compensatory afforestation**, which till then was managed by **ad hoc Compensatory Afforestation Fund Management and Planning Authority (CAMPA).**
- **ad hoc Compensatory Afforestation Fund Management and Planning Authority (CAMPA)**
- A **temporary structure of CAMPA** functioning on the orders of the Supreme Court. **In 2002**, the Supreme Court of India observed that **collected funds for afforestation were under-utilized by the states** and it directed that an "ad hoc CAMPA" consisting of **three officials** and one representative of the Central Empowered Committee be set up till the final one is created.

Objective: It seeks to establish the **National Compensatory Afforestation Fund** under the **Public Account of India**, and **a State Compensatory Afforestation Fund** under the **Public Account of each state.**

These Funds will receive payments for:

- compensatory afforestation
- net present value of forest (NPV)
- other project-specific payments.
- The **determination of Net Present Value (NPV) will be delegated to an expert committee constituted by the central government.**

- **Net Present Value (NPV) quantifies the services provided by the forest** like goods and services (tourism and timber); regulating services (climate change); and non-material benefits (recreation).
- It seeks to **provide safety, security, and transparency** in the utilization of CAMPA funds which are currently kept in **Nationalized Banks** and managed by an ad-hoc body.
- The **National Fund will receive 10%** of these funds, and the State Funds will receive the remaining 90%.
- These funds would be brought under the focus of Parliament and State Legislatures by transferring them to **non-lapsable interest-bearing funds.**
- According to the recently revised calculations, **companies have to pay NPV at rates ranging between Rs 9.5 lakh and Rs 16 lakh per hectare, depending on the quality of forests getting diverted.**
- The Act also **establishes the National and State Compensatory Afforestation Fund Management** and **Planning Authorities** to manage the National and State Funds

CAMPA funds can be used for the following purposes:

- Artificial regeneration (plantation)
- Assisted natural regeneration
- Forest management
- Forest protection
- Infrastructure development
- Wildlife protection and management
- Supply of wood
- Other forest produces saving devices.

14. Space Debris: India's Contribution and Efforts to Tackle the Problem

- Space debris, particularly in Low Earth Orbit (LEO), is becoming an increasingly urgent problem due to the rising number of rocket launches and payloads, as well as anti-satellite missile tests and collisions. On March 7, 2023, ISRO successfully carried out a controlled re-entry for the decommissioned Megha-Tropiques-1 (MT1).

ISRO's controlled re-entry of the decommission

- Indian Space Research Organisation (ISRO) successfully carried out a controlled re-entry of the decommissioned Megha-Tropiques-1 (MT1) satellite.
- MT1 was launched over a decade ago with the objective of studying clouds in the tropical regions of the world.
- As the satellite had reached the end of its operational life, ISRO brought it down in a controlled manner to reduce space debris in the Low Earth Orbit (LEO) and limit the potential risks associated with it.

Space debris

- Space debris refers to any human-made object that is in orbit around the Earth but no longer serves any useful purpose. This can include pieces of spacecraft, rocket stages, and other materials that have been left in space after they have completed their missions or have been discarded.
- Space debris can vary in size, from small paint flecks and bolts to larger objects like satellites and old rocket bodies.
- There are currently more than 26,000 objects larger than 10 cm in orbit around the Earth, and many smaller objects that are too small to be tracked.

Surge in Space Debris

- **Increasing number of payloads:** The surging number of rocket launches and the increasing number of payloads carried in recent years have made the space junk problem acute, especially after private companies such as SpaceX launched thousands of satellites to provide Internet access.
- **For instance:** In 2022, over 2,160 objects were launched into space, about 300 more than 2021 and 900 more than 2020.
- **Data on fragmented debris:** The number of satellites in space has crossed the 10,000 mark, including active and defunct ones still orbiting Earth, and the number of fragmentation debris is hurtling towards the 14,000-mark.
- **Smaller debris poses a bigger challenge:** While satellite launches are the reason for the rise in rocket bodies orbiting Earth, fragmented debris are mostly a consequence of collisions and Anti-Satellite (ASAT) missile tests. The fragmented junk poses a bigger challenge as tracking debris smaller than 10 centimetres is tough.

Countries responsible

- **Russia:** Close to 35% originated from the Soviet Union/Russia,
- **US:** 31% from the U.S.,

- **China:** 29% from China, over 2,700 pieces of debris from a Chinese anti-satellite test in 2007, marked as the single worst contamination of space in history, are still in orbit.
- **India:** India's contribution is 0.5%.
- India added to the problem in 2019 by testing an ASAT missile which targeted a live satellite in LEO which resulted in 400 pieces of orbital debris
- While all the trackable debris from India's test have re-entered Earth in subsequent years, over 50 pieces from a break-up event of the 4th stage of PSLV-C3 in 2001 are still in orbit.

The cost of avoiding collision

- **High cost:** While debris has the potential to cause serious accidents, the cost of manoeuvres to avoid collisions is high.
- **For instance:** In 2022, ISS had to conduct two such collision avoidance manoeuvres due to threats posted by debris from Russia's ASAT test in 2021.
- **Challenges:** Such manoeuvres are costly as they require hours of monitoring, fuel for movement, and also result in loss of data as instruments are turned off during such operations.
- **India's honest efforts**:
- India conducted 21 such corrections for its satellites in 2022, the highest ever for the country.
- Also, in 2021, ISRO monitored 4,382 events in LEO and 3,148 events in geostationary orbit (GEO) in which debris or other space objects came close to India's space assets.

Conclusion

- Small debris orbiting Earth pose threats to space assets, the immediate need is that the countries must acknowledge the responsibility. India's continues efforts towards controlled decommission set the bar high.

15. Cryptocurrencies and Prevention of Money Laundering Act, 2002

Recently, the government announced that trade in cryptocurrency will be covered under India's money laundering laws.

Cryptocurrencies

- It is any **form of currency that exists digitally or virtually** and uses cryptography to secure transactions.
- Cryptocurrencies **don't have a central issuing or regulating authority**.

- It uses a **decentralized system to record transactions** and issue new units.
- It is supported by a decentralized peer-to-peer network called the **blockchain.**

Types of cryptocurrencies

The most common and valued cryptocurrency is **Bitcoin.**

All the other cryptocurrencies other than Bitcoin are together as a set are known as alternate coins or commonly called **"Altcoins".** Most famous alt coins are:-

- Litecoin
- Cardano
- Polkadot
- Stellar(XLM)
- Binance Coin

Advantages:-

- Cryptocurrencies are **cheaper to use** to execute international transactions because they don't have to be handled by intermediaries.
- It is **faster than other financial instruments.**
- With a digital key, access to the currency is protected t.
- **Identity Protection**: Cryptocurrency **can be sent directly to a recipient without any information** other than the total amount you want to send.
- **Risk-free for sellers**: Payments using Cryptocurrency can't be reversed, which means merchants don't have to worry about stopped payments.
- **Anti-Inflationary Currency**: Due to the high demand for cryptocurrency its prices have largely remained on a growing trajectory. In this scenario, people tend to hold more cryptocurrency than spend it.

Disadvantages:-

- **Privacy Concerns**: All the transaction information is stored in a distributed ledger (called blockchain), which is publicly visible**.**
- **High Volatility**
- **Destination for black money**: The fear among regulators and policymakers is that cryptocurrencies, being an alternative source of value to fiat currency, **could be misused to launder black money or finance terrorist activities.**
- **Cybersecurity Concerns**: Cryptocurrencies are prone to cybersecurity breaches and hacks.
- **Dark activities**: The possibility that the new money will nurture illicit activities and markets like drug selling, weapons, etc. through Darknet is always high using cryptocurrency anonymously.

- **Monetary control and economic behavior**: It could dramatically change global monetary policymaking.
- **Inflation**: Governments and policymakers will have a reduced ability to control inflation

16. Artificial intelligence and job displacements

Artificial Intelligence can galvanise, turbo-charge, and trigger new avenues of intelligence in human minds.

Artificial Intelligence

- It is an area of computer science that emphasizes the creation of intelligent machines that work and react like humans.
- It uses computers to mimic human cognitive processes for decision-making.
- AI is designed to perform various activities which include speech recognition, learning, planning, problem solving.

Artificial Intelligence Bias.

What is the difference between Artificial General Intelligence (AGI) and Artificial Narrow Intelligence (ANI)?

AGI

- It is the representation of generalized human cognitive abilities in software so that, faced with an unfamiliar task, the AGI system could find a solution.
- **Intellectual task –** AGI is envisioned as having the ability to perform any intellectual task that a human can do, and to apply knowledge learned in one context to new, unfamiliar situations.
- **Unpredictable –** The fear emanates from the very real possibility that an AGI system continues to learn and make decisions that even its creators cannot possibly predict.
- **Human like –** AGI is designed to learn and reason like humans, meaning it should pull knowledge and inputs from experience, and make decisions based on incomplete or uncertain information.
- The difference between AGI and ANI lies in their scope of intelligence and their ability to generalise knowledge across different contexts.

ANI

- It is a type of AI designed to perform a single or a narrow set of related tasks at a high level of proficiency.

- **Predictable –** ANI, by contrast, is designed to perform a specific task or set of tasks and is not capable of generalising knowledge or skills to new situations outside of its programmed domain.
- **Simple –** ANI is typically trained using machine learning algorithms such as supervised learning, unsupervised learning, or reinforcement learning.
- **Not human like –** These algorithms are designed to optimise the AI system's performance on a specific task or set of tasks, but they are not necessarily capable of reasoning or learning in the way that humans do.
- While AGI is still largely in the realm of theoretical research and development, ANI is already in widespread use in a variety of industries and applications.

What is the future of jobs?

Negative impact

- ANI products like ChatGPT have taken the world by storm, besides its technological prowess, it is also a matter of right place and right time.

ChatGPT is a chat bot, which allows users to engage in a conversation about a variety of topics to which it like personal hobbies, interests, or current events and generates human-like responses in text form.

- ChatGPT, and such solutions, are particularly adept at automating routine and repetitive tasks, such as data entry and customer service which could perhaps replace low-skill level workers.
- In industries like healthcare, for example, AI can optimise transportation networks, develop new materials, and even simplify manufacturing processes.
- In the case of AI, workers in low-wage and low-skill occupations may be more vulnerable to job loss than those in high-wage and high-skill occupations.

Positive Impact

- AI may create demand for workers with expertise in machine learning, data science and natural language processing, and project management.
- It may also create opportunities for workers to specialise in areas where human judgement and creativity will remain critical.
- The impact of AI on jobs and industries is likely to be uneven, with some workers and industries experiencing greater disruption than others.

What is the way forward?

- The lack of control of AI is what leads to the overarching fear of AI.
- As AI continues to transform the job market, workers may need to acquire new skills and knowledge in order to remain employable.
- While there is still much uncertainty about the impact of AI on jobs and industries, it is evident that the technology is likely to have significant implications on the future of work.
- It will be important for policymakers, businesses, and workers to take proactive steps to manage this transition and ensure that the benefits of AI are shared widely across society.

17. Reintroduction of Cheetahs and Its Potential Impact

India has embarked on a conservation plan to reintroduce the cheetah into the country, with the aim of establishing a self-sustaining population at Madhya Pradesh's Kuno National Park. The initiative has translocated eight African cheetahs from Namibia and 12 from South Africa since September 2022. Can this initiative succeed in helping India's grasslands?

Know about Cheetahs

- **Appearance:** Cheetahs have a distinctive appearance, with a slender, muscular body, long legs, and a spotted coat. They have black tear marks on their faces that help to protect their eyes from the sun's glare.
- **Speed:** Cheetahs are the fastest land animals in the world, capable of reaching speeds of up to 70 miles per hour in short bursts.
- **Diet:** Cheetahs are obligate carnivores and typically hunt during the day.
- **Conservation status:** Cheetahs are listed as Vulnerable by the International Union for Conservation of Nature (IUCN), with an estimated population of less than 7,000 individuals in the wild. Their numbers have declined due to habitat loss, hunting, and other threats, and they are at risk of extinction in many parts of their range.
- **Reproduction:** Cheetahs have a relatively low genetic diversity, which makes them more vulnerable to disease and other threats.

Cheetah reintroduction plan

- The plan is to introduce roughly 20 cheetahs annually for the next 8-10 years, and the goal is to establish a population of 21 adults in Kuno National Park in 15 years.
- The larger habitat of 3,000-5,000 sq km, which is larger than the 748 sq km where the cheetahs are based, could accommodate up to 40 cheetahs.

The impact of cheetahs on India's grasslands: Illustration

- **Regulate herbivore populations:** Cheetahs are predators that primarily hunt herbivores such as antelopes, gazelles, and other small to medium-sized ungulates. By preying on these herbivores, cheetahs can help regulate their populations, preventing them from overgrazing and causing damage to the grasslands.
- **Increase biodiversity:** The presence of cheetahs in the grasslands is expected to increase biodiversity by creating a more balanced ecosystem. By regulating the populations of herbivores, cheetahs can prevent certain species from dominating the ecosystem, allowing other species to thrive.
- **Promote grassland health:** Overgrazing by herbivores can damage the grasslands, leading to soil erosion and other ecological problems. By regulating herbivore populations, cheetahs can help maintain the health of the grasslands, ensuring that they continue to provide important ecosystem services.
- **Ecotourism:** The presence of cheetahs in India's grasslands could also boost ecotourism in the region, providing economic benefits to local communities.
- **Challenges:** However, there are also potential challenges associated with the reintroduction of cheetahs to India's grasslands, such as competition with other predators and potential conflicts with human activities.

The impact of cheetahs on India's grasslands: Opinion

- **Reintroduction programme can improve India's grasslands:** Cheetahs indicate the overall wellness of open areas, meadows, and grasslands because they need these habitats to survive. The health of the cheetah population can, therefore, be an indicator of the health of the grasslands.
- **Opinion in contrast:** Some expert disagrees and argues that restoring open natural ecosystems, including grasslands, should begin by addressing the problems that led to their degradation and decline. The arrival of the cheetahs will not save India's grasslands, and there are already issues, such as large tracts of open natural ecosystems being categorised as wasteland and granted to renewable energy projects, including solar panels.

Example: Reintroduction of species contributing to the development of a larger ecosystem:

- **Project Tiger in India:** The project started with nine reserves and now has 53 reserves making up 2.3% of the country's geographical area. Scientists worked to establish source and sink dynamics and the concept of how exclusively investing in an umbrella can bring in a compelling, inclusive engagement with people and areas beyond.

- **Wolves in Yellowstone national park, US:** The reintroduction of wolves and beavers in the Yellowstone ecosystem in the US as a global example based on solid science. The presence of wolves helped to control the population of elk, which had been overgrazing and damaging the park's vegetation. As a result, the vegetation began to recover, which in turn led to increases in other species such as beavers, songbirds, and fish.

FYI: Impact of the Project Tiger

- Project Tiger was launched by the Government of India in 1973, has made a significant impact on tiger conservation and the ecosystem in India.
- **Increase in tiger population:** Project Tiger has been successful in increasing the tiger population in India. The latest tiger census conducted in 2018 estimated that there were around 2,967 tigers in India, an increase from the previous census in 2014 which estimated the population to be around 2,226.
- **Restoration of degraded ecosystems:** The conservation efforts under Project Tiger have also helped to restore degraded ecosystems. For example, in the Sariska Tiger Reserve, efforts have been made to restore degraded grasslands and create water sources, which has resulted in the return of several species that were previously absent.
- **Expansion of tiger habitat:** The project has also helped to expand the habitat available to tigers in India. The creation of new protected areas and improved management of existing ones has resulted in an increase in the area of tiger reserves from 9 to 51, covering an area of more than 71,000 square kilometers.
- **Protection of other species:** The conservation efforts under Project Tiger have had a positive impact on other species in the ecosystem as well. The protection of tiger habitats has helped to conserve a wide range of flora and fauna, including elephants, leopards, and various bird species.
- **Reduction in human-wildlife conflict:** The conservation efforts under Project Tiger have helped to reduce human-wildlife conflict by providing alternative livelihoods and increasing awareness about conservation among local communities. This has helped to reduce retaliatory killings of tigers and other wildlife
- **Challenges:** Despite the success of Project Tiger, there are still several challenges that need to be addressed. Poaching, habitat loss, and human-tiger conflict remain significant threats to tiger populations in India.

Remarks: The success of the translocation exercise

- According to the experts it took two and a half to three years for tigers to acclimate to Indian conditions in Sariska.
- In cheetah project, they expect it to take longer since cheetahs are coursers that require large tracts of terrain.

- While others believes that a clear picture of success will emerge when the animals not only survive but start reproducing, leading to a self-sustaining population.

Conclusion

- The reintroduction of cheetahs to India can help establish a self-sustaining population and contribute to the global survival of the species. However, it remains to be seen if they can successfully acclimate to Indian conditions and if they will have a significant impact on India's grasslands. Nevertheless, the initiative highlights the importance of conservation efforts and the need to address the root causes of environmental degradation.

18. Water Trade

India's per capita water availability has touched the water-stressed benchmark, and is likely to reach the water-scarce scenario by 2050.

What is the issue?

- India's water resources are under tremendous pressure.
- India receives more than 80% of the rainfall during 4 months of the year.
- **Unequal spatial distribution –** The Barak and Brahmaputra basins have a per capita water availability that is more than that of the Ganga basin.

Water credit system about

- **Water credits –** It deals with the transaction between water deficit and water surplus entities within a basin and represents a fixed quantum of water that is conserved or generated.
- **Carbon credits –** It is almost a mirror image of the concept of carbon credits.
- However, unlike carbon credits, the water credit system is confined to hydrological boundaries, that is, river basin or watershed.

- **Multiplayer approach –** Industries can buy water credits from water-rich municipalities, who are fund crunched to finance large-scale floodwater harvesting, & wastewater treatment projects, aiding in conserving water.

What is importance of water credit system?

- **Australia –** India should learn from global water trading successes like that of Australia, to lay a roadmap for water trading and also ensure water regulation by setting up related authorities.

The Murray-Darling basin in Australia is a great example of how water credit system works successfully.

- **Chicago Mercantile Exchange –** Participation in water credit system is seen from actual users such as farmers and municipalities and financial investors.
- **Improved water quality –** With the effective implementation and stringent regulatory standards, water trading also paves way for water quality standards.
- **Recycling –** It promotes growth in the recycle and reuse markets through the utilisation of heavy metals organics released in the water from both the industrial and agricultural sectors.
- **Strengthen economic ties –** The credit system can be used to highlight the water quality merits and strengthen economic relations both at a global as well as regional level.
- **Reduce government's burden –** The system can reduce the burden of the government that releases funds towards mitigation as well as post-disaster events such as floods and droughts.
- **Insurance –** The markets can even insure irrigated and rain dependent agriculture against droughts by locking in water prices.

What are the limitations of the system?

- **Rich institutions dominating –** An innate flaw of this water credit system is that the market is dominated by a small number of rich institutions or sellers.
- Hence, rich sellers can control the market by buying credits from the poor, and continue to misuse the shared water resources.
- **Lack of awareness –** The market competition among sellers is further reduced due to the lack of awareness about the water credit concept.

What is the way forward?

- There has been no strong dialogue on the implementation of a water credit system, so far.
- India needs to aggressively alter and adopt practices to expand finance opportunities within the water sector.
- It is anticipated that India could face opposition if water is made a tradable commodity.
- In such a case, a regulatory body must be in place to facilitate and successfully maintain free market conditions.

19. Landslide Atlas of India: Which states, regions are most vulnerable

Recently, the Statement of Climate of India 2022 released by the India Meteorological Department.

Causes of Landslide:

- Landslides are natural disasters occurring mainly in mountainous terrains where there are conducive conditions of **soil, rock, geology and slope.**
- **A sudden movement of rock, boulders, earth or debris down a slope is termed as a landslide.**
- **Natural causes:** heavy rainfall, earthquakes, snowmelting and undercutting of slopes due to flooding.
- **Anthropogenic activities:** excavation, cutting of hills and trees, excessive infrastructure development, and overgrazing by cattle.
- **Landslides are extremely hazardous, posing a threat to human and animal lives, damaging property, roads and bridges, disrupting communication lines and snapping power lines.**
- The main factors that influence landslides are **lithology, geological structures like faults**, hill slopes, drainage, geomorphology, land use and land cover, soil texture and depth, and weathering of rocks.
- In India, **rainfall-induced landslide** events are more common.

How are landslides classified and mapped?

- It is classified based on the **type of materials involved** (rock, debris, soil, loose mud), **type of movement of the material** (fall, topple, slide, rotational slide or translational slide), and **type of flow of the material.**
- Landslides mapped in the **ISRO atlas** are mainly event-based and season-based.
- ISRO's **National Remote Sensing Centre (NRSC), Hyderabad**, has created a database of landslide-prone regions of India based on events during **1998 – 2022,** primarily along the **Himalayas and the Western Ghats.**
- In addition to **aerial images**, high resolution satellite images captured using cameras **Indian Remote Sensing (IRS-1D) PAN + LISS-III**, satellites **ResourceSat-1 and 2,** etc., were used to study the landslides over the past **25 years.**
- The pan-India landslide database classifies landslides into – **seasonal (2014, 2017 monsoon seasons)**, event-based and **route-based (2000 – 2017).**

How prone is India to landslides?

- India is considered among the **top five landslide-prone countries**, where at least **one death per 100 sq km** is reported in a year due to a landslide event.
    - **Himalayas and the Western Ghats** remaining highly vulnerable.
- Approximately **12.6 per cent of the country's geographical land area** (0.42 million sq km) is prone to landslides. (Excluding snow covered areas).

- **Area wise landslide division:**
  - **66.5 percent** of the landslides are reported from the North-western Himalayas,
  - **18.8 percent** from the North-eastern Himalayas,
  - **14.7 percent** from the Western Ghats.
- **State wise landslide prone area:**
  - Nearly half of the country's landslide-prone area (0.18 sq km) is located in the states of **Assam, Arunachal Pradesh, Sikkim, Meghalaya, Mizoram, Manipur, Tripura and Nagaland**.
  - **Uttarakhand, Himachal Pradesh, Jammu and Kashmir** cover 0.14 million sq km of the total landslide-prone areas, whereas **Maharashtra, Goa, Karnataka, Kerala, and Tamil Nadu** account for 0.09 million sq km.
  - A relatively **small area (0.01 million sq km) of the Araku region** in Andhra Pradesh along the Eastern Ghats.
- **Western ghat:** landslides were found to be making inhabitants significantly vulnerable to fatalities, especially in Kerala.

Analysis of landslide atlas

- **Highest number of landslides (1998 – 2022):** Uttakarkhand, Kerala, Jammu and Kashmir, Mizoram, Tripura, Nagaland and Arunachal Pradesh**.**

State wise data

- **Mizoram:** Topped the list, recording 12,385 landslide events in the past 25 years, of which 8,926 were recorded in 2017 alone.
- **Nagaland:** 2,071 events of the total 2,132 landslides during the rainy season of 2017.
- **Manipur:** 4,559 out of 5,494 landslide events were experienced during the rainy season of 2017.
- **Tamil Nadu:** Out of total 690, it suffered 603 landslide events in 2018 alone.

- **Uttarakhand:** Recently exposed during the land subsidence events reported from Joshimath.
  - It has experienced the **second highest number (11,219)** of landslides since 1998, all events since occurring post 2000.
  - **Rudraprayag:** It has the highest landslide density in the country, along with having the highest exposure to total population and number of houses.
- **Number of districts with the maximum landslide:** Arunachal Pradesh (16), Kerala (14), Uttarakhand and Jammu and Kashmir (13 each), Himachal Pradesh, Assam and Maharashtra (11 each), Mizoram (8) and Nagaland (7).

- **Kerala:** It has been consistently reporting massive landslides since it suffered the century's worst floods in 2018.
    - **Year-wise landslide events:** 2018 (5,191), 2019 (756), 2020 (9) and 2021 (29).

20. Scientists devise 'Glowscope' to bring fluorescent microscopy to schools

Researchers at Winona State University, Minnesota, have created a design for a rudimentary fluorescence microscope.

- The development can be put together at a cost of $30-50 (Rs 2,500-4,100) using products purchased on online marketplaces.
- The device aims to democratize access to fluorescence microscopy.

Fluorescence Microscopy

- An optical microscope views an object by studying how it absorbs, reflects or scatters visible light.
- A fluorescence microscope views an object by studying how it reemits light that it has absorbed, i.e. how it fluoresces.
- The object is illuminated with light of a specific wavelength.
- Particles in the object absorb this light and reemit it at a higher wavelength.
- These particles are called fluorophores; the object is infused with them before being placed under the microscope.

How does it work?

- The setup consists of two plexiglass surfaces, an LED flashlight, three theatre stage-lighting filters, a clip-on macro lens, and a smartphone.
- The smartphone (with the lens attached) is placed on one surface that is suspended at a height (say, a foot above).
- The second sheet is placed below and holds the object.
- One of the stage-lighting filters is held between the flashlight and the object and the other two were held between the object and the smartphone.
- The sources of illumination were also LED flashlights emitting light of correspondingly different wavelengths.

Key observations

- With this setup, the researchers were able to image the creatures' brain, spinal cord, heart, and head and jaw bones.
- They were able to zoom in and out using the smartphone camera and the clip-on lens.

How accessible is this?

- Using a 'glowscope' still requires access to fluorophores, suitable biological samples, the know-how to combine the two, and some knowledge of physics to work out which LED flashlight to buy.
- The Foldscope was truly remarkable because all its required components were simple to understand.
- However, the fact that a simple fluorescent microscope can be set up with a few thousand rupees means researchers can prepare samples and take them to schools, where students can observe them.

21. The rise of the ESG regulations

Environmental, Social and Governance (ESG) considerations need to be included by investors in a company's risk profile in order to accurately assess the enterprise.

Environmental, Social and Governance (ESG)

- **ESG –** Environmental, social, and governance (ESG) investing refers to a set of standards for a company's behaviour used by socially conscious investors to screen potential investments.
- **Environmental criteria** – It considers how a company safeguards the environment, including corporate policies addressing climate change, for example.
- **Social criteria –** It examines how it manages relationships with employees, suppliers, customers, and the communities where it operates.
- **Governance –** It deals with a company's leadership, executive pay, audits, internal controls, and shareholder rights.

How ESG differs from CSR?

- **CSR –** India has a robust corporate social responsibility (CSR) policy that mandates that corporations engage in initiatives that contribute to the welfare of society.
- This mandate was codified into law with the passage of the 2014 and 2021 amendments to the Companies Act of 2013.
- **CSR Fund –** It requires companies with a net worth of ₹500 crores or minimum turnover of ₹1,000 crores or net profit of ₹5 crores in any financial year, to spend at least 2% of their net profit over the preceding 3 years on CSR activities.
- On the other hand, ESG regulations, differ in process and impact.

- **U.K. Modern Slavery Act –** Companies with annual sales of £36 million should publish the efforts they have made towards analysing the risks of human trafficking, child labour and debt bondage in their supply chain.
- **EU's Sustainable Finance Disclosure Regulation –** It requires banks, financial markets to disclose how they integrated sustainability risks into their investment processes.

Why is ESG relevant in India?

- **Regulating bodies –** India has long had a number of laws and bodies regarding environmental, social and governance issues, including the Environment Protection Act of 1986.
- **NGT –** Quasi-judicial organisations such as the National Green Tribunal (NGT) govern employee engagement and corporate governance practices.
- **BRSR –** The Securities and Exchange Board of India (SEBI), revised the annual Business Responsibility and Sustainability Report (BRSR) required by the 1,000 largest listed companies in India.

The BRSR requirements are based on the National Guidelines for Responsible Business Conduct (NGRBC), which mandate that businesses: Conduct and govern themselves with Ethics, Transparency and Accountability.

What are the implications for Indian companies?

- **Different from CSR –** Compliance with ESG regulations, both originating in India and elsewhere around the world, thus, pose a significantly different challenge than India's CSR regulations.
- **China factor –** India should take full advantage of the growing decoupling from China and play a more prominent role in global supply chains and the global marketplace overall.
- This is particularly true when the supplier's own supply chains have several layers.
- **Shell companies –** Ownership that is obscured through shell companies can present additional challenges.
- **Due diligence –** ESG due diligence needs to be supported within the company with detailed procedures for assessing risks and controls for assuring that no corners are cut.

22. India remains world's largest importer of arms: SIPRI report

- As per the report by the Swedish think tank **Stockholm International Peace Research Institute (SIPRI),** India has remained the world's largest arms

importer between 2018 and 2022 despite there being a drop in imports by around 11% between 2013-2017 and 2018-2022.
    - According to the report, Russia was the largest arms supplier to India from 2013 to 2022. However, the percentage of total imports from Russia has fallen from 64% to 45%.
    - France has displaced the US (11%) to become the second-largest supplier of arms to India, accounting for close to 30% of its defence imports.
- The latest report has also revealed that:
    - Among the top 10 arms exporters for the period 2018 to 2022, India was the biggest arms export market to Russia, France and Israel.
    - India has been the second-largest export market to South Korea and the third-largest market for South Africa.
- Saudi Arabia is the second largest arms importer after India.
- While India's tensions with its neighbouring countries such as Pakistan and China have been the major drivers in the arms imports and the decrease in the share of imports compared to the 2013-2017 period is mainly on account of India's slow and complex arms procurement process, efforts to diversify arms suppliers, and the attempts by the government to achieve self-reliance in the defence sector.

23. Why are India's garbage landfill burning?

The Kochi landfill site has caught fire. This is a stark reminder that Indian cities need to be prepared for more such incidents as summer approaches.

Landfills

- Garbage landfills, also known as waste disposal sites or dumps, are areas where waste materials are disposed of by burying them in the ground.
- They are designed to contain and isolate the waste from the surrounding environment, preventing the spread of pollutants and contamination of soil and water sources.
- Garbage landfills are commonly used for the disposal of non-hazardous municipal solid waste, such as household trash, construction debris, and yard waste.
- However, they can also be used for the disposal of hazardous waste and other types of industrial waste, depending on the regulations and restrictions in place.

Is landfilling best way for waste management?

- Landfilling is not considered the best way for garbage disposal, as it can have negative environmental impacts.

1. Landfills take up space
2. Release harmful gases such as methane and carbon dioxide, and
3. Contaminate groundwater and soil if not properly managed

- Landfills can emit odours and create noise pollution, which can impact nearby communities.

Alternative methods for garbage disposal

- **Recycling:** This involves the separation of waste materials such as plastics, glass, metals, and paper from the general waste stream, and processing them into new products.
- **Composting:** This is the process of breaking down organic waste materials such as food scraps, yard waste, and paper into a nutrient-rich soil amendment.
- **Waste-to-energy:** This involves the conversion of waste into energy through incineration, gasification, or pyrolysis. The energy produced can be used to generate electricity or heat.
- **Landfill gas recovery:** This involves the collection and use of methane gas produced by decomposing waste in landfills to generate electricity or heat.
- **Mechanical biological treatment:** This is a process that combines mechanical and biological processes to separate and treat waste materials, producing compost and recyclable materials.
- **Anaerobic digestion:** This is a biological process that breaks down organic waste in the absence of oxygen, producing biogas and fertilizer.

Landfills in India

- Indian municipalities collect more than 95% of the waste generated in cities.
- The efficiency of waste processing is 30-40% at best.
- Indian municipal solid waste consists of about 60% biodegradable material, 25% non-biodegradable material, and 15% inert materials.
- Municipalities are expected to process wet and dry waste separately and have recovered by-products recycled.

Why do Indian landfills often catch fire in summers?

- The rate of processing in India's cities is far lower than the rate of waste generation.
- Unprocessed waste remains in open landfills for long periods.

- Openly disposed waste includes flammable material like low-quality plastics and rags and clothes.
- In summer, the biodegradable fraction composts much faster, increasing the temperature of the heap.
- Higher temperature and flammable material increase the chance for the landfill to catch fire.
- Some fires have been known to go on for months.

Is there a permanent solution?

There are two possible permanent solutions to manage landfill fires.

1. **Completely cap the material using soil and close landfills in a scientific manner:** This solution is unsuitable in the Indian context as the land can't be used again for other purposes. Closed landfills have specific standard operating procedures, including managing methane emissions.
2. **Clear the piles of waste through bioremediation:** Excavate old waste and use automated sieving machines to segregate the flammable refuse-derived fuel (RDF), such as plastics, rags, clothes, etc., from biodegradable material. The recovered RDF can be sent to cement kilns as fuel, while the bio-soil can be distributed to farmers to enrich soil. The inert fraction will have to be landfilled.

Some immediate measures to manage landfill fires

- **Divide the site into blocks:** Based on the nature of waste, separate fresh waste from flammable material and capping portions with soil to reduce the chance of fire spreading across blocks.
- **Cap the most vulnerable part of the landfill:** That contains lots of plastics and cloth, with soil.
- **Provide enough moisture to the fresh-waste block:** By sprinkling water and regularly turn the material for aeration to cool the waste heap.
- **Classify incoming waste:** On arrival and dispose of it in designated blocks rather than dumping mixed fractions.
- **Send to kilns on time:** Send already segregated and baled non-recyclable and non-biodegradable waste to cement kilns instead of allowing it to accumulate at the site.

Way forward

- Sites should be equipped with water tankers with sprinklers for immediate action.
- The municipality should work with the nearest fire department and have a plan of action in advance.

- Waste-processing workers (plant operators, segregators, etc.) should have basic fire safety and response training.
- People around landfill sites should also be trained and equipped to safeguard themselves during fires.
- The municipality should have routine round-the-clock video surveillance of the most flammable portion of the landfill.
- Flammable material like chemical waste, match sticks, and lighters should not enter the site.
- Machines at the site, like sieves and balers, should be cleaned and moved away from the flammable material.
- On-site staff and security personnel should be housed away from the flammable portion.

24. Waste to Energy Projects in India

Kerala government recently announced the State's first waste-to-energy project in Kozhikode.

Waste to energy project

- **Waste-to-energy projects** - Waste-to-energy projects use non-recyclable dry waste to generate electricity. The waste is combusted to generate heat, which is converted into electricity.
- The waste to energy projects is also called a trash-to-energy, municipal waste incineration, energy recovery, or resource recovery plant.
- **Status of for waste to energy** - The first waste-to-energy plant was set up in Timarpur in Delhi in 1987.
- A total of 14 waste-to-energy plants have been installed in India, out of which seven plants were closed.
- Total quantity of solid waste generated in the country was 1,50,761 tonnes per day in 2019-'20.

Technologies available for waste to energy

- **Biomethanation** – It is anaerobic digestion of organic materials which is converted into biogas.
- Anaerobic digestion (AD) is a bacterial fermentation process that operates without free oxygen and results in a biogas
- **Incineration** - Incineration technology is complete combustion of waste with the recovery of heat to produce steam that in turn produces power through steam turbines.

- **Gasification** - Gasification is a process that uses high temperatures (500-1800o C) in the presence of limited amounts of oxygen to decompose materials to produce synthetic gas.
- **Pyrolysis** - Pyrolysis uses heat to break down combustible materials in the absence of oxygen, producing a mixture of combustible gases, liquids and solid residues.

Significance of waste to energy projects

- Effective disposal of waste
- Landfill and dump yards can be reduced
- The petroleum import can be reused leading to increased economic growth
- It can be the alternate source of energy to promote circular economy

What are the reasons for the failure of waste-to-energy projects?

- **Huge gap** - The huge gap between the quantity and quality of waste being generated, and the capacity of the municipality to manage that waste.
- **Low inert content** - The waste has inert content which is not suitable for burning in Waste-To-Energy Project
- **Requirement of fuel** - which makes the Waste-To-Energy Project unviable.
- **Low calorific value** - The municipal waste has low calorific value and high moisture content which is not suitable for electricity generation.
- **High costs of energy production** - The cost of generating power from waste is around Rs 7-8/unit.
- While the cost at which the States' electricity boards buy power from coal, hydroelectric, and solar power plants is around Rs 3-4/unit.
- **Environmental damage** - Most of the projects are built in ecologically sensitive areas which also damage the environment.

What is the way forward?

- People should follow strict segregation practices and also process biodegradable waste.
- Municipality must ensure that only non-biodegradable dry waste is sent to the plant and separately manage the other kinds of waste.
- Municipality or the department responsible for Solid Waste Management should be practical about the high cost of power generation, and include the State electricity department.
- A tripartite agreement between the municipality, the plant operator, and the power distribution agency.

25. Operation Greens Scheme: TOP Farmers Protests And A Way Ahead

- The Operation Greens scheme aimed to develop a value chain for reducing extreme price fluctuations in the three basic vegetables (tomatoes, onions, and potatoes), enhance farmers' realizations, and improve their share of the consumer rupee. However, the scheme has not been successful in achieving its goals, as seen by the recent protests against low prices by onion and potato farmers.

Operation Greens scheme

- The Operation Greens scheme is a government initiative launched in the 2018-19 Union budget by the present government.
- It aims to develop a value chain for reducing extreme price fluctuations in the three basic vegetables, including tomatoes, onions, and potatoes (TOP).
- The scheme was later expanded to 22 perishable crops in the 2021-22 budget.
- The government hopes that by developing a sustainable value chain for these perishable commodities, farmers will benefit from better price realization, while consumers will have access to quality products at reasonable prices.

Limited Success of Operation Greens Scheme

- **Retail tomato prices:** Tomato prices in wholesale markets have dropped significantly, but retail prices have not reduced much, indicating limited success.
- **Low Onion price**: Onion and potato farmers are protesting against low prices, highlighting the scheme's lack of effectiveness.
- **For instance:** There are protests by Maharashtra's onion growers against low prices, including relay hunger fasts, stoppage of auctions at major mandis, and a 200-km march to Mumbai. Similarly, potato farmers in Uttar Pradesh have demanded that the government procure their tuber at Rs 10 per kg, as against the ruling Rs 6-6.5/kg market price at Agra.

Reasons behind its limited success

- **Problem Not with Lack of Storage or Processing Capacity:** UP alone has an abundance of cold stores with ample capacity to store perishable goods like potatoes. Maharashtra's growers have built enough kandha chawls to store onions for 4-6 months. Despite the creation of storage capacity, price volatility persists in milk and cane payment arrears to farmers.
- **Price Volatility:** The prices of TOP crops have been volatile, which has adversely affected both farmers and consumers. The prices of these commodities tend to fluctuate sharply due to seasonality, weather conditions, and other factors, resulting in uncertainty and instability in the market.

- **Implementation Issues:** The scheme's implementation has been marred by delays, bureaucratic hurdles, and lack of coordination among various stakeholders, which has resulted in low participation and limited success.
- **Lack of Market Linkages:** Another reason for limited success is the lack of market linkages between producers and consumers. The farmers are unable to access markets directly, which leads to dependence on intermediaries who manipulate prices, resulting in price volatility.

Need for Price or Income Assurance for Farmers

- **Investment:** Investment in farm-gate, agri-logistics, and storage-cum-processing infrastructure needs to be encouraged.
- **Assurance**: Price or income assurance for farmers is necessary, especially for horticulture, dairy, and poultry producers who do not enjoy minimum support price benefits.
- **Diversification:** The future for Indian agriculture lies in crop diversification, which will spur greater consumption of foods incorporating proteins (pulses, milk, eggs, and meat) and micro-nutrients (fruits and vegetables), instead of only calories and carbohydrates.
- **Deficiency price payments:** The deficiency price payments or per-hectare direct income transfers could be the way forward.

Conclusion

- It is evident that the limited success of the Operation Greens scheme underscores the urgent need for a more comprehensive approach to address the challenges faced by TOP farmers. A more holistic approach is required that prioritizes farmer empowerment, investment in infrastructure, and promotion of crop diversification. By adopting such an approach, the government can not only mitigate the impact of price volatility on farmers but also achieve its broader goal of building a sustainable and resilient agricultural sector that benefits both producers and consumers alike.

26. MQ-9A 'Reaper'

- The MQ-9A Reaper is an unmanned aerial vehicle (UAV) primarily used by the United States Air Force and the Central Intelligence Agency (CIA) for reconnaissance, surveillance, and targeted strikes.
- It is a larger and more advanced version of the earlier MQ-1 Predator drone.
- The Reaper is equipped with advanced sensors, cameras, and precision-guided missiles, and can remain airborne over 27 hours at speeds of 240 KTAS (knots true airspeed) and can operate up to an altitude of 50,000 feet.
- It is manufactured by General Atomics Aeronautical Systems.

- It has been used extensively in the US military campaigns in Iraq, Afghanistan, and Syria, as well as in other countries in the Middle East and Africa.
- The use of Reaper drones has been controversial due to concerns over civilian casualties and violations of international law.
- On March 14, the U.S. Air Force (USAF) ditched an MQ-9 Reaper in the Black Sea after a confrontation with two Russian Su-27 jets over international waters west of Crimea.
- The Indian Navy is currently operating two MQ-9As on lease. A bigger proposal for procuring 30 armed MQ-9As, popularly called Predator-B, has been delayed.
- MQ-9As are also operated by the U.K., France, Italy, the Netherlands, Spain and on order by Belgium. Japan recently inducted the MQ-9B Sea Guardian, the maritime configuration.
- At Aero India in February 2023, Hindustan Aeronautics Limited (HAL) and General Atomics announced that the turbo-propeller engines which power the MQ-9B will be supported by HAL's engine division for the Indian market.

27. The significance of rise in India's petroleum product exports to EU

India's **petroleum product exports** to the **European Union** (EU) have grown in recent times.

India's export to EU:

- India's **petroleum product exports** to the **EU** rose by **20.4**% year on year in **April-January** to **11.6 million tonnes**.
    - EU imported **1.90 million tonnes** in **January**, the **highest monthly volume** in the **10 months** of the current fiscal.
    - The **EU** has banned **direct import** of **crude** and refined **fuels** and **products** from **Russia**.
- **EU** is amongst the top 20 regions to **import refined products** from **India**.
- In **April-January**, the EU accounted for 15% of India's **total petroleum product exports** of **79 million tonnes**.
    - This was **12**% in the same period last year.
- In the four months leading to the EU's ban on Russian refined products, its share in India's petroleum product exports rose from 16 per cent to almost 22 per cent.

Why does the rise in imports matter?

- Suppliers like **India** are helping **maintain** a **demand-supply balance** and preventing extreme **price shocks**.
- Countries like India, which is a **major oil refiner**, are playing their part in **bridging** the **gap** by **buying Russian oil** and **increasing** the **supply** of **refined products** to the **EU**.
- India is a **major refiner** with an **annual refining capacity** of about **250 million tonnes**.
    - India is one of the **top consumers** of **crude oil**.
- India's **refining capacity** is **higher** than its **domestic demand** which makes it a **net exporter** of **petroleum products**.
- As **Europe** have allowed **import** from **Indian refiners** which is purchasing **Russian oil** at a **discounted price,** this has led to earning **robust margins** on **product**.

28. Generative AI

Generative Artificial Intelligence (AI) has been making headlines this year, as major tech companies like Microsoft and Alphabet race to launch products that utilize the technology. In this article, we will discuss everything you need to know about generative AI, including its definition, uses, concerns, and involvement of industry giants like Google and Microsoft.

Generative AI

Generative AI, like other forms of AI, learns to take actions from past data. However, it goes beyond simply categorizing or identifying data and creates brand new content, such as text, images, and computer code, based on that training. One famous example of generative AI is ChatGPT, a chatbot released by Microsoft-backed OpenAI in 2022. It utilizes a large language model to generate human-like responses based on a text prompt. OpenAI also recently announced GPT-4, a new multimodal model that can perceive text and images, allowing it to generate real websites from hand-drawn mock-ups.

What is Generative AI Good For?

Generative AI has various practical applications, such as creating a first draft of marketing copy, taking notes during virtual meetings, personalizing emails, and generating slide presentations. For example, CarMax Inc has used a version of OpenAI's technology to summarize customer reviews and help shoppers decide which used car to buy.

What are the Concerns About Generative AI?

Although generative AI has many benefits, there are concerns about its potential misuse. School systems worry that students may turn in AI-drafted essays, undermining the value of learning. Cybersecurity researchers fear that bad actors, including governments, could use generative AI to produce more disinformation. Additionally, the technology is prone to making mistakes, such as factual inaccuracies and erratic responses.

Is Generative AI Only for Google and Microsoft?

While Google and Microsoft are at the forefront of research and investment in large language models, other companies are also creating their own competing AI or packaging technology from others. For example, Salesforce Inc and Adept AI Labs are among the companies that have embraced generative AI.

29. Landfill fire in Kochi's Brahmapuram of Kerala

Recent incident of landfills fire in Kochi's Brahmapuram of Kerala.

Landfill

- A landfill also known as a tip, dump, rubbish dump, garbage dump, or dumping ground, is a site for the disposal of waste materials.

Types of landfills

- **Municipal Solid Waste Landfills (MSWLFs) –** Specifically designed to receive household waste, as well as other types of nonhazardous wastes.
- **Bioreactor Landfills –** A type of MSWLF that operates to rapidly transform and degrade organic waste.
- **Industrial Waste Landfill –** Designed to collect commercial and institutional waste (i.e. industrial waste), which is often a significant portion of solid waste, even in small cities and suburbs.
- **Construction and Demolition (C&D) Debris Landfill –**C&D materials often contain bulky, heavy materials, such as concrete, wood, metals, glass and salvaged building components.
- **Coal Combustion Residual (CCR) landfills –** An industrial waste landfill used to manage and dispose of coal combustion residuals (CCRs or coal ash).
- **Hazardous Waste Landfills** - Facilities used specifically for the disposal of hazardous waste.

Causes of landfills fire

- **Waste containing flammable materials** - Openly disposed waste includes flammable material like low-quality plastics, which have a relatively higher calorific value of about 2,500-3,000 kcal/kg
- **Summer being dry and hot** –The biodegradable fraction composts much faster, increasing the temperature of the heap to beyond 70-80° C.
- **Low efficiency in waste processing** - India's municipalities have been collecting more than 95% of the waste generated in cities but the efficiency of waste-processing is only 30-40%
- **Poor segregation of waste at source** - Municipalities are expected to process the wet and dry waste separately and to have the recovered by-products recycled
- **Huge unprocessed waste** -Remains in open landfills for long periods.

Impacts of landfill fire

- **Greenhouse gases**- The landfill fires emits greenhouse gases affecting the environment
- **Schools Education System** -Affects schools education system since landfill fire leads to closure of schools in nearby areas
- **Carcinogens** -The waste may contain carcinogens materials which increases the chances of being affected by cancer causing dieses

Various challenges faced by municipal corporation in safe disposal of waste

- Lack of Funding
- Communication gap between central and state government
- Failure of waste-to-energy projects
- Loopholes in the municipal corporations at every stage of waste management
- Lack of manpower
- Insufficient number of professionals in the waste management technology field.
- Lack of research and development for new technological practices
- Lack of coordination by public in segregation of waste at source

Bio mining is the technique of extracting metals from ores and other solid materials typically using prokaryotes, fungi or plants.

Government measures for solid waste management

- **Solid Waste Management Act 2002** - An Act to establish a National Solid Waste Management Corporation
- **Solid Waste Management Rules (SWM), 2016** – The rules have mandated the source segregation of waste.

- **Pollution Control Boards** - The Pollution Control Boards are directed to take action for persuading the civic authorities in proper management of municipal solid wastes.

30. A grave mistake in Great Nicobar

Details:

- The Ministry of Environment, Forest and Climate Change (MoEFCC) has given clearance to a mega project in the southern part of Andaman and Nicobar Islands.
- The NITI Aayog will steer the project and the Andaman and Nicobar Islands Integrated Development Corporation is the project proponent.
- The project is titled 'Holistic Development of Great Nicobar Island'. Its objective is to develop:
    - An international transshipment port of 14.2 mTEU cargo capacity at Galathea Bay
    - An international airport for 4000 passengers (during peak hours)
    - A 450 MVA gas and solar-based power plant
    - An ecotourism and residential township of nearly 160 sq km
- Moreover, offices of multinational corporations will be established by clearing a million trees in tropical rainforests.

Background Details:

- The Great Nicobar is located approximately 1650 km from Chennai and 40 nautical miles from the international shipping route.
- The project to establish a transshipment facility and free trade zone on the island began in September 2020.
- In December 2021, the draft Environment Impact Assessment (EIA) was placed in the public domain for comments and discussion. It was followed by quick approvals, clearances, exemptions, and de-notification.
- The Great Nicobar Island has a population of around 8000. The island will attract around three lakh people, once the project is completed.
- The island is spread over 900 sq km and was declared a biosphere reserve in 1989. In 2013, it was included in UNESCO's Man and Biosphere Programme.
- Notably, more than three-fourths of the island is designated as a tribal reserve under the Andaman and Nicobar Islands (Protection of Aboriginal Tribes) Amendment Regulation.

Associated Concerns:

- The environmental and ecological cost of the urbanization project in Great Nicobar (a region known for marine and terrestrial diversity) is significantly higher. Thus, it is argued that calling it 'holistic' would be a misnomer.
- It is suggested that the objective to convert the island into a commercial hub is nothing less than an 'ecocide'.
- It will impact the rights of vulnerable tribal communities that depend on forests for survival like the Shompen and Nicobarese.
- As per the EIA report, compensatory afforestation will be carried out in Madhya Pradesh and Haryana. It should be noted that far-field afforestation is not much significant.
- The project will destroy vast stretches of coral reefs.
- The report recommends the transplantation of corals but transplanted corals have a low survival rate and are susceptible to bleaching.
- The Great Nicobar is tectonically unstable. It is located in close proximity to the Ring of Fire and the Tsunami of 26 December 2004.
- The EIA report fails to mention scientific studies before and after the 2004 earthquake. The coastline sank several meters during the earthquake.
- The satellite studies show that the region is gradually regaining its original height. The report disregards this tectonic instability around the island.

Conclusion:

- It should be noted that growth in terms of GDP makes no sense if it results in the irretrievable loss of natural capital.
- India is championing conservation, sustainability, and green development models on international fora. But unsustainable projects will dilute such efforts.

31. Why most plastic can't be recycled

Recently, Greenpeace said only 9% of annual plastic waste is recycled.

Key highlights:

- Around **85% of plastic packaging worldwide** ends up in **landfills**.
- The world's biggest plastics polluter the United States, only around **5% of over 50 million tons of plastic waste** produced by households in 2021 was recycled. (Greenpeace)
- Plastic production set to **triple globally by 2060**.

How does separating the seven types of plastic doesn't add up?

- Most plastic packaging is produced from **seven grades of plastic** that are largely incompatible with each other, and are **costly to sort for recycling.**
- Except **Polyethylene terephthalate (PET),** the world's most common plastic labeled with a **#1,** and **high-density Polyethylene (HDPE),** which carries the **#2 symbol**, five other plastic types might be collected but are rarely recycled.
- PET is the **most recyclable plastic** and there is a strong market for its byproduct used to make **drink bottles, food containers, or fibers for clothes.**
- Other five plastics have a very small market since the **value of the raw material is lower than the cost of recycling.**

How price of virgin plastic is impacting recycled plastic?

- **Demand for raw recycled plastic slowing** due to rising **transport costs for recycling businesses in Asia** and a slowdown in the construction sector that creates plastic building materials.
- Additionally, plastic bag bans in Africa and Asia have **limited the amount of feed material**, which **increased the price of recycled material.**
- While the price of virgin plastic is at the whim of fluctuating oil and gas prices, these fossil fuels are often **subsidized**. Recycled plastic would be more competitive if **fossil fuel subsidies were phased out.**
- Companies that produce waste could help undercut low virgin plastic costs by **subsiding plastic recycling schemes** under the principle of **extended producer responsibility (EPR).**

How is lightweight 'flexible' packaging booming without using recyclable plastic?

- The lightweight packets that keep food and snacks like chips or chocolate bars fresh, constitute around **40% of the world's plastic packaging.**
- Known as flexible packaging, the lightweight, multi-layered single-use packets are used to wrap **around 215 billion products in the UK alone.**
- Only around **five European countries** are currently attempting to recycle these packets.
- Part of the problem is their multi-layered composition that is sometimes lined with foil, making it very expensive to separate into recyclable parts.

Why flexible packaging is not used in recycling?

- Flexible packaging is also often **"super-contaminated"** with food waste, which also makes it **impossible to recycle.**
- Flexible packaging has environmental benefits as it's lighter than more rigid plastics and causes **fewer transport emissions** while also keeping food fresher for longer.

Can a ban be a solution?

- Over **23,000 people** across **34 countries,** nearly **80%** would support banning types of plastic that **cannot be easily recycled.**
- This would include a global ban on products and materials made from **hard-to-recycle plastics.**
- The most harmful and problematic types of **single-use plastics, fishing gear, and microplastics.**
- The EU has made some steps in this direction, having banned **10 single-use plastics products** that not only blight Europe's beaches.
- **30 African countries** have either completely or partially banned **lightweight plastic bags.**

32. Additional Tier 1 Bonds and Credit Suisse's Write-Down

The recent purchase of Credit Suisse, a Swiss bank, by its rival UBS, has left investors struggling to understand the deal. One outcome that is causing significant distress is the decision to write down around SFr16bn ($17bn) in Additional-Tier 1 (AT1) bonds issued by Credit Suisse, which could even spell the end of the asset class. In this article, we will explore what AT1 bonds are, their purpose, and the impact of Credit Suisse's write-down on the market.

AT1 Bonds?

AT1 securities are a type of "contingent-convertible" bonds developed after the global financial crisis of 2007-09 to prevent the need for government-funded bailouts of struggling banks. These instruments, also known as "cocos," are a blend of bank equity and debt. In good times, they behave like relatively high-yield bonds. When things go bad, and certain trigger points are reached, such as a bank's capital falling below certain levels relative to assets, the bonds convert to equity, reducing the bank's debt and absorbing losses.

Impact of Credit Suisse's Write-Down

The market for AT1s is worth around $275bn, and private banks in Asia have historically been eager buyers. However, Credit Suisse's decision to write down AT1 bonds has infuriated investors and caused significant damage to the market. The write-down was the largest in history, more than ten times larger than when Banco Popular failed in 2017, taking $1.4bn of AT1 bonds with it. The real damage to the market was that it upended the expected pecking order, placing stockholders above AT1 bondholders. This was confirmed on March 19th, and it has already affected the price of AT1 bonds issued by other banks.

The Future of the Asset Class

The revelation that stockholders may be left with something and coco holders with nothing is contrary to the understanding many buyers had about what they were purchasing. The idea that coco buyers may feel burned could spell doom for the asset class. The future of AT1 bonds is uncertain, and commentary about the future of the asset class ranges from bleak to apocalyptic. Goldman Sachs has warned that it has become difficult to assess the spread between yields on AT1 bonds and different forms of high-yield credit due to a lack of clarity on future resolutions.

33. IPCC Synthesis report

The IPCC released its Synthesis Report for the Sixth Assessment Cycle.

Introduction:

- The Intergovernmental Panel on Climate Change (IPCC) released its Synthesis Report for the Sixth Assessment Cycle on March 20 in Interlaken, Switzerland.
- This Synthesis Report (SYR) of the IPCC Sixth Assessment Report (AR6) summarises the state of knowledge of climate change, its widespread impacts and risks, and climate change mitigation and adaptation.
- It integrates the main findings of the Sixth Assessment Report (AR6) based on contributions from the three Working Groups.
    - WG I evaluated the physical science basis of climate change; WG II evaluated the impacts, adaptation, and vulnerability, and WG III evaluated the mitigation.

Highlights of the report:

- The report highlights the urgency of drastically reducing the emission of greenhouse gases and thereby limiting rising global temperatures by 1.5°C from pre-industrial levels, set by the Paris Agreement.
    - The report says that the planet's best chance to keep temperatures below 1.5°C is to ensure greenhouse gas emissions are reduced to 48% of 2019 levels by 2030 and 99% by 2050.
- The report also recognises the impact of the rise in temperature which has made people much more susceptible to food insecurity and water shortages with vulnerable populations disproportionately facing the brunt of climate change.

- The report, therefore, stressed the need for financial resolution for a more equitable world.
- The report stresses the need for finance to flow from developed countries to developing countries and the need to compensate countries that are poised to lose the most from climate change, to help them build resilience.
- The report also emphasised the role of financial investments to achieve climate goals and encouraged public funding through central banks, government and financial regulators to reduce emissions, scale up climate resilience and protect marginalised communities.
- The report highlighted the benefits of climate-resilient development in mitigating the effects of climate change and also in providing wider benefits.
- Access to clean energy, improving air quality, increasing employment opportunities, boosting healthcare through technology, and delivering equity are among the report's recommended goals to help adapt to climate change.

Implications for India:

- The IPCC Synthesis Report underscores the urgency of action to address climate change and its impacts, particularly in countries like India that are already vulnerable to its effects.
- It highlights the need for a concerted effort by governments, businesses, and individuals to reduce greenhouse gas emissions, adapt to the changing climate, and build resilience to the inevitable impacts of climate change.
- The report has been "welcomed" by India, which noted that several parts support its stance that unequal contributions are to blame for the climate crisis and that climate justice must underpin mitigation and adaptation.
- Several messages emerge in the report that are salient for India as it suggests a strategy that emphasises "climate-resilient development."
- However, India's priority should be to minimise loss and damage in terms of lives, livelihood and biodiversity, and accelerate equitable action and adaptation.
    - As a developing country, India can lower its per-capita emissions through energy efficiency policies already being implemented in almost every sector.
    - It can also decarbonise the energy sector by using cleaner options like solar and renewable energy.

34. India's Push for Semiconductors

- The Indian government has given ₹1,645 crore in PLI incentives to electronics manufacturers to bring more of the supply chain to India.
- There is a growing need for semiconductors as they are used in almost all modern electronics.

- Many countries are moving away from China's dominance in the sector due to supply chain vulnerabilities and geopolitical pressures.

Semiconductor manufacturing in India

- Invest India agency estimates electronics manufacturing to be worth $300 billion by 2025-26.
- While finished product facilities have been growing, fabs for chipsets and displays are rarer.
- Ministry of Electronics and Information Technology is set to announce the first semiconductor manufacturing fab soon.
- Semiconductor Industry Association (SIA) suggests India to leverage its strength in the electronics manufacturing value chain.
- Foundry companies require high investments while OSAT generate better margins.
- Outsourced Semiconductor Assembly and Test (OSAT) set-ups take care of less capital-intensive parts of chipmaking and run specialized tests.
- Many chip facilities tend to be captive units of large companies.

Importance of semiconductor manufacturing

- Semiconductor fabrication units turn raw elements like silicon into integrated circuits used in practically all electronic hardware.
- Fabs are highly capital-intensive undertakings costing billions of dollars for large facilities.
- Fabs require a highly reliable and high-quality supply of water, electricity, and insulation from the elements, reflecting the high degree of precision, cost, and capital needed to make sophisticated circuits.
- Countries have spotted strategic value in cornering segments of the value chain for fabs.
- China has pulled ahead of Taiwan last year in terms of global sales from fabs.
- The US passed the CHIPS Act to provide subsidies and investments to manufacturers opening fabs and making semiconductors in the US.
- US also pushed some restrictions and sanctions on the Chinese semiconductor industry.

India's advantages in semiconductor manufacturing

- India has an advantage in semiconductor manufacturing as a large portion of semiconductor design engineers globally are either Indian or Indian-origin.
- Chipmaking firms such as Intel and NVIDIA have large facilities in India that are already flush with Indian talent working on design problems.

- China is losing control over this advantage in the face of sanctions and an ageing population.
- Experts believes that without a sustainable pipeline of high calibre talent, China's goals for the semiconductor sector will not be achievable.

Various challenges

- **Huge Investments involved:** Semiconductor Fabrication facility requires many expensive devices to function. Complex tools and equipment are required to test quality and move silicon from location to location within the ultra-clean confines of the plant.
- **Economy of scale:** In semiconductor fabrication, a high volume of production is required to be maintain so as to meet the increasing demand of the marketplace, at the same time, a strong financial backing as Indian market is very much uncertain about financial fluctuations.
- **Requirement highly skilled labour:** Semiconductor fabrication is a multiple-step sequence of photolithographic and chemical processing steps during which electronic circuits are gradually created on a wafer made of pure semiconducting material. This actually requires high skills.
- **Scarcity of raw materials**: From a value-chain perspective, it needs silicon, Germanium & Gallium arsenide and Silicon carbide which are not available in India and needs to be imported.
- **Uncertain Indian market**: A semiconductor fabrication facility in India cannot independently rely on Indian customers for their entire sales structure. They have to maintain overseas customer base to balance inflections from Indian market due to market trends, government policies etc.
- **Disposal of hazardous waste**: Many toxic materials are used in the fabrication process such as arsenic, antimony, and phosphorus. Hazardous impact on the environment by the industry may act as an impediment to India's commitment to mitigate climate change.

Policy initiatives in India

- **Make in India:**This aims to transform India into a global hub for Electronic System Design and Manufacturing (ESDM).
- **PLI scheme:**In December 2021 the Centre sanctioned ₹76,000 crore under the production-linked incentive (PLI) scheme to encourage the manufacturing of various semiconductor goods within India.
- **DLI scheme:**It offers financial incentives, design infrastructure support across various stages of development and deployment of semiconductor design for Integrated Circuits (ICs), Chipsets, System on Chips (SoCs), Systems & IP Cores and semiconductor linked design.

- **Digital RISC-V (DIR-V) program:** It intends to enable the production of microprocessors in India in the upcoming days achieving industry-grade silicon and design wins by December 2023.
- **India Semiconductor Mission (ISM):**The vision is to build a vibrant semiconductor and display design and innovation ecosystem to enable India's emergence as a global hub for electronics manufacturing and design

Way forward

To ensure greater resilience in a volatile world, India needs to undertake the following measures to sustain the domestic and global semiconductor demand:

- **Policy framework**: As foundry setup is highly Capital intensive, it must be supported with a solid long term plan and financial backing. This backing is required from the entrepreneur & the government both.
- **Fiscal sustenance:** In text of Indian Government as tax holiday, subsidy, zero duty, financial investment etc. will play an important role in promoting the Fab along with the semiconductor industry in India; this will put further pressure on already large Fiscal Deficit.
- **Support Infrastructure:** World class, sustainable infrastructure, as required by a modern Fab be provided, with swift transportation, large quantity of pure water, uninterrupted electricity, communication, pollutant free environment etc.

Conclusion

- India's electronic manufacturing incentive programs are geared towards breaking new ground in ambitious plans connected to popular brands such as Apple.
- The Indian government is working to create an ecosystem that will facilitate sustainable growth and fiscal feasibility in the semiconductor industry.
- The electronics value chain must be an international undertaking among like-minded nations with common values to be effective.

35. Liberalised Remittance Scheme (LRS)

The Reserve Bank of India (RBI) is being asked to monitor card spend under the Liberalised Remittance Scheme (LRS).

Liberalised Remittance Scheme (LRS)

- LRS is a facility provided by the Reserve Bank of India (RBI) to resident individuals to remit funds abroad for permitted current or capital account transactions or a combination of both.
- The scheme was introduced in 2004 and has been periodically reviewed and revised by the RBI.
- Under the scheme, resident individuals can remit up to a certain amount in a financial year for permissible transactions including education, travel, medical treatment, gifts, and investments in equity and debt securities, among others.
- The limit for LRS is currently set at USD 250,000 per financial year.

Eligibility for LRS

- LRS is open to everyone including non-residents, NRIs, persons of Indian origin (PIOs), foreign citizens with PIO status and foreign nationals of Indian origin.
- The Scheme is **NOT** available to corporations, partnership firms, Hindu Undivided Family (HUF), Trusts etc.

Benefits provided by LRS

- LRS is an easy process that anyone can use to transfer money between two countries.
- It's especially useful for businesses because they can use it to transfer funds to India, and investors can receive their investments back home.
- LRS also has some added benefits, like fast transfer timing and no issues with exchange rates.

36. Amid an 'imminent' global water crisis, is the ocean a viable solution to water scarcity?

Around **70%** of Earth's surface is covered with **water**, less than **1%** is actually **drinkable**.

What is ocean desalination?

- It uses **thermal distillation** or a **reverse osmosis membrane** to separate **salt** from the **sea**.
- Globally, over **20,000 desalination plants** currently operate in over **170 countries**.
- The **10 largest** are in **Saudi Arabia,** the United Arab Emirates (**UAE**) and **Israel**.

- Around **47%** of the world's desalinated water is produced in the **Middle East** and **North Africa**.
    - They generate **less** than **500 cubic meters** of **water** per capita through **rainfall** or **river runoff**.
        - This is half the **upper limit** of **water scarcity** as defined by the UN.
- The **United States** produces **1,207 cubic meters** of **freshwater per** person.
- **Water poverty** will worsen as **populations increase** along with **temperatures**.
- The **Sub-Saharan Africa** will become a "**hotspot of water scarcity**" by **2050**.
- The **hottest** and **driest** nation in the European Union, **Cyprus** relies on **desalination** for **80%** of its drinking water.
    - Earlier it used to ship water from **Greece** in case of shortfall of drinking water.

What are the marine and climate impacts of desalination?

- Separating salt from water is **highly energy intensive**.
- The **four desalination plants** in India generate around **2%** of its **total greenhouse gas** emissions.
- In **Cyprus,** the plants accounted for **5%** of the **total electricity consumption** which is one of the **largest shares** by sector of electricity consumption.
- **Desalinated water** generated around **103 million cubic meters** of toxic, high-salinity brine effluent that impacted the **Mediterranean seagrass ecosystem** in the region of the discharge pipes.
- The state of **desalination** and **brine production** increases **salinity**, combined with **climate**-driven **temperature** rise.
    - This can decrease the **dissolved oxygen content**, resulting in **hypoxia**.
- This **hypersaline water** can **sink** to the **ocean bed** and kill marine **microorganisms** that are vital to the entire food chain.
- Chemical compounds such as **copper** and **chloride** are found in the **desalination pre-treatment process** that can be **toxic** to **organisms** in the discharged **water** region.

How can desalination be made sustainable?

- The high CO2 emissions can be reduced by using **renewable energy** such as **off-grid solar** and **wind energy** desalination plants.
- Though **brine discharge** can be diffused through **outfall pipes** that are **not** in the **vicinity** of **vulnerable marine life** and keeping the **remnant solids** on the **land**.
- The **harvested** sodium, magnesium, calcium, potassium, bromine, boron, strontium, lithium, rubidium and uranium from the **filtered material** could be reused in **industry** and **agriculture**.

Can the brine be reused?

- Brine can be reused to produce **caustic soda**, or **sodium hydroxide**.
- Such **sodium hydroxide** when used to pre-treat seawater prevents the **fouling** of the **reverse osmosis membranes** that filters the ocean water.
- Such **fouling** is a source of **breakdowns** and adds to the **energy inefficiency** and overall cost.
- Around **12%** of the **world's desalinated water** is created in the **US** but only **3.9%** of brine is produced.
- The **Middle East** and **North Africa** generates around **47%** of **desalinated water** but **70%** of the **total global brine** output due to the presence of **less efficient plants**.

37. MSME growth in India

This article discusses the issues around the growth of MSME in India.

Key Details:

- The Finance Ministry has sought to dismiss the "narrative" that India's micro, small and medium enterprises (MSMEs) are stagnating, citing data that it asserts shows smaller firms evolving into larger units in recent years.
- According to the ministry, the number of micro units graduating to small units had increased to 65,140 in 2022-23, from 28,881 in 2021-22.
- MSME sector has seen upward inter-category mobility among manufacturing, service and trading units.
- The number of 'small' units elevating themselves to the 'medium' category has also increased significantly, by 75%, from 3,699 in FY22 to 6,474 in FY23.
    - These upwardly mobile units are from Maharashtra, Gujarat, Delhi, Tamil Nadu, Uttar Pradesh and Karnataka.
- However, industry representatives are sceptical of the Ministry's findings.
    - Association of Indian Entrepreneurs, which was associated with a recent survey of MSMEs that revealed 72% of MSMEs had stagnated over the last five years.

MSME Sector:

- The MSME sector plays a vital role in the economy, with a share of 26.8% in the overall Gross-Value Added (GVA) and 38.5% of manufacturing GVA, as of 2020-21.
- The sector's contribution is qualitatively significant in cultivating an entrepreneurial culture.
- A significant contribution comes from the manufacturing sector, which has the higher employment-generating potential of this sector.

Udyam Portal:

- The Udyam Portal is an online platform launched by the Ministry of Micro, Small and Medium Enterprises (MSME) in July 2020 for the registration and classification of MSMEs in India. This portal has replaced the earlier system of Udyog Aadhaar registration.
- MSMEs can register on the Udyam Portal by providing their Aadhaar number, PAN number, and other details such as business name, type of enterprise, and bank account information. The registration process is free of cost and is entirely online.
- The Udyam Portal also allows for the classification of MSMEs based on their turnover and investment in plant and machinery or equipment.
- The benefits of registration on the Udyam Portal include easier access to credit, subsidies, and various other government schemes.
- It also provides MSMEs with a unique identification number, which can be used for various business transactions and availing benefits from the government.
- Overall, the Udyam Portal aims to promote the growth of MSMEs in India by simplifying the registration process and providing various benefits and opportunities for their development.

38. Role of G20 in Promoting Blue Economy

India's G20 presidency would play an important role in promoting individual and collective actions to facilitate the transition towards a sustainable blue economy

Blue economy

- According to the World Bank, the blue economy is the "sustainable use of ocean resources for economic growth, improved livelihoods, and jobs while preserving the health of ocean ecosystem
- The term 'blue economy' includes not only ocean-dependent economic development but also inclusive social development and environmental and ecological security.

G20

The Group of Twenty (G20) is the premier forum for international economic cooperation.

- G20 plays an important role in shaping and strengthening global architecture and governance on all major international economic issues.
- India holds the Presidency of the G20 from 1 December 2022 to 30 November 2023.

The G20 countries together account for around 45% of the world's coastlines and over 21% of the exclusive economic zones (EEZs)

Why the blue economy needs to be protected?

- Intensifying extreme weather events
- Ocean acidification and sea level rise
- Growing marine pollution
- Over-extraction of resources and unplanned urbanization.
- Marine pollution may have ripple effects across the globe.

Initiatives were taken to promote blue economy

- **Sagarmala initiative** - Promotes port-led development
- **The Shipbuilding Financial Assistance Policy** –Encourages domestic ship-building
- **Pradhan Mantri Matsya Sampada Yojana** – Promotes 'blue revolution' through sustainable and responsible development of the fisheries sector
- **The Deep Ocean Mission** - Explores deep-sea resources in the exclusive economic zones (EEZ) and continental shelf as well as development of technology for harnessing them
- **Coastal Regulation Zone notification** -To classify and better manage coastal regions and conserve ecologically sensitive coastal and marine areas including ecosystems
- **Plastic Waste Management Rules (2022)** – Banned select single-use plastic items and introduced policies for extended producer responsibility in waste management

What is the role of India's G20 Presidency in promoting blue economy?

- The aim is to promote adoption of high-level principles that guide sustainable and equitable economic development through the ocean and its resources
    - This approach is consistent with Mr. Modi's call for the global adoption of 'Lifestyle for the Environment' that promotes mindful utilization over mindless consumption patterns.
- India's G20 presidency would play an important role in promoting individual and collective actions to facilitate the transition towards a sustainable blue economy

- The blue economy is articulated as a key priority area under the Environment and Climate Sustainability Working Group

What initiatives were taken by G20 towards blue economy?

- **Osaka Blue Ocean Vision** -Aims to reduce the additional pollution by marine plastic litter to zero by 2050 through a comprehensive life-cycle approach
- **Coral Research and Development Accelerator Platform(CORDAP)** - CORDAP was launched in 2020
- It will bring together the best minds worldwide to accelerate the development of new technologies that support international coral conservation efforts
- **Ocean 20(O20)** -The O20 will provide a platform for G20 countries political leaders, local and indigenous communities, civil society and private sector, to advance action for ocean solutions
- The O20 **is led by Indonesia** through their 2022 presidency of G20 with the support of the World Economic Forum

39. Wildlife Protection Act (WPA), 1972

Recently a man booked under the Wildlife Protection Act 1972 for "illegally" keeping and nursing an injured Sarus crane (Grus Antigone).

Sarus crane

- The Sarus crane is a large non migratory crane found in parts of the Indian subcontinent, Southeast Asia and Australia.
- Sarus crane is also found in wetlands.
- Sarus crane is the state bird of Uttar Pradesh.
- Sarus crane is the world's tallest flying bird.

Sarus Crane
• **IUCN Red List** - Vulnerable • **CITES -** Appendix I • **WPA, 1972 -** Schedule IV • **Population** - 15,000-20,000 in India

Wildlife Protection Act, 1972

- **Aim** - It aims to conserve protected species in 2 ways
  - By prohibiting hunting

  - By protecting habitat through the creation and regulation of sanctuaries, national parks, reserves, etc.
- **Hunting** – It includes not just the act of killing or poisoning a wild or captive animal, but even an attempt to do so.
- Even injuring or destroying any part of the animal or its eggs or nests is an offence punishable under the Act.
- List includes capturing, coursing, snaring, trapping, driving or baiting any wild or captive animal.
- **Captive animal** -Any animal specified in Schedule I-IV which is captured or kept or bred in captivity.
- The Act prohibits capturing or hunting any species of animals listed under Schedules I-IV.
- **Offences** -Under the Act offences are considered as
  - Hunting, unauthorized possession, transport and trade.
  - Offences related to protected areas or habitat destruction.
- **Powers of the state government -** This act allows the State government to appoint a **Chief Wildlife Warden** alongside wildlife wardens, honorary wildlife wardens, and other officers and employees.
- The act empowers the State to constitute a **State Board for Wild Life** consisting of
  - The Chief Minister as Chairperson,
  - The Minister in charge of Forests and Wildlife as the Vice Chairperson
  - At least 3 members of the State legislature.
- **Penalties** – Any person who contravenes any provision of the Act shall be punished with up to 3 years imprisonment or fine up to Rs. 25,000 rupees or both.

In 42nd Amendment Act, the subject of "Forests and Protection of Wild Animals and Birds" was transferred from State to Concurrent List.

What is the 2022 Amendment to the WPA?

- **Schedules and increasing penalties** – It brings changes in reducing the number of Schedules and increasing penalties.
- **CITES** – It seeks to implement the provisions of "Convention on International Trade in Endangered Species of Wild Fauna and Flora" (CITES).
- **Rationalizing schedules** – It seeks to reduce the number of schedules from VI to IV whereby Schedule V for vermin or animals that destroy food crops will be done away with.
- **More powers to Center** - It accords greater powers to the Centre concerning the export, import, regulation, prohibition, and trade of plant or animal species, through a designated Management Authority.

- **Conservation reserves -** Central government may declare areas adjacent to national parks and sanctuaries as a conservation reserve
- **Invasive alien species** -The central government may authorise an officer to seize and dispose the invasive species.

40. Gravity-Operated Electricity Generation from Defunct Mines

Green Gravity is an Australian renewable energy company that has developed a unique scheme to generate electricity. The company's plan involves using defunct mines, such as the Kolar Gold Fields (KGF) in Karnataka, India, to produce reliable and cost-effective renewable energy.

The breakthrough: Gravity-Operated Weighted Blocks

- It uses a weighted block of up to 40 tonnes up to the top of a mine shaft using renewable power during the day when it is available.
- When backup power is required, the heavy block will fall under gravity, powering a generator via a connected shaft or rotor.
- The depth to which the block falls can be determined via a braking system, giving control over the amount of power produced.

Comparison to Pumped Hydropower Storage

- Green Gravity's approach is similar to the well-established approach of "pumped hydropower" storage.
- In this approach, water is pumped upstream electrically into a reservoir and released downhill to move a turbine and produce electricity when needed.

Need for such technology

- Renewable energy, such as solar and wind power, often faces the challenge of being unreliable during nights or windless days.
- Charging a battery for backup power is very expensive and inefficient.

Advantages of Weighted Blocks over Water

- Using weighted blocks instead of water means that decommissioned mines can be put to use, and the environmental costs and challenges of moving water up can be avoided.
- This approach can also mean less reliance on coal-produced power and access to reliable power.

Potential Use in KGF

- The Kolar Gold Fields in Karnataka, India, is an iconic but defunct gold mine that has the potential to be used for renewable energy production.
- The weighted block apparatus could produce up to thousands of megawatt-hours of power from the mine's deep shafts, some of which run nearly 3,000 metres.