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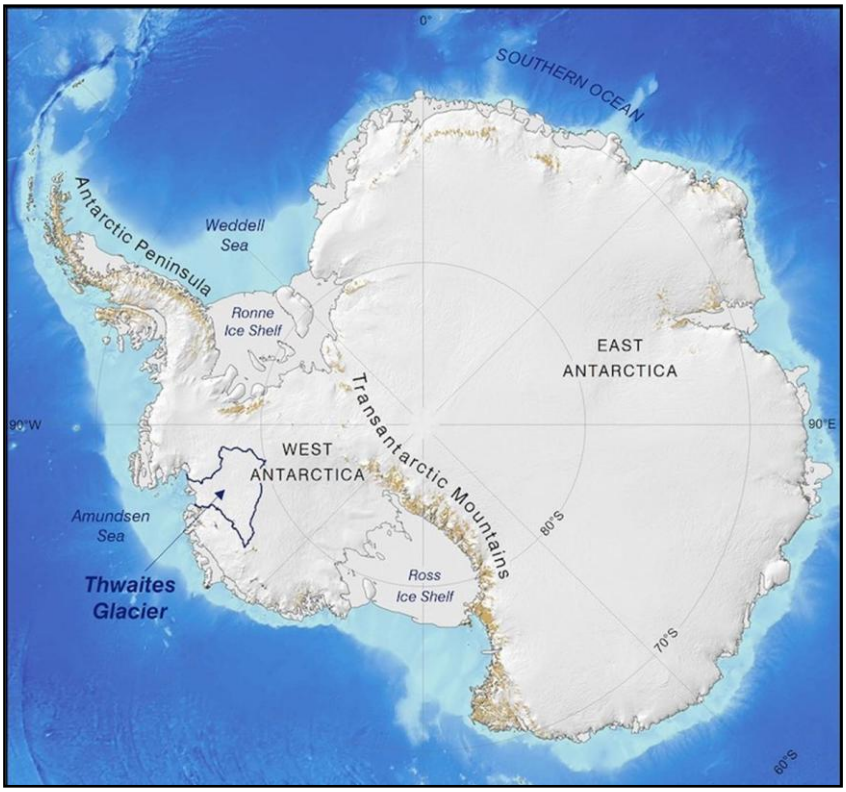
PIONEER ACADEMY's
PATHFINDER
CURRENT AFFAIRS FOR CIVIL SERVICES

INDEX

Topic 1. DOOMSDAY GLACIER

Important for subject: Environment



The so-called Doomsday Glacier is 'in trouble according to scientists after observing surprising patterns under an ice shelf.

- Two studies released in Nature scientists have discovered that while the rate of melting beneath large portions of the shelf's ice is less than previously believed, deep cracks and "staircase" formations in the ice are melting more quickly. Particularly the melting is most rapid in the area where the glacier joins the seafloor and has been receding almost 9 miles (14 kilometers) in the last decade.
- 1990s, which exposed a larger slice of ice to warm ocean waters.
- The total collapse of the Thwaites in and of itself may result in rising sea levels by over two inches (70 centimeters), which would be enough to destroy coastal communities across the globe. However, it is also possible that the Thwaites could also end up acting as an artificial dam to the surrounding ice of West Antarctica.
- Scientists were also astonished by a different discovery. They found that an undersea glacial landscape more complicated than anticipated, dominated by strange crevasses and staircase-like terraces huge cracks running across the Ice Shelf.

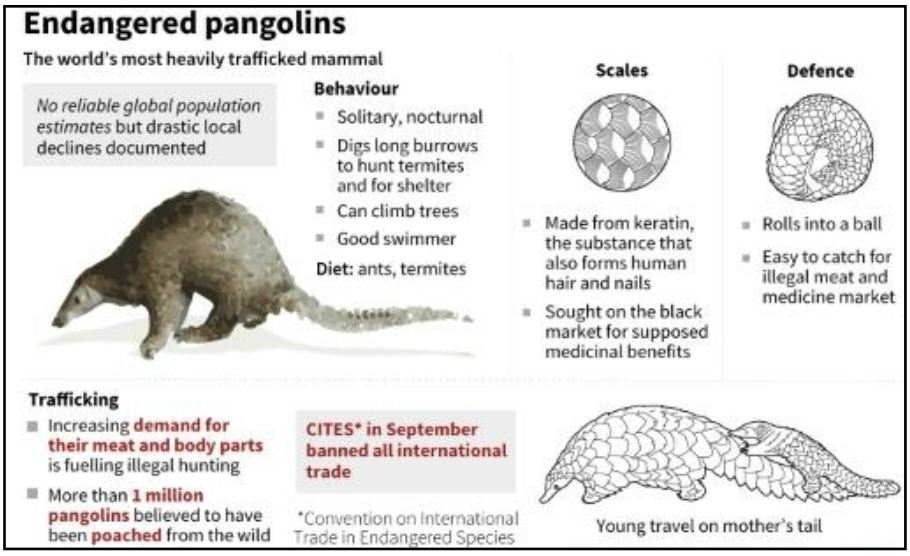
- The warm, salty water was capable of flowing through and expand crevasses and cracks, which contributed to the instabilities of the glacier.
- The melting of the sloped ice of terraces and cracks can be the primary cause for the collapse of the ice shelf.

Doomsday Glacier

- Thwaites Glacier, nicknamed the Doomsday Glacier, is an exceptionally broad and expansive Antarctic glacier.
- It is a part of Pine Island Bay, part of the Amundsen Sea, east of Mount Murphy, on the Walgreen Coast of Marie Byrd Land.
- Thwaites Glacier measures about the same size as Florida It is situated on West Antarctica.
- The main thing that holds it down it an ice shelf that extends out to the surface of the ocean. The shelf acts as corks, keeping the glacier off the surface and offering a crucial defense against sea-level rise.
- Every year, it sheds millions of tons of frozen ice into the ocean. This contributes around 4% of sea rise.

Topic 2. PANGOLINS

Important for subject: Environment



Over 1,200 pangolins traded in India within 5 years: report

- The non-profit international organization TRAFFIC has revealed that 50 percent of

seizures were caused by live pangolins, and 40% were caused by scales of pangolins, which are used as component of the traditional medicines throughout China as well as Southeast Asia.

- Odisha recorded the highest amount of instances including pangolins weighing 154 in 74 seizures.
- They are taken in primarily for markets on the international market in China and the southeast region of Asia because of their scales. These are utilized in traditional medicine.
- Pangolin animal meat considered to be a delicacy and is consumed because of its supposed medicinal qualities.
- A previous analysis of the illicit pangolin trading across India conducted by TRAFFIC in 2018 found poaching of more than 6000 pangolins from 2009 to 2017.

Pangolins

- Pangolins are amongst the most travelled wild mammals in the world.
- India has been the home of two kinds of pangolins: Pangolins from the Indian Pangolin and the Chinese Pangolin.
- Indian Pangolin is a huge insect that eats ants that is covered with eleven to 13 rows of scales on its back. A terminal scale is found on the lower portion on the back of Indian Pangolin, which is absent from Chinese Pangolin. Chinese Pangolin.
- Pangolins are both predators and prey eating insects as well as being preyed upon by other animals.
- Apart from regulating the numbers of insects The pangolin also functions as an ecosystem engineer' that builds burrows which help move soil organic matter and improve Aeration, soil water and soil moisture and impact the process of succession for plants.

Habitat:

- Indian Pangolin is extensively distributed throughout India with the exception of the desert region, the higher Himalayas along with the North-East. It is also found throughout Bangladesh, Pakistan, Nepal and Sri Lanka.
- Chinese Pangolin is located in the Himalayan foothills of Eastern Nepal, Bhutan,

Northern India, North-East Bangladesh and also through Southern China.

Threats to Pangolins in India:

- The poaching of hunter-gatherers to be used locally for consumption (e.g. for protein sources as well as traditional medicines) as well as international trade in the meat and scales throughout East as well as South East Asian countries, specifically China as well as Vietnam.

Protection Status

1. IUCN Red List
2. Indian Pangolin: Endangered
3. Chinese Pangolin: Critically Endangered
4. Both species are listed as part of Schedule I, Part I of the Wildlife (Protection) Act, 1972.
5. Both of these species are included under Appendix I to the CITES which means they are the most endangered species.

Topic 3. THE GLOBAL CLIMATE FINANCE ARCHITECTURE

Important for subject: Environment

Climate finance remains a crucial element in creating a low-carbon and climate-resilient development. Global climate finance structure is ever-changing and complex.

- The funds flow through multilateral channels both inside and outside the United Nations Framework Convention on Climate Change (UNFCCC) and Paris Agreement financial mechanisms and more often through bilateral channels and also through national and regional climate change channels and funding.

Multilateral channels to finance climate change

- The multilateral climate financing channels are the institutions and mechanisms set up to mobilize and distribute funds for climate change-related programs and projects in developing countries.
- These institutions function at an international level and are usually funded through contributions from donors.

Global Environment Facility (GEF)

- GEF was founded just prior to Rio Earth Summit in 1992. Rio Earth Summit to help to tackle the most pressing environmental challenges.
- GEF serves as an operating body of the mechanism for financing of UNFCCC which serves similar functions to the Paris Agreement, with a many years of experience in environmental financing.

It's a financing mechanism that is used by five of the world's major environmental Conventions:

- Minamata Convention on Mercury,
- The Stockholm Convention for persistent organic Pollutants (POPs),
- The United Nations Convention on Biological Diversity (UNCBD), of the United Nations Convention to Combat Desertification (UNCCD)
- The United Nations Framework Convention on Climate Change (UNFCCC)
- From December 2021 through the fourth five, sixth, as well as seventh Trust Fund, GEF has approved over 880 projects within the focus field of climate change, which amounts approximately USD 4.2 billion.
- GEF also manages its Fund for Least Developed countries fund (LDCF) as well as the Special Climate Change Fund (SCCF) under the guidance of the UNFCCC COP.
- These funds help develop NAPs and implementation on 4/17.

Adaptation Funds (AF)

- AF is funded by an 2% tax on the auction Emission credit from the Clean Development Mechanism (CDM) of the Kyoto Protocol.
- The new mechanism is now mandated to be used in conjunction with in the Paris Agreement a similar automated financing source coming through the carbon market mechanism created in the Paris Agreement is being set up.
- In the wake of COP26 in Glasgow the AF will get 5percent of the share of the profits from the sales of emissions credit under the CDM replacement mechanism (UNFCCC 2021).
- In the midst when carbon emissions are at a low the AF is more and more dependent on grant funding from developed countries to keep it in the water.

- In operation since the year 2009 the total financial inputs total USD 1160 million including the total amount of cash transferred to projects amounting to US$ 522 millions.
- The AF was the first to provide directly accessing climate-related finance to developing nations through recognized National Implementing Entities that have the capacity to comply with fiduciary and other agreed upon and gender, environmental and social standards, in contrast working exclusively via UN institutions or Multilateral Development Banks (MDBs) in their capacity as multilateral implementation bodies.

Green Climate Fund (GCF)

- GCF of the UNFCCC was approved during the Durban COP, and then became fully operational when the first projects being approved at the close of 2015.
- Similar to the GEF is also an operational entity within the mechanism for financing of as well the UNFCCC and the Paris Agreement and receives guidance from the COP.
- It is anticipated to be the principal method that international public climate finance flows in the future and is designed to help finance the paradigm shift towards climate resilient as well as low carbon development in developing nations using a nation-driven approach and an commitment to the principle of a 50:50 equal allocation of money for adapt and mitigate.
- The initial mobilisation of resources for the GCF brought in US$ 10.3 billion.
- But, the failure of the United States to fulfil USD 2 billion of its 3 billion contribution commitment, as well as the fluctuations in exchange rates which meant that just USD 7.1 billion of the agreed amount was ultimately available.

Standing Committee on Finance

- At COP16 at COP16, at COP16, the Standing Committee on Finance was created within the UNFCCC to aid the COP in achieving the goals for the Finance Mechanism in the Convention. This Standing Committee on Finance has been charged with in addition to conducting a biennial review on climate financing flows. The fourth edition was released in 2021.

Climate Investment Funds (CIFs)

- It was established in 2008 and is managed through the World Bank, but work in partnership alongside regional development institutions such as those of the African Development Bank (AfDB) and the Asian Development Bank (ADB) and The European Bank for Reconstruction and Development (EBRD) and the Inter American Development Bank (IDB).
- The CIFs provide funding for programmatic intervention in select developing countries and have the goal of improving the knowledge of the ways in which public finances are most effectively utilized at a large scale to support the transformation of pathways. Multilateral development banks (MDBs) Multilateral development banks (MDBs) play a prominent role in delivering multilateral climate finance.
- A lot of them have integrated climate change concerns in their lending operations. Many MDBs also manage climate finance projects with an international or thematic focus.

World Bank

- The carbon finance unit of the World Bank has created the Forest Carbon Partnership Facility (FCPF) to explore the ways that carbon market revenues can be utilized to lower emissions due to deforestation and destruction of forests and forest conservation sustainable forest management, as well as the expansion of carbon stock (REDD+).
- It also oversees its own Partnership for Market Readiness (PMR), aimed to aiding developing countries to establish market-based solutions to address climate change. Bio Carbon Fonds It is an private-public partnership which raises money for conservation or sequestration of carbon from the land use industry.

African Development Bank

- African Development Bank additionally provides financing improved climate finance in African countries by utilizing this German loan program Africa Climate Change
- Fund (ACCF), the first project of which was approved in the year 2015.
- The African Development Bank is also the Trustee of the Africa Renewable Energy Initiative (AREI) and will be the home of the AREI Trust Fund with expected USD

10 billion of resources.

Bilateral channels to finance climate change

- A significant portion of public climate financing is used in bilateral ways and is administered mostly through existing development agencies
- Germany's International Klimaschutz initiative (IKI, international climate initiative) has provided over EUR 4.5 billion for more than 750 mitigation, adaptation, and REDD+ projects since its establishment in 2008. The initiative is funded primarily by the sale of emissions certificates that are traded at a national level which provide financing which is in large part in addition to the existing commitments for development finance.
- United Kingdom has pledged GBP 5.8 billion to its International Climate Financial (ICF) from 2016 until 2021. In 2019, the company announced a double-up of its funding to aid developing countries fight climate change over 2021-2026. GBP11.6 billion.
- The Norwegian International Climate and Forest Initiative (NICFI) has committed USD 350 million annually in 2008 through bilateral partnerships, multilateral channels], and civil society. Large-scale pledges have been made to support REDD+ activities in Brazil, Indonesia, Tanzania, and Guyana.
- Channels both national and regional as well as climate change fund Caribbean Catastrophic Risk Insurance Facility (CCRIF) was established in 2007 with the support by the World Bank and other development partners. It is currently supported by premiums from the developing countries. A risk pool with 22 member countries The CCRIF provides parametric insurance.

Amazon fond

- Amazon Fund Amazon Fund is a financial institution established by the Brazilian government in 2008 to support financial aid for projects that assist to stop forest destruction, track and fight it and encourage the sustainable forest use within the Amazon biome.
- The Amazon Fund is managed by the Brazilian Development Bank (BNDES) in collaboration and with the Brazilian Ministry of the Environment and receives financial support from donors around the world.

- Amazon Fund Amazon Fund has received financial donations from a range of nations such as Norway, Germany, and the United Kingdom.
- By 2021 the Fund had received close to $1.3 billion of donations that have been used to fund several initiatives, including the establishment protection zones, enhancement of police and environmental monitoring as well as an effort to promote sustainable agricultural and forest methods.

Topic 4. GREEN FINANCE

Important for subject: Environment

Green finance is quickly becoming a focus to consider for policymakers.

Green Finance

- Green finance refers to arrangement of financial funds specifically designed for the implementation of initiatives that have been identified as ecologically sustainable, or which take into account the facets that affect climate change. The most environmentally sustainable projects are the generation of energy using renewable sources like wind, solar biogas, and so on. ; clean transportation which reduces greenhouse gas emissions as well as green projects such as green building recycling of waste efficient disposal, efficient disposal and conversion to energy and more.
- Furthermore, sustainable projects in the disclosure requirement to Green Debt Securities include adaptation to climate change sustainable waste and water management as well as sustainable land use, including sustainable agriculture and forestry, and conservation of biodiversity (SEBI 2017).
- To satisfy the financial requirements for these kinds of projects new financial instruments are needed, such as Carbon market instruments (e.g. carbon tax) and even the creation of new institutions for finance (e.g. Green banks, green money) are being created.
- They all make up green finance.
- Rapid economic growth is usually done at the expense of the environmental protection.
- Degrading natural resources, a degradation of the environment, and a soaring level of pollution pose a threat to health and could hinder sustainable growth of the economy.
- To safeguard and significantly improve the quality of the environment all over the

world, countries are increasingly focusing on the development of environmentally friendly technology.

- But, it is necessary to have an an appropriate incentive structure to encourage an increase in the allocation of funds to the establishment or implementing environmentally sustainable initiatives.

Public Policy toward Green Finance

International best practices

- Major flagship programmes of 19/24, such as Principles for Responsible Investment (PRI),
- Equator Principles (EP) for institutions of finance, United Nation's Environment Programme (UNEP) and the Statement of Commitment from financial institutions to promote sustainable development offer ways of implementation of green finance among participants. A number of organisations from India are members of these programs.
- Sustainable Stock Exchange is an initiative that suggests the nations that sign up to the stocks exchanges create indexes of stock prices which track the performance of stocks of a group of businesses operating in these countries. They are the leaders in incorporating Environmental, Social and Governance (ESG) principles in their financial aspects.

Public policy in India

- India has begun focusing green finance from the year 2007. In 2008, The National Action Plan on Climate Change (NAPCC) was developed with a view to provide a broad policy framework to mitigate the effects on climate change.
- The Climate Change Finance Unit (CCFU) was established in the year 2011 inside the Ministry of Finance as a coordinator for the many institutions that are responsible for the green financing in India.
- Security and Exchange Board of India (SEBI) has made it mandatory for the top 100 listed companies in relation to the market capitalisation of BSE as well as NSE to issue annual reports on business responsibility in 2012 and revise the requirement from time to time.

- In May of 2017, SEBI issued guidelines for green bonds with disclosure conditions.
- Additionally to this, it was also announced that the Ministry of Corporate Affairs mandated the reporting of performance of corporate social Responsibilities (CSR) under the Companies Act, 2013.
- In October, Report of the Committee on Corporate Governance is recommending to the Board of Directors must meet at least twice a year to discuss strategies budgets, board evaluation, budgets as well as risk management ESG as well as succession plans.

Incentives/Subsidy

- It is the Government of India (GoI) provides 30 percent of the cost for installation of solar panels for rooftops as a subsidy to institutions social, residential and commercial sectors across the majority of states. In certain special state categories the subsidy can be up to 70 % of the installation costs.
- In addition, those who qualify can receive a generation-based reward where they are eligible to receive 2.50 per generation of which exceeds 1100kWh - 1500kWh per year. Furthermore the surplus power could be sold at a price determined by government.
- GoI has launched two phases of the Faster Adoption and Manufacturing of Hybrid and Electric Vehicles (FAME) scheme in 2015 and 2019, in order to improve the flow of credit, while reducing the initial purchase cost of all vehicles and creating infrastructures (such such as charging stations) to boost the development of eco-friendly vehicles and sales.
- To combat the price of upfront for electric vehicles in order to reduce the cost of initial purchase, to offset the high cost of initial purchase, State Bank of India has announced a "green car loans' program to electric cars that comes with 20 basis points lower interest rates and a longer repayment times, as compared to the current car loans .
- The government also introduced the Production Link Incentive (PLI) scheme for manufacturing high efficiency modules in the field that of energy from renewable sources.
- RBI has added it as a smaller renewable energy market in the Priority Sector Lending (PSL) program in the year the year 2015.

- In this scheme, companies that are in the renewable energy sector are eligible to get loans of up to Rs 30 million (increased from 15 crores since September 4 2020) while homeowners are eligible for loans of up to 10 lakh to invest in renewable energy sources.
- Reserve Bank has mentioned the conclusions from the G20 Green Finance Study Group (GFSG14) on the need to develop market for local green bonds that facilitate international green bond investments as well as knowledge sharing regarding environmental risks and improving the overall green finance practices.
- The annual report also mentions the definition of green-related activities as well as issues related to intellectual property rights development, and the transfer of technology from developed countries, as well as risk assessment for environmental risks conducted by banks.
- In the environment the green banking institutions , Indian Renewable Energy
- Development Agency (IREDA) is a federally-funded agency to encourage clean energy investment announced plans to be the first Indian Green bank in May 2016.
- India Infrastructure Finance Corporation Limited (IIFCL) also has a separate scheme dubbed the "credit enhancement scheme" for the purpose of financing sustainable infrastructure projects using bond tenors that exceed five years.

Progress of Green Finance in India

Green lending

- At the end of March 2020, the total remaining bank credit for the non-conventional energy sector was about Rs36,543 crore representing 7.9 percent of the total bank credit for energy sector, compared with
- 5.4 percent during March of 2015.

Green bonds

- The bonds that are green are which are issued by any state institution, intergovernmental organizations, corporates, alliances or alliances with the intention that the profits from the bonds will be utilized for projects that are classified as environmentally sustainable.
- India has been the issue of green bonds from the year 2015. In February 2020 the total

outstanding total of bonds issued by green companies issued in India is US$16.3 billion India issued green bonds worth around 8 billion dollars since January 1st in 2018, which was approximately 7 percent of all bonds issued on India. Indian markets for financial services.

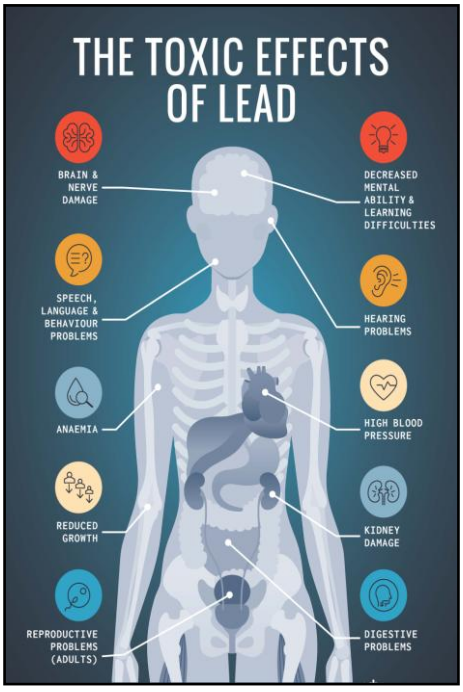
- The majority in the bonds that were issued by India in 2015 were minted in USdollars.
- The majority of green bonds issued after 2015 were issued with maturities of five years or more, but less than 10 years.

Challenges in Green Finance

- RBI recognizes the difficulties in the creation of green finance, including "green washing" or false claims of environmental compliance, a variety of definitions, and mismatches between green investments that are long-term and the short-term needs of investors.
- Costs of borrowing The cost of issuance of green bonds has generally been higher than other bonds issued in India. It is worth noting that most green bonds issued in India originate from public sector entities or companies that have more financial stability.

Topic 5. LEAD POISONING

Important for subject: Environment



The danger of lead poisoning is a significant public health risk for India.

- Half of children in India have excessive levels of blood lead according to a 2020 report released by the UN Children's Fund (UNICEF) as well as Pure Earth, a US-based environmental health non-profit.
- As for average blood lead levels across the populace, 23 states have levels that exceed the 5-ug/dL threshold.

Lead:

- Lead is an element that occurs naturally that is found in the crust of the earth.
- It is often present in conjunction along with elements for instance, oxygen and sulfur as lead sulfide, or lead oxide.
- It is also present in tiny amounts in soil, air and in water.
- It is extremely malleable and ductile that means it is easily cut and made into wires that are thin.
- It's extremely resistive to corrosion and therefore is a good choice for plumbing as well as other uses in which it is in contact with water, or other corrosive substances.
- However the lead in it is highly toxic and could cause a variety of health problems especially for pregnant women and children.

Source of Lead Pollution:

Effects of Lead Pollution

- Health consequences Lead exposure could cause a wide range of health problems, such as harm to the central nervous system, delays in development cognitive impairment, as well as anaemia.
- The effects of lead exposure may also affect the kidney, cardiovascular reproductive and cardiovascular systems. Pregnant women and children are the most vulnerable to the negative health adverse effects of exposure to lead.
- Environmental impacts Lead pollution could cause harm to animals, plants and ecosystems.
- Lead can be found in the soil and in water and may be harmful for animals and plants.
- Lead pollution also impacts the ecosystem of aquatic life and may be a factor in the

decline in fish populations and other species of water.

- Economic effects Lead pollution could be detrimental to the economy, for example, costs related to healthcare as well as reduced productivity as a result of diseases caused by lead.
- The cost of cleaning of lead-contaminated sites and replacing products made of lead can also be considerable.
- Social effects: Lead pollution can be a significant issue for people living in be detrimental to communities that are less fortunate that are more likely to live close to areas of pollution from lead like highways, industrial sites or factories. Children living in these communities could be more susceptible to exposure to lead and the resulting adverse health effects.

Initiatives across the globe to eliminate lead pollution

- United Nations Environment Programme (UNEP) Global Alliance to Eliminate
- Lead Paint The goal of this initiative is in eliminating lead paint from all countries by the year 2020. This initiative offers financial and technical assistance to countries in helping them eliminate lead paint.
- World Health Organization (WHO) Childhood Lead Poisoning Prevention
- Program This program focuses on preventing exposure to lead in children and improving the diagnosis and treatment for lead poisoning. The WHO also works to increase awareness about the dangers of lead exposure as well as to promote the use of lead-free items.
- The Partnership for Clean Indoor Air (PCIA): The PCIA is a global partnership comprised of private, public, and non-governmental organisations that work to reduce the indoor air pollution. The PCIA offers technical assistance, education and resources to help organisations and countries move to cleaner, more secure energy sources.
- The Global Battery Alliance: encourage sustainable battery production and usage, including the responsibly recycling of batteries in order to reduce contamination with lead. It brings together all stakeholders from all sectors of the battery value chain to come together to develop sustainable solutions.
- The Basel Convention: The Basel Convention on the Control of Transboundary

movement of hazardous wastes and Their Treatment is a treaty for the entire world which aims to reduce the creation of hazardous waste as well as prevent its transboundary transportation. The treaty contains provisions for the ecologically sound disposal of the lead-based waste and the reduction from lead-based pollution.

India's efforts to stop Lead Pollution

- National Programme for Prevention and Control of Fluorosis and National Programme for Prevention and Control of Lead Poisoning The programs were established through the Ministry of Health and Family Welfare to control and prevent fluorosis as well as lead poisoning in areas at risk. The programs are focused on offering safe drinking water, encouraging sanitation and hygiene as well as conducting health education programs to increase awareness of the negative health consequences of exposure to lead.
- Bureau of Indian Standards (BIS) lead-free certification mark: In 2017, BIS has introduced a brand new certification mark that indicates that the products are free of lead. The purpose of the mark is to assist consumers in identifying products that are lead-free and encourage more safer options.
- Extended Producer Resilience (EPR) framework: India has implemented an EPR framework to manage e-waste which requires producers to assume responsibility for the disposal of their products. This framework assists to reduce lead contamination from electronics, which is a major cause of exposure to lead in India.
- The Ministry of Environment, Forest and Climate Change (MOEFCC) has issued a notice titled "Regulation on Lead content in household as well as Decorative Paints Rules, 2016" and has banned the production, trade, and export, and import of decorative and household paints that contain lead or lead compounds that exceed 90 parts per million (PPM).
- In 2022 The Union Ministry of Environment, Forest and Climate Change in 2022, the Union Ministry of Environment, Forest and Climate Change
- Battery Waste Management Rules 2022. The new rules are aimed at reducing the share of recycling batteries in the informal sector, and put a heavy emphasis on the extended responsibility of producers.

Topic 6. COLD DESERT CULTURAL LANDSCAPE OF INDIA

Important for subject: Environment

About Cold Desert Cultural Landscape:

- The Cold Desert Cultural Landscape of India is located within the Himalayas and extends across the region from Ladakh (J&K) to the north and Kinnaur (H.P.) towards the southern part of the.
- The area is a Cold Desert biome with extreme climate conditions that could be due to two reasons.
- The other is its position on the east-facing side of the Himalayas that creates an rain-shadow region that is inaccessible to the south-east monsoon winds that sweep across the remainder of the country and, consequently, creating conditions of desert with lower amounts of precipitation.
- Another reason is the extremely mountainous elevation (ranging from 3000 to 5000m ASL) which makes it colder in the surrounding.
- A massive variation during the season can be observed in the climate that range from mild as well as dry summers, with intense sunshine (max temperature of 36°C during the daytime) up to lengthy, cold and windy winters (min temperatures as low as -32°C in the night). Blizzards and snowstorms as well as avalanches are not uncommon.
- The soil isn't very well-groomed and the climate permit extremely short growing seasons, leaving a barren landscape. The water resources are limited and consist of glacier-fed rivers.
- 8/26 The villages are tiny isolated, uninhabited, and their design is are a testimony to the harsh terrain and environmental. The majority of the inhabitants belong to that of Indo-Mongoloid (Tibetan) race with a few areas of western Ladakh are occupied by Dards who act as intermediaries between Ladakhis along with Baltis of adjacent Baltistan in Pakistan controlled Kashmir (PoK).
- Two distinct areas of human settlement and culture can be identified in this desert of cold including (1) the Leh-Kargil region that are located in Ladakh (J&K) as well as (2) Spiti Valley (H.P.).

Historiographical background for Ladakh

- Ladakh ('land of passes') is one of the highest (2,900 metres to 5,900 metres MSL)

and the coldest regions (from 30degC to 70 degC) of the planet.

- Its terrain is barren and populations are sparse on the banks of several valleys including Indus, Nubra, Changthang, Zanskar and Suru.
- The average annual rainfall is not more than 50 millimeters and is mostly received as snowfall during winter.
- The area is prone to high winds that blow 40-60 km/hmainly during the afternoon hours.
- It is believed that the soil moisture stays frozen during winter months and has low relative humidity in the summer months.
- Despite such harsh conditions for survival, it can be believed it is believed that Ladakh is believed to have been inhabited by human beings since the prehistoric era and this is evident from finding Lower Palaeolithic tools, Petroglyphs and other artefacts from the prehistoric period which mark the beginning of the human's relationship with this harsh desert.

The historical history of Spiti

- Spiti is also often referred to as the "middle country located is located in between Tibet as well as India. Through time, it has been changing hands between the many kingdoms including Tibet, Ladakh, Kinnaur, Lahaul and Kullu. Confronted by multiple attacks and influences numerous times, the rulers were required to make payments in exchange for keeping peace throughout the region.
- The archaeological evidence suggests that the first inhabitants of these areas were pastoral nomadic people who fought harsh climate conditions of every kind. To protect themselves, they fought nature's elements and forces and started to worship the gods of nature. The belief is that's the reason why it was that the Naga Cult (cult of snake worship) and many others emerged that revolve around worshiping natural phenomena such as trees rivers, sun, moon, etc.
- The Spiti river Spiti begins at the bottom of the Kunzam range and flows to the east until it merge with Sutlej in Khab within Kinnaur.
- The people are mostly dependent on the land, natural resources like Droh, Gandam (Triticumaestivum), Neh, Jau (Hordeum himalayense) and medicinal plants to provide their food and livelihood.

Cultural Heritage

- The majority of settlements within the area are connected to Buddhist monasteries referred to as Gompas that have a distinctive prayer flag that is fluttering above. Built on flat ground or over the hillock that is adjacent, based on the local conditions, these shrines are the focal point of the local daily life as well as influencing their religion throughout the centuries.
- The structure of the region is an intriguing blend between Indian and Tibetan influence and monastic structures are a reflection of a profound Buddhist method of other architectural manifestations are that are unique to this area. One of them is one of them, the Chorten ('receptacle of worship'), which are amazing forms of stupas and Mani walls. Mani wall. large and thick slabs of stone that range from 1 to 1.25 meters high and 1.25 millimeters wide, and adorned by carved stones engraved by holy texts.
- Buddhist singing of Ladakh - recitation of holy Buddhist texts from the Trans-Himalayan Ladakh Region, Jammu and Kashmir is recorded since 2012 as one elements of UNESCO's Repertoire List for the Intangible Cultural Heritage of Humanity.
- It is the performance arts Traditional dance, including the mask dance theatre, modern plays and folk music
- **Techniques for crafting:** thangkas, carpet weaving, pashmina and marino shawls as well as local prayer flags, quilts of cloth, gold bronze, silver sculptures copper-based objects wood furniture, including writing shelves and stone. and clay
- Customs: sacred paintings and agriculture farming and kitchen gardens, culinary giving birth, marriage and death
- Beliefs, rituals and ceremonies Folk stories legends, myths classical and vernacular languages and dialects, songs poems, scripts from the past and more. are part of the cultural legacy and well-maintained intangible heritage tradition of the land.

Natural Heritage

- The Region exhibits the characteristics of an exceptionally fragile ecosystem which exhibits a complicated relation between the climatic as well as geomorphological processes. The region also exhibits the least amount of than extremely endemic variety.

- Numerous rare and distinctive species of fauna and flora are abundant in this area so that several national reserves and parks were declared by the Government to protect them.
- In addition it is worth noting that The Cold Desert has been declared as the 16th Biosphere Reserve of India in 2009 which comprises Pin Valley National Park as well as its surrounding areas, Chandratal and Sarchu, as well as Sarchu, and the Kibber Wildlife Sanctuary in H.P. It is the Changtang Cold Desert Wildlife Sanctuary located in District Leh, J&K is another protected habitat for wildlife and flora throughout the entire region. In H.P.
- This region hosts a variety of endangered species like those of the the snow leopard Himalayan brown bear and Tibetan Wolf in addition to diverse plants.

Topic 7. RHODODENDRONS

Important for subject: Environment

Darjeeling and the Sikkim Himalayas are the home of more than one-third of all varieties of rhododendrons in India as per the latest publication from the Botanical Survey of India (BSI).

- Darjeeling as well as Sikkim Himalayas comprise one-third (34 percent) from all the Rhododendron species just 0.3 percent of India's area but this region has a significant ecological significance. This underscores the ecological significance of the region it is it is an indication plant species like Rhododendron is in the area of.
- They face a significant danger due to anthropological stress and the effects of climate change according to scientists. Researchers have found that Rhododendron edge worth which has white flowers that are campanulate recorded a huge habitat loss across the two regions of Darjeeling as well as Sikkim. Rhododendron Niveum which has big purple flowers is found in the Lachung area in the north of Sikkim is being threatened due to massive construction.
- Rhododendrons are an indicator species in the context of the climate is involved and are a major factor in the history of botany of the nation.

Rhododendron

- They are indigenous to many parts of the world which includes Asia, Europe, North America and Australia.

- Rhododendron is a genus that includes a wide range of flowers that is located mostly in the Eastern Himalayas, Western Himalayas and Nilgiris some species belonging to Rhododendron have evergreen and others have a spherical appearance in the deciduous stage in the natural world.
- The species can be found in diverse habitats ranging from subtropical forests to alpine plants Rhododendrons vary from small shrubs to huge trees.
- The damp, cold steep slopes as well as the deep valleys that make up eastern Himalayas create a favourable habitat for the flourishing development of Rhododendron species, and a wide variety within The North Eastern States.
- The species is designated by the government as being "the Tree of the State in Uttarakhand as well. Its blossoming during the Garhwal Himalayas is celebrated as "Phool Sankranti," a celebration of flowers.
- Rhododendrons are well-known decorative plants and are commonly cultivated in parks and gardens.
- They are employed in traditional medicinal practices for their healing properties. In certain areas in some regions, the leaves, bark along with the blossoms of this plants are utilized to treat various illnesses such as headache, fever and inflammation.

Topic 8. BLUE FORESTS

Important for subject: Environment

Five "blue forests" that are essential to the existence of Earth.

Blue forest

- "Blue forests" are marine and coastal ecosystems which include mangrove forests sea grass meadows, sea grass meadows as well as ti salt marshes.
- These play an essential role in preserving the marine biodiversity and improving the livelihoods of island and coastal communities by providing habitats for fisheries and safeguarding shorelines and facilitating opportunities for recreation and tourism.
- The blue forests play an important role in dealing with the effects of climate change.
- These ecosystems are exceptionally efficient in sequestering and storing the atmospheric carbon in the form of sediments and biomass and sediments, which can store up to ten times the amount of carbon per square meter than terrestrial forests. The capacity for coastal plants to store carbon is known as "blue carbon."

- It is possible that the devastation of ecosystems could release carbon that has been buried into the atmosphere including carbon dioxide. This can further cause climate change and can reverse the climate mitigation and adaptation benefits they bring to communities in particular and to the entire planet.

Kinds of Blue forest:

Mangroves

- Mangroves are plants and trees that are salt-tolerant that grow along coastlines. They are a source of diversity and are an ideal habitat for crustaceans and fish. Mangroves are also provide a kind naturally-occurring coastal protection against tsunamis, storm surges rising sea levels, and erosion.
- Mangrove forests cover a total of 3.5 hectares. This can be worth $33-$37,000 annually. Mangrove forests also remove up to five times the amount of carbon dioxide from the atmosphere than land-based forests.

Salt marshes

- Salt marshes can be located in estuaries and bays along coastlines with tidal currents across the world with low-lying terrain and a humid climate. They're important areas for feeding and nesting for birds. They also have brackish and shallow waters offer refuge for molluscs, fish and crustaceans.
- Research suggests that salt marshes along with mangroves, peatlands , and seagrass beds contain more carbon than the entire on-land forests in the world combined.

Seagrass meadows

- Seagrasses are flowers that grow in the ocean and are found in shallow waters that extend from the tropics all the way to up to the Arctic Circle. Seagrass meadows help protect coastal areas from erosion as well as store carbon, and help ensure food security by helping to produce good quality fish stocks. They are a powerful alternative for climate-related changes Even though they only cover 0.1 percent of the ocean floor. seagrasses are able to store up to 18 percent from oceanic carbon.

Rockweed

- Rockweed is a diverse species of macro algae recognized through their air-filled bladders which permit them to flounder in a straight line in low-tide.
- It is an common food in certain societies, and is the first source of Iodine and is becoming a recognized sustainable resource with enormous potential for economic growth in the Blue Economy.
- The commercialization of rockweed farming can provide new opportunities in economic development especially for women living in rural communities.

Kelp forest

- Kelp forests comprise marine ecosystems that are distinguished by the abundance of Kelp which are huge brown algae that can be several meters in length.
- They are located in nutrient-rich, cold waters throughout the globe and along the coasts in California, Australia, South Africa as well as several other regions.

Blue Forest Project

- The Blue Forests Project is a worldwide initiative that focuses on harnessing the benefits associated with the coastal ecosystem and carbon sources in order to enhance ecosystem management
- The goal of the project is to promote the better management of coastal ecosystems through harnessing the value of ecosystem services and carbon.
- This project was part of a project by the Global Environment Facility (GEF) and is administered by the GRID-Arendal for UN Environment.
- Project sites are located that are located in Ecuador, Dominican Republic, Indonesia, Thailand, Kenya, Madagascar and Mozambique, United States, and the United Arab Emirates.
- On these sites, in collaboration with local partners, on-the ground actions include specific studies on carbon and ecosystem services, capacity building and analysis of potential actions for policy makers.
- The goal of the project is to offer tools and establish the conditions for up-scaling and the replica of the blue forest approach across the globe.

Topic 9. ELEPHANTS ARE IRREPLACEABLE SEED DISPERSERS

Important for subject: Environment

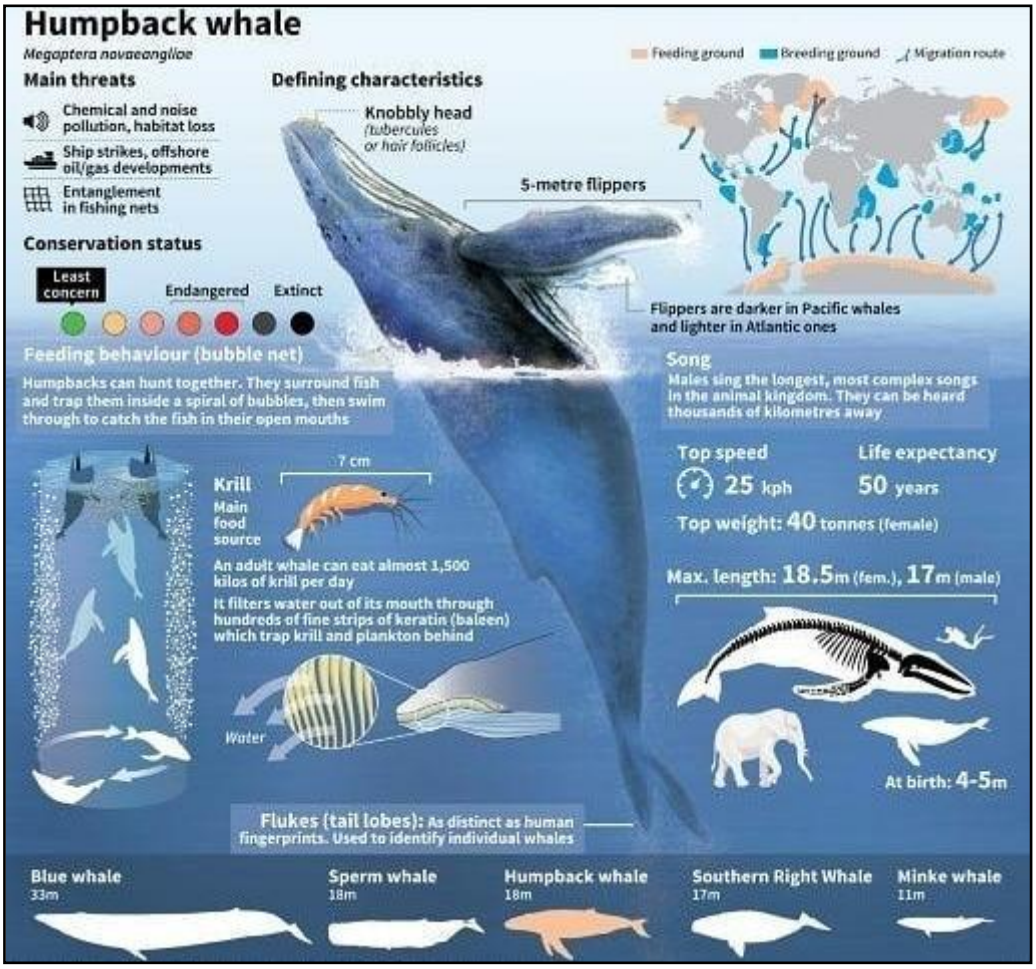
Indian elephants are the ideal seeds dispersers for three huge forests within West Bengal.

- Seeds dispersed far away from the tree that is the source of the seeds ensures that there are plenty of species of trees that live in the tropical rainforests. The trees depend on the fruit-eaters for seed dispersal, such as elephants. The seeds of fruit they eat pass through their stomachs, and then come out unharmed by dung and sprout when the conditions are favourable.
- By combining research data from field and theoretical models, scientists find that no herbivore is able to substitute for Indian elephants as the best seeds dispersers of three huge forests located in West Bengal.
- Researchers at the Bengaluru's Indian Institute of Sciences as well as Princeton University, USA, determined the roles of Indian elephants and herbivores (including Indian gaur, cattle as well as wild squirrels, monkeys and Indian gaur) in dispersing seeds of three species of trees which include three species of elephant apple tree (Dillenia indica), the slow match elephant apple tree (Dillenia indica) and the slow match tree (Careya arborea) and chaplash chaplash, an species of jackfruit that is indigenous to the north-eastern region of India (Artocarpus chaplasha) in Buxa Tiger Reserve, West Bengal.
- The team gathered prior field data from cameras and the fruiting tree to find out what fruit and how many herbivores consumed, weighing seeds in dung and determining the number of seeds that germinated.
- Based on this, and other research data They analyzed the factors that influence seed dispersal, such as the amount of time seeds spent in animal guts and the distance over which seeds were dispersed, and the natural processes that kill seeds that have been dispersed.
- By incorporating these findings into a probabilistic model, the team's research was published in Conservation Biology found that without elephants, the number seeds that survived dispersal fell to between 26 72% and 26 percent in each species of trees in the event that other animals fail to take on the elephants' burden.
- While compensatory removal of fruit by other animals shook up this pattern, the distance of dispersal of seeds was still reduced to 30% in the case of elephant apples

and by 90 percent for chaplash. The elephants scattered seeds over 40 and 50 km, which is more than gaur (10 km) as well as buffaloes and cattle (5 kilometers).

Topic 10. HUMPBACK WHALES

Important for subject: Environment



Recent studies of the Eastern Australian Humpback whale populations have demonstrated that behavioural flexibility of mating strategies can enhance the ability of a population to cope with human-caused impacts.

- It was discovered that as the male population increased as did the strategy of mating changed to more males participating in non-singing competitions over singing.

Humpback whales

- Humpback whales are among the 4 baleen whales. They are massive, toothless whales that have baleen plates that help them filter out their prey from the sea.
- They sport sleek bodies that vary between 6 and 33 meters in length. The length can

go up to 17 meters in length and more than 3000 kilograms in weight.

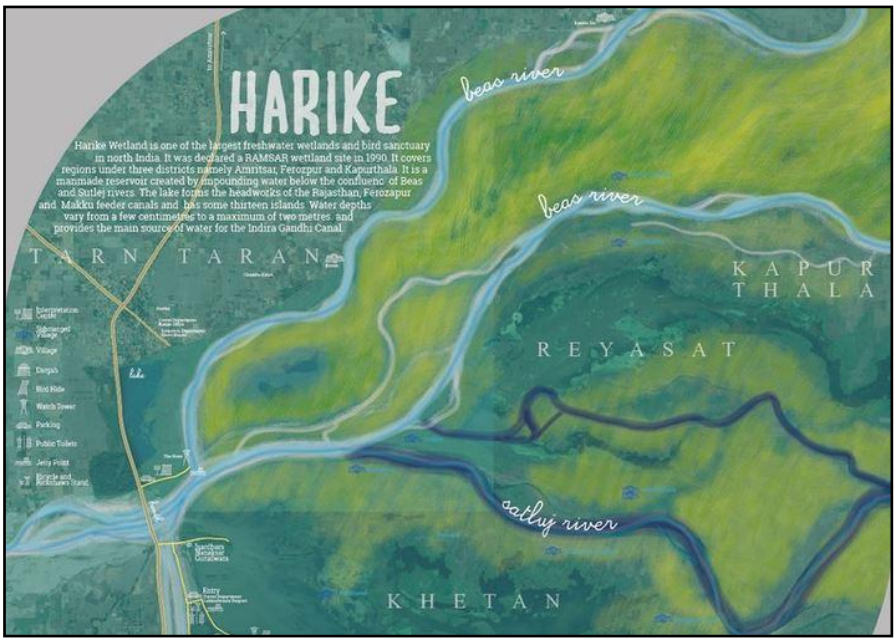
- Humpback whales are found throughout the world across all oceans. Although they tend to show an affinity for areas with continental shelves however, they also have the ability to travel through deep offshore waters and to spend time on and within seamounts throughout the open ocean.

IUCN Status: Least Concern.

- Humpback whales that migrate with the exclusion from their Endangered Arabian Sea population perform some of the longest journeys that any species of whale has ever seen and can swim up to 10,000 kilometers each year.
- They move because they are able to breed and feed in various locations.
- The Southern Hemisphere, humpback whales are found in the frigid waters of Antarctica and feed on Antarctic Krill, tiny shrimp-like crustaceans with an outer body that is hard and comprised of various sections e.g. barnacles, prawns, crabs. They live in large groups known as swarms. In winter, humpbacks move north to mat and then give birth in warmer subtropical waters.
- It is believed that the Arabian Sea humpback whales are the only sedentary whales found in the world, eating and breeding in the same region.

Topic 11. HARIKE WETLAND

Important for subject: Environment



The arrival of migrants at Punjab's Harike wetland have declined this time of year, the latest census figures.

- The migration of bird species this year in Harike the largest northern Indian wetland fell by 12% since 2021 according to the most recent count of these water birds.
- Each winter, 90 species of birds that migrate from Siberia, Mongolia, Kazakhstan, Uzbekistan and Russia, as well as others, flock to the wetland area when the bodies of water in their natural habitats begin to freeze.
- Punjab was home to fewer migratory birds than the other arrivals in all this year's wetlands.

Harike the wetland

- Harike Wetland is Harike Wetland, one of the largest in northern India is located inside the Tarn Taran district & and Ferozepur district in Punjab.
- Harike Wetland Harike Wetland stands on the confluence between the Beas as well as the Sutlej. It is the home of birds from as far as Arctic as well as Siberia.
- It was declared an wetlands in 1990 through the Ramsar Convention, as one of the Ramsar sites in India for conservation, development and protection of ecosystems.
- Alongside its ecological significance in addition to its ecological importance, Harike Wetland is also a significant ecological resource. Harike Wetland is also an important fishery to local community. The wetland is home to a large amount of fish species that include catfish, rohu and common carp.

Convention on the Conservation of Migratory Species

- The Convention on the Conservation of Migratory Species of Wild Animals (CMS) often referred to by "the" Bonn Convention
- This constitutes an international agreement that aims towards the protection of migration-related creatures as well as their natural habitats.
- The CMS was approved at Bonn, Germany in 1979 and became effective in 1983.
- The CMS is designed to co-ordinate and coordinate efforts to protect the migratory species that span national borders. The Convention encompasses a broad range of species which include birds, mammals as well as reptiles, fish, and reptiles and is

designed to combat threats to these species which include habitat loss hunter-killer conflicts, climate changes.

- CMS was been signed by more than 130 nations which makes it an one of the well-known international agreements to protect the environment of wildlife.
- The Convention convenes once every 3 every three years to discuss the latest developments and the progress of conservation efforts, as well as to decide on the best way to advance the conservation of species that migrate.

Species Covered: Convention has two Appendices

- Appendix I lists species that migrate which are threatened or endangered with extinct.
- Appendix II contains a list of migratory species that have a negative conservation status, and that require international agreements for their protection as well as management.

Topic 12. GM POPLARS AND CLIMATE CHANGE

Important for subject: Environment

The forest is a collection of GM Poplars to beat climate change

- In a low-lying region located in southern Georgia located in Georgia US the US, a study is currently underway to make use of in the very first instance, genetically modified (GM) poplar seedlings which will develop wood at a speed that is turbocharged as they consume carbon dioxide from the atmosphere.
- These trees could have been the first GM trees to be planted within the US outside of a trial for research or commercial orchard.
- Similar to how the release of "Flavr Savr" tomato in 1994 led to a new market for GM food crops, the cultivators of the poplars have a dream to change the way forestry is managed.
- Living Carbon, a San California-based biotechnology firm that has produced the poplars, plans to use the trees to become an effective solution for warming temperatures. The company, which has been in operation for four years, has attracted 536 million in investment.
- Living Carbon has yet to publish peer-reviewed research studies; the only results that are publicly available come from a greenhouse experiment which lasted only several

months. These results have some experts interested, but fall far short of a complete acceptance.

- Living Carbon's scientists played around with how trees carry out photosynthesis.
- Photosynthesis is a major influence on the Earth as a chemical process, it isn't perfect. Many inefficiencies hinder plants from taking in and storing more than only a tiny fraction of the sun's energy that falls on their leaves
- The inefficiencies, in addition to other things, restrict the speed at which trees and other plants develop as well as the amount of carbon dioxide they take in. Scientists have spent years studying chromosomes trying to learn the places where evolution ended.
- Living Carbon's work has been guided by the work by University of Illinois geneticist Donald Ort who revealed in the year 2019 that he and his co-workers had genetically modified tobacco plants to photosynthesis more effectively.
- The researchers introduced genes from pumpkins as well as green algae to cause tobacco seedlings to recycle the toxins that are produced by photosynthesis as a by product into sugars.
- The result was plants that were nearly 40% bigger.
- Living Carbon grew engineered poplars in pots and published in a non-peer-reviewed paper in the year 2000 that its modified poplars increased by over 50 percent faster than the unmodified varieties for five months in greenhouses.
- The researchers of the company developed the test trees in the greenhouse using the bacterium which splices foreign DNA into the genome of another organism.
- For those trees that they planted in Georgia they utilized an older, cruder method called the gene gun method that basically blasts foreign genes in the tree.

Topic 13. AU'S AMBITIOUS GREEN STIMULUS PROGRAMME

Important for subject: Environment

Africa must take action to combat climate change according to Guterres at the Addis Ababa AU summit The AU's aggressive Green Stimulus Programme Improving Air Quality and increasing Chemicals and Waste Management and Promoting the Circular Economy improving the quality of air and the management of waste, which includes pollution and marine litter, reduce waste and create jobs and empower women, enlist young

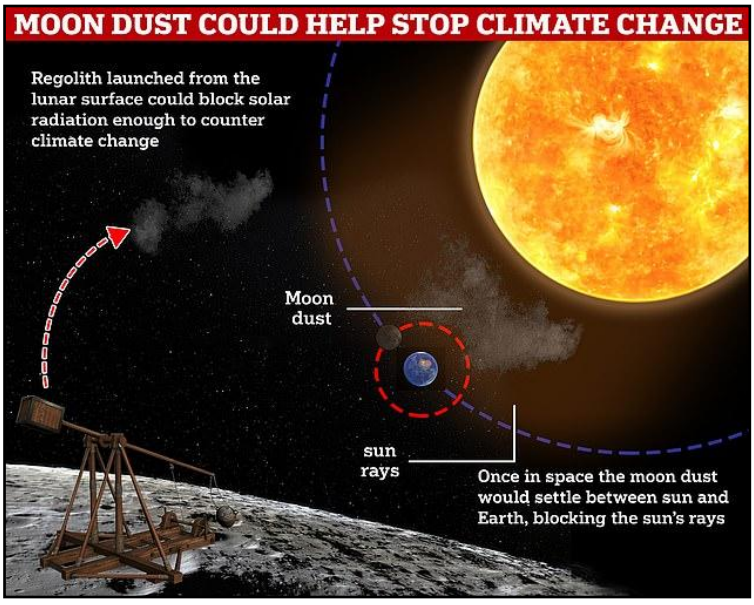
people and help contribute to sustainable development.

- Conserving biodiversity and fighting the Illegal wildlife trade and exploitation combating the threats to Africa's natural resources, including the management of alien invasive species is crucial.
- Revitalizing Ecotourism along with The Biodiversity Economy Socially and environmentally responsible tourism that encourages the preservation of natural and biological heritage and diversity must be revived. The revival of ecotourism may be a significant factor in the continent's revival.
- Fighting Land Degradation, Desertification and Drought - the people and ecosystems that live in the dry lands of Africa are among of the most susceptible to natural and human-induced disturbances caused by a myriad of environmental and socio-economic aspects.
- A greater commitment to providing the right resources to tackle the causes of land degradation, desertification and drought are needed.
- Enriching Climate Action - scaled up, additional as well as adequate funds and investments in transformative large-scale projects are required urgently to help implement the Africa's Climate Change programme.
- African nations must put money into Multi-Hazard Early Warning Systems and improve the supply of timely and accurate weather and climate information.
- investing on the Blue Economy - the necessity of enhancing the environmental impact of the growth of the blue-based economy of Africa and also as to reduce the effects of natural disasters like flooding and cyclones is essential in addition to contributing to the well-being of the people who live in riparian and coastal areas.
- Growing up Climate Smart Agriculture and Food Security Systems Africa's agriculture programs for adapting to climate changes and building resilientness of the farmers against climate-related and economic shocks require further support, which includes the expansion of climate-smart agriculture to improve food security and the livelihoods of farmers.
- Aiding Sustainable Governance of Forests Support for African nations to make significant progress in reducing deforestation rates while also enhancing productivity in agriculture as well as biodiversity conservation. Sustainable gestion of resources, and the income of small-scale food and forest producers is needed.

- Enhancing the management of water Conservation and Use - Enhancing the sustainable and equitable usage of African's resources for water to promote socio-economic development by investing in better the management of water resources like the impoundments, river basins, and lakes, improving the efficiency of water usage and rain water harvesting, and modernizing irrigation systems to be more efficient water systems is essential.
- Investing into Renewable Energy - enhancing the deployment of Renewable Energy initiatives is required to offer the right assistance to allow African nations to adopt bold actions in order to jump ahead of the intelligent renewable energy, people-centered and efficient energy systems as for value chains in the context of emerging and new markets and employment creation.
- The development of Smart Cities and promoting Green Urbanisation As Africa is growing rapidly and growing, it is essential to come up with African eco-friendly urban design models.
- The advancement of Smart Green Cities should support the use of the appropriate technologies, ecological services, and cultural aspects into urban models.
- Enhancing the accessibility of information, Communication and Technology (ICT) - lessons learnt from COVID-19 have revealed a lack of in ICT technology, systems, bandwidth, and access to data that has implications for Africa's journey to 4IR. (4IR).

Topic 14. CAN WE USE MOON DUST TO SLOW DOWN GLOBAL WARMING?

Important for subject: Environment



It is believed that a year of summerlessness followed the eruption of Mt. Tambora in 1816, which released Sulphates and other aerosols in the stratosphere, cooling the atmosphere.

- The result has prompted individuals to look into possibilities of using the same techniques artificially to reduce global warming.

Moon dust coolers

- In a recent article released in PLoS Climate journal, researchers from the U.S. have proposed the idea of launch of tons of moon dust to a place in spacewhere gravity forces from the Earth and the Sun oppose each other.
- The dust being pushed to the desired point will ensure that the dust is placed there, which will help create shadows on the earth and help reduce sunlight that can neutralize carbon emissions.
- In the stratosphere, aerosols in particular, the ones that scatter radiation such as sulfurates, can have an effect of cooling.
- It should be noted that the lack of summer which following the eruption of 1816 greatly affected the crop yields across the globe, which led to disease and hunger.
- Furthermore, various climate models have also proved that dimming the amount sun's rays that enter the atmosphere through stratospheric atmospheric aero can have similar effects for crop yield.
- Certain studies have concluded that these droughts will not be as damaging as they are thought to be and the economic growth of countries would have a positive impact from this the management of solar radiation (SRM).

Solar radiation management (SRM)

- SRM stands for solar radiation management. (SRM) can be described as a kind of climate engineering that seeks to slow or reduce global warming through reflecting sunlight.
- The suggested methods of SRM consist of increasing the planet's albedo using:
- Utilizing reflective balloons, sunshades or mirrors into the air.
- Injecting aerosols with heat-absorbing properties directly into Earth's stratosphere to reflect more Sun's radiation back into space.
- Marine Cloud Brightening involves introducing saltwater particles from the ocean in

the layer of cloud to enhance the reflection of clouds.

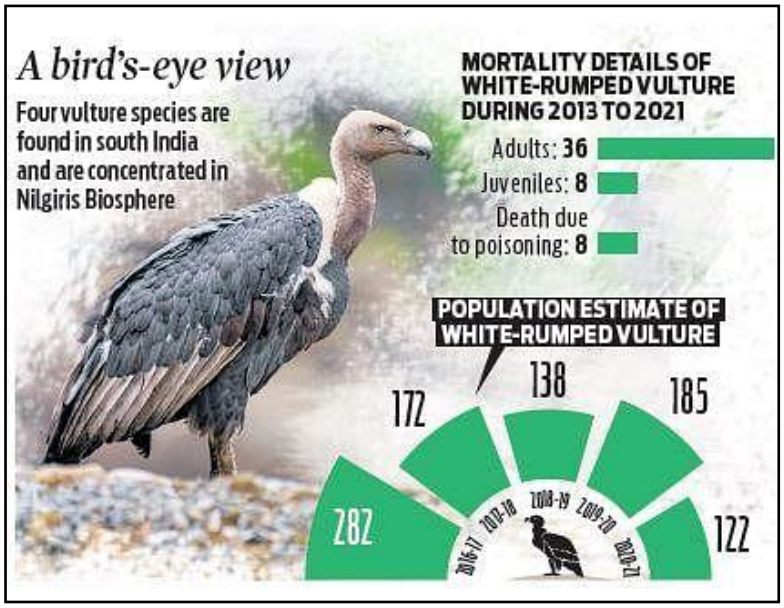
- Implementing surface-based strategies such as whitening roofs, establishing more reflective crops, etc.
- Implementing restorative techniques, such as conserving natural heat reflectors such as snow, sea ice, and glaciers through engineering projects.
- SRM is believed to be a quick and affordable method to slow up global warming.

Concerns

- There's still uncertainty over the possible changes in patterns of rain due to blocking sunlight that could result in unexpected consequences such as drought or loss of crop.
- The best methods to use are implemented at a scale of the continental and not on local level. Thus these measures cannot mitigate the negative effects of droughts or heat waves locally.
- Numerous social and natural researchers have expressed concerns over SRM methods and governance.
- There are concerns about the aerosol-loading method that there could be rebound effects once spraying ceases and the aerosols have been swept from the air.

Topic 15. TN, KERALA AND KARNATAKA TO CARRY OUT FIRST SYNCHRONISED VULTURE SURVEY

Important for subject: Environment



The Departments for Forest and Wildlife of Kerala, Tamil Nadu and Karnataka are planning to conduct an initial synchronised vulture census in diverse areas in the Western Ghats.

- Each year, each year, the forest departments of three States conduct separate surveys, however during a tripartite meeting of coordination that was held in Mudumalai Tiger reserve, the departments decided to hold the very first synchronised vulture survey within the Western Ghats to avoid duplications.
- It is the Wayanad Wildlife Sanctuary, contiguous to the Nagarhole and Bandipur Tiger reserves of Karnataka and Mudumalai Tiger Reserve in Tamil Nadu, is the only place where vultures can thrive in Kerala.
- The Wayanad Wildlife Sanctuary houses close to 120-150 white-rumped Vultures and around twenty red-headed vultures, with the rare sightings of Long-billed Vultures also being documented.
- Vultures are suffering an massive decline in their numbers during the decade of 2000 as these animals are exposed to diclofenac, a drug which is mostly used to relieve pain for cattle.

Indian Vulture (Gyps indicus)

- Critically Endangered [IUCN]
- The Long-billed Vulture, The Indian Vulture closely connected to European Griffon, is typically found in grasslands, woods and shrublands.
- It is found in urban areas towns, villages, and agricultural zones, as do the other species of vultures. This vulture can be seen across the Indian subcontinent and in its surrounding nations, as the name implies.

The Red-headed Vulture (Sarcogyps Calvus)

- Critically Endangered [IUCN]
- Others names include: Pondicherry Vulture, Indian Black Vulture Asia The King Vulture Red-headed Vultures are all over India however in smaller amounts, apart from the Western Himalayas. They prefer vast areas semi deserts, deserts, and scrublands which are away from areas of habitation.
- They are distinctive medium-sized raptors that have deep plumage that is dark, with red legs as well as red-colored necks.

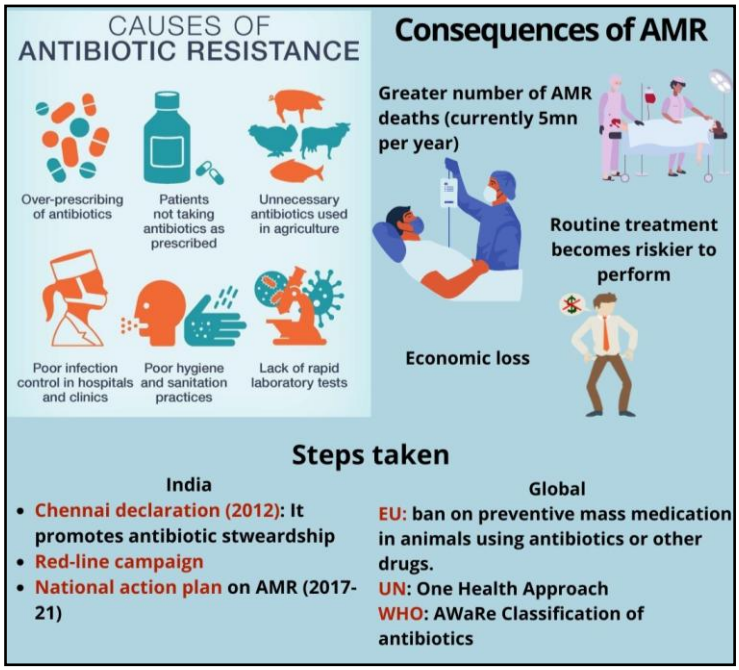
- They usually occur on their own or in pairs, rather than in large groups They are in contrast to other Vultures. They build nests within large trees.

White-Rumped Vulture (Gyps bengalensis)

- Critically Endangered [IUCN]
- The name is Indian White-backed Vulture White-backed Vultures.
- White-rumped Vultures are a medium-sized vulture are often observed near places where people are. They are black and brown plumage, with white neck ruffs.
- They often appear in groups of vulture species. White-rumped Vultures eat carrion as do the majority of vultures.
- However, they have been observed eating garbage and abattoir waste while they live in close proximity to urban zones. They build nests on trees and cliffs.

Topic 16. TACKLING ANTIMICROBIAL RESISTANCE (AMR)

Important for subject: Science and technology



The COVID-19 pandemic has brought to light the urgency for the government to prioritize health care and quickly respond to any crisis.

- It is a silenced pandemic called Antimicrobial Resistance (AMR) is growing with no responses from governments around the world.
- AMR is a threat to global health because of the abuse and ineffectiveness of

antibiotics by humans as well as animals.

- India's role is vital in making sure that AMR is not left off the agenda of global public health since it is currently G-20's president as well as a country that is susceptible to the silent epidemic.
- The most recent UNEP Report on Antimicrobial Resistance declares that the AMR issue is especially impacting countries in the Global South countries.

Burden of AMR:

- AMR occurs by causing microbes (such as fungi, bacteria, parasites, viruses and others) are able to expand even after being exposed to antimicrobial drugs which are intended for killing them or restrict the growth of their cells (such as antifungals, antibiotics and antimalarials, antihelmintics).
- In the end, treatments become ineffective, and inflammations persist within our bodies, increasing the likelihood of spreading to other people.
- Superbugs is a term that is used to identify strains of bacteria which are resistant against the vast majority of antibiotics commonly employed today.
- Resistance to antibiotics by bacteria has made it more difficult to treat infections such as tuberculosis, pneumonia (TB) and the blood poisoning (septicaemia) and a variety of food-borne illnesses.
- The worldwide epidemic of TB has been greatly impacted by multidrug resistance. Patients are less than 60 percent chance recovering.
- According to WHO the resistance to the antibiotic ciprofloxacin (an antibiotic widely utilized to treat infections of the urinary tract) varied between 8.4 percent to 92.9 percent with respect to Escherichia coli (E. coli) and between 4.1 percent to 79.4 percent in the case of Klebsiella pneumonia (a bacteria that can cause life-threatening illnesses such as pneumonia or intensive care unit-related infections).
- The Indian Network for Surveillance Antimicrobial Resistance (INSAR) study revealed an increased rate of resistance to common drugs like ciprofloxacin or gentamicin, co-trimoxazole, erythromycin and clinda.
- AMR can also result in a significant health cost to the patient by causing longer hospitalisation, health issues and a delayed recovery.
- Patients who undergo major surgery or treatments, like chemotherapy, at higher risk.

- It is estimated that it will result in 10 million deaths each year, and a total expense of 100 trillion dollars for the world economy by 2050.
- AMR increases the burden of infectious illnesses and puts strain on the health system of a country.
- AMR in animals and humans pathogens is one of the top 10 threats to health worldwide according to the WHO stated in 2021.

Spread of AMR

- AMR spread isn't restricted to single sources.
- The transient, diffuse sources that are water (rivers lakes as well as sediments), overflows, soil, agricultural runoff aerial transmission and the movement of wildlife (such as the movements of birds that migrate) can also be significant.
- Other crucial factors include globalisation as well as climate change, the mobility of goods and people as well as the movement of wildlife.
- AMR problems are closely tied with the triple global crisis of the effects of climate change on biodiversity, loss, and polluting and waste and waste, all of which are triggered by human activities, such as non-sustainable consumption patterns and production methods.

Antimicrobials in the Agri-food system

- Antimicrobials like antivirals, antibiotics, and fungicides have been used to fight a myriad of infections for animals and people. They can also help improve the production of animals and crops.
- However their effectiveness is rapidly decreasing due to microbes that are able to resist them and continue to develop resistance.

Global High-Level Ministerial Conference on AMR:

- The Third Global High-Level Ministerial Conference on Antimicrobial Resistance(November 24-25 2022) that took place at Muscat, Oman witnessed over 30 nations sign the Muscat Ministerial Manifesto of AMR.
- The Muscat Manifesto recognised the need to intensify political commitments in taking the One Health approach to effectively stop, anticipate and recognize the health problems caused by AMR.

- It also recognized the necessity of addressing the negative effects of AMR not just on humans as well, but on all animals and in the areas of food security, economic growth and development.

The conference was focused on three health goals:

- Reduce the amount of antimicrobials in the agri food system at a minimum of 30 to 50% by 2030.
- Eliminate the use by the food industry and animals of antimicrobials, which are important to the health of humans.
- In the next 30 years, ensure that at 60 percent of total human consumption of antibiotics is coming from that WHO "Access" group of antibiotics.

India for AMR

- The burden of bacterial diseases in India is the highest in world.
- A significant portion of India is affected by diseases such as heart disease, diabetes, and cancer, which makes them susceptible to infections.
- 40 percent of kids are undernourished and are at the risk of contracting infections.
- A Indian Council of Medical Research (ICMR) study conducted in 2022showed that resistance rises from 5 to 10% each year for broad-spectrum antibiotics.
- The National Action Plan on Antimicrobial Resistance (2017-21) emphasised the efficacy of the government's hands hygiene, sanitation and hygiene programs such as Swachh Bharatiyan, Kayakalp and Swachh Swasth Sarvatra.
- India is committed to enhancing surveillance and encouraging research into the latest drugs.
- It plans to also strengthen private sector engagement as well as the submission of data in WHO. WHO Global Antimicrobial Resistance and Use Surveillance System

(GLASS) and other standardised systems.

- The government has also tried to educate the community of healthier and more sustainable production methods for food, specifically in the food and animal industry.
- National Health Policy 2017 National Health Policy 2017has guidelines that limit prescription of antibiotics in the form of over-the-counter medication and limit usage

of antibiotics for increase in the growth of livestock.

One Health Approach

- The One Health approach requires all participants to collaborate in a coordinated effort that connects the challenges faced by humans as well as aquatic and terrestrial animals plants, their well-being, nutrition and food production, as well as the environment.
- This will allow everyone to stop, detect and prevent the health issues caused by AMR.

Global Antimicrobial Resistance and Use Surveillance System (GLASS):

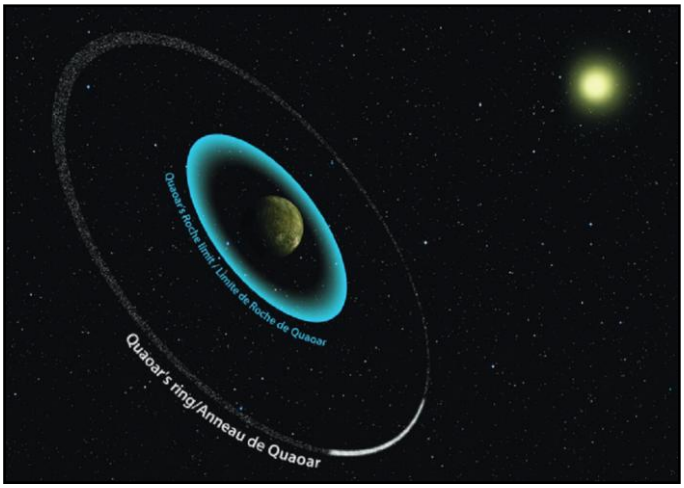
- WHO has launched GLASS in 2015 GLASS in 2015 with the intention of building knowledge and help inform strategies at every level.
- GLASS is designed to gradually incorporate data from the surveillance of AMR in humans, as well as surveillance on the usage of antimicrobial drugs, AMR in the food chain, and in the environmental.

National Action Plan on Antimicrobial Resistance (2017-21)

- National Action Plan on Antimicrobial Resistance (NAP-AMR) focusing on One Health approach was launched on 19th April 2017 with the aim of involving various stakeholder ministries/departments.
- Delhi Declaration on AMR An inter-ministerial consensus was signed by ministers from the relevant ministries who pledged their support to AMR control. As per NAP-AMR several state governments have launched their respective state action plans.

Topic 17. RING AROUND A DWARF PLANET

Important for subject: Science and technology



Astronomers have discovered a rings surrounding a small planet situated inside the Kuiper Belt at the solar system's edge. It is named Quaoar in an investigation that was just published.

- The ring is situated much farther from the earth than typical and does not fit into the theoretical framework.

Quaoar dwarf planet

- With an estimated area of 555 km, Quaoar is approximately one-half the diameter of Pluto and orbits over Neptune.
- There is also one moon of its own that is named Weywot. Since this dwarf planet's size is far away to be seen in direct light, researchers were able to detect the ring using the aid of a phenomenon known as stellar Occultation.

Occultation

- An occultation is a phenomenon that takes place when an object is concealed by another object passing in between the object and its person who is watching. The term is commonly employed in the field of astronomy.
- If the close body doesn't completely conceal the more distant one, the situation is known as a "transition".
- Both forms of occultation can be described as occlusion. If the shadow is projected over the person who is watching it is known as an eclipse.
- The term "occultation" is often used to describe the frequently occurring occasions in

which the Moon moves through the glare of a star in its orbital movement around Earth.

How did the ring come to be discovered?

- The phenomenon of occultation in the stellar is in the event that, when seen from Earth, an intense star is seen passing in front of the planet.
- This allows astronomers, or anyone on Earth to look at the sharp outline of the Earth for a short amount of time.
- This phenomenon that only rarely occurs, is utilized by scientists to study the planet's atmosphere to find out if it has rings around itIn 1977 scientists found the Uranian rings by using stars and occultation.

Limit of Roche

- The ring is situated 2,500 miles from the planet of dwarfs the Ring is about 1,400 miles farther than that Roche limit as per the calculations of scientists.
- It is believed that at this distance that the elements of the ring must be able to join together to create moons.
- Roche limit refers to the distance of any celestial body that its tide forces hinder the formation of satellites that are natural.
- Materials in orbit that are not within the Roche limit will have a tendency to aggregate and become natural satellites.
- The rings of other planets are in of Roche limit.

Earth and Moon Example

- To gain a deeper understanding of how to understand the Roche limits, lets take a look to our Earth as well as the moon.
- The gravity of the Earth pulls onto the moon.
- But, one lunar side is more close the Earth, and therefore the pull is greater on the side that faces the Earth.
- This is the result of the tide force, which is stretched or compressed by the moon on all sides.

What's the motivation of Quaoar's out-of-the-box ring?

- In the moment, nobody exactly knows the way in which Quaoar's rings have managed to stay stable for this long at an afar of the Roche limits.
- Researchers said there are a number of explanations, but they're not sure about among them.
- It's possible that the moon of Quaoar, Weywot, or some other moon that is not seen contributes to gravity which somehow keeps the ring in place.
- Another possible possibility can possibly be the possibility that the particles in the rings are colliding with one another in the way that they are trying to avoid form the moon.

Topic 18. AGRISTACK: THE NEW DIGITAL PUSH IN AGRICULTURE

Important for subject: Science and Technology

The government is currently working on a digital stack of agricultural data, which will have its foundation being land records

About AgriStack:

- It's a collection technology and digital databases that focus on farmers as well as the agriculture sector.
- AgriStack will establish a platform that allows farmers to provide the complete services throughout the agricultural food value chain.
- It's in accordance in line with the Central's Digital India programme, designed to give a wider digitalisation of data in India such as the title of land and medical information.
- It is in the process of implementing an initiative called the National Land Records Modernisation Programme (NRLMP).
- In the course of the program, each farmer will be given an individual digital identification (farmers ID) which includes personal details as well as information on the farm they are on and also production and financial information.
- Every ID is linked with an individual's digital national ID, Aadhaar.

Need:

- Presently currently, most farmers across India are marginal and small-scale. most

farmers in India are marginal and small farmers with only a limited access to modern technology or formal credit that could aid in increasing output and fetch higher prices.

- Some of the proposed digital farming techniques and services that are part of the program include sensors to track cattle, drones that analyse soil, and spray pesticides. These can significantly boost agricultural yields and increase the income of farmers.

Potential Benefits:

- Issues like inaccessibility to information and credit such as pest infestation or crop loss, ineffective yield forecasting and price discovery can be adequately addressed through the using digital technology.
- It can also spur innovation and increase investment in agriculture and will also boost research to develop more resilient crops.

Problems with the move:

- Agriculture is now the latest sector to be given a boost by "techno solutionism" from the government.
- Since then, also been the most recent sector to join the debate on surveillance and privacy of data.
- The project was implemented without a law on data protection.
- After when the MoUs There have been several issues related to sharing farmer's data with private companies have been raised.
- The developments have brought up serious issues about data asymmetry, security and the right to privacy the profiling of farmers, land records that are not properly managed and the corporatization of agriculture.
- The creation of the 'Agristack' will also mean the commercialization of agricultural extension activities since they are shifting to a private and digital area.

Topic 19. CHANDRAYAAN 3 LANDER SUCCESSFULLY COMPLETED KEY TEST

Important for subject: Science and technology

As per that of the Indian Space Research Organisation (ISRO), the landing pad for Chandrayaan-3successfully successfully completed its vital EMC-EMI (Electro - Magnetic Interference/ Electro Magnetic Compatibility) test at the U.R. Rao Satellite Centre, Bengaluru.

Chandrayaan-3 Lander:

- Chandrayaan-3 mission is scheduled to launch later this year. Chandrayaan-3 mission is expected to launch later this next year using the GSLV MkIII (Launch Vehicle Mark 3 LMV3) from the Satish Dhawan Space Centre at Sriharikota.
- As per the agency for space it is the EMI-EMC (Electro Magnetic Interference or Electro Magnetic Compatibility) testis used for satellite missions in order to make sure that the operation of satellite's subsystems in the outer space as well as their compatibility with anticipated electromagnetic frequencies.
- This test marks a significant step towards the realization of the satellites as the complexity of the mission requires the establishment of radio-frequency (RF) communications links between the satellites.

Chandrayaan 3 Mission

- ISRO has revealed Chandrayaan-3, a soft-landing missions after the demise of Vikram Lander in Chandrayaan 2.
- Lander could be the first moon to land in the southern hemisphere of the moon's surface.
- As Chandrayaan 2's Orbiter is in Chandrayaan 2 is in the lunar orbit and the Lander as well as the Rover were unable to functionafter the lander crashed onto the lunar surface.
- ISRO plans to launch its Chandrayaan 3 lander at the same placeas it did with Chandrayaan 2 - the moon's South Pole,which is an exceptionally promising region on the lunar surface.
- In contrast to its predecessor, Chandrayaan-3 won't have any orbiters.
- Chandrayaan-3 is an interplanetary mission that comprises three main components

The Propulsion module, Lander module and Rover.

Propulsion module:

- It is equipped with the spectro-polarimetry of the HAbitable Planet Earth (SHAPE) payload that allows for the study of measurements of polarimetric and spectral polarimetry of Earth from the lunar orbit.

Lander payloads:

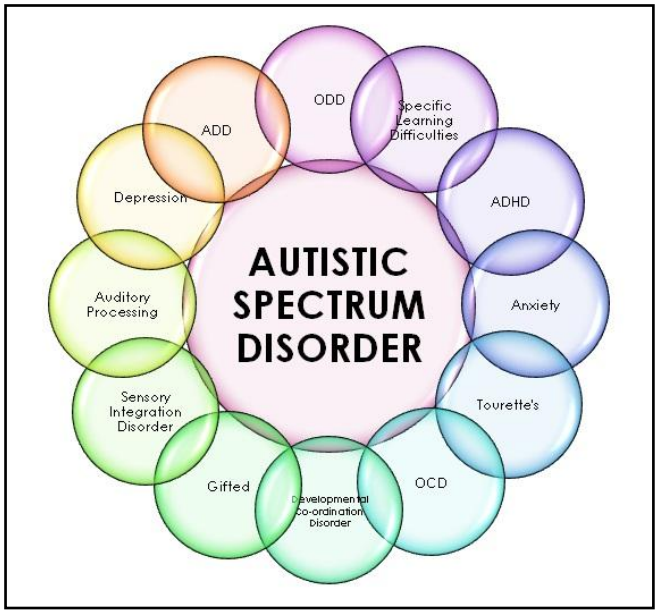
- Chandra's Surface Thermophysical Experiment (ChaSTE) to test the thermal conductivity as well as temperature
- instrument for Lunar Seismic Activity (ILSA) for measuring the level of seismicity that surrounds the landing area;
- Langmuir Probe (LP) to calculate the plasma density and variations in it, etc.

Rover loaders:

- Alpha Particle X-ray Spectrometer (APXS) and Laser Induced Breakdown.
- Spectroscope (LIBS) for the extraction of the elemental composition within the area around the landing page.

Topic 20. AUTISM SPECTRUM DISORDER

Important for subject: Science and technology



Based on the World Health Organisation, 'Autism spectrum disorder' (ASD) affects one out of 100 children.

Autism spectrum disorder (ASD)

- Autism spectrum disorders (ASD) can be described as a development impairment caused by brain disorders.
- It is also sometimes called just autism or the autism spectrum disorder (ASD) or autism spectrum disorder (ASC) is a Neuro developmental disorder that is characterized with difficulties in social interaction, nonverbal and verbal communication, as well as being prone to repetitive behaviours and limited activities.
- Other typical signs include unusual reactions to stimuli sensory and an obsession with the sameness or a strict adherence to routine.
- The signs of autism typically show up around the age of 2 or 3. However, some of the associated developmental issues may be noticed earlier, and it is possible to be detected in as early as the age of 18 months.
- Research suggests that early intervention is linked to positive outcomes later on in the life of people with autism.
- The truth is that there are an autism cure that is not available. There are a variety of therapy, like occupational and speech therapy, which could help autistic patients.

Microbiome of the gut and Autism

- While the researchers have not figured out the cause of ASD fully however, there are reports that suggest that the gut-brain-axis could play a major part in the development of ASD.
- The gut microbiome is known to have a major influence on the immune system's modulation and metabolic processes for humans.
- Variations in the composition of the gut microbiome has been observed in relation to different diseases like celiac disease, Crohn's disease and autism.
- Immune modulation is the actions taken by the immune system in the body to ensure that its reaction is proportional to the threat.

Gut Microbiome

- "Gut Microbiome It is composed of millions of microorganisms and their genetic

material within the intestines of your.

- These microorganisms, mostly composed of bacteria, play an important role in vital functions that affect your wellbeing and health.

Faecal Microbial Transplantation (FMT)

- Faecal Microbial Transplantation (FMT) is considered an extremely promising methods to treat gut dysbiosis.
- In FMT, stool sample taken from healthy people are transplanted to the large intestines in children with a condition.
- A study carried out at Ohio State University in 2017 on FMT revealed that the treatment helped with both ASD-related and gastrointestinal symptoms.
- FMT is also an effective method for cost savings with low risk. But there is a need to get consensus from all parties involved in order to implement it.

Topic 21. ISRO ANNOUNCES OPPORTUNITIES TO ANALYSE ASTROSAT

Important for subject: Science and technology

The Indian Space Research Organisation (ISRO) has just made an announcement.

- Announcement of Opportunity (AO) to enable researchers and scientists to analyse the data from one of the world's first Indian space mission for astronomy, AstroSat.

About AstroSat:

- This is the country's first multi-wavelength space telescope.
- It is the first Indian space mission for astronomy aimed at investigating stars and celestial objects in the X-ray and UV spectral bands simultaneously.
- AstroSat launched with an estimated lift-off weight of 1515 kilograms and has been launched by Indian rocket PSLV from the Satish Dhawan Space Centre, Sriharikota on the 28th of September in 2015 into an orbit of 650 km that is that was inclined at an six-degree angle from the Equator.
- The control center for spacecrafts in the The Mission Operation Complex (MOX) part of the ISRO Telemetry, Tracking and Command Network (ISTRAC), Bengaluru is responsible for the satellite for the duration of its mission's life.
- It's an multi-institute collaborative effort which involves IUCAA, ISRO, Tata Institute

of Fundamental Research (Mumbai), Indian Institute of Astrophysics (Bengaluru), and Physical Research Laboratory (Ahmedabad) and many others.

Scientific Objectives:

- To understand the high-energy processes that occur in binary star systems that contain black holes and neutron stars.
- Find out the magnetospheres of neutron star.
- Examine the birth regions of stars and high energy processes within star systems far beyond our galaxy.
- Find new sources of X-rays visible within the night sky. Conduct a small deep-field survey of the Universe within the Ultraviolet region.

Topic 22. VISCOSE FIBRE

Important for subject: Science and technology

Viscose, a synthetic fibre which is seeing a rise in demand globally is a fresh addition to the Indian textile industry.

- Viscose fibre consumption is experiencing an increase in frequency, and the market increased by 542 thousand tonnes (Thousand ton) from 2021 until 744KT by 2022, which is a massive 37 percent growth.
- One of the issues that plague the value chain of viscose is the insufficient raw material supplies of Viscose Staple Fibre (VSF).
- India has a small number of companies involved in the production of VSF which is why one major firm contributing more than 90 percent of the total supply.
- In the end, most weavers depend on imported fiber. It offers new alternatives to these weavers in order they can remain in the market and compete.
- A new development in the near future that could harm the weavers of viscose could be the imposing of anti-dumping duties for VSF imports.

About Viscose Fibre:

- Viscose is one form made of rayon. It was originally called synthetic silk and was introduced in the late 19th century "rayon" was coined "rayon" came into effect in 1924.

- The term "viscose" is derived from the method by which this fiber is produced and is a viscous organic fluid that is used to create cellophane and rayon.
- It is a biodegradable fibre that is an alternative to cotton and silk.
- It is multi-functional, extremely absorbent, and cheap.
- Viscose is a product made from wood pulp, such as pine, beech, and eucalyptus. It can also be made of bamboo.
- As a manufactured regenerated fiber of cellulose, it is not truly natural (like wool, cotton or silk) nor truly synthetic(like polyester or nylon) It's somewhere in between.
- Chemically, viscose has a resemblance to cotton however it also has several different characteristics based on the way it is made.

Topic 23. SEA LEVEL RISE AND GLOBAL SECURITY CHALLENGES

Important for subject: Geography

The rising sea level and the consequences for security and peace was discussed at length for the first time in the United Nations Security Council February 14th 2023. But, India, along with Russia and Brazil highlighted that this Council wasn't the right place to tackle climate change.

- Sea level increase (SLR) has increased by a third in the last decade, as per the State of the Global Climate in 2022 report released by the UN agency World Meteorological Organization. It is an immediate negative impact of climate change, and causes global issues and, as such needs global solutions.
- SLR can unleash simultaneously abrupt and gradual menaces on the survival and security of nations and individuals.
- Submerged coastlines could threaten vital infrastructure, trigger resource disputes, and further marginalize people who are most vulnerable.
- Over 70 heads at the summit said that climate change must be considered as part of the efforts of the Council to stop conflicts, ensure peace, and strengthen the capacity to withstand in conflict-affected and fragile states.
- India, Russia and Brazil However, they have stated it was they believe that the Council was not the right forum to discuss this issue. In the end, they said that UNSC can be described as unrepresentative. ineffective body which may not be the appropriate forum to debate climate change since it could divide the discussion by

encouraging interventions which disregard equity considerations.

- The United Nations Framework Convention on Climate Change (UNFCCC) process is the most equitable structure to tackle the issue.
- A more sensible approach to the security impacts from climate changes in the light of the growing vulnerability to climate change is essential for peace and security.
- Rising Sea level in India and danger to coastal areas of States like Gujarat, Tamil Nadu and West Bengal have been witnessing rapid coastal erosion and are now at more danger.
- The Global Mean Sea Level (GMSL) hit a new record in 2021 rising at an average of 4.5 millimeters per year during the 2013-2021 period.
- It is more than double the rate that sea levels rose between 1993 and 2002.
- GMSL is a system that integrates changes happening across a variety of components of the climate system. These include the warming of oceans through thermal expansion of seawater melting land ice, and exchange of water with bodies that are on land.
- Rise is not the same
- While sea levels have increased nearly everywhere from 1993 onwards, the level hasn't been equally across the board.
- A number of regions are affected by sea-level rise that is significantly higher than the global average that shows the differences between the global and local sea-levels.
- This is especially the case for the west Tropical Pacific, the Southwest Pacific as well as in the North Pacific, the South-west Indian Ocean and the South Atlantic.

Affects Indian coasts

- National Centre for Coastal Research (NCCR), Chennai under Ministry of Earth science is monitoring shoreline erosion since the year 1990 by using remote sensing data as well as GIS mapping methods.
- The 6,907.18 km Indian coast of the mainland has been examined between 1990 and 2018, and it was discovered that around 34 per cent of it has been Important for subject to erosion of various levels.
- West Bengal has reported the most severe 60.5 percent loss, followed by Puducherry (56.2 percent).).

- The 15th Finance Commission has suggested that the National Disaster Management Authority and or Ministry of Home Affairs develop appropriate norms for mitigation measures to stop erosion and suggest to have the Union and States develop a strategy to address the huge displacement of populations because of river and coastal erosion.

About UNSC:

- The Security Council was established through the UN Charter in 1945.. It's one of six main bodies within the United Nations.
- The other five institutions of the United Nations are--the General Assembly The General Assembly, the General Assembly,
- Trusteeship Council, the Economic and Social Council, the International Court of Justice, and the Secretariat.
- Its main responsibility is to ensure the peace and security of the world.
- The council is comprised of 15 members. Five of them are permanent members, and 10 non-permanent members chosen for a two years.
- Permanent members include The United States, the Russian Federation, France, China and the United Kingdom.
- Every member of the Security Council has one vote. Decisions of the Security
- The Council is formed by a majority vote of nine members, which includes the voting by the regular members.
- "No" vote from one of the five permanent members prevents the resolution's adoption.
- Every member of United Nations which is not a member of the Security Council may participate, without voting on any matter brought before Security Council whenever the latter decides it to be in the best interests this member are particularly affected.
- The presidency of the council is a position which rotates each month among its 15 members It is situated in New York.

Topic 24. EL NINO AND INDIA

Important for subject: Geography

India should be ready for hot and dry summer and spring, El Nino, say experts.

- A lack of rainfall and higher than normal temperatures forecast for February, as well as the decline of La Nina indicate a hot and dry summer and spring months across the majority of India.
- United States Global Forecasting System data indicated data from the Global Forecasting System of the United States showed a rise in maximum temperatures in the northwest as well as certain parts of central southern and eastern India beginning in February 17th 2023.
- The cause of the sudden rise in temperature is the result of a powerful upper-level westerly jet that is reportedly creating lower-level winds that are sweeping warm desert and ocean wind.
- The high-pressure area causes an air subsidence and is also increasing the flow of dry winds coming from northwest to India.
- In the spring and summer months there are some concerns about the decrease in La Nina conditions by March-April and the growth of El Nino conditions later in the year. This could lead to a further increase in temperatures, and subsequent summer heat wave.
- Model for forecasting of the United Kingdom Met Agency about the 5degC temperature barrier that is being breached temporarily in the case of the anomaly temperature average in 2024 because of the potential El Nino.

More about El Nino:

The ENSO cycle

- El Nino is characterized by warmer than average waters in the eastern and central the tropical Pacific and a decrease in trade winds (which are able to blow from east-west) in addition to La Nina by cooler-than-average waters and increased trade winds.
- Neutral phase is a neutral state emerges when the conditions are neither cool nor warm.
- El Nino, La Nina and neutral phases are part of ENSO, climate phenomena that alter

the circulation of the atmosphere.

- This influences temperature and rainfall around the world.

El Nino impacts on India:

- In a normal monsoon-like year (without El Nino), the pressure distribution will be like this
- The coastline of Peru located in South America has a higher pressure than the region in the northern Australia as well as South East Asia.
- It is believed that the Indian Ocean is warmer than the oceans that surround it and, as a result is prone to less pressure. Therefore, the moisture-laden winds travel from the western Pacific towards into the Indian Ocean.
- In the western part of India, pressures on India is less than that of the Indian Ocean, and so the moist winds move closer to the ocean before reaching the landmass.
- If the normal pressure distribution is affected by a reason, then the monsoons are affected.
- El Nino means lesser than average rainfall for India. Indian farming is heavily dependent on monsoons. Because of this lower rainfall during monsoons typically results in below average yields for crops.

Triple-dip La-Nina

- The term "triple-dip" La Nina is a long-term cooling of the temperatures of the equatorial Pacific Ocean, which could cause droughts, strong storms, and heavy rain.
- According to WMO The present La Nina is projected to last for three consecutive winters in the northern hemisphere.
- In the years since the year 1950the earth has experienced an three-time La Nina thrice, including the present one.
- The La Nina phase four years in consecutive years has not been documented to date.
- Possible Consequence of El Nino :https://optimizeias.com/four-possibleconsequences-of-el-nino-returning-in-2023

Topic 25. CENTRAL TRAVANCORE STARES AT DROUGHT AS WATER LEVEL BEGINS A DRASTIC DROP

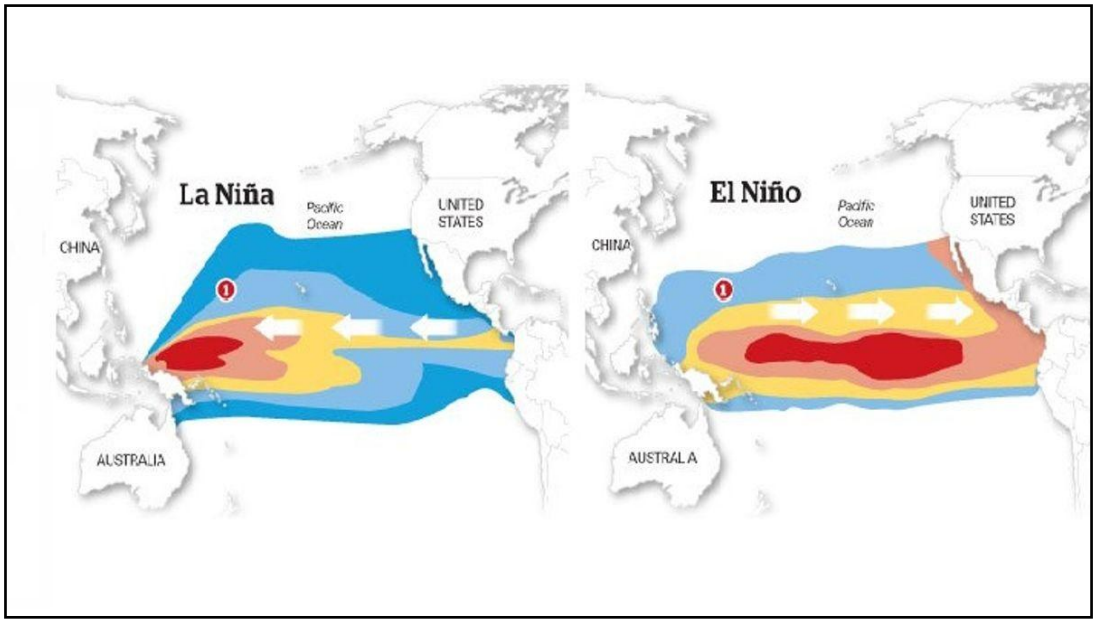
Important for subject: Geography

The Irrigation department plans to build bunds in a few places across the Meenachil before the opening date for the Thanneermukkam bund on the 15th of March.

- Central Travancore experiencing a hot summer this time , with the levels of water in all major rivers throughout the region registering a dramatic drop.
- According to officials from the department of irrigation the water level is high in Meenachil Manimala as well as The Pampa--which together provide the majority of the parts of the regionThe two rivers - have both dropped dramatically in the last few weeks.
- The water level in the points where water is pumped into different water bodies is enough to meet the needs of the different drinking water projects in the present considering that it is likely to get worse as temperatures rise.
- While the areas of high elevation on the eastern side are facing a serious drought with the level of water in the Manimalayar river already reaching the bottom.
- This is, in turn, has an significant effect on groundwater levels in the region.

Topic 26. EL NINO AND LA NINA

Important for subject: Geography



India is currently experiencing a cooler winter than the normally because of the North-South winter flows because of La Nina, a climate phenomenon also known as La Nina.

- The oceans of the equatorial Pacific Ocean is experiencing the longest La Nina period in recorded time.
- It began in September 2020 the La Nina has lasted for three years consecutively and has therefore been classified as an "triple dip La Nina".
- However the forecasts for 2023 winter and fall predict that there's 50% likelihood of the development in El Nino.
- Within terms of the Indian situation, La Nina is associated with good monsoon rain, in contrast, El Nino is expected to reduce monsoon rain.

El Nino

- El Nino refers to the global ocean-atmosphere interaction that leads to the periodic increase in sea surface temperatures throughout the east central and central Equatorial Pacific.
- It is connected to high pressures within the Western Pacific. El Nino adversely impacts the Indian monsoons and consequently agriculture in India.

El Nino impacts on India:

In a normal monsoon season (without El Nino), the distribution of pressure is like this:

- Its coast in Peru within South America has a higher pressure than the region that lies between the northern Australia or South East Asia.
- It is believed that the Indian Ocean is warmer than the adjacent oceans, and as such is prone to less pressure. Therefore, the moisture-laden winds travel from the western Pacific towards into the Indian Ocean.
- In the region of India is less than that of the Indian Ocean, and so the humid winds travel closer to the ocean before reaching the landmass.
- If the normal distribution of pressure is affected due to some reason, then the monsoons are affected.
- El Nino means lesser than average rainfall in India. Indian agricultural production is severely dependent on monsoons. Because of this lower rainfall during monsoons

usually results in lower yields for crops.

What happens due to El Nino?

- This cooler surface water of the Peruvian coast warms up due to El Nino.
- If the water is warm and the water is warm, regular trade winds are dispersed or shift their direction.
- Thus it is that the wind that is laden with moisture is directed toward the coastline of Peru from to the Western Pacific (the region that lies between the northern Australia along with South East Asia).
- This leads to torrential rainfalls to Peru during this time of the El Nino times, depriving of the Indian subcontinent of normal monsoon rainfall. The higher the difference in temperature and pressure more intense the rainfall shortfall in India.

About La Nina:

- It is it refers to the vast-scale cooling of the ocean's surfaces inthe eastern and central regions of the east of the Pacific Ocean, together with changes to the circulation of tropical air, including rain, pressure and winds.
- It can have the opposite effect on climate and weather like It is also known as El Nino, which is the warmer stage of El Nino Southern Oscillation (ENSO).

Weather Changes due to La Nina:

- The Horn of Africa and central Asia will experience less than average rainfall because of La Nina.
- East Africa is forecast to have drier than normal conditions and, in conjunction with the current impacts from the drought locust infestation can contribute to the regional food insecurity.
- It may also result in an increase in rainfall in the southern part of Africa.
- It may also impact also the South West Indian Ocean Tropical Cyclone season, decreasing the intensity.
- Southeast Asia, some Pacific Islands and the northern region of South America are expected to get above average rainfall.
- The situation in India, La Nina signifies that the country will experience more rain

than usual, leading to floods.

ENSO Cycle

- El Nino Southern Oscillation (ENSO)is an irregularly regular variation in the sea's winds and temperatures across the tropical eastern Pacific Ocean.
- Each year, from 3 to 7 years the oceans' surface waters in the oceans of the tropical Pacific Ocean warm or cool by 1degC-3degC in comparison to the normal.
- The phase that warms the sea temperature is called El Nino and the cooling phase is known is known as La Nina.
- Therefore, El Nino and La Nina are two different phases of what is called the El Nino Southern Oscillation (ENSO) cycle.
- These variations from the norm surface temperatures could be a major influence not only on processes in the ocean, but also on the global climate and weather.

Topic 27. ETALIN HYDEL PROJECT

Important for subject: Geography

Refusal to approve Etalin Hydrol project gives relief to a few; however, it could have an impact on Arunachal's hydropower plan.

- The Forest Advisory Committee (FAC) did not limit its discussions only to Etalin project by itself and also included other projects currently being developed and planned across the entire Dibang Valley.

Projects for hydropower in Arunachal Pradesh

- In total, 18 hydroelectric projects with a total power of 9973.3 MW are scheduled in the Dibang river valley, which is covered with administrative district of Dibang Valley as well as Lower Dibang Valley.

Etalin Hydel Project:

- 3,097 megawatt Etalin Hydroelectric Project (EHEP) It was suggested to be built as an partnership that would be a partnership between Jindal Power Ltd and the Hydropower Development Corporation of Arunachal Pradesh Ltd.
- The scheme combines two run-of-the-river plans with limited storage requirements concrete gravity dams on the the rivers Tangon and Etalin is a mega project.
- Etalin project is expected to be completed around 100-kilometre to the north of another mega project which is the 2,880MW Dibang multi-purpose Project (DMP).
- The latter received Stage II clearing of forests in 2020 However, work is still to be started, because acceptance from the Public Investment Board is still in the process of being granted.
- There were a number of controversies from its inception at the end of 2008 due to concerns about environmental damage, forest destruction and displacement of tribal members.

Principal concerns include:

- It could submerge an entire section of wildlife and forest habitat.
- Communities are being displaced from their homes.
- It can alter the stream of water, and alter the migration of fish and breeding.
- Risks of seismic and geological earthquakes.

Dir and Tangon River:

- It is believed that the Dir and Tangon river Both an aquifer from the Dibang River (tributary of Brahmaputra) located in Arunachal Pradesh in India, have the following significance:
- **Hydrological:** Both rivers contribute to the overall hydrology of the area through the provision of water for irrigation as well as hydropower generation.

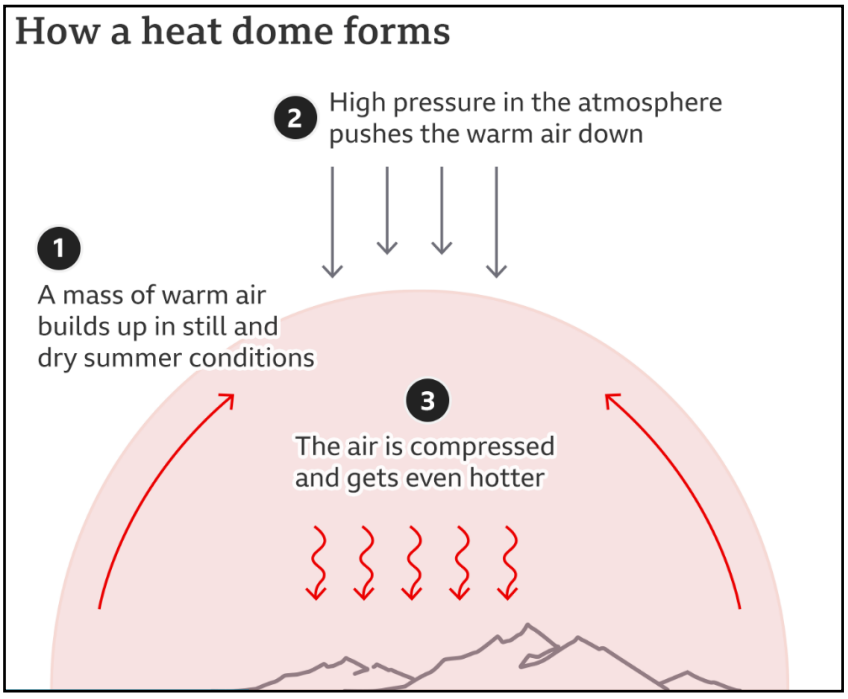
- **Ecological:** The Dir and Tangon rivers are home to a variety of animal and plant life as well as endangered and rare species.
- Tourist Attraction: The stunning beauty and scenic splendor of the Dir as well as the Tangon rivers, together with the Dibang is a significant tourist destination.

Forest Advisory Committee

- This is an official institution formed under the Forest (Conservation) Act 1980.
- It is part of the Ministry of Environment, Forests & Climate Change (MoEF&CC).
- It examines issues related to the deforestation of forests for non-forest use like mining townships, industrial projects, and provides advice to officials on the matter of clearing forest land. Its role is advisory.

Topic 28. UNUSUAL FEBRUARY HEAT, AND THE 'NORMAL ABNORMAL' IN GLOBAL WEATHER

Important for subject: Geography



It's February but it's technically a winter time month, and in certain parts of the country are reaching the 40-degree mark. Celsius. There are already worries about the possibility of a very hot summer as well as extended heat waves this year.

- However, the current flurry of extremely high temperatures mostly in western and

northern India does not give any indication of how hot the summer or the remainder of the year will be.

India IMD Weather Forecast:

- The temperature that is the highest in February, which is averaged across the entire country is predicted to be in the region of 28 degrees C from the data for the 30 years from 1981 until the year 2010. This is considered as"the "normal". The temperature at the minimum is predicted to be between 15 and fifteen degrees C.
- In the last week, temperatures have been 5 to 11 degrees C higher than average in the majority of western and northern India.
- The extreme high temperatures can be called 'heat waves".
- However, declarations of heat waves from the IMD that trigger subsequent action by the local authorities is only intended to be used during the April-July timeframe and not for March or February.

Possible Reasons

- The IMD has explained the current bout of scorching temperatures to a variety of causes which include an inability of the western disturbance activity during February which has brought some rain in the month and also helps keep temperatures lower.
- As of now, only six percent of the nation has experienced normal or even excess rain for February.
- The IMD has stated that plains in the region have been dry and the snowfall or rainfall within the hills is limited.
- As per the IMD the IMD, the IMD states that an anticyclonic formation that has formed over south Gujarat is among the primary causes of the warming along the western coast. The effect was transferred northwards towards Rajasthan, Punjab, Delhi, Himachal Pradesh, and western Uttar Pradesh.
- At the level of the global the year ahead is predicted to be slightly warmer than the two previous years, mostly due to the likely conclusion of the most intense La Nina event.
- The protection against warming offered by La Nina is projected to be able to last for the coming months, causing fears of this season's potential to be the year that sets new

records for warming.

What is a heat wave?

- An arid Heat Wave is an event of extremely high temperatures which is higher than the usual temperatures that takes place in the summer months during the
- The North-Western part from India.
- They typically happen in the month of June and March and occasionally can last into July.
- The extreme temperatures and the resulting environmental conditions adversely impact the living in these areas because they create physical stress that can end in death.

The Indian Meteorological Department (IMD) has issued the following guidelines for Heat Waves:

- The term "Heat Wave" should not be considered until the temperature at a station is minimum 40degC for Plains and at least 30degC for hills.
- If the normal temperature of a facility is less than or greater than 40 degrees Celsius. Heat Wave Abrupt departure from normal temperature is 5degC-6degCand Extreme heat waves
- The normal temperature is 7degC or higher when the maximum temperature is 45degC or higher, regardless of the normal maximum temperatures the heat wave should be declared.
- Temperatures that are higher in the day and longer intense heat waves are becoming more common across the globe due to the climate change.
- India is also experiencing the effects of climate change in the form increasing instances of heat waves that are becoming more intense in nature with each passing year and can have a devastating effect on the health of people, resulting in an increase in the number of deaths due to heat waves.

Topic 29. UNDERWATER NOISE EMISSIONS BY SHIPS POSE THREAT TO INDIAN MARINE SPECIES

Important for subject: Economy

The growing pollution from man (anthropogenic) marine noise emission (UNE) from vessels in the Indian waters is posing an imminent threat to the existence of marine mammals such as Bottlenose Dolphin, Manatees, Pilot Whale, Seal, and Sperm Whale.

- The primary source of energy utilized in the multiple behavioural actions that marine mammal that includes mating, social interactions, food, group cohesion, and foraging is dependent on the sound.
- However it is true that the noise that is emitted by ships over time impacts the occupants and can cause internal trauma, hearing loss, capability, behavioural changes, responses, masking and stress.

Sources of Marine Noise Pollution:

- Shipping Commercial ships of a large size as well as recreational vessels generate significant amounts of noise from their propellers and engines. This sound can be especially loud in the shallow waters and may affect marine life within the region.
- Seismic survey Seismic surveys can be utilized to determine the location of gas and oil reserves beneath the sea floor. The surveys involve the use of air guns, which generate intense sound blasts that can be damaging on marine creatures, specifically whales and dolphins.
- Construction under the water Construction activities like the drilling process, pileriving and dredging are likely to generate large amounts of noise. This could affect marine life in the vicinity.
- Sonar for military the military ships as well as submarines make use of sonars to identify the presence of other vessels and the underwater hazards. The loud, high-intensity sound generated by sonar is detrimental to marine life, especially whales and dolphins.

Effects of Marine Noise Pollution:

- The loud sounds can cause marine animals to lose their sense of direction in turn can cause animals to become confused or confused which could result in injury or even

death. Changes in behaviour Noise pollution could change behaviour of marine mammals, for example, their habits of feeding and migration paths that can result in lasting effects on their health and wellbeing entire population.

- The masking effect of communications the loud sounds of the world can obscure the signals of communication of marine creatures, making it difficult for them to find potential partners or converse with the offspring and locate food.
- Stress physiologic exposure to loud sounds can trigger psychological stress to marine creatures which could reduce their immunity and increase their vulnerability to illness.
- Strandings a few marine creatures such as whales and dolphins, in particular are sensitive to sound and are prone to becoming disoriented due to the sound of. It can lead to stranding sin which the animals swim off and then die.

Initiatives across the globe to combat Marine Noise Pollution

- International Maritime Organization (IMO) The IMO is a specialized organization part of the United Nations that is responsible for controlling shipping activities. The group has established guidelines to reduce the sound generated by ships, for example restricting vessels' speed in specific zones to limit the amount of noise.
- International Whaling Commission (IWC) IWC: IWC is an intergovernmental organisation which has been accountable for management and conservation of whale populations. The IWC has demanded an reduction in the amount of underwater noise pollution in particular due to seismic survey and military sonar as a way to protect whale populations.

Topic 30. INDIA AND SINGAPORE LINK PAYMENT SERVICES

Important for subject: Economy

India along with Singapore have joined forces to create a real-time payment networks in the very first instance in order to enable exchange across borders.

- In India, the Unified Payments Interface (UPI) and the equivalent in Singapore called Pay Now are now joined.
- This will facilitate the transfer of remittances, money and other payments between both countries fast and in real-time.

- The residents from Singapore and India can transfer money instantly between them through Unified Payments Interface (UPI) and Pay Now.
- The lower-cost, more efficient and 24-hour cross-border connectivity project can be used by Indians making use of Google Pay, Paytm and other similar payment platforms to transfer funds to those who reside in Singapore.

Unified Payments Interface (UPI)

- UPI is the system that connects multiple bank accounts to one mobile application (of every participating bank).It accomplishes this by combining multiple banking features including seamless fund routing and merchant payment into one hood.
- In another way, UPI is an interface that allows one to transfer money between bank accounts through the same window.
- UPI can be used for both Person-to -Person (P2P) or Person-to Merchant (P2M) payments. It can also allow users to transfer or receive money. It was introduced in the year 2016 in the year of the National Payments Corporation of India (NPCI).

Features:

- Instant money transfer via mobile devices round the clock , 24 hours a day, All year long, hassle-free transactions because customers are not required to input the information like Card number or account number IFSC and so on.

PayNow

- Like India's quick pay UPI, PayNow is a system that's similar to India's fast payment UPI, PayNow is the Singapore counterpart.
- With just a mobile phone number users can transfer and receive money from one ewallet account to another one in Singapore.
- This peer-to peer payments linkage is supported by participating banks as well as Non-Bank Financial Institutions (NFIs) across the country.

Topic 31. ANGEL TAX

Important for subject: Economy

A senior official from the government recently declared that the "angel tax' clause of the Finance Bill will not impact startups in India.

- The Financial Bill 2023 made changes to eliminate the exemption for foreign funds as well as non-resident investors. They must now be responsible for Angel Tax on the difference between the capital they raise in addition to the fair market value of the securities sold.

About Angel Tax:

- Angel Tax refers to a term used to describe the tax on income due to the capital generated by non-listed firms through sharing shares in off-market transactions.
- The surplus funds that are raised at prices that are higher than the fair value is considered to be income and tax is imposed.
- Its origins are derived in Section 56(2) (viib) in the Income Tax Act, 1961.
- It was first introduced in 2012to stop the laundering of black money through shares sold.
- The Angel Tax is levied at the rate of 30.9 percent on net investment that exceed the Fair Market Value.
- In the year 2019, the government declared exempting startups from paying the Angel Tax for startups on the fulfillment of certain requirements. These include,
- The startup must be acknowledged as such by The Department for Promotion of Industry and Internal Trade (DPIIT) as an qualified startup.
- The total amount of the shares that have been paid up and the share premiums of the Startup is not more than Rs 25 million. This figure is not inclusive of the funds received from Non-Resident Indians (NRIs), Venture Capital Firms and certain companies.
- In the case of the angel investor, any investment that is higher than fair market value may be claimed as a 100 percent tax-free deduction. However, the investor must have an income of more than more than Rs2 crores or a gross income that is greater than $25 Lakh over the last three fiscal years.

Changes made in the Budget 2023-24

- Prior to budget 2023-24, angel tax was only imposed on investments that were made by an investor who was a resident.
- For example. The law was not applicable when the investments were done by any non-residents or venture capital fund.
- The Finance Bill, 2023 has suggested amending the section 56(2) VII B in the Income Tax Act.
- In this regard, the government is proposing that foreign investors be included in the same category, meaning that if a startup raises money from a foreign investor and that investment will be considered income and will be tax-deductible.
- However, these foreign investors will not need to pay any angel tax while investing in a government-recognized (Department for Promotion of Industry and Internal Trade (DPIIT) registered) startup in India -- similar to the provision for domestic investors.

Eligibility Criteria for Startup Recognition:

- The Start-up must be registered in a limited liability private firm or legally registered as a partnership firm or as a limited liability partnership.
- Turnover must be less than INR 100 crores in any previous fiscal years.
- A company is considered to be a start-up for up to 10 years after the date of incorporation.
- The company should strive to improve or innovate existing products, processes, and services and is expected to create employment or wealth.
- A business entity that is formed by dissolving or rebuilding an existing company cannot be considered to be a "Startup".

Topic 32. SEALED COVER JURISPRUDENCE

Important for subject: Polity

Recently the Union government was planning to provide suggestions in sealable cover letters to Supreme Court, in reference to the establishment of a committee proposed to inquire into the Hindenburg report regarding Adani Group. The Court However, it refused to take the suggestion.

Sealed Cover Jurisprudence

- It is a method employed in the Supreme Court and sometimes lower courts of requesting or accepting documents from government agencies in sealed envelopes that are only accessible by judges.
- It there is no law that specifies the jurisprudence of sealed coversbut the SC's power derives from -
- Rule 7 of Order XIII of the Supreme Court Rules and Section 123 of the Indian Evidence Act of 1872
- In accordance with Rules 7 of Order XIII("Copying") of the Supreme Court Rules 2013 in the event that there is a decision by the chief justice or the court requires certain information to be kept in a sealed envelope or considers it to be confidential, in nature no individual would be permitted access to the content of the information.
- According to section 123, which is a part of the Indian Evidence Act of 1872 the non-published official documents regarding the state's affairs are protected and the public servants cannot be compelled to reveal the details.

When can the Court ask for Information in a Sealed Cover?

- In general, there are two situations where information is linked with an investigation in progress and also when it concerns sensitive or personal information.
- The reason is that the release of information related with an investigation in progress may delay the process.
- Additionally, disclosure of private or confidential information can violate a person's privacy, or lead to an infringement of trust.

The Instances of Court with Seal Cover Jurisprudence: Seal Cover Jurisprudence:

- The jurisprudence of the sealed cover is frequently used by Courts in recent times.
- In the case that relates to the Rafale Fighter Jet deal the Bench, headed by the Chief Justice Ranjan Gogoi in the year 2018 requested the Centre to submit information regarding the decision-making process and pricing within an enclosed cover.
- This was done because the Centre claimed that the information was under lawful disclosure under the Official Secrets Act and Secrecy clauses in the agreement.

- Concerning the National Register of Citizens (NRC) in Assam, the coordinator of the NRC, Prateek Hajela, was questioned by the judge to file periodic reports with sealed covers that could not be accessible by the government or the petitioners.
- The case of the BCCI reforms trial the inquiry committee of the body sent its report before the Supreme Court in a sealed envelope, asking the court not to release details of the identities of 9 cricketers suspect of a match or spot fixing fraud.

Critique of the Practice

- The critics of this practice argue that it's not in accordance with integrity and transparency in justice in the Indian judiciary system.
- It is in stark contrast to the concept that an open tribunal where rulings are Important for subject to scrutiny by the public.
- It's also claimed to increase the possibility of arbitrariness in court decisions because judges are required to provide a rationale for their decisions. But, this can't be performed when the decision is dependent on confidential information.
- It is claimed that not allowing access to such documents the defendants hinders their access to a fair hearing and adjudication.
- In the judgment of 2019 regarding the appeal in the case of P Gopalakrishnan V. The State of Kerala, the Supreme Court had said that disclosure of evidence to the defendant is constitutionally mandated.

Topic 33. RAJYA SABHA CHAIRMAN TELLS PANEL TO PROVE 'DISORDERLY CONDUCT ' OF 12 MP'S

Important for subject: Polity

Rajya Sabha Chairman recently asked the committee of privileges to look into the alleged violation of privileges by 12 lawmakers from the opposition for frequently going into the well of the House with a chant of slogans and hindering the House's proceedings.

About the Committee of Privileges Standing Committee:

- The committee is composed of 15 members of Lok Sabha(10 in the case Rajya Sabha) selected by Speaker(Chairman in the case of Rajya Sabha).
- The Rajya Sabha, the vice chairperson is the head of the committee of privileges.

Powers and Functions:

- The committee investigates each case which involves a breach of the privileges of the
- House or of its members or members of any Committee of it to it by House or the Chairperson/Speaker.
- It also makes a determination by an eye on the facts of each instance whether the privilege breach is at play and offers appropriate suggestions within its findings.
- The document also specifies the procedures that must be adhered to by the House when implementing its suggestions.
- When a matter of privilege is brought by the Committee by the House it is reported by the Committee is then presented before the House by the Chairman or, in the absence of the Chairman by any members or members of the Committee.
- When a privilege issue is put before the Committee by the Speaker The Report to the Committee is then presented to the Speaker, who will decide on the final order or request to place it down on the Table of the House.
- The Speaker/Chairman can be able to refer to the Committee any request regarding the exclusion of a member due to disaffection in the course of making an initial inquiry and then providing a report.
- It is the procedure that the Committee in these instances is as far as it is likely to be the same as cases of breach of privilege.

Standing Committees

- Standing Committees are permanent. Standing committees remain in place (constituted annually or on a regular basis) and work on an ongoing basis.

Standing Committees can be classified in one of the below six types:

1. Financial Committees
2. Departmental Standing Committees
3. Committees to Enquire
4. Committees to Scrutinise and Control
5. Committees Relating to the Day-to-Day Business of the House
6. House-Keeping Committees or Service Committees.

Topic 34. CHILDREN HAVE A RIGHT TO PROTECT THEIR GENETIC INFORMATION FROM DNA TESTS: SC

Important for subject: Polity

The Supreme Court of India has decided that children are entitled to safeguard your genetic data from being disclosed through the DNA test without consent.

- The court decided it was a matter of personal privacy and intimate information. Genetic information is private and intimate children are entitled to privacy and integrity of their bodies. Children should not be treated as a thing and shouldn't be the center of conflict between spouses. In addition, allowing DNA tests may affect the image and dignity of the mother.

Basis for this judgement

- The court called attention to the rights to privacy and autonomy as well as identity recognized in the United Nations' Convention on the Rights of the Child.
- It acknowledged the control individuals especially children are in control of their individual boundaries and the ways in that they determine who they are to others.
- Children shouldn't be denied this right to influence and comprehend their self-image because they are children.

What can be done to be sure that the tests are completed?

- Family courts should require the testing of DNA only in urgent situations and to ensure justice, and as an option last resort, according to the decision.
- This is an option in the event of a crisis.

Right to safeguard Genetic Information

- The right to safeguard genetic information is basic right that acknowledges an individual's freedom in determining their personal and personal genetic information.
- It allows people to make informed choices about their health, privacy and personal identity.
- In India the Supreme Court has also held that children have the right to shield their

genetic data from DNA testing during divorce proceedings, since it is a part of their fundamental privacy rights.

- This is protected by Article 21 of the Indian Constitution.
- This right is protected by several international human rights instruments such as the Universal Declaration of Human Rights and the International Covenant on Civil and Political Rights.

UN Convention on the Rights of the Child

- It was a treaty that was adopted at the United Nations General Assembly in 1989.
- It defines the term child as each human being who is less than 18 years older.
- The international treaty that is legally binding to the participants.
- It outlines the economic, civil, political rights, cultural and social of all children regardless of race, religion, or ability.
- It covers rights like the Right to Education, Right to rest and Leisure as well as the Right to Protect from Physical or Mental Abuse which includes Rape and sexual Exploitation.
- The agreement has been approved by all UN members, with the exception of UN other than United States. United States.
- This is by far the most frequently ratified human rights treaty in world's history.

Committee on the Rights of the Child

- The Committee on the Rights of the Child (CRC) is an expert group who monitor and report on the application of United Nations Convention on the Rights of the Child.
- The Committee also oversees the Protocols that are optional to the Convention:
- the Optional Protocol on the Involvement of Children in Armed Conflict, the Optional Protocol on the Sale of Children, Child Prostitution and Child Pornography
- Optional Protocol to the Convention on the Rights of the Child on a Communications Procedure

Topic 35. CHINA FACES GRILLING IN REVIEW OF KEY RIGHTS BY UN COMMITTEE

Important for subject: International Relations

Chinese ambassador Chen Xu and a delegation comprising about 40 envoys from China, Hong Kong and Macau received questions from the N. Committee on Economic, Social and Cultural Rights which evaluates the rights of these people in almost every U.N. member states every several years.

- The hearing revolved around responses from more than 20 non-governmental organizations, and the hearing was led by independent experts who work with The U.N. who make up the committee. The committee's mission is to assist countries in implementing their obligations in the International Covenant on Economic, Social and Cultural Rights.

About UN Committee on Economic, Social and Cultural Rights (CESCR):

- The CESCR was set up in 1985 by the Economic and Social Council (ECOSOC) of the United Nations.
- It was established with the purpose to oversee on behalf of the organization the implementation of International Covenant on Economic, Social and Cultural Rights (ICESR) which was accepted by 169 countries.
- Countries that have signed up to the convention are obliged to report for the CESCR every five years on how they are protecting the social, economic as well as cultural rights.
- The committee reviews each report and makes issues and suggestions for the state body in the form of final observations.
- The members of the CESCR serve in their own capacity as experts, and are not representatives of their country even though they might be appointed by their own country.
- The CECSR is held in Geneva and has two sessions each year, comprised of a three-week plenary and a one-week pre-sessional work group.

International Covenant on Economic, Social and Cultural Rights (ICESCR)

- The International Covenant on Economic, Social and Cultural Rights (ICESCR) is multilateral treaty ratified in the United Nations General Assembly (GA).
- It commits its participants to strive for the grant of economic social, cultural, and rights (ESCR) to the Trust and Non-Self-Governing Territories as well as individuals, including labour rights and the right to health as well as the right to education, as well as the right to a decent quality of life.
- As of July 2020 it is estimated that the Covenant is signed by 171 nations. India signed the treaty in 1979.
- Another four nations including those from the United States have signed but not ratified Covenant.
- It is the ICESCR (and its Optional Protocol) is part of the International Bill of Human Rights, as well as Human Rights, as well as Universal Declaration of Human Rights (UDHR) and the International Covenant on Civil and Political Rights (ICCPR) which includes the second and first Optional Protocols.
- The Covenant is controlled through the UN Committee on Economic, Social and Cultural Rights.

Optional Protocol:

- The Optional Protocol to the International Covenant on Economic, Social and Cultural Rights is an additional agreement with the Convention which permits its signatories to recognize the power that the Committee on Economic Social and Cultural Rights to take into consideration individual complaints.

Topic 36. INTERNATIONAL ORGANIZATION FOR MIGRATION

Important for subject: International Relations

At least 73 migrants headed to Europe are believed to be dead and missing in an accident off Libya according to according to the United Nations migration agency said Wednesday.

- The U.N. International Organization for Migration said in an announcement that the crash was reported on Tuesday. It also said the Libya authorities have found at eleven bodies.

International Organization for Migration

- IOM is an intergovernmental organisation that offers advice and services regarding migration to both governments and migrants, such as refugee, internal displaced people and migrants.
- IOM was founded in the year 1951as Intergovernmental Committee for European Migration (ICEM) to aid in relocate people who were displaced by World War II.
- It was granted the status of a Permanent Observer until the UN General Assembly in 1992.
- The cooperation Agreement that was signed between IOM as well as the UN was signed in 1996.
- World Migration Report is published each year by the International Organization for Migration (IOM) of the UN.

IOM operates across the following four areas: management of migration:

- Development and migration Facilitating migration, Regulating forced migration and migration.
- It is home to more than 166 member states and a further eight states with observer status, and offices in more than 100 countries.
- India is an IOM member.

Topic 37. RUSSIA SUSPENDS NEW START TREATY

Important for subject: International Relations

Vladimir Putin announced that President Vladimir Putin announced that Russia has decided to stop participating of the New START treaty, the last remaining treaty for nuclear arms control with Russia and the United States and Russia.

New START Treaty: Background

- The term START is derived from the original "Strategic Arms Reduction Treaty" also called START-I.
- START-I was ratified by USSR and the US and the then-inactive USSR in 1991. It was implemented in 1994.
- START-I limited the number of nuclear warheads as well as Intercontinental Ballistic

Missiles (ICBMs) that each side could launch at 1,600 and 6,000 respectively.

- START-I was dissolved at the end of 2009, and it was replaced through the Strategic Offensive Reductions Treaty (SORT which is also called the Treaty of Moscow), and later through the New START treaty.

New START Treaty

- New START Treaty is officially known as "Treaty between the United States of America and the Russian Federation on Measures for the Further Reduction and Limitation of Strategic Offensive Arms".
- The agreement was signed by the then-President Barack Obama and then-Russian president Dmitry Medvedev in 2010.
- The treaty entered into force in February 2011, and placed new verifiable limits on intercontinental-range nuclear weapons.
- The treaty stipulated that both the United States and Russia were granted seven years to reduce down their arsenals of strategic offensive weapons -generally nuclear warheads that are deployed via submarines, missiles, or planes which can travel for long distances.
- Following Feb. 2018, nations were required to keep the stocks of these weapons within the limitations set in the treaty, during the duration of time that the treaty was in force.
- The US and Russia Federation subsequently agreed to extend the treaty to February 4 2026.

What restrictions were The New START impose on the two nations?

- 700 intercontinental ballistic missiles(ICBMs) and submarine-launched ballistic missiles (SLBMs) as well as deployed bombers armed with nuclear weapons;
- 1550 warheads with nuclear capabilities on used ICBMs to deploy, placed SLBMs as well as deployed bombers that are equipped with nuclear weapons (each of these heavy bombers is counted as a warhead towards that limit);
- 800 deployed and un-deployed ICBM launchers, SLBM launchers, and heavy bombers that equipped with nuclear weapons.

What is the procedure to ensure how can the respect of the treaty be ensured?

- Specific procedures for the application and verification of central limits, as well as all treaty obligations are part of the terms of the treaty.
- The treaty allows for 18 inspections on-site every an year, for US as well as Russian team members.

Status of compliance

- Both countries had met the limitations set out in the treaty as of February 2018 and seem to have remained less than them until the time of their signing.
- The problem is that periodic inspections required by this accord haven't been conducted for the last three years initially due to the spread of the corona virus pandemic and later, because relations became strained following Russia began to invade Ukraine.

Topic 38. LAVANI DANCE

Important for subject: History

NCP the leader of the NCP Ajit Pawar has ordered those in his party not to stage raunchy public performances in honour of Lavani which is a traditional folk music and dance show that is very well-known in Maharashtra.

- Lavani popular art style the word Lavani is derived from the word 'lavanya' or beauty.
- Lavani is a folk-style form where women wearing sarees of nine-yard lengths, bright shades, with make-up and ghunghroos, perform to Dholak beats on stage, in front of an audience that is live.
- In its native art, Lavani is a tradition that spans several centuries and gained a particular renown during the Peshwa period in the late 18th century.
- In the past, shows were usually presented before kings or lords and were also used to entertain exhausted soldiers taking breaks from combat.

Genres of Lavani

- There are many kinds of Lavani that are popular, but the most well-known can be described as the shringarik (erotic) type where the lyrics are usually teasing, and often

include sensual dance moves and subtle gestures used to convey the meaning of erotic.

- In the past, Lavani has gained more acceptance among the masses despite the fact that certain taboos about it remain.
- The audience was traditionally male-dominated however recently a few women have also begun to go to shows.

The reasons for the controversy

- It has lost its original form there is also the argument that the commercialization and commercialisation of Lavani has resulted in an erosion of its authenticity and significance to the culture.
- Objectifying women the critique of Lavani dance centers on the traditional dance's supposed gender commodification and objectification of women's bodies.
- Obscenity in the public eye the site is accused of encouraging obscenity and vulgarity while also promoting gender-based patriarchal views towards women.
- Communalizing/Stereotyping: Critics have also argued that the dance form perpetuates negative stereotypes of women from marginalized communities, such as the notion that Dalit women are "loose" or sexually promiscuous.

Topic 39. SURVEY OF INDIA

Important for subject: History

The Survey of India (SoI) is the country's 25-year old mapmaker (as of the year 2017) and, while not having the exclusivity in the production of high-resolution maps remains the authority on maps dealing with the borders of States and national boundaries Sunil Kumar, the Survey of India's chief Sunil Kumar, Surveyor General of India and Joint Secretary, Ministry of Science and Technology.

- On the month of December 2022 In December 2022, the Centre has officially announced in December 2022 the National Geospatial Policy of India which allows any private organization to produce high-resolution maps.
- Prior to this time, there was a survey of India. Survey of India made various kinds of maps which were available for a nominal costs, were comparatively difficult to find. Furthermore, maps intended to be used for "civilian purposes" were coarser than

"defence series maps" that were more precise, but restricted to only those in the Defence Ministry.

- SoI continues to keep CORS (Continuously Operating Reference Stations) which are essential to provide accurate digital maps for cartographers. CORS is the GPS receiver that is continuously operating as well as a reliable antenna that continuously streams raw data.

Concept:

Survey of India:

- Origin 1767 Major James Rennell was appointed as the Surveyor General of Bengal.
- The department is considered to be the oldest department of science located in India and is among the oldest survey institutions around the world.
- The foundation for the survey of science and the mapping of the nation was laid by The Great Trignometric Survey in the 19th C by the noted experts in surveying Col Lambton and George Everest.
- It played a crucial leading role in understanding the nation's priorities in terms of defense and growth, and was essential in the beginning of the majority of important developmental processes of modern India.
- It is looking forward to creating the next phase of geospatial advancement that would aid India to meet its future milestones in its economy, as well as Sustainable Development Goals.

Important developments include:

- 1787 1st Indian survey that was based on the Triangulation system that was conducted beginning at Madras through the Southern Peninsula 1843: Measurement of the Great Arc from Cape Comorin to the Himalayas completed
- 1849: Highest Himalayan mountain Mt. Everest (computed by Radhanath Sikdar)

National Geospatial Policy,2022:

- It is a citizens-centered policy that aims to boost the Geospatial sector to help support the development of our nation as well as economic prosperity as well as the development of an information-based economy that is thriving.

- The policy has been divided into fourteen Geospatial Topics of Data to help in the commercialization of geospatial applications across a variety of sectors e.g. mining, disaster management forest, disaster management, etc.

A few of the most important Goals are:

1. 2025
2. 2030
3. 2035

- An enabling policies and legal structure that promotes the liberalization of Geospatial sector and the democratization of data to facilitate commercialization through Value Added Services.
    a. Topographic survey of high resolution and cartography (5-10 centimeters for rural and urban areas and 50 cm100 cm for wastelands and forests).
    b. High-quality Digital Elevation Model (DEM) for entire country (25 cm for plain, 1-3 meters for mountainous and hilly areas).
- Develop a Geospatial Knowledge Infrastructure (GKI)underpinned by Integrated Data and Information Framework
- High resolution/accuracy
- Bathymetric Geospatial Data from the inland waters and sea-surface topography of shallow and deep seas to aid in the development of Blue Economy. National Digital Twin of major towns and cities.

Topic 40. INDIA WILL EMERGE AS A LIGHTHOUSE FOR THE WORLD IN THE FIELD OF INNOVATION: RAJNATH SINGH

Important for subject: Governance

Defence Minister Rajnath Singh on Wednesday expressed optimism of the possibility that India is soon to be one of the top nations in innovation, and will emerge as "the "lighthouse" to the entire world.

- In his speech after launching the annual defence innovation event "Manthan" during Aero India here, he declared that if we are going to create the next revolution in industrial technology, we must either create new products or attempt to perform the same things in a completely new manner.

Manthan Platform

- Organized through Innovations for Defence Excellence (iDEX), the Manthan platform brings world-class entrepreneurs, innovators, MSMEs, incubators, academics and financiers from the aerospace and defence ecosystem together under one platform.

Innovation for Defence Ecosystem (iDEX)

- iDEX, launched in the year was an environment that encourages the development of technology and innovation in Aerospac and Defence by bringing together innovators and entrepreneurs to provide cutting-edge solutions to modernize and modernizing the Indian Military.
- The government has approved a central sector plan for iDEX with a budgetary support of the amount of Rs. 498.78 crore over the next five years, between 2021-22 and 2025-26.

Core Objectives:

- Indigenization Rapid creation of new technological innovations, indigenized, and innovating.
- Innovation creates an environment of collaboration with startups that are innovative to encourage co-creation.
- It offers the funding or grants to MSMEs as well as start-ups, individuals, inventors R&D universities and academies to undertake the research and development.
- The IDEX-Prime aims to assist projects that require support over 1.5 crore to 1.5 crore to up to 10 crore to aid always-growing startups in the defence sector.
- iDEX is operated and funded by "Defence Innovation Organisation".
- iDEX Portal was created to give broader coverage and greater visibility for iDEX activities, and to facilitate an efficient and effective management of future challenges with improved information management.

Defence Innovation Organisation (DIO)

- DIO was established under DDP. Department of Defence Production (DDP) is aimed to promote innovation and indigenisation within the defence and aerospace sectors starting at the beginning.

- DIO is not-for-profit organization formed by section 8 of the Companies Act 2013.
- It is supported through Hindustan Aeronautics Limited (HAL) and Bharat Electronics Limited (BEL).
- It gives high-level policy direction to iDEX.