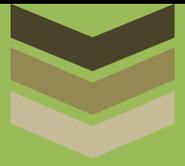


WEEKLY CURRENT AFFAIRS MAGAZINE for



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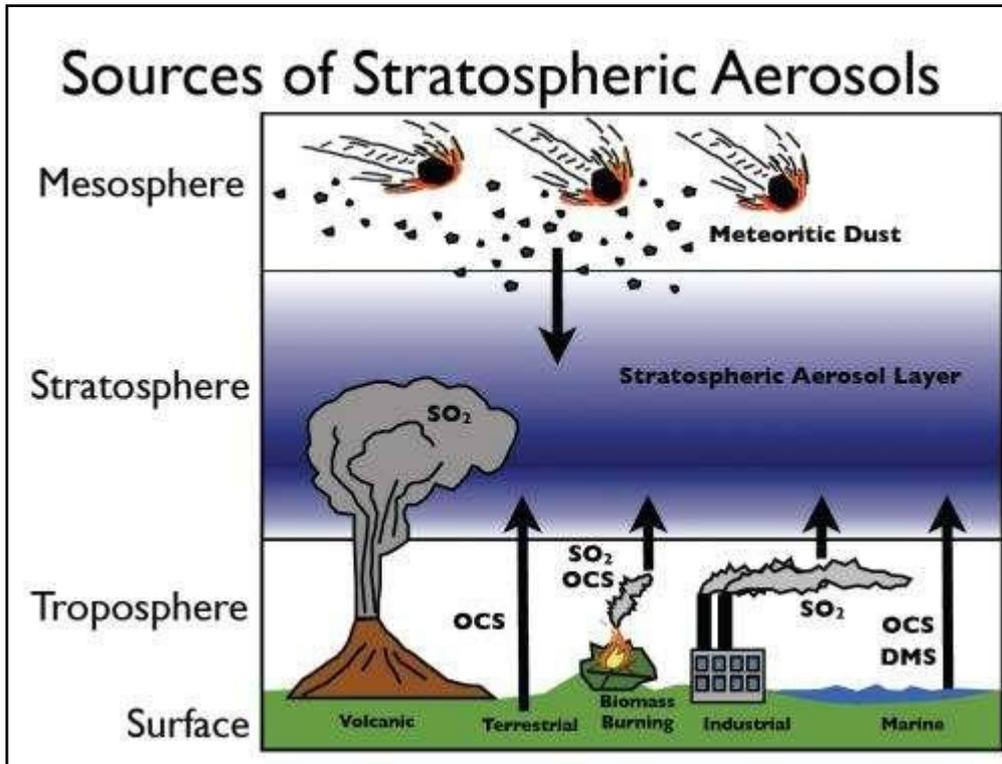
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Topic 1. INDUSTRIAL AEROSOLS CONTRIBUTION TO GLOBAL COOLING

Important for subject: Environment



What do the industrial aerosols that are used for cooling contribute to climate change? A new study provides clues.

- Active volcanoes produced 66 percent of sulphate emission that are believed as cooling the planet during the preindustrial age and suggests that they were much more widespread than had been previously believed in a new study.
- It is possible to trace the emission back on natural sources, such as volcanic eruptions and industries, such as traffic emissions, combustion of oils and coal combustion.
- Sulphur dioxide, which is released from both natural and human-caused sources, reacts with water vapour and other gases found in the atmosphere to form Sulphate aerosols.
- They are able to reduce the temperature of the earth by reflecting sunlight onto the space environment, according to the United States National Aeronautics and Space Administration. They also create clouds and tend to have cooling effect.
- A greater concentration of sulphate-based aerosols in the preindustrial atmosphere indicates that human-caused Sulphate has a minor cooling impact.

- The results of previous studies suggested an amount sulfur dioxide produced by volcanoes is less than the amount released by anthropogenic sources.
- Climate models don't take into account hydrogen sulfur that escapes from active volcanoes. The gases are able to react with oxygen and produce sulfur dioxide within three days, and form aerosols of sulphate.
- The study is the first to estimate sulfur dioxide emissions from volcanoes as hydrogen which suggests that this gas could have been able contribute to atmospheric sulphate during the preindustrial period in a significant way.
- The team is also planning to examine sulphur emissions through other source, including phytoplankton (tiny marine algae). The marine phytoplankton emits dimethyl sulphide dimethyl sulphide, the organic sulphur-containing organic compound that creates sulfur aerosols.

Aerosol:

- Aerosols can be described as the mixture of solid or liquid particulate matter suspended in liquid or gaseous environment.
- "Primary" aerosols, such as dust, soot as well as sea salt originate directly from the surface of the planet. They are pushed into the air by a roaring winds, and then sprayed to the skies by volcanoes that explode or they escape from burning smokestacks or fires.
- "Secondary" aerosols develop when various particles floating around in the air like organic compounds released by plants liquid acid droplets or other materials collide, leading to physical or chemical reaction.
- Aerosols originate from both human and natural sources. The natural sources of aerosols are sea salt derived from breaking waves, minerals blown off the surface by winds and volcanic eruptions.
- Anthropogenic aerosols comprise sulfate carbonaceous and nitrate aerosols they are mostly derived made from fossil fuel combustion sources.

About Aerosols:

- Aerosols are the result of a mix of compounds both solid and liquid that are different from gassy counterparts.

- They are likely to remain in the air near their sources, or they can move as regional or localised masses through air circulations.
- They vary in size from a few atoms to the size of human hair.
- They comprise: crystals of sulfate, balls made of carbon that is almost black (commonly however, not precisely, referred to as soot) droplets of sulfuric or nitric acid, pollen spores.
- They might be freed from the waves' crests or desert sand picked up by winds.
- Natural Aerosols One among the most significant natural sources of aerosols is plankton. They breathe out dimethyl sulfide (DMS), a strong-smelling chemical that gives the ocean its distinctive pungent smell.
- DMS is a reaction of oxygen, causing clouds of sulfuric acid.
- The release of sulfur dioxide by volcanoes performs the same.
- Ninety percent (90%) of the aerosols that are found in the air are naturally occurring but their concentrations remain relatively constant over the course of time.
- Anthropogenic aerosols However, anthropogenic or human-made aerosols come from vehicle exhausts; the smoke stacks of factories, ships, and coal-burning power plants; from farmers burning fields stubble and land grabbers clearing Amazon forests with fires and gas flares that are emitted from oil rigs, and from discarded plastic bags for shopping.
- Even tumble dryers release microplastic fibers that float upwards.
- These sources have risen dramatically in the past century approximately in line with greenhouse gas emissions.
- The majority of aerosols aid in cooling Earth by reflecting light to space. reducing amounts of radiation that hits the Earth's surface.
- They also aid in the formation of clouds or enhance existing clouds by creating condensation nuclei in which water vapour condenses.
- Aerosols first came to the public's interest in the 1970s. Not just due to their cooling effects but rather due to acid rain.
- The most hazardous aerosols are small particles that get into the lung and could even get into the bloodstream, aggravating cardiovascular and respiratory ailments.

Topic 2. HIMALAYAN PLUNDER: ECOLOGY CHANGING FOR THE WORSE DUE TO LOSS OF FOREST COVER, DRYING SPRINGS

Important for subject: Environment

The causes are natural or as well as human-caused land subsidence, landslides and dry springs, soil erosion and shifting river course have caused the Himalayan ecological balance to deforestation, perishing and the drying of springs are the main causes of these natural disasters.

- A reduction of 902 square km in the area of forest cover was reported in hilly areas of the country when contrasted to 2019 in by the State of Forest Report, 2021.
- The loss is even greater on the Himalayan states, which reported an average loss of 1 072 square kilometers in forest area.
- Western Himalayas' dense forest cover is expected to fall from 61 percent from 2000 16.8 per cent by 2100 and in the eastern Himalayas between 2 percent from 2000, to 38.7 percent by 2100 as per the study.
- Unplanned urbanization commercial timber extraction capitalistic development plans the quarrying and mining were identified as the main causes of contemporary development.
- One of the major consequences of deforestation is the erosion of soil. Within the Himalayan area, the effect of soil erosion may be felt differently in the eastern and western areas.
- Because of more rainfall in north eastern hills when compared to north western hills, the latter is more prone in the event of soil erosion-22.3 percent of the region as opposed to 12.6 percent of the region.
- Another trend that is transforming the Himalayan ecological balance is the dryness of the springs. It is believed that the Indian Himalayan region is home to three million of the five million springs across the nation. Even those are at risk.
- Any alteration in spring hydrology is a significant change in the hydrology of springs. It has evident implications for the hydrology of the river either within the areas of the headwaters where springs reveal themselves as the source of rivers and in lower-reach plains in the river systems in which they act almost invisibly as base flows to rivers channels.

- Depletion has led to disruptions in the water security of forests as well as national parks and their fringe areas, too.
- Thus, a change in the Himalayan landscape resulted from human activities and warming can result in the transformation of natural ecosystems by introducing biological invaders and decreased native biodiversity.

Capacity for carrying

- Carrying capacity refers to the maximum quantity in terms of density, the density, or biomass of the population that an area can in a sustainable manner. This is likely to vary over time and will depend on the environmental conditions including resources and the presence of disease-causing predators, diseases and competition over the course of time.

Topic 3. BLACKBUCK

Important for subject: Environment

The population of blackbucks has increased by threefold within the state of Odisha's Ganjam district, which is the sole home of the most beautiful member of the antelope family within the state over a period of 12 years.

- Blackbucks were observed in the Balukhand-Konark sanctuary for wildlife within the Puri district from 2012 to 2013 but they've now disappeared in the region.
- Enhancing habitats and protection of the local population and forest personnel are a few of the factors that have led to the rise of blackbucks in the district.
- There has not been a single poaching incident that has been reported over the past few years in the region.
- As with those of the Bishnoi tribe from western Rajasthan as well as similar to the Vala Rajputs from Saurashtra The residents from the Ganjam district of Odisha are adamant about protecting the blackbuck since its sightings are believed to be to be a sign of good fortune.

Blackbuck

- Indian Blackbuck (*Antelope cervicapra*) is an Antelope that is also the sole living species in the Genus Antelope.

- It is thought to be among the fastest animal that exists next the Cheetah.
- The blackbuck is a diurnal predator (active mostly during the daytime).
- It is now declared The State Animal of Punjab, Haryana, and Andhra Pradesh.

Habitat:

- Blackbuck lives in the grassy plains and a few areas of forested.
- It is located throughout Central- Western India (MP, Rajasthan, Gujarat, Punjab, Haryana, Maharashtra and Odisha) and Southern India (Karnataka, Andhra Pradesh, and Tamil Nadu).

Protection Status:

- Wildlife Protection Act 1972: Schedule I
- IUCN Status: Least Concern
- CITES: Appendix III
- Conservation:
- The Bishnoi community in Rajasthan is famous all over the world for their efforts to protect for blackbucks as well as Chinkara.

Topic 4. AS A HEATWAVE SPECTRE HANGS AGAIN OVER INDIA'S WHEAT HARVEST, ITS HOME-GROWN CROP SIMULATION MODEL CAN HELP

Important for subject: Environment

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Topic 5. LOSS AND DAMAGES FUND

Important for subject: Environment

LOSS & DAMAGE



The Paris Agreement has a separate article on loss and damage, and recognises the importance of averting, minimising, and addressing loss and damage through enhancing understanding, action, and support. It provides the list of areas of co-operation and facilitation on loss and damage, as follows:



- Early-warning systems
- Emergency preparedness
- Slow onset events
- Events that may involve irreversible and permanent loss and damage
- Comprehensive risk assessment and management
- Risk insurance facilities, climate risk pooling, and other insurance solutions
- Non-economic losses
- Resilience of communities, livelihoods, and ecosystems



The term used widely to describe the UN Climate Change negotiations broadly is a reference to the measurement of damages and losses due to the negative impact of climate change.

- The consequences of climate change can be both economic as well as non-economic. For the latter, we are able to determine a value in monetary terms but this is not the case for economic loss.

- The economic losses could vary from the loss of heritage, cultural or societal cultural identity, to the loss of ecosystem services, biodiversity and intergenerational trauma caused by extreme climate change.
- The recently concluded COP27 that took place in Sharm el-Sheikh, Egypt was a landmark in the creation of the "loss and damages" fund to help those countries that are most vulnerable to damage caused by climate-related catastrophes.
- The outcomes of COP27 are being applauded by India However, they have come with the caveat that only countries with developed economies are obliged to adhere to such arrangements.
- The Union Minister of India in charge of Environment, Forests and Climate Change declared that
- India will try to get funds from the facility, as the country's vulnerability to climate change.

Damages and losses

- It is the Intergovernmental Panel for Climate Change (IPCC) definition of 'damage and loss'.
- The term "losses and damages" is a reference to the both economic as well as non-economic effects caused by climate change which include sudden and slow-onset incidents, which are common in developing nations that are most susceptible to the negative impacts caused by climate change.
- It's irreparable, destructive, and can't be addressed through mitigation or measures to adapt.

Evolution

- L&D was made an need in 1991 by the island nation of Vanuatu Vanuatu, which represented an Alliance of Small Island States (AOSIS).
- In the years since when the United Nations Framework Convention on Climate Change was adopted in the early 1990s damages and losses caused by climate change have been discussed.
- The Least Developed Countries Group has since its inception aimed at establishing accountability and compensate for damage and loss.

- Warsaw International Mechanism on Loss and Damages (WIM) was established in 2013 with no funds after a lot of demand from the countries of the developing world.
- At COP26 in Glasgow The G77 which is a coalition comprising 134 countries in the developing world, as well as China, proposed the Loss and Damage Finance Facility (LDF) which is a specific stream of financing specifically designed to address damage and losses.
- It was finally approved by CoP 27 in Sherm- Al- Sheikh, Egypt.

Topic 6. ORCA MOMS MAY BE FEEDING THEIR SONS INTO EXTINCTION

Important for subject: Environment

The research was conducted over the course of more than 50 years, and tracked the lives of forty female whales. The researchers sought to discover why this species was being threatened with extinction.

- Researchers discovered that after female whales born to orcas had sons, their chances of having future offspring was reduced by 50 percent. This was the case for all of the life of the mother and was not seen in whales that had daughters.
- Killer whale mothers are required to pay the highest price in terms of their eventual reproduction in order to keep their sons alive.
- Alongside these findings regarding lower rates of reproduction that the researchers observed that orca mothers maintained very close relationships with male offspring. Their sons were given half of the salmon they caught to eat for themselves.
- This was not the case for orca girls, which were usually fed by their mothers up until they reached their sexual maturity.
- There is a possibility that this behaviour to make sure that the young male orcas get enough food and healthy -- could be a strategy to help their mother to boost the reproduction output of their populations. Males who are healthy mate with a lot of females and this could result in a greater amount of offspring to come.
- This method of indefinitely giving up the possibility of reproduction in the future to ensure their sons' survival could have served them well to their progress in evolution however, it could endanger the survival of southern resident killer whale population.

About Killer whales (orca):

- Orcas are part of an extremely developed group of whales with teeth within the suborder
- Cetacean along with the the dolphin families and are widespread throughout tropical and temperate waters.
- They live long and are very social, feeding cooperatively and possessing complex vocal patterns.
- While the majority of killer whale populations from other areas show high site fidelity as well as residence rates, resident populations have still to be determined in the northern region of the Indian Ocean.
- Due to their high-sociability and curious behaviour orcas frequently approach fishing vessels to check whether fish are within the fishing nets, or to observe the people on the vessel.
- In the wild, there are no cases of killer whales mortally attacking humans.

Topic 7. PINPOINTING PRIORITY AREAS FOR MANGROVE CONSERVATION IN THE SUNDARBANS

Important for subject: Environment

A study that was published in Scientific Reports has mapped priority areas within the Sundarbans Biosphere Reserve (SBR) that are extremely suitable to mangrove restoration and conservation.

About Sundarbans

- It is a massive mangrove forest ecosystem with a contiguous border in the region along the coast in the Bay of Bengal spread over India and Bangladesh in the river delta of the Ganges, Brahmaputra as well as Meghna rivers.
- The location is connected by a complex system of mudflats, tidal waters and tiny islands of mangrove forests that are salt-tolerant and is a great instance of the continuous ecological processes.
- It covers more than 60 percent of the nation's entire mangrove forests.
- Indian Sundarbans was declared a UNESCO World Heritage Site in 1987. It was also designated a 'Wetland of International Importance' in the Ramsar Convention in

January 2019 and was also designated an official Biosphere Reserve in 1989.

- The region is famous for its diverse wildlife, and it is home to numerous unique and endangered wildlife species, such as those of the Estuarine Crocodile and the Royal Bengal Tiger, Water Monitor Lizard, Gangetic Dolphin and Olive Ridley Turtles.
- The Sunderbans Delta is the only mangrove forest on earth home to tigers.
- To protect it, Discovery India and World Wide Fund (WWF) India joined forces together with the Government of West Bengal and local communities within the Sunderbans in the year 2019.
- It is the world's biggest mangrove island in the world. It "is highly threatened and rapidly decreasing at alarming rates because of the overexploitation of resources, the transformation of land for aquaculture practices, an increasing paddy cultivation, the development of infrastructure and human settlements

COP14 on Wetlands

The goals and purposes for the COP

- The Conference of the Contracting Parties (COP) invites Parties and other relevant stakeholders for a membership in the International mangrove cooperativity instrument for technical exchanges collaboration, research and education and training, as well as pilot projects in conservation and restoration, in order to preserve mangrove biodiversity and blue carbon ecosystems in the coastal zone and improve mangrove ecosystem services and adapt to climate changes.

What is Ramsar Recognition?

- The Ramsar area is one of the wetlands with international significance as per the Ramsar Convention, which is also known as the "Convention on Wetlands' an intergovernmental environmental treaty signed through UNESCO in 1971. It is named for Ramsar, the capital city Ramsar in Iran which is where the treaty was signed in that year.
- Ramsar Recognition is the recognition of the wetlands around all over the world that are of global significance in particular if they provide habitat for the waterfowl (about 180 birds species).
- There is a worldwide concern and collaboration in the conservation of these wetlands

and their judicious use of resources.

- India's Ramsar Wetlands are spread across 11,000 square kilometers -- approximately 10 percent of the total wetland surface across the nation -- spread across 18 States.
- There is no another South Asian country has as numerous sites, though this is something to do with the country's geographic range and the diversity of its tropical landscape.

Criteria Nine conditions must be met in order for the site to qualify as an official site at the Ramsar Site.

1. Criteria 1.If it's a typical unique, rare, or rare instance of a natural or near-natural type of wetland within the biogeographic area of interest.
2. Criteria 2.If it is used to protect endangered, vulnerable or species that are critically endangered, endangered ecological community.
3. Criteria 3.If it helps to maintain the populations of animal and plant species that are essential to maintaining the biodiversity of the biogeographic area in which it is located.
4. Criteria 4: If it helps plant or animal species in the critical point in their lives, or offers refuge in adverse conditions.
5. Criteria 5: If the site regularly hosts at least 20,000 water birds.
6. Criteria on 6If you regularly support one percent of the people within a group of one type or subspecies water bird.
7. Criteria 7.If the HTML0 supports an important portion of the indigenous fish species, subspecies or families life-history phases or species interactions, or populations that are representative of the benefits and/or value of wetlands and thus contributes to the global biodiversity.
8. Criteria 8. If the area is a significant food source to fish, the spawning grounds or nursery area, and/or migration pathway upon which fish stocks in the wetland area or elsewhere, are dependent.
9. Criteria 9. If you regularly support 1percent of the individuals in a particular population species or subspecies of wetland dependent non-avian animal species.

Significance:

- Ramsar Tag helps develop and sustain the global web of wetlands which are crucial in

the preservation of the world's biological diversity and to sustain human life by ensuring the health of their ecosystems process and the benefits.

- Sites are protected by the strict guidelines set out in the convention.

Mangrove Alliance for Climate

- An initiative that is led by United Arab Emirates
- (UAE) as well as Indonesia (UAE) and Indonesia. Mangrove Alliance for Climate (MAC) comprises India, Sri Lanka, Australia, Japan, and Spain.
- It is aspires to raise awareness and educate worldwide on the significance of mangroves in reducing global warming, and also the potential of mangroves as a solution to climate change.
- It is an international alliance works on an non-binding basis which implies that it has no actual check and balances to make members to account.
- They will also collaborate and assist each other in the process of researching, managing, and protecting coastal zones.
- The present state of mangroves

Geographical Location:

- Mangroves can only be found in protected areas of the coastlines that are located within subtropical or tropical latitudes since they are not able to withstand temperatures that freeze.
- They are able to share the unique ability of growing in the limits of tides in the salty soil.

Area Covered

Global Mangrove Cover:

- The mangrove area in the world covers 1,50,000 square kilometers.
- Asia has one of the highest amount of mangroves on the planet.
- South Asia comprises 8.8% of the world's mangrove.
- India's contribution is 8% of the total mangrove coverage throughout South Asia.

Mangroves in India:

- Coverage:
- Based on the India State of Forest Report 2019 the mangrove coverage of India totals 4,975 square kilometers, which represents 15 percent of India's total geographic area.
- West Bengal has 45 percent of India's mangrove forest which is then Gujarat around
- 23.66% and A&N Islands at 12.39%.

Largest Mangrove Forest:

- The Sundarbans region in West Bengal is the largest mangrove forest around the globe. It is classified as an UNESCO World Heritage Site.
- It is the home of The Royal Bengal tiger, Gangetic dolphins, and Estuarine Crocodiles.
- Bhitarkanika Mangroves: The 2nd largest mangrove forest in India is Bhitarkanika in Odisha was created by two deltas of the the River Brahmani and Baitarani.
- It is among the most important Ramsar wetlands in India.
- Godavari-Krishna
- Mangroves, Andhra Pradesh The Mangroves of Godavari-Krishna extend all the way from Odisha through Tamil Nadu.
- Deltas in the Ganges, Mahanadi, Krishna, Godavari, and the Cauvery rivers contain Mangrove forest.
- The backwaters of Kerala have a large amount of mangrove forest.
- Pichavaram located in Tamil Nadu has a vast expanse of water surrounded by mangrove forests. It is the home of many aquatic birds.

Significance of Mangroves

- Mangroves that are ecologically sustainable are essential to keeping the soil healthy and growing as a reservoir for the process of secondary assimilation of waste. They are a shield against cyclones.
- Facilitates land accretion, stabilization of the mud banks, dissipation waves, winds and tidal energy.
- The extensive roots allows trees to withstand the regular fluctuation of tides.

- Mangrove forests help stabilize the coastline, which helps to reduce erosion due to the currents of storms waves and tides.
- Mangroves enhance water quality by absorption of nutrients from runoff which could otherwise trigger harmful algae blooms off the coast.
- The two coral reefs and sea grass beds rely on the mangrove forests to ensure that the water is clear and healthy.
- Mangroves comprise less than 2 percent of marine ecosystems however they account for 10 to 15 percent in carbon-bearing.
- When the leaves and older trees are gone, they drop to the seafloor and take the carbon stored with the rest to be buried in the soil.
- The carbon buried in the ground is known in the term "blue carbon" because it is stored in the ocean in coastal ecosystems, such as mangrove forests seagrass beds, salt marshes.
- Allows for an astonishing variety of species including certain species that are unique for mangroves.
- They are a refuge and habitat to a variety of wildlife, including fish, birds, invertebrates mammals, and plants.
- Mangroves are facing threats commercialisation Coastal Areas: Aquaculture, coastal development, rice, palm oil cultivation and industrialisation are quickly replacing these salt-tolerant trees as well as the ecosystems that they help.
- Mangrove coverage has dropped by half over the past 40 years. Just one percent of mangroves are found in tropical forests.
- Shrimp farms: The rise of farms for shrimp has led to at minimum 35 percent of the destruction of mangrove forests.
- Temperature-related issues: A fluctuation of 10 degrees in just a few minutes of time can be enough to cause damage to the plant. low temperatures for an hour can end the life of some mangrove species.
- Soil-related issues: The soil where mangroves are planted poses a problem for plants because it is extremely deficient in oxygen.
- Excessive Human Interference: During past changes in the sea level mangroves were able advance further into the inland. However, in many locations humans' development has created hindering the distance a mangrove forest can move.

- Mangroves are also often affected by oil spills.

Conservation of Mangroves

- UNESCO Designated Sites: The inclusion of mangroves within the Biosphere Reserves, World Heritage sites and Global Geoparks of UNESCO contributes to increasing knowledge of management, conservation and management of mangrove ecosystems around the globe.
- International Society for Mangrove Ecosystem (ISME): The ISME is a non-governmental organization established around 1990 to help in the research of mangroves in the hopes of improving their conservation, efficient management and sustainable use.
- Blue Carbon Initiative: The International Blue Carbon Initiative is dedicated to reducing climate change by ensuring the protection and rehabilitation of marine and coastal ecosystems.
- It is managed with Conservation International (CI), IUCN as well as the Intergovernmental Oceanographic Committee-UNESCO (IOCUNESCO).

International Day for the Conservation of the Mangrove Ecosystem:

- UNESCO celebrates the day of celebration on the 26th of July with the intention of increasing awareness of mangrove ecosystems and encouraging sustainability in their management as well as conservation.
- Mangroves for the Future Initiative: IUCN and UNDP developed an original initiative to increase the conservation of coastal ecosystems known as "Mangroves for the future "Mangroves for the Future (MFF)".
- The member countries comprise Bangladesh, Cambodia, India, Indonesia, Maldives, Myanmar, Pakistan, Seychelles, Sri Lanka, Thailand and Vietnam.
- National Mangrove Committee: The Government of India set up a National Mangrove Committee in 1976 which provides advice to the government on the preservation and development of mangroves.

Topic 8. INDIA'S POLLUTION CONTROL BOARDS WERE WEAKENED OVER THE LAST 14 YEARS

Important for subject: Environment

India's pollution control bodies were weaker over the last 14 years.

- Nearly 49 percent of the positions that have been approved in the state-wide pollution control board (SPCB) and committees for pollution control (PCC) not filled. The union minister of state for environment, forests and climate change (MoEF & CC) announced of the Rajya Sabha.
- Central Pollution Control Board (CPCB), statutory organization, was established in September 1974 in accordance with the Water (Prevention and Control of Pollution) Act, 1974.
- Furthermore, CPCB was entrusted with the power and functions of the Air (Prevention and Management of Pollution) Act, 1981. It acts as a field formation, and also provides technical assistance for the Ministry of Environment and Forests in accordance with the Environment (Protection) Act, 1986. The functions that The Central Board at the National level.
- The Central Board advises to the Central Government on any matter related to the control and prevention of pollution of air and water and improving the quality of the air. Develop and ensure that is implemented a nationwide program to prevent and control of air and water pollution;
- Coordinate all the work of State Board and resolve disputes among them. provide the technical support as well as advice to State Boards to carry out and support research and investigation related to issues of air pollution and water and to their elimination, prevention, or control as well as organising and coordinating the training of those involved in programs for the prevention, control, or abatement of air pollution and water;
- Organise via Mass media, to create a complete public awareness campaign on the elimination, prevention or control of air and water pollution.
- Compile, collect and publish statistical and technical data relating to air and water pollution, as well as the strategies designed to prevent or control;
- Create manuals, codes and guidelines for the how to treat and dispose of sewer as well

- as trade effluents and cleaner devices for stack gas such as stacks, ducts and stacks;
- Distribute information about questions pertaining to water or air pollution, as well as their prevention and control.
 - Set down, amend or cancel in concert with the State governments in question. The standards for streams or wells, and establish requirements for the cleanliness of the air and perform such other functions as required by the Government of India.

State Pollution Control Boards:

- They are enacted in the context of Water (Prevention & Control of Pollution) Act 1974.
- In the wake of the passing of the Air (Prevention & Control of Pollution) Act in 1981, the responsibility for enforcing the law was delegated the respective Boards.
- Members' selection all members on State Pollution Control boards are selected by their respective State governments.

Topic 9. MARINE LITTER MENACE

Important for subject: Environment

Marine litter is a problem, short-term solutions not enough; requires a robust policy.

- Globally: global annually produced plastic topped an impressive 460 millions tonnes in the year 2019. Additionally, 353 million tonnes of garbage also produced in the same year.
- Around 50 percent of the plastic waste that was generated the same year was disposed in the landfills according of the Organization for Economic Corporation and Development.
- A significant amount of single-use plastics is collected on beaches which contributes to rising pollution of marine debris and is threatening the marine biodiversity. In India the anthropogenic activity adds about 8 million tons of waste from plastics to the marine ecosystem.

Key sources

- Land-based sources like dump sites located close to the coasts or the banks of rivers or floodwaters industrial outfalls, discharges from storm water drains non-treated

sewerage systems, beach debris fishing, tourism ships breaking yards, defense-related facilities, vehicles and natural disasters, industrial wastes etc. are the major contributors to the problem in marine debris.

- In all, about 75-80 percent from municipal waste gets disposed as well only 25 to 28 percent of the collected waste is treated and processed. Municipal solid waste that is discarded follows the standard route through natural waterways before becoming an element of the marine trash.
- Additionally, sea-based sources include the waste of fishing vessels, ships and other public transports and research facilities extraction and mining offshore; legal and illegal waste disposal ghost nets natural phenomena, etc.

Impact of Marine Litter

- Marine debris could override international borders and spread to distant areas from where it came from its source. Because marine animals consume microplastics, they could eventually enter our food chains.
- Furthermore, leached chemicals may be bioaccumulating within these species, which could endanger the health of humans.
- It could cause issues for businesses like fishing, shipping, aquaculture and maritime tourism, which impact the life of coastal communities.

International efforts are being made to combat Marine litter threat

- The 1972 Convention on the Prevention of Marine Pollution by Dumping Wastes and Other Matter (or the London Convention).
- The 1996 Protocol to the London Convention (the London Protocol).
- The 1978 Protocol to the International Convention for the Prevention of Pollution from ships (MARPOL).
- The United Nations Environment Program (UNEP) is concerned with plastic marine debris and its capacity to carry harmful substances is one of the major environmental issues that are emerging.

GloLitter Partnerships Project:

- It was initiated in The International Maritime Organization (IMO) as well as The Food and Agriculture Organization of the United Nations and initial funding is

provided by Norway's Government of Norway.

- Goal: To stop and reduce the amount of marine plastic waste from fishing and shipping.
- Indian initiatives to address Marine litter
- The Plastic Waste Management Rules 2016, clearly state cities' local governments (ULBs) should prohibit smaller than 50 micron thick plastic bags, and prohibit the recycling of plastics used to package food, drinks, or any other food items.
- The Rules also stipulate that local authorities have separate storage, collection and treatment of plastic waste in their respective areas.
- It has also set a lofty goal of getting rid of single-use plastics by 2022.
- India is a Signatory to MARPOL (International Convention on Prevention of Marine Pollution).

Topic 10. 145 BIRD SPECIES SPOTTED DURING THE FIRST BIRD FESTIVAL IN SUNDARBANS

Important for subject: Environment

The first ever festival was held through the Sundarban Tiger Reserve (STR) division of the West Bengal Forest Department, where six teams visited various zones within the Sundarban Biosphere Reserve.

- The species observed during this year's Bird Festival included 78 forest birds as well as 42 species of raptors, waders and others.
- Within the threatened species of the Sundarbans Eurasian Curlew was spotted. Birders were able to identify 7 of 9 species of Kingfishers located throughout the Sundarbans.
- Despite having many bird species, the habitats are threatened by a variety of factors including the plantation activities on these Chars (river islands) that disturb birds, as well as illegal activities on the chars as well as uninhabited islands. The threats include climate change as well as the use of fishing nets that are destructive within the Sundarbans.
- There is also the need for the protection of non-forest zones for birds and the creation of small, protected zones in non-forest zones in crucial locations for breeding and migration.

Sundarban National Park

- It is the Sundarban National Park is located in the south-east region of Calcutta within the district of West Bengal and forms part of the Gangetic Delta.
- The Sundarbans mangrove forest, one of the largest of these trees around the globe, is located between India and Bangladesh in the river deltas of Ganges, Brahmaputra and Meghna rivers in the Bay of Bengal.
- It's situated near India's Sundarbans World Heritage site which was declared as a World Heritage site in 1987. The site is connected by a complicated network of tidal channels along with mudflats and tiny islands of mangroves that are salt-tolerant and is a great instance of the continuous ecological processes.
- The region is famous for its diverse wildlife, which includes over 260 bird species, as well as the
- Bengal Tiger and other endangered species like the estuarine crocodile as well as the Indian Python.
- The area is home to numerous unique and endangered wildlife species, including the estuarine crocodile Royal Bengal Tiger, Water monitor lizards, Gangetic dolphin along with olive ridley turtles.
- Sundarban Wetland, India was designated by the designation 'The Important Wetland under the Ramsar Convention in January 2019.
- The Sunderbans Delta is the only mangrove forest on earth that is inhabited by tigers.

Topic 11. AS WE FIGHT TO PROTECT SPECIES ON THE BRINK OF EXTINCTION, LET'S NOT FORGET THE FAMILIAR ONES

Important for subject: Environment

To preserve nature, we need to keep our eyes on the familiar.

- The natural environment is a place where the rarity of life is best illustrated by the last remaining members of a dying species. These rare species of plants and animals are infinitely valuable and provide the only hope for stopping the extinction.
- Over the last several years, the declines of many threatened species of animals and plants were reversed. Numerous unique living creatures are now safe from the brink of extinction. However, a focus on shortages could come at the cost of not noticing

the everyday.

- If we want to protect nature and the many benefits it brings for us, we need to keep our eyes on the things that are familiar to us.
- The reason for this is that in North America, they include the loss of the passenger pigeon that was once the most widespread bird around the globe. These birds were previously thought to be super-abundant but their decline and disappearance were seem unimaginable.
- In addition, changes in the number of species that are common are likely to result in significant shifts in the ecology's functioning. Birds, regardless of their tiny size, can throw their entire weight around due to the numerous insects they consume and flowering plants they pollinate as well as the seeds they scatter.
- The concept of rarity will always have an important place in the field of conservation. In the search for an ecologically sustainable and biodiversity-rich future it is imperative that we must prevent "the extinction of commonness." The elements for success are in the hands of Be vigilant about nature, protect against complacency, and invest in the long run.

Topic 12. ALIEN INVASIVE PLANTS INCREASING IN HIGHER ELEVATIONS

Important for subject: Environment

In the Kashmir Himalayas of India Scientists have observed that roads and railway infrastructure expansion is a major reason for the spread of invasive plant species further into the mountains.

- The study reveals "consistent increases" in the amount of exotic plant species and their rapid spread to higher elevations in the period between 2007 and 2017.
- The amount of plants surveyed across each of the regions has grown by an median of 16 percent over the past decade. In addition, in ten of the 11 mountain regions that have been studied, the species are found at much higher elevations than they were ten or even five years ago.
- The majority of non-native plants are encouraged by disturbance that is caused by human activities. In mountainous regions, roads provide access points and channels for spreading which means that many non-native species are located in habitats that are disturbed by roads. Roads also offer convenient methods to test various elevation

zones.

- Climate change could "almost certainly" increase the potential of higher elevation areas for a variety of non-native species, and thus will encourage expansion.
- Invasive daisies like the Ox-eye daisy were found in a variety of regions that were surveyed during the study, such as those in Kashmir Himalayas.
- Nearly 50% of the invading plants within the Hindu Kush Himalaya (HKH) region were introduced accidentally. Most countries within the Hindu Kush Himalayan region are not able to adopt policies and laws to deal with invasive species since it isn't an urgent conservation concern.

Topic 13. TUNNEL TO SAVE MANGROVES TO RAISE BULLET TRAIN PROJECT

Important for subject: Environment

Tunnels will raise the construction costs of the Mumbai-Ahmedabad High Speed Rail Corridor the 21km stretch from 100 crore to Rs10,000 crore.

- A seven-kilometer tunnel under the sea is planned in the bullet train development in an effort to save around 12 hectares of mangrove forest located in Maharashtra's Thane creek.
- This will increase the cost of construction for Mumbai-Ahmedabad High Speed Rail Corridor project's 21-kilometre stretch of track starting from Bandra Kurla Complex Station to Shilphata to Shilphata, from 100 crore to Rs10,000 crore.

Bullet train

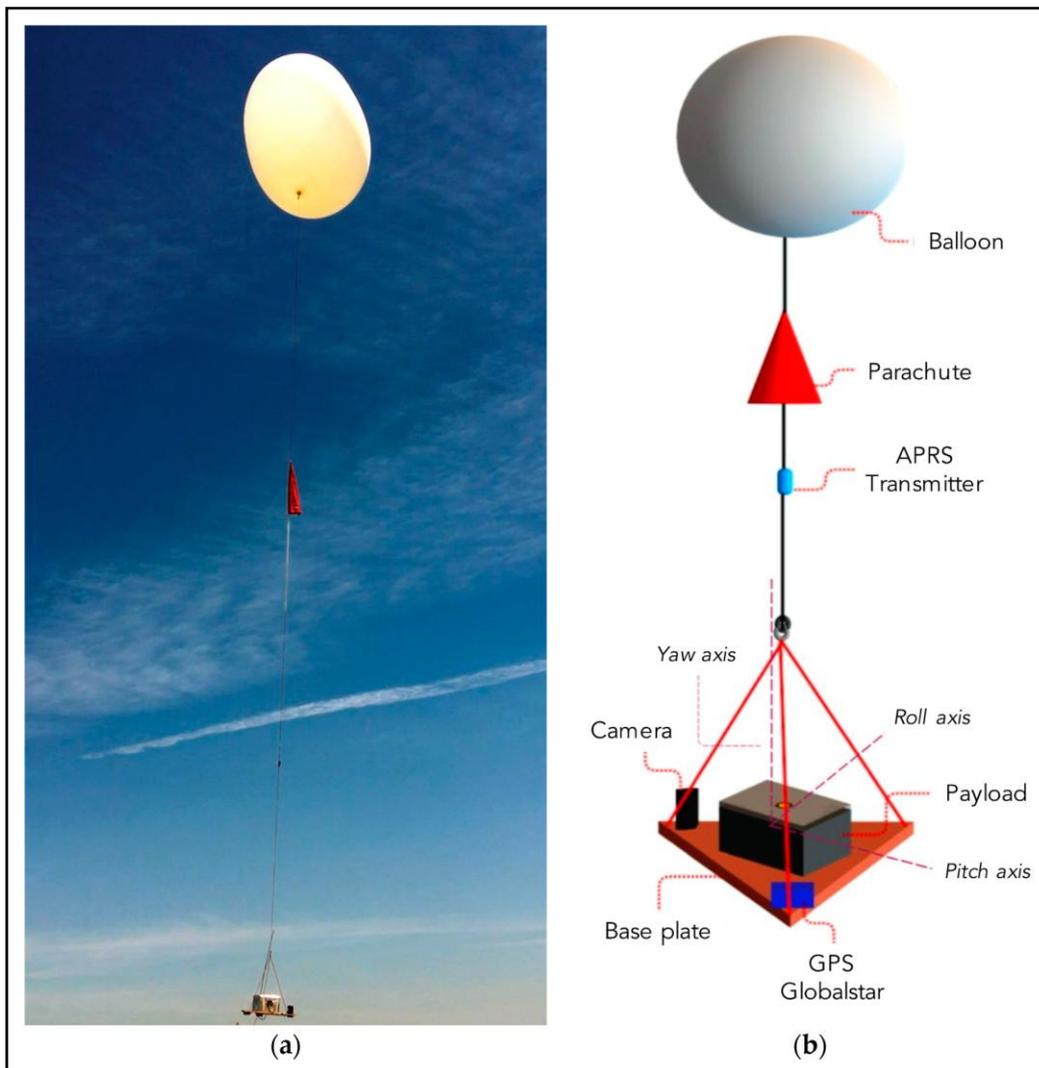
- It is a high-speed rail that connects cities like Ahmedabad and India's economic capital Mumbai with the assistance of Japan.
- The project will be developed by the aid of Japan through the Japan International Cooperation Agency (JICA).
- Bullet train, also known as High Speed Rail is an integrated system that optimizes the various components, including. Human-ware, Hardware, Software, and their interfaces, for example.
- The train, which can accommodate an capacity of 750 people and 750 passengers, will operate at speeds of 350km/hr to 320 km/hr and will reduce the journey times between Ahmedabad and Mumbai to three and a half hours, or less than the

current eight.

- Potential benefits High-speed connectivity; new opportunities for employment; urban expansion; making India an ideal location for train technology with high-speed speeds;
- Social Benefits (reduced CO2 emissions, and comparatively less land is required than a 6-lane highway with the same number of passengers).

Topic 14. HIGH ALTITUDE BALLOON (HAB)

Important for subject: Science and technology



High Altitude Balloons have been in constant usage for many decades although the first instances date back to at about 200 years.

- They are mostly used to study the effects of a chemical, but they are also used for

pleasure rides and tourism as well as for surveillance and emergency aid and rescue.

Working of HAB's

- Balloons usually have baskets attached to them and are referred to as gondolas. Gondolas can carry human beings or instruments.
- In unmanned flights, Gondolas can also be attached to the parachute. After the mission of the balloon is completed and the balloon is removed, a mechanism inside the gondola is activated to break the ties of the balloon, and cause a break in the balloon's fabric.
- By using an air parachute, the Gondola descends to ground, which is followed by the balloon that has ruptured. The landing area that could be used is determined prior to the flight based on the weather conditions.

Research/Scientific Purposes

- Balloons for research are those utilized for research purposes. They're usually not manned and filled with lighter than air gas, such as helium. They also are able to fly at higher altitudes.
- Meteorology and atmospheric research, astronomy as well as military studies may be carried out using an air balloon for research. Weather balloons are an example of a research balloon.
- Research balloons generally concentrate on one area of science, like the effects of air pollution, air temperature or wind currents but sometimes, several tests or instruments are put together.
- Apart from weather balloons, only a few researchers launch balloons each year. This is due to the high expense of the balloon the equipment that is generally designed to be custom-made, and the expense for the event.
- Due to the altitude that is reached by most research balloons the air is thin and cold enough for humans to be able to survive so the majority of balloons for research are not manned and operate remotely.
- NASA has a complete balloon program that conducts four to five launches per year. Many research and universities also make use of balloons to conduct research.
- Balloon-based research has led to at minimum two Nobel prizes in Physics in 1936

and in 2006.

Surveillance Purposes

- High Altitude Balloon are used to monitor the environment for a variety of reasons. They are used for:
- Close-range monitoring In the modern age of satellites and surveillance balloons that are usually advanced balloons that are equipped with the latest technology, downward-pointing image equipment provide close-range monitoring.
- Image Quality The smaller-flying balloons that hover around the same altitude as commercial airlines, typically produce better images than the lower satellites that orbit.
- Satellites that are rotating in the same time as Earth create continuous, but fuzzier images due to orbits farther away.
- Intercepting Communication Surveillance balloons may also be in the position of "gathering electronic signals" and interception of communications.

Ballooning in India

- Balloons for scientific research have been utilized in India for over 70 years, with the first one being sent to India in 1948 Homi Bhabha to carry out cosmic ray research.
- Mumbai-based Tata Institute of Fundamental Research (TIFR) started balloon manufacturing in the 1950s. During that time, numerous balloon launches were made out of Mumbai in the 1950s and Hyderabad.
- In 1969 in 1969, the TIFR inaugurated in 1969 a fully-fledged Balloon Facility in Hyderabad the country's largest balloon facility.
- It is frequently employed by space-related institutions of ISRO and also by weather research institutes like those of the Indian Institute of Tropical Meteorology in Pune.

Topic 15. 4G IN NAME ONLY: DATA NEEDLES STUTTER IN 'GREY SPOTS' IN INDIA

Important for subject: Science and Technology

According to the Telecom Regulatory Authority of India (TRAI) beginning in September 2022 the three largest telecom providers in India categorize nearly 90% of their customer population in the category of "broadband" customers this means that they will be able to connect to Internet speeds of at least 2 Mbps.

- It is reported that the Government in India has revised the definition of minimum broadband speed from two Mbps instead of 512 Kbps. Speeds below 2 Mbps aren't enough for streaming video, or other types of services.
- In the countryside the speed of high-speed broadband is considered to be standard in big cities. However, there are rural areas that do not have 4G coverage.
- In addition to these two categories, there are other smaller towns and urban settlements which are affected by poor connectivity.
- White spots are places with no cellular connection.
- Grey spots are regions which are connected but do not allow users to get the most benefit.
- The people who live in these cities even though they have 4G towers, are unable to access adequate Internet speeds, primarily due to the insufficient towers i.e. they are unable to handle massive traffic because of the large volume of users.
- According to data released through Ookla at the end of December in 2022, average internet Internet speeds within India measured 108.86 Mbps. The median speed was only 25.29 Mbps.
- Average Speed refers to the internet speed that a typical user experiences.
- Median Speed midpoint among the most fast and most slow connections.
- The huge gap between median and mean shows that there is a huge disparity in access quality.

What is Broadband?

- Broadband is a term used to describe a variety of high-capacity transmission techniques that transmit voice, data and video over large distances at high speeds.

- Common transmission media include coaxial cables and fiber optic cables along with radio waves.
- Broadband can be always connected and eliminates the requirement for dial-up.
- There are six major kinds of broadband technologies Digital subscriber line (DSL) the cable modem satellite, wireless along with broadband via power lines (BPL).
- The majority of Internet users (92.6 percent) all over the world connect to internet through the mobile phone.
- Its significance is vast and allows for top-quality and rapid access to information and teleconferencing, data transfer and more in many areas, such as education, healthcare, as well as technological advancement.

Topic 16. AERO INDIA 2023

Important for subject: Science and technology

The Prime Secretary Shri Narendra Modi will inaugurate the 14th edition of Asia's largest aero show -- Aero India 2023 - in Bengaluru, Karnataka on February 13, 2023.

- Information Spanning across five consecutive days, this conference, focused on the theme 'The runway to billion possibilities' will show the rise of a self-reliant and strong "New India by showcasing the growth of India's defence and aerospace capabilities.
- The focus will be on showcasing indigenous equipment/technologies and forging partnerships with foreign companies, in line with 'Make in India, Make for the World' vision for a secure and prosperous future.
- The main exhibitors are Airbus, Boeing, Dassault Aviation, Lockheed Martin, Israel Aerospace Industry, BrahMos Aerospace, Army Aviation, HC Robotics, SAAB, Safran, Rolls Royce, Larsen & Toubro, Bharat Forge Limited, Hindustan Aeronautics Limited (HAL), Bharat Electronics Limited (BEL), Bharat Dynamics Limited (BDL) and BEML Limited.
- The "CEOs Round Table The 'CEOs Round Table', which is under the chairship of Raksha Mantri The event will be held under the The theme 'The sky is not the limit: possibilities that transcend limits'.
- It is the Bandhan ceremony, that will see the an official signing ceremony of Memoranda of Understanding (MoUs)/Agreements, Transfer of Technologies,

Product Launches and other important announcements will take place

- The annual event for innovation in defence , Manthan, will be the most prestigious technological showcase
- "The India Pavilion is a tribute to the ' Fixed Wing Platform theme will present the growth of India in this area as well as the future possibilities.

About Aero India:

- Aero India is a annual air show and an aviation event held at Bengaluru, India at the Yelahanka Air Force Station.
- It is run in conjunction with The Defence Exhibition Organisation, Ministry of Defence. Aero India is the largest air event in Asia. The Defence Ministry of India, Indian Air Force, Hindustan Aeronautics Limited
- Defence Research and Development Organisation (DRDO), Department of Space and Space, the Union Civil Aviation Ministry and other similar organisations collaborate to organize Aero India. Aero India show making it the biggest air spectacle in Asia.
- The first version of the air show took place in the year 1996.

Topic 17. INDO-U.S. UNMANNED AERIAL VEHICLE TO BE FLIGHT-TESTED

Important for subject: Science and technology

A participant of the U.S. government delegation who attended Aero India 2023 conference, has stated that a model that is part of the Air-Launched Unmanned Aerial Vehicle (ALUAV) jointly created jointly by India as well as the US will be tested in flight within the next few weeks.

- US officials from the US government have confirmed that flight testing for ALUAV will begin in the months of September and November of 2023.
- The testing of the aircraft will take place in an area in northern India and located in the US. India as well as India and the US had concluded their project Arrangement (PA) that will be used to launch ALUAV by 2021as part in the Defence Technology and Trade Initiative (DTTI).
- Bengaluru-based Aeronautical Development Establishment (ADE) and the Aerospace Systems Directorate at the U.S. Air Force Research Laboratory together with Air Force Research Laboratory, along with Air Forces of India and the U.S. are the main

institutions involved in the implementation this project.

- As per reports ALUAV will be launched via the C130J aircraft.

Defence Technology and Trade Initiative (DTTI)

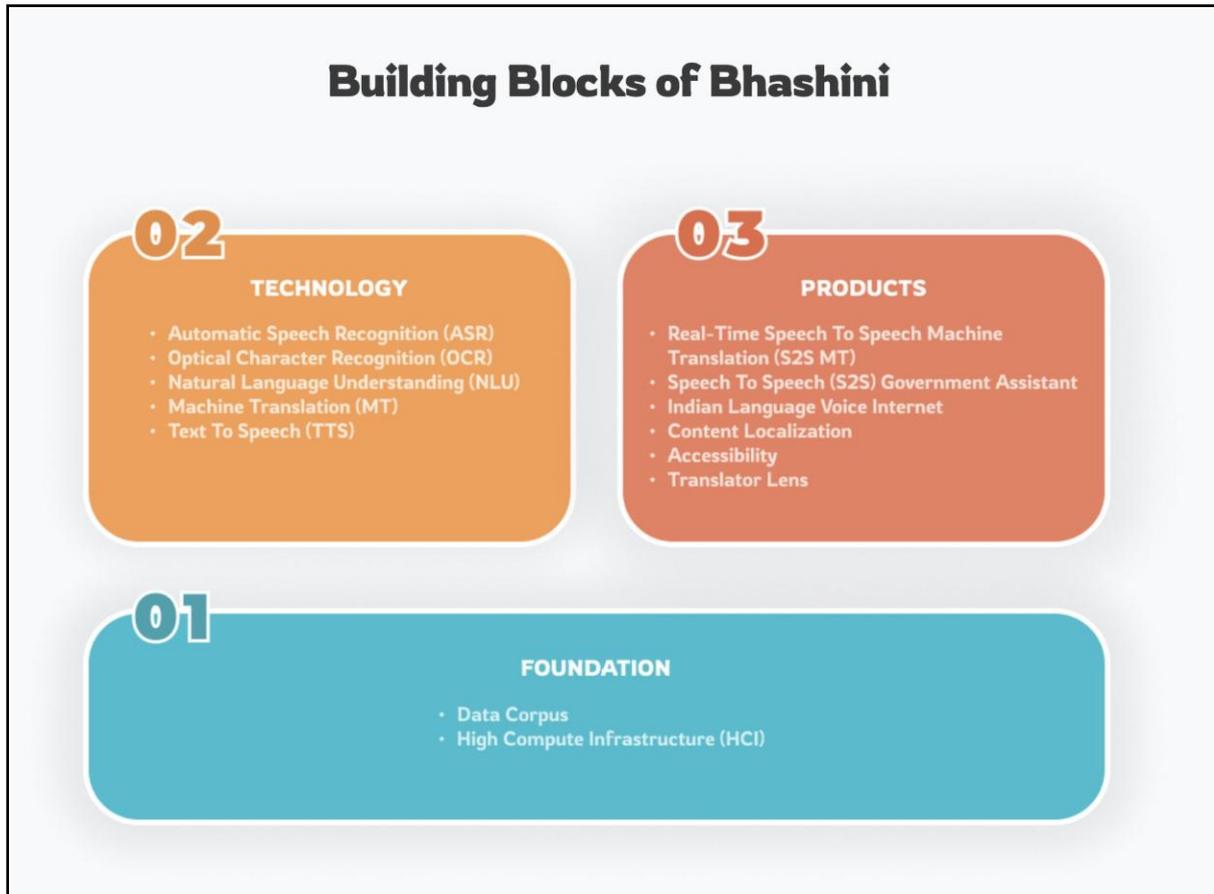
- In 2012, in 2012, in 2012, the Department of Defence created a process to eliminate or lessen the barriers. This initiative has developed to become the India-U.S. Defence Technology and Trade Initiative, or DTTI.
- Goal: The main aim of DTTI is to maintain a leadership and focus on collaboration in technology exchange and to provide opportunities for co-production and co-development of new technologies to be used by Indian as well as US force.
- The DTTI initiative is designed to concentrate on the senior U.S. and Indian leaders on the real opportunities and challenges that come with building our defence relationship.
- Although the DTTI does not constitute an agreement nor a legislation, it elevates the shared determination of the two countries to enhance defense cooperation
- In accordance with the DTTI Terms of Reference, the two lead members will be a part of members of the DTTI Group every six months alternate locations between India and the U.S. and India.
- The day-to-day DTTI task is managed by the DTTI Interagency Task Force (DIATF).

The four Service-led Joint Work Groups (JWGs) implement projects and other activities under DTTI:

1. Land Systems (LS),
 2. Naval Systems (NS),
 3. Air Systems (AS), and
 4. Aircraft Carrier Technology Cooperation (ACTC).
- The co-development of ALUAV is being monitored by the Joint Working Group on Air Systems and is a significant achievement for DTTI.

Topic 18. BHASHINI AND BHASHA DAAN INITIATIVE

Important for subject: Science and Technology



Bhashini Bhashini small team from the Ministry of Electronics and IT (MeitY) is currently creating a chatbot that is based on WhatsApp that is based on the data created by Chat GPT to give appropriate responses to questions.

- In addition, since people, particularly rural farmers might not be inclined to write out their concerns the questions are addressed by chatbots via notes on the voice.
- To create a model of language According to the official it is essential to have a large database of the different language spoken throughout India that the model could be developed.
- This is where an initiative dubbed Bhasha Daan comes It's an ambitious initiative that aims to collect voice data from the crowd in a variety of Indian language.
- On the website for the project, people can contribute by completing three methods: by recording their voice recordings in a variety of Indian languages, reading an article of text or typing out a sentence that is being played, and translating text from one

language to another.

- Bhashini - National Language Translation Mission 'Digital India BHASHINI The aim of the project is to provide an easy access to the web and online services for Indian languages as well as voice-based access and assist in with the production of material in Indian languages.
- It was inaugurated by the Prime Vice-President Narendra Modi at the inauguration of the Digital India Week, 2022 in Gandhinagar, Gujarat.
- Bhashini is the abbreviation for BHASa INterface to represent India
- It is part of the Ministry of Electronics & IT.
- Digital India Bhashini, as India's Artificial Intelligence (AI)-led language translation platform that will allow massive participation of citizens to create multilingual data sets through a crowdsourcing initiative known as Bhasha Daan.

Significance

- This mission seeks to empower Indian citizens by linking them with the Digital
- Initiatives of the nation in their language which can lead to digital inclusion.
- Bhashini platform Bhashini platform will bring about the whole Digital Ecosystem and is a huge step toward achieving the goals of Digital Government.
- Bhashini aims to build a National Public Digital Platform for languages to develop services and products for citizens by leveraging the power of artificial intelligence and other emerging technologies.
- BHASHINI is also seeking to expand the number of articles of Indian dialects on the Internet considerably in the areas that are of interest to the public, including governance and policy sciences and technology, and science & technology. In this way, it will encourage users to access their Internet in their native language.

Bhasha Daan

- Bhasha Daan is an initiative to solicit inputs from people for a variety of Indian languages in the context of the Project BHASHINI.
- It asks citizens to build an open data repository to enrich digitally his/her language.
- The goal is to collect large amounts of data for Indian languages that can be used to create AI models to be used by various stakeholders to develop products or services to

meet the following purposes:

- Training and benchmarking datasets
- Data inputs from government agencies or language chapters, community groups, and more Crowd sourcing initiatives.
- Open model of a language that is open source.

Categories of Bhasha Daan

1. Suno India: One can improve one's English by writing down the audio they hears or by confirming the transcriptions of other people.
2. Bolo India: One can enrich the language of one's choice by donating their voice by recording sentences. You can also verify the recordings of others
3. Likho India: One can help by translating the prompt text. It is also possible to validate the translations provided by others.
4. Dekho India: One can improve one's English by writing the text that is you see, or by labelling the image. It is also possible to validate images created by others.

Topic 19. AGASTHYARKOODAM'S LOST OBSERVATORY

Important for subject: Science and technology

Agasthyarkoodam located on the Western Ghats once (in Nineteenth-century) housed an observatory that was created in the Nineteenth-century by Scottish meteorologist John Allan Broun.

- Broun employed the device to keep track of meteorological and magnetic observations along with it being used to record meteorological and magnetic observations in conjunction with Thiruvananthapuram Observatory for Astronomy.
- Broun's astronomical studies in India began when he was invited by the then ruler of Travancore Uthram Tirunal Marthanda Varma lead the Thiruvananthapuram (then Trevandrum) observatory after the demise of the initial director John Caldecott in 1849.
- Since terrestrial magnetism research demands simultaneous measurements at two different sites He set up his second observatory in Agasthyar mountain which is located at the height of 6,200 feet higher than sea-level.
- The observatory began recording observations in the month of July 1855. But, it was

shut down in 1881 by Madras Governor at that time, Madras governor Sir William Denison.

- Notably, Broun was awarded the Keith Medal from the Royal Society of Edinburgh as well as the Royal Medal from the Royal Society of London.

Magnetic observatories

- Magnetic observatories continually monitor and record the magnetic field of Earth at various places.
- In an observatory like this magnetic needles that reflect mirrors are suspended from quartz fibres.
- Reflections of light from mirrors are captured on an image negative that is placed on a rotating drum. The field's angle can change and create deflections that reflect on the negative.
- A printed image of the created negative is known as a magnetogram. They are then photographed on microfilms and sent to data centers around the world, which make them available for both practical and scientific use.

Applications :

- The applications of magnetic observatories comprise the creation of world magnetic maps that are used for surveying and navigation, as well as the correction of data collected from land, air and sea surveys to find oil and mineral deposits and research studies on how the sun interacts with the Sun with the Earth and the Earth, among other things.

Topic 20. MAMMALIAN SPREAD OF H5N1 AND ITS PANDEMIC POTENTIAL

Important for subject: Science and technology

Avian influenza (bird flu) is a highly infectious virus that affects birds. But, it is rare for it to be transmitted to mammals via a process called spillover, and can be spread between them.

- There are different subtypes of Avian Influenza virus that differ from non-pathogenic to pathogenic varieties. The most pathogenic subtypes is H5N1.
- In addition to causing severe illness and death in birds H5N1 can also cause human infections by close contact with birds infected or infected environments. It is usually

fatal.

- A variety of cases of spread of H5N1 in mammals have been documented.
- There are concerns about the spreading to other humans as well as the dangers from the pandemic in humans.
- The H5N1 virus is a common cause of concern for HTML0 Spread
- The H5N1 virus could affect mammals such as ferrets, seals, minks and domestic cats during contact with birds infected or their feces. They could also be affected if they are eating carcasses that have been infected.
- They could also function as reservoirs. In addition, the virus may change to adapt to new hosts, and could result in new outbreaks.
- On the Russian Caspian Sea coast there was the mass death of killed more than 700 seals. Scientists are examining the possibility of mammalian spread over since an H5N1 variant was discovered in wild birds from the region just a few weeks back.
- In February 2023, too, Peru registered cases of H5N1 infections in sea lions and dolphins. A lion at an animal zoo died of H5N1.
- It was reported that the U.K. communicated the cases of foxes' and otters dying caused by H5N1 infections.
- Notably, the wildlife that includes coyotes, foxes, and raccoons, scavenge diseased birds and bird carcasses.
- It was discovered to be the only reported instances that involved intra-mammal spread of this virus occurred among mink the confinement of an animal Farm in Spain(in 2022).).
- H5N1 outbreaks can have devastating economic consequences, such as:
 - Big losses to the industry of poultry
 - Food and vaccine security is at risk (eggs are used in production of vaccines)
 - Raised concerns over the welfare of animals

Topic 21. KEY TRAILS FOR GAGANYAAN CONDUCTED

Important for subject: Science and technology

The Indian Space Research Organisation (ISRO) together with the Indian Navy has conducted an important test for the Gaganyaan the first human space flight mission.

- It conducted the initial tests of recovery for the Crew Module at the Naval's Water Survival Test Facility (WSTF) in Kochi.
- These tests constitute a part of preparations for the crew module operations to recover for Gaganyaan.
- The mission Gaganyaan is a mission of the Indian Space Research Organization (ISRO).

In the Gaganyaan program:

- The three flights are launched into space. The spacecraft will have two unmanned spaceflights and one spaceflight for humans. Spacecraft Gaganyaan System Module, also known as Orbital Module, Orbital Module will have three Indian astronauts which includes one woman.
- It will orbit Earth in a low-earth orbit at 300-400 km away from Earth for about 5-7 days.
- ISRO is working on the spacecraft that will be used for the mission. Meanwhile, it is the Russian Space Agency ROSCOSMOS is aiding in expanding the instruction to astronauts.
- If the mission succeeds, India would become the fourth country to send astronauts into space, following that of the US, Russia and China. Cost of this mission are likely to be in the vicinity of Rs 10.000 crores.

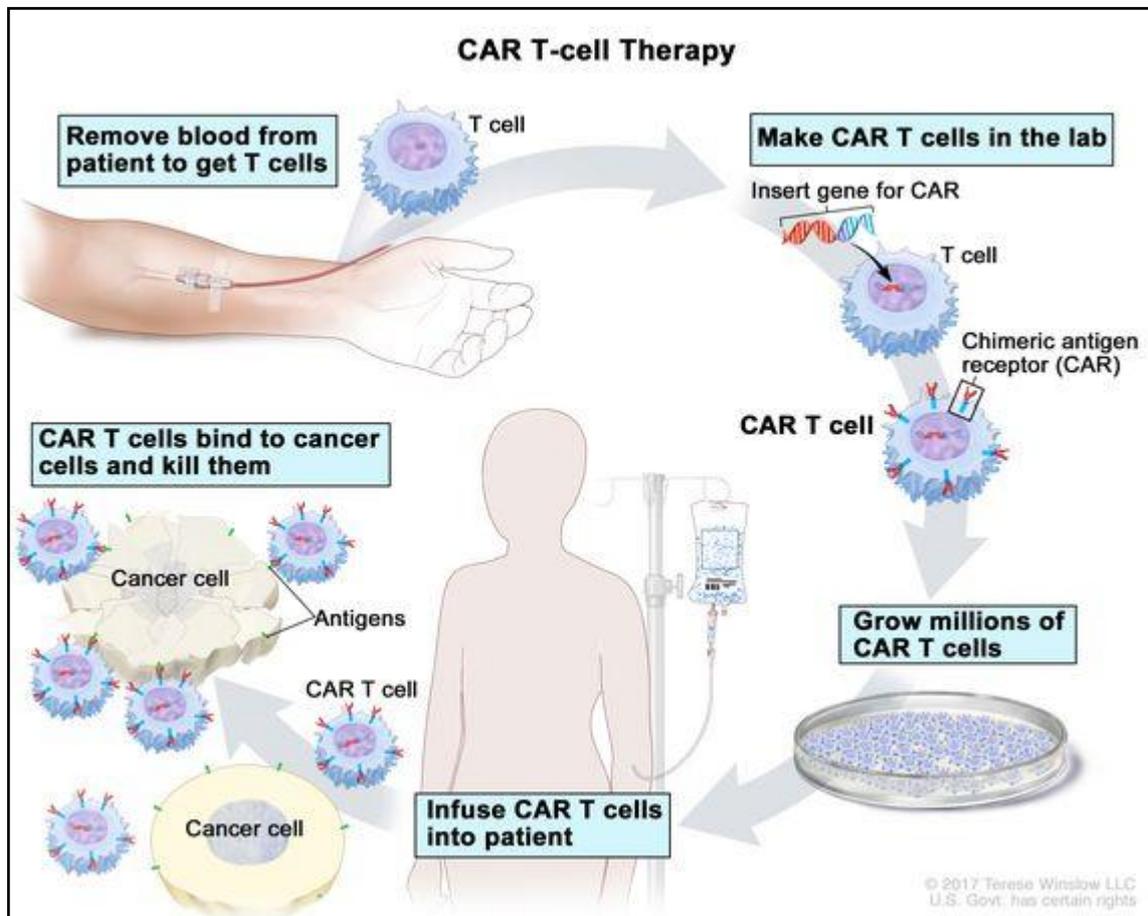
Payloads:

- The Crew Module-spacecraft that carries human beings.
- Service Module-powered by two propellant liquid engines. It will have emergency escape, and evacuation in the event of an emergency.
- GSV Mk III Also known as "LVM-3(Launch Vehicle Mark-3) it is a 3-stage high-lift launcher, will be utilized to launch Gaganyaan because it has the required payload

capacity.

Topic 22. CAR T CELL THERAPY

Important for subject: Science and Technology



The three main treatments for all cancers comprise surgical (removing tumors) and radiotherapy (delivering Ionizing radiation to the tumor), and systemic therapy (administering medications that attack the tumor).

- Radiotherapy and surgery have been improved significantly with time, while advancements in systemic therapy are the most impressive.
- The latest breakthrough in this area which is currently the focus of a lot of researchers around the world is CAR T cell therapy. Systemic therapy's first type was chemotherapy. When administered, it preferentially works against cancer cells due to the latter's uncontrolled, rapid growth and weak healing mechanisms. Chemotherapeutic drugs are characterized by low responses and have significant side negative effects since they impact a wide range of kinds of cells in the

body. The next step in the evolution of this drug was targeted therapies which is also known as immunotherapy.

- In this case, the drugs are able to bind to specific areas of the cancer, or to immune cells that aid in helping the cancer to expand or spread. This technique is often less likely to cause negative effects because the impact on nontumour cells is less. It is however effective only against tumors which have these specific targets.
- Contrary to immunotherapy or chemotherapy that require injections of mass-produced or oral medications CAR Tcell therapies make use of the patient's own cells. They are altered in the lab to stimulate T cells, which are a part of immune cells. They then combat tumours.
- The modified cells are then infused into the bloodstream of the patient, conditioning them to increase their growth rate. These cells are also more specific than targeted drugs and can directly activate the immune system of the patient against cancer, making treatment more effective clinically. This is why they're known as "living drugs"

What is CAR T Cell Therapy?

- Chimeric antigen receptor T cells are T cells which are genetically engineered to create an artificial T-cell receptor that can be used in immunotherapy. Chimeric antigen receptors
- receptor protein engineered to provide T cells with the capability of targeting a specific protein.
- A 11-year-old is the first person to undergo CAR-T therapy (immunotherapy) which makes use of your body's cells in order to combat cancer.
- CAR-T is a specific type of cancer treatment.
- CAR-T is the process of removing immune cells and altering them in a lab to ensure they are able to recognize cancer cells.
- Immunotherapy is a treatment that utilizes your body's immune system to combat cancer.
- The patient's blood is taken out in order to remove the white blood cells. Then, the cells get taken from the rest of the blood returning to the patient.
- A non-harmful virus is used to introduce genes into T-cells, which are a particular

type of immune cell. These genes cause T-cells to attach an attachment point their surface, referred to as an antigen receptor chimeric (CAR).

- The CAR-T cells that have been engineered that are programmed to identify and kill cancerous cells in the patient - are multiplied to huge amounts and then infused in the patients.

Where is it employed?

- As of today CAR T cells therapy is cleared for use in leukemias (cancers caused by the cells that make white blood cells) and lymphomas (arising from the lymphatic system).
- The cancers are caused by the uncontrolled replication of just one type cells. That is, after the transformation to cancer of one kind cells, the cell generates thousands of copies that are identical. Therefore, CAR T-cells are a target that is reliable and consistent.
- CAR T-cell therapy is also available to cancer patients who are recurrence after an initial treatment that was successful or that haven't been able to respond to previous combination of immunotherapy or chemotherapy. The rate of recovery can vary. For certain types of lymphomas and leukemias, the efficacy can be up to 90%, while for other cancers it is considerably less. The possible side effects are important, and are a result of the cytokine release disorder (a generalized activated immune system) and secondary damage to the cell's natural cells in the human body) and neurological signs (severe confused).

Cellular therapy (CT)

- It's the process of transplanting human cells to repair or replace damaged cells and/or tissue. With cutting-edge technologies, ingenious products, and a plethora of creativity, all kinds of cells could be used in the course of therapy and treatment of a wide range of conditions and diseases.

Topic 23. RIGHT TO BREATHE CAMPAIGN

Important for subject: Science and Technology

What is Right to Breathe Campaign?

- It's a patient-led campaign across several countries which includes India to gain access to the cystic fibrosis (CF) therapy - Trikafta, from the American biotech company Vertex Pharmaceuticals.
- Campaigns have been launched throughout South Africa, Ukraine, Brazil and India under the direction of "Vertex Save Us", an international community made up of CF patients and their families, as well as managed with Just Treatment, a UK-based activist for rights of patients, with the help of other international organizations.
- While Vertex has no presence in India the patient's families recently sent a letter to the Centre in order to obtain the drug combination Trikafta or Kafrio which treats the life-shortening genetic disorder.

What's cystic Fibrosis (CF) treatment?

- CF can cause sticky mucus to accumulate in the lungs and digestive system, and those who are not diagnosed often die in their early years, the letter stated, calling on the Government to think about patent provisions that are available under the law that would make the medication available.

Which are the fixed dose combination (FDCs)?

- Fixed dose mixtures (FDCs) are described as a mixture with two or more active components in one form of administration. They have been demonstrated to reduce significantly the risk of non-adherence to medication which is particularly relevant in those suffering from chronic illness. But their reasoning to use must be based on solid medical principles since there have been concerns regarding their insanity and effectiveness across a variety of countries.

Topic 24. HYDROELECTRIC PLANS IN ARUNACHAL WILL EFFECT DOWNSTREAM ASSAM TOO

Important for subject: Geography

The blackbuck population has tripled within the Odisha's state's Ganjam district that is the sole residence of the most stunning members of the antelope clan in the state for a time which lasted twelve years.

- Blackbucks were seen in the Balukhand Konark sanctuary for wildlife in the Puri district from 2012 until 2013, however, the animals were not observed.
- Arunachal Pradesh is very prone to landslides. The debris that flows downstream can alter the river's behavior and frighten experts.
- Recent efforts from Arunachal Pradesh to realise its enormous hydroelectric power potential has come under critique from activists, scientists and local communities within the state, as well as in the downstream region of Assam.
- Arunachal Pradesh is frequently called the country's powerhouse and has 34 percent (50,328 megawatts) of the country's 148.701 power potential hydropower according to the estimates of the Hydro Power Policy in 2008.
- Around 150 proposed hydropower schemes have already been conceived for the Himalayas throughout the state and have come under huge protests.
- However, some analysts are worried that the project could negatively impact downstream areas of Assam. The project will cause a huge shift in the state's economy and social life and the river's ecosystem.
- These rivers are likely to transport huge quantities of sediments and debris downstream because of deforestation and earth cutting in the construction projects upstream. This can alter the way that the rivers.
- Massive landslides were witnessed at the site of the Subansiri Lower Hydroelectric Project at Gerukamukh. These incidents suggest that the
- Eastern Himalayan part is more prone to land slides and even the slightest touch can cause catastrophic destruction.

Hydro-electric Project in Northeast India:

PROJECT NAME	RIVER	STATE
Subansiri Lower Hydroelectric Project	Subansiri River	Arunachal Pradesh
Kameng Hydroelectric Project	Kameng River	Arunachal Pradesh
Ranganadi Hydroelectric Project	Ranganadi River	Assam
Naying hydropower project	Siyom river	Arunachal Pradesh
Emini hydropower project	Emini River	Arunachal Pradesh
Etalín Hydro Power Project	Dibang river	Arunachal Pradesh
Doyang Hydroelectric Project	Doyang River	Nagaland
Dikhu Hydroelectric Project	Dikhu River	Nagaland
Umiam-Umtru Hydroelectric Project	Umiam River and Umtru River	Meghalaya
Myntdu Leshka Hydroelectric Project	Myntdu River	Meghalaya
Simsang Hydroelectric Project	Simsang River	Meghalaya
Borholla Hydroelectric Project	Borholla River	Assam
Kopili Hydroelectric Project	Kopili River	Assam, Meghalaya

Topic 25. MILLET INTERNATIONAL INITIATIVE FOR RESEARCH AND AWARENESS (MIIRA)

Important for subject: Geography

With nutrition and food security an important concern in the field of agriculture during the G20 presidency, India plans to announce the launch of an international initiative called MIIRA which will encourage the production and consumption of millets.

- A draft charter for the initiative is completed and will be put up for review at the

initial gathering of Agricultural Deputies (under G20) between 13 and 15 February at Indore MP.

Background

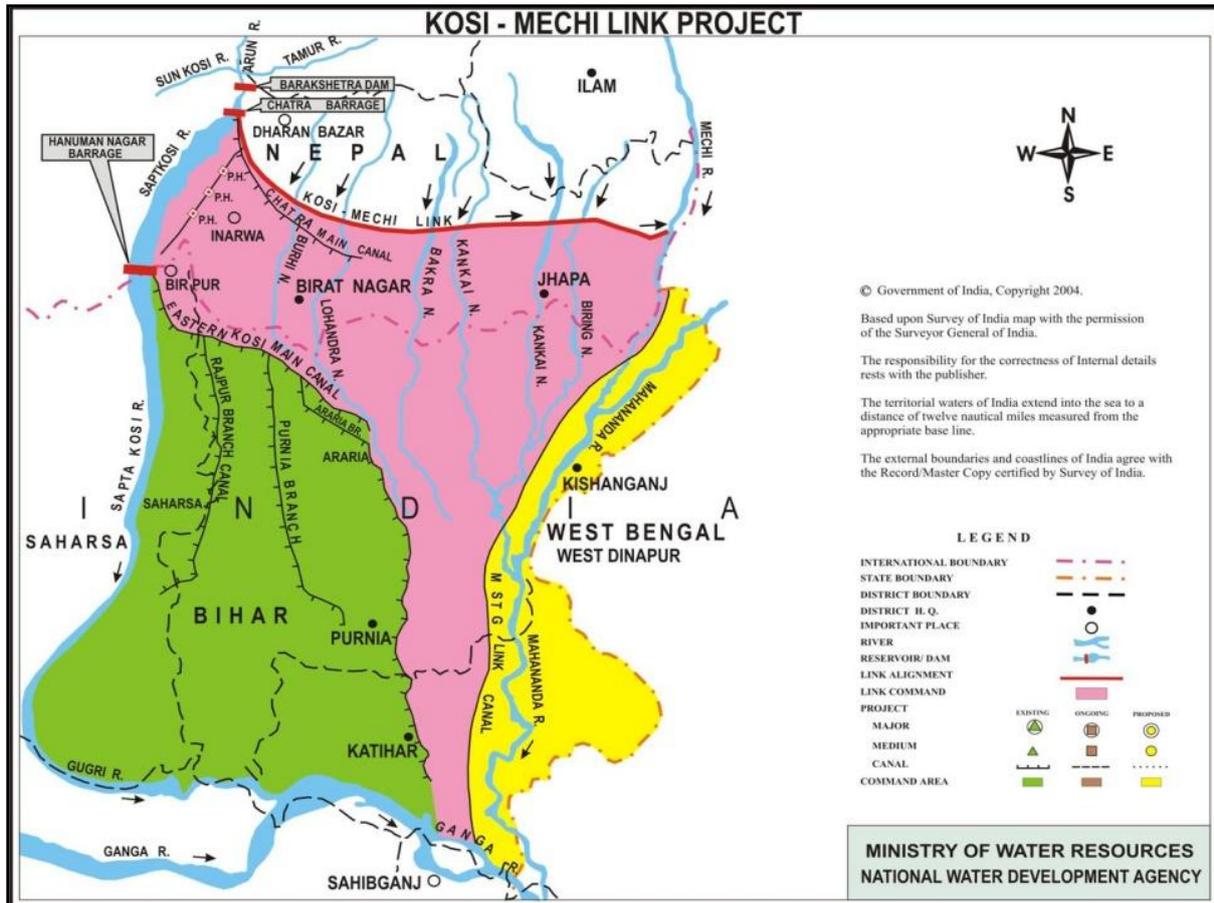
- The United Nations General Assembly (UNGA) declared 2023 "the" International Year of Millets (IYM), a proposal sponsored by the Government of India to promote these "nutri-cereals."
- The declaration will be beneficial in helping the Government of India in articulating its intention of creating IYM 2023 to be a "People's Movement" as well as the presentation of India as the "Global Hub for Millets," because India produces one-fifth of world's millets.
- 2023 will also be significant due to India's G20 Presidency that will also include five sessions on agriculture.
- in her budget speech (2023-24) in which she described the different kinds of millets as "Shree Anna The Union Finance Minister announced she would support the Indian Institute of Millet Research, Hyderabad will be supported as the Centre of Excellence.
- This will aid in the sharing of the best practices, research and technology at an international levels.

Millet International Initiative for Research and Awareness (MIIRA)

- This Global Initiative will focus on the coordination of millet research programs at at the world scale and will be launched with at heart the nutritional value of millets and the resilience to climate change of millets.
- Apart from establishing a web platform to connect researchers, and organizing international conferences on research The plan is to increase consumption of millet by creating awareness.
- India will be able to be India with the "seed money" for MIIRA to begin its journey as well as each G20 member will then be required to contribute MIIRA's budget in the form of an annual membership fee.
- According to sources according to the sources, the MIIRA's secretariat is expected to be located in Delhi and India as a major supplier of millets, will guarantee an investment flow from the country's industries as well as research institutions.

Topic 26. KOSI-MECHI LINK PROJECT

Important for subject: Geography



The Patna High Court has directed the Centre and Bihar government to create Kosi Development Authority as well as connect Kosi as well as Mechi rivers in order to combat the annual floods that are often by excess water discharged from Nepal.

- The decision is groundbreaking in that it provides basis and direction to the IndoNepal agreement on Kosi river, in order to make sure that Indo-Nepal and Center-state cooperation and joint effort comes to the aid of Bihar's people. Bihar Central government has suggested a 60:30/10 formula which means 60 percent Central grant 30 per cent Central loan, and 10% state portion.

Kosi-Mechi link project

- The project is expected to irrigate around 69,000 hectares of land in Araria district, 69,000 hectares within Purnea district and 39,000 hectares in Kishanganj district, and 35,000 hectares within Katihar district.

- Kosi-Mechi is a project that is intended to divert a portion from the Kosi River surplus water through the existing Hanuman Nagar Barrage by way of a 117 km link canal that connects to the Mechi River within the Mahananda Basin.
- The Kosi-Mechi link will be beneficial to Araria Kishanganj, Kishanganj, and Purnia Katihar districts. It is reported that approval was already given by the state cabinet to commence the Kosi-Mechi Link project. In May 2022 alone the state government approved spending and administrative costs of around 2.78 crore. 2.78 crore to fund DPR construction surveys and exploration.
- State government approval of budgetary measures that include 60 % central and 40% state shares, which includes this plan as part of the national plan that is being negotiated by Central government.
- The state government is continuing to insist on 90 percent central share as well as 10 percent budgetary state contribution for the Kosi Mechi link project in the same vein as Madhya Pradesh's Ken-Betwa Link project.
- A total of around 1397 hectares of land are needed under the project. Of that, 632 hectares are already purchased and 765 acres of private land are to be purchased.
- Kosi Source: Confluence of 3 streams Sun Kosi, Arun Kosi and Tamur Kosi from Tibet forms Kosi (other major tributaries are Indrawati, Likhu, Dudhkoshi and Tama from east to west, the seven tributaries in total form saptakosi)
- Mouth: Ganges near Kursela in Katihar district.
- The Trans boundary river runs across China, Nepal and India.
- Barrage: Sapta Koshi, Kosi Barrage/Bhimnagar Barrage
- It rains on the north slopes of the Himalayas in Tibet as well as the southern slopes of the Himalayas in Nepal.
- A major confluence of downstream tributaries that flow north of the Chatra Gorge and onwards The Kosi River is also known as Saptakoshi. It is also known as the sorrow of Bihar.
- The basin of the river is bordered by ridges, which divide it from Yarlung Tsangpo River in the north and it is separated from the Gandaki to the west, and it is joined by the Mahananda to the east. It runs through the narrow and steep Chatra Gorge, which is located in Nepal.
- The catchment encompasses six climatic and geological belts with altitudes ranging

from 8000 meters (26,000 feet) to 95 meters (312 feet) which includes the Tibetan plateau and the Himalayas as well as the Himalayan mid-hill belt as well as the Mahabharat Range, the Siwalik Hills and the Terai.

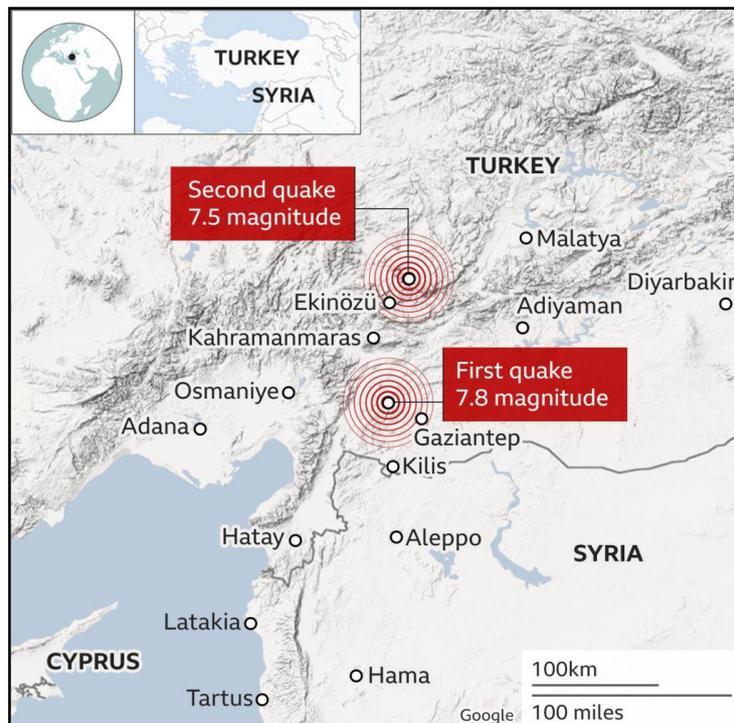
- The Dudh Koshi sub-basin in itself consists of 296 lakes of glaciers.
- The basin's highest peaks comprise Mount Everest, Kangchenjunga, Lhotse, Makalu, Cho Oyu and Shishapangma.
- Reserves that are protected: Sagarmatha National Park, Koshi Tappu Wildlife Reserve (both located in Nepal) Mechi
- Origin: Mahabharat Range in Nepal
- Mouth: Mahananda River, Transboundary river running between Nepal as well as India.

Special Features:

- This river runs through Bihar, an Indian states of Bihar to join with the Mahananda in Kishanganj
- District. It's a tributary to Mahananda river.

Topic 27. WHY TURKEY EARTHQUAKE MORE DANGEROUS

Important for subject: Geography



Two massive earthquakes, one with magnitude 7.8 and closely followed by one of magnitude 7.5. The earthquake struck south-eastern Turkey with 7.5, and has claimed more than 17,000 lives and causing significant damage to Turkey and Syria. More than 200 aftershocks were recorded, and earthquakes that were magnitude 6 have been recorded in the region three days after the initial tremor.

What is the cause of earthquakes?

- The Earth's crust is composed of approximately 15 massive chunky slabbed plates of tectonics that are always moving.
- The land on which structures are constructed is based in these plates. They constantly clash, push, and grate against one another. The intersection points of these plates comprise an array of 'faults.'
- The stored energy of the plates that move along faultlines, is typically released due to an imbalance in pressure. creates rocks that are on the opposite side to adjust.
- One rock set rising from the other an 'normal' fault and the other one that is sliding down one to another is a 'reverse'.
- When they rub or slide across one another, this is an strike-slip.'The energy released can be seen as waves that create a shake in the soil.

Which kind of earthquake took place within Turkey or Syria?

- Turkey and Syria are situated at the confluence of three plates namely that is, the Arabian Plate, the Anatolian Plate and the Eurasian Plate, making the area a highly energetic zone.
- The Arabian Plate is pushing northwards towards Europe which is leading to Europe's Anatolian Plate (which Turkey is located on) to be pulled out to the west.
- The majority of Turkey lies in the Anatolian Plate which is located between two faults of great importance which are that of the North Anatolian Fault and the East Anatolian Fault.
- Geologists have concluded that the earthquakes came from the "strike-slip" which is typical of earthquakes that occur in the region.

Why were these earthquakes dangerous and devastating?

- A inability to enforce the building code within Turkey along with the timing of the

earthquake that occurred in the early hours of the morning are thought to be the primary reasons in the devastation and death caused.

- The region hosts a variety of faults, which means that this region is particularly susceptible to earthquakes.
- With magnitude of 7.8, the February 6 earthquake was much more massive than the previous earthquakes the area had previously experienced. The fault system stretches for about 190 kilometers, and that is the reason why the force of the earthquakes were so broad.
- The second earthquake, which was of 5 magnitude struck farther to the north on another fault system known as Surgu Fault.
- The aftershocks are felt in the distance of Cairo (950km) or Istanbul (815km).

Measuring earthquakes:

- The earthquake events are evaluated by the intensity or magnitude of the impact or intensity.
- The magnitude scale is also known by "the" Richter scale. The magnitude relates to the amount of energy released by the earthquake. The magnitude is measured in absolute numbers, ranging from zero and 10.
- The intensity scale is named for Mercalli, an Italian seismologist. The intensity scale considers the damage visible caused by the incident. The intensity scale range is between 1 to 12.

Topic 28. ARE THERE SIMILARITIES TO EARTHQUAKES IN INDIA? CAN ENERGY FROM LATENT PRESSURE BE BUILT UP OVER THE YEARS?

Important for subject: Geography

The Indian Plate, merging into the Eurasian plate and moving towards the east, created the Himalayas.

- The most prevalent kind of earthquake in the Himalayan region is caused by reverse faults because of the compression forces that exist between the two plates.
- Scientists have been warning for years of warnings of a huge, long-overdue earthquake in the Garhwal Kumaon range this is due to what we know about the quake pattern within the area.

- The data from the past 300 or so years indicate that the earthquakes that have occurred haven't released all trapped energy. That's the reason experts believe that a big one -- perhaps one of 8 magnitude is long overdue.
- In the Turkey-Syria earthquakes energy from more than 300 years of strain was released.

What is the extent to which the magnitude of earthquakes relate with the damage they cause?

- This magnitude does not precisely corresponds to the loss and destruction.
- The impact of earthquakes could be minimized by the proper application of the laws and rules regarding the building code for the area.
- Awareness and swift plan of rescue.
- Construction in accordance with the zone of earthquake.

Case study 1

- Chile, a country with a history of catastrophic seismic events (over 9) and is thought to be a model in earthquake preparedness.
- Despite experiencing earthquakes of the magnitude of 8 or more during 2015 and 2015, casualties are very minimal due to the years of strictly applying construction codes.
- This is despite being a less affluent country than Japan and also famous for its expertise in building earthquake-proof structures.

Case study 2

- The 9-magnitude earthquake which caused a tsunami and radiation leak at nuclear power plants located in The country's Fukushima prefecture in 2011 did not affect the structural integrity that the construction.

Topic 29. HIMALAYAN PLUNDER: MANIPUR LANDSLIDES RAISE ENVIRONMENTAL QUESTIONS

Important for subject: Geography

A huge landslide which struck the Tupul Railway station's building location on the 30th of June, 2022 resulted in 61 deaths and 18 injured.

- Extreme rains, exposure to slopes of hill that were cut for development projects, the accumulation of debris blocking the flow of the Ijei the river and the shifting land-use patterns like deforestation are believed to have contributed to the devastation within the active seismic western Manipur region.
- The landslide occurred due to the enormous slope cutting to facilitate to construct the railroad station and the presence of a break in the slope in the upslope region, affluence convergence of water, and a slope cut that was not protected for a long time (from 2014 from 2014 onwards).
- The main reason for the landslides was debris that impeded the flow of water in Ijei river. The debris dumped on the railway construction locations and poor drainage led to the hills geologically fragile.
- The pattern of land use at the summit of hill, triggered by deforestation and jhum cultivars, as well as banana cultivation which also speed up soil erosion, and could cause the landslides.
- The fluctuations in the regular pattern of precipitation and the excessive rains result in the percolation of water beneath the slopes. Contour cutting/light slope cutting according to the hydrological aspects could stop huge flow of water from upwards to downwards.
- With the nature of the project It is imperative to implement regulations and monitoring systems on the slopes that are vulnerable across the rail line, where the cut section and yards are set to be exposed.
- Assessment of stability of the slope (Factor of Safety) analysis of the yard and open cut of the railway line Jiribam-Tupul Regular drone survey and monitoring to spot massive movement across the yard and open cuts as well as over the railway land boundaries before or after monsoon time.. Without major failures, or the discovery of slight slope movements will aid in reducing the risk.

Topic 30: THE MISSING DEPUTY SPEAKERS

Important for subject: Polity

The Supreme Court on Monday issued notices to the Centre and five states including Rajasthan, Uttarakhand, Madhya Pradesh, Uttar Pradesh, and Jharkhand for decision not to select a deputy Speaker.

- A Bench headed by Chief Justice of India (CJI) D Chandrachud Y demanded answers on an PIL that claims that choosing a Deputy Speaker in The 17th (present) Lok Sabha, which was established on the 19th of June on the 19th of June, 2019 was "against the letter and spirit of the Constitution".
- The post was unfilled in five of the state Assemblies too that were formed between four and nearly an entire year, the petition says. (Shariq Ahmed v. Union of India And Ors)

Deputy Speaker:

- **Constitutional Provisions**
- Article 93 states "The House of the People will immediately, if need be, elect the two members...to be...Speaker and Speaker and Deputy Speaker...and whenever the position that of the Speaker and Deputy Speaker is vacant the House will choose a different member. ..."
- Article 178 provides the appropriate post of Speaker and Deputy Speaker in the Legislative Assembly of a state.

Do you have to have a deputy Speaker?

- Constitutional experts note they both Articles 93 and 178 contain "shall," which is a contraction of "shall", indicating that the selection of Speaker and Deputy Speakers is mandatory in the Constitution.

How soon should a Deputy Speaker get chosen?

- "As soon as may be" In articles 93 or 178. However, they don't set a date.
- The general practice of each of Lok Sabha and the state Assemblies is to choose the Speaker in the (mostly brief) opening session for the brand new House which is usually at the end of day three following the oath-taking ceremony and affirmations

during the course of the first two days.

- The selection of the Deputy Speaker is usually held in the second session usually not further delayed in the absence of legitimate and inexplicably imposed constraints.
- Rule 8 of the Rules of Procedure and Conduct of Business in Lok Sabha says the election of the Deputy Speaker "shall be held on such date as the Speaker may fix".
- The Speaker's Deputy is selected after a motion that proposes his name is made through the House.
- When elected the Speaker or Deputy Speaker generally is in place for the whole term of House. According to Article 94 (Article 179 for state legislatures) the Speaker or the Deputy Speaker "shall be removed from office when he ceases to be an official part in the House ...". They also have the option of resigning to one another, as well "may be removed from...office by a resolution of the House of the People passed by a majority of all the then members of the House".

Are the powers conferred by the Speaker also extend to the deputy Speaker, too?

- The article 95(1) says: "While the office of Speaker is vacant, the duties of the office shall be performed by the Deputy Speaker".
- In general the Deputy Speaker is granted the same authority like the Speaker when in charge of a session in the House. Any mentions of the Speaker in the Rules are considered to refer towards the Speaker's Deputy, when they are in the position of preside.
- There has been a number of times ruled that there is no right of appeal before the Speaker in regard to a decision made by the deputy speaker or by any other person presided over by the House in the absence of the Speaker.

Additional functions

- As with the Speaker the deputy Speaker is chosen from Lok Sabha Lok Sabha itself from amongst its members.
- The Deputy Speaker is elected after the Speaker's election is completed. The date for the selection for the Speaker's Deputy is decided by the Speaker.
- When the position of Deputy Speaker becomes empty and the Lok Sabha elects another member to fill the vacant.

- As with the Speaker The Deputy Speaker is in charge throughout the term of Lok Sabha.
- However, he can leave his post earlier within any one of the three scenarios when he ceases to be an elected part of the Lok Sabha; if he is able to resign by sending a letter to Speaker or if he's removed in a resolution approved by a majority vote of lawmakers in the Lok Sabha. A resolution of this kind can be amended only upon giving 14 days' notice in advance.
- The Speaker's Deputy does the work of the Speaker's Office when it's empty. The Deputy Speaker also serves as Speaker when the Speaker has been absent from the session of the House.
- In both instances He assumes all power of the Speaker.
- He is also the chairman of the joint session of both houses of Parliament, in the event the
- Speakers are absent during this type of sitting.
- It should be noted it is important to note that deputy Speaker does not a subordinate of the Speaker. He is accountable directly in the House.
- The Deputy Speaker enjoys one particular privilege which is that anytime he's named an official member of a committee of the House of Representatives then he is automatically the chairperson of the committee..
- As the Speaker the Deputy Speaker, in his role as the House's President over the House, cannot vote in the first place He can however use a casting vote in the event of tie.
- Furthermore, if the resolution to remove of the Vice Speaker is being considered of the House the Deputy Speaker is not able to preside at the session of the House even though he might be present.
- If the Speaker is in charge over the House the Deputy Speaker functions just like every other members of the House. He is able to be a speaker in the House and take part in its debates and also vote on any matter in front of the House.
- The Vice Speaker has the right to a normal salary as well as an allowance determined by Parliament. It is paid out of the Consolidated Fund of India.
- Prior to in the 10th Lok Sabha, both the Speaker and Deputy Speaker were typically members of an opposition party. In the last Lok Sabha, there has been an agreement to

the effect that Speaker is a member of the main opposition party (or the ruling alliance) and that the position of Deputy Speaker falls to the principal political opposition.

- The Speaker as well as the Vice Speaker in the course of their duties, do not make and swear to any separate vow or declaration.

Topic 31. HOUSE RULES AND THE WEAPON OF EXPUNCTION

Important for subject: Polity

The revocation of parts of speeches delivered by opposition politicians in the Parliamentary debate has set an argument over an decision made by the Speaker as well as the Chairperson of the Rajya Sabha.

House rules

- The Constitutional Article 105 confers on members the right to freedom of speech
- House is immune from interfering by the court in respect of anything made during the House.
- Rule 380 of the Rules for Procedure of Lok Sabha and Rule 261 of the Rules of the Rajya Sabha give the power to the presidency members of the Houses remove any expressions used during the debate that are offensive, unparliamentary or indecent.
- After expungement, they no longer persist on the records.
- If they are published later they could be held responsible for breaching the privileges that is the responsibility of the House.
- Regulation 353 from the Lok Sabha regulates the procedure in this regards.
- MPs must give "adequate advance notice" to the Speaker and the Minister in charge.
- The rule does not preclude the assertion of any claim.
- Its sole requirement for this is that you give advance notification the Minister who is concerned will conduct an investigation into the allegations.
- The claim that requires an advance warning is defamatory or criminal nature.
- If the claim is not incriminatory or defamatory, then the preceding rule will not apply.
- The rule doesn't apply to an allegation made against an official in the federal government.
- The Council of Ministers is accountable to the Parliament members of the House are

entitled to inquire into Ministers' conduct and criticize their conduct as Ministers.

Procedure to make an allegation about the Minister:

- This procedure was established from Speakers' positions in past years.
- Making an allegation about an individual Minister or Premier Minister. The person who has made an allegation against a Minister from the government must be certain of the truthfulness of the accusation, and they must be accountable for the allegation.
- If the legislator is in compliance with this requirement the charge can be kept on the record.

Two decisions taken by the Speakers on various occasions:

- On September 2nd in 1965, Prakash Vir Shastri, MP made personal accusations against

Humayun Kabir, who was the former Minister of Education at the time:

- A mere publication in a paper about something does not grant you the right to discuss it within the House.
- This is not enough for a person to make a claim against an individual Minister or member, or any other dignitaries.
- It is important to study it more thoroughly and feel confident regarding it.
- On the 21st December 1981, in the Lok Sabha, Bapusaheb Parulekar MP made mention of an allegation made against the Railway Minister of the time, Kedar Pande.
- The member must, prior to making an assertion before the House, satisfy himself that after conducting inquiries that there exists a reason for the claim.
- The person should be ready to accept accountability for the allegations.
- The person should be prepared prove the allegations.

Topic 32. ARTICLE 105 OF CONSTITUTION

Important for subject: Polity

Protesting the removal of portions of his speech in his motion to thank in the President's Address, the Leader of the Opposition in Rajya Sabha and Congress president Mallikarjun Kharge has argued that MPs are entitled to freedom of speech and that he didn't make any personal accusations of any kind in the House.

Origin of Parliamentary Privileges

- The Government of India Act 1935 first introduced that provision in India in conjunction with the privileges and powers that are enjoyed by Parliament, the House of Commons in Britain.
- A first version of the Constitution also contained a mention of the House of Commons, but it was later removed.

Parliamentary Privileges

- Privileges granted to Parliament are a special privilege exempts, immunity and privileges enjoyed from Parliament's both Houses as well as their committees and members.
- These rights are outlined by Article 105 in the Indian Constitution. In Article 105, the Indian Constitution explicitly refers to two privileges, which is, the right to speak freely in Parliament, and the right to public disclosure of the sessions.
- In addition to the rights stipulated within the Constitution The Code of Civil Procedure, 1908, allows protection from detention and arrest of individuals under civil procedure.
- The privileges can be claimed only when the individual is an active member of the house. When a person ceases being a member, the privileges will be revoked.
- This immunity is extended to non-members too, such as the Attorney General of India or Ministers who are belong to the House but not be, yet is a speaker within the House.
- Parliament hasn't passed any specific law to comprehensively make a list of all the rights. They are built on five sources:

Constitutional clauses

- Many laws are passed by the Parliament
- Rules of both houses
- Conventions of the Parliament
- Interpretations of the judiciary.

Freedom of Speech in Parliament:

- The freedom of expression and speech granted to citizens in article 19(2) is distinct in comparison to the right of expression and speech given to members of parliament.
- It was granted under the Article 105(1) in the Indian constitution. However, the freedom is dependent on rules and orders that regulate the work of the legislature.

Limitations:

- The freedom of speech must be in line with constitution and Important for subject to the rules and procedures of the parliament as stipulated in the Article the 118th article of the Constitution.
- In accordance with Section 121, Articles 121 and 121-I of the Constitution The members of parliament are not allowed to discuss the conduct of justices of the Supreme Court and the High Court.
- Freedom from Arrest
- Members are free to be detained in civil cases for forty days prior to and after an adjournment of the house, and in addition, when they are in the session of their house.
- A member cannot be detained within the confines of parliament without the approval of the chamber to which he belongs, in order to ensure that there is no obstruction in the performance of their duties.
- If detention of any lawmakers is imposed by the chairman or speaker must be informed by the relevant authority of the reason behind the detention.
- However, a member may be detained outside of the boundaries of the house on charges of criminality against him in accordance with the Preventive Detention act, the Essential Services Maintenance Act (ESMA) or the National Security Act (NSA) or any similar law.

SC Observation:

- A five-judge Bench of an Apex Court decided that the normal law could have no application to taking of a bribe from an MP in the context of the conduct of parliamentary hearings.
- "Broadly interpreted, as we think it should be, Article 105(2) protects a Member of Parliament against proceedings in court that relate to, or concern, or have a connection or nexus with anything said, or a vote given, by him in Parliament," the court ruled, giving an additional scope to the protection provided under Article 105(2).
- On July 20, 2021 The Supreme Court rejected Kerala government's request to withdraw criminal proceedings against its MLAs, who were indicted during the assembly.
- The Supreme Court ruled that Parliamentary privileges aren't Access to Immunity, and legislators who commit general disorder and vandalism cannot claim immunity from prosecution and privileges granted by the parliamentary system. from prosecution.

Right to Prohibit the Publication of Proceedings:

- In Article 105(2) in the Constitution No person is held accountable for the publication of any report or discussions. of the house that is under the authority of any of the houses of parliament.
- In order to ensure national significance It is vital that the events be disclosed to the public to inform them of what's happening in the Parliament.

Household privileges: house:

- Many privileges, including independence within the House, power to sanction for contempt in cases of a violation of the privileges as well as outside interferences from strangers, the right to speak freely during debates, as well as the ability to pass resolutions expressing the views of the members in the public's interest rules-making authority, etc. are available to all members of the House as a whole.

Topic 33. CAN'T ASK COLLEGIUM TO RETHINK DECISION WHILE APPLYING JUDICIAL REVIEW: SC

Important for subject: Polity

Supreme Court said on Friday while stating that it could not reverse the decision or ask its collegians to reconsider their decision about nomination of judges, it was able to exercise its the power of judiciary review.

- The apex court that was on February 7, refusing to hear two petitions to stop Lekshmana Chandra Victoria Gowri from taking oaths to be an extra judge in the Madras High Court, on Friday, it gave reasons why it had dismissed the appeals.
- The court held that the issue of as to whether or not Ms. Gowri was "fit" to judge was beyond the realm of the judicial review.
- The inquiry of whether someone is qualified to serve as a judge is primarily based on the issue of fitness and is exempt from the scope of judiciary review as it is stated.

Question of Eligibility and Suitability

- The Court distinguished between 'suitability' and the 'eligibility' of candidates before they zeroed in the Judgeship in the High Court.
- The eligibility criteria was "objective factors" given in Article 217 (2) of the Constitution like citizenship and ten years of experience as an officer of the judiciary or an attorney in the High Court.
- A candidate's suitability was the Important for subject that of the Collegium as it was a process "designed to test the fitness of a person, including her character, integrity, competence and knowledge".
- This element of suitability is not important for subject to the jurisdiction of judiciary review.

Judicial Review:

- It is a kind of court procedure where a judge evaluates the legality of a decision or decision made by a public entity.
- In the sense that the judicial review is a contest to the manner in the manner in which a decision is taken, not the right and wrongs of the conclusion that was reached.

Concepts of Law:

- Procedure established by law It is the case that a law that was passed either by the legislature, or responsible body is valid only in the event that the procedure is correct and was strictly followed.
- Due Process of Law: It is a law that doesn't just determine whether there's an act that would deprive the liberty and life of a person, but it also makes sure it is to be fair and fair.
- India follows the procedures established by law. It is the authority exercised on the court of the nation to scrutinize the actions of the legislative executive and administrative arms of the government, and to make sure that their actions are in line with the laws of the nation's Constitution.
- Judicial review serves two crucial purposes, such as legalizing government actions and defense of the Constitution against unjustified encroachment of the government.
- Judicial review is regarded as to be a fundamental element within the constitutional framework (Indira Gandhi vs. Raj Narain Case 1975). Judicial review can also be described as the interpretive and observer functions that are performed by judiciary in Indian judiciary.
- Suo Moto cases and the Public Interest Litigation (PIL) along with the abolition from the concept of Locus Standi has allowed the judiciary to get involved in a variety of public matters regardless of whether there is no formal complaint from the party who was harmed.

Types of Judicial Review:

- Review of Legislative Actions: This review is a way of ensuring that the laws passed by legislature are in accordance with the requirements in the Constitution.
- Review of Administrative Acts It is a method to enforce constitutional discipline on administrative bodies while exercising their power.
- Revision of Judicial Decisions Review of Judicial Decisions used to rectify or modify previous decisions of judges themselves.

Topic 34. 'VIRGINITY TEST' ON ACCUSED UNCONSTITUTIONAL

Important for subject: Polity

A Delhi high court decided that conducting a "virginity test for a female suspect or detainee is unconstitutional, and inhumane, as well as a breach of Article 21 of the Constitution.

- This is not the only way that a test compromise the integrity of a woman's body as the court stated that it could also cause an ongoing psychological effect on the woman.

Virginity Test

- The Virginitytest or two-finger test performed by a doctor is a test of her vagina to determine whether she's used to sexual encounters.
- The practice is not scientificand doesn't provide any specific facts. Furthermore, the information is not relevant to the allegations of sexual assault. Someone who is sexually assaulted goes through medical exam to ascertain her health and medical requirements and the collection of evidence and more.
- A guidebook published in the World Health Organization (WHO) for dealing with sexual assault victims states "There is no place for virginity (or 'two-finger') testing; it has no scientific validity."

What are the guidelines of the government?

- Following the 2013 Justice Verma Committee report on changes to the criminal lawfor an expedited trial and a more severe punishment for sexual assault cases The Union Health Ministry brought out detailed guidelines for medical exam for victims of assault at the beginning of 2014.
- In accordance with the guidelines, the "two-finger test," is not a valid method of to establish rape or sexual violence. The guidelines stipulate that the consent of a victim of rape (or her guardian'sconsent, when she is a minor or has a mental disability) is essential to undergo any medical examination. Even if consent was not given the victim is not refused medical treatment.
- But, they are only guidelines and not legally in force.

Topic 35. NATIONAL FINANCIAL INFORMATION REGISTRY

Important for subject: Economy

National Financial Information Registry is intended to accelerate the process of removing credit sanctions and loan sanction by giving lenders a 360 degree' view of potential borrowers, Reserve Bank of India (RBI) Governor Shaktikanta Das told.

- National Financial Information Registry Finance Minister Nirmala Sithraman in her Budget 2023 speech declared that the government would establish the National Financial Information Registry to be an important repository of financial and other information.
- This will allow for a smooth transfer of funds and loans and encourage financial inclusion as well as increase the stability of financial markets.
- A lot of details are required by banks before the loan can be approved.
- The goal is to make one registry so that it will offer an all-encompassing information system which is accessible to institutions lending toto ensure that it speed up the flow of credit.
- The RBI has already created a draft bill, which is being discussed in a post-budget discussion.
- The goal is to create an infrastructure that is public for credit-related data and information that will be available through the NFIR to lending institutions.

Topic 36. INDUSTRIAL OUTPUT RISE MODERATES TO 4.3 % – IIP

Important for subject: Economy

The country's manufacturing growth decreased to 4.3 percent in December, down from 7.3 percent in November 2022. This is mostly due to a weak production in the manufacturing industry according to data from the official.

- However the data showed improvement on a per-year basis as the increase in output of factories calculated as regards to the Index of Industrial Production (IIP) was 1 percent at the end of December 2021.

Index of Industrial Production (IIP)

- The Index of Industrial Production (IIP) is an index that measures the rates of growth for different sectors of the economy over the same time frame.

- It is collected and released each month by the National Statistical Office (NSO), Ministry of Statistics and Programme Implementation.

IIP is an indicator for composites that measure the rate of growth for the industries classified under:

- The broad sectors Manufacturing, Mining and Electricity.
- Sectors based on use Basic Goods, Capital Goods, and Intermediate Goods.
- Base Year for IIP is 2011-2012.

About Eight Core Sectors:

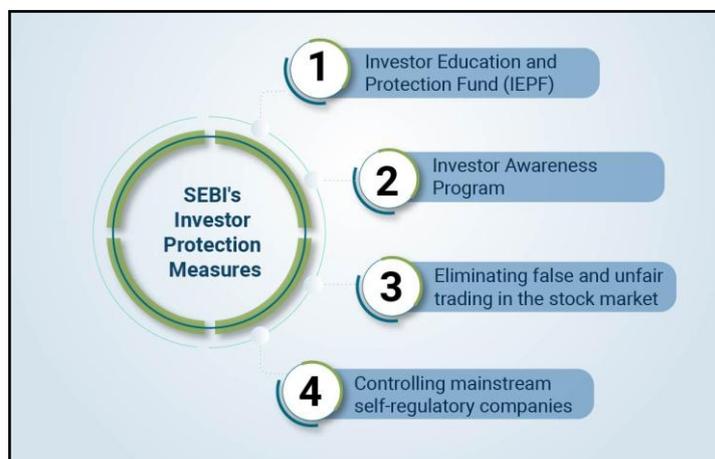
- They account for 27 percent of the weight of the items within the Index of Industrial Production (IIP).
- The eight main sectors in order of importance Refinery Products > Electricity> Coal> Steel> Crude Oil Natural Gas Cement> Fertilizers.

Significance of IIP:

- IIP is the sole measure of the physical production volume.
- It is utilized by various agencies of the government, including government agencies like the Ministry of Finance, the Reserve Bank of India, etc., to make policy decisions.
- IIP is still extremely relevant to the calculation of annual and forecast GDP estimates.

Topic 37. INVESTOR EDUCATION AND PROTECTION FUND – SEBI

Important for subject: Economy



Investor Education and Protection Fund (IEPF) was created by the Securities and Exchange Board of India Act 1992.

- The amount of contributions to SEBI, contributions made by SEBI as well as grants and donations made towards the Fund by the Central Government, State Government or any other organization that has been that is authorized for this purpose etc ., are required to transfer to IEPF.
- The Fund will be used to ensure the protection of investors as well as promotion of awareness and education of investors in line with SEBI rules.
- The Fund can also be used to distribute money in instances where SEBI decides to pay an restitution payment to eligible and identifiable investors who suffered losses in violation of securities laws. It will being used solely for the purpose of this repayment.

The Advisory Committee of the fund

- SEBI is expected to establish an advisory committee to recommend actions to educate and protect investors which can be carried out in-person by SEBI or by any other agency for use with the Fund.
- The Committee will consider actions to educate and protect investors taking into consideration the purpose and then submit its recommendations to SEBI.
- Review of Legislative Actions: This review is a way of ensuring that the laws passed by the legislature are in accordance with the requirements that are in accordance with the Constitution.
- Review of Administrative Acts The purpose of this is to enforce constitutional discipline over administrative agencies, while they exercise their authority.
- Revision of Judicial Decisions Review of Judicial Decisions used to rectify or modify previous decisions of judges themselves.

Topic 38. WITHOUT CONSIDERING GREEN GDP, THE BUDGET'S CLAIM OF GREEN GROWTH IS WEAK

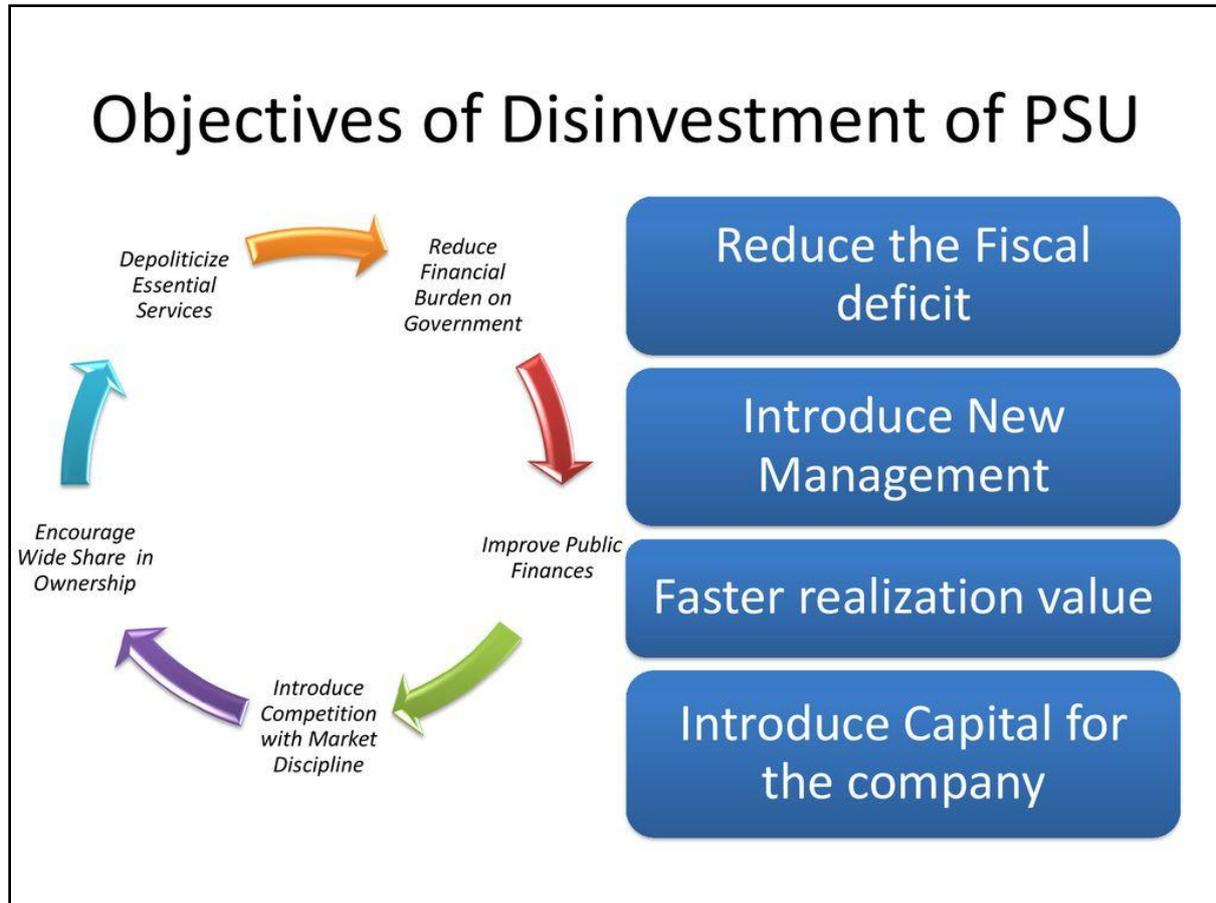
Important for subject: Economy

The Kashmir Himalayas of India Scientists have found that railway and roads expansion are a key factor in the spreading of invasive plants farther into mountains.

- The study shows "consistent increases" in the quantity of exotic plant species, as well as the rapid expansion into higher elevations over the years 2007 to 2017.
- The number of plants studied across all one of these regions increased by a average of 16 percent over the past 10 years. In addition, in 10 of the eleven mountain regions investigated and surveyed, species are located in higher altitudes than they were ten or five years earlier.
- A majority of non-native plants are influenced by disturbances caused by human activity. In mountainous areas roads offer pathways and points of entry to spread, which implies that a lot of non-native species reside in habitats affected due to roads. Roads also provide efficient methods of testing different elevation zones.
- Climate changes can "almost certainly" increase the possibilities in higher-altitude areas to support a variety of non-native species, therefore, will increase the potential for expansion.
- Invasive daisies, such as those of the Ox-eye daisy have been found in various regions that were examined in the research including those in the Kashmir Himalayas.
- About 50% of the plants that invaded the Hindu Kush Himalaya (HKH) region were introduced by accident. Most countries in the Hindu Kush Himalayan region aren't able to make laws and policies to control invading species since it's not an urgent conservation issue.

Topic 39. THE STATUS AND PROCEEDS OF DISINVESTMENT

Important for subject: Economy



The Union Budget for 2023-24, the government has announced an investment goal in the amount of Rs 51,000 crore dropping about 21% below the budget forecast of the year just. This is also the smallest goal in seven years.

Background

- It has not yet achieved the targets for disinvestment for 2022-23 so yet and has realised a total of up to Rs 31,106 crore.
- In the recently released Economic Survey report, approximately Rs 4.07 million has been made available through disinvestments over the last 9 years. After 2014, the government has begun to engage directly with businesses to be an equal partner in the process of development.
- As of now, various central governments in the past three decades have managed to meet their annual disinvestment goals just six times.

Disinvestment

- Disinvestment or divestment is the sale of assets of a subsidiary, like a Central or State-owned public sector company through the state.
- Three primary ways to dispose of your investment, which comprise:
- minority investment: The government, despite returning to disinvestment, still holds majority stakes of the company that are usually more than 51 percent.
- In the case of minority investment, the government has control over management.
- Majority disinvestment In the event of a majority disinvestment the government transfers control to the entity that acquired it and holds a small stake.
- Full privatisation when it comes to total privatisation, all of the authority of a public body passes to an acquirer entity.
- The Department of Investment and Public Asset Management (DIPAM) is a separate department working under the Union Finance Ministry which looks after disinvestment-related procedures.

Evolution of Disinvestment in India

- The process of disinvesting in India started in 1991-92, when 31 of the PSUs were disinvested at a cost of the sum of Rs. 3,038 crores.
- The term "disinvestment" mentioned for the first in the Interim Budget 1991. Then, the Rangarajan committee in 1993 emphasized the necessity of a substantial amount of disinvestment.
- The policy of disinvestment gained momentum when the brand new Department of Disinvestment was established in 1999. It evolved into an official Ministry by 2001. In 2004, however the ministry was shut down and amalgamated into the Finance ministry. It was an autonomous department.
- In the following years, the Department of Disinvestments was renamed as Department of Investments and Public Asset Management (DIPAM) in the year 2016. The department is now DIPAM serves as a nodal department for the disinvestment process. Current Disinvestment Policy
- It is clear that the new plan demonstrates the difference between disinvestment and privatization. If the sale of equity that is that exceed 50%, perhaps even 100%, constitutes privatization, any alteration here and there amounts to disinvestment.

- The previous attempts at large-scale sales of shares have often been entangled in controversy and as the result bureaucrats have developed abhorrence to strategic sales.
- As a correction to the course in a course correction, the current disinvestment strategy allows for the valuation of land at market value to be included as a part of sales. This helps to limit the possibility of rent-seeking, and also reduces the discretionary power of government and allows officials to end the status existing system.
- NITI Aayog was assigned to develop new ideas for loss-making units that could be transferred, their assets valued and sold off, and to execute potential strategic sales.
- Financial metrics of public sector firms like borrowings and operating profits are being closely scrutinized to find out if there is a possibility of share buybacks, which is a unique method of disinvestment that the government has come up with.

What CPSEs could be sold in 2023-23?

- According to DIPAM the Government has made a decision to continue with the previously announced and planned privatization of state-owned businesses.
- They are IDBI Bank, the Shipping Corporation of India (SCI) as well as The Container Corporation of India Ltd (Concor), NMDC Steel Ltd, BEML, HLL Life care and others.
- The divestitures from Bharat Petroleum Corporation Limited SCI as well as ConCor have been approved by the government in the year 2019 but they haven't gone through yet.

Topic 40. MOVEMENT TO GET HORIZONTAL QUOTA FOR TRANSGENDER PEOPLE

Important for subject: Governance

The government of India made clear in a statement in the Parliament that it was not looking into any proposals for quotas for transgender people.

- This decision has been widely criticised by academics, activists and lawyers who fight to protect the rights of transgender people.

Background

- Nearly nine years have passed since the Supreme Court's important National Legal

Services Authority (NALSA) decision that declared transgender individuals to be third-gender people and issued instructions to ensure the rights of and respect for their dignity and public education for trans people, the campaign to ensure equality in employment and horizontal reservation is growing in strength.

- The case involves a legal dispute in which the plaintiffs seek to change one aspect of the landmark 2014 decision.
- The ruling directed the federal and state government to provide "all forms of reservation" for transgender individuals in their the admission process to schools as well as employment, but it was not being enforced.
- However, as the decision demands that trans persons be regarded as 'socially and educationally backward classes' that could mean mixing them in with OBCs. In addition, the trans community is insisting that distinct trans reservations be guaranteed in all categories.

About Horizontal Reservation:

- Horizontal Reserve refers to equal opportunities offered to different categories of beneficiaries like veterans, women, transgender community and those with disabilities, cutting through the vertical distinctions.
- The proportion of reservation allocated to Horizontal reservations must be adjusted in relation to the proportion of SC/ST or OBC and general categories of vertical reservation.
- It's also known as interlocking reservation. Article 15(3) allows discrimination protection to women.

Application of Reservations:

- The horizontal quota applies in a separate way in each vertical section and not all at once.
- For instance if women have 50 percent of the horizontal quota, 50% of the candidates selected will need to be females in each vertical category that has quotas, i.e. half of all the chosen Scheduled Caste candidates have to be female, and half of those in the unreserved or general category have to be female and so on.

Topic 41. SACHAR PANEL REPORT

Important for subject: Governance

The Rajya Sabha on Friday took up a privately-sponsored resolution urging that the state government take action on its recommendations from Sachar Committee Sachar Committee and other reports which have addressed the issue of education and social disadvantages that are prevalent in members of the Muslim community.

Sachar Committee

- Sachar Committee Sachar Committee was a seven-member High Level Committee in India created in March of 2005. The committee was led by the former Chief Justice of the Delhi High Court Rajinder Sachar.
- The objective for the commission is to examine the educational and socioeconomic status that members of the Muslim group in India. The information available about religion was beneficial in highlighting the deprivation of minorities.
- The report identified the variety of handicaps faced to members of the Muslim group. It classified Indian Muslims below Scheduled Castes and Scheduled Tribes for reverse.
- It also highlighted the massive gap between the proportion of Muslims in the general population and in the decision-making positions like IAS and IPS. IAS and IPS It also revealed the low participation of Muslims within the police.

The main suggestions of the panel

- The Committee offered a variety of recommendations to improve the situation that the Muslim group in India which included: Establishing the Equal Opportunity Commission' investigate complaints of groups that are disadvantaged, such as minorities.
- Create a nomination process in order to boost representation of minorities in public institutions. Create a delimitation process that does not exclude areas with a large minorities population to SCs.
- The percentage of people employed by Muslims Particularly in areas those who do a good amount of public trading. Develop mechanisms to connect madras as and board of higher secondary schools. Recognize the madras as' degree to be eligible for

defence exams, civil and banking.

Private Members Bill /Resolution

- Any member of the Parliament (MP) who isn't ministerial is known as private members.
- Its writing is the obligation of the person who is responsible. The introduction of the bill to the House of Representatives requires a month's advance notice. While the government bill requires seven days in advance.
- The public and government bills can be debated and presented at any time, while private member's bills are presented and discussed only on Fridays.
- If there are multiple Bills A ballot system is employed to determine the sequence of bills to be introduced.
- The Parliamentary Committee on Private Member's Resolutions and Bills goes through all resolutions and bills and ranks them according to their importance and urgency. The decision to reject them by the House is not a reflection on the confidence of the House in the government or on its decision to resign.
- 14 bills from private members -five of them presented in Rajya Sabha and have been passed into law up to now.

Topic 42. BLOOMBERG GENDER EQUALITY INDEX

Important for subject: Governance

Bloomberg has chosen 484 companies to be included in their 2023 Bloomberg Gender-Equality Index (GEI) out of a pool of more than 600 companies, in an acknowledgement of the progress they've made in the promotion of gender equality and implementing diversity-related policies.

- Nine Indian businesses have made it to the Index. The 600 plus companies that participated provided gender-related information through what is known as Gender Reporting Framework.

Gender-Equality Index

- The Gender-Equality Index (GEI) is a modified market capitalization-weighted index that aims to track the performance of public companies committed to transparency in

gender-data reporting.

- In publically releasing comprehensive similar, comparable and consistent gender-related data, the companies listed within Bloomberg's Bloomberg Gender-Equality Index are setting an entirely new standard in data disclosure.
- The range of GEI member information is accessible for the investing community through Bloomberg Terminal. Bloomberg Terminal.
- It contains disclosures from more than 600 businesses, across both developed and emerging markets, with a an amount that is far greater than the number of data points provided by other sources.

Topic 43. PM- ABHIM

Important for subject: Government Schemes

World Bank has approved \$1 billion of loans to the Pradhan Mantri Ayushman Bharat Infrastructure Mission (PM ABHIM).

- The loan agreements were agreed to increase PMABHIM which was inaugurated on the 25th of October 2021. The loan will cost of around Rs 64180 million (till the FY of 2025 and 26)to strengthen healthcare infrastructure across the nation.

PM-Ayushman Bharat Health Infrastructure Mission

- The scheme is aimed at strengthening the health infrastructure throughout the country. Its goal is to make up for the deficiencies in the public healthcare infrastructure particularly in hospitals for critical care as well as primary care facilities in rural and urban regions.
- In this way, critical care services will be accessible in every district of the nation with greater than five lakh people through exclusive hospital blocks. The rest of the districts are covered with referral services.
- It will support 1778 Rural Health and Wellness Centres across 10 states with a high focus and create 11,024 urban Health and Wellness Centers across the country.
- Patients can be able to have access to a complete variety of diagnostic services through the healthcare system of the public by way of an extensive network of laboratory facilities throughout the nation.
- Integrated public health laboratories will be established across every district providing

people with accessibility to "a full range of diagnostic services" via an extensive network of labs all over the country.

- All public health laboratories will be linked through this Integrated Health Information Portal, which will then be extended across all states as well as UTs.
- IT-enabled surveillance program will be developed through a network of surveillance labs at district, block regional and national levels.

Institutions to be established in the frame work of:

- In the framework, there will be the scheme will create a nationwide institution to promote one health and 4 new nation-wide institutes of the study of virology as well as the regional Research platform and a regional WHO(World Health Organization) and a regional research platform for WHO (World
- Organisation) South East Asia Region, nine biosafety level-III laboratories and five regional national centres for disease prevention and control will be established.
- Biosafety Level 3: The pathogens that pose grave health risks. They are working under biosafety levels 3.

Topic 44. INDIA MOVES TO 5TH PLACE IN GLOBAL RANKING OF ACCREDITATION SYSTEMS FOR QUALITY

Important for subject: Government Schemes

India is in the fifth position of 184 nations according to their accreditation systems, as per the newly released Global Quality Infrastructure Index (GQII) 2021.

Global Quality Infrastructure Index (GQII)

- GQII is an initiative on metrology, standardization, accreditation and related services, supported by Physikalisch-Technische Bundesanstalt (PTB) and the Federal Ministry for Economic Cooperation and Development (BMZ), Germany.
- The GQII evaluates 184 countries by their high-quality infrastructure (QI). QI is the backbone of technology for international trade, and includes standards, metrology accreditation, conformity assessment and standardisation services that ensure trust and reliability among trading partners.
- The GQII evaluates the development rate of nations QI.

- GQII rankings are published. GQII rankings are released and released post-facto each year based upon the information that was collected up to the end of the year.
- Indian Performance's overall QI system rank remains at the tenth.
- In the Index, India is ranked at 21 in metrology, and 9th in standardization.
- Quality Council of India (QCI) is the body that serves as the national authority for accreditation. Bureau of Indian Standards (BIS) is the primary organization for the formulating standards as well as it is also the Council Of Scientific And Industrial Research The Council Of Scientific And Industrial Research National Physical Laboratory (CSIRNPL) to manage the metrology system.

Accreditation process

- Accreditation is a way to establish the credibility and competence of the conformity assessment bodies that test, certificate and inspection.
- It is the nation-wide accreditation scheme as according to the international standard in India is set up in QCI. QCI.
- The system is managed by the bodies that make up QCI and includes those that are the National Accreditation Bodies for Certifications which grants accreditation to certification, inspection and validation/verification organizations as well as the National Accreditation Board for Testing and Calibration Laboratories that grants accreditation to testing medical, calibration and testing laboratories.

Topic 45. ASSAM CRACKDOWN ON CHILD MARRIAGE – WHAT DOES THE LAW SAY

Important for subject: Government Schemes

The Assam Government has arrested over 2500 men as part of a nationwide campaign to stop child marriages.

- The Chief Minister Himanta Biswa Sarma said that the police will be able to retrospectively arrest anyone who was involved in child marriage within the last seven years.
- Assam has a high incidence of infant and maternal deaths which is attributed to child marriage as the main cause, as reported from the National Family Health Survey

(NFHS).

Men are arrested for what law?

- The men who marry girls younger than 14 years old would be slapped under the laws of
- Protection of Children from Sexual Offences Act 2012 (commonly known as the POCSO Act). It is the POCSO Act criminalises sex between two minors and adults.
- The law doesn't consider a minor's consent to be legitimate. However, anyone who marries girls between the ages of 14-18 years old would be convicted in accordance with the Prohibition of Child Marriage Act (2006).

The Protection of Children from Sexual Offences (POCSO) Act:

- The POCSO Act was passed in 2012. It makes sexual sex illegal between the ages of a minor and an adult. It's a gender neutral act and acknowledges that boys may be victims of sexual assault too.
- The definition of a child is an individual who is less than 18.
- The law doesn't consider a minor's consent to be legitimate.
- Section 19 under the POCSO Act imposes the "mandatory reporting obligation" that requires everyone who suspects of a sexual offense committed by children to notify authorities or the Special Juvenile Police Unit. If they fail to report it, it can be punished with imprisonment, a fine, or both.
- The reporting requirements require doctors to document instances in which minor girls need medical assistance during pregnancies..

Prohibition of Child Marriage Act 2006:

- The law states that children's marriages are illegal but they are not invalid. They are not void unless the minor spouse seeks a declaration from the court that declares the marriage null and void.
- The Act sets 18 years as the minimum age to marry for women, whereas for males, it's 21 years old.
- The Act is punishing child marriages with imprisonment, which can last up to two years or the possibility of a fine that could go up to 1 lakh rupees or both. The law also punishes any person who conducts any child-related marriage.

- The debate about how old to marry in Muslim legal age for marriage in the personal law of marriage:
- According to Muslim personal law, the wedding of the bride who is at puberty is valid. Puberty is considered complete at 15 years old. The age gap provision in Muslim private law, and the special law that bans child marriages, or sexual activities of minors, deeming it an offence that is criminal.

Judiciary's Opinion:

- The Supreme Court is currently examining the issue because different High Courts have had different opinions regarding it. In January 2013 Karnataka High Court ruled that Karnataka High Court ruled that the Prohibition of Child
- Marriage Act will have an influence over the laws in Muslim law regarding personal conduct.
- Recently, the Punjab and Haryana High Court in a series of decisions has ruled that an Muslim girl is legally married when she reaches puberty.
- In October 2022, Karnataka High Court quashed a POCSO case against the case of a Muslim man.
- He was arrested when the hospital required disclosures as required by law when his wife aged 17 years and two months, visited the doctor.

Central Government's Opinion:

- In 2021 the Central government wanted to implement The Prevention of Child
- The Marriage (Amendment) Bill 2021, to increase the manageable age for women of all religions from 18 to 21.
- The panel of Parliament investigating this issue is still to report after having been granted an extension in the month of October 2022.
- Ministry of Women & Child Development in the year 2020 had established an advisory committee chaired by Jaya Jaitly to examine the question.
- The committee presented a report which recommended that the married age for women should be raised by a minimum of 21 to 18 years old in light of other factors such as reproductive health, education, etc.

Topic 46. KENYA SEEKS DIVINE HELP TO END CRIPPLING, ONGOING DROUGHT

Important for subject: International Relation



With the possibility that we will have a 6th consecutive rainy season in the East as well as the Horn of Africa, Kenya's president is hoping that the heavens will open up by instituting an National Day of Mass prayer on Tuesday.

- The U.N. humanitarian agency has called the ongoing regional drought as a "rapidly unfolding humanitarian catastrophe."
- William Ruto announced the plans for Kenya's very first day of prayer this Sunday at an event in the city of Nakuru located about 100 miles (160 kilometers) from Nairobi.
- It is a response to a request by the nation's spiritual leaders to devote all day of prayer to help alleviate drought-related conditions across the country.

Concept:

- Kenya and the other east African nations are experiencing some of the most severe drought conditions since the past few years which has led to the loss of crops, livestock as well as biodiversity and wildlife, and the malnutrition.
- Agriculture in Kenya is a significant component of the Kenyan economy.

- The Intergovernmental Authority for Development's climate center stated that, since the year 2020, five of the rainy seasons have not been successful, which has affected more than 50 million people.
- The center will publish its forecasts for the prolonged rains season, usually between March and May after February. The early projections of other meteorological groups aren't positive.

Drought

- Drought is a prolonged dry season within the natural cycle of climate that is possible to experience everywhere in the world.
- It's a slow-onset natural disaster characterised by the absence of precipitation. It also causes an acute water shortage.
- In the last few decades the drought has become one of the main causes of loss of life and economic losses in natural disasters caused by weather.
- In 2030 or over the next eight years the threat of drought could force out around 700 million people around the world.
- Africa is the most impacted of the disaster, in addition to East Africa is reeling under the worst drought in the past four decades.

Classification:

- **Meteorological Drought** It is the case when there is a drop in rainfall for a certain period of time below a particular amount.
- **Hydrological Drought** It is defined as the result of deficiencies in the subsurface and surface water supply which result in a shortage of water to meet regular and special requirements.
- This is true even during times of average (or over average) precipitation, when the increased use of water depletes the water reserves.
- **Agriculture Drought/Soil Dryness:** It is identified with low soil moisture due to meteorological droughts and climate variables and their impact on agricultural production as well as economic viability.
- **Ecological Drought** When the effectiveness of an ecosystem is reduced due to a shortage of water or because of ecological stress, damage is caused to the ecosystem.

Inter-Governmental Authority on Development (IGAD)

- The Inter-Governmental Authority on Development (IGAD) was established in the year 1996 to take over the Intergovernmental Authority on Drought and Development (IGADD) which was established in 1986.
- It is a multi-national organization founded by East African countries. I.E. Djibouti, Ethiopia, Somalia, Sudan, Uganda and Kenya. Its headquarters is in Djibouti.
- The Assembly of Heads of State and Government is the the highest level of decision creating of the Authority which sets the goals programs, guidelines and guidelines for IGAD.
- The Secretariat: It aids states that are members of the Council in forming regional projects within the most important areas, assists in an integration and coherence of policies for development helps mobilize resources to develop regional programs and projects that are approved from the Council.
- It helps strengthen national infrastructures to implement regional plans and policies.
- It is supervised by the Executive Secretary.

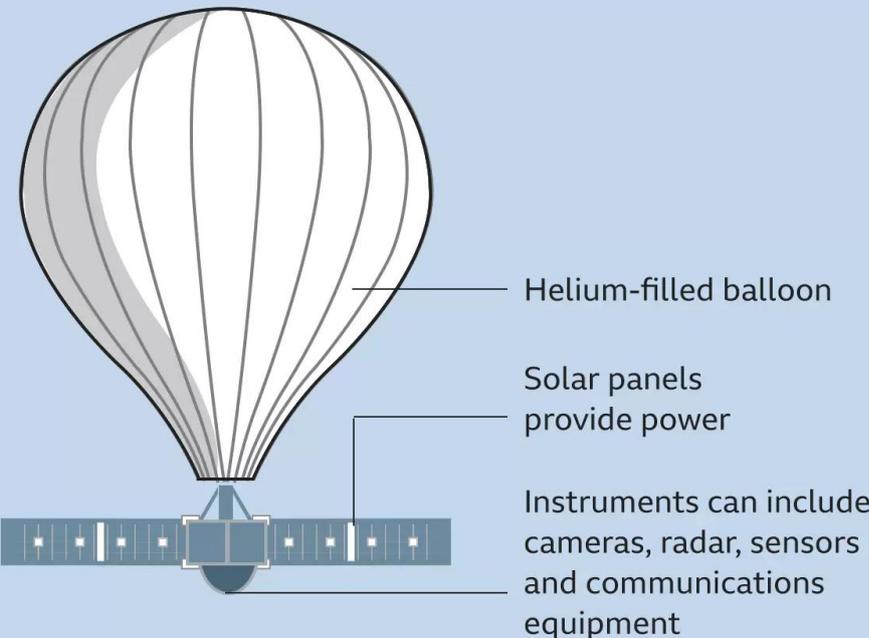
The Council of Ministers:

- It is composed of Ministers for Foreign Affairs, and another Minister appointed by each state member. It decides on policy, and imposes sanctions on the work program, and the annually budgets for the Secretariat during its semi-annual sessions.
- The Committee of Ambassadors:
- It is comprised of IGAD ambassadors from member states or Plenipotentiaries who are accredited in the respective country to which they belong. IGAD. It meets as often as necessary to assist and advise the Executive Secretary.

Topic 47. SURVEILLANCE BALLOON

Important for subject: International Relations

High altitude surveillance balloons



Helium-filled balloon

Solar panels provide power

Instruments can include cameras, radar, sensors and communications equipment

How high do they fly?

120,000ft (37km)	-----	Surveillance balloon
80,000ft (24km)	-----	
65,000ft (20km)	-----	Fighter aircraft
40,000ft (12km)	-----	Commercial airliners

The United States shot down a Chinese surveillance balloon that flown across American airspace for a few days, sparking another diplomatic crisis in already growing tensions between the two world's largest superpowers.

Purpose of Sending the Balloon:

- China has long complained about US surveillance of aircrafts and ships that are based near the territory of its own, leading to occasional disputes in the past. According to China the balloon was intended for research, but it veered off course.

The balloon de spies:

- About a decade and a half after the first hot air balloon flew with humans balloons were already employed for military use.
- In the French Revolutionary Wars in the latter half of the of the 18th century, balloons would be utilized to give a bird's-eye perspective of the battlefield and there is instances of them being used during the Battle of Fleurus in 1794.
- Since they were first invented balloons have been used for all sorts of conflict all the way from to the American Civil War to World War I.
- Over 100 years, long before aviation technology truly took off, it was the Great
- In the war, balloons were the most common method of large-picture reconnaissance, giving a clear view of the movements and positions of enemy forces that were impossible to observe from the ground.
- In World War II, as technology advanced and balloons were able to be raised to higher elevations and their usage grew too.
- For example The Japanese military attempted to launch explosive bombs in US territory by using balloons made to flounder within jet stream flow.
- Following the war in the late 1990s, the US military began exploring the possibility of using high-altitude spy balloons. This led to an extensive series of missions known as the Project Genet.
- The project launched photographic balloons over Soviet bloc territory during the 1950s, a period prior to the widespread use of surveillance satellites we use in the present.
- While their use has diminished because of the proliferation of satellites and drones that are unmanned some countries still use surveillance balloons.

How relevant are balloons from high altitude to us today?

- While modern aeroplanes and drones have decreased the importance of balloons that fly high in the air for military purposes but they remain an important position.
- Contrary to satellites that can take millions to construct and require sophisticated technology for launch, high-altitude balloons are inexpensive and simple to control and launch.
- Although balloons aren't directly guided, they are somewhat guided towards a desired

region by shifting altitudes to take advantage of different wind directions

- In addition, unlike satellites that have higher altitudes, and are moving at an incredible speed they are in a position to hover at lower elevations, giving better quality pictures and a longer time to collect information in the area of interest.

Topic 48. SUB SAHARAN AFRICA IS THE NEW EPITOME OF EXTREMISM

Important for subject: International Relations

The latest global epicenter of violence Islamic extremism is in Africa sub-Saharan, where more people are joining due to economic considerations and not so much for religious reasons according to a report released by the United Nations' international development agency.

- A substantial increase in 92% new members of extremist groups are coming to better lives as when compared with the motives of those who were interviewed in a report that was released in 2017 as per the Journey to Extremism in Africa Methods to Recruitment and Disengagement released by the United Nations Development Programme (UNDP).
- This region on Africa African continent situated to the south of the Sahara Desert is known as sub-Saharan Africa United Nations Development Programme (UNDP)
- The United Nations Development Programme (UNDP) is the United Nations' global development network which aids in developing local and national capacities to reach human development as well as to achieve the Sustainable Development Goals.
- UNDP's efforts are focused on three major priority areas Sustainable development, Democratic Governance Peacebuilding and Climate resilience to disasters.
- In all of its work, UNDP promotes gender equality and protects human rights.

What is the relationship between UNDP connected in relation to UN?

- UNDP the way we see it today was created as of 1965, in 1965 by the General Assembly of the United Nations and is headquartered in New York City. base located in New York City.
- UNDP is a participant with an array of 66 "Delivering as One" initiatives which help UN Country Teams to operate more effectively, efficiently and efficiently, while reducing the cost of transactions, while cutting down on duplication while

accelerating common strategies together with joint efforts.

Topic 49. VISITORS RUE LACK OF FACILITIES AT 299-YEAR-OLD JANTAR MANTAR

Important for subject: Art and Culture

After that the Delhi High Court asked the Archaeological Survey of India (ASI) to submit an annual report on the performance of the instruments located at Jantar Mantar, several visitors expressed their displeasure with the absence of facilities at the observatory that dates back to 299 years.

Jantar Mantar:

- In the 18th century's beginning, Maharaja Jai Singh II of Jaipur constructed five Jantar Mantars in total, in New Delhi, Jaipur, Ujjain, Mathura and Varanasi and were completed between 1724 and 1735..
- Jaipur's Jantar Mantar is a collection of 19 astrological tools that were established by Rajput the king Sawai Jai Singh II, the city's founding. In 1734, the memorial was built.
- It has been one of the UNESCO World Heritage site since 2010. It is also home to the largest stone sundial in the world.
- The instruments allow for naked-eye observations of astronomical locations.
- The observatory is a prime example of Ptolemaic theorems of positional astronomy that was extensively used.
- Jantar Mantar, Delhi "Jantar Mantar" is "instruments for measuring the harmony of the heavens".
- It comprises 13 instruments for astronomy that are designed to be architectural.
- The site is among five constructed in the reign of Maharaja Jai Singh II of Jaipur in 1723 and onwards and rewriting the calendar and the astronomical tables.
- The principal function that the observatory served was create tables on astronomy and determine the movements and times of the moon, sun and the planets. Certain of these functions today are classified as an astronomy.
- In 1724, the building was completed. The Delhi Jantar Mantar had decayed substantially by the uprising of 1857.

- The Ram Yantra, the Samrat Yantra, the Jai Prakash Yantra and the Misra Yantra are the distinct instruments used by Jantar Mantar.

Maharaja Sawai Jai Singh II (1693-1744):

- He was an legendary warrior and astronomer. He was elected to the throne when he was the age two after the death of Maharaja Bishan Singh.
- Jai Singh was feudatory to and was a feudatory of the Mughals and Aurangazab gave an honorific title Sawai Jai Singh. Jai Singh, meaning one and a quarter an honor that all of Jai Singh's descendants inherited.
- He was educated by the top experts and teachers in the fields of the fields of science, art, philosophy, and military matters.
- Jai Singh's family tree is traceable back to Kucchwaha Rajput family who was in power in the 12th century.
- He designed Astronomy Observatories in Delhi, Jaipur, Varanasi, Ujjain and Mathura known as the Jantar Mantar. Jaipur has its name derived from his name.

Topic 50. THE CENTRAL HALL

Important for subject: History

It is a location with historical significance.

- Transfer of power at the 14th of August, at midnight 1947, of British hands to Indian hands was carried out within this Hall.
- The Indian Constitution was also framed in the Central Hall.
- Central Hall Central Hall is circular in form and the dome that is 98 feet. (29.87 metres) across is among the most beautiful domes in the world.
- Central Hall Central Hall was originally used for an office for the Library of the erstwhile Central Legislative Assembly as well as that of the Council of States. In 1946, the hall was renovated and transformed to become the Constituent Assembly Hall.
- The Constituent Assembly met there from 9 December 1946 to 24 January 1950. Presently, the Central Hall is used for joint sittings of both Houses.
- The President addresses the nation at the beginning of the first session after every General Election to Lok Sabha and also at the start of the first Session every year the

President addresses the Members of both Houses of Parliament that are gathered inside Central Hall. Central Hall.

- If the House is in Session When the Houses are in Session, the Central Hall is used by Members to have informal discussions among themselves.
- Central Hall Central Hall is also used for special occasions where Parliamentarians will be addressed by distinguished heads of State from other nations.
- The hall is also fitted to accommodate Simultaneous Interpretation System. The hall has been updated with a digital audio system. In the Centre of the Central Hall is the portrait of Mahatma Gandhi, painted by Sir Oswald Birley and donated to the nation by Shri A.P. Pattani, a Member of the Constituent Assembly of India.
- Gilded panels that line the walls and arches that are on the opposite one side of the dais display portraits of these distinguished national leaders:

1. Dadabhai Naoroji
2. Lokamanya Bal Gangadhar Tilak
3. Lala Lajpat Rai
4. Motilal Nehru
5. Pandit Madan Mohan Malaviya
6. Sardar Vallabhbhai Patel
7. Deshbandhu Chittaranjan Das
8. Rabindranath Tagore
9. Smt. Sarojini Naidu
10. Maulana Abul Kalam Azad
11. Dr. Rajendra Prasad
12. Pandit Jawaharlal Nehru
13. Subhas Chandra Bose
14. C. Rajagopalachari
15. Smt. Indira Gandhi
16. Dr. B.R. Ambedkar
17. Dr. Ram Manohar Lohia
18. Dr. Syama Prasad Mookerjee
19. Rajiv Gandhi
20. Lal Bahadur Shastri
21. Chaudhary Charan Singh

22. Morarji Desai

23. Swatantryaveer Vinayak Damodar Savarkar

24. Shri Atal Bihari Vajpayee

- The Hall also has 12 gold-plated emblems in the walls of the Central Hall depicting the 12 provinces of unison India. Within this Central Hall are six Lobbies that are well-covered and equipped. One lounge is reserved exclusively for the female members and one is to serve as a First Aid Post and one for the Panel of Chairpersons of Lok Sabha. Central Hall Central Hall has six Galleries on the first floor. The time was Joint
- The Houses' sittings and the Galleries that are located to toward the left side of the dais are used by journalists, while the one that faces the dais is reserved for guests of a prestigious status. In the other three, guests of Members of both houses are accommodated.

PIONEER ACADEMY



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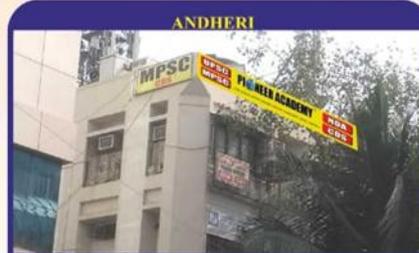
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