

Current Affairs MONTHLY



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**By
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GENERAL STUDIES 1.

GEOGRAPHY

GLACIAL LAKE OUTBURST FLOOD

- **Context:** Recently, a new study has been published on **Glacial Lake Outburst Flood (GLOF)**, which threatens millions of people globally.
- It is the first global **attempt to map potential hotspots for such floods**. The study assessed the conditions of glacial lakes and the number of people living downstream from them, which has also increased significantly.

Key Highlights of the Report:

- **Vulnerability:**
 - Up to 15 million people face the **risk of catastrophic flooding from glacial lakes** which could burst their natural dams at any moment.
 - Those facing the greatest threat live in mountainous countries in Asia and South America.
 - The **majority of the globally exposed population** - 9.3 million (**62%**) are located in the region of **high mountain Asia (HMA)**.
 - In Asia, around one million people live within just 10 km of a glacial lake.
 - People living in India, Pakistan, Peru and China **account for over half of those at risk** (globally).
- **Most Dangerous Basins:**
 - The most dangerous of Glacial basins are found in Pakistan (Khyber Pakhtunkhwa basin), Peru (Santa basin) and Bolivia (Beni basin) containing 1.2 million, 0.9 million and 0.1 million people respectively **who could be exposed to GLOF impacts**.
 - Glaciers across the **Andes (S America)** have **undergone rapid deglaciation over the last 20 years** in response to climate changes.
- **Threat to India:**
 - In the **Himalayas**, 25 glacial lakes and water bodies have witnessed an increase in water spread area since 2009.
 - There has been a 40% increase in water spread in **India, China and Nepal**, posing a huge threat to **seven Indian states and Union Territories**.
 - Of these, **six are Himalayan states / UTs:** Jammu and Kashmir, Ladakh, Himachal Pradesh, Sikkim, Assam and Arunachal Pradesh.
 - The rapid onset and high discharge of GLOFs means there is often insufficient time to effectively warn downstream populations and for effective action to be taken, particularly for populations located within 10-15 km of the source lake.
- **Impact:**
 - The floods that follow come thick and fast, in many cases being powerful enough to destroy vital infrastructure.
 - GLOF has the potential to catastrophically threaten people's lives, livelihoods and regional infrastructure.
- **Suggestions:**
 - Improvements are urgently needed in **designing Early Warning Systems alongside evacuation drills and other forms of community outreach** to enable more rapid warnings and emergency action in these highly exposed areas.

What is a GLOF?

- **About:**
 - A glacial lake outburst flood (GLOF) is a type of catastrophic flood that occurs when the **dam containing a glacial lake fails**, releasing a large volume of water.
 - This type of flood is **typically caused by rapid melting of glaciers or the buildup of water** in the lake due to heavy precipitation or the inflow of meltwater.

- In February 2021, **Chamoli district in Uttarakhand witnessed flash floods** which are **suspected to have been caused by GLOFs**.

- **Causes:**

- These floods can be triggered by a number of factors, including **changes in the volume of the glacier**, changes in the **water level of the lake**, and **earthquakes**.
- According to **NDMA (National Disaster Management Authority)**, **glacial retreat due to climate change** occurring in most parts of the **Hindu Kush Himalayas** has given rise to the formation of numerous new glacial lakes, which are the major cause of GLOFs.

What are the NDMA's Guidelines to Tackle Glacial Burst?

- **Identifying Potentially Dangerous Lakes:**

- Potentially dangerous lakes can be identified **based on field observations, records of past events**, geomorphologic and geotechnical characteristics of the lake/dam and surroundings, and other physical conditions.

- **Use of Technology:**

- Promoting use of **Synthetic-Aperture Radar imagery** (a form of radar that is used to create two-dimensional images) to automatically detect changes in water bodies, including new lake formations, during the monsoon months.

- **Channeling Potential Floods:**

- **Reducing the volume of water with methods such as controlled breaching**, pumping or siphoning out water, and making a tunnel through the moraine barrier or under an ice dam.

- **Uniform Codes for Construction Activity:**

- Developing a broad framework for infrastructure development, construction and excavation in vulnerable zones.
- There is a need to **accept procedures for land use planning in the GLOF prone areas**.

- **Enhancing Early Warning Systems (EWS):**

- The number of **implemented and operational GLOF EWS is very small**, even at the global scale.
- In the Himalayan region, there are at least three reported instances (two in Nepal and one in China) of implementation of sensor- and monitoring-based technical systems for GLOF early warning.

- **Training Local Manpower:**

- Apart from pressing specialised forces such as **National Disaster Response Force (NDRF)**, **ITBP** and the Army, NDMA has emphasised the need for **trained local manpower**.
- It has been observed that over **80% of search and rescue is carried out by the local community** before the intervention of the state machinery and specialised search and rescue teams.

- **Comprehensive Alarm Systems:**

- Besides classical alarm infrastructure consisting of acoustic alarms by sirens, **modern communication technology using cell and smartphones can complement** or even replace traditional alarming infrastructure.

HILL OR CITY, URBAN PLANNING CANNOT BE AN AFTERTHOUGHT

- **Context:** On December 24, 2009, a tunnel boring machine in **Joshimath, Uttarakhand**, hit an aquifer about **3kms from Selang village**. Resulted in the loss of nearly **800 liters of water per second**.

Land subsidence:

- It is the sinking of the ground because of underground material movement.
- **Subsidence can be caused by gradual settling or sudden sinking** of the Earth's surface (National Oceanic and Atmospheric Administration (NOAA, USA)).
- **The causes for subsidence generally are:**
 - **Natural causes** – earthquakes, glacial isostatic adjustment, soil compaction, erosion, sinkhole formation, etc.
 - **Resource extraction** – extracting resources such as oil, water, minerals, natural gas, etc. from the ground by mining, fracking or pumping.
 - **Construction of infrastructure** – excess infrastructure load above the carrying capacity of the soil.

Joshimath or Jyotirmath:

- It is a temple town and a municipality in **Uttarakhand's Chamoli district**.
- **The math or monastery** is one of the four cardinal institutions founded by **Adi Shankaracharya** in the four corners of India.
- **The cantonment at Joshimath** is one of the closest to the China border.
- **Joshimath has no system** to manage wastewater.
- **Ongoing infrastructure projects** (the Tapovan Vishnugad dam and the Helang-Marwari bypass road) may also worsen the situation.

The problem in hilly urban India:

- **An estimated 12.6% of India's land area** is prone to landslides, especially in Sikkim, West Bengal and Uttarakhand.
- **According to the National Institute of Disaster Management (and highlighted in the National Landslide Risk Management Strategy, September 2019):** Urban policy is making landslides worse .
- **Land use planning in India's Himalayan towns** and the Western Ghats is often ill-conceived, adding to slope instability.
- **Tunneling construction** is weakening rock formations.

What steps need to be taken?

- **Acquiring credible data** is the first step toward enhancing urban resilience with regard to land subsidence.
- **The overall landslide risk** needs to be mapped at the granular level.
- **The Geological Survey of India** has conducted a national mapping exercise (1:50,000 scale, with each centimeter denoting approximately **5(zero point five)km**).
 - **Urban policymakers** need to take this further, with additional detail and localisation (1:1,000 scale).
- **Areas with high landslide risk** should not be allowed to expand large infrastructure
 - there must be a push to reduce human interventions and adhere to carrying capacity.
- **Any site development in hazardous zones** needs assessment by a geologist (with respect to soil suitability and slope stability) and an evaluation of its potential impact on buildings that are nearby.
- **Corrective measures (retention walls)**, with steps to prohibit construction in hazardous areas.

Case of Aizawl, Mizoram:

- **It is in 'Seismic Zone V', and built on very steep slope**
- An earthquake with a magnitude greater than 7 on the Richter scale would easily trigger over 1,000 landslides and cause large-scale damage to buildings.
- **The city has developed** a landslide action plan (with a push to reach **1:500 scale**),
- **Updated regulations** to guide construction activities in hazardous zones.
- **The city's landslide policy committee** is cross-disciplinary in nature, seeking inputs from civic society and university students, with a push to continually update risk zones.

Case of Gangtok, Sikkim:

- **The Amrita Vishwa Vidyapeetham** has helped set up a real-time landslide monitoring and early warning system, with sensors assessing the impact of rainfall infiltration, water movement and slope instability.

Flood risks of Indian cities:

- **In August 2019, Palava City (Phase I and II) in Dombivli, Maharashtra** experienced heavy flooding, leaving residents stranded.
- **Seasonal rain** is now increasing in intensity.
 - **Reason for the flooding:**
 - The township, spread over **4,500 acres**, was built on the flood plains of the Mothali river.

- **When planned townships are approved**, with a distinct lack of concern for natural hazards, such incidents are bound to occur.
- **Floods in Panjim, Goa, in July 2021**, led to local rivers swelling and homes being flooded, leaving urban settlements along the Mandovi affected.
 - **Issue:**
 - **The city, built on marshlands**, was once home to mangroves and fertile fields, which helped bolster its flood resilience.
 - **Delhi: An estimated 9,350 households live in the Yamuna floodplains**
 - **UN Intergovernmental Panel on Climate Change report** of March 2022: highlighted the risk **Kolkata** faces due to a rise in sea levels.

Measures for Flood-proofing India's cities:

- **Urban planners will have to step back** from filling up water bodies, canals and drains.
 - Focus on enhancing sewerage and stormwater drain networks.
- **Existing sewerage networks** need to be reworked and expanded to enable wastewater drainage in low-lying urban geographies.
- **Rivers that overflow need to be desilted** regularly along with a push for coastal walls in areas at risk from sea rise.
- **Greater spending on flood-resilient architecture** (river embankments, flood shelters in coastal areas and flood warning systems) is necessary.
- **Protecting "blue infra" areas**, e., places that act as natural sponges for absorbing surface runoff, allowing groundwater to be recharged, is a must.
- **Urban authorities will need to invest in simulation capacity** to determine flooding hotspots and flood risk maps.

Way Forward

- **The combination of poor urban planning and climate change** will mean that many of India's cities could face devastating flooding.
- **Cities need to incorporate environmental planning** and enhance natural open spaces.
- **Urban master plans need to consider the impact of climate change** and extreme weather;
 - Bengaluru needs to think of **125 mm per hour peak rainfall** in the future, as against the current **75 mm**.
- **Urban authorities in India** should assess and update disaster risk and preparedness planning.
 - **Early warning systems** will also be critical.
- **Each city needs to have a disaster management framework in place**, with large arterial roads that allow people and goods to move freely.

WHY INDIA IS WATCHING THE EL NIÑO FORECAST WITH BATED BREATH

- **Context:** The La Niña itself is going on for a record-breaking third consecutive year; forecasts for 2023 are predicting that **El Niño— will occur with more than a 50% probability**.

About El Niño and La Niña:

- El Niño refers to a band of **warmer water spreading from west to east in the equatorial Pacific Ocean**. Similarly, a La Niña occurs when the **band of water spreads east-west and is cooler**.
- Both phenomena affect the **weather worldwide and can have drastic effects on economies** that depend on rainfall.
- Together, El Niño and La Niña make up a cyclical process called the **El Niño Southern Oscillation (or ENSO)**.

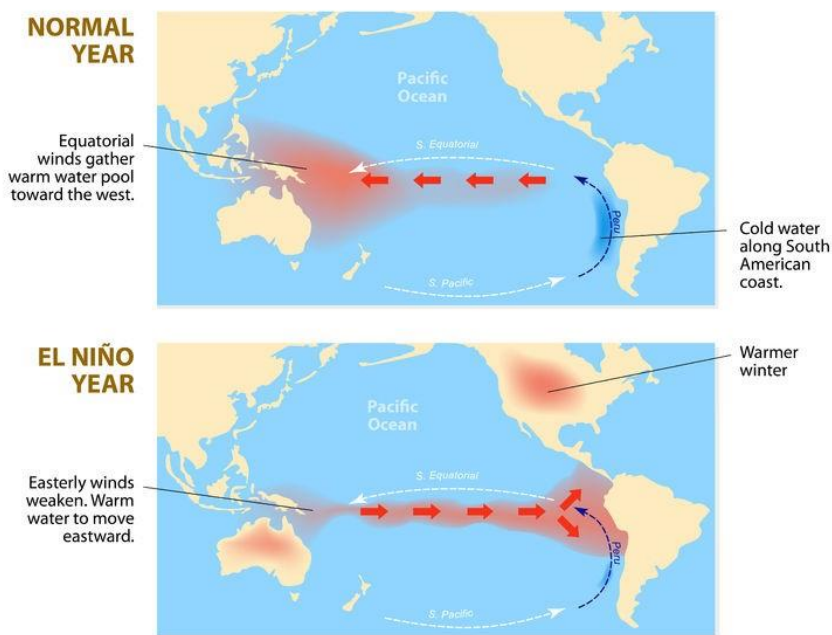
Issues in predicting El Niño:

- El Niño forecasts before spring tend to be notoriously unreliable due to a so-called ‘**spring predictability barrier**’.
- The tropical Pacific Ocean soaks up **heat like a sponge and builds up its volume of warm water**. During El Niño, this warm water spills from the western part of the Pacific Ocean to the eastern part.
- But the earth has **had three straight La Niña years, which means the Pacific’s warm-water volume is fully loaded and is likely to birth an El Niño soon**.

Effects on the northern Indian Ocean:

- It tends to produce the **largest deficit in the monsoon**, approximately **15%**.
- The vertical shear (change in the intensity of winds from the surface to the upper atmosphere) tends to be weaker as well. This in turn can **favour enhanced cyclogenesis, i.e. cyclone formation**.

THE EL NIÑO PHENOMENON



UNUSUAL FEBRUARY HEAT AND THE ‘NORMAL ABNORMAL’ IN GLOBAL WEATHER – HEAT DOME

- **Context:** Over the past week, maximum temperatures have been **5-11 degrees C higher than normal in most parts of northern and western India**.

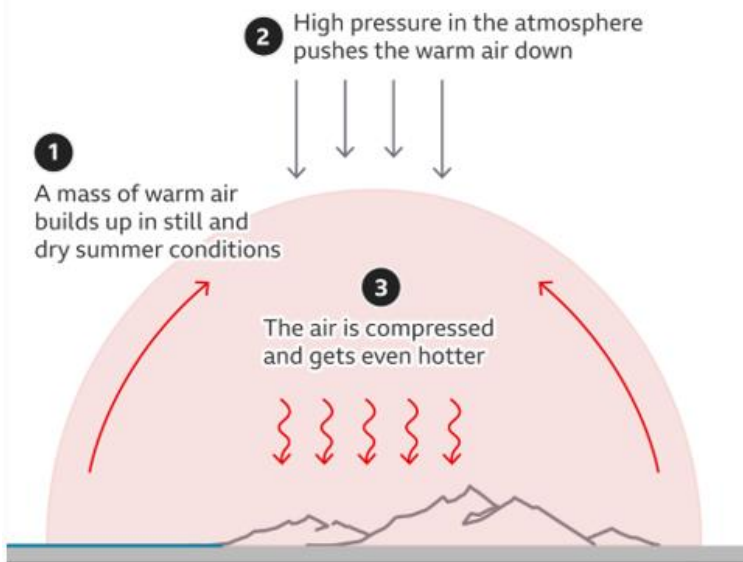
Reasons for abnormal heat:

- According to the IMD, **an anticyclonic formation over south Gujarat is one of the main reasons for the warming on the west coast**.
- Around Maharashtra and Goa, a **weaker-than-usual sea breeze along the Konkan coast was aggravating the effects of the anticyclone**.
- This year is widely expected to be a little hotter than the previous two years, mainly because of the **expected end of the strongest-ever La Niña event**.

What are heat domes?

- A heat dome is a **meteorological phenomenon that occurs when a high-pressure system traps hot air in a region, causing temperatures to rise and creating a dome of hot air**. This dome of hot air can persist for several days or weeks, leading to prolonged periods of extreme heat and heat waves.

How a heat dome forms



Effects of Heat Dome:

- They are dangerous for human health, especially for vulnerable populations such as the elderly, children, and those with preexisting health conditions.
- Impacts food production
- Increasing wildfires.
- Lead to droughts and other environmental impacts
- Increased energy demand and strain on the power grid due to increased use of air conditioning.

What can be done?

- Staying hydrated, avoiding outdoor activities during the hottest parts of the day, and providing cooling centres for vulnerable populations.
- Governments and policymakers can also take steps to reduce greenhouse gas emissions and mitigate the impacts of climate change to prevent the frequency and intensity of heat domes from increasing further.

WINTER HEATWAVES

- **Context:** In March of last year (2022), meteorologists in India issued the first heat wave warning of the year. They were anticipating an exceptionally early summer with some of India's highest temperatures ever recorded.
- But, **this year**, India Meteorological Agency issued the year's **first heat wave advisory in February**. It stated that regions of India's western region could reach temperatures of 98.6 degrees Fahrenheit or higher (37C). Some parts of India, on the other hand, are experiencing **temperatures that are exceptional for mid-March and are at least 9 degrees above average**. Experts are concerned about the exceptionally high temperatures.
- **Similarly, several parts of Europe** witnessed an unprecedented winter heat wave at the beginning of 2023. The Washington Post report called it an **"extreme event"**. Experts said that temperatures increased 10 to 20 degrees Celsius above normal.
- According to the report, at least seven countries recorded their hottest January weather ever. These included Poland, Denmark, the Czech Republic, the Netherlands, Belarus, Lithuania, and Latvia.
- Therefore, it becomes important to understand the reason behind the winter heat wave that has become a global phenomenon this year.

Factors causing winter heat waves:

In India

- **Weak Western Disturbances:** Western disturbance is the factor that keeps the temperature in control during Feb and March. However, this year, western disturbances have been weak due to which wind is lacking moisture for adequate rainfall. It is causing dry spells over the plains and subdued rainfall or snowfall over hills.
- **Climate change:** In terms of climate change, the Middle East is warming faster than other regions near the equator, and it is acting as a source of warm air that blows toward India.
- **Anti-cyclone formation:** The anticyclone is forming over the northeastern part of the Arabian Sea, which has now moved over southwest Rajasthan. Due to this anticyclone, hot and dry winds from Balochistan, South Sindh, and Thar Desert are reaching northwest India as well as Gujarat, Maharashtra, and Karnataka.
- **Possibility of El Niño Year:** The last three years have been La Niña years. Scientists have predicted a high likelihood that this year will be an El Niño year. It has a significant impact on weather and climate patterns and is linked to drought and poor monsoons in India. This may also contribute to a winter heat wave in India.

In Europe

- **Heat dome:** According to the Washington Post, the European continent is experiencing an unusually warm spell due to the creation of a heat dome over the region.

Other General Factors

- **Air flowing in from the northwest** rolls in over the mountains of Afghanistan and Pakistan, so some of the compression also happens on the leeward side of these mountains, entering India with a bristling warmth.
- **Lapse rate** – the rate at which temperatures cool from the surface to the upper atmosphere – is declining under global warming. In other words, global warming tends to warm the upper atmosphere faster than the air near the surface. This in turn means that the sinking air is warmer due to global warming, and thus produces heat waves as it sinks and compresses.

What are heat waves?

- Qualitatively, heat wave is a condition of air temperature which becomes fatal to the human body when exposed. Quantitatively, it is defined based on the temperature thresholds over a region in terms of actual temperature or its departure from normal. In certain countries, it is defined in terms of the heat index based on temperature and humidity or based on the extreme percentile of the temperatures.

How heat waves are different from Heat domes?

- While both are connected, they are not the same. Weather patterns with a high-pressure system aloft and sinking air at the surface are called heat domes. Whereas a heat wave is a lengthy period of extremely hot weather that can be generated by a variety of weather patterns, including heat domes, as well as other factors such as a strong ridge of high pressure or a lack of cloud cover.

Implications of heat waves:

- **Reduced agricultural productivity:** Crops, like human bodies, thrive within a fairly narrow range of temperatures. While a small temperature increase can lead some plants to produce more, heat over 90 degrees Fahrenheit leads to a sharp drop in yields for grains like wheat, chickpeas, and mustard seeds. Last year's (2022) heat brought wheat production down by roughly 10 percent or almost 11 million metric tons. This year has already seen not just issues with wheat production, but also with chickpeas and mustard seeds — crucial Indian crops.
- **Low rainfall:** A lack of moisture in the winds restricts the amount of winter rain and snow in certain Himalayan cities, resulting in record-breaking temperatures.
- **Economic consequences:** Employees are less productive during hot weather, even if they work inside, while children struggle to learn in extreme heat, resulting in lower lifetime earnings which in turn hurts future economic growth. A 2018 study found that the economies of US states tend to grow at a slower pace during hot summers. "The data shows that annual growth falls 0.15 to 0.25 percentage points for every 1 degree Fahrenheit that a state's average summer temperature was above normal."

- **Energy crisis:** Moreover, a coal shortage last year (2021-2022) led to a fuel crisis in India's thermal power plants, as electricity demand for air conditioners and fans shot up alongside a recovering post-pandemic economy. One study anticipates that by 2100, greater use of air conditioning could increase residential energy consumption by 83% globally.
- **Health impacts:** That health can suffer greatly without spring during the transition from winter to summer. The heat index, a combination of heat and humidity, is often used to convey this danger by indicating what the temperature will feel like to most people. The high humidity also reduces the amount of cooling at night. Warm nights can leave people without air conditioners unable to cool off, which increases the risk of heat illnesses and deaths. With global warming, temperatures are already higher.
- **Equity and justice:** Not everyone experiences heat waves in the same ways and the ill effects of heat impact most heavily those in already-**disadvantaged groups**.

Strategies to deal with heat waves:

Global

- The United Farm Workers are doing everything they can to get a new national heat regulating measure passed.
- Climate activists are continuing their campaigns for the requirements of a Green New Deal, including the need that public housing be environmentally friendly, and are also continuing their efforts to halt the development of fossil fuel

India

Prior to 2015

- Prior to 2015, there was no comprehensive national strategy to combat heat waves.
- According to the NDMA, before 2015, it was mostly up to the state governments to deal with disaster risk
- Heat waves have been declared a local disaster in Chhattisgarh, Odisha, Kerala, Rajasthan, Andhra Pradesh, Maharashtra, and
- Under the rules for disaster relief in place at the national level, heat waves were not considered to be a disaster. But, state governments were authorized to spend up to 10 percent of funds under certain heads for the heat wave

After 2015

- After 2015, the natural disaster started figuring in the priority list of topmost officials in the country including the Prime Minister as chairman of the
- Following this in 2016, the NDMA drew up the first national guidelines for heat waves titled '**Preparation of Action Plan–Prevention and Management of Heat Wave**'.
- The guidelines were twice revised, first in 2017 and then in 2019. They were enriched with recommendations for more specific actions, based on scientific inputs derived from various research papers, reports, and best practices in heat wave assessment and mapping
- Ward-level Heat Action Plans have improved cities' and states' capacity to manage heat stress and respond to heat wave-related
- The revisions in 2019 included a new section, 'Built Environment'; the revisions focused on short-term, medium-term, and long-term measures for heat wave risk
- Fixing responsibility: The National Guidelines on Heat Wave spell out in a matrix format the roles and responsibilities of central and state government agencies, district administrations, local self-governments, NGOs, civil society organizations, and other stakeholders.

Way forward:

- Over the years, the NDMA has also taken a host of measures that include **rescheduling of working hours** for outdoor workers, the creation of drinking water kiosks, the supply of water through tankers, the erection of special shelter homes, an increase in health facilities, the stocking of ORS packets at health centers and the nearest anganwadi centers, the placement of cooling systems, and construction of gaushalas with fodder banks, etc. However, there are more steps that can be take:
1. States need to compare mortality numbers to previous years to ascertain heat-related deaths, a data set that is underdeveloped in the country.

2. Awareness should be created of the symptoms of heat stroke and its consequences as also the precautions that should be taken.
3. The Medical and Health department should keep stock of ORS, IV fluids, glucose, Pot Chlor (Potassium Chloride), derma allergic creams, and other essentials in adequate quantities while it should ensure uninterrupted telephone link to all its facilities (institutions) so that people in distress could make emergency contact with them.
4. The village secretaries and other officials concerned should conduct gram sabhas and publicize the do's and don'ts besides ensuring dependable water
5. Persons hailing from the weaker sections who suffer heat strokes should be given free treatment at government hospitals while effort should be made to rope in NGOs and other voluntary bodies to run water and butter milk supply centres.
6. There is a need to adapt their buildings, infrastructure, and working hours to higher temperatures.
7. There are also benefits to so-called 'urban greening', where more trees and other vegetation can help to cool down cities and towns.



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POPULATION AND ASSOCIATED ISSUES

DECODING INDIA'S POPULATION CONUNDRUM

Context:

- 2023 is set to be a landmark year for India's population trajectory, as the country is predicted to overtake China to become the world's most populous nation.

Background:

- According to the **UN World Population Prospects 2022**, India is projected to **overtake China** as the world's most populous country.
- India's population stands at **412 billion in 2022** and is projected to have a population of 1.668 billion in 2050.
- India is expected to reach **1,428.6 million in 2023**. On the other hand, China's population fell to 1,411.8 million in 2022 (from 1,412.6 million in 2021).

Implications for India:

Positive

- India will continue to have **one of the world's youngest populations** until 2030.
- Currently, in a demographic window of opportunity – a "**youth bulge**," that will last until 2025 (median age in India – 28.7 years, 38.4 – in China, 48.6 – in Japan).
- Thus, prospects to reap the demographic dividend share of the working-age population will peak at 57% towards the mid-2030s.
- More working-age population → more tax revenues → savings potential will increase → high growth rate.
- A relatively lower number of those needing care such as the elderly and young children.

Negative

- **Lack of policies** for education, skilling and health in place.
- **Vast underemployment** among educated youths.
- In the absence of meaningful opportunities for the youth, the demographic dividend → **demographic nightmare**.
- **Uneven population growth**. For example, some Southern states have populations that age faster than some northern States

Way ahead:

- India must shift its lens from 'population control' to '**population development**'.
- For this, India must frame policies and strategies to effectively unleash the full potential of its young people.

Conclusion:

- India is not fully utilizing its **demographic dividend**, which refers to the economic advantage of having a large working-age population. To fully reap the benefits, India must create high-quality jobs and equip its young, skilled workforce to fill them.

INDIA'S POPULATION GAP OVER CHINA TO WIDEN FURTHER, SHOWS DATA

- **Content:** India is expected to cross China and become the world's most populous country in April this year.
- **Population projections for India and China:**
- According to **United Nations Population Division data**, India will surpass China in 2023 by **3 million people** and the gap will only widen with time.
- The two countries have accounted for **around 36% of the world's population** since the 1950s. In 2022, it was 35.6% and is estimated to be **35.5% in 2023**. By 2100, India and China will account for **22.2% of the world's population**.

What does the statistics say about the demographic dividend in India?

- According to an analysis by **Pew Research Center**, roughly one-in-five people globally who are under the age of 25 live in India.
- Those **below 25 years** of age accounted for **57.13% share** in India's total population in 1950. By **July 2023**, it will be **42.7%**.
- The share of those in the **age group of 25-64** will be **50.2% by July 2023**. However, the share is projected to change by 2100. Share of those below 25 years of age will further decline to 23.9%. The share of those in the age group of 25-64 will rise to 46.3%.

What does the statistics say about fertility rate in India?

- India's **total fertility rate (TFR) was 5.73** compared to a global rate of 4.86 in 1950.
- In 2022, India's rate was **estimated to be 2.01** while the global rate is 2.31. China's TFR declined from 5.81 in 1950 to 1.18 in 2022.
- Data from the **National Family Health Survey** shows that the fertility rate in urban India has fallen from 2.06 in 2005-06 to 1.63 in 2019-21. The decline in rural India was from 2.98 to 2.14 in the same period.
- **Migration in India:**
- In 2022, more than 487,000 people migrated from India. As per the **UN projections**, the country is likely to face **net negative migration till 2100**.
- **Pew Research Center** highlights that India's net migration has not always been negative. In 2016, India gained an estimated 68,000 people due to migration.
- India also **recorded increases in net migration** on several occasions in the second half of the 20th century.

PROBLEM, SOLUTION, PROBLEM: INDIA'S POPULATION WILL START TO COLLAPSE IN TWO DECADES. IT'S A MATTER OF CELEBRATION — AND CONCERN

- **Context:** Population growth is a function of fertility and life expectancy. India had about 1.38 billion (138 crore) people in 2020. Two recent studies estimate the country's population to peak at 1.5-1.6 billion somewhere between 2040 and 2048.
- India's population has been **on a decline**, and several figures point in this direction.
- Every year since 2003 the number of **live births has been falling consistently**.
- **Fertility rate** (*average number of children born to a woman*) **came down** to 2 – well below the world average in 2019.
- It took **only 14 years for the fertility rate to fall** by 50% (from 3 to 2) in India, whereas in Bangladesh – globally acclaimed for birth control – a similar fall took 17 years.

Reasons:

- Percentage of **women marrying before the age of 18 has fallen by half** in the past 15 years.
- **Women participation in key family decisions** have shot up from 37% to 89% in the past decade and a half.
- **Urbanisation** is another family size suppressor. In rural areas a child is a resource, a free labour to work on farms and tend to livestock. But in a city a child is a liability till adulthood.
- **The higher cost of raising children** also prevents middle and upper middle classes from having a big family.

What can be the new set of challenges that can emerge due to this declining population trend?

- Compared to other countries with the same fertility rate, India's infant **mortality rate is higher and life expectancy is lower**. That means the coming fall in population could turn into a collapse.
- India is also home to the **highest number of underweight and stunted children**.
- The peak of India's **demographic dividend is already behind** it. The prospect of India ageing before prospering to the levels of Western countries is real.
- It's this fear that has caused China to abandon its draconian single child policy and encourage its youth to have more kids. India could be in a much worse situation than China as the productivity level in China are much higher than India.

Can this trend be reversed?

- Policy persuasion does not help in convincing people to go for smaller or no families.
- The immediate task for India is to save more children at birth and ensure that they grow into healthy and educated adults.

YOUTH AND HEALTH

- The youth constitute nearly half of India's population. Youth contribute to the economic growth of the country as it is the most productive age group being employed. Much of the economic growth potential of India is derived from the vibrant and highly skilled youth population in the country. Youth face a lot of health issues because of their physiological state, behaviours, diet, work and other factors, many of which are related to their behavioural habits.

Youth Health Issues

- **Mental Health:** Clinical depression has been one of the leading causes of illness and disability among young adults and adolescents, followed by suicide. The reasons include poor scholastic or workplace performance, violence, poverty and unemployment, stigma, marginalisation and discrimination, peer pressure etc. Challenges like non-availability of mental health services as well as not recognising mental health issue as a reason to seek healthcare worsen the situation.
- **Alcohol and Drug Use:** Alcohol and drug use is largely associated with various high risk behaviours that can cause communicable and non-communicable diseases like HIV/AIDS, hypertension, cardiovascular diseases and liver diseases, etc. Also, **mental health is compromised** in such individuals as well their family members due to financial burden that follows.
- **Tobacco Use:** Majority of the individuals who use tobacco in any form (smoking or chewing) begin doing so in their adolescence. This is usually combined with alcohol dependence, increasing the risk of various illnesses significantly. Tobacco can cause cancer of oral cavity, throat, oesophagus and lungs and many other health issues. In addition, tobacco consumption increases the risk of hypertension, diabetes mellitus, heart diseases, stroke, vascular diseases etc.
- **Physical Inactivity:** It has been estimated that **only 20% of the young adults are known to exercise adequately or be involved in sports activities** (longer than 30 minutes per day and 5 days a week). Less physical activity causes increase in risk factors and diseases including obesity, hypertension, diabetes mellitus, heart diseases and other chronic diseases. Physical inactivity can impact mental health adversely.
- **Diabetes and Hypertension:** Diabetes is becoming potentially epidemic, with 1 in every 10-adult having diabetes. 1 in every 5 adults in India have hypertension. In both cases, majority are not aware that they have diabetes or hypertension. Recent years have seen more and more young people developing diabetes at earlier age. The major reasons for this is reduced physical activity and unhealthy diet.
- **Other Health Problems:** These include injuries in the form of accidents, self-harm, workplace accidents etc. The violence in the form of interpersonal violence, domestic violence, workplace violence, bullying ragging, sexual violence can take place.
- These health problems that have early onset during youth can have long bearing effects at older age, specially the chronic diseases. Early onset can reduce longevity, quality of life, increase expenses and can lead to early complications during older age.

Improving Health of the Youth

- **There are three secrets of healthy life: Balanced Diet, Regular Physical Activity and Sufficient Sleep.** The youth often lack on one or more of these aspects. Though there has been a series of Government initiatives- from both health sector as well as other sectors, however, those are yet to catch the full attention of youth. The *Ayushman Bharat* programme with health and wellness centre component has focus on *nirogi* or **preventing illness by adoption of healthier lifestyle**. 'FIT India' initiative is aimed at increasing exercise habits of people including youth.

Making Health of Youth a Mass Movement

- This requires optimal utilisation of every possible avenue for improving health of this age group. It requires interventions at schools, colleges and workplaces amongst other. It demands that the **school health services are strengthened** and **work as early intervention centres** for dealing with the rising incidence of various disease. There is no structured and focused programme to promote health among college students. This is the age group which has queries and concerns mostly unanswered regarding the mental health, sexual health, drug as well as personal health concerns.
- The **workplace health** has to be promoted by installing weighing scales in bathroom, exercise time and equipment in large offices as well as **encouraging healthy food** in cafeteria menu. The official policies on timely care seeking when not feeling well and **reducing stress in workplace** should be promoted. There is a need for **improving health seeking behaviour** of youth who often resort to self-remedies. There is a need for **improving family and community participation** in improving health of youth in India.

Healthy Lifestyle

- There is a lot of **stigma associated with mental health issues**. This is a reason people do not seek health care. However, mental illnesses are very similar to any physical illness. With right advice from trained doctors and with medications, both physical and mental illnesses can be treated. It is time to **start talking about mental health** issues. There is need to **destigmatise mental health**.
- **Regular physical activity** is zero-cost effort, which one can do for good health. According to WHO and other health agencies, people should engage in at least **150 minutes of moderate intensity aerobic physical activity per week** or at least **75-150 minutes of vigorous-intensity aerobic physical activity**. India has been **ranked 8th among countries with the lowest physical activity globally**.
- Reports have shown that **3 out of 4 adolescents and young people are not physically active** enough as per the given recommendations. A study showed that barriers to low physical activity are personal attributes, perceived negative consequences, sociocultural environment, lack of time etc. Identification of these barriers and steps to overcome these are required.
- Regular and at least **six to eight hours of sleep boosts immunity**, reduces stress and keeps us away from many health. Therefore, making one's sleep cycle regular and ensuring that enough sleep on daily as well as weekly basis has to be an approach of every person.

Sports, Health and Youth

- The leading health body, the World Health Organization has established a Sports and Health programme to capitalise the potential of people to lead healthy lives through promoting participation in sports and working with the sports community. It has been established that physical activity through various sports can **boost confidence**, improve **social life**, lead to **psychosocial and personal development** and help in **prevention of substance abuse**.

Conclusion

- Youth constitute around half of India's population and are the foundation of country's economic growth and development. Though, otherwise healthy population, the youth face a host of problems due to their age, behaviour and other factors which can have long-term effect during old age. Prevention of ill health effects in youth can have long-term benefits individually, at family level and at national level. The policies aimed at youth should be targeted at healthier lifestyle, adoption of regular physical activity and health prevention and promotion measures. Healthy youth today will make healthy nation tomorrow.

GENERAL STUDIES 2.

POLITY AND CONSTITUTION

BUDGET 2023 CUTS MGNREGS FUNDS: THE DEBATE AROUND THE RURAL EMPLOYMENT SCHEME

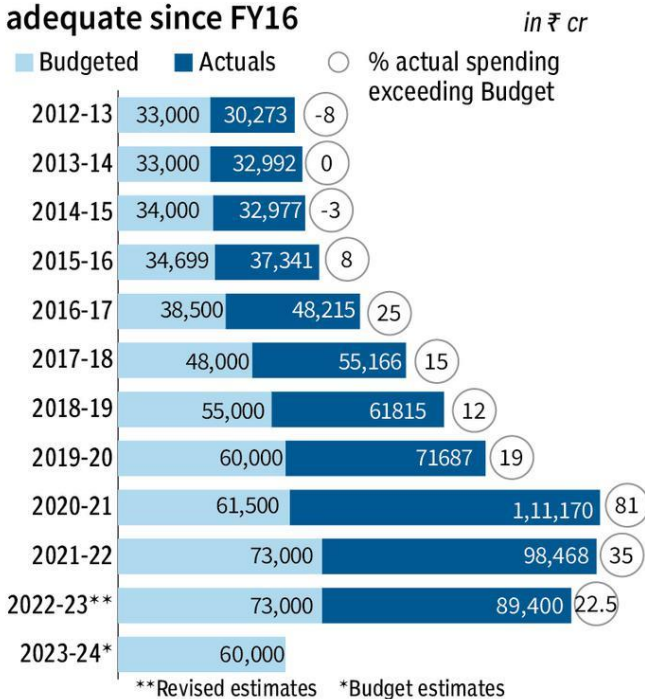
Context:

- The Economic Survey 2022-23 showed that 6.49 crore households demanded work under the Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS). Of these, 6.48 crore households were offered employment by the government and 5.7 crore actually availed it. The Scheme was hailed for its role in **mitigating the impact of the COVID-19 pandemic**, when the number of workers had jumped post reverse migration from urban areas during the pandemic. In the **Union Budget 2023-24**, the Government has allocated INR 60,000 crore for the MGNREGS and **has cut the funds by 33%** compared to INR 89,000 crore in FY2022-23 (Revised Estimates). The step has been criticised as neglect of the poor sections and may lead to rural distress. However, the Ministry of Rural Development has sought to allay fears by clarifying that additional funds will be made available as and when the need arises.

Current status of MGNREGS:

- The Union Budget 2023-24 has allocated INR 60,000 crore for the Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS) scheme for FY2023-24. That is 18% lower than the INR 73,000 crore budget estimates for the current year (2022-23), and 33% lower than the INR 89,000 crore revised estimates (FY2022-23). The allocation in FY2023-24 is only 1.3% of the total expenditure compared to 2.1% last year.
- The average days of employment provided per household is at a 5-year low in this financial year. Till January 20, the average days of employment provided per household was only 42, while it ranged between 48 and 52 days in the preceding four years.
- According to Ministry Of Rural Development, the total active workers in 2022-23 are 15.12 crores. The number of households benefited were 5.78 crore in 2022-23.

NREGA allocations haven't been adequate since FY16



Source: The Hindu BusinessLine

Benefits of MGNREGS:

- **Rural Development:** The programme mandates that at least 60% of the works undertaken must be related to land and water conservation. The creation of these productive assets boost rural incomes as the majority of villages are agrarian. In some instances e.g., in Barmani village of Madhya Pradesh's Sidhi district, creation of water conservation assets have increased availability of water. Some people who used to migrate earlier have now taken up farming.
- **Tackling Water Stress:** The water conservation structures built under MGNREGS have potentially conserved at least 28,741 million cubic metres of water in the past 15 years. The scheme has helped to mitigate the water stress to an extent.
- **Curtailling Distress Migration:** The scheme provides support in times of distress and individuals are not forced to migrate into cities. For instance, distress migration has stopped in Bandlapalli village in Andhra Pradesh's Ananthapuramu district and the village is drought-proof today.
- **Women Empowerment:** Women workers account for more than 33% of the workers under MGNREGS. Money is transferred directly into the accounts of these women workers. This has supported women empowerment e.g., MGNREGS has led to the formation of the country's largest group of trained women well-diggers in Pookkottukavu village of Kerala's Palakkad district.
- **Battling Uncertainties:** There was a big jump in the number of workers from 2019-20 to 2020-21 (pandemic year). MGNREGS proved to be vital in providing relief to the migrants during the distress. It ensured income support to the vulnerable during the pandemic.
- **Community Assets:** The scheme has led to the creation of common community assets. These assets are built by communities on common lands thereby creating a sense of responsibility towards the structure which results in better care e.g., many *Johads* (percolation ponds) had remained abandoned for several years in many villages of Haryana. However, villagers revived them under the MGNREGS.

Challenges with the working of MGNREGS

- **Gender Issues:** Women and Men get equal remuneration under MGNREGS. However, various cases of discrimination against women have been reported wherein some regions, less job cards are issued to women or there are delays in the issue of cards.
- **Regional Inequality:** The success of MGNREGS depends on the performance of individual States. Although centrally funded, studies show uneven outcomes across different States. The performance of the MGNREGS, in terms of accountability, is much better in States like Andhra Pradesh and Tamil Nadu than in states like UP and Bihar.
- **Insufficient Budget Allocation:** MGNREGS's success on the ground is dependent on proper and consistent funding flow to the states. Funds have dried up in States due to a lack of "mother sanctions" from the Union government, causing work to be difficult during peak season. Almost every year, more than 80% of funds are depleted in the first six months. As a result, the government's claim of "record allocation" does not hold up in practise. It has actually decreased because pending liabilities from the previous year are included in the current budget. Furthermore, the allocated funds are insufficient to ensure proper implementation on the ground.
- **Regular Delay in Payments:** There is a regular delay in payments. Moreover, there is no provision of compensation in case of delayed payments despite the order of the Supreme Court. The delay is mainly due to failed payment transfer arising from inactive Aadhaar, and closed, blocked, or frozen bank account.
- **Workers Penalised for Administrative Lapses:** The Ministry withholds wage payments for workers of States that do not meet administrative requirements within the stipulated time period (for instance, submission of the previous financial year's audited fund statements, utilisation certificates, bank reconciliation certificates etc). It is workers who end up being penalised for administrative lapses.
- **Issues with Rural Banks:** The rural banks are lack capacity in terms of staff and infrastructure and thus always remain hugely crowded. The workers normally have to visit the banks more than once to withdraw their wages. Due to great rush and poor infrastructure, the bank passbooks are not updated in many cases. Often,

the workers do not get their wages during times of need due to the hassle and the cost involved in getting wages from the bank.

- **Deletion of Job Cards:** There are reports of genuine job cards are being randomly deleted as there is a huge administrative pressure to meet 100% Direct Benefit Transfer (DBT) implementation targets in MGNREGA. In states like Jharkhand, there are multiple examples where the districts had later requested to resume job cards after civil society interventions into the matter.
- **Centralisation:** A real-time MIS-based implementation and a centralised payment system has reduced the role of the representatives of the Panchayati Raj Institutions in implementation, monitoring and grievance redress of MGNREGA schemes. They have little or no power to resolve issues or make payments. The over-centralisation of the scheme has diminished the local accountabilities.
- **Neglect of Local Priorities:** MGNREGA could be a tool to establish decentralised governance. However, with the centralisation, the local issues are getting neglected. Linking MGNREGA to construction of *Pradhan Mantri Awas Yojana* (PMAY), individual household toilets, *anganwadi* centres and rural 'haats' have been destroying the spirit of the programme and **gram sabhas and gram panchayats' plans are being neglected.**
- **Online Attendance:** The National Mobile Monitoring Software (NMMS) App allows for real-time attendance and geo-tagged photographs of workers at Mahatma Gandhi NREGA worksites. However, there are some concerns, such as **poor internet connectivity, limited access to smartphones, and app glitches** that have disrupted workers' daily activities. Workers are being **forced to purchase smartphones**, which is causing them to leave their jobs. Many workers have expressed dissatisfaction with the process, and many are illiterate.

What steps can be taken to improve working of MGNREGS?

- The Parliamentary Standing Committee on Rural Development and Panchayati Raj has made several recommendations to improve the implementation of the Scheme.
- **Increase in number of days of work:** Under the scheme, State governments can ask for 50 days of work, in addition to the guaranteed 100 days, in case of exigencies arising from natural calamities. It recommended increasing the guaranteed days of work under the scheme from 100 days to 150 days.
- **Revision of permissible works:** The Committee observed that the ambit of permissible works under the scheme requires frequent revision. It recommended the Ministry of Rural Development to consult stakeholders and include area-specific works under MGNREGA as per local needs. These may include, construction of bunds to stop land erosion during floods, and boundary works for agricultural fields to protect them from grazing animals.
- **Uniform Wage Rate:** Wage rates notified under MGNREGA range from INR 193 to INR 318 in different States/UTs. The Committee noted that this fluctuation in wage rates across States/UTs is not justified. It recommended devising a mechanism for a unified wage rate across the country.
- **Increase in wages commensurate with inflation:** The Committee noted that beneficiaries of MGNREGA generally belong to poor and marginalised sections of society. It observed that the nominal wages under MGNREGA discourage beneficiaries and propel them to either seek more remunerative work or migrate to urban areas. The Committee noted that **indexing MGNREGA wages to Consumer Price Index (CPI)-Rural** as opposed to CPI-Agricultural Labour, (as recommended by Dr. Nagesh Singh Committee), has not been implemented. The Standing Committee recommended the Ministry to review its position and increase the wages.
- **Delay in Compensation:** In case of delay in payment of wages under MGNREGA, beneficiaries are entitled to compensation at the rate of 0.05% of unpaid wages per day for the duration of delay. The Committee noted that payment of delay compensation is not adhered to in most places in the country. The Ministry must ensure strict compliance in payment of compensation.
- **Social Audits:** Under MGNREGA, the Gram Sabha must conduct regular social audits of all projects taken up within the Gram Panchayat. The Committee observed that implementation of this provision is poor. The Gram Panchayats must not go unaudited during the financial year. Also, Social audit reports are not publicly available. These reports must be placed in the public domain promptly after the audit exercise is over.
- **Appointment of Ombudsperson:** Under the Act, there should be an ombudsperson for each district who will receive grievances, conduct enquiries, and pass awards. Out of 715 possible appointments, so far only 263

ombudsmen have been appointed which shows poor coordination between the Union and State nodal agencies. Punitive measures can be imposed or funds can be stopped for States for failing to appoint ombudsmen. The Committee recommended the Department of Rural Development to bring on board all State governments to comply with appointment of ombudsmen.

RISE IN DRUG ABUSE

Context:

- Recent surveys by the state **Ministry for Excise** highlights the rise in the **drug overtake cases in Kerala**. Kerala has seen a **300% increase in drug cases over the past six years**, with arrests up 90%.
- The number of cases registered under the **Narcotic Drugs and Psychotropic Substances (NDPS) Act** in 2022 was 26,629, a **significant increase from 5,924 cases** in 2016 and 9,245 cases in 2019.
- Nearly 97% of the respondents admitted to using some form of drug **with Cannabis (ganja) being the most consumed drug (82%)**, followed by tobacco (75.6%).
- Recreational drugs like MDMA and methamphetamine have found a market in Kerala**, with seizures of the latter spiking in 2022.
- The report has also highlighted that cannabis is finding its way **into the state from Odisha, Andhra Pradesh, and Bihar**.

Need to curb drug abuse

- About:** India's location between the world's two main illicit opium-producing regions, the Golden Crescent and Golden Triangle, has left its borders open to drug trafficking. It emanates from two fronts, the NW and NE, which pose a danger to national security and border violations, respectively.



- Substance abuse and addiction:** Harmful use of drugs or alcohol leads to physical or psychological dependence which impairs the individual's ability to perform daily activities and makes it difficult for them to quit on their own.
- Overdose and health consequences:** Substance abuse can result in serious health problems, including overdoses that can be fatal.
- Psychological and social impacts on the individual and their family:** Substance abuse can cause emotional distress, depression, anxiety, and other mental health problems for the individual and their family.
- Increased crime and criminal activity:** Drugs are often linked to criminal behavior, such as theft, violence, and drug trafficking which pose a threat to public safety and increase the burden on law enforcement.
- Strain on healthcare systems and resources:** Substance abuse can put a strain on healthcare systems and resources, as it often requires extensive medical treatment and rehabilitation.
- Lost productivity and economic costs:** Substance abuse can lead to decreased productivity at work, absenteeism, and even job loss. It also has broader economic costs, such as increased healthcare costs and decreased economic growth.
- Social stigma and discrimination:** Substance abuse is often stigmatized, and individuals struggling with addiction may face discrimination and social isolation.

- **Difficulty in access to treatment and recovery resources:** Many individuals struggling with substance abuse face barriers to accessing effective treatment and recovery resources, such as lack of affordable options, long waitlists.
- **Difficulty in effectively addressing and preventing drug abuse through education and public policy:** Addressing and preventing substance abuse faces challenges in implementing effective education and public policy initiatives, such as limited funding, lack of political will, and conflicting views on the best approach.

Major challenges in controlling the drug menace

- **High demand:** The demand for drugs in India is high and is driven by a growing population of young people and an increase in disposable income.
- **Lack of effective law enforcement:** Despite efforts by the government to curb drug trafficking, the porous borders and widespread corruption in India make it difficult to effectively enforce anti-drug laws.
- **Inadequate rehabilitation facilities:** There is a shortage of rehabilitation facilities and resources for those struggling with drug addiction, making it difficult for them to access the help they need.
- **Stigma and discrimination:** Substance abuse and addiction are often associated with social stigma and discrimination, which can prevent people from seeking help and make it difficult for them to receive the care they need.
- **Difficulty in prevention and education:** Drug abuse prevention and education campaigns are often underfunded and not effectively implemented, making it difficult to reach those who are most at risk.
- **Lack of comprehensive approach:** The lack of a comprehensive approach to addressing the drug problem in India, including both treatment and prevention, makes it difficult to effectively address the issue.

Government steps to curb Drug abuse in India

- **National Drug Demand Reduction Policy:** It aims to prevent and reduce drug abuse through multiple strategies including demand reduction, supply reduction, and harm reduction.
- **Rehabilitation:** The government has set up multiple rehabilitation centers and de-addiction clinics to provide treatment and support to individuals struggling with drug addiction.
- **Narcotic Drugs and Psychotropic Substances (NDPS) Act(1985):** It is the main legal framework in India to curb drug abuse and trafficking, and imposes stringent penalties on those involved in drug-related crimes.
- **Information dissemination:** The government has implemented various public awareness and educational campaigns to spread knowledge about the dangers of drug abuse and to prevent drug use, particularly among young people.
- **Co-ordination:** The government also works with other countries in the region to curb cross-border drug trafficking and to dismantle illegal drug production and distribution networks.
- **Support:** The Ministry of Social Justice and Empowerment runs a scheme to provide financial and technical assistance to NGOs and other organizations working on drug demand reduction and rehabilitation.
- **Central Bureau of Narcotics (CBN):** It is the main enforcement agency responsible for implementing the NDPS Act and for conducting raids and arrests in connection with drug-related crimes.

Way forward:

- **Improving access to treatment and rehabilitation:** Providing access to quality addiction treatment and rehabilitation resources can help individuals overcome their drug dependence.
- **Strengthening law enforcement:** Strengthening law enforcement efforts to curb drug trafficking and distribution can reduce the availability of drugs in the country.
- **Educating the public:** Educating the public about the dangers of drug abuse through campaigns, public speaking, and school programs can raise awareness and discourage drug use.
- **Addressing root causes:** Addressing the root causes of drug abuse, such as poverty, lack of education, and mental health issues, can help prevent people from turning to drugs in the first place.
- **Involving community leaders:** Involving community leaders and organizations in the fight against drug abuse can help mobilize local resources and increase public support for drug-control efforts.
- **Encouraging alternative activities:** Encouraging individuals to participate in alternative activities, such as sports, music, and community service, can provide positive outlets and reduce the risk of drug abuse.
- **Implementing effective public policy:** Developing and implementing effective public policy that addresses the issue of drug abuse can help prevent drug use and support those who are struggling with addiction.

- **Researching new treatments and prevention methods:** Investing in research and development to find new treatments and prevention methods can help reduce the harm caused by drug abuse.

THE MISSING DEPUTY SPEAKER: THE POST, AND WHAT THE CONSTITUTION SAYS

- **Context:** The Supreme Court has issued notices on a petition highlighting the vacant posts of Deputy Speakers in Lok Sabha and five state assemblies for years.
- A Bench sought responses on a PIL that contends that not electing a Deputy Speaker to the 17th (present) Lok Sabha, is “**against the letter and spirit of the Constitution**”.

Constitutional provisions regarding Deputy Speaker:

- **Article 93** of the Constitution of India establishes the **post of the Deputy Speaker of Lok Sabha and Articles 94-96 detail their appointment, removal, and powers.**
- In the absence of the Speaker, **the Deputy Speaker serves as the Speaker and wields the full powers of the Speaker.**
- **Deputy Speaker is not subordinate to the Speaker** and is directly responsible to the House.
- **Article 178 of the Constitution establishes the post of Deputy Speaker** of assemblies and Articles 179-181 deal with their powers and appointment or resignation.

Is it mandatory to have a Deputy Speaker?

- Constitutional experts point out that **both Articles 93 and 178 use the word “shall”**, indicating that the election of Speaker and Deputy Speaker is mandatory under the Constitution.

Do the powers of the Speaker extend to the Deputy Speaker as well?

- Article 95(1) says: “**While the office of Speaker is vacant, the duties of the office shall be performed by the Deputy Speaker**”.
- The Deputy Speaker has the **same powers as the Speaker when presiding over a sitting of the House**. All references to the Speaker in the Rules are deemed to be references to the Deputy Speaker when he presides.

What is the position of the Union government on the current vacancy in the post of Deputy Speaker?

- The Treasury benches have maintained there is no “**immediate requirement**” for a Deputy Speaker as “**bills are being passed and discussions are being held**” as normal in the House. A Minister argued that “there is a panel of nine members — senior, experienced and selected from different parties — who can act as chairpersons to assist the Speaker to run the House”.

Can the courts intervene in cases of a delay in electing the Deputy Speaker?

- Article 122(1) says: “**The validity of any proceedings in Parliament shall not be called in question on the ground of any alleged irregularity of procedure.**”
- However, experts said that the **courts do have jurisdiction to at least inquire into why there has been no election to the post of Deputy Speaker since the Constitution does envisage an election “as soon as may be”**.

SPECIAL CATEGORY STATUS

- **Context:** Recently, Union Finance Minister made it clear that the **Centre will not consider demands for “special category status” for any state** as the 14th Finance commission has clearly said no special status can be given.
- This comes as a **blow to states like Odisha, Bihar, Andhra Pradesh** which have been pushing for it for some years now.

What is Special Category Status (SCS)?

- SCS is a **classification given by the Centre to assist development of states that face geographical and socio-economic disadvantages.**
- **Constitution does not make a provision for SCS** and this classification was later done on the **recommendations of the Fifth Finance Commission** in 1969.
- Status was first accorded to **Jammu and Kashmir, Assam and Nagaland in 1969.**
- SCS for plan assistance was granted in the past by the **National Development Council** of the **erstwhile Planning Commission.**
- Eleven States including **Assam, Nagaland, Himachal Pradesh, Manipur, Meghalaya, Sikkim, Tripura, Arunachal Pradesh, Mizoram, Uttarakhand and Telangana** have been accorded the special category state status.
 - Telangana, the newest State of India, was accorded the status as it was carved out of another state Andhra Pradesh.
- The **14th Finance Commission** has done away with the 'special category status' for states, **except for the Northeastern and three hill states.**
 - It suggested to **fill the resource gap of such states through tax devolution by increasing it to 42% from 32%.**
- **SCS is different from Special status** which imparts enhanced legislative and political rights, while SCS deals with only economic and financial aspects.
 - For instance, J&K used to have Special status before **Article 370** was repealed.
- **Parameters (Based on Gadgil Formula):**
 - Hilly Terrain;
 - Low Population Density and/or Sizeable Share of Tribal Population;
 - Strategic Location along Borders with Neighbouring Countries;
 - Economic and Infrastructure Backwardness; and
 - Nonviable Nature of State finances.

What are the Benefits of Special Category Status?

- The **Centre pays 90% of the funds required in a centrally-sponsored scheme** to special category status states as against 60% or 75% in case of other states, while the remaining funds are provided by the state governments.
- **Unspent money in a financial year does not lapse** and is carried forward.
- **Significant concessions** are provided to these states in excise and customs duties, income tax and corporate tax.
- **30% of the Centre's Gross Budget** goes to Special Category states.

What are the Concerns regarding Special Category Status?

- It causes **Increased burden on Central Finances.**
- Also, giving special status to a state **leads to demands from other states too.** For instance, **demands from Andhra Pradesh, Odisha and Bihar.**

Conclusion

- As suggested by 14th Finance commission, **tax devolution to states has been increased to 42%** and the same has been continued by **15th FC (41%)** too to fill the resource gap without extending SCS.

SPEAKER'S ROLE IN DEFECTION

- **Context:** Hearing a case related to the Maharashtra crisis in 2022 and whether a speaker facing a notice for his removal can disqualify MLAs in his assembly, the **Supreme Court (SC) on February 15, 2023 maintained that Speakers should be the first authority** to decide on **disqualification.**
- Earlier in 2016, the SC in the Nabam Rebia case had held that a Speaker or **Deputy Speaker** facing notice of removal cannot decide disqualification proceedings against legislators.

What are the Debates over Discretion of the Speaker's Role?

- For the past three years, the **All India Presiding Officer's Conference**, chaired by **Lok Sabha Speaker**, has been **reviewing the Speaker's role as envisaged in the 10th Schedule of the Constitution** that deals with disqualification of MPs and MLAs.
- The focus of the discussions is to secure the legislative **speaker's dignity in this matter**. Many presiding officers have expressed views that **their role should be limited** and other mechanisms must evolve to decide cases of defection.
- One proposal being discussed is to **leave the issue of disqualification to the respective political parties** as they give tickets to the MLAs.
- During a **Speaker's Conference in Dehradun in 2021**, several participants voiced their concerns and **pointed out loopholes that often cast a shadow on the speaker's role**.

What is the 10th Schedule of the Indian Constitution?

- **About:**
 - The **Tenth Schedule of the Indian Constitution**, also known as the **Anti-Defection Law**, was added by the **52nd Amendment in 1985**.
 - It was a response to the **toppling of multiple state governments** by party-hopping **MLAs after the general elections of 1967**.
 - It lays down the **provisions related to disqualification of members of Parliament (MPs) and State Legislatures on grounds of defection**.
- **Exception:**
 - It **allows a group of MP/MLAs to join (i.e., merge with)** another political party without inviting the penalty for defection.
 - And it **does not penalise political parties** for encouraging or accepting defecting legislators.
 - As per the 1985 Act, a '**defection**' by **one-third of the elected members** of a political party was considered a 'merger'.
 - But the **91st Constitutional Amendment Act, 2003**, changed this and now **at least two-thirds of the members of a party** must be in Favour of a "merger" for it to have validity in the eyes of the law.
- **Discretion:**
 - The **decision on questions as to disqualification on ground of defection** are referred to the Chairman or the Speaker of such House, which is subject to '**Judicial review**'.
 - However, the **law does not provide a timeframe** within which the presiding officer has to **decide a defection case**.
- **Grounds for Defection:**
 - If an **elected member voluntarily gives up his membership** of a political party.
 - If he/she votes or **abstains from voting** in such House contrary to any direction issued by his political party.
 - If any **independently elected member** joins any political party.
 - If any **nominated member** joins any political party after the expiry of six months.

Conclusion

- The **role of the Speaker in defection cases** is crucial for ensuring the stability and integrity of the government and the democratic system. It is also important to note that the Speaker has to act in a **fair and impartial manner** while deciding such cases, and the decisions should be guided by the **principles of natural justice and the provisions of the Constitution**.

MISSING DEPUTY SPEAKER IN PARLIAMENT

- **Context:** Over three years after the present Lok Sabha first met, the position of Deputy Speaker still remains vacant.

Presiding officers of Lok Sabha

- **Speaker & Deputy Speaker:**

- There are **two presiding officers for the Lok Sabha**, namely the **Speaker** and the **Deputy Speaker**, who are elected by the members of the House.
- **Constitutional provisions:**
 - **Under Article 93** of the Constitution, as soon as the House meets after the election these two presiding officers are elected one after the other.
 - **Article 178** contains the corresponding position for Speaker and Deputy Speaker of the Legislative Assembly of a state.
- **Officers of Parliament:**
 - The Speaker and the Deputy Speaker are described in the Constitution as **officers of Parliament**, which signifies their importance in the parliamentary system.

About the Deputy Speaker

- **Origin:**
 - The history of the office of Deputy Speaker goes back to the **government of India Act of 1919** when he was called **Deputy President** as the **Speaker was known as the president** of the central legislative assembly.
 - **Functions:**
 - Although the main functions of a Deputy Speaker were to preside over the sittings of the assembly in the absence of the Speaker and chair the select committees etc., the **position was considered necessary to share the responsibility of running the House** with the Speaker and guide the nascent committees.
- **Post independence:**
 - This tradition was continued after Independence, when a **Deputy Speaker was elected to the chair, besides the Speaker**, the meetings of the **Constituent Assembly (Legislative)**.
 - The **first Speaker was G V Mavalankar** and the **first Deputy Speaker was M Ananthasayanam Ayyangar** who was elected by the Constituent Assembly (Legislative)
 - Thereafter, every Lok Sabha had a Deputy Speaker who would be elected after a few days of the election of the Speaker.
- **Who can be chosen as a deputy speaker?**
 - Choosing an Opposition member as the Deputy Speaker has been, by and large, followed as a healthy convention.
 - But if a government does not favour an Opposition member for political reasons, it is free to choose a member from its own party.
- **Election of deputy speaker:**
 - **President is not required to fix the election date:**
 - **The date of election of the Speaker** is decided by the **President** who needs to go by the advice of the Union cabinet which, in fact, chooses the date.
 - In the case of the Deputy Speaker, there is no constitutional requirement for him to wait for the advice of the Union cabinet in fixing the date of election of the Deputy Speaker.
 - **Mandate to Speaker:**
 - As per **Rule 8 of the Rules and Procedure of Lok Sabha** it is the **Speaker who has to fix the date** of the election of the Deputy Speaker.
 -
 - Once the date is fixed, **any member can propose the name** of any other member through a motion for the consideration of the House. The House can then proceed to elect its Deputy Speaker.
 - The practice followed so far has been to elect the Speaker after the oath-taking.
 - **Motion:**
 - The Deputy Speaker is elected once a motion proposing his name is carried in the House.
 - Thereafter, within a few days, the Deputy Speaker is also elected. Once elected, the Deputy Speaker usually continues in office for the entire duration of the House.
- **Independent from Speaker:**

- The Deputy Speaker is independent of the Speaker, not subordinate to him, as both are elected from among the members of the House.
- **Powers & Functions:**
 - **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 has the same powers as the Speaker when presiding over a sitting of the House.
 - All references to the Speaker in the Rules are deemed to be references to the Deputy Speaker when he presides.
 - **No appeal:**
 - Although the Deputy Speaker gets to exercise these powers only in the absence of the Speaker his decisions are final and binding when he gives a ruling.
 - It has been repeatedly held that no appeal lies to the Speaker against a ruling given by the Deputy Speaker.
 - **Presiding committees:**
 - In addition to presiding over the House in the absence of the Speaker, the Deputy Speaker chaired committees both inside and outside of Parliament.
- **Significance of the position:**
 - The Deputy Speaker ensures the continuity of the Speaker's office by acting as the Speaker when the office becomes vacant:
 - Illness, or
 - by death, or
 - because of resignation or
 - any other reason.
 - When the Speaker's post falls vacant, it is the Deputy Speaker who assumes all the powers of the Speaker and exercises both legislative powers and administrative powers

Issue of non-election

- **Lok Sabha:**
 - In the present Lok Sabha, the House has not elected a Deputy Speaker even after three years and seven months of its term are over.
 - The non-election of the Deputy Speaker has now reached the Supreme Court, which has reportedly sent notice to the Union government.
- **State Assemblies:**
 - The Supreme Court on Monday issued notices to the Centre and five states — Rajasthan, Uttarakhand, Madhya Pradesh, Uttar Pradesh, and Jharkhand — over the failure to elect a Deputy Speaker.
- **Centre's position:**
 - The Treasury benches have maintained there is no “immediate requirement” for a Deputy Speaker as “bills are being passed and discussions are being held” as normal in the House.
 - A Minister argued that “there is a panel of nine members — senior, experienced and selected from different parties — who can act as chairpersons to assist the Speaker to run the House”.
- **Judiciary's intervention:**
 - Courts usually don't intervene in the procedural conduct of Parliament. **Article 122(1)** says:
 - “The validity of any proceedings in Parliament shall not be called in question on the ground of any alleged irregularity of procedure.”
 - However, experts said that the courts do have jurisdiction to at least inquire into why there has been no election to the post of Deputy Speaker since the Constitution does envisage an election “as soon as may be”.

Way ahead

- **Article 93** contains a mandatory provision that needs to be carried out by the House.

- In the present circumstances, the post of Deputy Speaker is desirable to maintain neutrality and smooth functioning of the Parliament.

DOES THE ANTI-DEFECTION LAW NEED CHANGES?

- **Context:** Recently the Election Commission of India recognized the party formed by a **group of MLAs defecting from the state legislative assembly in Maharashtra** as the original party.

Anti-defection Law:

- **Origin:**
 - **Aaya Ram Gaya Ram** was a phrase that became popular in Indian politics after a **Haryana MLA Gaya Lal** changed his party thrice within the same day in 1967.
 - The anti-defection law was a response to the similar toppling of multiple state governments by party-hopping MLAs.
 - Parliament added it to the Constitution in **1985**.
- The **Tenth Schedule** was inserted in the Constitution by **52nd Amendment Act**.
- It lays down the process by which legislators may be **disqualified on grounds of defection**.

What constitutes defection?

- The law covers three kinds of scenarios:
 - **Voluntarily giving up:**
 - When legislators elected on the ticket of one political party “voluntarily give up” membership of that party or vote in the legislature against the party’s wishes.
 - A legislator’s speech and conduct inside and outside the legislature can lead to deciding the voluntarily giving up membership.
 - **Independent members:**
 - The second scenario arises when an MP/MLA who has been elected as an independent joins a party later.
 - **Nominated legislators:**
 - The law specifies that nominated legislators can join a political party within six months of being appointed to the House, and not after such time.
 - Violation of the law in any of these scenarios can lead to a legislator being penalised for defection.
- **Applicable to:**
 - The law applies to both Parliament and state assemblies.
- **Deciding authority:**
 - The **Presiding Officers of the Legislature (Speaker, Chairman)** are the deciding authorities in such cases.
 - The Supreme Court has held legislators can challenge their decisions before the higher judiciary.
- **How long does it take for deciding cases of defection?**
 - The **law does not provide a time frame** within which the presiding officer has to decide a defection case.
 - The court in its recent judgment has held that, ideally, Speakers should take a decision on a defection petition **within three months**.
- **Exceptions in Law:**
 - Legislators may change their party without the risk of disqualification in certain circumstances.
 - The law allows a party to merge with or into another party provided that **at least two-thirds of its legislators are in favour of the merger**.
 - In such a scenario, neither the members who decide to merge, nor the ones who stay with the original party will face disqualification.

Significance:

- **Stability:**
 - Defection causes destabilisation, which leads to governments falling and new governments coming up with the help of the defectors.

- The law aims to bring **stability to governments** by discouraging legislators from changing parties.
- **Loyalty:**
 - Also, anti-defection law tries to **bring a sense of loyalty** of the members towards their own party.
 - It aims to ensure that members selected in the name of the party are also loyal to the party manifesto and the basic philosophy of the party to which he belongs.

Criticisms around the law

- **No scope for acting independently:**
 - The key problem with a law that **penalises legislators for acting independently** is that it goes against the idea of a parliamentary democracy.
 - The disqualification provisions of the Anti-Defection Law **binds legislators to the official position taken** by their party on any issue.
- **No accountability to the constituency:**
 - The requirement of abiding by the party direction also **reduces the accountability of legislators** to their **constituency**.
- **Choosing Party leadership over ideological cohesion:**
 - What the law tries to do is to stabilise party systems by consolidating control of the party leadership instead of through ideological cohesion or ownership of the party.
 - By doing this, it is **framing democracy not as a system of representation and accountability**, but as a **contest between factions** which have consolidated power.
- **Split as a defence against disqualification:**
 - According to the Tenth Schedule of the Constitution, if there is a split in a particular party, and one-third of the legislators move along with the breakaway group, they will not be disqualified. So, split was a defence against disqualification.
 - It is being misinterpreted as is seen in Maharashtra because there is no authoritative interpretation of the law.
- **No timeline for presiding officer to decide:**
 - In the 10th Schedule currently, there is no timeline fixed for the Speaker to determine the issue and the purpose of this anti-defection law is defeated.
- **Lure of office:**
 - It is widely claimed that Ideological defection doesn't take place in India & the legislators defect for the lure of office.

Suggestions & way ahead

- **Substantive decrease in defections:**
 - Owing to the implementation of the Tenth Schedule, there has been a substantive decrease in the defection cases.
 - The provisions of the Tenth Schedule have stood the test of time and several judicial scrutinies.
- **Apply only when to test the stability of the government:**
 - The law aims to maintain stability in governments but the Anti-Defection Law **currently applies to every vote**, and even in Rajya Sabha and Legislative Councils of states, **where the government's stability is not at stake**.
 - There have been **proposals to limit the Anti-Defection Law to votes which test the stability of the government** such as no-confidence motions and money bills.
- **The Dinesh Goswami Committee on Electoral Reforms (1990):**
 - The committee had recommended that disqualification on grounds of defection should be limited to:
 - An elected member voluntarily giving up membership of his political party, and
 - Voting contrary to the party whip only in respect of vote of confidence/no-confidence, money bill, or motion of vote of thanks to the President's address.
- **Retaining support is government's responsibility:**
 - The onus is on the government to retain the support of a majority of MPs, including those from the same party.
 - Only then can the government be held accountable for its actions.

GOVERNANCE

CENTRE TO ROLL OUT PROCESS TO SET UP 16TH FINANCE COMMISSION SOON

Context:

- The government will soon kick off the process to set up the **16th Finance Commission**, with the Finance Ministry likely to notify the terms of reference (ToR) of the constitutional body.

Background:

- The **15th Finance Commission** (FFC chaired by NK Singh) was set up in (November 2017) with a mandate to make recommendations **for the five-year period from 2020-21**.
 - The Commission is **usually granted about two years** to deliberate on its terms of reference, consult States and frame its recommendations.
 - The government **should ideally have its report by October 2025** to consider it in time for **Budget 2026-27**, where it will have to place its action taken report on the Commission's report.
- Despite the Constitution's mandate **to establish an FC every five years**, breaking the trend, the 15th FC's term was extended by a year, **ending in 2025–2026**.
- In late 2019, the Commission was asked to give a **standalone report for 2020-21 and another report for an extended five-year period till 2025-26**.
- Since the FFC report **covered six years** (instead of five), the next FC must be selected this year.
- The last time an FC was granted a six-year time frame was for the **9th FC**, formed in June 1987.
- The **10th FC was still constituted in June 1992** within the five-year deadline specified by **Article 280 of the Constitution**, which has not been the case this time.

The first step towards establishing 16th FC:

- **While the ToR (Terms of Reference)** for the 16th FC will be worked out after internal government deliberations steered by the Finance Ministry, **the appointment of an Officer on Special Duty** to drive the process.
- This officer typically becomes the **member-secretary of the Commission**, once it is constituted.

The key challenges for the 16th FC:

- **The co-existence of another permanent constitutional body** – the GST Council.
 - The Council's decisions on tax rate changes **could alter the revenue calculations made by the FC** for sharing fiscal resources.
- The government usually accepts recommendations **on States' share of tax devolution** and the trajectory for fiscal targets and **ignores most other suggestions**. For instance,
 - The government **ignored the FFC's suggestion of creating a Fiscal Council** where the Centre and States collectively work out India's macro-fiscal management challenges.
 - The government has accepted the FFC's recommendation to set up a **non-lapsable fund for internal security and defence** 'in principle', but its implementation still has to be worked out.

Way ahead:

- **A recourse mechanism** can be put in place for the Commission to revisit its numbers due to the GST Council's decisions.
- The governments must rise beyond politics to deliberate and implement FC's recommendations, which are sound in terms of policy and economics.

APMC MANDIS TO BE CONNECTED WITH E-NAM

- **Context:** The Government has recently **approved the integration of 101 agricultural produce marketing committee (APMC) mandis** into the **electronic platform e-NAM**.

About

- The total number of mandis connected to the e-NAM platform is **expected to reach 1,361** by March 31.
- Last year, the **Ministry of Agriculture(MoA)** also launched the **Platform of Platforms(PoP)** within the **e-NAM portal** in Bengaluru.
- Previously, the government has also **launched initiatives** such as the **Agri-Market Infrastructure Fund**, the **Kisan Rath Mobile App**, and the **Platform of Platforms (PoP)** within the e-NAM portal to promote e-NAM and increase the participation of farmers and traders.
- These schemes aim to improve **price discovery, increase transparency, and provide farmers with access to a wider market** for their produce.

What is e-NAM?

- e-NAM (Electronic National Agriculture Market) is an **online trading platform** for **agricultural commodities** in India.
- It was **launched by the Government of India in 2016** with the objective to create a unified national market for agricultural commodities.
- It **integrates existing physical markets**, such as **Agricultural Produce Market Committees (APMCs)** and other market yards, with an **electronic platform**.
- It enables **farmers, traders, and buyers to buy and sell agricultural commodities** through an online portal, providing them with access to multiple markets and buyers across the country.
- The platform also offers **real-time price discovery, quality testing, and transportation services**, thereby promoting transparency, efficiency, and competition in agricultural markets.

What are APMC Mandis?

- APMC or Agricultural Produce Market Committee(APMC) are **physical marketplaces or yards where farmers sell their agricultural produce** to traders and agents.
- These mandis are **regulated by state APMC Acts**, which **require farmers to sell their produce through licensed traders and agents**.
- These mandis were established to **protect farmers from exploitation and ensure fair prices** for their produce.
- Mandis are **marketplaces or yards where farmers sell their agricultural produce to licensed traders and commission agents**.
- There are over **7,000 APMC mandis** across India, each serving a specific geographic region or cluster of villages.

Significance of integrating APMCs in e-NAM

- They **help in regulating the market** by ensuring **quality standards, timely payments, and transparency in transactions**.
- Better monitoring and regulation of traders and commission agents.
- It will help in Real-time price discovery and stable price realization for producers.
- It will help in increasing agricultural trade and market reach.

Government schemes to promote APMC mandis:

- **electronic National Agriculture Market (e-NAM) platform:** It enables farmers to sell their produce online and access a wider market.
- **Model APMC Act, 2017:** The act aims to **liberalize the agricultural market and encourage private investment**.
- **Farmer Producer Organizations (FPOs):** It was set up by government has proposed to **help farmers gain access to markets and improve bargaining power**.
- **Agriculture Infrastructure Fund (AIF):** It aims to **provide financial support**.

INTERNATIONAL RELATIONS

LET DIPLOMACY FLOW

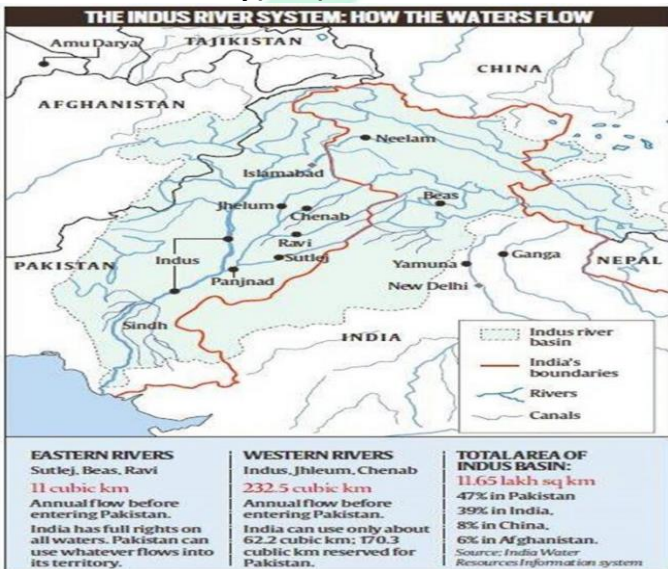
Context:

Pakistan Prime Minister has expressed the desire for a **diplomatic handshake** from across the border.

India-Pakistan Relations:

- With the *partition of British India*, two separate nations, India and Pakistan were formed.
- Since the very beginning, the immediate violent partition, wars, terrorist attacks and various territorial disputes overshadowed the connection.

Indus Water Treaty(IWT):



- IWT is a **water-distribution treaty** between India and Pakistan, brokered by the **World Bank (WB)**, to use the water available in the **Indus River and its tributaries**.
- It was signed in **Karachi in 1960** by then-Indian PM Jawaharlal Nehru and then-Pakistani president Ayub Khan.
- The Treaty gives control over the waters of the three “eastern rivers” – the Beas, Ravi and Sutlej (BRS)- to India.
- Control over the waters of the three “western rivers” – the Indus, Chenab and Jhelum -has been given to Pakistan.
- India has about **20% of the total water** carried by the Indus system while **Pakistan has 80%**.
- The treaty allows India to use the western river waters for limited irrigation use and unlimited non-consumptive use for such applications as power generation.
- India has the right to generate hydroelectricity through run-of-the-river (RoR) projects on the western rivers which, subject to specific criteria for design and operation, is unrestricted.
- The dispute redressal mechanism provided under the IWT is a graded **3-level mechanism**.
- Under the IWT, whenever India plans to start a project, it has to inform Pakistan.
- The concerns have to be cleared at the levels of the Indus Commissioners → Neutral Expert → Court of Arbitration, in a graded manner.

Issue of hydroelectric projects:

- Pakistan has reiterated desire for third-party mediation
- India has reinforced to revisit the Indus Water Treaty (IWT).

India's stand:

- **India claimed that the “intransigence” of Pakistan** had made the communication channels over shared waters defunct.
- **India:** Due to the “**Material breach**” of the agreement, it would like to “update the Treaty.
- **India has given a 90-day notice to Pakistan.**
 - It has opened space, both legally and politically for:
 - discussing
 - debating
 - interpreting
 - analyzing the fault lines of water diplomacy of both countries.
 - **Parliamentary standing committee report(2021):** It suggested renegotiating the Treaty.

India’s stand on treaty:

- **India has adopted the moderate approach** of not terminating but modifying the IWT.
- **India has attributed the “material breach”** to Pakistan’s unilateral decision to approach the Permanent Court of Arbitration
 - It bypassed the mandate of Indus Commissioners.
 - India boycotted this hearing.
- **India claims.** Pakistan has violated the dispute settlement mechanisms, as mandated by **Articles 8 and 9 of the Treaty.**
- **Article 8** specifies the roles and responsibilities of the Permanent Indus Commission — a regular channel of communication for matters relating to the implementation of the Treaty.
- **Article 9:** for addressing any difference or dispute that might emerge between the two countries.

Article 9 of treaty:

- **It offers a graded pathway** to address any issue related to the implementation or interpretation of the IWT.
- **It provides for the appointment of a neutral expert** in case there is a lack of consensus among the Commissioners.
- **If the neutral expert believes** that the difference should be treated as a dispute, it can be referred to the Court of Arbitration.
- **The Commission has to report** the facts to the two governments.
- **The report must state:**
 - Points of concord in the Commission
 - The views of each Commissioner on these issues
 - Mention the issues of disagreement.
- **Only after receiving a report** can either of the governments address the issue bilaterally or through the Court of Arbitration.

International laws:

- **Article 60 of the Vienna Convention on the Laws of the Treaties:** A party can criticize an agreement and give notice of its intention to terminate it if the other party violates its fundamental provisions.

Contest in projects:

- **Kishanganga Hydel Power Project (Neelum in Pakistan):**
 - **The Court of Arbitration** gave a partial award on the project.
 - **It upheld** India’s right to divert water for the project.
 - **The Court refused** to set a bar on the release of water, as demanded by Pakistan.
 - **It restrained KHEP** from environmental considerations.
- **Ratle project on the Chenab River:**
 - **On Grounds** of design and violations of the IWT.
 - **The project** was delayed but work resumed on it in 2019.
 - **Pakistan asked the World Bank** to establish a Court of Arbitration to look into the project.

- **The Bank** has started a parallel process for appointing a neutral expert.
- **India objected to this process**, claiming it was a unilateral move.

Way Forward

- **The significance of the “material breach”** and calls for terminating the Treaty should be seen in context of **article 9 of treaty**.
- **The practice of diplomacy and the use of law** for explaining and justifying government actions are equally important.
 - The reasoning put forward by India and Pakistan requires scrutiny.
- **Ecological and economic concerns** are also important to understand the diplomatic fault lines
- **Pakistan has shown a penchant for third-party mediation**, arguing that this could be the best route for overcoming the impasse in the relations between the two countries.
- **Technically-negotiated agreements** are only partial solutions and can put incremental strains on transboundary rivers and their ecosystems for years.
- **The two countries should use bilateral dispute settlement mechanisms** to discuss the sustainable uses of water resources.
- **Article 7 of treaty**: It talks about future cooperation — discussing and broadening transboundary governance issues in holistic terms.
- It could be the starting point for any potential diplomatic handshake.

A NEW SINO-RUSSIAN ALLIANCE: WHAT ARE ITS IMPLICATIONS FOR INDIA?

Context:

- China and Russia unveiled a **partnership “without limits” and with no “forbidden areas”** in Feb 2022. Russia and China had a **strategic partnership** for a long time. The Beijing declaration did lay out a solid basis for jointly confronting the West.

What were the Russian calculations for invading Ukraine?

- Putin had hoped that his military offensive would lead to **quick collapse of the regime** in Ukraine and **occupation of Ukraine**. This will impact the European security order.
- It will deeply divide Europe and fracture the **US-led trans-Atlantic security system**. After the US withdrawal from Afghanistan, occupation of Ukraine will further undermine the **credibility of the US as a global power**.
- Putin’s victory in Europe would have had a **dramatic impact on Asia**. It would have **weakened US alliances** in Asia and **boosted China’s ambition** to radically **reshape its periphery**. China would have used force for **unification with Taiwan**.

How has the Ukraine war played out?

- Ukraine’s determination has prevented the **quick collapse of the regime** in Kyiv. It has helped to mobilise massive military assistance from the Western world.
- Putin is **locked in a stalemate**. He has lost nearly 50% of the territory Russia gained in eastern Ukraine during the early phase of the invasion.
- Russia’s **military material and manpower losses** have been immense. Moscow faces a harsh regime of **Western economic sanctions**.

What are the geostrategic implications of the Sino-Russia alliance and Ukraine war?

- Putin and Xi have facilitated the **Western unity under American leadership**. The Ukraine invasion has also allowed the US to put **simultaneous pressure on both China and Russia**.
- In Europe, the Ukraine war has helped the US to **galvanize and expand NATO**.
- The Russian invasion has also triggered the **fear of Chinese territorial expansionism in Asia**. This has led to the **strengthening of US bilateral alliances** with Australia and Japan. The US has significantly raised its **military and political support** for Taiwan.
- The **Sino-Russian alliance and the Ukraine war** have seen Germany and Japan joining the battle against Moscow and Beijing.
- Japan and Germany happen to be the world’s third and fourth largest economies. Their mobilisation significantly alters the so-called **“balance of powers”** between the West and the Moscow-Beijing axis.

- Both Berlin and Tokyo are now committed to **raising their defence spending** to deal with the security challenges from Moscow and Beijing.
- Washington is **limiting the influence** of Russia and China in Eurasia by bringing its **alliances and partnerships** in Europe and Asia closer.
- Leaders of America's Asian allies joined for the first time a NATO summit last June in Madrid. NATO has promised to take a greater interest in shaping the Indo-Pacific balance of power.
- There is a growing prospect that Moscow will become **more beholden to Beijing** after Putin's military misadventure in Ukraine. Beijing is unlikely to abandon Moscow. A weakened Putin will remain a **valuable asset for Xi** even as Beijing seeks to limit some of the new Western hostility to China.

How is it impacting India?

- China can increase the **military pressure on the disputed border** with India.
- Delhi depends on **Russian military supplies** to cope with the PLA challenge and Moscow is now a junior partner to Beijing. This is certainly not a good situation for India.
- Dependence on Russian arms has severely constrained **India's position on Ukraine**. It has cast a shadow over **Delhi's engagement with Europe and the US**. It is now the biggest constraint on **India's freedom of action**.
- India is facing the prospect of a **unipolar Asia** dominated by a **rising and assertive China**. So, it has turned to the US and its allies to restore the **regional balance of power**.
- The transition has become more urgent and complicated by the **new Sino-Russian alliance** Ukraine war.

INDIA-US: THE HIGH-TECH BOOST

Context:

India and the United States elevated their strategic partnership with the launch of an **initiative on Critical and Emerging Technology or iCET**.

Initiative on Critical and Emerging Technologies (iCET)

- **About:**
 - The iCET involves **collaboration** in a range of areas including
 - Quantum computing,
 - Semiconductors,
 - 5G and 6G wireless infrastructure, and
 - Civilian space projects such as lunar exploration.
- **Aim:**
 - iCET aims to position the two countries as **trusted technology partners** by **building technology value chains** and supporting the **co-development** and **co-production** of items.
 - It also aims to address **regulatory restrictions, export controls** and **mobility barriers** through a standing mechanism
- **Defecnce:**
 - On the defence front, iCET aims to **expand India-US cooperation** in fields like **artificial intelligence and military equipment**.
 - **Industrial cooperation:**
 - The iCET announced a new **bilateral defence industrial cooperation roadmap** that will be intended to **accelerate defence technology cooperation**.
 - **Fighter jet engine production in India:**
 - The USA under this has also agreed to produce a fighter jet engine in India for the **indigenously manufactured Light Combat Aircraft**.
 - **GE Aerospace** has applied for an export licence for jet engine production and phased transfer of technology to Indian entities.

Significance

- **Depth to the relationship:**

- If implemented with speed and purpose, the bilateral Initiative on Critical and Emerging Technologies (iCET) could lend a **new strategic depth and breadth** to the **expanding engagement** between India and the United States.
- **Against the rising and assertive China:**
 - Lending urgency to the iCET is the growing convergence of Indian and US interests in managing the **security, economic, and technological challenges** presented by a rising and assertive China.
- **Reducing dependence on Russia:**
 - India is also looking to reduce its over-dependence on Russian weapons and military technology and to produce more weapons at home in partnership with western countries.

Challenges

- **Hurdles on Indian side:**
 - The US has flagged the need for regulatory and policy consistency and overcoming tax and custom hurdles on the Indian side.
- **China factor:**
 - The new initiative has also been criticized by China.
 - China believes India is willing to ramp up its ties with the US to advance technology and attract more funding to replace its position in the global industrial and supply chains.
 - Though, iCET has no explicit reference to China.

India-USA Relations

- **About:**
 - India and US share values of democracy, rule of law, human rights, and religious freedom that bind the countries together.
- **Bilateral engagement:**
 - India and the United States enjoy a **comprehensive global strategic partnership** covering almost all areas of human endeavour, driven by shared democratic values, convergence of interests on a range of issues, and vibrant people-to-people contacts.
 - **Regular exchanges at the leadership level** have been an integral element of the expanding bilateral engagement.
 - Despite the COVID-19 pandemic, India-U.S. cooperation witnessed intense engagement under various bilateral dialogue mechanisms in a wide range of areas including defence, security, health, trade, economic, science & technology, energy and people-to-people ties.
- **Defence and Security:**
 - **India-US defence cooperation** is based on the “New Framework for India-US Defence Cooperation”, which was renewed for a period of ten years in 2015.
 - In 2016, the **defence relationship** was designated as a **Major Defence Partnership (MDP)**.
 - The MDP recognizes a shared desire to build a comprehensive, enduring and mutually beneficial defence partnership.
 - Several **defence agreements** have been signed in recent years. **These includes:**
 - Logistics Exchange Memorandum of Association (August 2016)
 - Memorandum of Intent between the U.S. Defence Innovation Unit (DIU)
 - the Indian Defence Innovation Organisation – Innovation for Defence Excellence (2018)
 - Communications Compatibility and Security Agreement (September 2018)
 - Industrial Security Agreement (December 2019);
 - Basic Exchange and Cooperation Agreement (October 2020).
 - **Bilateral military exercises and defence exchanges** are important aspects of deepening **military-to-military cooperation**.
 - In addition to a number of service-to-service exercises, 2019 a **tri-services exercise– Tiger Triumph-** was conducted in November 2019.
 - Bilateral and regional exercises include **Yudh Abhyas (Army); Vajra Prahar (Special Forces); RIMPAC; Red Flag**.
 - In November 2020, the Royal Australian Navy joined the U.S.-India-Japan **MALABAR Naval Exercise** held in the Bay of Bengal and the Arabian Sea.

- Both sides have conducted a number of **PASSEX** with the US carrier groups in the Indian Ocean Region.
- **Quad:**
 - **The four Quad partners (India, Japan, United States & Australia)** first formed a “Core Group” in 2004, to swiftly mobilise aid during the joint response to the 2004 Tsunami. Since 2017, Quad engagements have increased and intensified.
 - In 2019, the first Quad Foreign Ministerial Meeting was held in New York (December 2019).
- **Counter-Terrorism Cooperation:**
 - Cooperation in counter-terrorism has seen considerable progress with information exchange, operational cooperation and sharing of counterterrorism technology and equipment. **India-U.S. Joint Working Group on Counter-Terrorism** oversees the expanding CT cooperation.
- **Cyber Security Cooperation:**
 - **The India-US Cyber Framework** signed in September 2016, provides for expanding cooperation in the cyber domain.
- **Trade & Economic Relations:**
 - The rapidly expanding trade and commercial linkages form an important component of the multi-faceted partnership between India and the United States.
 - The U.S. is India’s second-largest trading partner and a major destination for our exports of goods and services.
 - Bilateral trade in goods and services stood at US\$ 146 billion in 2019.
 - During the financial year 2020-21, India received the highest ever foreign direct investment amounting to USD 81.72 billion, as per data published by the Ministry of Commerce and Industry, Government of India.
 - The US replaced Mauritius as the second largest source of foreign direct investment into India during 2020-21 with inflows of USD 13.82 billion.
 - The US is one of the top 5 investment destinations for Indian FDI.
- **Energy sector:**
 - India and the US have a strong bilateral partnership in the energy sector.
 - In 2010, a **bilateral Energy Dialogue** was launched.
- **Science and Technology:**
 - India-US cooperation in Science and Technology is multi-faceted and has been growing steadily under the framework of the **India-US Science and Technology Cooperation Agreement** signed in October 2005, which was renewed for a period of ten years in September 2019.
 - ISRO and NASA are working together to realise a joint microwave remote sensing satellite for Earth observation, named **NASA ISRO Synthetic Aperture Radar (NISAR)**.
- **Education partnership:**
 - It is an important pillar of India-US ties and both countries share strong linkages and a history of higher education collaborations.
 - **The United States Educational Foundation in India (USEFI)** was set up after a bilateral agreement on education exchange was signed between India and the US on February 2, 1950.
- **Indian Diaspora:**
 - About 4.2 million Indian American/Indian origin people reside in the US. The Indian Americans [3.18 million] constitute the third largest Asian ethnic group in the US

TRADING MORE WITHIN ASIA MAKES ECONOMIC SENSE

Context:

- A warning by the **International Monetary Fund (IMF)** that global trade would slow down from **4(five point four)% in 2022 to 2.4(two point four)% in 2023**.

What is an FTA?

- FTA is a pact between two or more nations to reduce barriers to **imports** and **exports** among them.

- **Under a free trade policy:** Goods and services can be bought and sold across international borders with little or no government tariffs, quotas, subsidies, or prohibitions to inhibit their exchange.
- **Protectionism:** The concept of free trade is the opposite of **trade protectionism** or economic **isolationism**.
- **FTAs can be categorized as:**
 - Preferential Trade Agreement (PTA)
 - Comprehensive Economic Cooperation Agreement (CECA)
 - Comprehensive Economic Partnership Agreement (CEPA)

What does FTA cover?

- **Tariff reduction** impacting the entire manufacturing and the agricultural sector
- Rules on services trade
- Digital issues such as data localisation
- **Intellectual property rights** that may have an impact on the accessibility of drugs
- Investment promotion, facilitation, and protection.

IMF book, “South Asia’s Path to Resilient Growth”:

- It argues that a strong base exists for South Asia trading more with dynamic East Asia
- **The total merchandise trade** between South Asia and East Asia (in dollar terms) grew at about 10% annually between 1990 and 2018 to \$332 billion in 2018
 - It could reach about \$500 billion looking ahead.
- **The handful of free trade agreements (FTAs)** linking economies in South Asia with East Asia may rise to **30 by 2030**.

Background:

- **Since the 1990s**, South Asia-East Asia trade has gathered pace
- **Trade is linked to**
 - **India’s trade re-aligning towards** East Asia through its ‘Look East’ and ‘Act East’ policies
 - **South Asia** adopting reforms
 - **China** offshoring global supply chains to Asia.

What needs to be done?

- **Regional trade integration across Asia** can be encouraged by gradually reducing barriers to goods and services trade.
- **South Asia’s trade opening** should be calibrated with tax reforms as trade taxes account for much of government revenue in some economies.
- **Adjusting financing** to losing sectors to reallocate factors of production and re-training of workers to promote gains from trade and mitigate income inequality.
- **Improve the performance of special economic zones (SEZs)** and invest in services SEZs to facilitate industrial clustering and exports.
- **Pursue comprehensive FTAs** that eventually lead to the **Regional Comprehensive Economic Partnership (RCEP)** to provide for a regional rules-based trade to insure against rising protectionism.
- **South Asian economies need to improve tariff preference** use by better preparing business in navigating the complex rules of origin in FTAs
- **Including issues** relevant to global supply chains in future FTAs.
- **Reinvented trade-focused Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation (BIMSTEC)** can facilitate stronger trade ties and support the interests of smaller members.

Some FTA’s in South Asia:

- Japan-India FTA
- Sri Lanka-Singapore FTA
- Pakistan-Indonesia FTA.

South Asia has over 600 SEZs in operation:

- Kochi (India)
- Gwadar (Pakistan)
- Mirsarai (Bangladesh)
- Hambantota (Sri Lanka).

Way Forward

- **Regional trade in Asia** is recovering after the COVID-19 pandemic and has opened opportunities for South Asia to participate in global value chains and services trade.
- **Improving SEZ processes and outcomes in South Asia** requires:
 - ensuring macroeconomic and political stability
 - adopting good practice regulatory policies towards investors
 - providing reliable electricity
 - 5G broadband cellular technology
 - upgrading worker skills.
- **India has also concluded FTAs with the United Arab Emirates and Australia in 2022:** The confidence gained from these can help prepare for future RCEP membership by undertaking structural reforms.
 - It will boost business competitiveness in supply chains and foster greater regulatory coherence with East Asia.
- **If India joins RCEP**, the rest of South Asia may be incentivised to join out of a fear of being left out and suffering from trade diversion effects.
- **Reinventing BIMSTEC requires better resourcing its Secretariat**, concluding the long-running BIMSTEC FTA, building trade capacity in smaller economies, and introducing dialogue partner status to encourage open regionalism in Asia.
- **A narrower geographical coverage** between South Asia and Southeast Asia may be a building block for eventual trade integration across Asia.
- **To mitigate a backlash against regionalisation**, the larger economies should facilitate gains from trade to the smaller economies.
- **Having the political will** to implement pro-trade policies can improve the lives of Asians.
- **India is South Asia's largest economy** and its **G-20 presidency** can be a good platform to initiate these changes.

INDIA-UAE CEPA**Context:**

- Recently, the Prime Minister of India recognized the valued utilization of **India-UAE CEPA by Indian Exporters**.

Comprehensive Economic Cooperation Agreement (CEPA)

- CEPA is a **comprehensive agreement** between India and the United Arab Emirates that seeks to **enhance the economic and commercial ties** between the two countries.
- The agreement aims to **increase trade and investment**, improve market access, and **promote economic growth** between India and the UAE.
- CEPA was **signed in 2020** and is seen as a **significant milestone in the economic relationship** between India and the UAE.
- Under CEPA, the two countries have committed to reducing barriers to trade and investment, which will make it easier for businesses from both countries to engage in trade and investment activities.
- The **agreement includes** provisions for reducing tariffs on goods, services, and investment, as well as for promoting the movement of people, goods, and services between India and the UAE.
- CEPA is expected to provide a **major boost to the economic relationship between India and the UAE**, as it will increase trade and investment, improve market access, and provide a more favorable environment for businesses to operate in.

- The agreement is **expected to benefit a range of sectors**, including but not limited to information technology, engineering, pharmaceuticals, and services sectors.
- CEPA is **expected to promote the development of economic and commercial** ties between India and the UAE, and to provide a foundation for further cooperation between the two countries in the future.
- It is projected to reach US\$100 billion in goods trade and over US\$1.5 billion in trade in services in the next five years. Built on three pillars of trust, transparency, and talent.

Benefits

- **For India:**
 - Preferential market access provided by the UAE on **more than 97 percent of its tariff** lines, accounting for 99 percent of Indian exports to the UAE in value terms
 - Preferential market access for labour-intensive goods such as textiles, leather, footwear, sports goods, plastics, furniture, agricultural and wood products, engineering goods, pharmaceuticals, and automobiles
 - Preferential market access for services sector including computer-related services, health, tourism, travel, engineering, and accountancy
 - Creation of more than one million jobs for the Indian workforce through enhanced trade liberalisation and market access
 - UAE committed to issuing 140,000 employment visas to skilled Indian professionals by 2030
 - Three-year visa for intra-corporate transferees and a 90-day visa for business visitors and contractual suppliers from India
- **Benefits for the UAE:**
 - Boost to the UAE's GDP (US\$9 billion) by 1.7 percent by 2030
 - Zero-duty market access for 90 percent of exports from the UAE into India, benefiting commodity exporters of petrochemicals, aluminum, and copper.

Importance of UAE

- **Trade and Investment:** UAE is one of India's largest trading partners, with bilateral trade reaching nearly \$60 billion in 2019-20. UAE is also a significant source of foreign investment for India.
- **Energy Security:** UAE is a major supplier of oil to India, making it an important partner in India's energy security.
- **Strategic Location:** UAE's location makes it a gateway for India to access the wider Gulf region and Africa.
- **People-to-People Ties:** There is a large Indian diaspora in the UAE, estimated to be around 3 million people, making it a significant cultural and economic bridge between the two countries.
- **Political and Defence Cooperation:** India and UAE have a strong political and defence relationship, with regular high-level exchanges and cooperation on regional and global issues.

Challenges

- **Balancing Relations with Iran:** India has traditionally maintained close ties with Iran, but the UAE has been critical of Iran's regional behaviour and has sought to counter its influence. India has had to balance its relationships with both countries, which has at times led to tensions.
- **Competition for Influence in the Gulf:** Both India and the UAE are seeking to increase their influence in the Gulf region, and this competition has sometimes led to friction in their relationship.
- **Differences on Regional Issues:** India and the UAE have different perspectives on some regional issues, such as the conflict in Syria, which has at times created tension in their relationship.
- **Labor Issues:** There have been concerns raised about the treatment of Indian workers in the UAE, which have sometimes strained relations between the two countries.

Way Ahead

- Despite these challenges, India and the UAE continue to work towards strengthening their relationship and overcoming these obstacles. Both countries recognize the importance of their relationship and have taken steps to deepen cooperation in various areas, including trade, investment, energy security, and people-to-people ties.

- Overall, the UAE is an important partner for India in several areas, and the two countries continue to work towards strengthening their relationship.

TWO YEARS AFTER MYANMAR COUP, HOW THE COUNTRY IS A MESS — AND INDIA'S HEADACHE HAS WORSENERD

Context:

- The Myanmar army seized power on February 1, 2021. The reason behind the coup was the fear that the party which won the election would rewrite the 2008 Constitution and move the powers of the military out of it. Therefore, the Myanmar military overthrew the elected government and returned **Myanmar from democratic state to military dictatorship**. However, the army led government/junta regime has failed to bring the country under its control. Pro-democracy civilian resistance groups (**People's Defence Forces or PDFs**) are fighting the junta and they have been joined by ethnic armed organisations (**EAOs**). Furthermore, a National Unity Government comprising many of the elected parliamentarians has been lobbying foreign governments for diplomatic recognition. The situation in Myanmar has turned violent.

Impact on foreign policy of India:

- India has pursued a **"dual-track policy"** for over three decades with Myanmar, i.e., doing business with the junta and as well as sympathizing with the pro-democracy forces.
- In the mid-1990s, **Myanmar military helped India** in securing the borders of its Northeastern states from Northeastern insurgencies. From that time, **India has had a good relation with Myanmar military rulers**.
- Furthermore, India's engagement with the junta was also seen as retaining its influence in Myanmar **in the backdrop of rising threat from China**.
- Now, with the ongoing crisis in Myanmar, **India is held between** supporting pro-democratic groups and military rulers. It **has its own national interest involved in it**, i.e., border security management and restricting China in Myanmar.

Other associated concerns with India:

- **Obstacle in cross boundary transport:** PDFs control large parts of the area in the Sagaing region through which the trilateral highway passes. There have been occasions when Indian officers had to intervene with the local PDF leaders to allow project vehicles to pass.
- **Obstacle in developmental project: Sittwe port in Myanmar** has been developed by India as part of the Kaladan project. The port was developed with the objective of India-Myanmar maritime trade and to provide alternate access to India's landlocked north-east states. It was said that it was ready for inauguration. However, now it seems way far.
- **Security concerns with the North-eastern states of India:** The Myanmar coup has led the people to move out of the country. Mizoram is hosting thousands of refugees from the adjoining Chin state in Myanmar.
- Moreover, the Myanmar Air Force has bombed the area on the border with Mizoram. Its effect was also seen in the state which triggered panic in the area.
- Further, as per **UN Office for Drugs and Crime**, there has been a 33 percent spike in **poppy cultivation in Myanmar**. The sharpest increase has been noticed in Chin state, in an area that borders northern Mizoram and southern Manipur.
- **Threat to national security:** The Myanmar junta has recruited Indian insurgent groups (**IIGs**) in regions adjoining Manipur and Nagaland to fight against the local PDFs and other groups. The group has been renamed as junta.
- The People's Liberation Army, one of the groups of IIGs, has been held responsible by India for the deadly attack on an **Assam Rifles convoy**.
- **Rohingya crisis:** The Myanmar military has not been able to resolve the Rohingya crisis, which has also been the cause of regional destabiliser.
- **Concerns with India's image:** India describes itself as the **"mother of democracy"**. Its **presidency of the G20** is an opportunity to project the voice of the global south. Therefore, **India would be in a dilemma** in supporting the type of government in Myanmar and representing its stand on it globally.

Way ahead for India:

- Despite these concerns, India has options like it can –
 - a) open channels to the democratic forces and to some ethnic groups;
 - b) can work more actively with ASEAN;
 - c) could open an army-to-army channel with the junta;
 - d) increase people to people channels;
 - e) offer scholarships to Myanmar students like it did for Afghan students.

CHALLENGES TO SECURE INDIA'S LAND BORDERS

Context:

- India's significant border challenge is that it has contested borders with Pakistan and China and both of them have a strategic nexus directed against India.

India's borders

- **About:**
 - India's borders are unique due to the variety of terrains through which these borders pass, namely deserts, mountains, glaciers and forests.
 - It is obvious that managing such large borders in diverse terrain conditions poses myriad challenges.
- **India shares borders with the countries as below:-**
 - **Bangladesh:**
 - 4096.70 kms running along West Bengal, Assam, Meghalaya, Tripura and Mizoram.
 - **Pakistan:**
 - 3323 kms running along Gujarat, Rajasthan, Punjab, Union Territory of Jammu & Kashmir and Union Territory of Ladakh.
 - **China:**
 - 3488 kms running along Arunachal Pradesh, Sikkim, Uttarakhand, Himachal Pradesh and Union Territory of Ladakh.
 - **Nepal:**
 - 1751 kms running along Uttarakhand, Uttar Pradesh, Bihar, West Bengal and Sikkim.
 - **Bhutan:**
 - 699 kms running along Sikkim, West Bengal, Assam and Arunachal Pradesh.
 - **Myanmar:**
 - 1643 kms running along Arunachal Pradesh, Nagaland, Manipur and Mizoram.
 - **Afghanistan:**
 - 106 kms running along Union Territory of Ladakh



India's Border disputes

- **With China:**
 - It is along the LAC with China that India faces the toughest border challenge.
 - India has disputed borders with China in **Ladakh, Middle Sector, and in Arunachal Pradesh**.
 - Despite **many levels of talks**, very little progress has been made to resolve the dispute.
 - China is using the dispute against India, whom it sees as its competitor in Asia, to moderate its strategic behaviour and advance its national goals and aspirations.
- **With Pakistan:**
 - **On the borders:**
 - Barely **two months after** Independence, **Pakistani fighters invaded Jammu and Kashmir**, leading to the first of four wars the two countries have since fought.
 - The Kashmir region is often dubbed as **one of the most militarised places** in the world.
 - POK is Pakistan Occupied Kashmir which refers to the region in Kashmir which is under control of Pakistan.
 - **Issue of Drugs:**
 - **Drugs smuggling from Pakistan** is another major challenge for our paramilitary forces and state police.
 - **Punjab, a strategic border state**, has been the **target of drug smuggling** for many years now.
 - **Terrorism:**
 - Terrorism emanating from territories under Pakistan's control remains a core concern in bilateral relations.
- **China-Pakistan Economic Corridor (CPEC):**
 - The CPEC is a collection of **infrastructure projects** that have been under construction throughout Pakistan **beginning 2013**.
 - The CPEC is **part of China's larger Belt and Road Initiative**.
 - India has protested the project from its inception since it **passes through large chunks of Pakistan-occupied Kashmir**.
- **Along Bangladesh, Nepal, Bhutan and Myanmar:**
 - India's border management with our other neighbours—Bangladesh, Nepal, Bhutan and Myanmar—poses different kinds of challenges.
 - Here, the principal objective is to secure our borders against **elements hostile to the country** and putting in place systems that are able to interdict such elements while **facilitating legitimate trade and commerce, tourism and other such activities**.

India's strategy to tackle its border disputes & way ahead

- **Construction activities:**
 - As part of the strategy to secure the borders as also to create infrastructure in the border areas of the country, several initiatives have been undertaken by the Border Management Division.
 - **These include:**
 - Construction of **fence, floodlighting, roads, Border Out Posts (BOPs), Company Operating Bases (COBs)** and
 - **Deployment of technological solutions** along the India-Pakistan, India-Bangladesh, India-China, India-Nepal, India-Bhutan and India-Myanmar borders.
 - **Other:**
 - Projects like **Trans-Arunachal Highway** will help in mounting an effective and speedy response against an aggression by the China.
 - The **Border Roads Organisation (BRO)** completed more than 100 projects in border areas, the majority of which were close to the border with China.
 - India is speeding up work on the **Nimu-Padam-Darcha axis** which is going to help **troops move to Ladakh** from other parts of the country.
 - However, this will take time; until then we have to be prepared to deal with its aggression along LAC in an **'Armed Coexistence'** scenario.

- **Deployment of troops & surveillance:**
 - The Indian Army and the BSF are deployed in multiple layers to form an **anti-infiltration grid**.
 - **The border fence and deployment of other surveillance devices** has helped in **reducing infiltrations**.
 - **The surgical strikes** launched by our armed forces in the wake of terrorist attacks supported by Pakistan's ISI have succeeded in sending the message of firm resolve to deal with the menace of terrorism and proxy wars.
- **Drugs Challenge:**
 - Drones have proved to be an effective tool in smuggling drugs across the border.
 - It will take more than mere vigilance on the border to deal with this menace.
 - Improving our intelligence network within the state to nab the drug dealers on our side of the border must be the main priority of our security forces.
- **Along Bangladesh, Nepal, Bhutan and Myanmar borders:**
 - Our borders with these countries are guarded primarily by paramilitary forces, and they have to deal with smuggling and trafficking of humans, drugs, arms, illegal migration and movement of suspected insurgents.
 - Porous borders with Bangladesh and Myanmar and open borders with Nepal pose challenges in dealing with these nefarious activities.
 - **Need of trilateral dialogue:**
 - India, Pakistan and China should begin a trilateral dialogue for dispute-resolution, cooperation and common development.

INDIA, FRANCE, UAE TRILATERAL INITIATIVE

Context:

- Recently, **India, France, and the United Arab Emirates (UAE)** have agreed to form a partnership to **work together in the fields of nuclear and solar energy**, as well as in tackling **climate change and preserving biodiversity**.
- The idea of this partnership was first discussed at a meeting in New York during the **United Nations General Assembly in September 2022**.

Major Highlights of the Trilateral Initiative

- This trilateral initiative will serve as a **forum to promote the design and execution of cooperation projects in the fields of energy**, with a focus on **solar and nuclear energy**, as well as in the **fight against climate change** and the protection of biodiversity, particularly in the **Indian Ocean region**.
- The three countries have also agreed to work together in defence, countering infectious diseases, and promoting cooperation in global health organisations such as the **World Health Organization, Gavi-the Vaccine Alliance, the Global Fund, and Unitaid**.
- Further, the three countries will attempt to identify tangible cooperation on implementing the **“One Health” approach**, and support the development of local capacities in **biomedical innovation and production within developing countries**.
- The three countries also agreed to expand their cooperation through initiatives such as the **Mangrove Alliance for Climate** led by the UAE and the **Indo-Pacific Parks Partnership** led by India and France.

Other Areas of Cooperation between India and France:

- **Defence Cooperation:**
 - The three services of both countries have regular defence exercises; viz.
 - **Exercise Shakti (Army)**
 - **Exercise Varuna (Navy)**
 - **Exercise Garuda (Air Force)**
 - India entered into a contract with a **French firm to build six Scorpene submarines in India's Malegaon dockyards** through a technology-transfer arrangement in 2005.
 - Also, India and France had signed the **inter-government agreement in 2016**, under which France agreed to provide **36 Rafale fighter jets at a cost of around 60,000 crore rupees** to India.

- **Other Initiatives:**

- India and France are in joint efforts to limit climate change and develop the **International Solar Alliance**.
- France has agreed to be part of **India's Venus mission, scheduled for 2025**.
 - Also, ISRO's Venus instrument, **VIRAL (Venus Infrared Atmospheric Gases Linker)** has been co-developed by **French and Russian agencies**.

Other Areas of Cooperation between India and UAE:

- **Collaboration:** They both are the members of **I2U2 Grouping**.
- **Economic Partnership:** In 2022 India & UAE signed a **Comprehensive Economic Partnership Agreement (CEPA)** with an aim of taking bilateral trade to USD 100 billion within 5 years.
 - Also, India and UAE are discussing ways to **boost non-oil commerce in rupees** that will **promote internationalisation of rupees**.
 - UAE is the **second largest export destination of India (after the US)** with an amount of over US\$ 28 billion for the year 2021-22.
 - For the UAE, India is the **second largest trading partner for the year 2021** with an amount of around **USD 45 billion (non-oil trade)**.
- **Defence Cooperation:** With the **spread of radicalism in the Gulf and South Asia**, India looks to enhance **security cooperation with the UAE** to counter terrorist threats and combat radicalization.
 - **'Desert Eagle II'**, is a joint **air combat exercise**, between **air forces of India and UAE**.

INDIA-CANADA RELATIONS

Context:

- India's External Affairs Minister recently held **wide-ranging talks** with visiting Canadian Foreign minister.
- Both nations **reviewed the progress in bilateral relations**, which are anchored in the following:
 - Shared democratic values,
 - Growing economic linkages,
 - Security cooperation,
 - Mobility of students and professionals and
 - Strong people-to-people ties.
- **Deepening collaboration & EPTA:**
 - Both sides expressed interest in **deepening collaboration** across domains and looked forward to the **Early Progress Trade Agreement (EPTA)**.
- **India's significance for Canada:**
 - India's economic and population growth are driving demand for education, health services, food, critical minerals and green infrastructure.
 - These are all sectors of Canadian strength and Canada is looking forward to grasping these opportunities.

India-Canada Bilateral Relations

- **About:**
 - India **established diplomatic relations with Canada in 1947**.
 - Prime Minister of India's visit to Canada in April 2015 elevated the **bilateral relation to a strategic partnership**.
 - In recent years, both countries have been working to enhance bilateral cooperation in a number of areas of mutual importance.
 - **Bilateral Mechanisms:**
 - Both sides pursue bilateral relations through the dialogue mechanisms such as Ministerial level- Strategic, Trade and Energy dialogues; Foreign Office Consultations; and other sector specific joint working groups (JWG).
- **Commercial relations:**
 - An annualised Trade Ministers dialogue has been institutionalised to review trade and economic relations.

- Both sides are engaged in technical negotiations for a Comprehensive Economic Partnership Agreement (CEPA) including trade in goods, services, investment, trade facilitation etc.
- **Major Items of Indian Exports are:**
 - Medicines, Garments, diamonds, chemicals, gems and jewellery, petroleum oils, made-up, sea food, engineering goods, marble and granite, knitted garments, rice, electric equipment, plastic products, etc.
- **Major items of Canada's export to India are:**
 - Pulses, fertilizers, newsprint, aircrafts & aviation equipment, diamonds, copper ores and concentrates, bituminous coal, wood pulp, nickel, unwrought aluminum, asbestos, god, cameras, lumber, ferrous waste, etc.
- **Nuclear Cooperation:**
 - Indo-Canadian relations deteriorated in the wake of India's Smiling Buddha nuclear test of May 1974 when the Canadian government severed bilateral nuclear cooperation with both India and Pakistan.
 - However, in June 2010, a Nuclear Cooperation Agreement (NCA) with Canada was signed and came into force in September 2013.
 - **The Appropriate Arrangement (AA) for the NCA** was signed in March 2013, under which a **Joint Committee on Civil Nuclear Cooperation** was constituted.
- **Science and Technology:**
 - **Indo-Canadian Science and Technology cooperation** has been primarily focussed on promoting Industrial R&D which has potential for application through development of **new IP, processes, prototypes or products.**
 - Canada was a partner country for the **Technology Summit 2017.**
 - Department of Biotechnology under **IC-IMPACTS program** implements joint research projects in **health care, agri-biotech and waste management.**
 - The **Department of Earth Science and Polar Canada** has started a programme for the exchange of knowledge and scientific research on Cold Climate (Arctic) Studies.
- **Space:**
 - India and Canada have been pursuing successful cooperative and commercial relations in the field of Space since the 1990s mainly on space science, earth observation, satellite launch services and ground support for space missions.
 - **ISRO and Canadian Space Agency (CSA)** signed two MOUs in the field of exploration and utilisation of outer space in October 1996 and March 2003.
 - **ANTRIX**, the Commercial arm of ISRO, has launched several **nanosatellites from Canada.**
 - ISRO in its 100th Satellite PSLV launched on 12 January 2018, also flew the **Canadian first LEO satellite**, from the **Indian spaceport Sriharikota**, Andhra Pradesh.
- **Security and Defence:**
 - India and Canada collaborate closely in international fora, particularly **through the UN, Commonwealth and G-20.**
 - Defence ties have been expanding with mutual ship visits.
 - There is **robust cooperation on counter terrorism** issues, particularly through the framework of the JWG on Counter-Terrorism.
- **Agriculture:**
 - The bilateral MoU on agriculture cooperation was signed at the federal level in 2009.
 - The first meeting of the JWG set under this MoU was held in New Delhi in 2010, which led to the creation of three sub-groups on knowledge exchange in emerging technologies; animal development and agricultural marketing. A **Joint Working Group for Pulses** has been set up separately.
- **Education:**
 - Education is a key area of mutual interest. Recently India became the **top source of foreign students studying in Canada.**
 - The **MoU on Higher Education (2010) with Canada** was renewed in February 2018.
- **People-to-People ties:**

- Canada hosts one of the largest Indian diasporas in the world, numbering 1.6 million (PIOs and NRIs) which account for more than 4% of its total population. The diaspora has done commendably well in every sector in Canada. In the field of politics, in particular, the present House of Commons (total strength of 338) has 22 Members of Parliament of Indian origin.
- **Cultural Exchanges:**
 - Canada was the Country of Focus at the **48th International Film Festival of India** held in **Goa in November 2017**.
 - There is also an **India - Canada Coproduction Agreement in films**.
 - Diwali has been celebrated on Parliament Hill for the last 18 years.
- **Cooperation in COVID-19 Pandemic:**
 - **Repatriation flights:** Special charter flights were operated by the Canadian High Commission and facilitated by India to evacuate stranded Canadian nationals from India.
 - **Supply of medicines:** Export of a total of 12.34 crore paracetamol tablets, 5 crore Hydroxychloroquine tablets and 3510 kgs of Hydroxychloroquine Sulphate USP (API); and 10 Million eye shields with face masks were approved and shipped to Canada.

Challenges

- **Sikh extremism:**
 - Sikhs constitute a significant proportion of the Indian diaspora, they make up **less than one percent (a little over 500,000) of Canada's total population**.
 - The issue of **Sikh separatist groups operating in Canada** has become a growing source of tension between India and Canada.
 - While Sikh militancy has largely died down in India, **concerns** remain about the **revival of the Khalistan movement**.
 - Despite this, the **Sikh diaspora commands a reasonable influence in Canada's federal politics**, specifically in the provinces of British Columbia and Ontario.
- **India's structural impediments:**
 - India still has to overcome **structural impediments** such as **complex labour laws, market protectionism, and bureaucratic regulations**.
- **Inadequate trade:**
 - While India–Canada economic relations have made some progress, **Canada remains an insignificant trading partner for India**.

Way ahead

- India-Canada relations **have struggled to prosper**, despite the two countries sharing various complementarities such as their democratic character and association in the Commonwealth.
- Even so, **India's economic potential**, including the **investment opportunities it offers**, has led Canada to periodically review the economic dimension of this bilateral relationship in its India policy.
- India must foster a **deeper understanding of Canada** and the potential it holds for India.

THE FINE PRINT IN THE INDO-US PACT, ICET

Context:

- Recently, India's National Security Advisor held talks with the US counterpart on the first dialogue on the Initiative for Critical and Emerging Technologies (iCET) in the US.

About Indo-US "strategic partnership" in the past

- Both countries signed **a) "Next Steps in Strategic Partnership"** in 2004; **b) "Defence Framework Agreement"** in 2005, **c) "Indo-US Civil Nuclear Agreement"** in 2008 and **d) all four key "foundational agreements"**.
- Both nations also launched the "Defence Technology and Trade Initiative" in 2012. The US accorded "Major Defence Partner" status to India in 2016, **c) "2+2 dialogue"** in 2018.
- All of Indo-US "strategic partnership" has delivered \$22 billion worth of military hardware purchases by India via the foreign military sales programme.

Advantages of iCET

- iCET could **1)** Be a “game changer” in catalysing Indo-US technology cooperation by persuading the US to lift existing export control restrictions, **2)** Encourage the private sector of both countries to cooperate in sensitive sectors, **3)** Demonstrate a mutual commitment to investing in advanced technologies, such as quantum computing, AI and space, as well as the critical field of semiconductor design and manufacture.

Challenges faced by India’s defence sector

- India’s massive defence industrial complex, including the DRDO, defence public sector undertakings (DPSU) and the (erstwhile) Ordnance Factory Board, are **associated with closely the Soviet/Russian arms industry**.
- India’s previous transfer of technology (ToT) resulted in engineers and designers acquiring only the “knowhow” of methods and procedures required for assembling or building aircraft, aero engines and armoured vehicles from parts or material supplied. Hence, the **principles and laws of defence equipments are not completely understood**.

Challenges faced by iCET:

- The US Arms Export Control Act not only requires clearances from the Departments of State and Defence for ToT but also imposes certain restrictions on the recipient state.
- The iCET aims to make the US a dominant player in India’s defence procurements by replacing Russia. But, this will face stiff resistance from Russia.
- While India is in dire need of technology, the US industry remains firmly focused on trade.

What India needs to do to make iCET comprehensive?

- India need to leverage its considerable purchases in the arms, energy, civil aviation, nuclear and other sectors in a holistic manner to extract technology from the US.
- Atmanirbharta must remain India’s ultimate aim. Hence, India should break free of Russia’s and US’s defence products and also regain “strategic autonomy” in international affairs.

A NORDIC-INDIA CONNECT TO POWER A GREEN TRANSITION

- **Context:** Trade Ministers of Norway and Finland are currently visiting India together.
- **Importance of the Nordic region**
- Over the last decades, Nordic countries have been at the forefront of developing **new green technologies and solutions** such as hydrogen, offshore wind, and carbon capture and storage.
- The Nordics have succeeded in building **stable, secure, welfare based societies** to a large extent.
- The Nordic region has ambitions to become the **most sustainable and integrated region** in the world by 2030.
- **Current status of relations between India and Nordic countries**
- The **Nordic India Summit** was held in Copenhagen in May 2022. The five Nordic leaders and Indian Prime Minister agreed to intensify cooperation on **digitalisation, renewable energy, maritime industries, and the circular economy**.
- PM of India expressed an interest in joint Nordic solutions that can support **India’s green transition**.
- The **Nordic business community** in India is also growing. There are now 240 Norwegian and Finnish companies in India.
- **India and Finland**– The past year has seen a significant rise in **trade and investments** between Finland and India.
- India has grown to become a **priority country for Finland**. Finland has recently opened a new Consulate General in Mumbai.
- Several Indian companies are looking towards Finland for its expertise in areas of **technology and innovation, sustainability, digitalisation, carbon neutrality** and more.
- An increasing number of Indian students, researchers, and experts have been moving to Finland as well. Finnish companies such as Nokia and Fortum have some of their **most significant investments** in India.
- **India and Norway**– Trade between Norway and India has doubled in the last three years. The **Norwegian Sovereign Wealth Fund** is likely to become one of India’s largest single foreign investors with around \$17.6 Billion investment.

- The Norwegian government has also recently established a **new Climate Investment Fund** for investments in renewables abroad, and India has been defined as a focus country. Almost ₹1,500 crore have been invested so far in India through the climate investment fund.
- **Scope for future collaborations between India and Nordic countries**
- Both Norway and Finland have ongoing **free trade agreement and investments negotiations** with India. Finland, is a part of the EU India FTA negotiations, and Norway is negotiating through the European Free Trade Association.
- Finalising the **free trade and investments agreements** should be a priority.
- There is a great deal of complementarities in our trade relations. In addition, **trade in services** is an area of significant potential, especially with **tourism, education, IT, energy, maritime and financial services**.
- Together, the Nordics and India can **power the green transition** the world needs.

EXPLORING THE BLUE IN THE INDIA-FRANCE PARTNERSHIP

- **Context:** India and France are celebrating 25 years of their strategic partnership.

Current status:

- **Strategic cooperation– Strategic partnership** was signed in 1998. They have **shared values and aspirations of peace, stability**. Both have a desire for **strategic autonomy**.
- There are **no real substantive disagreements** between the two nations.
- There is a **high level India-France political dialogue** that is ongoing in **defence, maritime, counterterrorism and the Indo Pacific**.
- **Trade and investment–** France has emerged as a **key trading partner** of India. Annual trade was \$12.42 billion in 2021-22.
- It is the **11th largest foreign investor** in India with a cumulative investment of \$10.31 billion from April 2000 to June 2022. It represents 1.70% of the total **foreign direct investment** inflows into India.
- **Defence partnership–** It has emerged as a **key defence partner** for India, becoming the second largest defence supplier in 2017-2021.
- Key examples of defence cooperation are the induction of the **French Scorpene conventional submarines**, built under **technology transfer agreement of 2005**, and the **Rafale fighter jets**.
- The Tata group has also tied up with Airbus to manufacture **C295 tactical transport aircraft** in Vadodara, Gujarat.
- There is a **robust network of military dialogues**. They regularly held **joint exercises like Varuna, Garuda, and Shakti**.
- **Civil nuclear cooperation–** France was among the first countries with which India signed a **civil nuclear deal**. It has also played a critical role in limiting India's isolation in the **non-proliferation order** after the 1998 nuclear tests.
- France supports India's bid for **permanent membership of the United Nations Security Council as well as its entry into the Nuclear Suppliers Group**.
- **Climate change–** it is an area of importance for both. India has supported France in the **Paris Agreement** expressing its strong commitment towards mitigating climate change impact. Both countries launched the **International Solar Alliance** in 2015.
- **Cooperation in the Indian ocean–** India and France are **resident powers** of the Indian Ocean and in the Indo Pacific. Both have signed "**Joint Strategic Vision of India France Cooperation in the Indian Ocean Region**" which presented a blueprint for a strengthening of ties. In operational terms, both do **joint patrolling** in the Indian Ocean.
- **Indo Pacific–** Both countries have articulated their **common vision for a free, fair and open Indo Pacific**. It seeks to provide comprehensive solutions for **maritime security, regional cooperation, and climate change adaptation**.
- India and France in September 2022 agreed to set up an **Indo-Pacific Trilateral Development Cooperation Fund** that will support **sustainable innovative solutions** for countries in the region. The two partners have formed a **trilateral grouping with the United Arab Emirates** to ensure **maritime domain awareness and security** from the east coast of Africa to the far Pacific.

- **Global cooperation**– While there are **divergences over the Ukraine crisis**, there is a broad understanding of each other’s position. Both countries are working together to coordinate on playing a **constructive role** in the crisis.
- Mr. Macron and Prime Minister Narendra Modi are among the few world leaders who have maintained **open communication channels** with the Russian President and Ukraine’s President.
- Both countries share concerns over the **rise of China and its aggressive behaviour**.
- **Cooperation in emerging areas**– They are looking for cooperation in issues such as **digitisation, cyber, green energy, a blue economy, ocean sciences, and space**.

INDIA-MONGOLIA RELATIONS

- **Context:** Recently, the 11th meeting of the India-Mongolia **Joint Working Group** was held in India.
- While acknowledging the growing ties between both the countries, they expressed satisfaction at the ongoing defense cooperation despite the limitations imposed by **Covid-19 pandemic**.

How have been the India-Mongolia Relations?

- **Historical Relations:**
 - India and Mongolia have interacted through **Buddhism** throughout history.
 - Mongolia regards India as its “third” neighbor along with US, Japan, and Germany and a “spiritual neighbour”.
- **Diplomatic Relations:**
 - India **established diplomatic relations with Mongolia in 1955** and it was the first country outside the Soviet bloc to open diplomatic relations with Mongolia.
 - The **Indian Resident Mission in Ulaanbaatar** was opened in 1971.
 - This relationship was upgraded to “strategic partnership” in 2015 when the Indian Prime Minister visited Mongolia and declared it as an essential component of ‘**Act East Policy**’.
- **International Cooperation:**
 - Mongolia has publicly reiterated its support for India’s membership to the permanent seat of the expanded **United Nations Security Council (UNSC)**.
 - India has played an important role in getting **Mongolia membership to key international forums**, including the **United Nations (UN)**, despite strong opposition from China and Taiwan.
 - India also championed the inclusion of **Mongolia in the Non-Aligned Movement**.
 - In a reciprocal gesture, Mongolia co-sponsored a 1972 UN resolution with India and Bhutan for the recognition of the newly liberated Bangladesh.
- **Economic Cooperation:**
 - In 2022, an **India-built oil refinery at the cost of more than USD 1 billion** and with a capacity of 1.5 million metric tonnes was opened near **Sainshand in southern Dornogovi province of Mongolia**.
 - This refinery will take care of 75 % of Mongolia’s oil refining needs.
 - India - Mongolia bilateral trade was USD 35.3 million in 2020, down from USD 38.3 million in 2019.
- **Cultural Cooperation:**
 - The **India-Mongolian Agreement on Cultural Cooperation, signed in 1961**, has governed the Cultural Exchange Programme (CEP) between the two countries.
 - The Agreement envisages co-operation in the fields of education by way of scholarships, exchange of experts, participation in conferences, etc.
- **Defence Cooperation:**
 - Joint defence exercises code-named **Nomadic Elephant**.
 - India is also **an active participant** in an annual week-long joint training exercise called the **Khaan Quest, hosted by Mongolia**.
- **Cooperation over Environmental Issues:**
 - Part of the **Bishkek Declaration (snow leopard)**.

Way Forward

- The way forward for India-Mongolia relations is to **build on the existing foundation of historical and cultural ties**, while also seeking to expand political, economic, and cultural cooperation.

- Mongolia's strategic position at the cross junction of Central Asia, Northeast Asia, far East, China and Russia attract major powers towards it. **India should consider Mongolia as a green zone of economic development** that absorbs hi-tech features and production skills in a modernization process.
- With both countries facing common challenges in the region, there is tremendous potential for further strengthening the relationship in the coming years.

EXERCISE 'DHARMA GUARDIAN'

- **Context:** Exercise 'DHARMA Guardian-2023' was held between **India and Japan** at Belgaum, Karnataka.
- The exercise was held to share experiences gained during operations, in order to **enhance interoperability** in the planning and execution of various operations in jungle & semi-urban/ urban terrain.
- The Year 2022 also marks **70 years of diplomatic relations** between the two countries.

India-Japan Defence Relations

- India-Japan Defense and Security partnership forms a central pillar of bilateral ties. It has gained strength in recent years due to growing convergence on strategic matters and the increasing significance of a common outlook on issues of peace, security and stability.
- **Exercises:**
 - India-Japan participates in comprehensive **Tri-Service Exchanges** resulting in regular armed forces staff talks between the two countries.
 - Indian Navy and JMSDF participate frequently in
 - Bilateral exercises such as **JIMEX, Bilateral Maritime Exercises and Passage Exercises.**
 - Multilateral exercises such as **MILAN, MALABAR**
 - Indian Army – JGSDF participates in the bilateral exercise **Dharma Guardian** annually.
 - 2023 saw the inaugural '**Veer Guardian**' involving precise planning and skilful execution by the air forces of India and Japan.

Significance of Japan

- Japan's **manufacturing strength** can help in the growth of the Indian indigenous defence industry.
- India can utilize Japanese experience in building **border infrastructure**.
- India receives **large developmental assistance** from Japan for special projects. Example: Bullet Train Project.
- **Convergent Factors :**
 - **Open Indo-Pacific:** An open and thriving Indo-Pacific is important for the development and welfare of both countries.
 - **Hegemonic China:** China's growing military capabilities and assertiveness on territorial disputes are concerns for India and Japan.
 - **US role in Asia:** Growing uncertainty over America's future role in Asia calls the two nations into action to protect and preserve the rules-based order in their neighbourhood.

Way forward

- By building on common interests, the Indo-Japanese relationship can reshape the Asian landscape and help in securing an open and secure Indo-Pacific.

INDIA'S FOREIGN POLICY IN 2021: FROM SELECTIVE TO UNIVERSAL ENGAGEMENT

- **Context:** India's foreign policy in 2021 followed a style of openness and readiness to deal with friends and foes alike. From selective alignment, India moved to universal engagement, even to the extent of convening meetings with antagonists.

About India's foreign policy in 2021

- **Relations with the US and its allies:** India took active engagements with the U.S. and went beyond familiarization with the new government to increased commitment to **Quad** and acceptance of **AUKUS** and **formation of the 'western Quad'**, with the U.S., Israel and the UAE.
- **Relations with Russia:** Major agreements were signed with Russia, despite the American threat of **CAATSA** against **S-400 missiles** and the Russian inclination to align with China in the days to come.

- **Relations with China:** The relations with China met with limited success. China is confident that the growing hard power — economic and military — gives it the luxury to dispense with diplomatic niceties. Hence,
- China has not shown willingness to disengage in Ladakh and withdraw to the previous positions behind the Line of Actual Control, 2. Recently, changed the names of various places in Arunachal Pradesh, 3. Building villages on the unpopulated border with India, 4. Trying to create a wedge between India and its close Himalayan neighbours — Nepal and Bhutan, 5. Seeking to undermine Indian influence in the Maldives and Sri Lanka and, more broadly, in the Indian Ocean.
- **Taliban in Afghanistan:** American notion of bringing in some civility to the Taliban in Kabul has failed. Now it is a high priority for India to face a Pakistan-China-Taliban axis with some support from Russia and Iran.
- **Relations with Myanmar:** In 2021, the Foreign Secretary visited Myanmar to engage the military junta at a time when Aung San Suu Kyi and other opposition leaders are in prison.
- **Climate Change:** India decided to stand out of the line on the matter of **net-zero emission target** years but succumbed to the pressure to commit more to promote renewable energy and phasing down coal.
- **United Nations:** India took the presidency of the UN Security Council in August 2021 and provided significant contributions. But, India showed less interest in the demand for United Nations reform in 2021.
- **Other issues:** India has been charged as “India only a part-democracy” received less Indian interest. As for Indian democracy, the Prime Minister’s assertion that India is the “**mother of democracy**” went uncontested at the political level.

How to address the challenges in India’s foreign policy in 2021?

- The extraordinary efforts made by India have not been fruitful in **Afghanistan and China**. Among them, China remains the most important national security task for India in 2022 and beyond. To redress the power imbalance with China, India has to
- Along with diplomatic relations, India has to **rush the military modernisation and strategic coordination with its Quad partners**, 2. At the economic level, India will need to move rapidly to **end its isolation in the global trade domain**, 3. India has to **stay out of a China-dominated Asia-wide free trade agreement**, the Regional Comprehensive Economic Partnership (RCEP), 4. Negotiate **bilateral free trade agreements with strategic partners** like the United Kingdom, Australia, UAE, and Israel.

A BIGGER IDEA OF INDIA – WHY INDIANS ALREADY COMMAND ECONOMIC HEFT OF \$5 TRILLION AND HOW WE CAN LEVERAGE THIS

- **Context:** Indian expatriates and persons of Indian origin overseas at present amount to around 3. 2 crores. They are highly skilled and successful, and they also have an emotional attachment to any Indian cultural events occurring overseas. It is time for India to leverage this strength.

About the Indian diaspora’s economic wealth

- In several countries, Indians are among the top earners. A 2012 estimate of the diaspora’s wealth was \$1 trillion. At present, this wealth has increased manyfold.
- The collective economic heft of Indians abroad to India’s GDP will be around \$ 3. 5 trillion at the end of March. Indians already generate an economic value of well over \$5 trillion.
- It means that geographical India will likely have a GDP of \$5 trillion by 2025. But the other India (which includes persons abroad and invested in India) is already a \$5 trillion-plus powerhouse.

Advantages of the Indian diaspora’s wealth:

- A country’s top income earners are pivotal to the country’s economic progress. For instance, they invest, they innovate, they take risks, they back new technology and also they create jobs.
- Indian diaspora already sends \$100 billion in remittances to India annually. This is the highest remittance figure in the world.

What should be done to completely utilise the Indian diaspora’s wealth?

- In business, network effects kick in when the value of a product is intrinsically tied to the increase in the number of users. The network effect of high-earning, high-performing Indians abroad should be entirely invested in the idea of India's progress.
- In the ET Global Business Summit, PM highlighted the immense value of the Indian diaspora. It is time for business leaders and policymakers to integrate the diaspora's economic dynamism.

THE PROTEST TEST IN INDIA-IRAN TIES

- **Context:** Iran foreign minister Hossein Amir-Abdollahian has recently cancelled his visit to the Raisina meet in India.
- This is because the event showed a video of Iranian women cutting their hair during a non-violent protest that began last September in Iran. This event highlights the changing bilateral relations between the two nations.

India and Iran relations:

- India has been quiet about the protest that happened in Iran. However, at the **UN Human Rights Council session, India did not vote against the resolution** for a fact-finding mission on human rights violations committed by Iran to suppress the protests.
- Moreover, the event organiser in Delhi refused to pull out the video as demanded by the Iranian Foreign Ministry.
- **India also ended its energy trade with Iran** when the Trump administration reimposed sanctions against it in 2019.
- India's proximity to the US and Iran's increasing proximity to China have also been a challenge to ties.
- Iran was among the Islamic capitals that reacted strongly during the Nupur Sharma blasphemy row.
- These all events show that there has been a decline in the bilateral relation of both the countries.
- However, both of them have joined hands on issues such as connectivity through **Chabahar, terrorism in the region and Afghanistan, etc.**
- Hence, despite declining bilateral relations between the two nations, these issues will help them to move ahead together.

RUSSIA SUSPENDS NEW START: WHAT IS ITS LAST REMAINING NUCLEAR ARMS CONTROL TREATY WITH THE US?

- **Context:** The Russian President announced to suspension of its participation in the last remaining major military agreement with the US – **New START**.
- The original **Strategic Arms Reduction Treaty/START-I** was signed between the US and the erstwhile USSR in **1991** and came into force in 1994.
- **START-I**, which capped the number of nuclear warheads (to 6,000) and intercontinental ballistic missiles (ICBMs to 1,600), **lapsed in 2009**.
- This was replaced first by the Strategic Offensive Reductions Treaty (**SOFT**)/the Treaty of Moscow and then by the New START treaty.

What is the New START?

- **Officially**, the Treaty between the USA and the Russian Federation on Measures for the Further Reduction and Limitation of Strategic Offensive Arms, entered into force on February 5,
- It placed **new verifiable limits** (to be met by 2018) **on intercontinental-range nuclear weapons**. For **example**, 700 deployed ICBMs, deployed SLBMs (submarine-launched) and deployed heavy bombers equipped for nuclear armaments, etc.
- The US and Russian Federation subsequently agreed to extend the treaty through February 4, **2026**.
- **How is compliance with the treaty ensured?** The two parties have conducted **on-site inspections, exchanged notifications**, held meetings with the Bilateral Consultative Commission, and held data exchanges.

What is the latest situation on compliance?

- **US:** Russia was not complying with the New START, jeopardising a source of stability in their relationship.
- **Russia:** The USA's goal is Russia's strategic defeat, and for Russia the "**theatre of the absurd**" (the idea of existentialism) is important.

Conclusion:

- Over the decades, the two sides signed various arms control agreements, imposing breaks on the nuclear arms race – an alarming feature of the **Cold War competition**.
- However, deep fissures in their relationship and the suspension of almost all the treaties in recent years, have once again raised the risk of a **nuclear arms race**

ONE YEAR OF RUSSIA-UKRAINE CONFLICT

- **Context:** A year after start of **Russia-Ukraine conflict**, there are still signs of escalation everywhere. Calculations on both sides that this would be a short, swift war have proved wrong.
- The anniversary of war comes in the **backdrop of Russia's withdrawal from New START treaty**.

What is the Current Status of the War?

- The West has recently announced the **supply of more advanced weapons to Ukraine**, deepening its involvement in the conflict.
 - In response, Russian President Vladimir Putin has already reinforced Russian positions along the 1,000-km long frontline in Ukraine.
- **Risks of a direct confrontation** between **Russia** and the **North Atlantic Treaty Organisation (NATO)**, both nuclear powers, are also on the rise as the war is extended.
- **Russia** wanted to **install a Moscow friendly regime** and to take the whole of Ukraine's east and south, stretching from **Kharkiv in the northeast** through the **Donbas in the east** (which comprises Luhansk and Donetsk) to **Odesa, the Black Sea port city in the southwest**, turning the country into a land-locked rump. **Russia has failed to meet any of these objectives.**
- Nevertheless, **Russia has taken substantial portions of Ukrainian territories**, including **Mariupol**. Russia's territorial gains in Ukraine peaked in March 2022, when it controlled some 22% of pre-2014 Ukraine.
- **Ukraine recaptured some land in Kharkiv and Kherson**. But still, Russia controls some 17% of Ukraine.
- Focused fighting has been going on in some flashpoints along the frontline including Bakhmut, Donetsk and Zaporizhzhia.

What has been the West's Response?

- **Approach:**
 - Punish Russia's economy through sanctions and thereby weaken its war machine.
 - Arming Ukraine to counter the Russian offensive.
- **Major Aid Providers:**
 - The **U.S. is Ukraine's biggest aid provider** — it has pledged military and financial assistance worth over USD 70 billion.
 - The **EU has pledged \$37 billion** and among the EU countries, the **U.K. and Germany** top the list.
- **Evaluation of Western Response:**
 - While the approach of arming Ukraine has been **effective in at least halting the Russian advances**, **hurting Russia economically** has been a **double-edged sword**.
 - **Sanctions on Russia**, one of the **top global producers of oil and gas**, hit the global economy hard, **worsening an inflationary crisis across the West, particularly in Europe**.
 - Russia also took a hit, but it found **alternative markets for its energy exports in Asia**, redrawing the global energy export landscape. In 2022, despite sanctions, **Russia raised its oil output by 2% and boosted oil export earnings by 20%**.
 - The **Russian economy** was estimated to have contracted by 2% in 2023, but, according to the IMF, it is **expected to grow 0.3% in 2023** and 2.1% in 2024.

- In comparison, Germany, Europe's largest economy, is expected to grow 0.1% in 2023, while the U.K., Ukraine's second biggest backer, is projected to contract by 0.6%.

Is there a Possibility for a Negotiated Settlement?

- Both sides **had exchanged several drafts about a potential peace plan in March 2022**, but the **U.S. and the U.K. staunchly opposed** Ukraine reaching any agreement with Russia. **Talks collapsed in March.**
- In July 2022, **Turkey brokered a deal** on taking out Russian and Ukrainian food grains through the Black Sea known as **Black Sea Food grain initiative**. Also, Warring parties had reached some prisoner exchange agreements.
- But barring these, talks between the two sides are non-existent.
 - **Russia**, despite the slow progress of its "special military operation", **remains adamant.**
 - **Mr. Zelensky** recently stated that he **would not reach any agreement with Russia making territorial compromises.**
 - There is absolutely **no push from the West for talks.**
 - **China** has stepped in with its own **peace initiative**, which is not in public domain yet.
- For any peace plan to succeed a few **Key issues** are to be addressed.
 - Ukraine's territorial concerns.
 - Russia's security concerns.
 - **Washington and Moscow should reach some kind of understanding** as Ukraine, given its dependence on the West, would require clearance from west for any final settlement.
 - However, in context of Russian withdrawal from New START Treaty, **possibility of such settlement in the near future looks bleak.**

How has the War Reshaped Geopolitics?

- **Increased focus on Security and Defence:**
 - The war has **re-energized the Europe-US security alliance**. **NATO** has opened its door to the **proposed inclusion of Sweden and Finland**, that will, once in (Turkey's approval is awaited), form the new military frontiers of the alliance against Russia.
- **Trust Deficit:**
 - The trust deficit **between Russia and the West is at an-all time high**. The US-led alliance is pouring weapons into Ukraine.
 - Though US President seems reluctant to accept all of Ukraine's demands, including for combat aircraft including F16s, perhaps mindful of the risk of widening the war.
- **China Factor:**
 - Moscow formalized its friendship with China in 2022 as "limitless". But China also does not want to jeopardize its Europe ties.
 - **China has not contributed with weapons to Russia** and also expressed its reservation **against nuclear war.**
 - However, the **US and Europe remain concerned about Chinese arms supplies** to Russia.

What has been India's Stand?

- The Ukraine war has been an **opportunity to practice strategic autonomy**. Adopting a neutrality India has maintained its relationship with Moscow while iterating support to global peace.
- India **worked around Western sanctions to buy oil from Russia**. As much as **25% of India's oil purchase is now from Russia**, from less than 2% before the war.
- Recently, **India abstained** on a UNGA resolution on first anniversary of the war, asking Russia to withdraw from its territory as the resolution had limitations in reaching the lasting goal of securing lasting peace.
 - India has **abstained on all three votes so far** on the Ukraine crisis at the UN General Assembly since Russian invasion.
- But the longer the war continues, the more pressure on India from the Western alliance to choose the "right side".
- India has expressed the hope that it can use its **G-20 presidency to bring peace.**

Way Forward

- There is an urgent **need for the parties of the war to return to negotiation table** as the escalation of hostilities and violence is in no one's interest.
- International principles and jurisprudence make it clear that parties to a conflict should **ensure civilians and civilian infrastructure are not targeted**, and the global order is based on international law, the UN Charter and respect for territorial integrity and sovereignty of all states. These principles must be upheld without any exception.



SOCIAL ISSUES

ASSAM CRACKDOWN ON CHILD MARRIAGE: WHAT DOES THE LAW SAY?

Context:

- More than 2,000 people have been arrested in a state wide crackdown on child marriages that have taken place in the **state of Assam**.

Data on child Marriage:

- UN estimates suggest that **1.5 million girls get married before they turn 18 in India**.
- According to the 2011 census, **44 per cent of women in Assam were married before the age of 18**. The figures for Rajasthan, Bihar, and Madhya Pradesh were **47 per cent, 46 per cent, and 43 per cent, respectively**.

Historical Perspective on Child Marriage:

- **Ancient India**
 - **Manusmritis**: It says that if the father **fails to marry off his daughter within three years of her attaining puberty, she can find a spouse on her own**.
 - **Medhatithi**, one of the oldest and earliest **commentators on the Manusmriti, eight years is the right age for a girl to be given in marriage**
 - The **Rig Veda mentions garbhadhan**– attaining the wealth of the womb. It is the first of the **16 samskaras a Hindu is expected to perform**.
 - **The Greek traveller Megasthenes (350-290 BC)** has written that he was told that the women of the **Pandian kingdom in South India bear children at six years of age**. About seven centuries later, the Persian polymath, **Al Biruni, wrote that child marriages were rampant in India**.
- **Modern India:**
 - **The colonial state: The Age of Consent Acts of 1861 and 1891** brought in reform in conjugal rights. The 1861 Act laid down 10 years as the minimum age for sexual intercourse. The Hindu intelligentsia opposed raising this age to 12 on the grounds that it violated norms related to garbhadhan.
 - **Rukmabai case gave new impetus to the campaign of social reformers like M G Ranade and Behramji Merwanji Malabari**. Rukmabai had refused to solemnize her marriage, which had taken place when she was 11.
- **Post-Independence:**
 - At the time of India's independence, the **minimum marriageable age stood at 15 years for females and 18 years for men**.
 - In 1978, the government increased it to **18 for girls and 21 for men**.
 - Years later, in **2008**, the Law Commission came out with a report which stated that the minimum marriageable age for **both men and women should be 18 years of age, as both are considered eligible to vote as citizens at the time**.

Laws present to prevent Child Marriage:

- **The POCSO Act, of 2012** criminalizes **sex between a minor and an adult**. The law does not recognize a minor's consent as valid. Sexual assault under POCSO is a non-bailable, cognizable offence.
 - Section 19 of, the POCSO Act imposes a **"mandatory reporting obligation"** which requires every person who suspects or has knowledge of a **sexual offence being committed against a child must report it to the police or the Special Juvenile Police Unit**.
- **The Prohibition of Child Marriage Act 2006**, says that **child marriages are illegal but not void**. Instead, **they are voidable at the option of the minor party**, in the scenario that the minor petitions the court to declare the marriage void. The Act stipulates 18 years as the minimum marriageable age for women, while for men it is 21 years.

- The punishment also extends to anyone who **performs, conducts, directs, or abets any child marriage.**

Central government's stand:

- In 2021, the Central government sought to **introduce the Prevention of Child Marriage (Amendment) Bill 2021**, to raise the manageable age for women across all religions, from 18 to 21 years. However, the Parliament panel examining this is yet to submit its report.
- The establishment of the **Jaya Jaitly Committee in June 2020**, by the Ministry of Women & Child Development, submitted a report stating that the marriageable **age for women should be increased from 18 to 21 years of age, in light of factors like reproductive health, education, etc.**

Modern international laws and conventions on Child Marriage:

- The UN Convention on Consent to Marriage,
- Minimum Age for Marriage and Registration of Marriages (1962),
- The UN Convention on the Elimination of All Forms of Discrimination against Women (1979)
- Beijing Declaration (1995)

DECLINE IN BUDGETARY ALLOCATION FOR MINISTRY OF MINORITY AFFAIRS

Context:

- **Budgetary allocation** for the **Union Ministry of Minority Affairs** decreased by **38%** in **2023-24** compared to 2022-23. The major decline was in the allocation for pre-matric scholarships, free coaching for minorities, skill development and livelihoods programmes (including **USTTAD scheme, Nai Manzil** and **Scheme for Leadership Development of Minority Women**).
- Also, allocation for the **Umbrella Programme for Development of Minorities**, which includes the **Pradhan Mantri Jan Vikas Karyakram** and **Education Scheme for Madrasas and Minorities**, fell from **₹1810 crore to ₹610 crore**, which is a dip of **66.2% in allocation.**

Major Schemes in India for the Welfare of Minorities:

- **Pre-Matric Scholarship Scheme, Post-Matric Scholarship Scheme, Merit-cum-Means based Scholarship Scheme:** For **educational empowerment** of students, through **Direct Benefit Transfer (DBT)** mode.
- **Naya Savera- Free Coaching and Allied Scheme:** The Scheme aims to provide **free coaching to students/candidates belonging to economically weaker sections of minority communities** for preparation of entrance examinations of technical/ professional courses and competitive examinations.
- **Padho Pardesh:** Scheme of **interest subsidy** to students of economically weaker sections of minority communities on **educational loans for overseas higher studies.**
- **Nai Roshni:** Leadership development of women belonging to minority communities.
- **Seekho Aur Kamao:** It is a **skill development scheme for youth of 14 - 35 years age** group and aiming at improving the employability of existing workers, school dropouts etc.
- **Pradhan Mantri Jan Vikas Karyakram (PMJVK):** It is a Scheme designed to address the **development deficits of the identified Minority Concentration Areas.**
 - The areas of implementation, under PMJVK, have been identified on the basis of minority population and **socio-economic and basic amenities data of Census 2011** and will be known as **Minority Concentration Areas.**
- **USTTAD (Upgrading the Skills and Training in Traditional Arts/Crafts for Development):** Launched in May 2015 aims to preserve the **rich heritage of traditional skills of indigenous artisans/craftsmen.**
 - Under this scheme **HunnarHaats** are also held all over the country to provide a **nation-wide marketing platform to Minority artisans & entrepreneurs** and to create employment opportunities.
- **Prime Minister-Virasat Ka Samvardhan (PM Vikaas):** New PM Vikas has been added to the Ministry of Minority Affairs' Budget in 2023.
 - It is a **skilling initiative focussing on the skilling, entrepreneurship and leadership training requirements of the minority** and artisan communities across the country.

- The scheme is intended to be implemented in **conjunction with the 'Skill India Mission' of the Ministry of Skill Development & Entrepreneurship and through integration with the Skill India Portal (SIP).**

NAMASTE SCHEME

- **Context: Union Budget 2023-2024** has allocated nearly Rs 100 crore for the **National Action for Mechanized Sanitation Ecosystem (NAMASTE)** and the government is looking to enable **100% mechanical desludging of septic tanks and sewers in all cities and towns.**
- The process of extending the Scheme to all the **Urban Local Bodies (ULBs)** of the country has been initiated.

NAMASTE Scheme:

- It was launched in 2022 as a **Central Sector Scheme.**
- The scheme is being undertaken **jointly by the Ministry of Housing and Urban Affairs and the Ministry of Social Justice & Empowerment (MoSJE)** and aims to eradicate unsafe sewer and septic tank cleaning practices.
- **Objectives:**
 - Zero fatalities in sanitation work in India.
 - All sanitation work is performed by skilled workers.
 - No sanitation workers come in direct contact with human faecal matter.
 - Sanitation workers are collectivised into **Self Help Groups (SHGs)** and are empowered to run sanitation enterprises.
 - Strengthened supervisory and monitoring systems at National, State and Urban Local Body (ULB) levels to ensure enforcement and monitoring of safe sanitation work.
 - Increased awareness among sanitation services seekers (individuals and institutions) to seek services from registered and skilled sanitation workers.

Key Features of the Scheme to be Implemented in all ULBs:

- **Identification:** NAMASTE envisages identifying the Sewer/Septic Tank Workers (SSWs).
- **Occupational Training and distribution of PPE Kits to SSWs.**
- **Assistance for Safety Devices to Sanitation Response Units (SRUs).**
- **Extending Health Insurance Scheme Benefits** to identified SSWs and their families under the Ayushman Bharat- Pradhan Mantri Jan Arogya Yojana (AB-PMJAY).
- **Livelihood Assistance:** The Action Plan will promote mechanization and enterprise development by providing funding support and subsidy (capital +interest) to the sanitation workers, to procure sanitation related equipments.
- **IEC (Information Education and Communication) Campaign:** Massive campaigns would be undertaken jointly by the ULBs & NSKFDC (National Safai Karamcharis Finance & Development Corporation) to spread awareness about the interventions of NAMASTE.

What is Manual Scavenging?

- Manual scavenging is defined as “the removal of human excrement from public streets and dry latrines, cleaning septic tanks, gutters and sewers”.
- India banned the practice under the **Prohibition of Employment as Manual Scavengers and their Rehabilitation Act, 2013 (PEMSR).**
 - The Act recognizes manual scavenging as a “dehumanizing practice.

Steps taken to tackle the Menace of Manual Scavenging:

- **The Prohibition of Employment as Manual Scavengers and their Rehabilitation (Amendment) Bill, 2020:**
 - It proposes to completely mechanise sewer cleaning, introduce ways for ‘on-site’ protection and provide compensation to manual scavengers in case of sewer deaths.
 - It will be an amendment to The Prohibition of Employment as Manual Scavengers and their Rehabilitation Act, 2013.
 - It is still awaiting cabinet approval.
- **The Prohibition of Employment as Manual Scavengers and their Rehabilitation Act, 2013:**

- Superseding the 1993 Act, the 2013 Act goes beyond prohibitions on dry latrines, and outlaws all manual excrement cleaning of insanitary latrines, open drains, or pits.
- **The Building and Maintenance of Insanitary Latrines Act of 2013:**
 - It outlaws construction or maintenance of unsanitary toilets, and the hiring of anybody for their manual scavenging, as well as of hazardous cleaning of sewers and septic tanks.
- **Prevention of Atrocities Act:**
 - In 1989, the Prevention of **Atrocities Act** became an integrated guard for sanitation workers, more than 90% people employed as manual scavengers belonged to the Scheduled Caste. This became an important landmark to free manual scavengers from designated traditional occupations.
- **SC Judgment:**
 - In 2014, a **Supreme Court** order made it mandatory for the government to identify all those who died in sewage work since 1993 and provide Rs. 10 lakh each as compensation to their families.

GENDER BUDGETING: STATUS, BENEFITS AND CHALLENGES

- **Context:** The Union Budget 2023-24 has been presented in the Parliament. In 2005, the Government had started releasing a Gender Budget along with the Union budget. Gender Budgeting is a strategy to ensure that promises on gender equality show up in public budget allocations as well. However, achieving gender equality through Gender Budgeting has remained a challenge. The share of Gender Budget (in total Government Budget) has remained low despite growing at an annualized rate 13% since inception. With some reforms in the implementation, the Government can improve the efficacy of Gender Budgeting in terms of outcomes.

Gender Budgeting (GB):

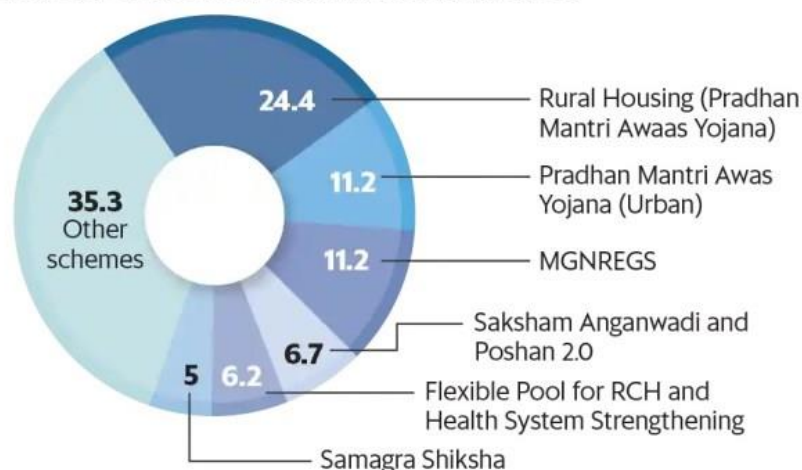
- Gender Budgeting is the **use of fiscal policies** and public financial management tools to **promote gender equality**. It is an exercise that applies a '**Gendered-lens**' to the allocation and tracking of public funds. This is done in order to ensure that governments are acutely aware of the impact of their choices on gender outcomes. Gender Budgeting is not limited to funding explicit gender equality initiatives. It also entails analyzing fiscal policies and budgetary decisions to **understand their impact on gender equality** and using this information to **design and implement more effective gender policies**. It translates the gender commitments into fiscal commitments.
- The 'Gender Budgeting Handbook, 2015' released by the Ministry of Women and Child Development notes that Gender Budgeting is a tool for **gender mainstreaming**. It observes that, "*Gender Budgeting is concerned with gender-sensitive formulation of legislation, policies, plans, programmes and schemes; allocation and collection of resources; implementation and execution; monitoring, review, audit and impact assessment of programmes and schemes; and follow-up corrective action to address gender disparities.*" It is not only about the Budget and it is not just a one-time activity. It is a **continuous process** that must be applied to all levels and stages of the policy process.
- **Evolution of Gender Budgeting:** It was first introduced in 1984 in Australia to evaluate the impact of the national budget on women and girls. The approach was adopted by other countries including Canada, South Africa and Philippines etc. In 1995, the **United Nation's Beijing Platform for Action** called for **integrating a gender perspective into government budget processes**.
- In 2015, the UN's **Sustainable Development Goals (SDGs)** called for adequate resources and tools to track **budget allocations for gender equality** (SDG indicator 5.c.1). The **Addis Ababa Action Agenda for Development (2015)** recognized the importance of tracking resource allocations for gender equality and strengthening capacity for Gender Budgeting.
- In 2020, **G20-Women**, an official engagement group to the G20, called for greater investment in GB to ensure that fiscal policies advance gender equality in the short and long-term recovery from the COVID-19 pandemic.

Status of Gender Budgeting in India:

- The Government of India had adopted Gender Budgeting in 2005-06.

- In India, Gender Budgeting comprises two parts: **(a)** Part A reflects **Women-Specific Schemes** i.e., those which have 100% allocation for women; **(b)** Part B reflects **Pro-Women Schemes** i.e., those where at least 30% of the allocation is for women.
- The gender budgeting framework has helped the gender-neutral ministries to design new programs for women.
- **Gender Budgeting Cells (GBC):** The Government has mandated the establishment of Gender Budgeting Cells in all Ministries and Departments as an institutional mechanism to implement Gender Budgeting. The GBCs conduct gender-based impact analyses, beneficiary needs assessments, and beneficiary incidence analyses and determine the room for re-prioritizing public expenditures and better implementation.
- **Role of The Ministry of Women and Child Development in Gender Budgeting:** The Ministry has made consistent efforts to support the institutionalization of GB at the State/UT level. The Ministry also provides financial support to Government training institutions for **capacity building of Government officials** to enhance Gender Budgeting in States/UTs.
- **Role of States/UTs in Gender Budgeting:** In a reply to a question in the Lok Sabha (March 2021), the Government responded that 27 States/UTs have adopted Gender Budgeting and have taken various steps to address gender gaps and advance gender equality. Goa, Haryana, Meghalaya, Mizoram, Telangana, Chandigarh, Ladakh, Puducherry haven't adopted GB yet.
- These steps take by States include identification of a nodal Department for Gender Budgeting, constitution of Gender Budgeting Cells, formulation of State Women/Girls Policy, creation of Gender Data Bank and adding Gender Budget Statement in the State Budget. Additionally, 21 States/UTs have established designated State Nodal Centres for sustained capacity building efforts on GB.
- **Budgetary Allocations:** India's Gender Budget has allocated INR 2.23 lakh crore in the Union Budget 2023-24. This is ~30% higher than Budgetary allocation in 2022-23 (INR 1.71 lakh crore, Budget estimate) but only ~2% than actual allocation (INR 2.18 lakh crore, Revised Estimate).
- Part A of the Gender Budget has allotted over INR 88,000 crore in FY2023-24. It is dominated by the *Pradhan Mantri Awas Yojana* (both Urban and Rural housing). These two schemes attracted 90% of the total funding for Part A of the Gender Budget. Part B has received INR 1.35 lakh crore. Part B comprise several schemes pertaining to rural development, health, education and women empowerment.

Share (%) of top schemes in gender budget, 2023-24



Source: Mint

- Important women-centric schemes include: **(a)** Safe City Project, an initiative under the Nirbhaya Fund scheme for ensuring safety of women and children; **(b)** **SAMBAL**, a sub-scheme comprising of old schemes like One Stop Centre, Women Helpline and *Beti Bachao Beti Padhao*; **(c)** **SAMARTHYA**, includes women empowerment programmes like *Pradhan Mantri Matru Vandana Yojana* and *Swadhar Greh*. SAMBAL and SAMARTHYA are part of the larger umbrella scheme '**Mission Shakti**', an integrated women empowerment programme.

Benefits of Gender Budgeting:

- **Understanding Impact of Budget:** Gender Budgeting approach leads to better informed policy choices. This approach makes the policy makers more aware of the potential impact of policy decisions on gender.
- **Better Utilisation of Resources:** It can support efforts to not only design, but re-design fiscal policies, adjusting resources to better address persistent gender gaps.
- **Achievement of Gender Equality Goals:** It leads to greater focus on achieving gender equality goals. A focused approach leads to better results. An IMF Working paper on the impact of Gender Budgeting in G20 countries notes that Gender Budgeting leads to more programmes incorporating gender related goals. Every country analysed in the research paper had some positive outcome in terms of gender equality.
- **Wider Societal Outcomes:** There are many other factors that impact the achievement of gender equality, including societal attitudes and behaviours. Gender Budgeting practices can make a difference in the way governments consider policy in respect to gender and lead to more conscious and better-informed decision making.

Challenges in Gender Budgeting:

- **Low Allocation:** Despite increase in allocation in absolute terms, the share of Gender Budget in overall Union Budget has always remained less than 6%. The highest allocation was in 2011-12 at 5.8%.
- **Skewed Allocation:** The Gender Budget consists of two parts based on fund allocation. Part A with 100% allocation for women has lower share in the Gender Budget. The highest share for Part A was 46% in FY2021-22. Since 2005-06, the share of Part A was less than 30% of the overall Gender Budget for 12 years.
- **Technical Challenges:** Implementation of Gender Budgeting faces several challenges like lack of guidance, coordination, expertise among personnel, and low quality of gender impact assessments (GIAs).
- **Absence of Gender Disaggregated Data:** Lack of gender disaggregated data make it difficult to formulate effective policies. Additionally, it limits the ability to accurately measure the effectiveness of the Gender Budgeting policies and initiatives. IMF paper notes that Governments often point out to their inability to track gender-sensitive policies over their implementation cycle, due to lack of budget classifications or failure to incorporate gender classifiers in the financial management information systems (FMIS).
- **Skewed Implementation:** Many sectors/schemes that can have impact on women, do not practice Gender Budgeting. NITI Aayog paper on Gender Mainstreaming (June 2022) has noted that only 62 out of 119 centrally-sponsored schemes are practising GB. The paper noted that the record of Ministers associated with Environment and Climate Change, Urban Transformation, Skill etc. have done poorly.
- **Under-Reporting:** The Gender Budget does not take into account some of the major schemes that benefit women. For instance, the *Jal Jeevan Mission* (JJM) aims to provide household tap connections to all rural households by 2024. Tap water can particularly improve women's quality of life because it is mostly women and girls who gather water in households that do not have regular water access. Yet, none of the allocations in the JJM have been reported in the Gender Budget.
- Moreover, the schemes that allocate less than 30% funds for women, are not covered in Part B of the Gender Budget.
- In addition, there is lack of clarity on the way schemes allocate at least 30% of their funds for women. For instance, the *Pradhan Mantri Awaas Yojana – Gramin* (PMAY-G) accounted for 24% of the Gender Budget in 2023-24 and was placed in Part A of the GB because the scheme encourages houses to be owned by women and thereby might benefit women. On the other hand, only 27% of the funds allocated under the Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS) accounted for Part B of the GB, despite women being 55% of MGNREGS workers
- **Lack of Accountability:** There is no mandate to have a minimum allocation with respect to Gender Budget. In the absence of any accountability mechanisms regarding Gender Budgeting, monitoring and implementation continue to be inadequate.

Way forward to make Gender Budgeting more effective:

- **First**, NITI Aayog has recommended that a **Gender Budgeting Act** can mainstream gender-based budgeting across all Ministries and States/UTs. The Act can also mandate all data collecting institutions to analyse and publish gender-disaggregated statistics. This can make the process of GB more scientific.

- **Second**, the NITI Aayog has also recommended that the Ministry of Women & Child Development (MWCD) should encourage State Governments to **increase budgetary allocation towards women** and child development, protection and welfare schemes to ensure improved fund availability and utilisation of schemes. It has also emphasised on the need of finalising the National Policy for Women with revision in 2016 Draft Policy.
- **Third**, there is a need to have **uniform guidelines** regarding Gender Budgeting. Evidence from the IMF survey shows that without guidelines or a common methodology for impact assessments, it is difficult for line Ministries to implement a common approach to GB analysis.
- **Fourth**, the **tools to monitor implementation and collect data** must be improved. Better data can help in deeper analysis that can help in accurate measurement of outcomes and designing targeted initiatives for gender equality.
- **Fifth**, the IMF recommends that fiscal policies should focus on areas where gender gaps persist. **Gender Impact Assessments (GIAs)** should be undertaken to help understand the gender impact of current and alternative policies. The analysis can be utilized to better redesign the policy interventions.

Conclusion

- Gender Budgeting is one of the most potent tools for gender mainstreaming and achieving gender equality. India has been one of the early adopters of Gender Budgeting. Yet the process faces several challenges. The next step should be to plug these gaps and make the process more effective. As India enters the phase of *Amrit Kaal*, the Prime Minister has highlighted the importance of the role of *Nari Shakti* in achieving the goal of developed economy by 2047. This should be actioned through more responsive and effective Gender Budgeting.

SHAPING DISABLED-FRIENDLY DIGITAL ECOSYSTEM

- **Context:** According to a recent report titled 'Making the Digital Ecosystem Disabled Friendly, **WhatsApp has been ranked India's most accessible app for persons with disabilities**, which evaluated the most popular apps across categories like messaging, online payments, transport, **e-commerce** and food delivery.
- According to the **World Health Organization**, about **16% of the global population is disabled**. Based on that figure, there are at least **192 million disabled Indians**.
- Also, India had 750 million Internet/smartphone users in 2020, including 120 million people with disabilities.
- Despite technology's tremendous potential to level the playing field for the disabled, it can also reinforce barriers if it is not designed with their needs in mind.

Challenges with the Digital Ecosystem for Disabled in India:

- **Lack of Accessibility:**
 - **Many websites, apps, and online resources are not designed with accessibility in mind**, making it difficult for people with disabilities to access them.
 - This includes **barriers to using assistive technologies** like screen readers, magnifiers, or voice recognition software, which makes it hard for people with visual, auditory, or motor disabilities to access the digital content.
- **Limited Availability of Assistive Technologies:**
 - Many people with disabilities in India **do not have access to the necessary assistive technologies to access digital content**. The cost of these devices is often prohibitive, and there is also a lack of awareness about their availability and benefits.
- **Limited Awareness:**
 - Many people with disabilities in India are **not aware of the available digital resources or how to access them**.
 - For instance, there is a lack of information on the accessibility features of various digital platforms, apps, and websites.
- **Language Barriers:**

- There is a **significant language barrier in India**, with a vast population speaking different regional languages.
- Many digital resources are available only in English or Hindi, making it difficult for people who speak other languages to access them.
- **Limited User Testing:**
 - User testing for people with disabilities is often limited or non-existent. Therefore, the accessibility features and overall usability of digital resources for people with disabilities are not adequately assessed.

What is the State of Digital Accessibility Rights in India?

- **Legal Efforts:**
 - India signed and ratified the **UN Convention on the Rights of Persons with Disabilities (UNCRPD) in 2007**.
 - To ensure compliance with the UNCRPD, India enacted the **(Rights of Persons with Disabilities Act 2016)** to replace the **Persons with Disabilities (Equal Opportunities, Protection of Rights and Full Participation) Act, 1995**.
 - The RPWDA adopts the same definition of universal design as in the UNCRPD and places obligations on the appropriate government to ensure universal design for everyday electronic goods and equipment and consumer goods.
 - During Covid-19 Period, the **Supreme Court directed the government to conduct a disability audit for the CoWIN website and the Aarogya Setu app**.
 - **National Policy on Electronic Accessibility, 2013:**
 - It seeks to remove discrimination by focusing on awareness, capacity building, institutional training and research and development.
 - **Disability-inclusive Disaster Risk Reduction Guidelines:**
 - The guidelines released by the **National Disaster Management Authority in 2019** provide accessible information on the websites in the situation of risk, armed conflicts, humanitarian emergencies and natural disasters to help persons with disabilities.
- **Judicial Efforts:**
 - The **e-Committee**, which is a governing body set up by the Supreme Court to oversee the **digitization of Indian courts**, has been **making changes to court websites to ensure that they are accessible to PwDs**.
 - For instance, it has **ensured that all High Court websites have accessible captchas** by including audio captchas in addition to visual captchas.
 - The e-Committee has also **ensured that these websites are accessible in terms of text colour, contrast, text size**, and mostly in terms of screen reader access as well.
 - The e-Committee runs training programmes for lawyers to make filings accessible.

Way Forward:

- **Accessibility Standards:**
 - India can **implement accessibility standards to ensure that digital products and services are accessible to persons with disabilities**.
 - The accessibility standards should be based on **international standards such as Web Content Accessibility Guidelines (WCAG) or Bureau of Indian Standards (BIS) standards**.
- **Inclusive Design:**
 - Inclusive design can **ensure that digital products and services are designed to be accessible to everyone**, including persons with disabilities.
 - Inclusive design involves designing with the user in mind, taking into consideration their abilities, needs, and limitations.
- **Assistive Technology:**
 - India can **encourage the development and use of assistive technology to help persons with disabilities** access digital products and services.
 - Assistive technology includes software, hardware, and devices that help persons with disabilities to interact with digital products and services.

- **Training and Awareness:**
 - India can **provide training and awareness to digital product and service providers**, developers, and designers on accessibility and inclusive design. This can help ensure that accessibility and inclusive design are integrated into the design and development process.
- **Collaborations:**
 - India can **collaborate with organizations, researchers, and experts in the field of disability and accessibility** to develop innovative solutions to make digital products and services accessible to persons with disabilities.
- **Government Policies:**
 - The Indian government can **create policies that incentivize companies to implement accessibility standards and inclusive design in their digital products and services**. The government can also create policies that require digital products and services to be accessible to persons with disabilities.
- **Use of AI:**
 - Currently technology is **used to automate a large number of accessibility tests**, and combine that with in-depth manual testing to provide comprehensive accessibility feedback to developers.
 - Developers and companies can now use AI to automate accessibility testing and analyze feedback from users with disabilities to provide actionable insights.

JAPAN'S EVOLVING RELATIONS WITH THE GLOBAL SOUTH

- **Context:** Japan is now emphasising on the Global South amidst a major transformation of its foreign and security policies under Kishida's leadership.

How has Japan shown impressive leadership in the world of strategic ideas in recent times?

- Japan has constructed and popularised the **Indo-Pacific construct** over the last decade and more.
- Former Japanese Prime Minister Shinzo Abe first articulated the **idea of the Indo-Pacific** in an address to the Indian Parliament in August 2007. He called for a **coalition of Asian democracies** that eventually took the form of the **Quadrilateral forum**.
- Japan's Prime Minister Fumio Kishida has now taken the initiative to raise the **Global South to the top of the G7 agenda**.
- In a major policy speech in Washington last month, Japan's PM Kishida cautioned other G7 countries on the dangers of **neglecting the Global South**. Kishida is conscious that the West has neglected **political engagement with the Global South** in recent decades.
- Kishida is firm in his conviction that the G7 can't **"impose its values" on the Global South**. Kishida has told his G7 partners that we need to be **more committed to our values**. There is a need to have a firm understanding of **historical and cultural backgrounds of the global south**.
- Japan now wants the G7 to reconnect with the Global South in more fundamental ways. Kishida believes that **greater cooperation between the G7 and the developing countries** is also critical for addressing the current **global challenges**.

The major changes in foreign and security policies of Japan under Kishida's leadership:

- Kishida is among the few leaders in Asia who has clearly articulated the **implications of Russia's invasion of Ukraine** a year ago this month. If unilateral change of the status quo by force is unchallenged, it will happen elsewhere in the world, including Asia.
- Kishida has announced **sweeping reform in Japan's defence policy**. This involved doubling the **defence spending to 2% of the GDP** over the next 5 years, building a **large missile force, boosting cybersecurity capabilities, and taking larger responsibilities for regional security and capacity building in the Indo-Pacific**.
- Japan has adopted **new realist diplomacy**. Japan now recognises the **essential relationship between diplomacy and defence**.

How is Kishida's new approach beneficial from the Indian perspective?

- Kishida's new approach provides the basis for **more substantive and wider collaboration between Delhi and Tokyo** in the developing regions of the world.
- India should welcome Kishida's new interest in the Global South. Japan's **initiatives on the Indo-Pacific and the Quad** have broken the misperception of Asia as being **merely Sino-centric**.
- The **India-Japan partnership on the Global South** might help overcome the **traditional divides between East and West as well as North and South**.

INDIA-NEPAL COOPERATION.

- **Context:** India and Nepal recently agreed to strengthen their economic and development cooperation for the benefit of the two countries and region as a whole.
- India's Foreign Secretary recently met his Nepalese counterpart holding discussions on strengthening the comprehensive bilateral relations.
 - The visit is in **continuation of the regular exchange of visits** between the two friendly neighbours.
- **Issues of discussion:**
 - Various aspects of Nepal-India relations including the **power sector cooperation, trade, transit, education, culture, healthcare and connectivity infrastructure** were discussed during the meeting.
 - Issues such as **increasing development assistance to Nepal, boosting investment, resolving problems surfacing in connectivity, and bilateral trade** as well as the promotion of **power trade** were mainly featured during the meeting.
- **Provision of international air route:**
 - Nepal urged India to **provide an international air route** for the **effective operation** of the newly opened **Gautam Buddha International Airport** and **Pokhara International Airport**.
- **Proposal of a common voice of the South Asian nations:**
 - Nepal also proposed to form a **mechanism for a common voice of the South Asian nations** in the international forums regarding climate change issues.

India-Nepal Relations

- India & Nepal share close and friendly relations characterised by age-old historical and cultural linkages, open borders and deep-rooted people-to-people contacts.
 - Nepal is important for India in the context of its overall strategic interests in the region, and the leaders of the two countries have often noted the **age-old "Roti Beti" relationship**.
- **Sharing borders:**
 - The country shares a border of over 1,850 km with five Indian states -- Sikkim, West Bengal, Bihar, Uttar Pradesh and Uttarakhand.
 - Land-locked Nepal relies heavily on India for the transportation of goods and services.
- **Trade and economic ties:**
 - India remains Nepal's largest trade partner, with bilateral trade crossing US\$ 7 billion in FY 2019-20. India provides transit for almost the entire third-country trade of Nepal.
 - India's export to Nepal has grown over 8 times in the past 10 years while exports from Nepal have almost doubled. Despite the difficulties due to the pandemic, India ensured uninterrupted flow of trade and supplies to Nepal.
 - Nepal is India's 11th largest export destination, up from 28th position in 2014.
 - In FY 2021-22, it constituted 2.34% of India's exports. Infact exports from India constitute almost 22% of Nepal's GDP.
- **Development Partnership:**
 - **Financial and technical assistance:**
 - Gol provides substantial financial and technical assistance to Nepal for the implementation of large development and infrastructure and connectivity projects, as well as small development projects/high-impact community development projects in key areas of education, health, irrigation, rural infrastructure, livelihood development, etc. all across the country.

- **The 'New Partnership in Agriculture':**
 - It was announced in April 2018, which focuses on collaborative projects in Agriculture, Education and R&D.
- **Cross-border railway links:**
 - India is providing financial and technical assistance for construction of two broad gauge cross-border railway links viz Jayanagar-Bardibas and Jogbani-Biratnagar.
- **India-Nepal Rail Services Agreement (RSA):**
 - India and Nepal signed a Letter of Exchange (LoE) to the India-Nepal Rail Services Agreement (RSA), which enabled all authorised cargo train operators including private container train operators to carry Nepal's container and other freight.
- **Mahakali River bridge:**
 - Recently, a MoU was signed between India and Nepal for the construction of a motorable bridge across the Mahakali River connecting Dharchula (India) with Darchula (Nepal), under Indian grant assistance.
- **Operation Maitri & post-earthquake reconstruction assistance:**
 - In the wake of the 2015 earthquake in Nepal, Gol was the first responder and carried out its largest disaster relief operation abroad (Operation Maitri).
 - India extended US\$ 1 billion to Nepal as part of its long-term assistance for post-earthquake reconstruction in housing, education, health and culture heritage sectors.

Issues between India & Nepal

- **Treaty of Peace and Friendship of 1950:**
 - On 31 July 1950, India and Nepal signed a treaty of peace and friendship in an effort to “strengthen and develop these ties and to perpetuate peace between the two countries”.
 - As time passed, Nepal believed the **treaty was “incompatible with national self-respect”**.
- **Madhesi Issue:**
 - India's entrenched interests in Nepal suffered a setback in 2015, when a blockade at the borders ensued following protests by Madhesis and some other ethnic groups against marginalisation of their interests in the newly-passed Nepalese Constitution.
- **Kalapani dispute:**
 - The area is in India's control but Nepal claims the region because of historical and cartographic reasons. The area is the largest territorial dispute between Nepal and India consisting of at least 37,000 hectares of land in the High Himalayas.
- **Susta Border dispute:**
 - Susta is a disputed territory between Nepal and India. It is administered by India as part of West Champaran district of Bihar.
 - Nepal claims the area a part of West Nawalparasi District under Susta rural municipality, alleging that over 14,860 hectares of Nepali land in Susta has been encroached upon by India.

Way ahead

- There are several irritants that have developed, straining this relationship, and for now there seems to be a concerted attempt by both governments to return to bonhomie, with the Indian government seeking to utilise “religious diplomacy” as a means to emphasise the special relationship.
- India-Nepal relations need to graduate to a more meaningful partnership on economic and geopolitical issues, with the Indian government continuing to retain a substantial role in partnering the Nepali regime in development projects.

ISSUES WITH MENTAL HEALTH AND MENTAL HEALTHCARE IN INDIA

Context:

- Mental disorders are now among the top leading causes of health burden worldwide, with no evidence of global reduction since 1990. Suicides rates in India are amongst the highest when compared to other countries at the same socio-economic level. The latest survey by India's National Institute of Mental Health and Neurosciences (NIMHANS) found that nearly 150 million Indians are in need of mental healthcare

services, but fewer than 30 million are seeking care. This shows several issues with mental healthcare in India including access and social attitude to mental health. The Government has taken several initiatives to improve access to mental healthcare services in addition to gradually changing the discourse on mental health. However, as evident in the data, there is a need for further effort to address the issues.

What is the status of Mental Health in India?

- The WHO defines Mental Health as, *“Mental health is a state of mental well-being that enables people to cope with the stresses of life, realize their abilities, learn well and work well, and contribute to their community. It is an integral component of health and well-being that underpins our individual and collective abilities to make decisions, build relationships and shape the world we live in”*.
- The WHO calls Mental health as a basic human right. And it is crucial to personal, community and socio-economic development.
- According to the WHO, mental illness makes about 15% of the total disease conditions around the world. In 2019, India’s suicide rate was at 12.9 per 1,00,000 persons. This was higher than the regional average of 10.2 and the global average of 9.0. Suicide has become the leading cause of death among those aged 15–29 in India.
- In 2017, an estimation of the burden of **mental health conditions** for the States across India revealed that as many as **197.3 million people (~14% of the population) required care for mental health conditions**. This included around 45.7 million people with **depressive disorders** and 44.9 million people with **anxiety disorders**.
- According to the **National Mental Health Survey** conducted by NIMHANS in 12 States, the prevalence of mental morbidity is high in urban metropolitan areas. Nearly 1 in 20 persons suffer from depression. 0.9 % of the surveyed population were at high risk of suicide.
- According to the NCRB data, 1,64,033 people committed suicide in 2021, a 6.2% rise in comparison to 2020.

What are the harmful effects of poor Mental Health?

- **Impact on Physical Health:** A study found that positive psychological well-being can reduce the risks of heart attack and stroke. On the other hand, poor mental status can lead to **poor physical health** or harmful behaviour. Depression has been linked to many **chronic illnesses**. These illnesses include diabetes, asthma, cancer, cardiovascular disease, and arthritis.
- **Impact on Relationships:** Mental-health conditions during adolescence and young adulthood can have a significantly negative impact on the development of safe and healthy relationships with peers, parents, teachers, colleagues and partners.
- **Impact on Productivity:** It impacts a person’s ability to concentrate and engage in productive activities.
- The **WHO Report on Mental Health and Development** (2010) highlighted the risks of a **cyclical relationship between vulnerability and poor mental health**, in which people with such conditions are a vulnerable group subject to stigma, discrimination, violence, marginalization and other violations of their human rights.

Reasons for poor status of Mental Health in India:

- **Lack of Awareness and Sensitivity:** In India, mental health issues are not considered as healthcare issues. Any person suffering from mental issues is considered weak. **Stigma and discrimination** often undermine social support structures. Persons suffering from such issues are often tagged as ‘lunatics’ by the society. This leads to a vicious cycle of shame, suffering and **isolation of the patients**.
- A survey conducted in 2018 showed that while 87% of the respondents showed some awareness of mental illness, **71% also used terms associated with stigma**.
- **Lack of Mental Healthcare Personnel:** There is a severe shortage of mental healthcare workforce in India. According to the WHO, in 2011, there were **0.301 psychiatrists** and **0.047 psychologists** for every 100,000 patients suffering from a mental health disorder in India. In contrast, the ratio in most developed countries is in excess of 10.
- **Gap in Treatment:** At present, only 20-30% of people with mental illnesses receive adequate treatment. One major reason for such a wide treatment gap is the problem of inadequate resources.

- **Low budget Allocation:** Developed countries allocate 5-18% of their annual healthcare budget on mental healthcare, while India allocates roughly 0.05% (Organization for Economic Co-operation and Development, 2014) of its healthcare budget. This is the lowest among all G20 countries. Despite a rise in mental illness issues, the Union Ministry of Health allocated less than 1% of its budget to directly deal with psychological illnesses in 2022.
- **Changed Lifestyle:** Increased use of certain kinds of social media is exacerbating stress and mental illness, especially among the young people. Social media **detracts from face-to-face relationships**, which are healthier, and reduces investment in meaningful activities. More importantly, it **erodes self-esteem** through unfavourable social comparison. In addition, some experts contend that the **shift to nuclear families** has reduced the avenues of relieving one's anxieties as family members are not emotionally available at most crucial times.
- **Income Inequalities:** Mental issues are closely linked with poverty. People living in poverty are at greater risk of experiencing mental health conditions. On the other hand, people experiencing severe mental health conditions are more likely to fall into poverty through loss of employment and increased health expenditure.

What steps have been taken to improve Mental Health in India?

- Legal Measures
- **The Mental Healthcare Act, 2017:** The Act makes several provisions to improve the state of mental health in India. The Act rescinds the Mental Healthcare Act, 1987 which was criticised for failing to recognise the rights and agency of those with mental illness. The Act seeks to ensure rights of the person with mental illness to receive care and to **live a life with dignity**. It provides the **Right to Access to Healthcare:** Every person shall have a right to access mental health care and treatment from mental health services run or funded by the appropriate Government. It also empowers person with mental illness to **make an advance directive** that states how he/she wants to be treated for the illness.
- The **Act decriminalised suicide** stating that whoever attempts suicide will be **presumed to be under severe stress**, and shall not be punished for it.
- **Rights of Persons with Disabilities Act, 2017:** The Act **acknowledges mental illness as a disability** and seeks to enhance the Rights and Entitlements of the Disabled and provide an effective mechanism for ensuring their empowerment and inclusion in society.
- Schemes and Initiatives
- **National Mental Health Programme (NMHP):** Keeping with the WHO's recommendations, the programme was introduced in 1982 to provide mental health services as part of the general healthcare system. The **District Mental Health Programme (DMHP)** component of the NMHP has been sanctioned for implementation in 704 districts for which support is provided to States/UTs through the National Health Mission.
- Facilities made available under DMHP at the Community Health Centre (CHC) and Primary Health Centre (PHC) levels, include outpatient services, assessment, **counselling/ psycho-social interventions**, continuing care and **support to persons with severe mental disorders**, drugs, outreach services, ambulance services etc. In addition to above services there is a provision of 10 bedded in-patient facility at the District level.
- **Generating Awareness:** To generate awareness among masses about mental illnesses **Information, Education and Communication (IEC) activities are an integral part of the NMHP**. At the District level, sufficient funds are provided to each District under the DMHP (under the Non-communicable Diseases flexi-pool of National Health Mission) for **IEC and awareness generation activities** in the community, schools, workplaces, with community involvement.
- Under the DMHP various IEC activities such as awareness messages in local newspapers and radio, street plays, wall paintings are undertaken by the States/UTs.
- **National Tele Mental Health Programme:** The Government has announced a National Tele Mental Health Programme in the Budget of 2022-23, to further improve access to quality mental health counselling and care services in the country.
- **Kiran:** A 24/7 toll-free helpline called *Kiran* was established by the Ministry of Social Justice and Empowerment in 2020 to offer support to those dealing with anxiety, stress, depression, suicide thoughts, and other mental issues.

- **Manodarpan:** Students will receive psychosocial help as part of an effort under the *Atmanirbhar Bharat Abhiyan*, with the goal of improving the students' mental health and overall well-being. Its components include **Advisory Guidelines** for students, teachers and faculty of School systems and Universities along with families; National level database and directory of counsellors; Toll-free helpline; Handbook on Psychosocial Support etc.
- **Issuance of Guidelines/Advisories:** Guidelines/ advisories on management of mental illness have been issued by the Government. All the guidelines, advisories and advocacy material can be accessed on the website of the Union Ministry of Health and Family Welfare under 'Behavioural Health – Psychosocial Helpline'.

Way forward:

- There is a need of an urgent and well-resourced 'whole-of-society' approach to protect, promote and care for the mental health of people. This should be based on the following pillars.
- **First**, there is a need to **address the deep stigma** surrounding such issues which prevents patients from seeking timely treatment and makes them feel shameful, isolated and weak.
- **Second**, mental health should be made an **integral part of the public health programme** to reduce stress, promote a healthy lifestyle, screen and identify high-risk groups and **strengthen interventions** like counselling services. Special emphasis should be given to schools. In addition, special focus should be on groups that are highly vulnerable to mental health issues such as victims of domestic or sexual violence, unemployed youth, marginal farmers, armed forces personnel and personnel working under difficult conditions.
- **Third, Infrastructure should be improved** for mental health care and treatment. Innovative models are required to **deepen the penetration of services and staff**. ASHAs can be trained for this purpose. Community health workers (ASHAs) can not only **educate and sensitize women** and children about mental diseases but also guide them to reach the right expert in their locality.
- **Fourth**, The above interventions will require **enhanced allocation to mental healthcare** in the Budget. Substantial investment will be needed to **address the wide treatment gap** in the health infrastructure and human resources.
- **Fifth**, Careful mapping and research needs to be undertaken to **produce quality data**, that is essential to understand the size of the problem. This in turn should be utilised to implement a comprehensive approach, supported by heightened political commitment, scientific understanding and a citizen driven movement.
- **Sixth**, the WHO has recommended Three Paths to transformation towards better Mental Health.

Conclusion

- The status with respect to mental issues has worsened since COVID-19 pandemic. The mental healthcare system in India is under-equipped to deal with the crisis. Urgent interventions, in terms of enhanced budget, increased workforce, and improved awareness are necessary to address the challenge.

STATE SCHEMES CAN CAST A LIFELINE TO THIS WELFARE PLAN – ON PRADHAN MANTRI MATRU VANDANA YOJANA

- **Context:** There is vast scope for improvement in the Pradhan Mantri Matru Vandana Yojana (PMMVY). POSHAN Abhiyan and PMMVY are India's initiatives to fulfill its commitment towards the Sustainable Development Goal of improving maternal health. However, targets can be achieved only if we revisit the design and implementation of this scheme.

What are the issues?

- **Unchanged targets:** The target of the scheme has remained unchanged over the years.
- The estimated eligible population of pregnant and lactating mothers in India was 128.7 lakh for 2017-18 according to the Centre for Policy Research 2019-20). The target set by the Government was 51.70 lakh beneficiaries. This is only 40% of the eligible population.

- **Fall in enrollment and disbursements:** In 2020-21, more than 50% of registered beneficiaries did not receive all three installments and there was a 9% drop in enrollment under the scheme.
- This is according to the data provided by the Ministry of Women and Child Development (WCD) in response to a parliamentary question.
- **Reduced Budget allocation:** Budget allocation for the PMMVY has also been reduced as it has been clubbed under SAMARTHYA along with multiple other schemes such as Beti Bachao Beti Padhao.
- The overall budget of SAMARTHYA is ₹2,522 crore, which is nearly equivalent to the budget of PMMVY alone in the previous financial years.
- **State-level schemes:** States such as Odisha, Telangana, and Tamil Nadu, respectively, implemented State-specific schemes for maternity benefits.
- For example, MAMATA (2011) in Odisha, the KCR Kit (2017) in Telangana, and the Dr. Muthulakshmi Reddy Maternity Benefit Scheme (MRMBS) in Tamil Nadu.
- **States' schemes had relatively increased coverage and higher maternity benefits.** For instance, Odisha's MAMATA, has been offering a conditional cash transfer of ₹5,000 as maternity benefit for up to two live births for more than a decade now. It has led to better performance of this scheme, in comparison to PMMVY Scheme.

What are the suggestions for improvements in PMMVY?

- **Extend the maternity benefit under the PMMVY to the second live birth**, similar to its predecessor, the Indira Gandhi Matritva Sahyog Yojana. This would be more imperative for women in the unorganized sector, who are more vulnerable to economic shocks and nutrition loss for all childbirths.
- **Increase the maternity benefit amount:** The current entitlement of ₹5,000 provided over one-year amounts to one month's wage loss (as per the MGNREGA wage rate of ₹202).
- The Maternity Benefit Act, 1961 mandates 12 weeks of maternity leave for women with two or more children. Thus, pregnant and lactating mothers should receive 12 weeks of wage compensation amounting to ₹15,000.
- **Address the implementation gaps that lead to reduced coverage.** These gaps stem from a lack of awareness within targeted beneficiaries and process level challenges.
- A **simplification of the process** can result in increased registration of beneficiaries. Further, the current registration form requires a mother and child protection (MPC) card, husband's Aadhaar card, bank passbook, and registration form for each of the three installments. This results in delayed, rejected or pending applications.

SLOW PROGRESS TO CREATING A SAFE WORKPLACE FOR WOMEN

- **Context:** Recently, there were allegations of sexual harassment against higher authorities by some women sportspersons.

What are the reasons behind sexual harassment of women at workplace?

- Sexual harassment at the workplace, is both **direct and structural**. The enabling environment for reporting direct violence has shown a gradual improvement.
- But, **indirect violence** remains poorly addressed. It is embedded deep in our **social and economic structures**. It is more visible in the **employment imbalance** prevalent between men and women.
- More men at the workplace feel entitled to take undue advantage of the historical fact that the society is **still patriarchal** and women occupy a few of the higher positions.
- The **number of women in leadership positions** is not enough to generate confidence in the female subordinates. Women in lower positions feel reluctant to air their grievances.

- The **Periodic Labour Force Survey for 2020-21** shows that the participation of women in the total labour force was 25.1% in 2020-21. It is still much less when compared to men.
- There is absence of an **enabling and safe working environment**. Most women do not complain of sexual harassment. The current **redress mechanism** is either **non-existent or ineffective**.
- Women are more vulnerable to exploitation by their employer due to the fear of job insecurity. Which makes them vulnerable to sexual favour by employers.
- Whenever allegations of sexual harassment are levelled against superior authorities, the enquiry is not done properly. Instead, an accused either resorts to **multiple litigation** to stall the due process or attempts to bring **disrepute to the victim**.

Way forward:

- It is the **responsibility of the employer** to provide a safe work environment.
- **The short-term goals** may include providing the requisite **women-friendly infrastructure**, the constitution of **internal complaint committees**, and the **spreading of awareness** about the law and procedure of grievance redress.
- **Medium-term goals** may include the **increase of female participation in the labour force**,
- **improvement of tooth-to-tail ratio**, and **providing incentives** to prevent drop-outs such as paid maternity leave.
- **In the long-run**, it is essential to address the **deep-rooted structural and cultural violence** against women.
- There is a need to **develop the mindset** of treating men and women **as equals** at an early stage of character formation during childhood. Parents should respect each other and treat their girl and boy child on a par in all respects.

GENERAL STUDIES 3.

ECONOMY

REVAMPING MSMEs

Context:

- The Union budget 2023 presents an opportunity for our visionary government to amp up its efforts towards making our MSMEs competitive and self-reliant.

MSME Sector In India

• About:

- Micro, Small and Medium Enterprises (MSME), are small-sized business enterprises defined in terms of their investment.

• Significance of the sector:

- **Contribution to GDP:**
 - In India, the sector has gained significant importance due to its **contribution to the Gross Domestic Product (GDP)** of the country and exports.
- **Contribution in Development:**
 - The Micro Small and Medium Enterprises (MSMEs) sector is a **major contributor to the socioeconomic development** of the country.
 - The sector has also contributed immensely with respect to **entrepreneurship development**, especially in **semi-urban and rural areas** of India.
- **Resilience in disruptions:**
 - Despite concerns of a looming global recession, supply disruptions and the Russia-Ukraine war, India has stood out as a bright spot, growing faster than most major emerging markets.
 - The **6.3 crore micro, small and medium enterprises** which account for **30 per cent of GDP and employ nearly 11 crore people** have demonstrated this spirit of resilience.
 - With sales in several industries across the MSME sector reaching **90 percent of pre-pandemic levels**, India's small businesses are scripting a turnaround.

Challenges Faced by MSME Sector in India

• Mounting NPAs of MSMEs:

- According to the RBI, bad loans of MSMEs now account for 9.6 per cent of gross advances of Rs 17.33 lakh crore as against 8.2 per cent in 2020.
- The MSME sector was among the **most pandemic-afflicted sectors**.
 - Thousands of MSMEs either shut down or became sick after the government announced a nationwide strict lockdown.

• Non-availability/Delays of Funds:

- Mounting losses and debts, non-availability of proper financial help and delays from the government, reluctance from the banks for the funding, etc.
- MSMEs in India typically rely on NBFCs for their financing needs, which in itself has been enduring a liquidity crunch since September 2018.

• Lack of Formalization:

- Almost 86% of the manufacturing MSMEs operating in the country are unregistered. Out of the 6.3 crore MSMEs, only about 1.1 crores are registered with the Goods and Services Tax (GST) regime and the number of income tax filers are even less.

Government initiatives for MSMEs in India:

- Pradhan Mantri MUDRA Yojana (PMMY):

- Under PMMY loans are provided up to Rs. 10 Lakh through Member Lending Institutions (MLIs) viz; Banks, Non-Banking Financial Companies (NBFCs), Micro Financial Institutions (MFIs), other financial intermediaries, in three categories namely, 'Shishu', 'Kishore' and 'Tarun' which signifies the stage of growth or development and funding needs of the borrowers.
 - **Shishu:** covering loans up to Rs. 50,000/-
 - **Kishore:** covering loans above Rs. 50,000/- and up to Rs. 5 lakh
 - **Tarun:** covering loans above Rs. 5 lakh and up to Rs. 10 lakh
- **Objectives:**
 - To signify the stage of growth/development and funding needs of the beneficiary micro unit/entrepreneur and also provide a reference point for the next phase of graduation/growth.
- **Credit Guarantee Fund Trust for Micro and Small Enterprises (CGTMSE):**
 - This scheme provides collateral-free credit to micro and small enterprises through a credit guarantee mechanism.
- **Stand Up India:**
 - The scheme provides financial assistance to scheduled caste (SC), scheduled tribe (ST) and women entrepreneurs for setting up new enterprises.
- **Harmonizing value chain:**
 - Government to focus on integrating India's value chains with the rest of the world and creating logistics that are easier and faster is crucial to make it easier for international companies to include India in their value chains.
- **Quality assurance:**
 - Government to focus on creating Quality as the most important factor in the success story of India through steps including- setting global benchmarks, harmonizing Indian standards with global standards, and consumers becoming more demanding of quality.
- **Comprehensive Economic Partnership Agreement (CEPA):**
 - It will help MSMEs of both India and the UAE to leverage the benefits of the District as an export hub initiative of the government.
 - Under this initiative, every district for its unique products and identify the speciality of districts by knowing which district exports which products.
 - This initiative is expected to help in promoting local products and in turn, boost the local economy.

Suggestions

- **Three key parameters that are vital for the success of MSMEs include:**
 - Financial stability,
 - Availability of skilled labour in MSME clusters, and
 - Market competitiveness of their products to achieve import substitution as well as exports.
- **Market-oriented strategy:**
 - With a self-reliant India vision, it is highly important to improve the competitiveness of MSMEs through an inclusive market-oriented strategy.
 - To remain relevant in the market, MSMEs need to be adaptable with changing markets and variable demand scenarios.
 - Ensuring the capacity and availability of raw materials to MSMEs is also crucial.
- **Quality enhancement & automation:**
 - There is a need to improve the capability of Indian MSMEs to supply quality products.
 - MSMEs could be introduced to low-cost automation techniques, which work in tandem with the human workforce.
- **Branding:**
 - Branding and advocacy will also be needed to leverage the positive connotations associated with certain Indian products and assess negative connotations that can be removed.
- **Lowering GST rates:**

- From meeting fixed expenses such as electricity, rent and employee wages to investing in future growth, adequate working capital is a must for small businesses.
- By lowering GST rates on input services availed by online sellers, the government will not only shore up their finances but also give a leg-up to their digitisation journey.
 - There is also a need to expedite GST relaxation for small online businesses.

Way ahead

- The MSME (micro, small and medium enterprise) sector in India can play a significant role in achieving the vision of a self-reliant India. Suggest ways to revamp the sector.

ECONOMICS OF MILLET CULTIVATION

Context:

- Agronomists deliberated on the potential of Millet revolution in India.

Key Takeaways:

- Millets have special nutritive and agronomic properties (high in protein, dietary fiber, micronutrients, antioxidants and drought-resistant)
- In recent years, there has been a decline in area under millet cultivation with production of sorghum and pearl millet has fallen/stagnated, while production of other millets has declined.
- As per **M.S. Swaminathan Research Foundation**, there is need to preserve crop diversity, increase production/consumption, enhance farm incomes
- Previously, **Food and Agriculture Organization** of the United Nations has declared **2023 as "International Year of Millets" post the proposal for it by India.**

Millets in India:

- Millets are a group of **small-seeded cereal crops** that are widely grown in India for their **high nutritional value and drought tolerance**.
- Indian millets are **drought tolerant and mostly grown in arid and semi-arid** regions of India.
- They are small-seeded grasses belonging to the botanical family Poaceae and are known as "coarse cereals" or "cereals of the poor".
- In India, there are two groups of millets grown viz.,
 - **Major** - sorghum, pearl millet, finger millet
 - **Minor** - foxtail, little millet, kodo, proso, barnyard millet
- Historically, millets have been an important staple food in rural India **mainly as a kharif crop**, especially in the semi-arid regions where other crops may not be able to grow well.

Key data on Millets in India:

- In 2019-20, the **total offtake of cereals through the Public Distribution System** and the Integrated Child Development Scheme was around **54 million tonnes**, **20% replacement by millet** would require procurement of 10.8 million tonnes
- Total production of nutri-cereals in 2019-20 was **47.7 million tonnes**, the majority being maize
- Millets are procured in **only a few states and central stocks** are small (33 million tonnes of rice, 31 million tonnes of wheat, 4 lakh tonnes of nutri-cereals)
- During 2018-19, **three millet crops bajra (3.67%), jowar (2.13%), and ragi (0.48%) accounted for about 7 per cent of the gross cropped area** in the country.
- **India is a top 5 exporter of millets**, exported \$64.28 million in 2021-2022 alone.

Advantages of Millets

- **High in nutrient content:** Millets are rich in fiber, vitamins, minerals, and antioxidants, making them a nutritious food choice.
- **Gluten-free:** Many people with celiac disease or gluten intolerance can safely consume millets as they are naturally gluten-free.

- **Promotes weight loss:** Millets have a low glycemic index, meaning they are slowly digested and absorbed, which helps regulate appetite and prevent overeating.
- **Supports cardiovascular health:** Millets are rich in magnesium and polyunsaturated fatty acids, which help to lower blood pressure and reduce the risk of heart disease.
- **Increases energy levels:** Millets are a good source of carbohydrates, providing a steady source of energy throughout the day.
- **Supports digestive health:** Millets are high in fiber, which promotes bowel regularity and can help alleviate symptoms of constipation.
- **Suitable for multiple diets:** Millets are suitable for various diets, including vegan, vegetarian, and gluten-free diets.
- **Adaptable and drought-resistant:** Millets are highly adaptable to different growing conditions and are resistant to drought, making them a valuable food source in regions with unreliable water supply.
- **Supports farmers:** The cultivation of millets is beneficial to small-scale farmers as they are relatively easy to grow and require low inputs, which results in lower costs and higher profitability.

Challenges of Millets

- **Low demand and consumption:** Millets are not as popular as rice and wheat, leading to low demand and consumption.
- **Lack of processing facilities:** Processing and value-addition is limited, which affects the marketability and profitability of millets.
- **Low investment in research and development:** There is a lack of investment in research and development of millets, leading to limited information on their cultivation, storage, and utilization.
- **Inadequate storage and transportation infrastructure:** Inadequate storage and transportation facilities lead to post-harvest losses and difficulty in reaching markets.
- **Limited marketing and branding:** Millets lack proper marketing and branding, making them less attractive to consumers.
- **Competition from cheaper imports:** Cheaper imports of grains like wheat and corn often displace millets in the market.
- **Poor awareness:** Limited awareness about the nutritional and health benefits of millets among consumers and farmers is a challenge.

Steps taken by Government to promote Millets:

- **National Food Security Mission:** Launched in 2007, the National Food Security Mission aims to increase the production of rice, wheat, and pulses in India to meet the growing food demand of the country's population.
- **National Mission on Oilseeds and Oil Palm:** This mission was launched in 2010 to increase the production of oilseeds and oil palm in India, in order to improve the livelihoods of farmers and enhance the availability of oil for domestic consumption.
- **National Bamboo Mission:** Launched in 2006, the National Bamboo Mission aims to promote the cultivation and use of bamboo in India. It provides support for the development of the bamboo industry, including research and development, marketing, and infrastructure development.
- **National Mission on Sustainable Agriculture:** Launched in 2010, the National Mission on Sustainable Agriculture aims to make Indian agriculture more sustainable, productive, and profitable. This mission focuses on improving the soil health, water management, and cropping practices in Indian agriculture.
- **National Mission for Sustainable Livelihoods:** Launched in 2011, the mission aims to provide sustainable livelihoods to the rural poor in India. This mission focuses on enhancing the livelihoods of the rural poor through skill development, job creation, and micro-enterprise development.
- **Rashtriya Krishi Vikas Yojana:** Launched in 2007, it is a central sector scheme aimed at improving the productivity of agriculture in India by providing financial support for the development of irrigation, soil and water conservation, and other infrastructure in the agriculture sector.

Way forward:

- Encouraging and supporting farmers to adopt millet cultivation through subsidies and better market access.

- Promoting millet based value-added products to increase demand and profitability
- Improving millet seed quality and distribution through government and private initiatives
- Offering training and extension services to farmers on the latest millet cultivation techniques
- Enhancing research and development efforts to improve the yield and quality of millet crops
- Improving storage and transportation facilities to reduce post-harvest losses
- Promoting intercropping with millets to increase farm efficiency and income
- Encouraging partnerships between farmers, processors, and retailers to create a sustainable millet value chain
- Encouraging international collaborations to share best practices and knowledge in millet production and marketing.

ECONOMIC SURVEY 2022-23: KEY HIGHLIGHTS

Context:

- Recently, the Union Minister for Finance tabled the **Economic Survey 2022-23** highlighting the **outlook for India's growth, inflation and unemployment in the coming years.**

About

- The Economic Survey of India suggests that the **economy has recovered from the Covid** disruption and is poised for **sustained robust growth in the rest of the decade.**
- The Survey attributes the **recovery to wide-ranging structural and governance reforms** that have strengthened the economy's fundamentals and increased its efficiency.
- **The Indian economy is expected to grow** at its potential **similar to the growth experience after 2003**, but the growth outlook is **unlikely to be much above 6%.**
- The growth rate in India has become **increasingly capital-intensive**, leading to a **lower labor force participation rate** and **widespread joblessness**, which acts as a drag on economic growth.
- India's **population is growing with a large youth bulge**, high levels of poverty, and malnourished children, which **requires faster growth to satisfy** the growing population
- The survey cautions that a growth rate of 6% **may not create enough jobs to meet the demand from the growing population.**

What is the Economic Survey?

- The Economic Survey has its **roots in the British colonial era**, with the **first survey being presented in 1950-51.**
- The Economic Survey of India is an **annual document** presented to the **Parliament by the Ministry of Finance.**
- It reviews the performance of the Indian economy in the **previous financial year** and presents the **outlook for the next year.**
- It is prepared by the **Economic Division of the Department of Economic Affairs (DEA)** of the Ministry of Finance and is **not governed** by any specific act or legislation.
- The comments or policy solutions contained in the Survey are **not binding** on the government.

Major Findings of the Survey

- **State of the Economy 2022-23:**
 - The Indian economy is staging a broad-based recovery across sectors after recovering from **pandemic-induced contraction, Russian-Ukraine conflict and inflation.**
 - India's GDP growth is expected to remain robust and in the **range of 6-6.8 % in Financial Year 2023-24**, but detailed some downside risks, such as low demand for exports, sustained monetary tightening, etc.
- **Inflation:**
 - The RBI projects headline inflation at 6.8% in FY23, outside its comfort zone of 2% to 6%, but the Survey is optimistic about the inflation levels and trajectory.
 - Steps taken by government to **control inflation included:**
 - Phase wise reduction in export duty of petrol and diesel

- Import duty on major inputs were brought to zero
- Prohibition on the export of wheat products under HS Code 1101 and
- Imposition of export duty on rice.
- **External Sector:**
 - Merchandise exports were **US\$ 332.8 billion for April-December 2022**.
 - India diversified its markets and increased its exports to Brazil, South Africa and Saudi Arabia.
 - To increase its market size and ensure better penetration, in 2022, **Comprehensive Economic Partnership Agreement (CEPA)** with UAE.
 - The **Economic Cooperation and Trade Agreement (ECTA)** with Australia came into force.
 - India is the **largest recipient of remittances in the world receiving US\$ 100 bn** in 2022.
 - Remittances are the **second largest major source of external financing** after service export.
- **Agriculture & Food Management:**
 - Private investment in agriculture has **increased to 9.3% in 2020-21**.
 - Free foodgrains to about 81.4 crore beneficiaries is being provided under the National Food Security Act for one year from January 1, 2023.
- **Services:**
 - The services sector is expected to grow at 9.1% in FY23, as against 8.4% (YoY) in FY22.
 - India was among the top ten services exporting countries in 2021, with its share in world commercial services exports increasing from 3 per cent in 2015 to 4 per cent in 2021.
- **Digital Infrastructure:**
 - **Unified Payment Interface (UPI)-based transactions grew** in value (121 per cent) and volume (115 per cent) terms, between 2019-22, paving the way for its international adoption.
 - More than 98 per cent of the total telephone subscribers are connected wirelessly.
 - The overall tele-density in India stood at 84.8 per cent in March 2022.
- **Physical Infrastructure:**
 - **National Logistics Policy** envisions developing an integrated, cost-efficient, resilient logistics ecosystem in the country for accelerated and inclusive growth.
 - **Inland Vessels Act 2021** replaced the 100-year-old Act to ensure hassle free movement of Vessels promoting Inland Water Transport.
- **Climate Change and Environment:**
 - India declared the **Net Zero Pledge** to achieve **net zero emissions goal by 2070**.
 - India achieved its target of 40 per cent installed electric capacity from non-fossil fuels ahead of 2030.
 - A mass movement **LIFE (Lifestyle for Environment)** was launched.
 - **Sovereign Green Bond Framework (SGrBs)** was issued in November 2022.
 - **National Green Hydrogen Mission** launched to enable India to be energy independent by 2047.
- **Unemployment:**
 - Employment levels have risen in the current financial year, with job creation appearing to move into a higher orbit. The urban unemployment rate for people aged 15 years and above declined from 9.8% to 7.2%.
- **Implications for India's economy:**
 - The Survey suggests that India's economy has recovered from the Covid disruption and is poised for sustained robust growth which will be higher than for almost all major economies.
- **Reference to 2003:**
 - The Survey argues that the situation in 2023 is similar to 2003, when the Indian economy was poised for growth.
- **Likelihood:**
 - India's potential growth rate is unlikely to rise much above 6% in the next few years.



Importance of Economic Survey

- **Provides an overview of the current state of the economy:** The Survey gives an overview of the performance of the Indian economy in the current financial year, including GDP growth rate, inflation, the balance of payments, and other key macroeconomic indicators.
- **Identifies key economic challenges:** The Survey identifies key challenges facing the Indian economy and provides insights into how they can be addressed which is crucial for policymakers, who use this information to formulate their economic policies.
- **Offers policy recommendations:** The Survey provides policy recommendations to the government on how to address economic challenges and promote economic growth and development. This is important for businesses and investors, who can use these recommendations to plan their investments and strategies.
- **Guides future economic policies:** It provides a roadmap for future economic policies, including a projection of GDP growth, inflation, and other key macroeconomic indicators.
- **Supports data-driven decision making:** The Survey provides a comprehensive and in-depth analysis of the Indian economy, including data and evidence-based insights.

Limitations of Economic survey

- **Data Availability:** The lack of reliable data sources and the delay in the release of official data can pose challenges for the preparation of the survey.
- **Forecasting:** Predicting the future state of the economy can be challenging, especially in an environment of economic volatility and uncertainty.
- **Representation of Diverse Sectors:** The Indian economy is diverse and multi-faceted, and the survey must be comprehensive enough to represent the varying sectors and their interlinkages.
- **Balancing Policy Recommendations with Objectivity:** The Economic Survey is expected to be both policy-oriented and objective in its analysis which is challenging as it requires a delicate balance between providing policy recommendations and retaining its independence.
- **Addressing Political Pressures:** The Economic Survey is a **political document**, and it must be prepared in such a way that it aligns with the government's political objectives while also remaining credible and objective.
- **Managing Expectations:** The Survey is widely read and analyzed, and managing public expectations about its contents can be challenging.

Way forward:

- **Well-researched policy ideas** of economic survey serve as an intellectual public good by triggering a debate and forcing policy influencers to think about these issues.
- **With much global uncertainty in** corporate investment and precarious asset markets, the emphasis on public capital expenditure to boost the economy is prudent and wise.
- **The Economic Survey** is the only medium in the country for a rigorous, thoughtful and nuanced discussion of new economic ideas.

AN EYE ON THE FUTURE

Context:

- The **budget for 2023-24** is an innovative amalgamation. It comes when there are impending **state elections** and the **general election in 2024**.

Budget:

- **The government's blueprint** on:
 - expenditure
 - taxes it plans to levy
 - other transactions which affect the economy and lives of citizens.
- **Article 112 of the Indian Constitution:** Union Budget of a year is referred to as the Annual Financial Statement (AFS).
- **The Budget Division of the Department of Economic Affairs** in the **Finance Ministry** is the nodal body responsible for preparing the Budget.
- **Components of the Budget:**
 - expenditure
 - receipts
 - deficit indicators.
- **Depending on the manner in which they are defined**, there can be many classifications and indicators of expenditure, receipts and deficits.

Why is the budget 2023-24 responsive?

- **The priorities articulated** in the vision for Amrit Kaal:
 - opportunities for citizens with a focus on the youth
 - growth and job creation
 - strong and stable macroeconomic environment
- Saptarishi(seven priorities)
 - infrastructure and development
 - green growth
 - financial sector
 - inclusive development
 - reaching the last mile, to mention a few.

Why is the budget 2023-24 responsible?

- **It achieves the stipulated fiscal deficit of 6.4**(six point four)percent of GDP
- **It seeks a half percentage point correction** — primarily from an unwinding of subsidies (food and fertilizer of **6(zero point six)pp of GDP**; likely reflecting both withdrawal of Covid-related relief and global commodity tailwinds)
- **Continued decline** in the ratio of revenue to capital spending.
- **A modest nominal GDP** and tax buoyancy

Aims in budget:

- The budget aims for restraint on borrowings of CPSEs (**2(one point two)percent of GDP**).
 - Excluding state PSEs for which we do not have reliable estimates
- **Allowing for some buffer** in states' estimates

Positives from fiscal and debt consolidation for the sovereign:

- **It enhances resources available** for countercyclical fiscal policies in the event of negative shocks such as Covid
- **It envisages social spending in critical areas** such as health and education where India's public spending remains markedly low.

Does the budget address issues in the health and education sectors?

- **With a hike of 2.7(two point seven) percent** relative to what was originally budgeted in FY23.
 - **Health expenditure** is now assumed at Rs 88,956 crore.
- **The 157 new nursing colleges** will improve human resource capability and primary health centers.
- **Education:** The enhanced allocation in **school and higher education** of **Rs 68,804 and Rs 44,094 crore** respectively, represents an increase of **8 percent in both**.
- **Improved outcomes** through the **National Digital Library**, and **revamp of teacher training**, in line with the overall vision for a digital economy.

What does the budget do for India's commitment for an orderly transition to a Green Economy?**The announcements included:**

- **Rs 35,000 crore** allocation for **energy transition and net-zero carbon emission targets**
- **An annual production target of 5 MMT by 2030** for Green Hydrogen Mission
- **Green Credit Programme** under the Environment (Protection) Act to incentivise sustainable actions.

Agriculture and railways:

- **Both sectors crucial** for employment and for the low- and middle-income population
- **A massive increase in targeted credit** for high-growth, high-value agriculture
- **Increase in the capital outlay** for railways, highest in a decade.

What steps need to be taken?

- **Continued reforms on tax policies** and administration would be needed to close the potential revenue gap.
- **Unfinished agenda of GST reforms** by way of slab rationalization and moving towards a revenue neutral rate needs upward recalibration of 3 to 4 percentage points.
- **Preference should be to revisit allocations** in the areas of health, education, and green economy.

Way Forward

- **The rationalization of direct taxes** in reducing one slab is an effort in the right direction.
 - Over a period, the slabs need further rationalization as also the elimination of wide-ranging exemptions.
- **The encouragement to states** through:
 - **Rs 3(one point three)lakh crore** for capex as a 50-year loan
 - tantamount to a grant
 - Extra headroom for borrowing
 - It should enable state governments to utilize these resources to improve growth and development outcomes, including in critical areas like health and education.
 - **Issues of innovative financing, risk mitigation for crowding in private investments** and securing participation of multilateral institutions would need continuing engagement.
 - **This budget has the stamp of this wisdom:** It has been said, "We must not promise what we ought not, lest we be called on to perform what we cannot."

KEY HIGHLIGHTS: BUDGET 2023-24**Context:**

- Recently, the Union Finance Minister presented the Budget in Parliament.

Budget highlights

- **Agriculture:**

- **Atmanirbhar Clean Plant Program**
 - The program to be launched to boost availability of disease-free, quality planting material for high value horticultural crops.
- **GOBARdhan:**
 - 500 new 'waste to wealth' plants under GOBARdhan (**Galvanizing Organic Bio-Agro Resources Dhan**) scheme to be established for promoting circular economy.
- **Bio-Input Resource Centres:**
 - Centre to facilitate one crore farmers to adopt natural farming over the next three years.
 - For this, 10,000 Bio-Input Resource Centres to be set-up, creating a national-level distributed micro-fertilizer and pesticide manufacturing network.
- **Agriculture Accelerator Fund:**
 - Agriculture Accelerator Fund to be set-up to encourage agri-startups by young entrepreneurs in rural areas.
- **Environment:**
 - **PM-PRANAM:**
 - **"PM Programme for Restoration, Awareness, Nourishment and Amelioration of Mother Earth" (PM-PRANAM)** to be launched to incentivize States and Union Territories to promote alternative fertilizers and balanced use of chemical fertilizers.
 - **MISHTI:**
 - **'Mangrove Initiative for Shoreline Habitats & Tangible Incomes'**, MISHTI, to be taken up for mangrove plantation along the coastline and on salt pan lands, through convergence between MGNREGS, CAMPA Fund and other sources.
 - **Green Credit Programme:**
 - Green Credit Programme to be notified under the Environment (Protection) Act to incentivize and mobilize additional resources for environmentally sustainable and responsive actions.
 - **Amrit Dharohar scheme:**
 - Amrit Dharohar scheme to be implemented over the next three years to encourage optimal use of wetlands, enhance bio-diversity, carbon stock, eco-tourism opportunities and income generation for local communities.
- **Skill Development:**
 - **Pradhan Mantri Kaushal Vikas Yojana 4.0**
 - It is to be launched to skill lakhs of youth within the next three years covering new age courses for Industry 4.0 like coding, AI, robotics, mechatronics, IOT, 3D printing, drones, and soft skills.
 - **Skill India International Centres:**
 - 30 Skill India International Centres to be set up across different States to skill youth for international opportunities.
- **Businesses & Start Ups:**
 - **National Data Governance Policy:**
 - National Data Governance Policy to be brought out to unleash innovation and research by start-ups and academia.
 - **ODOPs (One District, One Product):**
 - States to be encouraged to set up a **Unity Mall** for promotion and sale of their own and also all others states' **ODOPs (One District, One Product)**, GI products and handicrafts.
- **MSME:**
 - **PM Vishwakarma Kaushal Samman (PM VIKAS):**
 - The first-of-its-kind package assistance endeavours to improve the quality of, scale and reach of the products made by traditional artisans and craftspeople.
 - Components of the scheme would not provide for financial support but also access to advanced skill training, knowledge of modern digital techniques and efficient green technologies, digital payments and social security.
 - **Vivad se Vishwas I:**

- If MSMEs failed to execute contracts during the pandemic period, 95% of the forfeited amount relating to bid or performance security would be returned to them by the government or its undertakings.
- **Education:**
 - **Eklavya Model Residential Schools:**
 - Centre to recruit 38,800 teachers and support staff for the 740 Eklavya Model Residential Schools, serving 3.5 lakh tribal students over the next three years.
 - **District Institutes of Education and Training:**
 - District Institutes of Education and Training to be developed as vibrant institutes of excellence for Teachers' Training.
 - **National Digital Library:**
 - A National Digital Library for Children and Adolescents to be set-up for facilitating availability of quality books across geographies, languages, genres and levels, and device agnostic accessibility.
- **Savings scheme for women - Mahila Samman Saving Certificate:**
 - One-time new saving scheme Mahila Samman Saving Certificate for women to be made available for 2 years up to March 2025.
 - It will offer deposit facility of up to Rs 2 lakh in the name of women or girls for tenure of 2 years at fixed interest rate of 7.5 percent with partial withdrawal option.
- **Governance:**
 - **Entity DigiLocker:**
 - Entity DigiLocker to be setup for use by MSMEs, large business and charitable trusts to store and share documents online securely.
 - **Jan Vishwas Bill:**
 - Jan Vishwas Bill to amend 42 Central Acts have been introduced to further trust-based governance.
- **The Urban Infrastructure Development Fund:**
 - Urban Infrastructure Development Fund (UIDF) will be established through use of priority Sector Lending shortfall, which will be managed by the national Housing Bank, and will be used by public agencies to create urban infrastructure in Tier 2 and Tier 3 cities.
 - It would provide the impetus needed for the growth of infrastructure in cities.
- **Technology:**
 - **Make AI in India and Make AI work for India:**
 - Three centres of excellence for Artificial Intelligence to be set-up in top educational institutions to realise the vision of "Make AI in India and Make AI work for India".
- **Tourism:**
 - **'Dekho Apna Desh' initiative:**
 - Sector specific skilling and entrepreneurship development to be dovetailed to achieve the objectives of the 'Dekho Apna Desh' initiative.
 - **Vibrant Villages Programme:**
 - Tourism infrastructure and amenities to be facilitated in border villages through the Vibrant Villages Programme.
- **Finance:**
 - **National Financial Information Registry:**
 - National Financial Information Registry to be set up to serve as the central repository of financial and ancillary information for facilitating efficient flow of credit, promoting financial inclusion, and fostering financial stability.
 - A new legislative framework to be designed in consultation with RBI to govern this credit public infrastructure.
 - **Comprehensive review:**
 - Financial sector regulators to carry out a comprehensive review of existing regulations in consultation with public and regulated entities. Time limits to decide the applications under various regulations would also be laid down.

Direct Taxes

- **Income Tax:**
- Budget 2023 focused on **raising capital expenditure** by the government, **fiscal consolidation**, and **attractive incentives and rebates** in the new income tax regime.
- **Income Tax payers:**
 - No changes in the old tax regime
 - New tax regime to become the default tax regime. However, citizens can opt for the old tax regime.
 - No tax on income up to Rs 7.5 lakh a year in new tax regime (with inclusion of standard deduction)
 - Govt proposes to reduce highest surcharge rate from 37% to 25% in new tax regime
- **New Income Tax Slabs Under New Tax Regimes:**
 - Rs 0-3 lakh: Nil
 - Rs 3-6 lakhs: 5%
 - Rs 6-9 lakhs: 10%
 - Rs 9-12 lakhs: 15%
 - Rs 12-15 lakhs: 20%
 - Rs Over 15 lakhs: 30%

Indirect Taxes

- **Through increased Indirect Taxes, following products will get Cheaper:**
 - Mobile phones
 - TV
 - Lab-grown diamonds
 - Shrimp feed
 - Machinery for lithium ion batteries
 - Raw materials for EV industry
- **Through reduction of Indirect Taxes, following products will get Costlier:**
 - Cigarettes
 - Silver
 - Compounded rubber
 - Imitation Jewellery
 - Articles made from gold bars
 - Imported bicycles and toys
 - Imported kitchen electric chimney
 - Imported luxury cars and EVs

OUR GROWTH NEEDS DEEP ANALYSIS MORE THAN CONSTANT TRUMPETING

Context:

- There is controversy over the revised series at **2011-12 prices**. There is a widely held view that GDP numbers in the revised series are overestimated.
- The data from the **informal sector** accounts for a larger share of Indian GDP is available only with a time lag. Consequently, trends from the formal sector are projected into the informal sector while making provisional GDP estimates. These are subsequently revised once data from the informal sector is available.
- The public debates in India revolve around **headline figures of CSO**. The international practice in analysing growth data is to look at **output loss/gain relative to trend growth rate**.

What can be analysed from comparison of average growth rate of 2014-22 of India with other Asian economies?

- The **fastest growing economy** over the past seven years was neither China nor India. It was Bangladesh.
- **Global attention** is focussed on China deceleration due to **Xi Jinping policies**. He privileges security over economic growth. However, growth deceleration over this period is more for India as compared to China.
- There is talk of an **economic crisis in Pakistan**. However, its average growth rate during the past four years was more than India.

- During this period, Bangladesh overtook India in per capita income. India's neighbours to the east and west had **better average economic growth** over the last four years.
- **Output loss of 18.2% of GDP** over the last four years in India is very high. This is a substantial loss. It is significantly higher than China and other South Asian neighbours.

What needs to be done by economic policymakers?

- There is a need for assessment of **large output loss**.
- Corrections are required in the **GDP numbers based on the 2011-12 series**.
- There is a need to **assess the output loss** that cannot be recovered.
- **Trends of downward shifts** need to be studied. True extent of longterm damage will be known once the data on the informal sector is finalised.
- Steps needed to **reverse the growth trend** should be finalised.

ON BUDGET 2023: HEALTH IN AMRIT KAAL

Context:

- Recently, **2023-24 Union Budget speech**, the finance minister announced that the **total central government budget for health** will be roughly be **Rs 615 for every citizen**.
- In her **2023-24 Union Budget speech**, the finance minister announced that the **total central government budget** for health will be roughly **Rs 86,175 crore (\$10 billion)** — that is, roughly **Rs 615 for every citizen**.
 - This is a **2.7 percent increase from the previous fiscal year** and **lower than the rate of inflation**.
 - In real terms, the central government's health spending has **declined**.
- **Significance of budgetary spending on health:**
 - The \$10 billion spent by the central government **may be a small fraction** of overall health spending but it is consequential as it pays for:
 - **Immunisation, newborn and child health and nutrition, maternal health, infectious disease control, health systems and training**.
- This spending by the government **purchases far more health than out-of-pocket or private spending by Indian citizens**.

Issues with the lower budgetary allocations on health

- **Burden of healthcare in India:**
 - **Vaccinating a single child** against all childhood illnesses costs at least **Rs 1,600**.
 - **A day of hospitalisation at a public hospital** is estimated at **Rs 2,800**.
 - At a private hospital, it is **Rs 6,800**.
 - Add to these the expenses for **supporting women through deliveries, control of infectious disease, primary healthcare, and much more**.
 - It is, therefore, no surprise that the **system fails the most vulnerable** and they are **forced to turn to the expensive private sector**.
- **For elderly and sick:**
 - The poor, elderly and sick are already at a disadvantage and the burden of health expenditure makes this even worse.
- **Increasing poor and non-poor gap:**
 - A **greater proportion of disposable incomes** is taken away from a poor household as compared to a non-poor one, **further broadening the gap** between the two.
 - If **sickness hits a working member** of the household, she/he must often withdraw from active employment and their main source of income dries up at the time when they urgently need more money for treatment.
 - Households have to **often sell or mortgage their productive assets**, such as land and cattle, to cover the treatment costs.
 - **This further reduces their capacity to bounce back**.

- According to the WHO, 55 million people fall into poverty or deeper poverty every year due to catastrophic expenditures on health.
- **Lesser spending than the Lower and Middle-Income Countries:**
 - India currently spends about Rs 8 lakh crore or about 3.2 percent of its GDP on health.
 - This is much lower than the average health spending share of the GDP — at around 5.2 percent of the Lower and Middle Income Countries (LMIC).
 - **Comparing the data:**
 - Of this, the government (Centre and states put together) spends about roughly 1.1 percent of the GDP.
 - Contrast this with the government health expenditure in countries like China (3 percent), Thailand (2.7 percent), Vietnam (2.7 percent) and Sri Lanka (1.4 percent).

Suggestions

- **Rationalising NHM spendings:**
 - The National Health Mission allocates less than 3 percent to non-communicable diseases (NCD) flexipool.
 - In comparison, the allocation for communicable diseases is three times more.
 - The burden of disease from NCDs accounts for more than half of the total burden of disease.
 - Greater focus on communicable diseases is driven by past epidemiological patterns and **should be rebalanced now** to pay attention to non-communicable diseases.
- **Balancing Urban and poor health care:**
 - Public health and primary health care focus on rural areas.
 - Urban areas have poorly developed infrastructure for primary care even if secondary and tertiary health care services are better.
 - For example, immunisation coverage is now lower in urban India than in rural India.
 - A third of the country now lives in urban areas and greater resources are needed to improve health here.
- **Focussing on Health research:**
 - Health research has been neglected for too long.
 - The bulk of the resources provided to the Indian Council of Medical Research goes towards maintaining a large payroll of scientists and the output is poor.
 - India should follow the example of countries where government-funded health research is conducted at academic institutions, and the government's role is to make grants and not to carry out the majority of research.
 - Competitive funding will encourage the best research and the example of the Wellcome Trust/DBT-India Alliance in promoting the culture of competitive grants can be replicated across the system.

Way ahead

- This is not an example of efficient use of resources when the country spends too little on health, too many people suffer the consequences of ill health.
- The health (and education) of Indians is the most important determinant of what the country can achieve during the next 25 years of Amrit Kaal.
- We must find ways to both find more money for health, and also more health for the money to ensure that all Indians achieve their true potential.

MICROFINANCE: STATUS, BENEFITS, CHALLENGES AND SOLUTIONS

Context:

- The RBI had recently released its 26th Financial Stability Report (December 2022). In the report, the RBI remarked that the credit to the Microfinance sector has grown at a steady pace. However, the report highlighted the building stress levels in the loans portfolio (i.e., bad loans are increasing). The share of loans overdue by more than 90 days has risen to 14% in September 2022, from 12% in March 2022. Microfinance is considered a potent tool to ensure balanced and inclusive growth, especially by providing access to credit to the rural citizens and small entrepreneurs. The rising delinquency (Being delinquent refers to a situation wherein the borrower is overdue on a loan payment by a certain number of days) in Microfinance is indicative of the challenges faced by the sector. The Government has been supporting the sector through various initiatives. The Government has to step in to address the issues faced by the sector.

Meaning of Microfinance:

- Micro Finance is defined as 'provision of credit and other financial services and products of **very small amounts** to the poor in rural, semi urban or urban areas, for enabling them to **raise their income levels** and **improve living standards**'. It is an economic tool designed to **promote financial inclusion** which enables the poor and low-income households to come out of poverty.

Components of Microfinance

- **Micro credit:** Micro credit is the extension of **very small loans** to borrowers who typically lack collateral, steady employment or income stream and verifiable credit history. It is designed to support small-scale entrepreneurship, alleviate poverty, empower women and uplift the poor social class by extension. Microcredit is delivered through a variety of institutional channels including Scheduled Commercial Banks (through Business Correspondents), Regional Rural Banks (RRBs), Cooperative Banks, Non-Banking Financial Companies (NBFCs) and Microfinance Institutions (MFIs).
- **Micro Insurance:** It is the insurance with low premiums and low coverage. Micro-insurance covers low income/net-worth persons and transactions are of low value. Like normal insurance, it can cover wide range of risks including damage to crops and livestock.
- **Micro Saving:** Micro saving is targeted at people with low incomes and low savings. They are similar to saving accounts, but designed for small deposits. Typically, the limit of minimum deposit/balance is low and there are no service charges.
- **Microfinance Institutions:** Institutions providing Microfinance services are called Microfinance Institutions (MFIs). A large number of organisations with varied size and legal forms offer Microfinance services. The MFIs exist as separate institutions because of the unique features of Microfinance like high transaction costs, short duration of loans, high frequency of repayment/instalments, absence of collateral and relatively higher rate of default.

Types of Microfinance Institutions in India

- **Joint Liability Groups:** JLGs are informal group of 4-10 people that seek mutually assured loans. Agriculture-related loans are typical. Farmers, rural labourers, and renters are among the debtors in this category. JLG members are **equally responsible for loan repayment**.
- **Self-Help Groups:** An SHG is a group of people in similar socioeconomic situations who come together to help each other. They are self-governed. Members come together (often for a limited time) to form a shared fund for their mutual business requirements. This type of cooperative financing does not necessitate the use of collateral. In addition, borrowing rates are often cheap. Several banks have formed partnerships with SHGs in order to **increase financial inclusion** in the country's rural areas e.g., the NABARD-SHG linkage program, allows numerous self-help groups to borrow money from banks if they can show that their borrowers have made regular payments.
- **Regional Rural Bank Model:** The main purpose of this strategy is to boost the rural economy. They have been created to serve rural areas with basic banking and financial services.
- **Cooperatives:** Rural cooperatives were established at the time of India's Independence. Through the cooperatives, resources of the poor are pooled and financial services are made available.
- MFIs, based on their set-up, are regulated as NBFCs by the RBI, or through Companies Act, 2013.

Status of Microfinance

- According to NABARD, the SHG-Bank Linkage Programme, covers 14.2 crore families through 119 lakh SHGs (87% of which are women) with savings deposits of INR 47,240.48 crore (March 31, 2022).
- NABARD has sanctioned a cumulative grant assistance of INR 255.81 crore to Joint Liability Groups Promoting Institutions (JLGPIs) for promoting 12.77 lakh JLGs (March 31, 2022). There are 188 lakh JLGs of which 54 lakh were promoted during FY 2021-22 (as against 41 lakh promoted in FY 2020-21). During FY 2021-22, loan disbursed was INR 112,772.75 crore.
- According to NABARD, Microfinance operations in India are spread across 595 districts of 28 States and 5 Union Territories. As on 31 March 2022, the combined micro credit portfolio of 225 lenders is INR 262,599 crores.

Benefits of Microfinance

- **Credit to Low-Income Borrowers:** Microfinance provides credit to the poor people with low income and assets who face difficulty in accessing finance from formal banking institutions. They help in providing funds to small entrepreneurs in poor regions.
- **Collateral-Free Loans:** No collateral is required for Microfinance loans. This helps persons with little or no assets to access credit.
- **Financial Inclusion:** Microfinance helps those sections of population who are unable to access credit from Banks/formal institutions.
- **Income Generation:** Loans provided by MFIs help small entrepreneurs set-up/expand/scale-up their operations. This enables them to improve their income.
- **Women Empowerment:** Microfinance facilities have proven to be vital in providing financial independence to women and thus empowering them. As noted by NABARD Report, SHG-Bank Linkage Programme has benefited 119 lakh SHGs, 87% of which are women. Access to finance will help increase women-led MSMEs.
- **Rehabilitation:** Microfinance is able to provide access to finance in naxal areas as well. It has thus helped in rehabilitation of the conflict-affected people.
- **Rural Development:** Microfinance boosts economic activities in the rural area and thus aids in rural development. It helps create livelihood opportunities as well.
- **Encourage Self-Sufficiency and Entrepreneurship:** MFIs can provide much-needed funds to an individual for the establishment of a new business that requires small investment and offers long-term profit. Thus they promote entrepreneurship and self-sufficiency among the lower-income population.

Challenges associated with Microfinance

- **Financial Illiteracy:** Financial illiteracy leads to lack of awareness about various MFIs, and the services they offer. This makes the poor people reluctant to approach the MFIs.
- **Inability to Generate Funds:** MFIs face difficulty to raise sufficient funds as they are generally not 'for-profit'. This restricts their access to funds from private equity investors or other market-based avenues of funding.
- **Heavy Dependence on Banks:** MFIs are dependent on borrowing from banks. For most MFIs funding sources are restricted to private banks. Funds available from these banks are typically for short term, generally 2 years. Moreover, Banks tend to disburse loans at the end of financial year to meet the targets. This can create issues for MFIs if there is delay in repayment of loans by borrowers.
- **Weak Governance:** Many MFIs are not willing to convert to a corporate structure; hence there is lack of transparency. This also limits their ability to attract capital. MFIs face challenge to strike a balance between social and business goals.
- **Interest Rate:** Some MFIs charge high interest rates, which the poor find difficult to pay. MFIs are private institutions and do not get any subsidized credit for their lending activities. Thus they tend to charge higher interest rate.
- **Regional Imbalances:** There is unequal geographical growth of MFIs and SHGs in India. About 60% of the total SHG credit linkages in the country are concentrated in the Southern States. In poorer regions like in Jharkhand, Bihar etc. where the proportion of the poor is higher, the coverage is comparatively lower. This could be attributed to lack of State government support, NGO concentration and public awareness

Steps have been taken to promote Microfinance in India

- **Government Programmes:** (a) **SHG-Bank Linkage Programme (SHG-BLP):** This channel was initiated by NABARD in 1992. This model incentivises women to unite together to form a group of 10-15 members. Women belonging to financial backward classes contribute by giving their individual savings to the group at regular intervals. Loans are provided to the members of the group by their contributions; (b) **Micro Enterprise Development Programme (MEDPs):** The programme enables SHG members to be up-skilled to take up income generating livelihood activities. The main objective of the programme is to **enhance the capacities of participants** through appropriate skill up-gradation in existing or new livelihood activities in farm or non-farm activities. It helps enrich knowledge of participants on enterprise management, business dynamics and rural markets; (c) **Livelihood and Enterprise Development Programme (LEDP):** It was initiated on a pilot basis in 2015 with a view to **create sustainable livelihoods** among matured SHG members and to obtain optimum benefit from skill up-gradation. LEDP is a holistic intervention mechanism conceived to take care of the entire ecosystem required for livelihood promotion in both farm and off-farm activities. It is implemented through cluster-based approach within contiguous villages. It has a provision for intensive training for skill building, refresher training, backward-forward linkages, handholding and escort support for credit linkage; (d) **Credit Guarantee Fund Trust for Micro and Small Enterprises (CGTMSE):** It implements the credit guarantee scheme for Micro and Small Enterprises (MSEs). It has added MFIs to the list of member lending institutions (MLIs).
- **Financial Support by NABARD and SIDBI:** (a) NABARD supports MFIs in their formative years (as NGO-MFIs) with grant support and **Revolving Fund Assistance (RFA)**. NABARD had also created the **Micro Finance Development and Equity Fund (MFDEF)** in 2006 to help a number of MFIs with quasi-equity and subordinated debt instruments; (b) SIDBI has aided the growth of MFIs through its **SIDBI Foundation for Micro Credit (SFMC)**. The **India Microfinance Equity Fund (IMEF)** of SIDBI has also supported MFIs, especially the medium and smaller ones with equity and quasi-equity. Since IMEF had similar function as MFDEF, it (MFDEF) was withdrawn in 2013; (c) **MUDRA:** Support to Microfinance sector was scaled up by Government of India by setting up the **Micro Units Development & Refinance Agency Ltd (MUDRA)** in 2015. It is an NBFC that focuses on micro-enterprises, extending **financial support to MFIs** for on-lending to individuals/groups/JLGs/SHGs.
- **Regulatory Initiatives:** (a) **Y H Malegam Committee:** It was set-up in the wake of AP Microfinance crisis in 2010. It was constituted by the RBI to study issues and concerns in the Microfinance sector; (b) **Introduction of Regulations for NBFC-MFIs:** Based on the recommendations of the Malegam Committee, RBI introduced a comprehensive regulatory framework for NBFC-MFIs in December 2011. The regulations prescribed **eligibility criteria for Microfinance loans** linked to core features of Microfinance i.e., lending of small amounts to borrowers belonging to low-income groups, without collateral, and with flexible repayment schedules; (c) **Regulatory Framework for Microfinance Loans:** RBI has implemented Regulatory Framework for Microfinance Loans, effective from April 1, 2022, to update Microfinance regulatory policy. This will create regulatory parity between Regulated Entities (RE) that provide Microfinance, harmonise regulations to protect customers from over-indebtedness, and define Microfinance. Microfinance loans are now collateral-free loans for households having annual income up to INR 3 lakh.

Way forward:

- **Regulation:** The Microfinance sector has expanded a lot in the last 2 decades. Hence there is a need for a comprehensive regulatory framework for the sector, instead of piecemeal and reactive regulatory initiatives.
- **Interest Rate Transparency:** MFIs are employing different patterns of charging interest rates and a few are also levying additional charges. MFIs should transparently inform the borrowers regarding the interest rate charged on the loans.
- **Encourage Microfinance Penetration:** Encouraging MFIs for opening new branches in areas of low Microfinance penetration by providing financial assistance will increase the outreach of the Microfinance. This will increase **rural penetration** of Microfinance.
- **Expand Product Range:** MFIs should provide complete range of products including credit, savings, remittance, financial advice and non-financial services like training and support. This will enable the people from underserved access all financial services.

- **Use of Technology:** MFIs should use new technologies, IT tools, and applications to reduce operational costs.
- **Different Sources for Raising Funds:** In the absence of sufficient finances, the reach of MFIs becomes limited. MFIs should look for other sources for funding their loan portfolio e.g., by converting to for-profit company (NBFC).

Conclusion

- The Microfinance sector has played an important role in ensuring inclusive and balanced development. Yet the benefits of Microfinance have been limited to some regions. Moreover, the sector faces issue of rising bad loans along with several operational challenges for the MFIs. There is a need for comprehensive regulation of the sector to make it more inclusive and sustainable.

INDIA MUST AVOID GROWING INTO A DYSTOPIA

Context:

- The **Budget 2023-24**, has received almost universal praise in the **English language media**. The **Budget** is pro-growth, and their prognosis is plausible.

The priorities articulated in the vision for Amrit Kaal:

- Opportunities for citizens with a focus on the youth
- Growth and job creation
- Strong and stable macroeconomic environment
- Saptarishi(seven priorities)
 - infrastructure and development
 - green growth
 - financial sector
 - inclusive development
 - reaching the last mile, to mention a few.

Evidences of growth:

- **Data shows that private investment plans** during the first nine months of this year to be over **50% greater** than what they were a year ago.
- **Government** proposed a target of **\$5 trillion within five years (2024-25)** for India's economy.
- **India** has overtaken the United Kingdom to become the world's **fifth largest economy**.
- **Consultancy Centre for Economics and Business Research (CEBR):** By **2035**, India's economy would reach **\$10 trillion** and become the world's **third largest by 2037**.

The West's self-interest in India:

- **There is an element of awe** that a country once a byword for famine has sloughed off the deadweight of colonial exploitation and grown.
- **India is not only a relatively rare democracy** in the east but also the largest one in terms of population.
 - As all the countries in the West are democracies, western elites see a possible alliance of interests.
- **India's growing economic size** has made it attractive for investors.
 - **India's fast growth** is an investment opportunity for the surplus savings of the West.
- **Investing money in India is likely to fetch the highest** returns globally.
- **The continuous support from the West** about India's growth reflects a deep-seated self interest.

Issues of unemployment:

- **Unemployment** was barely mentioned in the Finance Minister's Budget speech.
- **Government data** show that in mid-2022, unemployment among urban males was much higher than it was a decade ago.
- **Data from the Centre For Monitoring Indian Economy Pvt. Ltd:** It shows that the number of people employed in December 2022 was less than it was in 2016.
- **The growth of the national economy** has not generated an equal growth in employment.

- **India does not have an employment policy**, either at the Centre or in the States.
- **Welfarism, defined by the free or subsidized** distribution of private goods, is no substitute.

How will employment opportunities rise?

- **Employment opportunities** will arise only when there is demand for goods in the production of which they can participate.
- **Increased demand for goods of mass consumption** alone will lead to an expansion in the demand for these workers.
 - For an expansion of this demand, arresting the price of food would be essential.

Way Forward

- **India could well grow fast** over the next decade-and-a-half without generating sufficient employment for the legion of unemployed youth, especially in rural areas.
 - **A concerted policy focus** can create the conditions for employment generation in India.
- **Political parties seem to be pursuing growth** with a view to enhancing their electoral prospects, without concern for a possible negative fallout.
- **India needs growth as it has a backlog of poverty.** But the growth that one often sees does not do enough for improving the lives of the poorest, such as by generating employment, and is ecologically harmful.
 - Size is valuable only when it enhances the well being of the population.

INDIA MUST AVOID GROWING INTO A DYSTOPIA

- **Context:** The focus of economic growth has been on income generation. The development of masses, rising inequalities and employment generation is neglected.

Economic scenario of India:

- **Private investment plans** during the first nine months of this year to be over 50% greater than what they were a year ago.
- India it seems is on a roll as far as economic growth is concerned.
- India has overtaken the United Kingdom to become the **world's fifth largest economy**.
- The London Based consultancy **Centre for Economics And Business Research (CEBR)** predicted that by 2035, India's economy would **reach \$10 trillion** and become the **world's third largest by 2037**.

Why is the West interested in the growth of the Indian economy?

- India is a democracy in the east and also the largest one in terms of population. All the countries in the **West are democracies**. So, they see a possible **alliance of interests**.
- India's growing economic size has made it attractive in a way that it was not before. Its fast growth is an **investment opportunity** for the surplus savings of the West. Investing money in India is likely to yield the **highest returns globally**.

What is the status of employment in India?

- **Government data** show that in mid 2022, unemployment among urban males was much higher than it was a decade ago.
- Data from the **Centre For Monitoring Indian Economy** show that the number of people employed in December 2022 was less than it was in 2016.
- Clearly, the **growth of the national economy** has not generated an equal growth in employment.
- **Impacts of growth on Environment:**
- Uncontrolled growth will almost certainly result in **ecological insecurity**.
- The construction of new **elevated national highways** destroys agricultural land and jeopardizing livelihoods.
- Plans for infrastructure aimed at religious tourism in Uttarakhand and Kerala have caused **landslides and flooding**. It led to suffering for their people.

- **What can be done to improve employment opportunities for the masses?**
- **Employment opportunities** for the mass population will arise only when there is **demand for goods in the production** of which they can participate.
- **Growth of the IT sector or of exportable manufactures** will not be of much use for them. They possess low education and skills.
- Increased demand for **goods of mass consumption** alone will lead to an expansion in the demand for these workers.
- For an expansion of this demand, **low inflation** is essential. Only then will low income households have enough to demand more manufactured goods.
- A concerted policy focus can create the conditions for employment generation in India. Welfarism, defined by the free or subsidised distribution of private goods, is no substitute.

Way forward for economic policy:

- India needs growth as it has a **backlog of poverty**. But growth alone is not enough for improving the lives of the poorest. It is ecologically harmful.
- Size is valuable only when it **enhances the well being** of the population.

INDIA'S INFRASTRUCTURE PUSH

- **Context:** Infrastructure is universally acknowledged as a key driver of growth. The term infrastructure, however, is **usually associated with physical assets**, such as roads, ports, power transmission lines, etc. However, in recent years, **India's growth story has been closely associated with a strong focus on not only physical**, but also social and digital infrastructure.
- Budget 2023 gives a **powerful thrust to these three dimensions of infrastructure development** which, put together, accelerate inclusive growth. The targeted investments will not only create vital physical infrastructure and improve connectivity that will accelerate the movement of passengers and freight, but also create jobs, spur private investments, and provide a cushion against global headwinds.
- In Budget 2022-23, India focused on giving the necessary push to the economy by investing in various infrastructure projects. In the upcoming Budget, the infrastructure sector will receive a similar amount to reach **India's goal of becoming a USD5 trillion economy by 2025**.

Proposed Allocation in the 2023-24 Budget:

- **India's Capital Expenditure:**
 - India's **capital expenditure** as a percentage of GDP increased from **1.7% in 2014 to nearly 2.9% in 2022-23**.
 - For infrastructure, **Rs 10 lakh crore (3.3% of GDP) was allocated in the budget 2023-24**, an increase of three times from 2019.
- **Largest Allocation:**
 - The Ministry of Railways **received its highest-ever allocation of Rs 2.4 lakh crore**, approximately nine times the allocation in 2013-14.
 - The Ministry of Road Transport and Highways saw a **36% increase in its budget to about Rs 2.7 lakh crore**.
- **Extension of Interest-Free Loan to States:**
 - The direct capital investment by the Centre has been further **supplemented by a one-year extension of the 50-year interest-free loan to state governments** to encourage infrastructure investment and incentivise complementary policy actions, with a significantly increased outlay of Rs 1.3 lakh crore.
 - This will lead to **decentralised infrastructure development in urban and peri-urban areas** across regions.
 - Increasing allocations to **PM Awas Yojana** by 66% will not only provide rural workers with housing, but also create jobs.

Why is India's Infrastructure Push Challenging?

- **Physical Infrastructure:**

- **Land acquisition:** One of the biggest challenges in building physical infrastructure is acquiring land, as it often involves resettlement of people and compensation issues.
- **Funding:** Funding large-scale infrastructure projects is also a major challenge, as the government **may not have sufficient resources and private investment** may be limited due to economic and regulatory hurdles.
- **Lack of Technology:** India faces **challenges in terms of the availability of technology and expertise necessary** for complex infrastructure projects.
- **Social Infrastructure:**
 - **Inadequate Human Resources:** The **shortage of skilled workers, engineers, and managers can be a hindrance to the development** of social infrastructure projects.
 - **Lack of Public Support:** Social infrastructure projects, such as **healthcare and education, require public support and buy-in, which can be difficult to secure** in a complex political environment.
 - **Inadequate Planning and Implementation:** Poor planning and implementation can result in substandard facilities and a lack of sustainability, ultimately reducing the impact of the infrastructure push.
- **Digital Infrastructure:**
 - **Digital Divide:** There is a **digital divide in India**, with limited access to technology and the internet in rural areas, which can hinder the development of digital infrastructure.
 - **Cybersecurity Concerns:** The increasing **use of technology also raises concerns about cybersecurity and privacy**, making it necessary to have strong regulations and infrastructure in place.
 - **Lack of standardization:** The **lack of standardization and coordination among different players in the digital infrastructure sector can create problems for users** and limit the potential for growth and innovation.

Related Initiatives:

- **For Digital Infrastructure:**
 - **First Phase:**
 - **JAM trinity** — Jan Dhan, Aadhaar and mobile linkages
 - **Digital India programme**
 - **Second Phase:**
 - Development, application, and large-scale expansion of cutting-edge technologies such as **5G, Internet of Things (IoT), Artificial Intelligence (AI), quantum computing, mechatronics, robotics** and more.
 - An important domain that the government is focusing on currently is creating open AI resources.
 - **Example:**
 - **Digital India Bhashini portal** is India's Artificial Intelligence (AI) led language translation platform.
 - The **Agriculture Accelerator Fund** announced in the budget will enable the Indian agricultural ecosystem (startups, businesses, and farmers) to work collaboratively and find knowledge-based and farmer-centric solutions.
- **Social Infrastructure:**
 - **Mission to Eliminate Sickle cell Anaemia:**
 - In the Union **Budget 2023-24**, the government has announced a mission to eliminate **Sickle cell Anaemia** by 2047.
 - **PM Poshan Shakti Nirman or PM Poshan:**
 - It is the largest school feeding programme of its kind in the world, covering students enrolled in government schools from Classes 1 to 8.
 - **Beti Bachao Beti Padhao:**
 - It was launched in 2015 with the aim to address sex selective abortion and the declining child sex ratio which was at 918 girls for every 1,000 boys in 2011.
- **Physical Infrastructure:**
 - **PM Gati Shakti Scheme:**
 - It aims to **ensure integrated planning and implementation of infrastructure projects in the next four years**, with focus on expediting works on the ground, saving costs and creating jobs.

- **Bharatmala scheme:**
 - In 2022, India saw a major push in construction of highways with more than 5000 kms of National Highways constructed.
 - Targeted development of highways under the Bharatmala scheme has helped in bridging of infrastructure gaps in development of economic corridors

Way Forward:

- **Investment in social infrastructure:**
 - Investment in social infrastructure can lead to a **more productive and proficient workforce**, reduced mortality, wasting and stunting, increased social mobility and a higher quality of life.
 - Social infrastructure includes education and skilling, public health and nutrition, drinking water and sanitation.
 - These **factors contribute to a stronger and more inclusive economy** and holistic development.
- **Increased Public-Private Partnerships (PPPs):**
 - The government can partner with the private sector to finance, design, construct, and operate infrastructure projects.
- **Improved Project Planning and Implementation:**
 - The government can streamline project planning and implementation processes to ensure that projects are completed on time and within budget.
- **Implementation of Innovative Financing Solutions:**
 - The government can **explore innovative financing solutions, such as infrastructure bonds**, to mobilize additional funds for infrastructure development.
- **Encouraging Foreign Direct Investment (FDI):**
 - The government can **ease regulations and create a favorable environment for foreign direct investment** in infrastructure development.
- **Building Human Capital:**
 - The government can **focus on building human capital in the form of skilled labour and technical expertise** to support infrastructure development.
 - Some ways to build human capital to support infrastructure development:
 - Investing in workforce development programs that provide job training, apprenticeships.
 - Providing access to quality education and training programs
 - Supporting research and innovation in infrastructure-related fields
 - Fostering partnerships between the public and private sectors to encourage investment in human capital development
 - Schemes to build human capital and support infrastructure development include: **Skill India, National Skill Development Corporation (NSDC), Pradhan Mantri Kaushal Vikas Yojana (PMKVY)**.
- **Effective Regulation:**
 - The government can establish and enforce effective regulations to ensure the quality and safety of infrastructure projects.
 - Some ways regulations can help:
 - Regulations can set standards for the quality of materials, workmanship
 - Regulations can also specify safety requirements, such as fire safety, evacuation plans, and accessibility standards, which must be met to ensure the safety of the public and the workers involved in the project.
 - Independent inspection and testing which will help to identify any issues or problems that need to be addressed before the infrastructure is put into use.

FINANCIAL INCLUSION AND WOMEN BUSINESS CORRESPONDENTS

- **Context:** Business Correspondents (BCs) are the **vital cog for the financial inclusion strategy of every bank**, with over **95% of banking outlets in rural regions being operated by them**. Critically relevant for women customers, **BCs have been able to conduct banking transactions**, from the convenience of their homes (or nearby their homes), cutting down the transportation cost, time and hesitancy barriers.

- **BCs are intermediaries who offer financial services on behalf of financial institutions**, such as banks and microfinance organizations, in areas where it is difficult or costly to set up traditional branches. **BCs use various delivery channels**, including mobile technology, to bring financial services to the doorsteps of underbanked populations.
- Many people, especially those in rural and underprivileged areas, face significant barriers to accessing financial services. This is where **Business Correspondents (BCs) come into play**.
- Despite the proliferation of BCs, **the representation of female BCs is dismally low** and the available figures suggest that **they form less than 10% of the total BC network**. In the current ecosystem, **there are still some challenges that make this profession unviable for them** and require urgent attention to increase financial inclusion.

Challenges with Women BCs:

- **Lack of Financial Inclusion:**
 - Many WBCs **face difficulties in accessing financial services** and credit to grow their businesses due to their lower socio-economic status and lack of collateral.
- **Digital Illiteracy:**
 - A **large number of WBCs are not familiar with digital technology** and lack the necessary skills to use digital financial services effectively.
- **Minimum Qualification:**
 - Minimum qualification is **another hurdle that hinders the onboarding of female BCs**, especially in underserved rural areas.
 - The current BC/Business Facilitator certification mandated by the RBI from the Indian Institute of Banking and Finance provides a **10th pass as the minimum qualification to appear for the examination**.
 - However, many banks have made this onerous by **keeping their minimum qualification as 12th pass**.
- **Societal Attitudes:**
 - WBCs often face societal attitudes that view women as homemakers and not as entrepreneurs, which can limit their opportunities to grow their businesses.
- **Lack of Support from Government and Financial Institutions:**
 - WBCs often **lack support from government and financial institutions**, which makes it difficult for them to access the resources they need to grow their businesses.
- **Safety Concerns:**
 - Many WBCs **operate in rural areas where there is a high risk of violence and crime**, which can limit their mobility and put them in danger when they are out conducting transactions.
- **Limited Financial Support:**
 - There is limited additional financial support provided by Business Correspondent Network Managers or the banks to address the socio-economic hurdles such as mobility and safety faced by a female BC.

Other Challenges with Financial Inclusion in India:

- **Lack of Awareness:**
 - Many individuals and small businesses in rural and remote areas are unaware of the financial services available to them and their benefits.
- **Digital Literacy:**
 - With the rise of digital financial services, there is a need for digital literacy and access to technology, which is still lacking in many parts of India.
- **Infrastructure:**
 - Inadequate physical infrastructure such as roads, telecommunication network and power supply hampers the reach of financial services to remote and rural areas.
- **Cost:**
 - The cost of providing financial services in remote and rural areas is higher due to the lack of infrastructure, which makes it uneconomical for financial institutions.
- **Trust:**
 - Building trust among unbanked populations is a major challenge, as many individuals are distrustful of formal financial institutions due to a lack of experience or previous negative experiences.

How can Women BCs help in Deepening Financial Inclusion?

- **Rapport:** They are capable of buiding a rapport with diverse customer groups and promoting demand-driven incremental revenue while promoting small savings schemes and social security offerings.
- **Transparency:** The higher number of women agents can increase system transparency. Women BC agents have more patience and are more willing to address queries or explain product features.
- **Encourage Other Females:** Female customers are willing to share their family's financial issues and needs more openly with female BC agents leading to a better understanding of product sell.
- **Performance:** On the performance front, female BC agents bring similar or more business and might serve more of the underserved. They are more likely to serve customers in remote areas, the elderly, and other underserved sections of the population, according to customer perspectives. They are less susceptible to malpractices and are less prone to commit fraudulent acts towards customers.

What are the Related Steps taken?

- **One Gram Panchayat One BC Sakhi:**
 - It was initiated by the Ministry of Rural Development as an **ambitious plan to increase these numbers and deploy at least one BC Sakhi** in every **Gram Panchayat** by the end of 2023-24.
 - Studies indicate that **female BCs show higher profitability, wider cross-selling of financial products and lower attrition rates.**
 - During the lockdown, **Self-Help Group (SHG) members engaged as BC Sakhis (female banker friend) played a crucial role in creating awareness** and enabling access to **Pradhan Mantri Garib Kalyan Yojana** cash transfers and other **Direct Benefit Transfers** at the doorstep as well as reducing the rush of the beneficiaries at bank branches.
- **Other Schemes:**
 - **Pradhan Mantri Jan Dhan Yojana**
 - **Digital Identity (Aadhaar)**
 - **National Centre for Financial Education (NCFE)**
 - **Centre for Financial Literacy (CFL) Project**

Way Forward:

- **Designing Gendered Recruitment Strategy to attract BCs:**
 - By designing a gendered recruitment strategy to attract more women BCs , including **setting specific targets for their staff and corporate BCs**, and training and incentivising corporate BCs to identify potential women candidates can help overcome the structural barriers that women face.
 - The key is to **reduce entry barriers by taking favourable actions** such as providing equipment and rental support (rather than requiring women to make upfront capital investments), adding incentives such as an initial stipend for the first year, solving mobility issues, offering flexible hours of operation and providing protection to women BCs and their families, on the lines of health insurance, etc. which will encourage more women to opt in.
 - Finally, creating a supportive environment for women BCs through training, mentoring, ensuring ongoing support (through dedicated officials) and creating women agent communities, will then help them thrive long term.
- **Expansion of Digital Infrastructure:**
 - The Indian government and financial institutions can **focus on expanding digital infrastructure, such as broadband connectivity and mobile phone penetration**, to reach remote and underdeveloped areas.
 - This will enable people to access financial services from the comfort of their homes.
- **Promotion of Digital Literacy:**
 - **Promoting digital literacy among the population** particularly among those who are less educated and live in rural areas **is also needed.**
 - This can be achieved through **various initiatives, such as financial literacy programs and awareness campaigns.**
- **Provision of Affordable Financial Products:**

- Financial institutions can **provide affordable financial products that cater to the specific needs of low-income groups**, such as small loans, microinsurance, and savings accounts with low minimum balances.
- **Collaboration between the Public and Private Sectors:**
 - To increase financial inclusion, it is **important for the public and private sectors to collaborate and work towards a common goal**. The government can create a favorable regulatory environment, while financial institutions can provide the necessary financial services.
- **Focus on Women's Financial Empowerment:**
 - Women are often left out of the traditional banking system, and they **need to be specifically targeted to increase financial inclusion**.
 - This can be achieved by providing women with access to financial services, promoting their participation in the labor force, and addressing the gender-based barriers that prevent them from accessing financial services.

STATUS AND PROCEEDS OF DISINVESTMENT

- **Context:** In the **Union Budget 2023-24**, the government has set a **disinvestment target of Rs 51,000 crore**, down nearly 21% from the budget estimate for the current year and just Rs 1,000 crore more than the revised estimate. It is also the lowest target in seven years.

What is Disinvestment?

- The disinvestment process involves **the sale of government stake in public sector enterprises to strategic or financial buyers**, either through the sale of shares on stock exchanges or through the sale of shares directly to buyers.
- The proceeds from the **disinvestment are used to finance various social and infrastructure projects** and to reduce the government's fiscal deficit.
- **Approaches:**
 - **Minority Disinvestment:** The government retains a majority in the company, typically greater than 51%, thus ensuring management control.
 - **Majority Divestment:** The government hands over control to the acquiring entity but retains some stake.
 - **Complete Privatisation:** 100% control of the company is passed on to the buyer.
- **Process:**
 - In India, the disinvestment process is conducted by the **Department of Investment and Public Asset Management (DIPAM)**, which comes under the **Ministry of Finance**.
 - The primary objective of DIPAM is **to manage the government's investments in public sector enterprises** and to oversee the disinvestment of government equity in these enterprises.
 - Government had constituted the **National Investment Fund (NIF) in 2005** into which **the proceeds from disinvestment of Central Public Sector Enterprises were to be channelized**.

Need For Disinvestment:

- **Reduce the Fiscal Burden:** The government may disinvest in order to reduce the **fiscal burden or bridge the revenue shortfall** for that year.
 - It also uses disinvestment proceeds to finance the **fiscal deficit**, to invest in the economy and development or social sector programmes, and to retire government debt.
- **Encourages Private Player:** Disinvestment also encourages private ownership of assets and trading in the open market.
 - Encourage private sector investment in the economy, as **it signals the government's commitment to reforms** and to creating a more conducive business environment.
 - If successful, it also means that the **government does not have to fund the losses of a loss-making unit** anymore.
- **Improves Efficiency:** By divesting from public sector enterprises, the government can **improve the efficiency and competitiveness of these enterprises**, as private sector ownership and management can bring in new ideas and a more market-oriented approach.

- **Better Allocation of Resources:** The government can reallocate the resources freed up through disinvestment **towards other priorities, such as social and infrastructure development.**
- **Increases Transparency:** Disinvestment can bring in greater transparency and accountability in the functioning of public sector enterprises, **as private sector ownership and management can lead to more stringent financial and operational reporting.**

How has Disinvestment Fared in Recent Years?

- Since 2014, the government has met (and overachieved) its disinvestment targets twice.
 - In 2017-18, the government earned disinvestment receipts of a little over ₹1 lakh crore as against a target of ₹72,500 crore, and in 2018-19, it brought in ₹94,700 crore when the target was set at ₹80,000 crore.
- The Government has **not met the disinvestment target for 2022-23 so far**, having realised Rs 31,106 crore to date, of which, Rs 20,516 crore or close to a third of the budgeted estimate came from the **IPO (Initial Public Offering)** of 3.5% of its shares in the **Life Insurance Corporation (LIC).**

What is the Disinvestment Plan in 2023-24?

- The Centre is **not going to add new companies to the list of CPSEs** to be divested in 2023-24.
- The government has decided to stick to the already-announced and planned privatisation of State-owned companies.
 - These include IDBI Bank, the Shipping Corporation of India (SCI), the Container Corporation of India Ltd (Concor), NMDC Steel Ltd, BEML, HLL Lifecare, and so on.
 - Incidentally, the disinvestments of Bharat Petroleum Corporation Limited, SCI, and ConCor had been approved by the government in 2019 but have not gone through yet.

Challenges of Disinvestment in India:

- **Political Opposition:** Disinvestment is a politically sensitive issue in India, and the process has often been opposed by political parties and trade unions who are opposed to the sale of public sector enterprises.
- **Valuation Issues:** The valuation of public sector enterprises can be a challenge, as these enterprises may not be able to compete effectively in the market due to their bureaucratic and non-market-oriented structures.
- **Labor Issues:** Disinvestment can also lead to labor-related issues, as workers in public sector enterprises may fear job losses or wage cuts following the sale of these enterprises.
- **Lack of Interest from Buyers:** In some cases, the government may struggle to find buyers for its stakes in public sector enterprises, especially if these enterprises are not performing well financially.
- **Regulatory Challenges:** The process of disinvestment is subject to a range of regulations and approval processes, which can slow down the process and add to its complexity.
- **Legal Challenges:** The process of disinvestment can also be challenged in the courts, as litigants may challenge the validity of the sale or the terms and conditions under which it was conducted.

Way Forward

- Overall, disinvestment is seen as an important tool for promoting economic growth and development in India. The government in India has continued to pursue its disinvestment program, with the objective of generating revenue, improving the efficiency of public sector enterprises, and promoting economic growth and helping create a more dynamic and sustainable economy.

EXPANDING EXPORTS WITH E-COMMERCE

- **Context:** India is quickly **emerging as one of the leading players in the global e-commerce industry.** E-commerce is dramatically opening up the global market for Indian entrepreneurs at scale and this has changed the fate of **'Made in India' products.**
- After experiencing the convenience of online shopping during the **pandemic**, customers continue to favour digital shelves. There are an **estimated 2.14 billion online shoppers globally** and the number continues to grow rapidly.
- This presents a **fantastic opportunity for businesses in India to start thinking about the global opportunity more seriously.** With wider availability of the internet, rising e-commerce marketplaces, manufacturing on

demand, easier access to capital, and variable models for logistics and shipping, Indian entrepreneurs can plug themselves into global supply chains and create strong export businesses.

- However, there are bottlenecks related to logistics, cross-border payments, compliance requirements and more. It will take a lot of work to expand the export opportunities for millions of small businesses across the country.

What is the State of Exports from India?

- **India's manufacturing sector has grown 3 times over the last three decades in FY22** with contributions from traditional sectors like petrochemicals, steel, cement, and automobiles, as well as new sunshine areas like electronics, toys, and others.
 - Manufacturing Production in India increased 2.60% in December of 2022 over the same month in the previous year.
- There's also **been a steady spike in other categories like** bed linens, jewellery, toys, coffee, butter, honey, millets, musical instruments, and more, which is boosting overall exports.
- The export of **India's toy story has grown at nearly 30% CAGR over the last seven years.**
- Export of butter and dairy spreads from India has risen at a 25% CAGR.
- The rise of the Direct-to-Consumer (D2C) revolution in India has also been seen where **new-age brands from different corners of India are serving customers across the country** and the world.
 - Industry estimates suggest that there are over **800 successful D2C brands in India today**, with a sector valuation of over USD40 billion.
- India's merchandise trade crossed the USD1-trillion mark in calendar year 2022 with the share of exports at USD450 billion and imports at USD723 billion.
 - Outbound shipments grew 13.7% year-on-year (YoY) in 2022, while imports rose by 21% in comparison to 2021.

Challenges with E-Commerce Exports in India:

- **Infrastructural Barriers:**
 - Lack of proper infrastructure, such as warehousing and transportation, makes it difficult for e-commerce businesses to scale and reach a larger audience.
- **Payment and Financial Services:**
 - Access to payment and financial services, especially for small businesses, is still a major challenge.
- **Lack of Trust:**
 - Customers are often **hesitant to make online purchases from unfamiliar websites**, which can limit the growth of e-commerce exports.
- **Shipping and Delivery:**
 - **Shipping and delivery of products to foreign countries can be expensive and time-consuming**, leading to dissatisfaction among customers.
- **Customs and Duties:**
 - Complex customs and duties regulations can make exporting goods challenging and time-consuming.
- **Cybersecurity:**
 - **E-commerce websites are vulnerable to cyber attacks**, which can lead to loss of sensitive information and negatively impact the reputation of the business.
- **Lack of Standardization:**
 - **Lack of standardization in terms of product quality, delivery, and customer service** can make it difficult for e-commerce businesses to gain a competitive edge.
- **Competition from International Players:**
 - Competition from well-established international e-commerce companies can make it difficult for Indian companies to grow and succeed in the global market.

How India can Lead the E-commerce Export Market?

- **Creating more Awareness:**
 - Creating awareness about e-commerce exports is crucial in promoting and increasing the growth of this industry.

- One effective strategy for creating more awareness about e-commerce exports on the ground is through:
 - Education and training can help in gaining a better understanding of the benefits and opportunities offered by e-commerce exports.
 - Networking events which can serve as a platform for businesses and individuals to connect and share ideas.
 - Marketing campaigns can also play a crucial role in creating awareness about e-commerce exports.
- **Improving Infrastructure:**
 - India needs to **invest in better infrastructure facilities** such as roads, ports, and warehouses to make it easier for e-commerce companies to export their products.
- **Simplifying Export Regulations:**
 - The government can simplify the **export regulations and procedures to make it easier** for e-commerce companies to start exporting.
- **Encouraging Foreign Investment:**
 - The government can **encourage foreign investment in the e-commerce sector** to bring in more resources and expertise to help companies grow.
- **Developing a Strong Logistics Network:**
 - A strong logistics network is crucial for e-commerce exports, and India needs to develop this network to ensure that products reach their destination on time.
- **Promoting Digitalization:**
 - The government can **encourage digitalization in the e-commerce sector** to make it easier for companies to connect with customers and suppliers and streamline their operations.
- **Offering Incentives:**
 - The government can **offer incentives to e-commerce companies that are focused on exports**, such as tax breaks, subsidies, and grants, to encourage them to grow and expand their operations.
- **Building Strong Partnerships:**
 - The government can **build strong partnerships with other countries and organizations** to help Indian e-commerce companies access new markets and find new customers.

REVITALIZING THE OILSEEDS SECTOR

Context:

- India is **one of the largest consumers of vegetable oils** in the world, with a rapidly growing population and increasing demand for edible oils. However, the country's domestic production of oilseeds has not kept pace with this demand, leading to a heavy dependence on imports.
- India imports **vegetable oil worth more than USD 14 billion to meet chronic domestic shortages**, but it intends to boost domestic production and reduce reliance on imports by increasing domestic production.
- In the near future, it is necessary for the country to develop significant self-sufficiency, but for the time being, imports are unavoidable. However, the current import strategy prioritizes the benefit of consumers and disregards the welfare of local oilseed farmers.
- In order to be effective, a **holistic policy must judiciously balance the interests of consumers and growers**. There is a **need for comprehensive policy action** due to looming risks such as land constraints, water shortages, and **climate change**.

Why is India not Self-Sufficient in Oilseed Production?

- **Land Fragmentation:**
 - One of the major challenges in oilseed production in India is land fragmentation.
 - **Indian farmers have small landholdings**, which makes it difficult for them to adopt modern farming techniques, machinery and technology.
- **Low Productivity:**

- Oilseed yields in India are **relatively low compared to other countries**. The productivity of oilseeds is hampered by poor seed quality, lack of irrigation facilities, inadequate use of fertilizers, and insufficient research and development efforts.
- **Climate Variability:**
 - The **climate in India is diverse, and the crop productivity is highly dependent on the availability of water**, temperature, and other environmental factors.
 - India has witnessed significant changes in rainfall patterns, which have adversely affected oilseed production.
- **Lack of Storage and Distribution Infrastructure:**
 - India has **limited storage and distribution infrastructure**, which results in significant post-harvest losses.
 - This, in turn, discourages farmers from producing oilseeds, as they do not have the necessary infrastructure to store and sell their produce.
- **Dependence on Imports:**
 - **India is heavily dependent on imports for edible oils**, and this has affected the competitiveness of the domestic oilseed industry.
 - Low import tariffs and high domestic taxes have also made imported oil cheaper than domestically produced oil.
- **Lack of Government Support:**
 - The Indian government has **not provided enough support to the oilseed sector**, in terms of research and development, extension services, and financial support.
 - The government has also not encouraged private sector investment in the sector.

Related Initiatives taken:

- **National Mission on Edible Oil-Oil Palm (NMEO-OP):**
 - NMEO-OP is a new Centrally Sponsored Scheme. It is proposed to have an additional 6.5 lakh hectares for palm oil by 2025-26.
- **Oil Palm Area Expansion under Rastriya Krishi Vikas Yojana:**
 - It is helping **increase the minimum support prices of oilseed crops**, creation of buffer stock for oilseeds, cluster demonstration of oilseed crops, etc are being implemented by the government to boost domestic production.
- **Pradhan Mantri Fasal Bima Yojana (PMFBY):**
 - The PMFBY is an insurance scheme for farmers, which provides coverage against crop losses due to natural calamities, pests, and diseases. The scheme covers all oilseeds crops and provides financial security to farmers in case of crop failure.
- **Technology Mission on Oilseeds:**
 - Launched in 1986, the Technology Mission on Oilseeds aimed at increasing the production of oilseeds through the use of advanced technologies and scientific methods.
- **Paramparagat Krishi Vikas Yojana (PKVY):**
 - The PKVY is a **scheme that promotes organic farming in the country**.
 - Under the scheme, farmers are encouraged to adopt organic farming practices for various crops, including oilseeds.

How can India boost Domestic Production?

- **Enforcing Area Expansion:**
 - Encourage area expansion through incentivized crop rotation in high-input grain mono-cropping regions like Punjab, Haryana, and western Uttar Pradesh.
 - By promoting crop rotation, farmers in these regions can grow more oilseeds, increasing their yields.
- **Adopting Multiple Technologies:**
 - **Incorporate multiple technologies**, such as information technology, satellite technology, nuclear agri-technology, and **nanotechnology**.
 - By adopting these technologies, farmers can increase their yields, improve the quality of their crops, and optimize their land and water usage.
- **Work towards a Breakthrough in Seed Technology:**

- Investing in research and development to improve seed technology can lead to the creation of high-yielding and disease-resistant seeds, which can boost the production of oilseeds.
- **Implementing a Robust Procurement System:**
 - A robust procurement system can provide a guaranteed market for farmers, thereby encouraging them to grow more oilseeds.
- **Tapping the Potential of Non-Conventional Oil Sources:**
 - Tap the huge potential of non-conventional oil sources like cottonseed, rice-bran, and tree-borne oilseeds. By utilizing non-conventional oil sources, the country can diversify its oilseed production and reduce its dependence on traditional sources.
- **Regulating and Monitoring Imports:**
 - Currently, policy interventions are often reactive and knee-jerk, and lack supportive data.
 - A simple administrative system of **'Import Contract Registration' and monitoring of arrivals** will remove the opacity in trade and facilitate data-driven decisions by India.
- **Cutting down Credit Period to 45 days:**
 - Long credit period of 90-120-150 days encourages over-trading and speculation.
 - **Some Indian importers are already in a serious 'import debt trap'** because of rampant over-trading. Also, Bank loans to importers can turn into **Non-Performing Assets (NPAs)** anytime.
 - Reduced credit period will automatically slow the pace of import and make the importer more responsible and accountable.
- **Bring Cooking Oil under PDS:**
 - Support vulnerable sections of consumers with supply of edible oil under welfare programmes at subsidised rates.
 - **Public Distribution System** and private trade supplies can co-exist and help advance consumer interest.
- **Creating Processing Industry Modernisation Fund:**
 - Many of the 15,000 oilseed crushing units and 800 solvent extraction plants are **intrinsically inefficient in terms of scale, equipment, technology and productivity.**
 - A **modernised industry will capture greater value and create potential** to attract **foreign direct investment.**

DON'T SUPPORT MINIMUM SUPPORT PRICES

- **Context:** Legal MSP is an illogical, expensive and inefficient policy instrument. Unless farmers move rapidly towards high-value agriculture, there is not much scope to achieve better incomes for smallholders in an economically efficient and sustainable way.

What is the actual reach of MSP regime?

- If one uses the Census and National Accounts data,
 - The **percentage of farmers** benefiting from MSP comes around to be **5.6%**
 - The **value of Agri-produce** benefiting from the MSP regime comes down to just **2.2%**.
- The reach of MSP, both in terms of agri-Households or the value of agri-produce, is **not more than 9%**.

Why legalising MSP is economically illogical?

- **MSP distorts the basic logic of the supply-demand mechanism**, slows down the process of diversification, and is economically a very expensive and inefficient policy instrument.
- **For instance:** Procurement at MSP has spread to many other states, most notably in Chhattisgarh and Telangana for paddy, and Madhya Pradesh for wheat. This is taken as a success story. However, the point which is missed here is that most of these farmers also benefit from highly subsidised PDS. This is **irrational** and **economically inefficient**. Paddy is first bought from small and marginal subsistence farmers at MSP, and then same is given back to them after incurring 40% higher costs on top of MSP during the process of procurement, stocking and distribution.

Way forward:

- **Providing direct income support:** It is much better to directly support small and marginal farmers with an income policy or through a diversification package towards high-value agriculture. This support can be on a per hectare basis, tilted towards small and marginal holders, which can be directly transferred to farmers' accounts without distorting markets or cropping patterns.
- **For instance,** the PM-KISAN policy of giving Rs 6,000 into the accounts of agri-HHs can be refined and scaled up, by linking it with adopting farming practices that are environmentally sustainable.
- **The government's focus needs to be directed towards**
 - The development of efficient value chains
 - Forming of commodity-specific farmer producer organisations (fpos)
 - Equipping them to assay, grade, and package their products
 - Incentivise the private sector to invest in logistics, storage, cold chain, processing.

"POLICY PERSPECTIVE: DEBATING THE ROAD TO POLICY CONSENSUS ON CRYPTO ASSETS" UNDER G20 INDIA PRESIDENCY

- **Context: Digital technology** is playing an important role in achieving India's G20 Presidency goal ("Vasudhaiva Kutumbakam" or "One Earth, One Family, One Future").

Background:

- The Indian Presidency's priority is to make the **digital financial system more efficient, secure, and stable**.
- For this to happen, **financial sector regulatory** reforms are essential.
- However, there is **no comprehensive global policy framework for crypto assets**, despite the rapid evolution of the crypto universe.
- The global standard-setting bodies (such as the FATF, Financial Stability Board (FSB), Basel Committee on Banking Supervision (BCBS), etc) have been **coordinating the regulatory agenda**.

Probable benefits of crypto assets:

- Cheaper and faster cross-border payments
- More integrated financial markets
- Increased financial inclusion

Challenges:

- **Greater interconnectedness** between crypto assets and the traditional financial sector
- **Complexity and volatility** around crypto assets
- Critical digital infrastructure/platforms
- Global information gaps pertaining to the crypto asset

Status of Crypto regulation in India:

- RBI has announced Central Bank Digital Currency (CBDC), a sort of official cryptocurrency, for retail as well as wholesale users in 2022 on a pilot basis.

How can the Indian G20 Presidency shape Global Policy Dialogue on Crypto Assets?

- **Broaden the discussion on crypto assets:** Beyond financial integrity concerns and capture the macroeconomic implications and widespread crypto adoption in the economy.
- **Inform policymakers:** On the broader macroeconomic and financial stability implications of crypto assets.
- **Highlight the consequences of crypto adoption:** On the internal and external stability of a country's economy as well as on the structure of its financial system.

Way Forward: IMF's 9 points crypto asset action plan –

- **Safeguard monetary sovereignty and stability** by strengthening monetary policy frameworks and **do not grant crypto assets legal tender status**.
- Guard against excessive capital flow volatility and **maintain the effectiveness of capital flow management measures**.
- **Analyse and disclose fiscal risks** and adopt unambiguous tax treatment of crypto assets.
- Establish legal certainty of crypto assets and address legal risks.
- **Develop oversight requirements** for all crypto market actors.
- Establish a joint monitoring framework across different domestic agencies and authorities.
- **Establish international collaborative arrangements**.
- Monitor the impact of crypto assets on the stability of the international monetary system.
- Strengthen **global cooperation to develop digital infrastructures**.

INTERNATIONAL INTELLECTUAL PROPERTY INDEX 2023

- **Context:** Recently, India ranks **42nd among 55 leading global economies on the International Intellectual Property (IP) Index 2023** released by the **U.S. Chambers of Commerce**, according to which India is ripe to become a leader for emerging markets seeking to transform their economy through **IP-driven innovation**.
- **US topped the International IP Index** followed by United Kingdom and France.

What is International IP Index?

- The Index evaluates the **IP framework in each economy across 50 unique indicators** which industry believes represent economies with the most effective IP systems.
- The indicators create a snapshot of an economy overall IP ecosystem and span nine categories of protection: **Patents, Copyrights, Trademarks, Design Rights, Trade Secrets, Commercialization of IP Assets, Enforcement, Systemic Efficiency, Membership and Ratification of International Treaties**.

What is Intellectual Property?

- **About:**
 - **Intellectual Property (IP)** refers to **creations of the mind**, such as **inventions, literary and artistic works, symbols, names, and images used in commerce**.
 - It is a form of legal protection in the form of **Intellectual Property Rights (IPR)** given to individuals or companies for their creative and innovative works.
 - These rights are outlined in **Article 27 of the Universal Declaration of Human Rights**.
 - These legal protections allow the creators to control use of their work and **prevent others from using or reproducing them without permission**.
- **Types:**
 - The main types of IP include **patents for inventions, trademarks** for branding, **copyrights** for artistic and literary works, **trade secrets** for confidential business information, and industrial designs for product appearance.
- **India and IPR:**
 - India is a member of the **World Trade Organisation** and committed to the Agreement on **Trade Related Aspects of Intellectual Property (TRIPS Agreement)**.
 - India is also a member of **World Intellectual Property Organization**, a body responsible for the promotion of the protection of intellectual property rights throughout the world.
 - The **National Intellectual Property Rights (IPR) Policy 2016** was adopted in May 2016 as a vision document to guide future development of IPRs in the country.
 - Its clarion call is **“Creative India; Innovative India”**.
- **Issues Related to IPR:**
 - **Enforcement:** Despite efforts to strengthen IP enforcement, piracy and counterfeiting remain significant problems in India.
 - Enforcement agencies often lack the resources and expertise to effectively combat these issues, leading to low rates of prosecution and conviction.
 - **Patent Backlog:** The backlog of patent applications in India is a major challenge.
 - This leads to delays in granting patents and creates uncertainty for innovators seeking to protect their inventions.

- **Lack of IP Awareness:** There is still a lack of awareness and understanding of IPR among many businesses and individuals in India.
 - This can lead to **inadvertent infringement of IP rights**, as well as challenges in enforcing these rights.

Way Forward

- **Enhancing Enforcement:** India needs to strengthen its IP enforcement mechanisms, including increasing **resources and expertise for enforcement agencies, improving coordination between different agencies**, and streamlining legal procedures for IP disputes.
- **Streamlining Regulations:** India needs to simplify and streamline the regulatory environment for IPR, including **reducing administrative burdens** and increasing transparency in IP registration and enforcement procedures.
- **Encouraging Innovation:** India needs to incentivize innovation by offering tax incentives and funding for research and development, as well as **promoting collaborations between industry, academia, and government**.



CivilsTap Hlmachal

AGRICULTURE

URBAN FARMING IN INDIA

Context:

- Recently, the “Draft Citizen’s Policy for Urban Agriculture in Delhi” was submitted to the Delhi government by Delhi-based research non-profit People’s Resource Centre.

More about the Policy

- **Aim:** The policy aims to provide a holistic framework for urban farming.
- **Urban Agriculture in Delhi:**
 - Some 60 percent of Delhi’s demand for meat is fulfilled by city-grown produce, as is 25 percent of its milk and 15 percent of its vegetable needs.
 - Yet policies on land use and farming in the National Capital do not acknowledge the role of cultivation and distribution of food in urban areas, says the draft policy.
- **Recommendations:**
 - It recommends building on existing practices, promoting residential and community farming through rooftop and kitchen gardens, allocating vacant land for agricultural use, creating a market, developing policies for animal rearing and spreading awareness.

Significance

- **Food security:**
 - Issues like rapid urbanisation, population explosion and climate change increases the risk of food shortage.
 - These recommendations are crucial to ensure food security for urban communities. This benefit has long been highlighted in arguments for urban farming.
- **Fulfilling nutrition demand:**
 - 2010 report by M S Swaminathan Research Foundation, Chennai, notes that 50 percent of women and children in urban areas are anaemic due to lack of adequate nutrition.
 - The study also recommends urban agriculture.
- **Poverty alleviation:**
 - Globally, in **2020**, the **UN Food and Agriculture Organization** acknowledged that **urban and periurban farming can contribute to local food and nutritional needs, enable jobs and reduce poverty.**

Initiatives in India

- In India, urban farming has seen some traction across states, prompting governments to introduce small-scale initiatives to promote the practice.
- **Pune:**
 - In 2008, Pune’s civic administration launched a city farming project to train and encourage people to take up farming on allocated land.
- **Kerala:**
 - State of Kerala had been food dependent until 2012 after which the state government launched a vegetable development programme to encourage gardening in houses, schools, government and private institutions.
 - It also offered subsidy and support for eco-friendly inputs, irrigation, compost and biogas plants.
 - According to Kerala State Planning Board, vegetable production rose from 825,000 tonnes in 2011-12 to 1.3 million tonnes in 2014-15.
- **Tamil Nadu:**
 - Similarly, in 2014, the Tamil Nadu government introduced a “do-it-yourself” kit for city dwellers to grow vegetables on rooftops, houses and apartment buildings under its Urban Horticulture Development Scheme.
- **Bihar:**
 - Since 2021, Bihar encourages terrace gardening in five smart cities through subsidy for input cost.

Challenges

- **Lack of policy:**
 - While such initiatives are welcome, their impact cannot be expected to be widespread without a strong policy for urban farming.
 - For instance, Pune's 2008 initiative failed to take off due to poor interest from people and the government.
- **Lack of recognition:**
 - Even the recently released draft Master Plan of Delhi for 2041, does not acknowledge the role of the practice.
 - It aims to divide 8,000 hectares of land along the Yamuna into two sub-zones and restrict human activity or settlement in areas directly adjacent to the river.
 - However, several communities on the floodplains practise urban farming.
 - According to critics, if this draft master plan comes into practice, informal settlements like Chilla Khadar and Bela Estate will lose the agricultural land,
- **Lack of parallel benefits:**
 - Farmers cannot avail benefits under any agricultural schemes such as crop insurance.
- **Issue of rapid development:**
 - Rapid development is also a hindrance in continuing with existing practices.

Suggestions & way ahead

- **Practicing innovative techniques like Hydroponics:**
 - Studies show that excessive use of chemical fertilisers and pesticides in urban farms can lower produce and soil quality.
 - However, urban farmers believe such hurdles can be overcome with innovative techniques.
 - Hydroponics, a method of soilless farming that uses nutrient solutions to sustain plants, offers a cleaner approach.
 - Compared to commercial farming, hydroponics requires 90 per cent lesser water, which can be reused.
 - Although such initiatives are still niche and at a nascent stage, one can grow more plants in the space given.
- **Small-scale farming - cushion in crisis:**
 - Kitchen gardening or small-scale community farming cannot sustain the large population, but can act as a cushion to protect urban residents from inflation, vulnerabilities of weather or crises such as COVID-19.
 - Even though, such innovations, cannot match the scale of rural agriculture, before more villages become urban, early interventions can result in a sustainable system.
- **Recognition & funding:**
 - There is a need to bring in more institutional clarity and also multi-disciplinary expertise to solve such challenges.
 - To promote urban farming, governments must recognise informal practices and link them with agricultural schemes.

INDIA'S FARM EXPORTS

- **Context:** The agriculture sector in India has experienced buoyant growth in the past two years.
- India's agricultural exports are poised to scale a new peak in the financial year ending March 31, 2023. But so are imports, bringing down the overall farm trade surplus.

What are the Agri-Stats?

- The value of farm exports in April-December 2022 was 7.9% higher (USD 39 Billion) than the USD 36.2 bn for the corresponding period of the previous year.
- However, imports have grown 15.4% (USD 27.8 bn) in Apr-Dec 2022, over the USD 24.1 bn for Apr-Dec 2021.
- As a result, there has been a further shrinking of the surplus on the farm trade account.

- The two big contributors to India's **agri-export growth have been Rice and Sugar.**
 - **Rice:** India in 2021-22 shipped out an all-time-high 21.21 million tonnes (mt) of rice valued at USD 9.66 billion.
 - That included 17.26 mt of non-basmati and 3.95 mt of basmati rice.
 - **Sugar:** Sugar exports hit a record value of USD 4.60 billion in 2021-22, as against USD 2.79 billion in last fiscal.
 - This fiscal has seen a further surge of 43.6%, from USD 2.78 billion in April-December 2021 to USD 3.99 billion in April-December 2022.
- However, exports of some **big-ticket items have faltered or slowed**, such as spices, wheat, buffalo meat etc.

What about the Imports?

- **Vegetable Oil:**
 - According to the Solvent Extractors' Association of India, **India's total edible oil imports rose** from 13.13 mt in 2020-21 to 14.03 mt in the 2021-22 oil year (Nov-Oct), and increased further by **30.9% from 2.36 mt** in Nov-Dec 2021 to 3.08 mt in Nov-Dec 2022.
- **Cotton:**
 - India has turned from a **net exporter to a net importer of cotton.**
 - Exports collapsed to USD 512.04 million in April-December, 2022 (from USD 1.97 billion in April-December 2021) and imports have also soared from USD 414.59 million to USD 1.32 billion for the same period.
- **Cashew:**
 - During April-December 2022, imports **have posted a 64.6% rise to USD 1.64 billion** from USD 996.49 million in April-December 2021, even as exports of cashew products have plummeted from USD 344.61 million to USD 259.71 million for the same period.

How India's Farm Performance is Linked to International Commodity Prices?

- The **UN Food and Agriculture Organization's (FAO) Food Price Index**— having a base value of 100 for the 2014-16 period — averaged 122.5 points in 2012-13 and 119.1 points in 2013-14.
 - Those were the years when **India's agri-exports were at USD 42-43 billion.**
- As the index crashed to 90-95 points in 2015-16 and 2016-17, so did exports to USD 33-34 billion.
- The FAO index peaked at 159.7 points in March 2022, just after the Russian invasion of Ukraine. Since then, **it has fallen every month, with the latest reading of 131.2 points for January 2023** the lowest after the 129.2 points of September 2021.
 - More than a general export slowdown, it's the growth in imports that should be cause for concern.
- Going by past correlation i.e., **when the index was high, exports were high, and when it was low, exports were low.** Currently, **the index has been falling, which may lead to a slowdown in India's farm exports** and an increase in imports.
- In the event, the focus of policymakers too, **may have to shift from being pro-consumer (to the extent of banning/ restricting exports) to pro-producer** (providing tariff protection against unbridled imports).

Way Forward

- Clearly, the effects of not allowing new genetic modification (GM) technologies after the first-generation Bt cotton are showing, and impacting exports as well. A **proactive approach is required in edible oils as well**, where planting of GM hybrid mustard has been permitted with great reluctance — and which is now a matter before the Supreme Court.

POVERTY

THE 4 PILLARS HOLDING UP INDIA'S EXPANDING MIDDLE

- **Context:** A sharp decline in poverty levels, now down to about 16% of the population, is witnessed in India due to the emergence of the middle class at the national level. According to an estimate, about one-third of the population is estimated to have entered the middle-class.
- This is because of government's systematic approach to increase middle-class wellbeing in the past. According to the author, these initiatives can be articulated through the 4S framework: Sampannata, Surakshit Bhavishya, Shreshtha Jeevan and Saralta.

What are the 4S framework for middle class prosperity?

Sampannata: Enrichment through inflation control and loans

- Between 2014 and 2022, annual inflation was 4.6%. Despite multiple global crises, the CPI was at 5.7% in December 2022, which was much lower than many G20 countries.
- This ensured **a) greater liquidity** for the middle-class, **b) lower EMIs** resulted in decline in loan rates. For example, student loan rates were priced about 8% in 2022 from around 14% in 2014, **c) middle-class families** found lower EMIs easier to **purchase more** houses, cars and also take more loans for the higher education, **d) one-nation one-tax initiative of GST** has led to gross savings of an estimated Rs 18 lakh-crore, which works out to an annual household saving of Rs 12,000, **e) 120 million** of 380 million beneficiaries of the **PM Mudra Yojana** were middle-class individuals.

Surakshit Bhavishya: Securing a healthy future

- This includes significant government efforts to provide affordable healthcare and quality education. Steps in this direction include **a) 353 new universities** in the last nine years, **b) Opening up of 15 new AIIMS** and 261 new medical colleges, **c) 41 Indian universities** featured in global rankings in 2023 compared to just nine in 2014, **d) 50-90% cheaper generic medicines** available at 9,000 **Jan Aushadhi Kendras**, **e) 87 crore free screenings** is done at 1.5 lakh **Ayushman Bharat Centres**.

Shreshtha Jeevan: A better life

- -By 2022, India built 1.65 lakh kms of national highways and had the **second largest road network in the world**, after the US, due to a **tenfold increase in capital expenditure** on roads and bridges,
- -India now has metro connectivity in 20 cities. India is now a year away from having the third largest metro network globally.
- -India has the **highest per capita mobile data consumption rate** and among the **lowest cost of data per GB** in the world.
- Nearly 80% of India's 120 crore mobile phone users and 80 crore internet users are expected to receive 5G connectivity within a year. If done it **will be the world's fastest 5G roll-out**.
- -Apart from that, visible improvements are seen in **housing, transportation, tap water connections, and waste management**. On an average, **power is now available for 22 hours** against 12.5 hours in 2015.

Saralta: Hassle-free existence

- -India's cashless digital payment ecosystem is hailed as among the best in the world. UPI accounted for 65% of the total digital transactions in 2021-22.
- -DigiLocker facility for paperless certificate authentication has been embraced by the middle-class.
- Overall, India's rising global profile in a multitude of areas has inculcated a new sense of pride among Indian middleclass. Indian government remains committed to boosting prosperity for the middle-class through the 4S framework, providing an alternative development model to the world.

DEMOGRAPHIC DIVIDEND.

DEMOGRAPHIC TRANSITION AND OPPORTUNITY FOR INDIA

Context: The world is going through a **phase of demographic transition** towards aged populations. Adaptation strategies will require **governments, businesses and common people to make key adjustments.**

- This may usher in a great opportunity for India that is **experiencing a demographic dividend.**

What is the Demographic Transition and Demographic Dividend?

- A **demographic shift** refers to a change in the composition of a population over time.
 - This change can occur due to various factors such as **changes in birth and death rates, migration patterns,** and changes in social and economic conditions.
- A **demographic dividend** is a phenomenon that occurs when a country's population structure shifts from having a high proportion of dependents (children and elderly) to having a **higher proportion of working-age adults.**
 - This change in population structure can result in economic growth and development if the country invests in its **human capital and creates conditions for productive employment.**

What is the Significance of India's Demographic Dividend?

- **About:**
 - India **entered the demographic dividend opportunity window in 2005-06** and will remain there till **2055-56.**
 - India's median age is markedly **lower than that of the US or China.**
 - While the median ages of the **US and China are already 38 and 39 respectively,** India's median age is not expected to reach 38 until 2050.
- **Challenges Associated with India's Demographic Dividend:**
 - **Low Female Labour Force Participation:** India's labour force is constrained by the **absence of women from the workforce.**
 - As per **Periodic Labour Force Survey 2020- 2021,** female labour workforce participation stands at **25.1%.**
 - **Environmental Degradation:** India's rapid economic growth and urbanisation have led to **significant environmental degradation,** including **air pollution, water pollution, and deforestation.**
 - Addressing these issues is essential to **ensuring sustainable economic growth.**
 - **High Dropout Rate:** While over 95% of India's children attend primary school, the **National Family Health Surveys** confirm that poor infrastructure in **government schools, malnutrition, and scarcity of trained teachers** have resulted in poor learning outcomes and **high dropout ratios.**
 - **Lack of Employment Opportunities:** With a large and growing working-age population, **Indian job market is not able to generate enough jobs to meet the demands of this expanding workforce.**
 - This has resulted in high rates of **underemployment and unemployment.**
 - **Lack of Adequate Infrastructure:** Poor infrastructure, including **inadequate education and health facilities, transportation, power, and communication network,** makes it challenging for people to access basic services and employment opportunities, **particularly in rural areas.**
 - **Brain Drain:** India has a large pool of **highly skilled and talented professionals,** but many of them choose to **leave the country in search of better job opportunities** and living conditions abroad.
 - This brain drain is a significant loss for India, as **it results in a shortage of skilled workers and limits the country's ability** to fully leverage its demographic dividend.

How India can Utilise its Demographic Dividend?

- **Gender Equality:** India needs to address **gender inequality** in education and employment, including **improving access to education and employment opportunities for women.**
 - Women's participation in the workforce can increase economic growth and lead to a more inclusive society.
- **Raising Education Standards:** In both rural and urban settings, the public school system must ensure that **every child completes high school and goes on to skilling, training, and vocational education.**

- The modernization of school curricula along with the implementation of **Massive Open Online Courses (MOOCS)** and the establishment of open digital universities will further contribute to India's qualified workforce.
- **Encouraging Entrepreneurship:** India needs to encourage entrepreneurship and innovation, particularly among the youth, to **create job opportunities and contribute to economic growth.**

CYBER SECURITY

RISING UP TO CYBER SECURITY CHALLENGES

- **Context:** The past few incidents have highlighted the **vulnerabilities of our fast-expanding digital networks.** The first one targeted the **servers of India's All India Institute of Medical Science (AIIMS), compromising around 40 million health records** and causing a **two-week-long system outage.**
- Another attack involved a ransomware group, **BlackCat, breaching the parent company of Solar Industries Limited, a Ministry of Defence ammunition and explosives manufacturer, and stealing over 2 Terabytes of data.**
- These incidents highlight the **urgent need for increased cybersecurity measures** to prevent such attacks from happening in the future.

What are the Challenges related to Cyber Security?

- **Recent Cyber Attacks:**
 - Ransomware attacks are becoming more frequent and costly, with over 75% of Indian organizations having faced such attacks and each breach costing an average of ₹35 crore of damage.
- **Vulnerability of Critical Infrastructure:**
 - The lines between the physical and digital realms are blurring rapidly, making **Critical infrastructure** extremely vulnerable to attacks from **hostile state and non-state actors.**
 - Cyber capabilities can be used to undermine critical infrastructure, industry, and security, **as seen in the ongoing conflict in Ukraine where electronic systems in warheads, radars, and communication devices have reportedly been rendered ineffective** using hacking and GPS jamming.
- **Under-Preparedness:**
 - CERT-In has introduced guidelines for organizations to comply with when connected to the digital realm, but **most organizations lack the tools to identify and prevent cyberattacks.**
 - Also, there is an **acute scarcity of cybersecurity professionals** in India.
- **Limited Private Sector Participation:**
 - Private sector participation remains limited in India's cybersecurity structures, and collaboration with like-minded intergovernmental and state frameworks is necessary to protect users and customers from cyber breaches.
- **Added Complexity:**

With more inclusion of **artificial intelligence (AI) machine learning (ML), data analytics, cloud computing and Internet of Things (IoT)** cyberspace will become a complex domain, giving rise to issues of a techno-legal nature.

 - The **introduction of 5G and the arrival of quantum computing** will increase the potency of malicious software.

What are the Initiatives Regarding Cyber Security?

- **Global Initiatives:**
 - **Budapest Convention on Cybercrime:** It is an **international treaty** that seeks to address Internet and computer crime by harmonizing national laws, improving investigative techniques, and increasing cooperation among nations. It came into force on 1st July 2004. **India is not a signatory** to this convention.
 - **Internet Governance Forum (IGF):** It brings together all stakeholders i.e., government, private sector and civil society on the Internet governance debate.

- **UNGA Resolutions:** The **United Nations General Assembly** established two processes on the issues of security in the information and communication technologies (ICT) environment.
 - The **Open-ended Working Group (OEWG)** through resolution by Russia
 - The **Group of Governmental Experts (GGE)** through resolution by USA
- **Indian Initiatives:**
 - **National Cyber Security Strategy 2020:** It seeks to improve cyber awareness and cybersecurity through **more stringent audits**. Empanelled cyber auditors will look more carefully at the security features of organisations than are legally necessary now.
 - **National Critical Information Infrastructure Protection Centre (NCIIPC):** The NCIIPC, created under Information Technology Act, 2000, operates as the **nodal agency for protection and resilience of critical information infrastructure**
 - **Indian Cyber Crime Coordination Centre (I4C):** It was setup in 2020 to **deal with all types of cybercrimes** in a comprehensive and coordinated manner.
 - **Cyber Surakshit Bharat Initiative:** It was launched in 2018 with an aim to spread **awareness about cybercrime and building capacity** for safety measures for Chief Information Security Officers (CISOs) and frontline IT staff across all government departments.
 - **Cyber Swachhta Kendra:** In 2017, this platform was introduced for internet users to clean their computers and devices by wiping out viruses and malware.
 - **Information Technology Act, 2000:** The Act regulates use of computers, computer systems, computer networks and also data and information in electronic format.
 - **National Cyber Crime Reporting Portal:** It is a citizen-centric initiative which will **enable citizens to report cybercrimes online** and all the complaints will be accessed by the concerned law enforcement agencies for taking action as per law.
 - **Computer Emergency Response Team - India (CERT-In):** It is an organization of the **Ministry of Electronics and Information Technology** which collects, analyses and disseminates information on cyber incidents, and also issues alert on cybersecurity incidents.
 - **Cybersecurity Treaties:** India has already signed **cybersecurity treaties with countries such as the US, Russia, the UK, South Korea, and the European Union.**
 - **Multilateral Frameworks:** Efforts are being made in multinational frameworks such as the **Quad and the I2U2 to enhance cooperation in cyber incident responses, technology collaboration, capacity building, and in the improvement of cyber resilience.**
 - **India's draft Digital Personal Data Protection Bill 2022:** It seeks to ensure usage of personal data for lawful purposes only and proposes a penalty of up to ₹500 crore for data breaches.
 - **Defence Cyber Agency (DCyA):** It is created by Indian armed forces and is capable of offensive and defensive manoeuvres.

How can India Utilize G20 Summit to Build Consensus on Cyber Security?

- **Utilizing the Opportunity of the G20 Summit:** As the host nation for the **G20 summit**, India can use this opportunity to bring together all the stakeholders driving the global levers of power to discuss cybersecurity.
- **Creating a Global Framework:** India could take the lead in conceptualizing a **global framework of common minimum acceptance for cybersecurity**. This would be a significant contribution to collective security and a step towards building consensus on cybersecurity.
- **Raising Awareness:** India can use the G20 summit to raise awareness about cybersecurity issues, **emphasizing the importance of taking preventive measures and developing effective cybersecurity policies.**

What can be the Way Forward?

- **International Cooperation:** It is of critical importance to ensure global cooperation through **information sharing and strengthening joint efforts** in cybersecurity research and development as most cyberattacks **originate from beyond the borders.**
 - India can **consider joining Budapest Convention along with Multilateral initiatives like QUAD.**

- **Plugging the Gaps:** It is important for the corporates or the respective government departments to find the gaps in their organisations and address those gaps and create a layered security system, wherein security threat intelligence sharing is happening between different layers.
- **A Truly Global Framework:** It is needed as the current efforts are operating in silos. An apex body will be able to ensure operational coordination amongst various agencies.
- **Coordination and Information Dissemination:** Formalize the coordination and prioritization of cyber security research and development activities; disseminate vulnerability advisories and threat warnings in a timely manner.



SCIENCED AND TECHNOLOGY

HYDROPOWER PROJECTS IN THE HIMALAYA SHOULD BE RECONSIDERED GIVEN RECENT CRISIS

Context:

- Joshimath land subsidence has raised concerns over the hydropower projects in Himalayas.

Hydropower:

- It is a **renewable source of energy**. It is often **considered green energy** because it generates electricity from the natural flow of water without releasing any emissions. It **does not rely on fossil fuels**. However, it also brings concerns and threats to the environment, especially in the Himalayan region.

Concerns with the Hydropower projects:

- Most countries in the Himalayan region, including India have built or are planning to build hydropower projects in the Himalaya. The Indian government has identified hydropower as a key renewable energy source.
- However, the construction of the hydropower in Himalayas brings various concerns.

The concerns are –

- a) can **bring conflicts** over water resources in the region,
- b) can **disrupt the flow of rivers**, leading to changes in water temperature and chemistry,
- c) dams can also **cause erosion, landslides**, and sedimentation which can have a negative impact on the local environment,
- d) Dams also **disrupt the migration patterns of fish and other aquatic** species and impact the local wildlife,
- e) large-scale dams **displace local communities**, affecting their livelihoods and cultural heritage and impacting the overall well-being of the local population.

Therefore, it is beneficial to look for alternatives to hydropower projects.

Alternative to hydropower:

- **Micro hydro** is a small-scale hydroelectric power generation system that generates up to 100 kilowatts (kW) of electricity.
- These systems use the energy of falling water to generate electricity. They **can be used for various applications** such as powering homes, businesses, and small communities.
- They are **less expensive to build and maintain** than large hydroelectric dams and have a smaller environmental footprint.
- They **can be located even in inaccessible areas** where it is difficult to transmit electricity from larger power stations and can provide a reliable source of energy to communities that are not connected to the grid.
- They can be used to minimise the ecosystem's negative impact and provide sustainable energy solutions. However, even they have some impact on the environment but the impacts are less when compared to large hydropower dams.

SCIENTISTS USE OUTER SPACE PARTICLES TO EXAMINE THE FORTRESS WALL OF XI'AN CITY: WHAT ARE MUONS AND HOW ARE THEY USED TO ANALYZE LARGE STRUCTURES

Context:

- As per a new study, researchers are examining the fortress wall of Xi'an, an ancient city in China, by using tiny outer space particles called muons that can penetrate hundreds of metres of stone surfaces.

What are Muons?

- Muons are subatomic particles raining from space. They are created when the particles in Earth's atmosphere collide with cosmic rays — clusters of high-energy particles that move through space at just below the speed of light.
- According to Scientific American magazine, about 10,000 muons reach every square metre of the Earth's surface a minute.

- **Features:** Muons resemble electrons but are 207 times as massive. Therefore, they are sometimes called “fat electrons”.
- Because muons are so heavy, they can travel through hundreds of metres of rock or other matter before getting absorbed or decaying into electrons and neutrinos. In comparison, electrons can penetrate through only a few centimetres.
- Muons are also highly unstable and exist for just 2.2 microseconds.

What is muon tomography or muography?

- Muography is conceptually similar to X-ray but capable of scanning much larger and wider structures, owing to the penetration power of muons.
- As these high-energy particles are naturally produced and ubiquitous, all one needs to do is place a muon detector underneath, within or near the object of interest.
- The detector then tracks the number of muons going through the object from different directions, to form a three-dimensional image.
- The image is then compared with a muon image of the “free sky”. This indicates how many muons have been blocked. The final picture is essentially a shadow of the object in the light of cosmic muons.

Uses of Muon Topography

- Muon tomography was first used in the 1960s, it has only recently gained widespread use among researchers, particularly in archaeology.
- Apart from archaeology, muography has also found use in customs security, internal imaging of volcanoes and others. Around 2015, scientists used the technique to look inside the Fukushima nuclear reactors after the 2011 earthquake and tsunami in Japan.

INDIA'S SOLAR POWER DREAM

Context:

- India has been **aggressively pushing towards a more sustainable future by investing heavily in renewable energy sources**, with solar energy at the forefront of its efforts. The Government of India has set the target to expand India's renewable energy installed capacity to 500 GW by 2030. India has promised to source **nearly half its energy from non-fossil fuel sources by 2030** and, in the shorter term, source at least 60% of its renewable energy from solar power.
- **India is committed to reducing the country's dependence on** fossil fuels and transitioning towards a greener future, and the growth of the solar sector plays a crucial role in achieving this goal.
- India is pushing towards renewable energy due to government's support for the transition. The recognition that solar energy is a free and abundant resource also plays a role. But there are some misconception regarding Solar energy which we need to consider first.

What are the Misconceptions about Solar Energy?

- **Levelized Cost of Solar Power is Coming Down:**
 - It is believed that the levelized cost of solar power coming down and some believe that the cost will decrease linearly over time, that the cost is the same for all regions, that the cost only takes into account the cost of solar panels, that it doesn't include maintenance costs, and that it ignores energy storage costs.
 - In reality, the **cost can be affected by various factors such as technology advancements, changes in market conditions, and government policies**, and the levelized cost takes into account all components of a solar power system including installation and ongoing maintenance costs, not just the cost of solar panels.
- **Financially Viable:**
 - Solar energy is made **financially viable by misguiding the people by leaving out storage battery cost**; handicapping it with subsidies and concessions that are front loaded by the government, and forcing it on the industry and hapless discoms through state policy.

Benefits of Solar Energy:

- **Renewable:**

- Solar energy is a renewable source of energy, meaning it can be produced indefinitely without depleting resources.
- **Clean:**
 - Solar energy is a clean source of energy, producing no harmful emissions or pollution.
- **Cost-effective:**
 - The cost of solar energy has decreased significantly in recent years, making it increasingly cost-effective as a source of energy.
- **Reliable:**
 - Solar energy systems are becoming increasingly reliable and durable, requiring little maintenance.
- **Versatile:**
 - Solar energy can be used for a wide range of applications, including electricity generation, heating, and lighting.
- **Decentralized:**
 - Solar energy systems can be installed on a small scale, making it possible to generate energy locally, reducing dependence on centralized energy sources.

Challenges with Solar Energy in India:

- **High Initial Costs:**
 - Despite recent reductions in the cost of solar panel technology, the **upfront cost of installation remains high**, which can be a barrier to adoption for many households and businesses.
- **Limited Access to Finance:**
 - Access to finance for renewable energy projects can be limited, **particularly for smaller and rural projects**, which can make it challenging for individuals and organizations to invest in solar energy.
- **Infrastructure and Grid Connectivity:**
 - **A lack of adequate infrastructure and grid connectivity in some areas of the country can make it difficult** to transmit the electricity generated from solar panels to where it is needed.
- **Land Availability:**
 - **Finding suitable land for large-scale solar projects can be a challenge in India**, particularly given competing demands for land for other purposes such as agriculture and urban development.
- **Maintenance and Operation Issues:**
 - Poor maintenance and operation of solar power systems can **reduce their efficiency and effectiveness**, which can impact the long-term viability of renewable energy projects in India.
 - Cleaning solar panels currently is estimated to use about **10 billion gallons of water per year** — enough to supply drinking water for up to 2 million people.
 - Attempts at waterless cleaning are labor intensive and tend to cause irreversible scratching of the surfaces, which also reduces efficiency.
 - Now, **a team of researchers at MIT has devised a way of automatically cleaning solar panels**, or the mirrors of solar thermal plants, in a waterless, no-contact system that could significantly reduce the dust problem.

Way Forward:

- **Utilising Large Hydro:**
 - With large hydro, **India can produce more renewable energy** at the least cost and with the least carbon footprint.
 - India has **utilised only about 15% of its hydro potential** whereas the U.S. and Europe have utilised 90% and 98% of their potential, respectively.
 - The **extent of utilisation of hydro potential seems to be an index of civilisational development** and evolution.
- **Expanding Infrastructure and Investment:**
 - India needs to **increase investment in renewable energy infrastructure**, including transmission and distribution networks, as well as in research and development of new solar technologies.
- **Encouraging Private Sector Participation:**
 - The **private sector can play a crucial role in developing and deploying solar energy in India**, and the government should create favorable policies and incentives to encourage private sector involvement.

- **Improving Energy Storage Solutions:**
 - Energy storage systems are **essential for ensuring that solar energy** can be effectively used, even when the sun is not shining. The Indian government should support the development of advanced energy storage solutions to make solar energy more accessible and reliable.
- **Promoting Rooftop Solar:**
 - **Rooftop solar systems** can be a **cost-effective and convenient way for households and businesses to generate their own energy**. The Indian government should encourage the growth of rooftop solar by providing incentives, subsidies and tax credits.
- **Building a Skilled Workforce:**
 - The growth of the **solar energy sector in India will require a skilled workforce**. The government **should invest in training and education programs** to build a pipeline of skilled workers who can help deploy and maintain solar energy systems.

INDIA'S ENERGY TRANSITION STRATEGY

Context:

- **Just Energy Transition Partnership (JET-P)** is emerging as the key mechanism for multilateral financing by developed countries to support an energy transition in developing countries.
- This has taken on particular significance following the insertion of the phrase 'phase-down' of coal in the **Glasgow Pact**. After South Africa, Indonesia, and Vietnam, India is considered the next candidate for a JET-Partnership and India's G-20 presidency could potentially be an opportune moment to forge a deal.
- However, India must **develop a coherent domestic Just Energy Transition (JET) strategy in order to negotiate a financing deal** that addresses its unique set of socio-economic challenges.
- **India's initial JET-P negotiations last year reportedly stalled over coal 'phase-down'** and how to operationalize India's just transition. The emphasis by developed countries on coal phase-down, without adequate attention to country context, disregards the crucial difference in energy transition between industrialised and emerging economies.

Just Energy Transition:

- Just Energy Transition refers to the **shift from reliance on non-renewable, fossil fuel-based energy sources to renewable**, clean energy sources in order to mitigate the impacts of climate change and promote sustainability.
- The transition to a just energy system seeks to **ensure that access to energy is equitable and benefits all members of society**, rather than primarily benefiting corporations and the wealthy.
- This includes **promoting renewable energy sources** such as wind and solar, as well as energy efficiency measures and the development of energy storage solutions.
- Among the three JET-P deals signed so far, **only South Africa's deal mentions a 'just' component** - funding reskilling and alternative employment opportunities in the coal mining regions.
 - The other two JET-Ps (Indonesia and Vietnam) are focused on mitigation finance for sector-specific transitions.

Issues with the Just Energy Transition:

- **Affect Near-term Fossil-Dependent Jobs:**
 - The transition to a more sustainable energy mix can **impact workers who are currently employed in the fossil fuel industry**.
 - The shift away from fossil fuels **may result in job losses, which can be disruptive for affected communities and workers**.
- **Disrupt Forms of Future Energy Access:**
 - The transition to a cleaner energy mix **may disrupt traditional forms of energy access, particularly in developing countries** where access to reliable electricity remains limited.
 - The **cost and infrastructure requirements of new energy sources**, such as wind and solar power, may be challenging to implement in areas with limited resources.
- **Shrink the State's Capacity to Spend on Welfare Programmes:**

- As the government invests in new energy infrastructure and technology, **there may be less funding available for programs such as healthcare, education, and housing assistance.**
- This can result in **reduced support for vulnerable populations and potentially** worsen existing socio-economic disparities.
- **Cost:**
 - Despite the long-term benefits, the initial cost of transitioning to renewable energy can be higher, **making it a challenge for some communities, particularly those with limited financial resources.**
- **Energy Storage:**
 - Renewable energy sources, such as wind and solar, are **not always available** and must be stored for use during times when the sun isn't shining, or the wind isn't blowing.
- **Energy Infrastructure:**
 - Significant investments in energy infrastructure are needed to support the transition to renewable energy sources.

What are the Related Steps taken by India?

- India has signalled a commitment to clean energy with ambitious targets like **500GW of non-fossil, including 450 GW Renewable Energy (RE) capacity** addition and 43% RE purchase obligation by 2030.
 - These targets are supported through **complementary policy and legislative mandates** (Energy Conservation (Amendment) Act), missions (National Green Hydrogen Mission), fiscal incentives (production-linked incentives) and market mechanisms (upcoming national carbon market).
- **Net Zero Target:**
 - India has set itself an ambitious long-term goal of reaching net zero emissions by 2070.
 - In August 2022, India updated its **Nationally Determined Contributions (INDC)** under the Paris Agreement to reflect its aim of achieving 50% cumulative electric power installed capacity from non-fossil fuel based energy sources by 2030
- **Energy Conservation Amendment Bill, 2022:**
 - In August 2022, the Lok Sabha passed the **Energy Conservation Amendment Bill, 2022** which aims to mandate the use of non-fossil fuel sources including green hydrogen, green ammonia, biomass and ethanol for energy and feedstock in industries.
 - The Bill also gives the power to the Central Government to establish carbon markets.

What should be India's Strategy for a Fair Energy Transition?

- **Acceleration in RE Deployment Rates:**
 - To accelerate RE deployment that can have significant developmental co-benefits, a low-hanging option is shifting energy demand patterns in ways that **enable faster RE capacity addition**: solarisation of agricultural electricity demand; electrification of diesel-powered **Micro, Small and Medium Enterprises (MSMEs)**; and decentralised RE for residential cooking and heating.
 - **Stimulation of energy demand through rural productivity enhancement will further aid RE acceleration** as well as help to address the rural-urban economic divide, create rural jobs, and thereby address inter-generational and spatial inequities.
- **Domestic Manufacturing of Clean Energy Components:**
 - Domestic manufacturing of clean energy components is critical to sustain a JET, build energy self-sufficiency, and tap the green jobs promise of 21st century energy.
 - The challenge is in achieving cost competitiveness (Indian components are 20% costlier than Chinese components) and giving preference to domestic components without addressing cost competitiveness may slow down the pace of deployment.
 - The way around this is to **negotiate access to markets outside India as part of a JET-Partnership**, to reduce the cost gap through economies of scale.
- **Re-aligning the Current Use of Coal Resources:**
 - The current use of coal resources needs to be re-aligned to enhance efficiency until the phase-down period.

- An alternative solution could be to **optimize coal-fired power plants near coal mines**, rather than positioning them according to energy demand in different states.
 - This would **enable coal to be used more efficiently** because transportation of coal is more energy-intensive than transmission of electrons (electricity), and also lead to fewer emissions.
 - It would also **lead to cheaper power, as transportation accounts for one-third of the cost of coal for power plants**; the resultant savings could also help finance much needed emission control retrofits.
 - It would indirectly **reduce emissions** due to more efficient use of coal.

INDIA'S NUCLEAR POWER CAPACITY

- **Context: India's nuclear power capacity** experienced a significant increase. By **2021-22**, it had risen to **47,112 Million Units**.
- In 2017, the government gave **simultaneous approval for 11 indigenous pressurised heavy water reactors** with a **total capacity of 7,000 MegaWatts**.

What is the Status of India's Nuclear Energy?

- Nuclear energy is the **fifth-largest source of electricity for India** which contributes about 3% of the total electricity generation in the country.
- India has over **22 nuclear reactors in 7 power plants** across the country which produces **6780 MW of nuclear power**. In addition, one reactor, **Kakrapar Atomic Power Project (KAPP-3)** has also been connected to the grid in January- 2021.
 - **18 reactors** are **Pressurised Heavy Water Reactors (PHWRs)** and 4 are **Light Water Reactors (LWRs)**.
 - **KAPP-3** is the India's first 700 MWe unit, and the biggest indigenously developed variant of the PHWR.
- **Recent Developments:**
 - **Joint Ventures with Public Sector Undertakings (PSUs):**
 - Government has also allowed Joint Ventures with PSUs to **enhance India's nuclear program**.
 - As a result, the **Nuclear Power Corporation of India Limited (NPCIL)** is now in two joint ventures with the **National Thermal Power Corporation Limited (NTPC)** and the **Indian Oil Corporation Limited (IOCL)**.
 - **Expansion of Nuclear Installations:**
 - In the past, **India's nuclear installations were mostly located in South India** or in Maharashtra and Gujarat in the west.
 - However, the government is now **promoting its expansion to other parts of the country**. As an example, the upcoming **nuclear power plant in Gorakhpur town of Haryana**, which will become operational in the near future.
 - **India's Indigenous Move:**
 - The world's first thorium-based nuclear plant, "**Bhavni**," using **Uranium-233**, is being set up at **Kalpakkam in Tamil Nadu**.
 - This plant will be **entirely indigenous and will be the first of its kind**. The experimental thorium plant "**Kamini**" already exists in Kalpakkam.
- **Challenges:**
 - **Limited Domestic Resources:** India has **limited domestic resources of uranium**, which is the fuel for nuclear reactors.
 - This has **forced the country to import a significant portion of its uranium requirements**, making the country's nuclear energy program vulnerable to global market conditions and **political tensions**.
 - **Public Opposition:** The construction of nuclear power plants often faces opposition from local communities due to **concerns over the safety of the reactors** and the potential **impact on the environment**.

- **Technical Challenges:** The development of nuclear power plants involves **complex technical challenges**, including the design and construction of reactors, the **management of nuclear waste**, and the **maintenance of nuclear safety standards**.
- **International Sanctions:** India is not a member of the Nuclear **Non-Proliferation Treaty (NPT)** and has faced international sanctions in the past for its nuclear weapons program.
 - This has **limited its access to advanced nuclear technology** and fuel supplies from other countries.
- **Regulatory Barriers:** The **regulatory framework for the development of nuclear power in India** is complex and has been criticised for **being slow and bureaucratic**, leading to delays in the implementation of projects.

How India Can Enhance its Nuclear Power Capacity?

- **Overcoming Public Opposition:** Addressing public concerns and increasing public awareness about the **safety of nuclear power** is critical to **overcoming opposition to the construction of new reactors**.
 - This can be achieved through **transparent communication and consultation with local communities**, as well as the implementation of rigorous safety standards.
- **Technical Innovation:** To overcome the technical challenges faced by the nuclear energy sector, **India needs to focus on innovation in reactor design, waste management**, and safety systems.
 - This could involve **investment in research and development** and the deployment of advanced technologies.
- **Financial Sustainability:** To overcome the financial challenges faced by the nuclear energy sector, **India needs to find ways to make nuclear energy more cost-competitive** with other forms of energy.
 - This could involve **reducing construction and operation costs**, as well as developing innovative financing models.
- **Improving International Collaboration:** India needs to strengthen its international partnerships to **overcome the limitations posed by international sanctions and access to advanced nuclear technology** and fuel supplies.
 - This could involve the **development of joint ventures with other countries**, the participation in international research initiatives, and the **negotiation of nuclear trade agreements**.

CHALLENGING GOOGLE – NEW AI-DRIVEN SEARCH CAN BE DISRUPTIVE

- **Context:** Artificial intelligence (AI) programs involving Natural Language Processing (NLP) have caused a shift in the way people use web searches. AI-driven search engines may lead to radical changes in the way search is monetised via advertising, and it could challenge Google's dominant search engine.

What is ChatGPT?

- ChatGPT is an **AI-powered chatbot** developed by the **AI startup OpenAI**. The technology functions by leveraging extensive data to learn how to respond to user prompt in a human-like manner, providing information similar to a search engine.

What is a Chatbot?

- A chatbot is a software that simulates **human-like conversations** with users via chat.
- **A chatGPT-based chatbot can help rural India in several ways:**
- **Providing access to information:** E.g. healthcare, education, agriculture, and government schemes.
 - In a recent demo, the Chatbot seamlessly responded to a query on **PM Awas Yojana**– made through a voice note.
- **Improving access to services:** E.g. banking, insurance, and healthcare. This can help bridge the gap between urban and rural areas and improve the quality of life for rural residents.
- **Providing language support:** It supports multiple languages. More languages are being integrated through **Bhashini Daan Mission**.
- **Enhancing financial inclusion:** By promoting financial literacy and encouraging savings among rural residents.

Steps to overcome limitations:

- Government is yet to build a **National Digital public platform** for Indian languages

- Reducing the **digital divide** in rural India
- Enabling access to affordable **technology**
- Reducing **behavioural resistance** to new technologies

Conclusion:

- A chatGPT-based chatbot can help to improve the quality of life for rural residents by providing access to information and services that are otherwise difficult to obtain.

BHASHINI Mission

- Under Bhashini Mission, a team at MeitY is currently building a **WhatsApp-based chatbot** that relies on information generated by ChatGPT to return appropriate responses to queries.
- BHASHINI Mission is a **local language translation mission** that aims to enable **easy access to the internet and digital services** in Indian languages, including voice-based access, and help the creation of content in Indian languages.
- It will also provide AI-based resources to Indian MSMEs, startups and innovators in the public domain

What is Bhasha Daan?

- It is an ambitious project which aims to crowdsource voice datasets in multiple Indian languages as part of **Project BHASHINI**.
- On the project's website, people can contribute in three key ways:
- By recording their voice samples in multiple Indian languages
- By typing out a sentence being played
- By translating text from one language into another.

How AI-driven search engines are different from Conventional engines?

- Conventional engines list only relevant links. But the AI-driven search engines such as ChatGPT and Bard are different from Conventional engines as **a)** They have behavioural sense and they offer more “human” filtering of search results, **b)** They present search results in an essay format rather than just displaying links, **c)** They have the ability to write essays or even poetry on demand. AI-assisted fiction is another possibility that may change the publishing industry.
- They also have other applications such as one can use ChatGPT to write software code to perform various functions, or perhaps using NLP to build an autonomous driving application.

Challenges with AI-driven search engines:

- The AI-driven search engines have the following concerns, **a)** Though their searches are plausible and comprehensive, they are not necessarily accurate, **b)** There is a possibility that they will over-reach assertions. Conspiracy theories and opinions can be presented as facts if they are stated by “authorities”. For instance, Bard asserted the **James Webb Space Telescope** was the first telescope to take pictures of an exoplanet, which is wrong, **c)** Their ability to write essays and poems might create a new kind of plagiarism.

What do AI-driven search engines mean as a business activity?

- NLP-based searches could lead to an entirely new revenue model for one of the Web's biggest market segments. Advertising revenue share might move to new players, or perhaps create some entirely different revenue model.
- Google has been dominating search and it has built an empire around the cash cow of resulting advertising revenues. This is finally being challenged now with AI-driven search engines.

GENERATIVE AI (ARTIFICIAL INTELLIGENCE): BENEFITS AND CHALLENGES

- **Context:** Since its release, ChatGPT has received a lot of attention. While, the users are marvelling at its ‘human-like’ responses, technology experts are debating the potential applications and concerns associated with Generative AI (Artificial Intelligence). Generative AI has the potential to revolutionise almost every field

of human activity. However, the possibility of misuse of the technology and loss of skilled and semi-skilled jobs has prompted calls for more cautious approach in the development of the Generative AI.

WHAT IS GENERATIVE AI?

- Generative AI uses **Artificial Intelligence and Machine Learning algorithms** to enable machines to **generate new content** (machine generated). Systems use previously created content, such as text, audio, video, images, and code. The term 'Generative' refers to the ability of the models to learn how to **create new data rather than simply recognising it**. For example, a generative model may learn how to generate images that resemble faces given a set of parameters (such as the eyes, hair, or skin colour etc.). The content (text, image etc.) generated by AI is so 'authentic', that it is difficult to distinguish whether the content has been generated by human or computer.

APPLICATIONS OF GENERATIVE AI:

- The applications of Generative AI are wide and still evolving.
- **Motion Picture Industry:** Applications of Generative Artificial Intelligence in the movie industry is wide. It can utilized to alter the background/landscape according to the need (rather than wait for required conditions to exist e.g., a movie scene requiring cloudy weather can be shot under any weather conditions, and the background can be altered later on using AI). Images or videos of Actors at various ages are also possible with Generative AI technology. By using **face synthesis** and **voice cloning**, artist's/actor's original voice can be matched with a lip-sync. This will also help in archiving artefacts after restoration for future references.
- **Search Engine Services:** Generative Artificial Intelligence has the capability to take search engine services to the next level, e.g., Text to Image translation may be utilized to provide search results. It can also be used to produce **realistic photographs from textual descriptions of objects** like birds and flowers.
- **Security Services:** Generative Artificial Intelligence can create front-on photos from photos taken at different angles and vice versa for face verification or face identification systems. Such systems can be deployed at airports, international border check-points etc.
- **Healthcare:** Semantic-Image-to-Photo Translation can convert inputs that are semantic images or sketches to photo-realistic images e.g., if X-ray or any CT scan images can be converted to real images, **diagnosis can be much more accurate**.
- **Advertising:** Generative AI can create new advertisements based on existing ones, making it easier for companies to reach new audiences.
- **Location Services:** This involves converting satellite images to map views. This can be a huge step towards venturing into unexplored geographic locations.
- The possible applications of Generative AI are still being explored and can expand considerably as the technology evolves further. It can expand to fields like education, content creation, banking among others.

BENEFITS OF GENERATIVE AI:

- **Increased efficiency:** generative artificial intelligence can be used to automate tasks that would otherwise require manual Labor. This can help businesses save time and money, as well as increase efficiency e.g., it can be used to generate images and videos quickly and accurately, which can be used in marketing campaigns or other projects.
- **Improved Quality:** Generative Artificial Intelligence can help improve the quality of content generated. It can be used to create high-quality images and videos that are **more visually appealing** than those created manually. Additionally, it can be used to generate text that is **more accurate and relevant** than text created by humans.
- **Faster Results:** Generative Artificial Intelligence can help businesses get results faster than they would with manual labor. It can create images and videos in a fraction of the time it would take a human to do the same task. This can help businesses get their projects done at a much faster rate.
- **Cost Savings:** By automating tasks, businesses can reduce their labor costs and save money. Additionally, it can help businesses reduce costs associated with creating content, such as images and videos.

- **Improved Decision Making:** By using Generative AI, businesses can generate data that can be used to make better decisions e.g., it can be used to generate data that can be used to make decisions about marketing campaigns or product development. Applications in the medical field can help in better diagnosis.
- **Increased Creativity:** Businesses can generate new ideas and concepts that can be used to create new products or services.
- **Improved Customer Experience:** Businesses can generate content that is **more accurate and relevant** to their customers. This can help businesses create a better customer experience and increase customer satisfaction.

CONCERNS ASSOCIATED WITH GENERATIVE AI:

- **Accuracy:** Despite the advancements, the Generative AI technology is not fool proof and produce erroneous content. The Machine Learning Algorithms depend on the quality of the input data. Erroneous or inaccurate data can generate inaccurate results.
- **Increase Biases:** Generative Artificial Intelligence systems can **perpetuate and amplify existing biases**. If the models are trained on biased, non-inclusive data, they will generate biased outputs, such as offensive or discriminatory language, demeaning and degrading imagery, and prejudicial content. A rights-group in the US pointed out the example of an AI-based generative imagery programme showing images of only white men for the prompt 'CEO'.
- **Malicious Purposes:** Generative AI systems can create content for malicious purposes, such as **deepfakes**, disinformation, and propaganda. It can also generate offensive or inappropriate content. Nefarious actors may use AI-generated media to **manipulate people and influence public opinion**. It can be misused by enemy States, or non-State actors to destabilise domestic peace by spreading misinformation.
- **Low Quality Output:** It may also produce low-quality and less accurate information, specifically in the context of complex engineering and medical diagnosis.
- **Concern over Data Privacy:** Data privacy issues can arise from using generative AI in different industries, such as healthcare, since it involves collecting private information about individuals.
- **Limitations in Creativity:** AI uses past data as a template for future work. It means that the output produced by Generative AI is usually based on something that has already happened rather than anything genuinely creative. In short, AI systems lack creativity, originality and human ingenuity. AI Systems cannot generate new ideas by themselves, they can only make associations based on the data fed into them by humans.
- **Issues Related to Copyright:** It can be challenging to determine who is **responsible for the content generated by a Generative AI system**. The acquisition and consent model around the training data and intellectual property issues make it difficult to hold anyone accountable for any harm resulting from its use. In addition, there are concerns related to **use of copyrighted content to train AI systems**. The work derived from such content can have copyright implications. Getty Images has sued Stable Diffusion in the London High Court, accusing them of using its images illegally.
- **Risk of Unemployment:** Although it is too early to make certain judgements, there is a risk that generative AI could contribute to unemployment in certain fields. This could happen if generative AI automates tasks or processes previously performed by humans, leading to the displacement of human workers.
- **Environmental Concerns:** AI systems require a lot of computing power. This has implications for environments, in terms of energy consumed in operating AI systems. An analyst pointed out that training a transformer model just once with 213 million parameters can emit carbon emissions equivalent to 125 air-flights between New York and Beijing. GPT3 has 175 billion parameters, so its emissions would have been much larger.

WAY FORWARD:

- **First**, to address bias and fairness, researchers can use techniques such as de-biasing and **fair representation learning**, which can help to remove biases present in the training data.
- **Second**, Researchers can also use techniques such as counterfactual data generation, which can help to generate more diverse and representative training

- **Third**, there is need to add rigour and responsibility to developing AI technology, **develop and enforce ethical guidelines**, conduct regular audits for fairness, identify and address biases, and protect privacy and security.
- **Fourth**, there is need to add **adequate policy, regulation, awareness, and education guardrails** to develop and use Generative AI services ethically and responsibly. China has proposed a policy for the same. Some measures include requirement for the users of Generative AI to ensure that **any doctored content using the technology is explicitly labelled** and can be traced back to its source. The regulation also mandates people using the technology to edit someone's image or voice, **to notify and take the consent of the person** in question.
- **Fifth**, Intellectual property law must find a way to protect artists from copies that erode the value of their original work, but at the same time encourage them to continue to be inspired by others. The US Copyright Office has already declared that AI generated art is not entitled to intellectual property protection as it lacks the 'nexus between the human mind and creative expression', which is necessary to invoke copyright protection.

CONCLUSION

- The Generative AI is a revolutionary technological development. However, as is the case with every new technology, it has several associated concerns. A pragmatic approach is necessary that can minimize the negative impacts of technology. A cooperation at a global level will be required to establish the norms and standards, as well as checking misuse of the technology that can transcend national boundaries.

CivilsTap Hlmachal

ENVIRONMENT

AN EMBATTLED GREEN

Context:

- **The crisis in Joshimath** for over a month has led to conversations on the relevance of **hydropower** in the **Himalayan region**. **Glacier burst** led to concerns over the **Rishiganga hydroelectric project** in **Uttarakhand**.

Hydropower:

- **Hydroelectricity is a renewable energy source** that uses the potential energy of the water stored in the dams, reservoirs, flowing rivers etc.
- **The falling or flowing water** rotates the turbine which spins a generator and the mechanical energy of the generator is converted to electric energy and hence the electricity is generated from the water.
- **Hydroelectricity** accounts for about **17%** of the total electricity sources worldwide.
- **Hydropower is considered green energy** because it generates electricity from the natural flow of water without releasing any emissions or pollutants.
- It also does not rely on fossil fuels.

Environmental impact of hydropower

- **Large-scale hydroelectric dams** impact local ecosystems and communities
- **They displace people** and result in loss of habitat for fish and other wildlife.
- **The building and maintenance of large hydroelectric dams** have a significant environmental impact.

Himalaya and hydropower:

- They are a major water source for much of South Asia.
- **Most countries in the region**, including India, China, Nepal, Bhutan, and Pakistan.
 - They have built or are planning to build hydropower projects in the Himalaya.
- **In India:** the government has identified hydropower as a key renewable energy source.
- Indian Himalaya:
 - Subansiri Lower Hydroelectric Project in Arunachal Pradesh
 - Teesta Low Dam Hydroelectric Project in Sikkim.

Nepal:

- **It has identified hydropower** as a major source of energy.
- It has many hydropower projects in the planning and development stages, including:
 - Arun III Hydroelectric Project
 - West Seti Hydroelectric Project.

Bhutan:

- Hydropower is the main source of revenue.
- The government has set a target to export surplus electricity to India.
- **The country has built several hydropower projects:**
 - Chukha Hydropower Project
 - Tala Hydropower Project.

Controversies about development of hydropower projects in the Himalayas:

- **Environmental impacts** — in Joshimath and other parts of Uttarakhand.
- **Concerns about the potential conflicts** over water resources in the region.
- **The Himalaya is a fragile ecosystem** and home to a diverse range of flora and fauna.
- **It is threatened by deforestation**, overgrazing, and construction activities that harm the environment and local communities that depend on it.

Negative Impact of dams:

- **The construction of dams can disrupt the flow of rivers**, leading to changes in water temperature and chemistry.
- **It can cause erosion, landslides**, and sedimentation which can have a negative impact on the local environment.
- **Dams disrupt the migration patterns of fish and other aquatic species** and impact the local wildlife, particularly if the dam's construction leads to habitat loss.
- **Large-scale hydroelectric dams** displace local communities, affecting their livelihoods and cultural heritage and impacting the overall well-being of the local population.

Alternatives to hydropower:

Micro hydro:

- It is a **small-scale hydroelectric power generation** system that typically generates up to **100 kilowatts (kW)** of electricity.
- **These systems use the energy of falling water** to turn a turbine, which, in turn, generates electricity.
- **They can be used for various applications**, including:
 - powering homes
 - businesses
 - small communities.
- **Micro hydro systems** are less expensive to build and maintain than large hydroelectric dams
- They have a smaller environmental footprint.
- **They can be located even in inaccessible areas** where it is difficult to transmit electricity from larger power stations
- **They can provide a reliable source** of energy to communities that are not connected to the grid.

Micro hydro systems can be classified into two main types:

- **Run-of-river systems** use the natural flow of water in a stream or river to generate electricity.
- **Storage systems** use a reservoir to store water and release it as needed to generate electricity.

Way Forward

- **Micro hydro systems can be tailored** to minimize the ecosystem's negative impact and provide sustainable energy solutions.
- **Even micro-hydropower projects** can have some impact on the environment and local communities.
 - **A detailed assessment** should be carried out to evaluate the potential impact before proceeding with the project

SMUGGLING OF RED SANDERS

Context:

- A **Fact Sheet prepared by TRAFFIC**, a global wildlife trade monitoring organisation has revealed the issue of Red Sanders illegal trade. TRAFFIC was established in 1976 by **WWF and IUCN as a wildlife trade monitoring network** to undertake data collection, recommendations on **wildlife trade**.

About

- The **CITES trade database** has recorded 28 incidents of Red Sanders confiscation, seizure, and specimen from the wild being exported from India.
- It highlights the **threats of rampant illegal logging and smuggling of trees** especially in Chittoor, Kadapa, Nellore & Kurnool districts in Andhra Pradesh.
- **China remains the largest importer of the product**, followed by Hong Kong and Singapore.

Red Sanders (Red Sandalwood)

- **About:**

- Red Sanders is a **flora-species** that is endemic to the tropical dry deciduous forest in **Eastern Ghats** region of Andhra Pradesh.
- It is locally known as **Yerra Chandanam, Rakta Chandanam**.
- It is a **very slow-growing tree species** that attains **maturity after 25 – 40 years**.
- It is **fire-hardy and resistant to droughts**.
- **High Demand & applications:**
 - Red Sanders is under severe pressure from illegal logging and harvesting. It is in demand in **both domestic and international markets**.
 - Its rich hue and **therapeutic properties** are responsible for its high demand across Asia, particularly China, for use in cosmetics, medicinal products and high-end furniture/woodcraft.
 - While the red dye obtained from the wood is used as a colouring agent in textiles and medicines.
- **Conservation Status:**
 - It is under '**endangered list**' in the International Union for Conservation of Nature (IUCN) Red List.
 - It is listed in Appendix-II of the Convention on International Trade in Endangered Species of Wildlife Fauna and Flora (CITES).
 - Listed under **Schedule IV of The Wildlife Protection Act**.

Initiatives to Curb Illegal Trade

- The export of Red Sanders from India is prohibited as per the Foreign Trade Policy.
- Operation Rakth Chandan
- Red Sanders Anti-Smuggling Task Force (RSASTF) established in 2014.

Way Ahead

- The TRAFFIC called for declaring the **Red Sanders harbouring forests** within the species' geographical range as '**High Conservation Areas**', to provide an adequate legal framework for protecting the species and its habitat.

LADAKH'S FRAGILE ECOLOGY & DEMAND OF SIXTH SCHEDULE

Context:

- Recently, Ladakhi innovator and engineer Sonam Wangchuk completed his five-day "climate fast". The fast was held by Mr. Wangchuk in an effort to draw the attention of Indian leaders to the region's fragile ecology and to secure its protection under the Sixth Schedule of the Constitution.

Issue of Ladakh's fragile Ecology

- **About:**
 - Ladakh and the Himalayas form the '**third pole**' of the world and are among its **few frozen freshwater sources**.
 - The Himalayas, along with all glaciers and river basins, are also called the "**water tower of Asia**".
 - People of the region depend on glaciers to fulfill their water needs.
- **Melting glaciers of Ladakh:**
 - Ladakh is a cold desert and extremely sensitive to climate change.
 - Glaciers in Ladakh have been melting at an alarming rate.
 - According to a study published in 2021, **glaciers in the Pangong region retreated around 6.7% between 1990 and 2019**.
- **The melting of glaciers has the following effects on the lives of Ladakh's people:**
 - **Water scarcity:**
 - They lose **potable water**;
 - **Agriculture** practices specific to the region are threatened; and
 - **Sustainable practices** that support life in the region, like surviving on a minimal quantity of water, are slowly eroded.
 - **Loss of livelihood and culture:**

- Loss of sustainable practices due to scarcity of water may also affect the **livelihoods of locals and their cultural heritage, and force them to migrate.**
- **Loss of biodiversity:**
 - A change in the ecological balance of Ladakh will also impact the biodiversity of the area.
 - **The flora and fauna of Ladakh** are highly evolved to survive in harsh climatic conditions and will be threatened due to changes in the local ecosystems.
- **Collapsing ecosystem:**
 - Even the slightest disturbances in an ecosystem as fragile as Ladakh can lead to the collapse of the whole ecosystem
- **Potential challenges:**
 - **Excessive rainfall:**
 - According to experts, it is possible climate change will lead to excessive rainfall in Ladakh **by around 2045 due to global warming.**
 - An increase in temperature has a direct impact on precipitation in an area, which changes agriculture practices. This eventually affects food security.
 - **Uncontrolled development:**
 - Unabated development in sensitive areas like Ladakh, without keeping in mind the sustainable practices that have supported life under extreme conditions, will eventually lead to disruption of the area's ecology.
 - **It may also lead to land subsidence** like we recently witnessed in Joshimath since Ladakh is even more fragile than Chamoli district.

Ladakh's demand of Sixth Schedule

- After its special status was removed, several political groups in Ladakh have been demanding that **land, employment, and the cultural identity of Ladakh**, should be protected under the Sixth Schedule.

Issues faced by Ladakh:

- **No decentralization of power:**
 - There had been four MLAs from the region in the erstwhile J&K Assembly; the administration of the region is now completely in the hands of bureaucrats.
 - To many in Ladakh, the government now looks even more distant than Srinagar.
- **Changed domicile policy in Jammu and Kashmir:**
 - Also, the changed domicile policy in Jammu and Kashmir has raised fears in the region about its own land, employment, demography, and cultural identity.
- **Limited Finances:**
 - The UT has two Hill councils in Leh and Kargil, but neither is under the Sixth Schedule.
 - Their powers are limited to collection of some local taxes such as parking fees and allotment and use of land vested by the Centre.

Recommendations:

- **Recommendation of the National Commission for Scheduled Tribes:**
 - In September 2019, the National Commission for Scheduled Tribes recommended **the inclusion of Ladakh under the Sixth Schedule.**
 - The Commission took note of the fact that the newly created Union Territory of Ladakh is **predominantly a tribal region in the country.**
- **Report highlights of the Parliamentary Standing Committee:**
 - The Parliamentary Standing Committee on Home Affairs recently tabled a report in **the Rajya Sabha.**
 - The report stated that, according to the 2011 Census, the tribal population in the Union Territory of Ladakh is 2,18,355, that is 79.61% of the total population of 2,74,289.
 - **Special Status:**
 - The committee recommended that special status may be granted to the Union Territory of Ladakh considering the developmental requirements of the tribal population.
 - **Examining the possibility of fifth or sixth Schedule:**

- The Committee further recommends that the possibility of including Ladakh in fifth or sixth Schedule may be examined.

RISE OF AMR COULD RESULT IN UP TO 10 MILLION ANNUAL DEATHS BY 2050: UN REPORT

Context:

- UNEP released a new report – **Bracing for Superbugs: Strengthening environmental action in the One Health response to antimicrobial resistance.**
- It provides evidence that the **environment plays a key role in the development, transmission, and spread of Anti-Microbial Resistance (AMR).**

About AMR:

- **Antimicrobials** are agents **intended to kill or inhibit the growth of microorganisms.** They include antibiotics, fungicides, antiviral agents, and parasiticides.
- AMR occurs when **microorganisms such as bacteria, viruses, parasites, or fungi become resistant to antimicrobial treatments** to which they were previously susceptible.

Key findings of the report:

- Up to **10 million deaths could occur annually by 2050 due to antimicrobial resistance (AMR)**, on par with the 2020 rate of global deaths from cancer.
- **Pollution in key sectors of the economy** contributes to the development, transmission, and spread of AMR.
- AMR's economic toll could result in a **GDP drop of at least USD 3.4 trillion annually by 2030**, pushing 24 million more people into extreme poverty
- Microorganisms (particularly bacteria) **can acquire resistance following contact with resistant microorganisms.**
- AMR challenges are linked to the **triple planetary crisis of climate change, biodiversity loss, and pollution and waste.**
- Three key sectors of AMR development and spread in the environment: **Pharmaceuticals and other chemical manufacturing, agriculture and food production, and Healthcare.**

Suggestions in the report:

- Create **robust and coherent national-level governance, planning, regulatory and legal frameworks.**
- **Increase global efforts to improve integrated water management and promote water, sanitation, and hygiene to limit the development and spread of AMR.**
- **Increase integration of environmental considerations into AMR National Action Plans.**
- **Establish international standards** for what constitutes a good microbiological indicator of AMR
- **Environmental monitoring and surveillance**
- AMR requires a **One Health response** that recognizes that the **health of people, animals, plants, and the environment are closely linked and interdependent.**

HOW THE E-WASTE YOU PRODUCE IS PROVIDING POOR CHILDREN WITH A DANGEROUS LIVING

- **Context: Rising number of children in the extraction of the e-waste sector** is a crude and hazardous process that goes unregulated.
- According to the **Global E-waste Monitor 2020**, the world dumped 53.6 million metric tons of e-waste in 2019. **India produced 3.2 million metric tons** of e-waste, much of which is dumped for dismantling and recycling in Seelampur with no regulations.

About e-waste:

- The term electronic and electrical waste (e-waste) refers to **“electrical or electronic equipment, which is waste, including all components, subassemblies, and consumables, which are part of the equipment at the time the equipment becomes waste ”.**
- E-waste includes large, discarded appliances, such as **refrigerators, air conditioners, and washing machines, as well as small personal items, including computers, televisions, mobile phones, and many other devices that are operated by electrical currents or batteries.**

What health risks are the children exposed to?

- **Toxic substances:** Toxic substances such as **lead, cadmium, mercury, and flame retardants**, can be harmful if not properly disposed of. **Serious skin diseases and chronic lung infections** due to continuous exposure to these chemical-laden toxins.
- **Disabilities:** Even relatively **low lead exposure in children** can result in a **reduction in total intelligence quotient (IQ) and several behavioural abnormalities**, including a decrease in attention span and an increase in frustration and disruptive behaviour.
- **Exposure to hazardous waste:** Like Nickel, Mercury can cause long-term incurable diseases.
- **Environmental contamination:** Contaminated soil and water potentially affect the health of local populations, including children.
- **Loss of access to educational opportunities:** In some developing countries, e-waste dumping has caused environmental degradation and health problems, **leading to school closures and limiting children's access to education.**

India's initiatives to tackle e-waste:

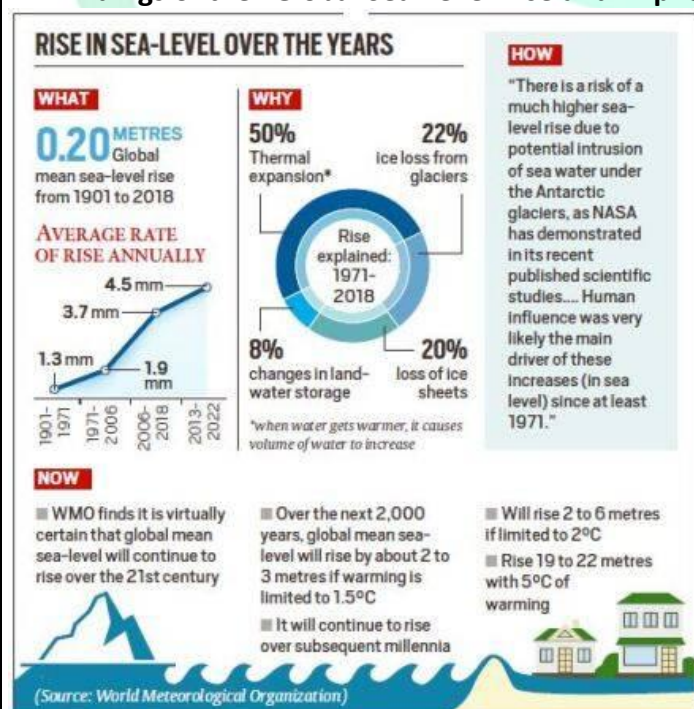
- **Extended Producer Responsibility; Design for Environment; (3Rs) Reduce, Reuse, Recycle technology platform** for linking the market facilitating the **circular economy** aim to encourage consumers to **correctly dispose of the e-waste.**
- **E-waste (Management) rules 2022**
- India has tried to tackle this unregulated industry and **introduced a series of laws in 2011 and 2016 mandating the authorization and registration of all e-waste recycling facilities**, along with directives for workers to use protective equipment while dismantling the waste.
- India's first e-waste clinic to be set up in Bhopal

Way Forward:

- **Recycling electronic devices through certified e-waste recycling programs** or donating them to organizations that can reuse them can help reduce the issue of e-waste.

SEA-LEVEL RISE A MAJOR THREAT TO INDIA, OTHER NATIONS: WMO

- **Context:** The World Meteorological Organization (WMO) cautioned that sea level rise poses a serious threat to both China and India in a report titled **"Global Sea-Level Rise and Implications."**
- **Findings of the "Global Sea-Level Rise and Implications" report:**



- Sea level rise varies **regionally**
- It will encroach upon Infrastructure and coastal communities will be encroached upon
- **It affects a number of major cities on every continent:** Shanghai, Dhaka, Bangkok, Jakarta, Mumbai, Copenhagen, New York, Buenos Aires, Santiago, etc.
- Poses a significant **economic, social, and humanitarian problem** (threatens coastal farmlands, water reserves, the resilience of infrastructures, food-nutrition security, human lives and livelihoods), especially in vulnerable areas.
- Along with other climate concerns, it will affect coastal ecosystems, related development and **beyond 1 billion people by 2050**
- Growing **Urbanization** in exposed areas will exacerbate the effects.
- It is reinforced by storm surges and tidal variations as seen during the landfall of hurricane **Sandy (New York) and Cyclone Idai (Mozambique)**

Reasons behind sea-level rise:

- Increase in average global temperature (by over 1°C since 1880)
- **Thermal expansion of seawater** (leading to mean sea level increasing by ~20 cm)
- Glacier and ice-sheet melt
- **Changes in groundwater storage.**

Challenges:

- According to the IPCC, melting ice sheets (the largest contributor to sea level change) **are hard to predict.**
- By 2150, global sea level rise is estimated to rise by roughly **4, 0.5 and 0.2 m** under high, mid and low-emission scenarios, respectively.
- Limiting 21st-century global surface temperature rise to 2 °C above the pre-industrial level (Paris Agreement's target) would be insufficient.

Way ahead:

- A low greenhouse gas emission scenario, with temperatures staying below 1.5 °C
- Reaching net zero carbon emissions before 2060.
- Particularly along the coast, urban systems must enable climate-resilient development.

DECARBONIZATION OF TRANSPORT SECTOR

Context:

- The most critical and pressing issue in front of the world and coming generations is to contain the global temperature rise within 1.5°Celsius. Greenhouse gases (GHGs) are the reason for this temperature rise. Therefore, all the mechanisms and sustainable alternatives must be implemented to mitigate the climate risk. Climate change is having profound impacts on India. This includes adverse impacts on agriculture, water resources, forest and biodiversity, health, coastal management, and an increase in temperature. Heat waves have become more common and severe with many cities reporting temperatures above 48°Celsius. The decline in agricultural productivity is the significant impact of climate change on India. Recognising the impact, India is championing climate action to achieve the nationally determined climate goals, mainstream sustainability, and reduce the carbon footprint. In this context, decarbonisation of transport sector is vital to achieve the climate goals.

Current Status of Transportation in India

- The average **carbon footprint of a person in India is 0.56 tonnes per year**, compared to the global average of four tonnes per person per year. India's transport demand is expected to increase by 2.7 times in over 30 years. Bus transport in India accounts for 38% of passenger km, though its share in overall registered vehicles in India is just around 3.5%. Two-wheelers account for 76-80% of the total registered automotive in India. Last-mile connectivity is still a big issue and mainly depends on three-wheelers and sub-seven-meter buses.
- Sale of electric two-wheelers has jumped from 4,073 units in June 2021 to 42,260 in July 2022. The prices of electric buses is falling rapidly. In a **recent tender** by the Convergence Energy Services Limited (under

Ministry of Power), the price discovered for EV buses has come to be 27% and 25% below diesel and CNG buses respectively (without subsidy).

- India is the biggest manufacturer and market for two wheelers globally. The same status is expected to be carried over to EV segment. The EV segment is led by start-ups at present, but large traditional manufacturers are also scaling-up their EV segments.
- Lifetime emissions from EVs are 19-34% lower than (Internal Combustion Engines) ICE vehicles.

Initiatives for Decarbonisation of Transport Sector

- **Shift to Zero Tailpipe Emissions Mode:** The **National Electric Mobility Mission Plan (NEMMP) 2020** is a National Mission document providing the vision and the roadmap for the **faster adoption of electric vehicles** and their manufacturing in the country. As part of the NEMMP 2020, Department of Heavy Industry formulated the **Faster Adoption and Manufacturing of (Hybrid &) Electric Vehicles in India (FAME India) Scheme** in the year 2015. Its aim is to promote manufacturing of electric and hybrid vehicle technology and to ensure sustainable growth of the same.
- The 1st Phase of FAME India Scheme was implemented through four focus areas namely: **(a) Demand Creation, (b) Technology Platform, (c) Pilot Project and (d) Charging Infrastructure**. Market creation through demand incentives was aimed at incentivizing **all vehicle segments** i.e. 2-Wheelers, 3-Wheelers Auto, Passenger 4-Wheeler vehicles, Light Commercial Vehicles and Buses.
- The 2nd Phase (FAME II) is a 3-year subsidy programme. It aims at supporting the **electrification of public and shared transportation**. Since the launch of the the remodelled FAME II in June 2021, the sales have increased rapidly e.g., sale of two-wheelers have jumped from 4,073 to 42,260 between June 2021-June 2022.
- The Government has **nearly doubled the FAME 2 subsidy outlay** at INR 5,172 crore in the Union Budget 2023-24. This is 78% more than the INR 2,900 crore that it had earmarked in the Budget for FY2022-23.
- **EV Value Chain:** The Government is trying to establish India as a leading producer across the full electric vehicle (EV) value chain. India has a chance also to become the global hub of manufacturing for the entire EV Value chain (except raw material mining). Therefore, billion-dollar incentive programs such as the **Advanced Chemistry Cell Program** with an outlay of US\$ 2.5 billion over five years were rolled out and have received an overwhelming response from the industry.
- Similarly, to promote manufacturing of EV auto components, **PLI for Advanced Auto Components** (US\$ 3.5 billion) has been launched. This will pave the way for a smooth transition of existing auto parts manufacturing in India and produce global champions.
- **EV Policies:** States have also provided several fiscal and non-fiscal supports, in addition to the incentives provided by the Union Government. More than 22 states have declared their EV policies. Several states have also rolled out the **incentives for battery manufacturing**.
- **Indian Railways** have launched their EV policy. They not only want to phase out all ICE vehicles used by Indian railways in offices etc., but also to **put the charging stations at all electrified railway station parking spaces**. This will significantly **boost the charging infrastructure availability** and help railways achieve their net zero carbon emission by 2030.
- **Promoting Environmentally Friendly Technology:** India is focusing on catalyzing, growing and fuelling the entrepreneurs in the country to create businesses with clean technologies such as hydrogen, electric mobility, batteries, etc. Green technologies are driving sustainable development in India. Such technologies maximise energy efficiency and preserve the environment while saving money.
- **Shoonya – Zero Pollution Mobility:** It is a consumer and corporate-facing campaign hosted by NITI Aayog. The campaign aims to accelerate the transition of vehicles used for ride-hailing and deliveries into electric vehicles (EVs) by creating awareness and demand for zero-pollution rides and deliveries in Indian cities. The ecosystem it has created by bringing together a dedicated group of industry stakeholders, corporate partners, and consumers is being utilized to build awareness around EVs.

Challenges to Decarbonisation of Transport Sector

- **First**, The initial purchase price of electric two-wheelers with fixed batteries is still greater than that of internal combustion engine vehicles. On a total cost of ownership basis, EVs are cheaper. However, high initial costs act as a deterrent to adoption.
- **Second**, the 2-Wheeler EV segment is being driven by start-ups and new entrants. Established players in 2-wheeler segment seem to be reluctant to join the EV bandwagon. This can limit the scale-up and expansion of the segment.
- **Third**, despite policy initiatives, there is **severe shortage of charging infrastructure**. Lack of charging infrastructure has limited adoption of EVs. The setting-up of charging infrastructure is not lucrative and appealing proposition as of now due to low market penetration of EVs. Hence, there seems to be catch-22 situation.
- **Fourth**, Despite Government push, the adoption of public transport has been low.
- **Fifth**, the manufacturers have not yet focused on the commercial vehicle EV segment, which has a large share in the transport sector and remains a large emitter.

Way Forward for Decarbonisation of Transport Sector

- **First**, to meet the needs of EVs, primarily four-wheelers, cargo three-wheelers, Light commercial vehicles (LCVs), and buses, there is a need to **develop fast charging technology**.
- **Second**, Government-led firms like BHEL/BEL can work together to build a local supply chain for charger manufacturing. Further technical assistance can be obtained from research institutions such as IISc and labs such as CPRI/CSIR/ARCI.
- **Third**, Opportunity charging and hybrid battery storage concepts (with fixed and switch battery) should be investigated for intercity transportation.
- **Fourth**, Rural battery swap stations can alter the landscape of EV adoption and battery storage. It has the potential to increase electricity availability and quality in remote places. For example, in rural locations, the battery switch station might be powered by localised solar power (small setups). These switch stations can **function as micro power grids**, supplying extra power to the grid while also powering nearby villages/houses, in addition to functioning as **EV exchanges**. Suitable models should be developed to scale-up such swap stations.
- **Fifth**, there is a need for developing a **mission plan for Advanced Chemistry Cell (i.e. battery) recycling**. This is especially significant since more than 95% of the original essential minerals in these ACC batteries may be **recovered and reused in cell production**. Many countries have already made the use of recycled materials in new ACC cells mandatory. India should adopt a similar approach.
- **Sixth**, German commercial vehicle manufacturers have committed to launching light-duty and heavy-duty electric vehicles as well as developing a dedicated charging network in Germany. All large manufacturers (Traton Group, Daimler, and Volvo) are **cooperating with each other** and investing in zero-emission commercial vehicle charging infrastructure to **mitigate risks and boost asset utilisation**. A similar strategy can be adopted by Indian manufacturers.
- **Seventh**, the **electric bicycles** need to be promoted. Although the prices of electric bikes are currently high, leasing companies, fleet operators, aggregators, financiers, etc., can make it a viable option. e-Commerce and hyper-local delivery start-ups can utilise e-bikes to reduce their carbon footprint.
- **Eighth**, Since EV is an evolving space, capacity building at all levels, along with upskilling and reskilling, is very important. It all starts with the government officials at the municipal level who interact for things like charging infra, incentives, etc. The sensitisation of the latest guidelines, rules, incentives, etc. should be **well communicated through regular training**.
- **Ninth**, the decarbonisation of transport sector and transition to EVs will require creation of future ready workforce. NITI Aayog is working with IITs to nudge them to start EV-specific courses. More than 15 IITs have already started the courses at the PG level. This has to trickle down to diplomas and other technical and non-technical institutes.

Conclusion

- The Government has laid an ambitious outline and policies to direct the country towards a cleaner, greener, and more connected world. The industry is also reciprocating the same, but the speed needs to pick up on all sides, including manufacturing and consumer acceptance. Decarbonisation of Transport sector is vital to achieve the Net Zero target. It would require close cooperation among all stakeholders; Government, Business and the citizens.

BE AFRICA, NOT LAS VEGAS – THE MESSAGE FROM HIMALAYAN BELT IS CLEAR: INDIA NEEDS TO NURTURE BACK WILD NATURE IN SOME PARTS, AND STOP THE CONSTRUCTION MANIA

- **Context:** Recently, there are large cracks appearing on the Badrinath highway. From Joshimath, to the river city of Karanprayag, to the eastern edges of Himachal, the disturbing shifts and slides of the ground pose big questions for the protection of the Himalayan ecosystem.

WHAT IS THE PRESENT STATE OF ECOLOGICAL DAMAGE IN INDIA?

- The past century has seen the disappearance of almost a third of the country's forest cover; many tree, plant and insect species are extinct or headed in that direction.
- Millions of hectares of grassland and sanctuaries are encroached upon by either the local population or excessive tourism and commerce. For example, Mumbai's mangroves and Deodar forests all across Himachal was destroyed for making roads and apartment blocks respectively.
- Moreover, forests are cleared regularly for industrial parks, mining, commercial plantations and grazing. Further, the tree cover of 10 million hectares is destroyed every year.
- There is no institutional policy or active manpower push to contain the destruction and reverse ecological damage.
- The damage inflicted is so pervasive and complete, in many cases, it is irreversible and may take many decades to repair.

What are the major reasons for ecological damage in India?

- This is due to two environmentally destructive strategies, **excess and instant gratification**. For example, the fragile ecology of the Garhwal Himalayas is under tremendous stress due to **a) Hydroelectric projects**, increased traffic and construction activities which led to a breach in the carrying capacity of the Uttarakhand hills, **b) Constructing a four-lane highway in the Himalayan region**. Though four-lane highways seem like a major advance, such a development strategy is neither economically sound nor ecologically tenable.

How do other countries conserve ecology?

- **Bhutan's 'high value, low volume' tourism strategy:** The country charges foreign tourists a **sustainable development fee** of around \$200 per person per night. Indian visitors also have to pay Rs 1,200 per day.
- **Central and South American countries:**
- **Costa Rica's Blue Flag Ecology Programme:** The country accounts for 4% of the world's biodiversity and relies on tourism for 10.3% of its GDP. A strict set of environmental criteria is laid down under the programme. Under it, all local stakeholders in the tourism industry work together to attain the coveted Blue Flag tag.
- **Chile:** The tourism industry is allowed to operate only in sustainable ways within protected areas. Tourism stakeholders are then held accountable for any breaches in these agreements.

What should be done to protect the Himalayan ecosystem?

- **Cap pilgrimage count:** Many countries around the globe **cap pilgrim and tourist numbers**. Uttarakhand's Chamoli district administration has indicated there may be a cap on pilgrims. The government should implement this without hesitation.
- **Greening of the denuded sections of the landscape:** This includes replanting along with multiple ecological plans to encourage bees, butterflies and birds, besides a wider variety of regional plants and trees.

- **Focus on all species:** A calibrated study of varied animal and insect species is required to create a balanced ecosystem within forests.
- In forest and rural areas, hyenas, wild hens, boar, foxes, deer, wolves and other animal species need to be nurtured; they have been grossly neglected, due to excessive focus on tigers, lions and cheetahs.
- **Promote deliberate underdevelopment in ecologically-sensitive regions:** The rewilding of India must be closely tied to de-populating certain overburdened areas of the country. But that should be accompanied by a clear policy on areas available for tourism, limited tourism, and no-go areas.
- **Find middle ground:** India, wild like remote Africa, or India overbuilt like Las Vegas, it will take some serious steps to find a middle ground.

INDIA CAN BECOME A BIODIVERSITY CHAMPION

- **Context:** Union Budget 2023 mentioned “**Green Growth**” as one of the seven priorities or Saptarishis.

About Biodiversity

- Biodiversity or **biological diversity** is the **variety and variability of life** on Earth. Biodiversity is a measure of variation at the **genetic, species, and ecosystem levels**.
- **Identified species:**
 - **The Convention on Biological Diversity (CBD)** states that **only about 1.75 million species** have so far been identified, including numerous insects, while **there may be some 13 million species**.
- **Significance:**
 - **Interaction, coexistence & codependence:**
 - Sum and variation of our biological wealth, known as biodiversity, is essential **to the future of this planet**.
 - Often called the web of life, biodiversity **signifies the variety of species on earth**, which are all connected and sustain the balance of ecosystems, **enabling humans to coexist**.
 - They **interact with the environment** to perform a host of functions.
 - **Ecosystem services:**
 - Some familiar ecosystem services rendered by diverse living forms, of which plants and animals are the most visible, include
 - Providing humans with food, fuel, fibre, shelter, building materials, air and water purification, stabilisation of climate, pollination of plants including those used in agriculture, and moderating the effects of flood, drought, extreme temperatures and wind.
 - A disruption of these produces severe impacts such as **failed agriculture, aberrant climate patterns and cascading losses of species** that accelerate the **degradation of earth**.

Threats to biodiversity

- **Biodiversity loss** continues to be largely invisible despite its victims being extremely visible.
 - **Extinction:**
 - Based on current trends, the UN reckons, an estimated 34,000 plant and 5,200 animal species, including one in eight of the world’s bird species, face extinction.
 - About 30% of breeds of main farm animal species are currently at high risk of extinction.
 - **Deforestation:**
 - Forests are home to much of the known terrestrial biodiversity, but about 45% of the earth’s original forests are gone, cleared mostly during the past century.
- **Causes:**
 - **The core threat** to biodiversity on the planet is the combination of
 - Human population growth and
 - The resources used by that population.
 - The human population requires resources to survive and grow, and many of those resources are being removed unsustainably from the environment.

- **The five main threats** to biodiversity are
 - habitat loss,
 - pollution,
 - overexploitation,
 - invasive species, and
 - climate change.
- **Increased mobility and trade** have resulted in the **introduction of invasive species** while the **other threats are direct results of human population growth and resource use**.

Biodiversity in India & priority for “Green Growth”

- **Biodiversity:**
 - India currently hosts 17% of the planet’s human population and 17% of the global area in biodiversity hotspots, placing it at the helm to guide the planet in becoming biodiversity champions.
- **India’s initiative towards “Green Growth”:**
 - The emphasis on green growth is welcome news for India’s biological wealth as the country is facing serious losses of natural assets such as soils, land, water, and biodiversity.
 - **The National Mission for a Green India:**
 - The National Mission for a Green India aims to increase forest cover on degraded lands and protect existing forested lands.
 - **The Green Credit Programme:**
 - The Green Credit Programme has the objective to “incentivize environmentally sustainable and responsive actions by companies, individuals and local bodies”.
 - **MISHTI:**
 - The Mangrove Initiative for Shoreline Habitats & Tangible Incomes (MISHTI) is particularly significant because of the extraordinary importance of mangroves and coastal ecosystems in mitigating climate change.
 - **PM-PRANAM:**
 - The Prime Minister Programme for Restoration, Awareness, Nourishment and Amelioration of Mother Earth (PM-PRANAM) for reducing inputs of synthetic fertilizers and pesticides is critical for sustaining our agriculture.
 - **Amrit Dharohar scheme:**
 - The Amrit Dharohar scheme directly mentions our biological wealth and is expected to “encourage optimal use of wetlands, and enhance biodiversity, carbon stock, eco-tourism opportunities and income generation for local communities”.
 - If implemented in letter and spirit, Amrit Dharohar, with its emphasis on sustainability by balancing competing demands, will benefit aquatic biodiversity and ecosystem services.

Suggestions

- **Implementation & monitoring:**
 - It is critical that these programmes respond to the current state of the country’s biodiversity with **evidence-based implementation**.
 - A **science-based and inclusive monitoring programme** is critical not only for the success of these efforts but also for **documentation** and **global learning**.
- **Utilising modern concepts of sustainability:**
 - New missions and programmes should effectively use modern concepts of sustainability and valuation of ecosystems that consider ecological, cultural, and sociological aspects of our biological wealth.
- **Wetland ecosystems:**
 - The future of our wetland ecosystems will depend on **how we are able to sustain ecological flows** through the **reduction in water use** in key sectors such as **agriculture**
 - **There is a need** for investments in **water recycling in urban areas** using a combination of **grey and blue-green infrastructure**.
- **Focus on ecological restoration:**

- As far as the Green India Mission is concerned, the implementation should focus on ecological restoration **rather than tree plantation**
- Choosig sites where it can contribute to ecological connectivity in landscapes fragmented by linear infrastructure is also required.
- **Mangrove initiative:**
 - Site selection should also be carefully considered for the mangrove initiative with a greater emphasis on the diversity of mangrove species with retention of the integrity of coastal mud flats and salt pans themselves, as they too are important for biodiversity.

Way ahead

- These efforts **must be inclusive of local and nomadic communities** where these initiatives will be implemented.
 - **Traditional knowledge and practices of these communities** should be integrated into the implementation plans.
- Each of these programmes has the potential **to greatly improve the state of our nation's biodiversity** if their implementation is based on the latest **scientific and ecological knowledge**.
- As a consequence, each programme should include **significant educational and research funding** to critically appraise and bring awareness to India's biological wealth.

ADOPTION OF EVS: CHALLENGES AND SOLUTIONS – EXPLAINED, POINTWISE

- **Context:** The Government is pushing hard for transition to Green Economy. One vital aspect of this transition is transition to Green Mobility. Enhancing the share of Electric Vehicles in transportation is necessary to ensure green mobility. The finding of Lithium deposits in J&K and possibility of developing domestic battery manufacturing ecosystem in India has led to new excitement about EVs. However, the adoption of EVs still faces several hurdles. Addressing these challenges is necessary to ensure greening and decarbonisation of the transportation sector.

EVs and their benefits:

- Electric Vehicles (EVs) have an electric motor instead of an Internal Combustion Engine (ICE). ICE-based vehicles work on fossil fuels. EVs use a **large traction battery pack to power the electric motor**. The power to run the vehicle is provided by the motor (instead of fuel-engine in ICE vehicles). Because an EV runs on electricity, the vehicle emits **no exhaust from a tailpipe**. An EV does not contain the typical liquid fuel components, such as a fuel pump, fuel line, or fuel tank.

Benefits of EVs

- **Lower running costs:** The running cost of an electric vehicle is much lower than an equivalent ICE vehicle. Electric vehicles use electricity to charge their batteries instead of using fossil fuels like petrol or diesel. **EVs are more efficient**, according to one estimate, EVs can convert ~60% of the electrical energy from the grid to power the wheels, but petrol or diesel cars can only convert 17%-21% of the energy stored in the fuel to the wheels. The efficiency combined with the electricity cost means that charging an EV is cheaper than fuel based vehicles.
- **Low Maintenance Cost:** EVs have very low maintenance costs because they have lesser moving components compared to ICE vehicles (e.g., Electric vehicles don't have gears and there are no complicated controls). The **servicing requirements for EVs are lesser** than the conventional petrol or diesel vehicles. Therefore, the yearly cost of running an electric vehicle is significantly low.
- **Zero Tailpipe Emissions:** EVs can help **reduce carbon footprint** because they have zero tailpipe emissions (carbon-dioxide emissions through combustion of fossil fuels). This can **reduce air pollution** as well as slow down the pace of global warming. EVs are thus essential for greening of transportation sector. Even if emissions from the production of electricity (like thermal power plant) are taken into account, petrol or diesel vehicles emit almost 3 times more carbon dioxide than the average EV.
- **Noise Pollution:** Electric Motors function silently, and produce much less noise compared to IC Engines. This can address noise pollution in urban areas or near highways.

Challenges in adoption of EVs:

- **Lack of Infrastructure:** At present, charging stations comprising of both slow and fast charging capabilities are available for all kinds of vehicles in the market. However, the **number of the charging stations is inadequate**. This implies their availability is restricted and even the ones that are deployed do not function optimally. Hence, the lack of charging infrastructure is a major hindrance to the adoption of EVs at scale.
- **Performance:** The EV manufacturers have been unable to implement the practicality of EVs being 'value for money' for consumers. The original equipment manufacturer (OEMs) are not developing EVSE (Electric Vehicle Supply Equipment). As a result, the companies that are into EVSE are unsure about the types of EVs, charging technology and its time of launch. This uncertainty does not allow the EVSE OEMs to do long term planning.
- **Range Anxiety:** It refers to an EV owner's fear that the vehicle's battery does not have sufficient charge for it to reach the destination. It is linked to how far the EV can travel on a single battery charge and the availability of charging points. This is a consequence of limited infrastructure and duration of battery charge.
- **Long time for Charging Batteries:** The battery charging time is much longer than the time taken for refuelling the ICE vehicles. Fast charging can result in overheating of batteries, hence it is avoided. This reduces the acceptability of EVs.
- **Financial Constraints:** The initial cost of owning an electric car is currently higher than that of ICE vehicles mainly due to the cost of the battery. Manufacturers anticipate cost parity by 2025 – if not sooner. They are collaborating with the electric car battery production supply chain to lower costs and improve overall efficiency. Apart from this, limited credit options and high EMI make it tough for the EV Sector to operate.
- **Battery Technology:** One of the most significant barriers to EV adoption is the battery manufacturing process and supply chain. To enable EVs, new mining and supply networks are required. The lithium-ion battery is the most common and frequently utilised EV energy source. India has no manufacturing capacity for Lithium-ion cells and relies completely on imports of EV batteries. This also increases costs.

Possible solutions to increase adoption of EVs:

- **First**, the range anxiety problem can be addressed by **increased battery efficiency** and **expansion of charging points**. Battery efficiency can be improved by further research, and expansion of charging points need greater investments.
- **Second**, Battery swapping can also tackle range anxiety. And it could be very efficient, especially for certain types of EVs and in certain geographies. In battery swapping, the discharged battery can be replaced by a charged battery. This will cut down the waiting time required in charging the battery.
- **Third**, Because of the lengthy charging time, chargers must be placed in regions where people may leave their automobiles for extended periods of time. This needs a reconsideration of the charging geography. **Setting up charging stations nearer to offices, commercial complexes** can play a key role.
- **Fourth**, To raise the overall reliability and quality of their products, there is a need to prioritise the domestic production of key components for batteries. The country's reliance on imports of these components may have an impact on India's international trade policies or EV objectives.
- **Fifth**, The Government must **promote private investment in battery manufacturing** plants and achieve economies of scale, while also focusing on the newer technologies.
- **Sixth**, Stabilizing the policy environment by focusing on tax breaks and non-fiscal incentives might assist to alleviate demand uncertainty, allowing the business to reach economies of scale
- **Seventh**, Using renewable energy sources can make the use of electric vehicles more eco-friendly. The electricity cost can be reduced further if charging is done with the help of renewable energy sources installed at home, such as solar panels.

ENERGY

INDIA'S SOLAR POWER DREAM

Context:

- **India** has been **aggressively pushing towards a more sustainable future by investing heavily in renewable energy sources**, with solar energy at the forefront of its efforts. The Government of India has set the target to expand India's renewable energy installed capacity to 500 GW by 2030. India has promised to source **nearly half its energy from non-fossil fuel sources by 2030** and, in the shorter term, source at least 60% of its renewable energy from solar power.
- **India is committed to reducing the country's dependence on fossil fuels** and transitioning towards a greener future, and the growth of the solar sector plays a crucial role in achieving this goal.
- **India is pushing towards renewable energy due to government's support for the transition. The recognition** that solar energy is a free and abundant resource also plays a role. But there are some misconception regarding Solar energy which we need to consider first.

Misconceptions about Solar Energy:

- **Levelized Cost of Solar Power is Coming Down:**
 - It is believed that the levelized cost of solar power coming down and some believe that the cost will decrease linearly over time, that the cost is the same for all regions, that the cost only takes into account the cost of solar panels, that it doesn't include maintenance costs, and that it ignores energy storage costs.
 - In reality, the **cost can be affected by various factors such as technology advancements, changes in market conditions, and government policies**, and the levelized cost takes into account all components of a solar power system including installation and ongoing maintenance costs, not just the cost of solar panels.
- **Financially Viable:**
 - Solar energy is made **financially viable by misguiding the people by leaving out storage battery cost**; handicapping it with subsidies and concessions that are front loaded by the government, and forcing it on the industry and hapless discoms through state policy.

Benefits of Solar Energy:

- **Renewable:**
 - Solar energy is a renewable source of energy, meaning it can be produced indefinitely without depleting resources.
- **Clean:**
 - Solar energy is a clean source of energy, producing no harmful emissions or pollution.
- **Cost-effective:**
 - The cost of solar energy has decreased significantly in recent years, making it increasingly cost-effective as a source of energy.
- **Reliable:**
 - Solar energy systems are becoming increasingly reliable and durable, requiring little maintenance.
- **Versatile:**
 - Solar energy can be used for a wide range of applications, including electricity generation, heating, and lighting.
- **Decentralized:**
 - Solar energy systems can be installed on a small scale, making it possible to generate energy locally, reducing dependence on centralized energy sources.

Challenges with Solar Energy in India:

- **High Initial Costs:**
 - Despite recent reductions in the cost of solar panel technology, the **upfront cost of installation remains high**, which can be a barrier to adoption for many households and businesses.

- **Limited Access to Finance:**
 - Access to finance for renewable energy projects can be limited, **particularly for smaller and rural projects**, which can make it challenging for individuals and organizations to invest in solar energy.
- **Infrastructure and Grid Connectivity:**
 - **A lack of adequate infrastructure and grid connectivity in some areas of the country can make it difficult** to transmit the electricity generated from solar panels to where it is needed.
- **Land Availability:**
 - **Finding suitable land for large-scale solar projects can be a challenge in India**, particularly given competing demands for land for other purposes such as agriculture and urban development.
- **Maintenance and Operation Issues:**
 - Poor maintenance and operation of solar power systems can **reduce their efficiency and effectiveness**, which can impact the long-term viability of renewable energy projects in India.
 - Cleaning solar panels currently is estimated to use about **10 billion gallons of water per year** — enough to supply drinking water for up to 2 million people.
 - Attempts at waterless cleaning are labor intensive and tend to cause irreversible scratching of the surfaces, which also reduces efficiency.
 - Now, **a team of researchers at MIT has devised a way of automatically cleaning solar panels**, or the mirrors of solar thermal plants, in a waterless, no-contact system that could significantly reduce the dust problem.

Way Forward:

- **Utilising Large Hydro:**
 - With large hydro, **India can produce more renewable energy** at the least cost and with the least carbon footprint.
 - India has **utilised only about 15% of its hydro potential** whereas the U.S. and Europe have utilised 90% and 98% of their potential, respectively.
 - The **extent of utilisation of hydro potential seems to be an index of civilisational development** and evolution.
- **Expanding Infrastructure and Investment:**
 - India needs to **increase investment in renewable energy infrastructure**, including transmission and distribution networks, as well as in research and development of new solar technologies.
- **Encouraging Private Sector Participation:**
 - The **private sector can play a crucial role in developing and deploying solar energy in India**, and the government should create favorable policies and incentives to encourage private sector involvement.
- **Improving Energy Storage Solutions:**
 - Energy storage systems are **essential for ensuring that solar energy** can be effectively used, even when the sun is not shining. The Indian government should support the development of advanced energy storage solutions to make solar energy more accessible and reliable.
- **Promoting Rooftop Solar:**
 - **Rooftop solar systems can be a cost-effective and convenient way for households and businesses to generate their own energy**. The Indian government should encourage the growth of rooftop solar by providing incentives, subsidies and tax credits.
- **Building a Skilled Workforce:**
 - The growth of the **solar energy sector in India will require a skilled workforce**. The government **should invest in training and education programs** to build a pipeline of skilled workers who can help deploy and maintain solar energy systems.

BIOGAS: ADVANTAGES AND CHALLENGES

- The **Union Budget 2023-24** has given a new push for clean energy. Apart from providing INR 35,000 crore for priority capital investments towards energy transition and net zero objectives, the Budget has earmarked INR 10,000 crore for establishing 500 new **'Waste to Wealth' plants** under **GOBARdhan** (Galvanizing Organic Bio-Agro Resources Dhan) scheme for promoting **circular economy**. Of the 500 new plants

announced, 200 will be **Compressed Biogas Plants (CBG)**, including 75 in cities and the remaining 300 will be community or cluster-based plants. Biogas is an environment friendly solution to ensure energy security as well as a small step towards reducing dependence on fossil fuels.

Bio-gas:

- **Biogas** is a mixture of Methane (CH_4), Carbon-dioxide (CO_2) and small quantities of other gases. It is produced by **anaerobic fermentation** of **organic matter** in an **oxygen-free environment**. The precise composition of biogas depends on the type of feedstock and the production method used. The organic matter to produce biogas can be **biodegradable waste** such as agricultural waste, animal waste like dung and segregated organic fraction of municipal solid waste.
- **Compressed Biogas (CBG)**: Biogas can be purified and upgraded up to 98% of purity to make it suitable to be used as a green fuel for transportation or filling of cylinders. The process relies on a high pressure of ~ 250 bar and hence is called Compressed Biogas (CBG).
- **Bio-Methane**: It is also known as 'renewable natural gas'. It is a near-pure source of methane produced either by 'upgrading' biogas or through the gasification of solid biomass followed by Methanation. Upgradation refers to a process that removes any CO_2 and other contaminants present in the biogas.

Initiatives taken by the Government with respect to Biogas:

- **First**, Under the **Sustainable Alternative to More Affordable Transportation (SATAT)** programme (launched 2018), the Government of India has been encouraging private businesses to establish Compressed Biogas (CBG) plants and provide CBG to oil marketing companies so that it can be sold as an automotive and industrial fuel.
- **Second, Galvanizing Organic Bio-Agro Resources (GOBAR)-Dhan** was launched by the Government of India in April 2018 as a part of the biodegradable waste management component under the Swachh Bharat Mission-Gramin.
- **Third**, the Waste to Energy Division of the Ministry of New and Renewable Energy's (MNRE) has notified a five-year-long **National Bioenergy Programme (2021-22 to 2025-26)**.
- **Fourth**, the Government of India and NITI Aayog have devised road maps to speed up the country's transition to environmentally friendly fuels and to boost the use of liquefied natural gas (LNG), hydrogen, and methanol.

Advantages of Biogas:

- **Environment Friendly**: It is a renewable and **environmentally friendly** energy source. **Less energy is required to produce Biogas** compared to extracting natural gas.
- Moreover, **Methane has higher greenhouse/warming potential than carbon-dioxide**. Hence, capturing and combusting methane to produce carbon-dioxide reduces the overall global warming, compared to a situation where methane is allowed to escape to the atmosphere.
- **Energy Diversification**: Biogas production reduces reliance on fossil fuels such as oil and coal.
- **Renewable**: The raw materials used in biogas production are renewable, as trees and crops will continue to grow. Manure, food scraps, and crop residue are always available raw materials, making it a highly sustainable option.
- **Reduce Soil and Water Pollution**: Producing biogas from waste reduces dumping of wastes in landfills. Overflowing landfills not only emit foul odours, but also allow toxic liquids to enter underground water sources. As a result, another advantage of biogas is that it may improve water quality. Furthermore, anaerobic digestion deactivates pathogens and parasites, making it effective in **reducing the prevalence of waterborne diseases**.

- Similarly, waste collection and management improve dramatically in areas with biogas plants. This, in turn, leads to improvements in the environment, sanitation, and hygiene.
- **Organic Fertilizers:** The byproduct of the biogas generation process is enriched organic digestate, which is an excellent supplement to or **replacement for chemical fertilisers**. The fertiliser discharge from the digester can accelerate plant growth and resistance to diseases, whereas commercial fertilisers contain chemicals that are toxic and can cause food poisoning, besides other harmful effects.
- **Promotes Circular Economy:** It is a simple and low-cost technology that promotes a circular economy. The technology used to generate biogas is relatively inexpensive. It is simple to set up and requires little investment when used on a small scale. Small biodigesters can be used at home, utilising kitchen waste and animal manure. After a while, a household system pays for itself, and the materials used in generation are completely free.
- Biogas can also be compressed to the quality of natural gas and used to power automobiles in large plants. Such plants require little capital investment and **create green jobs**.
- **Healthy Alternative for Cooking Fuel:** Biogas generators relieve women and children of the laborious task of gathering firewood. As a result, more time is available for other productive activities. More importantly, cooking on a biogas rather than an open fire keeps the family safe from smoke in the This aids in the prevention of deadly respiratory diseases.
- **Achieving SDGs:** According to the Linköping University's Biogas Research Center report, Biogas contributes to all 17 of the United Nation's Sustainable Development Goals.

Challenges in Production and Use of Biogas:

- **Lack of Technological Advances:** According to some experts, the systems used to produce biogas are inefficient. There is **lack of a new technology that can simplify the process**, make it accessible, and reduce the cost of doing so. This means that large-scale production to meet the needs of a large population is still impossible. Although current biogas plants can meet some energy needs, many governments are unwilling to invest in the sector.
- **Impurities:** Impurities remain in biogas after refinement and compression. Use of Biogas in automobiles can corrode the engine's metal parts. Corrosion would result in higher maintenance costs. The gaseous mixture is far more appropriate for kitchen stoves, water boilers, and lamps.
- **Temperature Limitation:** Biogas generation, like other renewable energy sources (such as solar and wind), is influenced by the weather. The ideal temperature for bacteria to digest waste is around 37°C. **Digesters in cold climates require heat energy** to maintain a constant biogas supply. Hence its use is limited to warm regions.
- **Suitability for Metropolitan Areas:** Another disadvantage is that industrial biogas plants only make sense where raw materials (food waste, manure) are abundant. As a result, **biogas generation is much better suited to rural and suburban areas**. The material used in biogas generation emit bad smells. Hence it is necessary that the plants are sufficiently far from the inhabited areas
- To power a 1MW power plant, at least 300 hectares of land is required, as minimum usable area. Large quantities of land must therefore be available, which poses a challenge in urban areas.
- **Transport:** If the plant is located far away, suitable means of transport will be needed to transport the raw materials and the final product. This will add to costs and emissions.

Conclusion

- Biogas can prove to be a sustainable alternative to fossil fuels. It is an ideal source to ensure energy security in the rural areas. It can also contribute to **decarbonization of the agriculture sector** through conversion of

methane. There is a need to invest in new technologies that can help scale up the use of Biogas in urban areas. This can help in achieving the climate targets in the long run.

PREPARING FOR GREEN ENERGY SHIFT IN 2022

- **Context:** The world is preparing itself for an **energy transition** from fossil fuel to green energy.
- Around 133 countries have pledged to a “**net-zero carbon emissions**” date. Most govts, corporates and civic entities have also shown determination to “**phase down**” and eventually phase out fossil fuels from their energy basket.
- However, world is still highly dependent on fossil fuels. The natural gas and oil prices have also been turbulent in the past year due to demand supply mismatches and geopolitics.

What should be the factors that need to be considered while designing policies for green transition?

- Any future energy policy would have to overcome a paradox b/w the aim for a clean energy system and the wide availability of fossil fuel resource.
- **Long and expensive:** Fossil fuel-based economic system will have to be redesigned and, in parts, rebuilt for clean energy to achieve scale.
- This will take decades and also require massive capital infusion.
- No country or multilateral institution can finance this transition individually. The **world will have to collaborate** otherwise the financing deficit will push back the transition even further.
- Fossil fuels will dominate the energy basket during this transition phase and their prices will be determined by the factors of **demand, supply and geopolitics**.
- “**OPEC plus**” will have a huge influence in the market. Countries which have huge resources of petroleum like Saudi Arabia, the Gulf nations, Iraq, Russia, etc will gain greater control over the petroleum market as private companies move beyond fossils under pressure from shareholders and regulators.
- **Geology of the minerals and metals required for clean energy is skewed towards the geology of petroleum reserves:** The Democratic Republic of Congo controls, for instance, more than 50% of the global supply of **cobalt**; **Australia** holds a comparably large share of the **lithium** market; and **China** bestrides the mining, processing and refining of **rare earth** minerals.
- This inequity in terms of resource availability will create new centres of energy power.
- **National self-interest and short-term political ambition will be the defining determinant of future energy supply relations:** Though US and China are into a Cold War and may even fall into the “Thucydides trap”. However, they are still coordinating on the energy front.
- **Example:** A few weeks ago, the two countries decided to coordinate the release of oil stocks from their strategic reserves to cool off the oil market.

Way forward:

- India must **maintain and nurture its relations with its traditional suppliers** of oil and gas. It must not assume that their role in the energy market will diminish.
- It should accelerate the build-up of the **storage capacity for oil and gas**; the former to hold strategic oil reserves, the latter to store gas for conversion to **blue hydrogen**.
- It must create a facilitative **ecosystem for the search and development of the minerals** and metals required for **clean energy**.
- A **single point executive** should be appointed which would act as a point of coordination for multiple stakeholders (*governments, regulators, farmers*) involved in this process and to develop common rules and standards.
- India should create a “**clean energy Aatmanirbhar supply chain**”
- It should also ensure that **green transition must not lead to import dependency** on raw minerals and manufactured inputs, especially from China.

THE DIFFICULTY WITH RENEWABLES

- **Context:** The target of having 500 GW of non-fossil generating capacity by 2030 may look impressive. But, it may prove to be elusive unless we can enhance our storage capacity.

Why is storage not a prominent challenge for the energy sector in current times?

- India has more than **200 GW of coal-based capacity**. The Central Electricity Regulatory Commission recognises **55% as the technical minimum**. It means that a 1,000 MW plant can run at 550 MW.
- The additional operating cost for running the plant at 55% capacity is allowed by the CERC as legitimate expenditure.

Why is there a need for a focus on storage capacity in the future?

- When India's renewable capacity goes up further, some of the coal-based units would generate at the **technical minimum** and the extra renewable energy would be used to charge the batteries.
- This stored energy could be used to supply electricity during the **non-solar hours**, especially when the coal-based generating units would be phased out gradually.
- Some **minimum coal-based generation** would be required for meeting a part of the **base load**.

What are storage options for India and hurdles faced by storage options?

- These options are **hydrogen-based storage, lithium-ion batteries and pump storage plants**.
- Hydrogen storage is feasible for **long-term storage**. One can use this stored energy, for example, in situations when coal mining goes down or when hydro generation depletes due to low reservoir levels.
- For day-to-day storage, batteries are still the ideal source. Though the **cost of batteries** has declined by about 80% over the last decade, it is still quite expensive. Moreover, the pace of decline in the cost of batteries has reached a plateau.
- Pump storage plants, India has a total capacity of about 4.7 GW but only 3.3 GW is functional. A survey of the CEA estimated a pump storage **potential of about 100 GW**.
- Pump storage plants have not really grown in India due to several factors, including **high investment costs, long gestation periods, non-remunerative pricing models and lack of adequate sites** having the topography that is required for operating a pump storage plant.

What will be other challenges for the renewable energy sector in India?

- The **financial condition of our distribution companies** will be another hindrance. The additional solar and wind capacity has to come from the private sector.
- No developer will invest unless there is some **credible payment security mechanism**.
- Problems with **land acquisition, and securing the right of way for laying down transmission lines** will also continue to hinder progress.

POWERING GROWTH IN AGRICULTURE SECTOR – EXPLAINED, POINTWISE

Context:

- Agriculture is the mainstay of Indian economy, despite the rise of manufacturing and services sectors. The sector contributes 15% to the GDP and provides livelihood to almost two-thirds of the total working population in the country. Agriculture is also the key source of raw materials for textile, sugar, food, medicine (primarily Ayurveda), and new age health and fitness products. Like other industries agriculture, especially irrigation, requires substantial energy inputs. According to estimates, agriculture uses 20% of electricity consumed at national level. Farmers have installed nine million diesel pump sets for groundwater irrigation. The high consumption of power in the agriculture sector is concerning especially in context of India's climate goals. The Government has set a target to eliminate the use of diesel in the sector by 2024, thus making the agriculture power sector green. Renewable energy (RE) has emerged as the most viable and sustainable option to address the environment concerns. It can also boost farmer income and conserve natural resources. The Government has taken several steps to empower farmers with RE Systems to make them energy self-sufficient. The Union Ministry of New and Renewable Energy (MNRE) administers several

Central Government-sponsored initiatives and facilitates associated research, design, development, and manufacturing to promote RE systems/devices in agriculture.

Renewable Sources to Power Agriculture Sector

Biogas

- Biogas is one of the most popular and versatile form of RE deployed extensively in rural India to serve many purposes. At present, over **five million biogas plants of various capacities are operational** in the country. Biogas plants generate the high calorific value (5,000 kcal per cu.m.) gas by **decomposition of organic materials** such as cattle dung, agricultural wastes, poultry droppings, night soil and municipal wastes.
- Biogas is used as **clean fuel** for cooking, lighting, motive power etc. It is also used in diesel engines to substitute diesel up to 80%, however, 100% replacement of diesel may be achieved by using **Biogas Engines**. The digested slurry from biogas plants, a by-product, is used as a **nutrient enriched organic manure for improving crop yield** and also **maintain soil health**.
- Biogas plants help with **waste management, reduce energy costs, improve soil fertility** and **curb carbon emissions**. Proper waste management on farms leads to better cleanliness and hygiene which improves the living conditions and health of the community. The biogas sector has helped **generate employment** for both skilled and unskilled rural people.
- Government of India is promoting installation of biogas plants by providing subsidy through two major schemes: **(a) New National Biogas and Organic Manure Programme (NNBOMP)** for biogas plants in size range of 1 cu.m. to 25 cu.m. per day; **(b) Biogas Power Generation (off-grid) and Thermal Energy Application Programme (BPGTP)** for setting up biogas plants in the size range of 30 cu.m. to 2500 cu.m. per day. This corresponds to power generation capacity range of 3 kW to 250 kW for thermal energy/cooling applications.
- **GOBARdhan**: The Government of India has launched a dedicated GOBARdhan (Galvanising Organic Bio-Agro Resources Dhan) scheme (Swachh Bharat Mission Grameen Phase-2) with twin objectives: **(a) To make the villages clean;** **(b) Generate clean power from organic wastes.** The scheme also aims to **increase income of farmers** by converting biodegradable waste into **compressed biogas (CBG)**. Technical and financial assistance under the scheme is attracting entrepreneurs for establishing **community based CBG plants** in rural areas. CBG is a purified form of biogas (98% purity of methane content) which makes it suitable for use as **green and clean fuel** for transportation or filling in cylinders at high pressure (250 bar). Scheme is also promoting rural employment and income generation opportunities for rural youth and others.
- Recently, Asia's largest CBG plant was inaugurated at Sangrur, Punjab with an FDI investment of INR 220 crores. CBG plant offers a much needed **substitute for burning crop stubbles**. The Sangrur plant can consume 300 tonnes of paddy straw every day. It is claimed that this plant will reduce the burning of stubble on 40,000-45,000 acres of fields, resulting in an annual reduction of 150,000 tonnes of carbon dioxide emissions. This will help India meet its CoP-26 climate change targets of reducing carbon emissions.

Biomass

- Biomass is another potential source of RE in rural India that provides power for household needs and irrigation. Biomass materials used for power generation primarily include bagasse, rice husk, straw, crop waste and agricultural residues. A study estimated surplus biomass availability at about 230 million metric tonnes per annum covering agricultural residues corresponding to a power potential of 28GW.
- MNRE has been implementing **biomass power/cogeneration programs** since mid-90s. Over 800 biomass power and bagasse/ non-bagasse cogeneration projects aggregating to over 10,206 MW capacity have been installed with central financial assistance from the Government of India.
- Power from biomass is generated by installing **biomass gasifiers** in proximity to the source of raw materials to reduce costs. In Bihar, a gasifier based business model for power generation and distribution uses rice-

husk as source material. A series of more than 80 biomass gasifier plants supplies power to nearly 300 villages and hamlets on payment basis. People generally use electricity for household, business lighting, charging of mobile phones and operation of irrigation pumpsets. Irrigation pumps powered by rice-husk electricity are cheaper, long lasting and more eco-friendly than diesel powered pumps. Irrigation facility at low cost allows farmers to increase crop intensity and also improves crop yield. It can help reduce the emission intensity of power use in agriculture sector.

Solar

- Government of India has made a strong commitment to explore and tap the vast potential of solar energy for driving the development of various economic sectors vis-à-vis meeting the targets of COP-26. Addressing the energy concerns in agriculture sector, a large number of solar devices/ equipments have been developed and deployed that include solar water pumps, solar dryers, solar dusters etc.

PM-KUSUM

- PM-KUSUM (*Pradhan Mantri Kisan Urja Surksha Evan Utthaan Mahaabhiyan*) scheme, launched in 2019, has emerged as a real game changer for energy security of farming community and greening the power use in agriculture sector. It is one of the largest initiatives of the world to provide clean energy to more than 35 lakh farmers and enhance their income. The scheme is being implemented through its three components with specific objectives.
- **Component A: Decentralised Grid Connected Solar Power Plants (Target – 10,000 MW):** This component intends to make farmers '*Urja Data*' by installing small solar power plant (up to 2 MW capacity) on **barren, fallow, pasture or marshy land**, and selling the generated power to electricity Distribution Companies (DISCOMS) on a pre-determined rate. In case of cultivated lands, solar panels may be set up in such a manner that chosen crops may grow under the panels. In addition to individual farmers, cooperatives, panchayats, and Farmer Producer Organisations (FPOs) can also be beneficiary under the scheme.
- A farmer may earn up to INR 25,000 per acre per year if the plant is installed by a developer; and up to INR 65,000 if the plant is installed individually through loan. The RBI has notified this component under **priority sector lending** that allows competitive rates and soft terms. The Union Government provides financial incentive to DISCOMS for purchase of power from such solar plants. About 73.45 MW cumulative capacity of small solar plants have been installed under this component so far, out of which 48.2 MW has been added during 2022.
- **Component B: Installation of Standalone Solar Powered Agriculture Pumps (Target – 20 lakh):** Under this component, individual farmers can replace their existing diesel pumps with solar pumps through Central Financial Assistance (30% of the benchmark cost) and State Government's subsidy (30%). The remaining 40% will be borne by the farmer, but bank finance for 30% is available, so farmer will have to initially pay only 10% of the cost.
- Groups of farmers, water user associations and community/ cluster-based irrigation systems are also eligible for financial assistance. All solar pumps installed under the scheme will be equipped with **remote monitoring systems** to facilitate their monitoring on a real time basis. Solar pumps will reduce the irrigation costs of about INR 50,000 per year for a 5 HP pump.
- **Component C: Solarisation of existing Grid-connected agriculture pumps (Target – 15 lakh):** Under this component, **exclusive power feeders** for agricultural purposes will be solarised by installing solar power plants of required capacity. The farmer will get **day time reliable power for irrigation free of cost** or at a tariff as fixed by their respective States.
- In addition to day time reliable power and increase in farmer's income, the scheme also has direct employment generation potential. According to estimates, each solar installation creates ~ 25 job years per MW. After complete implementation, the scheme will lead to an annual reduction of 1.38 billion litres in

diesel consumption per year, thus, reducing the import bill on account of petroleum products. The scheme will also lead to reducing carbon emissions by as much as 32 million tones per annum.

Solar PV (Photo Voltaic) Pumping Systems

- Among many solar devices/equipments developed so far, **solar water pumps** are the most popular ones with wide scale adoption across the country. Technically called Solar PV (Photo Voltaic) pumping systems, these are of great utility specifically in low head situations like water lifting from canals, shallow wells and dug wells, farm ponds etc. Solar PV systems can be best used with pressurized systems. Large size solar pumps in a canal command area to irrigate crops with sprinklers.

Conclusion

- Renewable Energy can play a vital role in providing power to agriculture sector. Due to immense potential and scope of renewable energy in agriculture sector, Government is focusing on decentralised RE systems and products. MNRE has recently released a framework (2022) to promote RE based applications that are used for earning livelihoods. A special focus on engaging all stakeholders, skill development and capacity building would scale up RE-based livelihood applications. However, financing for the end-users and enterprises would be critical to enable the adoption of solutions and scale-up of the sector. There has been a visible impact of renewable energy in the Indian agriculture during the last few years. RE based decentralised and distributed applications have benefitted millions of farmers in villages by meeting their energy needs in an environment friendly manner.



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