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**OCTOBER 2023**

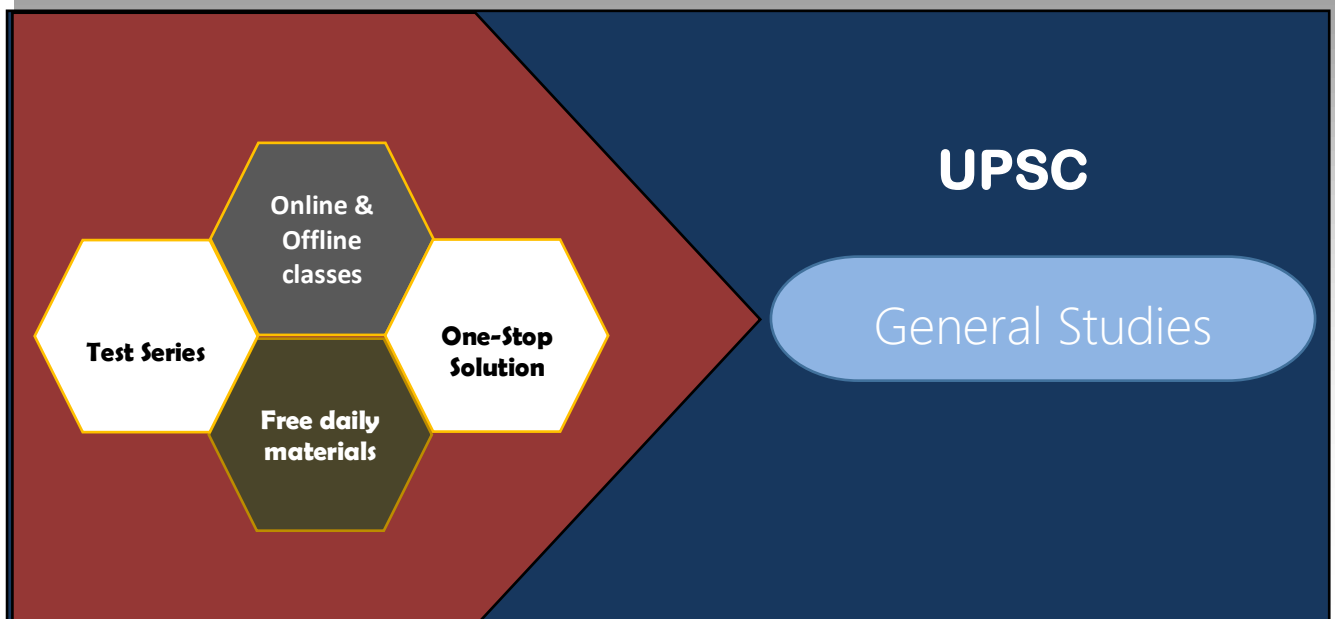
**Monthly current affairs magazine**

**SHIKSHA**

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**Articles of the day  
THE HINDU & INDIAN EXPRESS**



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

### 1. Battle of Colachel



- The Battle of Colachel in 1741, where King Marthanda Varma led the Travancore army against the Dutch East India Company, marked a significant turning point in India's history.
- It was the first instance of an Asian kingdom defeating a European power, effectively halting Dutch colonial ambitions in India.
- This battle also had profound implications for the formation of the unified Travancore state.

### Travancore's Complex Landscape Before 1741

- **Fragmented Territories:** Travancore, formerly known as Thiruvithamcode, was not a unified state but a network of south Malabar temple states and settlements, characterized by fragmented territories and chieftaincies.

- **Marthanda Varma's Leadership:** Born in 1705, Marthanda Varma ascended to power and set his sights on unifying the kingdom by annexing neighboring regions and eliminating internal opposition.
- **Territorial Expansion:** His ambition to expand threatened neighboring rulers in Kayamukulam, Kollam, Attingal, and others, leading them to seek Dutch intervention against Varma.
- **English Connection:** Varma's military relations with the English, who supplied weaponry, further strained Dutch-Travancore relations.

### Factors Leading to the Battle

- **Dutch Resistance:** The Dutch, perturbed by Varma's expansion and territorial disputes, prepared their forces in Colachel to counter Travancore.
- **Internal Conflicts:** Some Dutch officials, including Carl August Duijvenschot, defected to Travancore due to internal conflicts within the Dutch ranks.
- **Neighboring Rulers' Instigation:** Cochin and Kayamukulam rulers instigated the Dutch against Varma to safeguard their borders.

### Battle of Colachel: Unfolds

- **Dutch Aggression:** In February 1741, the Dutch initiated attacks on several villages and the Travancore army, committing atrocities and plundering the region.
- **Varma's Response:** Marthanda Varma deployed his military commander, Rama Iyer Dalawah, to confront the Dutch and protect his kingdom.
- **International Support:** The French supported Varma against the Dutch, and even the English participated in the siege of Colachel alongside Varma's forces.

### Siege and Surrender

- **Long Siege:** The continuous attacks and siege depleted Dutch supplies and manpower, leading to a dire situation.
- **Explosion and Surrender:** On August 5, 1741, a gunpowder explosion occurred in Colachel, devastating the Dutch. Two days later, they surrendered.
- **Outcome:** Only 24 Dutchmen survived, and Travancore captured 389 muskets, cannons, and swords.
- **Mukkuvar Community:** The Mukkuvar fishermen community, by refusing to assist the Dutch with fortifications and supplies, played a crucial role in Travancore's victory.

### Aftermath and Legacy

- **Resilience to Colonial Rule:** The victory at Colachel bolstered Varma's expansion plans and resistance to colonial rule.
- **Dutch Retreat:** The Dutch never fully recovered from their defeat and signed the Treaty of Mavelikkara in 1753, ending their dominance on the Kerala coast.
- **De Lannoy's Contribution:** Eustachius De Lannoy, captured during the battle, played a vital role in training Travancore's army and fortifying the region. He was conferred the title 'Valia Kappithan' (senior admiral) and served Travancore for 36 years.

## 2. Changing Landscape of Cyclone Formation

A study just published in the journal *Climate and Atmospheric Science* reported a sharp change in the potential for cyclones to form over the Arabian Sea during the late 1990s.

- Climate scientists employ a range of terms to describe observed changes in climate variables. These include;
- **Trend:** A trend implies that a climate variable is consistently changing in one direction, such as a continuous increase in temperature.
  - The term "anthropogenic trend" suggests that these changes are occurring within human lifetimes, although the specific timeframe for a variable to be considered a trend is not always clear.
- **Secular Trend:** This term is used when a variable has been increasing or decreasing for a certain period within a longer timeframe.
  - For instance, a variable may exhibit a secular trend if it has been steadily increasing for 30 years within a 100-year period.
- **Decadal Variability:** Decadal variability refers to oscillations from a positive to a negative phase that occur over the span of decades.
  - It is somewhat similar to the concept of a shift, but decadal variability is often cyclic in nature.
- **Shift:** A shift represents a rapid transition from one state to another, such as a sudden change in the amount of rainfall or temperature.
  - It can be an irreversible jump or a temporary change that later reverts to a previous state.

### About Cyclones:

- The word Cyclone is derived from the **Greek word Cyclos** meaning the **coils of a snake**.
- It was coined by **Henry Peddington** because the tropical storms in the Bay of Bengal and the Arabian Sea appear like **coiled serpents of the sea**.

- They are caused by atmospheric disturbances around a low-pressure area distinguished by swift and often destructive air circulation.
- They are usually accompanied by **violent storms and bad weather**.
- The air circulates inward in an anticlockwise direction in the Northern hemisphere and clockwise in the Southern hemisphere.

### Highlights of Recent study:

- **Climate scientists** are examining whether observed changes in **climate variables**, such as decreasing monsoon rainfall, increasing extreme rainfall, droughts, heatwaves, and cyclones, are trends, shifts, or decadal cycles.
  - These distinctions are important for how we plan for resources, such as **water, crops, and energy**.
- A new study suggests a shift in the **Arabian Sea's cyclogenesis potential**, which may be linked to a shift in the **Warm Arctic, Cold Eurasian pattern**. Global warming and regime shifts may also be involved.
- To better understand climate risks and plan for adaptation, scientists must investigate natural variability and how it is modulated by global warming.

### Impacts of Climate Change on Cyclone Formation:

- **Augmented Precipitation:** A warmer atmosphere can accommodate a greater amount of moisture, resulting in increased rainfall.
  - More rainfall leads to the release of more heat, ultimately fuelling stronger winds within the cyclone.
  - Recent studies have revealed that hurricane rainfall rates rise by at least 7% for every degree of warming.
- **Intensification of Cyclones:** A warming climate is anticipated to boost wind speeds, leading to a higher proportion of storms intensifying into formidable Category 4 or 5 hurricanes/ Cyclones.
- **Temperature Elevation:** The temperature of both the ocean and the atmosphere plays a pivotal role in the genesis of tropical cyclones.
  - cyclonic storms draw strength from the release of heat generated when ocean surface water evaporates and subsequently condenses into rainfall within the storm.
  - In a warming climate, a warmer ocean leads to increased evaporation, which, in turn, means more moisture available in the atmosphere.
- **Sea-Level Surge:** Elevated temperatures contribute to rising sea levels, increasing the depth of stormwater.
  - As sea levels rise, the storm's inundation reaches further inland.
- **Reduced Storm Speed:** The velocity of a cyclone can significantly impact the total amount of rainfall at a particular location.



- Slower-moving storms offer a more extended timeframe for rainfall accumulation.
- Although studies indicate a slowdown in storm speed, the underlying mechanisms remain unclear.
- **Fusion of Storms:** In an increasingly warming world, the convergence of two sizable tropical storms over any of the world's oceans could result in the formation of a colossal super-cyclone.

### Implications of changing landscape of cyclones and its impacts:

- **Increased destructions:** More powerful storms can inflict significantly greater harm to both people and economies.
  - The eastern part of India and Bangladesh were struck by Cyclone Amphan in May of 2020.
  - The storm killed 98 people in India, and required the evacuation of more than 5,00,000 people from Bengal and Odisha.
- **Unpredictable Predictions:** The rapidly evolving nature of storms has rendered conventional forecasting methods unreliable.
  - This unpredictability has had a direct impact on the ability to take adequate precautionary measures.
- **Rising Storm Frequency:** The number of hurricanes forming each year may undergo alterations in the future.
  - However, there is no universally accepted theory that comprehensively explains the current quantity of storms in the existing climate or forecasts how this might change in the future.
- **Shifting Impact Zones:** Recent research suggests that the areas where storms reach their maximum intensity are gradually shifting toward the Earth's poles.
  - This shift holds significant implications for the primary areas affected by these storms.
  - In 2021, Gujarat was faced with Cyclone Tauktae, the deadliest cyclone to hit the Arabian Sea in a decade.
  - Reports said that the tempestuous winds and rain killed approximately 70 people and more than 8,000 cattle, and damaged as many as 88,000 homes. 2,80,000 people were evacuated from the coastal areas.

### Way Forward:

Therefore the study highlighting the shift in cyclone-genesis potential over the Arabian Sea in the late 1990s serves as a compelling example of the complex interplay between climate patterns and regional climate phenomena. It underscores the importance of distinguishing between trends, shifts, and decadal cycles in climate research and their impact on resource planning and climate adaptation.

### 3. Sustainable water management is need of the hour



The theme for World Food Day (October 16) this year – ‘Water is Life, Water is Food’ – calls for urgent action in managing water wisely.

- Water is the essence of life, a resource that nourishes not just humanity but every ecosystem on this planet. However, as this year’s World Food Day theme rightly points out, water is also food. In the light of increasing climate extremes, managing this precious resource wisely has never been more urgent.

#### Impact of Climate Change on Crop Yields

- Rainfed rice yields in India are projected to decrease by 20% in 2050 and 47% in 2080 if no adaptation measures are taken.
- Irrigated rice yields are also expected to decline, with a projected decrease of 3.5% in 2050 and 5% in 2080 scenarios.
- Wheat yields could face substantial reductions, with a projected decrease of 19.3% in 2050 and 40% in 2080.
- Kharif maize yields are also at risk, with projected declines of 18% in 2050 and 23% in 2080.
- Climate change, without adequate adaptation measures, not only reduces crop yields but also lowers the nutritional quality of the produce.

#### Challenges associated with poor water management

- **Degraded Freshwater Supplies and Ecosystems:** Decades of mismanagement, misuse, and pollution have resulted in the degradation of

freshwater supplies and ecosystems. This has had a detrimental impact on the availability of clean water for agriculture and other essential needs.

- **Vulnerability of Small-Scale Producers:** Small-scale farmers, who represent over 80% of farmers globally, are especially vulnerable to the effects of climate shocks, land degradation, and water scarcity.
- **Land Degradation:** Approximately 40% of the world's land area is degraded, which means that it is less productive for agriculture. This further reduces the available land for farming, exacerbating the challenges faced by small-scale producers.
- **Climate Impacts:** Extreme weather events and variability in water availability are disrupting agricultural production. These changes are altering agro-ecological conditions and shifting growing seasons, making it challenging for farmers to predict and adapt to changing conditions.
- **Effects on Crop Productivity:** Changes in rainfall patterns and rising temperatures have adverse effects on crop productivity. Reduced yields and food availability can result from these climate-related factors, which can contribute to food insecurity and hunger.
- **FAO Initiatives:**
  - - Supports sustainable agrifood systems and climate-smart agriculture.
    - Initiated the farmer water school programme in Uttar Pradesh.
    - Supported the Andhra Pradesh Farmer Managed Groundwater Systems project which benefits 638 habitations with hydrological monitoring.
- **IFAD's Focus:**
  - - Prioritizes climate change adaptation in its core strategies.
    - Invests in preserving soil health, water resources, and integrating modern technologies with indigenous systems.
    - Implements projects in Maharashtra, Odisha, Uttarakhand, Nagaland, and Mizoram emphasizing climate-resilient practices.
- **WFP Collaboration:**
  - - Partners with the Government of Odisha focusing on women farmers.
    - Employs solar technologies and promotes millet-value chains for climate resilience.

## Steps needed

- **Overall Strategy:** Prioritize political commitment and concrete investment for global food and nutrition security. Promote innovative technologies to enhance farmer productivity.
- **Climate Change Adaptation:** Formulate strategies to adapt to climate change. Foster resilience against environmental and economic shocks.
- **Agricultural Practices:** Implement sustainable and economically feasible irrigation and water management techniques. Minimize the climate footprint in agricultural production. Address bio-hazards and environmental pollution.
- **Infrastructure and Supply Chain:** Prioritize sanitation and potable water supply for rural areas. Advocate for efficient food and water recycling methods.
- **Regulation and Management:** Strengthen sustainable and fair water regulations. Improve management, access, and ownership systems for resources.
- **UN's Collaborative Projects:** Collaborate with the Indian Government on projects such as Solar 4 Resilience, Secure Fishing, and the revival of millets for renewable energy and food security.

## Conclusion

- Climate change is making water more scarce and unpredictable. Droughts, floods, and other extreme weather events are becoming more common. World Food Day is a reminder that we all have a role to play in achieving food and nutrition security for all. By working together, we can create a world where everyone has enough to eat and drink.

## 4. NCERT panel suggests only 'Bharat' in Textbooks

- In 2022, the Social Science committee of the National Council of Educational Research and Training (NCERT) proposed a shift from 'India' to 'Bharat' in Social Science textbooks up to Class 12.
- This suggestion has rekindled the age-old discussion about the nation's name, particularly after the G20 Summit's reference to the "President of Bharat."

## Bharat's Historical Roots

- **Puranic Literature and Mahabharata:** The name 'Bharat,' 'Bharata,' or 'Bharatvarsha' finds its origins in Puranic literature and the epic Mahabharata. It refers to the land between the southern sea and the northern abode of snow.

- **King Bharata:** Legend has it that King Bharata, an ancient figure, was the ancestor of the Bharatas, a Rig Vedic tribe, making him the forefather of the entire subcontinent's populace.

### India' and 'Hindustan'

- **Hindustan's Origins:** 'Hindustan' likely evolved from 'Hindu,' the Persian equivalent of Sanskrit's 'Sindhu,' influenced by the Achaemenid Persian conquest of the Indus valley in the 6th century BCE. The suffix "stan" emerged around the 1st century CE, creating "Hindustan."
- **Greek Influence:** The Greeks transliterated 'Hind' as 'Indus,' and by Alexander the Great's 3rd-century BC invasion, 'India' referred to the region beyond the Indus.
- **Mughal Era:** In the 16th century, 'Hindustan' described the entire Indo-Gangetic plain, encompassing the Mughal emperor's territories across South Asia.
- **British Colonial Impact:** British maps in the late 18th century started using 'India,' while 'Hindustan' lost its association with the whole of South Asia, reflecting evolving perspectives and colonial influence.

### Constituent Assembly's Decision

- **Article 1 of the Constitution:** Article 1 of the Indian Constitution begins with the phrase, "India, that is, Bharat, shall be a Union of States."
- **Debate and Perspectives:** During the Constituent Assembly discussions, there were differing opinions on emphasizing 'Bharat' as the primary name for the country.
- **Pro-'Bharat' Arguments:** Some argued that 'India' was merely an English translation of 'Bharat,' citing the example of the Irish Constitution, where "Eire" is used in the Irish language, with "Ireland" in English.
- **Historical and Cultural Significance:** Supporters of 'Bharat' highlighted the civilizational and cultural connotations it carried, emphasizing the need for a name that befits India's history and heritage.
- **Dr. BR Ambedkar's Perspective:** Ultimately, the formulation 'India, that is, Bharat,' was adopted. Dr. BR Ambedkar, Chairman of the Constituent Assembly's Drafting Committee, downplayed the civilizational debates and emphasized the pressing work ahead.

### Conclusion

- The ongoing debate surrounding 'Bharat' and 'India' reflects the complexities of identity, history, and linguistic heritage in the nation.

- While 'Bharat' has deep roots in ancient Indian texts, 'India' carries historical and colonial significance.
- The Constituent Assembly's choice of 'India, that is, Bharat,' signifies a delicate balance between honoring heritage and embracing a forward-looking identity for the nation.

## GS 2 : Polity, Governance, International Relations

### 1. Electoral Bonds: Benefits, Scheme

**Electoral Bonds** are part of electoral reforms to ensure transparency and accountability in electoral finance. India is one of the most Vibrant Democracies in the world, which ensures free and Fair Elections. However, there are also many challenges to ensuring the fairness of elections and Electoral Bonds were introduced from time to time.

As per the government, Political parties were receiving most of their funds through anonymous donations which are shown in cash. Thus Electoral Bonds were aimed at cleansing the system of political funding in India. In the context of UPSC exam, the Electoral Bonds topic is extremely important as it is mentioned under the General Studies papers

#### Electoral Bond

Electoral Bonds are financial instruments that can be used by a person who is a citizen of India or incorporated or established in India to donate to political parties. Electoral Bonds were introduced during the 2017 union Budget. Such bonds, which are sold in multiples of Rs 1,000, Rs 10,000, Rs 1 lakh, Rs 10 lakh, and Rs 1 crore, can be bought from authorized branches of the State Bank of India.

#### Electoral Bonds

The donor can give the bond to any political party. In turn, political parties have to redeem Electoral Bonds within 15 days. Only the Political Parties registered under Section 29A of the Representation of the People Act, 1951 (43 of 1951) and which secured not less than one per cent of the votes polled in the last General Election to the House of the People or the Legislative Assembly of the State, shall be eligible to receive the Electoral Bonds.

- The Electoral Bonds shall be encashed by an eligible Political Party in India only through a Bank account with the authorized bank.
- The bonds will be available for purchase for a period of 10 days each at the beginning of every quarter, i.e. in January, April, July, and October, as specified by the Central Government.
- An additional period of 30 days shall be specified by the Central Government in the year of the Lok Sabha elections. The main aim of the Electoral Bonds was to bring transparency to electoral funding in India.

### **How does Electrol Bond Works?**

- Notified banks are chosen only.
- These banks will issue Electoral Bonds.
- The donor buys Electoral Bonds using digital payments/cheques
- Donors are given part of the bond within a certain timeframe
- The party deposits the bond in an account, and its details are with the electoral commission

### **How Electoral Bonds will ensure transparency?**

Now that Electoral Bonds are introduced, all the donations made to a party would be accounted for in the balance sheets without exposing the donor details to the public. The amount of money that a political party could accept in cash from anonymous sources has been reduced from Rs 20,000 to Rs 2,000. Thus it will ensure black money is not used for funding elections, and the use of Electoral Bonds in its place will ensure transparency.

### **Benefits of Electoral Bonds**

First introduced in India in 2018, electoral bonds have sparked significant discussions regarding their effectiveness and potential benefits. The major benefits of Electoral Bonds are as follows:

- It ensures transparency and helps the political parties to operate in a transparent way with the election commission, general public, and regulatory authorities at large.
- Donations done through the Electoral Bonds will be credited only to the party bank account.
- Cash will not be encouraged, as the purchase will be possible only through a certain number of notified banks and also through digital payments and cheques.
- Groups of individuals, NGOs, individuals, and other trusts can donate via Electoral Bonds without disclosing their details. In this way, the identity of the donor will be safe.

## Issues with Electoral Bond scheme?

The main criticism of the Electoral Bonds scheme is that it does the exact opposite of what it was meant to do: bring transparency to election funding.

- As per the expert's view that if the Electoral Bonds scheme had been introduced to bring about greater transparency, the government must not restrain from allowing details of such donations to be made public.
- While Electoral Bonds provide no details to the citizens, the said anonymity does not apply to the government of the day, which can always access the donor details by demanding the data from the State Bank of India (SBI).
- The majority of funds received by dominant political parties and shareholders of a company will not know to whom the fund is being donated.
- Before the Electoral Bonds scheme was announced, there was a cap on how much a company could donate to a political party: 7.5 per cent of the average net profits of a company in the preceding three years. However, the government amended the Companies Act to remove this limit, opening the doors to unlimited funding by corporate India, critics argue.
- The Finance Act 2017, which introduced the system of Electoral Bonds for the purpose of electoral funding, was passed as the Money Bill.
- Through a constitutional amendment to the Finance Act 2017, the Union government has exempted political parties from disclosing donations received through Electoral Bonds.
- Before the introduction of Electoral Bonds, political parties had to disclose details of all their donors who have donated more than Rs 20,000.
- According to transparency activists, the change infringes on the citizens 'Right to Know and makes the political class even more unaccountable.



## 2. The concerns of using Aadhaar in welfare



Recently September 2023 report by Moody's Investor Service raised concerns like Security and Privacy Vulnerabilities on aadhar. How instead of centralised biometric systems like India's Aadhaar, we should have decentralized digital identity systems, but India has refuted the claims.

### The History of Aadhaar:

- Concept introduced in 2009 by UIDAI.
  - The first Aadhaar numbers were issued in September 2010 in the state of Maharashtra. The program was gradually rolled out to other states and union territories.
  - In 2016, the Aadhaar (Targeted Delivery of Financial and Other Subsidies, Benefits and Services) Act was passed by the Indian Parliament, providing a legal framework for the Aadhaar project.
- 
- **Legal challenges put to rest in Puttaswamy Case.**
  -

- SC upheld its constitutionality
- Restrictions on Mandatory linking of Aadhar.
- Must be used on a voluntary basis for purposes other than government subsidies and welfare programs.
- Section 57 Struck Down (that allowed private companies to use Aadhaar for verification.)
- Limited the storage of Aadhaar authentication records to a maximum of six months.

### Government's Favorable Stance on Aadhaar:

- **Welfare Schemes:** The government has advocated Aadhaar-based authentication for programs like the Public Distribution System (PDS) and government-to-citizen cash transfer initiatives like wage payments in MGNREGA. This approach aims to remove ghosts (those accessing benefits fraudulently) and fakes (those not entitled to benefits) from the system.
- **Savings Claims:** The government has claimed significant savings in welfare schemes through the use of Aadhaar by eliminating duplicate and unauthorized beneficiaries, reducing leakages, and improving the efficiency of cash transfers.

### Challenges and Concerns:

- **Authentication Problems:** Critics point out that Aadhaar-based authentication poses several issues. In the case of PDS, quantity fraud (where beneficiaries receive less than their entitlement) is a significant concern, which Aadhaar does not address.
- **Authentication Failures:** Authentication failures are common, especially in rural areas with unreliable internet connectivity and fading fingerprints among manual laborers. These authentication failures result in beneficiaries being denied their entitlements.
- **Data on Authentication Errors:** The lack of transparency regarding data on authentication attempts and errors raises concerns about the system's effectiveness and accountability.
- **Payment Failures:** In cash transfer programs, any errors, such as misspellings or incorrect Aadhaar linkage, can lead to payment failures. Workers often lack awareness of which bank account their Aadhaar is linked to, leading to wage diversions.
- **Security Concerns:** Banking correspondents using Aadhaar-enabled Payment Systems (AePS) operate without proper accountability, potentially compromising the security of individuals' bank accounts. Unauthorized withdrawals and enrollments in government programs without consent have been reported.

- **Misleading Savings Claims:** Researchers have challenged the government's claims of substantial savings due to Aadhaar in MGNREGA, pointing to insufficient funds as the main cause of wage payment delays.
- **Privacy Vulnerabilities:** A recent Moody's report highlighted concerns about centralised ID systems like Aadhaar, citing security and privacy vulnerabilities. These concerns have sparked debates about the need for more decentralised digital identity systems.

#### **Current Impasse:**

- **Resistance and Deletions:** The government's efforts to make Aadhaar-based payments mandatory in MGNREGA have faced resistance from workers and field officials. Job card deletions, often on the grounds of being "ghosts," have raised accountability concerns.
- **Voter ID Linkage:** Critics worry about the government's intention to link Aadhaar with voter IDs, given the perceived dilution of accountability in welfare programs due to Aadhaar.

### **3. Global Dispute Settlement**

Recently concluded G-20 Declaration reiterated the need to pursue reform of the World Trade Organization (WTO) to ensure a fully and well-functioning dispute settlement system accessible to all members by 2024.

#### **WTO's dispute settlement system**

**Crown jewel- Dispute settlement is the central pillar of the multilateral trading system, and the WTO's unique contribution to the stability of the global economy.**

- **Rules based system-**Without a means of settling disputes, the rules-based system would be less effective because the rules could not be enforced.
- **Rule of law-** The WTO's procedure underscores the rule of law, and it makes the trading system more secure and predictable. The system is based on clearly-defined rules.
- **Two tier system-**
  - Dispute settlement system
  - Appellate body- It hears appeals from WTO panels.
- **Appellate body-** From 1995-2019 it has upheld the international rule of law by holding powerful countries accountable for international law breaches.

- **ISDS-** Investor State Disputes Settlement (ISDS), a part of Bilateral Investment Treaty is the principle means to settle international investment law disputes.
- **International arbitration-** The ISDS mechanism permits companies to drag governments to international arbitration without exhausting the local remedies.
- **Compensation-** It also allows them to claim huge amounts as compensation citing losses they suffered due to reasons, including policy changes.
- **Investment pact-** The contentious ISDS mechanism already has been incorporated by investment pact by the EU and Canada.
- **India in ISDS-** India has had a chequered history with ISDS, with 5 adverse awards: 4 in favour, and several pending claims.

A BIT is an agreement between two countries regarding promotion and protection of investments made by investors from respective countries in each other's territory.

### Benefits of appellate review

- **Rulings-** The dispute settlement system has issued over 493 rulings since its establishment in 1995 whereas International Court of Justice (ICJ) has dealt with only around 190 cases since 1947.
- **Crucial role-** The appellate body has been crucial in ensuring coherence and predictability in rulings, ensuring confidence in the WTO dispute settlement process.
- **Critical facet of ISDS mechanism-** It operates through ad hoc or one-off arbitration tribunals without any appellate review, it is also present in India's BITs and few free trade agreements.
- **Absence of an appellate review mechanism-** It has meant that inconsistent and incoherent decisions and legal reasoning dot the landscape of international investment law.
- This has caused instability and improbability for states and foreign investors, making the regime chaotic.
- **Rectify errors-** An appellate review mechanism will allow for rectifying errors of law and harmonising diverging interpretations.
- **Certainty-** It will have the power to uphold, modify, or reverse the decision of a first-tier tribunal and thus bring coherence and consistency, which, in turn, will infuse predictability and certainty into the ISDS system.
- **Better than annulment proceedings-** The appellate mechanism will also be superior to getting an ISDS award set aside on limited procedural grounds in a court at the seat of arbitration.

Annulment proceedings only apply to arbitrations administered by the International Centre for Settlement of Investment Disputes – an institution India is not a member.

It can only address limited issues, such as the improper constitution of an arbitration tribunal or corruption but cannot correct errors in legal interpretation.

### **What are the issues with WTO's dispute settlement body?**

- **Dysfunctional-** WTO's dispute settlement system, conceived as a two-tier panel cum appellate body structure, has been dysfunctional since 2019.
- The USA has blocked the appointment of appellate body members.
- The U.S. seems inclined towards the dejudicialisation of international trade law, an approach whereby countries take back control from international courts and tribunals.
- **Adjudication-** However with the adjudication in national courts, the appellate review process at the international level serves as an essential check on the interpretation and application of law and ensures consistency.

### **What is India's stand?**

- **Article 29 of BIT-** Although India has not made a formal statement, India presumably supports the idea of an appellate review in the ISDS because *Article 29 of the Indian model BIT* talks of it.
- **India's interest-** Given India's concerns about inconsistency and incoherence in the ISDS system, supporting the creation of an appellate review mechanism will be in India's interest.
- **Taking a stand** - India will have to take a stand during the ongoing investment treaty negotiations with the European Union, which is championing the creation of an appellate review mechanism for investment disputes.
- **Investor confidence-** Since India's quest has always been to establish a rule-based global order, it should support an appellate review which will usher in greater confidence for states and investors in international investment law.
- **Restore WTO appellate body-** India should also push for the restoration of the WTO appellate body towards achieving the goal of a fully and well-functioning dispute settlement system at the WTO.

#### 4. Takeaways from Bihar caste survey

- The Bihar caste survey was released by the state government on October 2.
- The recent release of the Bihar caste survey results has unveiled a complex tapestry of demographics in the state, bringing to the forefront the intricate interplay of caste politics. With EBCs and OBCs cumulatively constituting more than 63% of the population, the dynamics of political representation and reservation are poised for transformation.

#### Caste-based survey

- A caste-based survey is a comprehensive data collection initiative launched by the Bihar state government in India.
- The primary objective is to gain a deeper understanding of the living conditions and economic status of different communities, especially those that have historically faced marginalization and socio-economic disadvantage.

#### Key Findings of the Survey

- **Demographic Breakdown:**
- The survey reveals a diverse demographic landscape in Bihar.
- The EBCs, comprising 36.01% of the population, emerge as the largest social group,
- Followed by OBCs at 27.12% and
- Scheduled Castes (SCs) at 19.65%.
- Scheduled Tribes (STs) account for a mere 1.68%, primarily due to the bifurcation of Jharkhand in 2000.
- The unreserved category constitutes 15.52% of the population.
- **Religious Composition:**
- Bihar's population, according to the survey, stands at 13,07,25,310, compared to the 10.41 crore recorded in the 2011 census.
- Hindus make up 81.99% of the population, while Muslims account for 17.72%. Other religious denominations have minuscule populations.

#### Survey Execution

- The survey was undertaken following unanimous agreement among political parties in Bihar.
- It was conducted in two phases.
  1. The first phase involved a household count from January 7 to 21.
  2. The second phase, initiated on April 15, aimed to collect data on castes, religions, economic backgrounds, and family size.
- The survey faced legal challenges initially but was allowed to proceed after being labeled a survey rather than a census.

### Significance of Survey Findings

- **Changing Political Landscape:** The survey highlights the evolving political landscape, where identity politics based on reservation and backward caste assertion is losing its grip. This shift has been influenced by the BJP's outreach to OBCs through Hindutva and welfare measures.
- **Opportunity for Opposition:** The survey results could provide an opportunity for the JD(U)-RJD alliance and other opposition parties to mobilize backward classes, potentially pressuring the BJP to conduct a nationwide caste census.
- **Demand for Quotas:** The survey data may fuel demands to increase the OBC quota beyond 27% and introduce a quota within a quota for EBCs, especially in light of the Justice Rohini Commission's pending recommendations.
- **Reservation Ceiling Debate:** The survey's findings could reignite the long-standing debate over the 50% reservation ceiling imposed by the Supreme Court, which has hindered states from expanding reservations.

### Impact on Upcoming Elections

- The caste survey findings are likely to have a significant impact on the upcoming Lok Sabha and Bihar Assembly elections.
- With EBCs, OBCs, and SCs representing over 82% of Bihar's population, these groups will be key electoral battlegrounds.
- Leaders like Lalu Prasad and Nitish Kumar are still seen as primary representatives of these communities, while the BJP faces the challenge of navigating Bihar's complex caste dynamics.

### Rationale Behind a Caste Census

- **Incomplete Data:** The standard Census focuses solely on SC and ST data, leaving a substantial void in comprehending the socio-economic aspects of OBCs and their subdivisions.

- **Targeted Policies:** A lack of comprehensive data obstructs the creation of effective policies tailored to the distinct requirements of different caste groups.
- **Equitable Development:** The caste census has the potential to reveal disparities within various castes, enabling customized development strategies for historically marginalized communities.
- **Historical and Contemporary Insights:** With deep historical roots, the caste system's evolution can be better understood through a comprehensive census that captures both historical and contemporary dynamics.
- **Constitutional Clarification:** Legal scrutiny over caste surveys provides clarity on the authority to conduct such initiatives, delineating roles between state and central governments.
- **Evidence-Based Decision-Making:** In a data-centric era, decisions grounded in concrete socio-economic data hold greater potential for equitable and effective governance.

## Conclusion

- The Bihar caste survey has unveiled a complex web of caste demographics that will shape the state's political landscape. It has the potential to rekindle debates on reservation policies, mobilize backward classes, and influence electoral outcomes. As Bihar prepares for crucial elections, the survey's impact on political strategies and alliances remains to be seen.

## 5. Social Audit Unit (SAU) under MGNREGA

The Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA) scheme has been recently alleged of high rate of corruption by the **Social Audit Unit (SAU)**.

### Misappropriation of funds in MGNREGA scheme:

- The SAUs of the MGNREGA scheme have flagged misappropriation of funds of 27.5 crore in the ongoing financial year, but **merely 13.8%** has been recovered.
  - SAU is a specialized **entity** or **department** established by the government agencies, nonprofit organizations, or corporations to conduct **social audits**.
- According to the Ministry of Rural Development (**MoRD**), **less than 14%** of the amount flagged by the SAUs has been recovered in this financial year.



- Despite having tools to fight corruption, like SAUs, MGNREGA lack efficient methods to **recover stolen money**.

### **Inadequate Monitoring of Funds Recovery:**

- Some states and Union Territories like Gujarat, Goa, Meghalaya, Puducherry, and Ladakh have repeatedly reported having **no cases of misappropriation** and **no funds recovered**.
- Some states like **Telangana** have identified numerous cases of misappropriation but the **rate of recovery is low**.

### **About Social Audit:**

- It is the process of **examination** and **assessment** of a programme or scheme.
- It **compares** official records with actual ground realities.
- It is a powerful tool for **social transformation, community participation, and government accountability**.
  - **MGNREGA** has mandated a social audit of all works executed under the scheme.

### **Functions of SAUs:**

- Their sole **responsibility** is to flag cases of **malpractice**.
- State governments are responsible for **recovery** of the **money**, and reprimanding the responsible officials.

### **Problems associated with the SAUs:**

- Lack of **funds**.
- Deficiency of **training** or adequate **personnel**.
- **Dismal recovery rate** threatens the **credibility** of the audit process.

### **Benefits of Social Audit:**

- **Informs** and **educates people** about their rights and entitlements.
- Provides a collective **platform** for **people** to ask queries, and express their **needs** and **grievances**.
- Promotes **people's participation** in implementation of programmes.
- Brings **transparency** and **accountability** in government schemes.
- Strengthens **decentralised governance**.

### Audit as per the Scheme Rules, 2011:

- These rules were prepared by **MoRD** in consultation with the Comptroller and Auditor General (CAG) of India.
- They are also called the Mahatma Gandhi National Rural Employment Guarantee Audit of Schemes Rules, 2011.
  - **Section 17** of the **Act** states that the **gram sabha** shall monitor the execution of works under the scheme.
- These rules define the **process** of **social audit** and the **responsibilities** of the Social Audit Unit (SAU), **state government** and the field functionaries of MGNREGA.

### Social Audit vs. Financial Audit:

- **Financial audits** involve inspecting and assessing financial transactions in an organization to provide a true picture of its profits, losses, and financial stability.
- **Social audits** focus on the performance of a programme in fulfilling its **social objectives** through a consultation with beneficiaries, community members, and government officials.
  - It verifies the **information** obtained with **documents** and **physical evidence**.
  - Thus, social audits examine and assess the **social impact** of specific programmes and policies.

### About MGNREGA:

- It was launched in **2005** with the aim to improve the **purchasing power** of rural people, primarily **semi** or **un-skilled work** to people living below poverty line in rural India.
- It attempts to **bridge** the **gap** between the **rich** and **poor** in the country.
- It provides a **legal guarantee** for **100 days** of **employment** in every financial year to adult members of any **rural household** willing to do public work-related **unskilled manual work** at the statutory minimum wage.
- The Ministry of Rural Development (**MoRD**), monitors the implementation of this scheme along with the concerned state governments.
- Under the scheme, **1/3<sup>rd</sup>** of the stipulated workforce must be **women**.

## 6. Concerns of Aadhaar

The international credit rating agency, Moody's Investor Service, released a report, 'Decentralised Finance and Digital Assets' highlighting the vulnerabilities posed by centralised ID systems like Aadhaar.

## Report say about Aadhaar

- **Centralised infrastructure-** The agency has red-flagged security and privacy risks to users of such centralised systems where a single entity controls and manages a user's identifying credentials.
- It advocates for decentralised digital identity systems instead of centralised biometric systems like India's Aadhaar.
- **Authorisation issues-** The report states that the Aadhaar system faces hurdles, including the burden of establishing authorisation and concerns about biometric reliability.
- **Service denials-** It often results in "service denials" for users and are unreliable in hot and humid conditions.

## India's response to the report

- **Trusted digital ID-** The government has strongly refuted these claims, terming Aadhaar as "the most trusted digital ID in the world."
- **MGNREGA database-** The government stated that the authors of the report are unaware that the seeding of Aadhaar in the MGNREGS database has been done without requiring the worker to authenticate using their biometrics.
- **Direct credit-** Even payment to workers under the MGNREGA scheme is made by directly crediting money in their account without worker's biometric authentication.
- **Contactless authentication-** The Moody's report also ignores that biometric submission is also possible through contactless means like face authentication and iris authentication.
- The option of mobile OTP (One-Time Passcode) is also available in many use cases.
- **International agencies-** The IMF and the World Bank, have lauded Aadhaar and several nations have also engaged with UIDAI to understand how they may deploy similar digital ID systems.
  - World Bank's report on G-20 Global Partnership for Financial Inclusion (GPII), stated that the implementation of DPis such as Aadhaar, Jan Dhan bank accounts, and mobile phones, has played a critical role in enhancing ownership of transaction accounts.
- **Citizen support-** The government emphasised that over a billion Indians have also expressed their trust in Aadhaar by using it to authenticate themselves over 100 billion times.
- **Lack of research-** The report does not cite primary or secondary data or research in support of the opinions presented in it. The investor service did not make any attempt to ascertain facts regarding the issues raised by it from the Authority.

- **Robust privacy protection-** Parliament has laid down robust privacy protections in the law governing the Aadhaar system and these systems are certified as per international security and privacy standards.

### Rationale behind Aadhaar

- **Unique identifiers-** During enrolment for Aadhaar, demographic details of individuals along with their biometric fingerprints and iris scans are collected as they are considered to be unique identifiers of individuals.
- **Eliminate ghost individuals-** Aadhaar aims to ensure that all residents have a unique ID and to curb corruption in accessing welfare programmes by eliminating “ghost” and “fake” individuals.
  - An individual is called a ‘ghost’ if they access rations in the name of a dead person, and a ‘fake’ if they access rations even though they are not officially entitled to it.
- By removing ghosts and duplicates, the government has claimed substantial savings in welfare schemes through the usage of Aadhaar.
- **Direct Benefit Transfer-** The government favours Aadhaar for several other government-to-citizen cash transfer programmes.

National Payments Corporation of India acts as a clearing house of Aadhaar-based payments.

- **Financial address-** Aadhaar becomes the financial address of the individual and cash transferred by the government gets deposited to the last Aadhaar-linked bank account.

### Why is Aadhaar use concerning?

- **Quantity fraud-** Several organisations and researchers have provided evidence that Aadhaar has no role in either detecting or preventing quantity fraud.
  - Example- Entitlement for a ration card holder is 35 kg of rice but the dealer only gives 30 kg
- **Multiple visits-** In many rural areas, people have to make multiple trips to ration shops, to authenticate with no guarantee that the authentication will work.
- **Service denials-** Lack of reliable internet, fading fingerprints among daily wage workers, lack of phone connectivity to get an OTP etc. lead to denials.
- **Vulnerable-** Older women, people with disabilities, or those living in remote areas are more prone to hardships and exclusions due to such stringent biometric authentication requirements.

- **Lack of data-** The data on the number of attempts to authenticate and the extent of authentication failures are not public.
  - Comptroller and Auditor General of India (CAG) report 2022 states that UIDAI did not have a system to analyse the factors leading to authentication errors.
- **Authentication failure-** In Aadhaar-based payments, error in any step results in payment failures. Different spellings in the job card and in the Aadhaar database can result in authentication failures.
- **Lack of financial literacy-** Most workers are unaware which account their Aadhaar was last linked to as financial institutions in rural areas tend to coerce workers to link their Aadhaar with bank accounts without consent.
  - For example, Aadhaar payments of people got redirected to Airtel wallets causing much confusion.
- **Misdirected payments-** Misdirected payments through Aadhaar are difficult to detect and are nearly impossible to resolve.
- **Delayed payments-** The government has also claimed that using Aadhaar in MGNREGA has reduced delays in wage payments.
  - A recent working paper using 31 million MGNREGA wage transactions demonstrates no statistical evidence of these claims and points to lack of sufficient funds as the reasons for delays.
- **Security concerns-** Banking correspondents are using the Aadhaar enabled payment system (AePS) without any accountability framework.
  - Example- The Rs.10 crore scholarship scam in Jharkhand in 2020.

## 7. India Ageing Report 2023

UNFPA (United Nations Population Fund) India, in collaboration with the International Institute for Population Sciences (IIPS) has recently released its **India Ageing Report 2023**.

- Decadal growth rate of the elderly population of India is currently **estimated to be at 41%**.
- In 2022, the number of people above **60 years of age** in India was **10.5% of its population** and by 2050 the share of the elderly in **India's total population** can reach more than 20%.
  - This number will reach over **36%** by the end of century.
- Population aged **60 or 65 years** and above are usually referred to as '**old**'.
- The **number of elderly** will be higher in **proportion** to the number of children (0-15 years) by 2046.
- The **number of working-age** people in the age group of **15-59 years** will decrease.

**Life expectancy of women:**

### Life expectancy at 60 years differentiated by gender across states

- **Women will live longer** than men, due to which the **number of older women** will be more than **older men**.
  - Majority of them will be **rural women**.
- In India, a **man aged 60 years** can live another **18.3 years**, while women can live **19 years**.
  - There will be predominance of **widowed** and **highly dependent** very old women.
- In 1991, there were **930 elderly women** per **1,000 men** and after 1991, the ratio started to change and will continue to do so.
  - The report estimates that **by 2031**, there will be **951 men for 1,078 women**.

### Economic situation of elders in India:

- More than **40% of the elderly in India** are in the **poorest wealth quintile**, with about 18.7% of them living without an income.
- **Older women** are more likely to be **widowed**, living alone, with **no income** and with fewer assets of their own, and **fully dependent** on family for support.

### Variations between states:

- Most States in the **southern region** and **northern States** such as **Himachal Pradesh** and **Punjab** reported a **higher share of the elderly population** than the **national average** in 2021.
- **States reporting higher fertility rates** and **lagging in demographic** transition, including Bihar and Uttar Pradesh, expect to see an **increase in the share of the elderly population** between 2021 and 2036 but the level will remain lower than the Indian average,
- In the **southern region**, the **old-age dependency ratio** (elderly people per 100 people between 15 and 59 years) was **higher than the national average** at around 20
- In **western India** old-age dependency ratio was at around 17.
- **Union Territories** (13) and the **northeastern region** (13) reflected **lower old-age dependency ratios**.

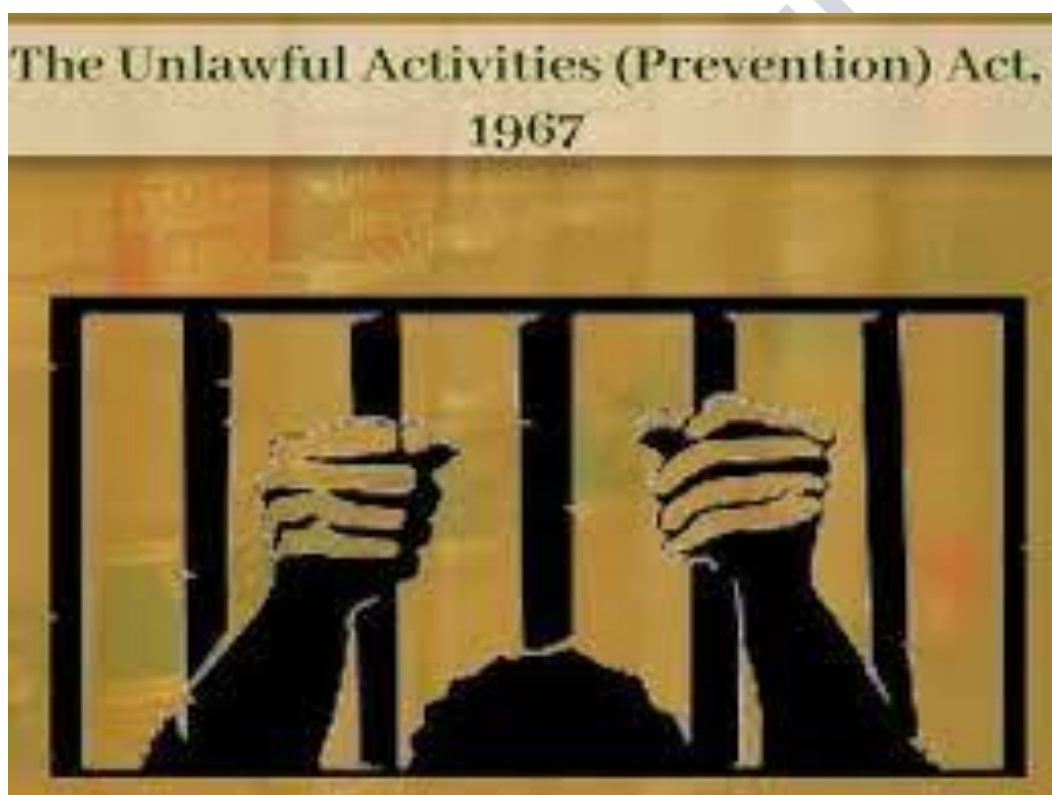
### Global scenario:

- **Increasing life expectancy** and **declining fertility** have had an impact on all countries of the world, due to which both the **share and number of older persons** will increase worldwide in the coming years.

### Recommendations:

- There should be a special focus on older persons in **disaster-preparedness plans** that are formulated.
- Questions should be included on relevant and **emerging issues** related to **older persons** in the upcoming data collection exercises of the **National Sample Survey**, the **National Family Health Survey**, and the **Census of India**.
- The government must work on **increasing awareness** about **schemes** for older persons, bring all **Old Age Homes under regulatory purview** and focus on facilitating in-situ ageing to the extent possible.

### 8. Unlawful Activities (Prevention) Act (UAPA)



The Delhi Police has sealed the office of news portal NewsClick, by invoking the UAPA Act, alleging it received money for pro-China propaganda.

#### UAPA Act:

- Enacted in 1967 the UAPA presents an alternate criminal law framework where the general principles of criminal law are reversed.

- By relaxing timelines for the state to file chargesheets and its stringent conditions for bail, the UAPA gives the state more powers compared with the **Indian Penal Code (IPC)**.
- **Mandate:** It is aimed at “more effective prevention of certain unlawful activities of individuals and associations for dealing with terrorist activities”.
- **Unlawful activity:** Unlawful activity means any conduct which constitutes a crime or which contravenes any law whether such conduct occurred before or after the commencement of this Act and whether such conduct occurred in the Republic or elsewhere.
- **Terrorist act:** Section 15 of the act defines “terrorist act” and is punishable with imprisonment for a term of at least five years to life.
- **Power to central government:** The Act assigns absolute power to the central government, by way of which if the Centre deems an activity as unlawful then it may, by way of an Official Gazette, declare it so.
- **Applicability:** The provisions of this Act apply;
  - citizens of India outside India;
  - persons in the service of the Government, wherever they may be; and
  - persons on ships and aircrafts, registered in India, wherever they may be.
- **2004 amendment:** It added “terrorist act” to the list of offences, to ban organisations for terrorist activities.
  - Till 2004, “**unlawful**” activities referred to actions related to secession and cession of territory.
  - Following the 2004 amendment, the “**terrorist act**” was added to the **list of offences**.
- **2019 amendment:** The Parliament cleared the **Unlawful Activities (Prevention) Amendment Bill, 2019** to designate individuals as terrorists on certain grounds provided in the Act.
  - The Act empowers the **Director General of National Investigation Agency (NIA)** to grant approval of seizure or attachment of property when the case is investigated by the said agency.
  - The Act empowers the **officers of the NIA**, of the rank of Inspector or above, to investigate cases of terrorism in addition to those conducted by the DSP or ACP or above rank officer in the state.

### Criticisms associated with UAPA:

- **Low conviction:** According to a source, in 2018-20, as many as 4,690 people were arrested under the UAPA but only 3% were convicted.
- **Sharp Rise in Use:** This caution is significant given the sharp surge in the state’s use of this provision in a sweeping range of alleged offences
  - Against tribals in Chhattisgarh



- Those using social media through proxy servers in Jammu and Kashmir; and
- Journalists in Manipur among others.
- **Ignoring Fundamental Rights:** It can simply be used to bypass fundamental rights and procedures. For instance, those arrested under UAPA can be incarcerated up to 180 days without a charge sheet being filed.
  - It thus directly violates Article 21 of the constitution.
- **Stringent Provision of bail:** The standard for bail under the UAPA is that it cannot be granted unless the court is of the view that the accused is innocent of the alleged offence.
- It means that the onus of proof of innocence for the purpose of obtaining bail is effectively reversed. It is for the accused to show that he is innocent.
- **Highly Discretionary:** It confers upon the government broad discretionary powers and also authorizes the creation of special courts with the ability to use secret witnesses and to hold closed-door hearings.

#### Recent judgments related to the UAPA, 1967:

- **A. Najeeb v. Union of India (2021):** The Supreme Court concluded that, despite the UAPA's restrictions on bail, constitutional courts can nevertheless grant bail if the accused's fundamental rights have been violated.
- **Asif Iqbal Tanha v. State of NCT (2021):** The Delhi High Court carried this logic a step further saying that courts should not wait until the accused's right to a speedy trial has been completely revoked before releasing them.
- **Bikramjit Singh v. The State Of Punjab (2020):** SC declared that it is a fundamental right granted to an accused person to be released on bail once the conditions of the first proviso to Section 167(2) of the Code of Criminal Procedure, 1973 (CrPC) are met.
  - According to Section 167 (2) of the Criminal Procedure Code, 1973, an accused person's imprisonment cannot be extended beyond the statutory time limit for the conclusion of the investigation.

#### Way Forward:

The Right to reputation is an **intrinsic part of fundamental right to life with dignity under Article 21** of the Constitution of India and terming/tagging an individual as 'terrorist' even before the commencement of trial or any application of judicial mind over it does not adhere to procedure established by law.

The Act has indeed been the centre of several debates because of its abusive nature and lack of a proper mechanism for backup. It is up to the state, judiciary, civil society to balance constitutional freedom and the imperative of anti-terror pursuits.

## 9. How the government enacted women reservation in the local government?

The passage of the 106<sup>th</sup> amendment act to provide 33% reservation to women in the Lok Sabha and legislative assemblies comes on the 30<sup>th</sup> anniversary of the constitutional reforms that reserved 1/3<sup>rd</sup> of seats for women in local government.

- **Constitutional amendment-** Parliament enacted the 73<sup>rd</sup> and 74<sup>th</sup> Constitutional Amendments in 1992 that to make panchayats and municipalities “institutions of self-government”.
- It mandated a minimum of one-third of seats and office of chairpersons in panchayats and municipalities to be reserved for women.
- It also mandated reservation for Scheduled Castes (SCs) and Schedules Tribes (STs) based on their % population and enabled States to reserve seats for Backward Classes.
- This has created a system with over 3 million elected panchayat representatives, out of which almost half are women.
- **State initiatives-** In 2006, **Bihar** became the 1<sup>st</sup> State to provide 50% reservation for women in panchayat bodies.
- At present, more than 20 States have 50% reservation for women at the panchayat level.
- Presently in panchayats and municipalities, there is,
  - Vertical reservation of seats for SCs, STs, and OBCs and
  - Horizontal reservation for women that applies across all categories – general, SC, ST, and OBC

### Impact of women reservations

#### Positive impact

- **Political empowerment** - It is rightly perceived as a powerful and indispensable tool for eliminating gender inequality and discrimination.
- **Productive investment-** A 2004 paper by Esther Duflo and Raghavendra Chattopadhyay on panchayats in West Bengal and Rajasthan found that women leaders invest more in public goods and ensure increased women’s participation in panchayat meetings.
- **Gandhian ideology-** The act gave impetus to decentralisation and resulted in wider representation.
- **Develop society-** Experience of women in family life as a leader, will help the society at large.
- **Decentralisation-** The Act fostered inclusive growth and active citizenship.

#### Negative impact

- **No improvement-** A 2010 study found that women's reservation worsened targeting of welfare programmes for SC/ST households and provided no improvement for female-headed households.
- **Proxy-** Women were used as a dummy candidate by their politically strong husbands and relatives and work behind them indirectly, which dissolves the true spirit of the Act.
- **Delhi case study-** In 2020 Delhi reservations were examined, it found that constituencies reserved for women are less likely to elect OBC women and more likely to elect upper caste women.

### What are the major missing in 106<sup>th</sup> Amendment Act?

- **OBC women-** Unlike the case of the 73rd and 74th amendments, the present law does not enable reservation for OBC women.
- **Ambiguous-** The design of women's reservations in Parliament and State Assemblies should have ideally been informed by its 30-year experience in panchayats and municipalities.
- **Lack of discussion-** The amendment should have been introduced after widespread discussion and analysis of its experience, instead of being introduced in a hastily organised Parliament session.
- **Delayed access-** The present women's reservation law has tied its implementation with the conduct of delimitation and census, neither of which have a definite date.
- The constitutional freeze for delimitation that has been in place since 1976 will end in 2026.
- **Population basis-** If the reallocation of seats between States is purely based on population, the southern States' share in the Parliament will drastically reduce.
- **Federal impact-** The next delimitation exercise is likely to open up the fault lines of India's delicate federal relations.

### 10. Global Internet Freedom Decline in 2023

- Freedom House's latest report highlights the 13th consecutive year of declining global Internet freedom.
- This decline has seen deteriorations in the human rights online situation in 29 countries, with only 20 countries registering improvements.

### Report: 'Freedom on the Net 2023: The Repressive Power of Artificial Intelligence'

- **Key Concerns:** The report underscores the escalating use of artificial intelligence (AI) by governments worldwide, emphasizing its role in censorship and the dissemination of disinformation.
- **Scope:** Covering events from June 2022 to May 2023, the 13th edition evaluates Internet freedom in 70 countries, collectively accounting for 88% of global Internet users.

## Regional Findings

- **Iran's Sharp Rise in Digital Repression:** Iran witnessed the sharpest escalation in digital repression. Authorities resorted to Internet shutdowns, blocked WhatsApp and Instagram, and intensified surveillance to quell anti-government protests.
- **China's Perennial Status:** For the ninth consecutive year, China retained its position as the world's worst environment for Internet freedom, followed by Myanmar, the second most repressive nation concerning online freedoms.

## Legal Repercussions and Arrests

- **Global Crackdown on Expression:** The report highlights that individuals faced legal consequences for online expression in a record 55 countries this year.
- **Widespread Arrests:** The number of countries conducting widespread arrests and imposing multi-year prison terms for online activities has surged, growing from 18 in 2014 to 31 in 2023.
- **Elections as Triggers:** Elections emerged as triggers for digital repression. Ahead of elections, incumbent leaders in various countries criminalized speech, restricted access to independent news sites, and imposed information controls to influence the electoral outcome in their favor.

## AI-Enabled Repression in India

- **Censorship in Legal Framework:** The report spotlights India's inclusion of censorship, including AI-based systems, within its legal framework. The Information Technology (Intermediary Guidelines and Digital Media Ethics Code) Rules mandate large social media platforms to employ AI-based moderation tools for diverse types of content.
- **Example - BBC Documentary:** The report cites the Indian government's directive to YouTube and Twitter to restrict access to a BBC documentary on communal violence. The IT Rules compel these platforms to use automated scanning tools to remove related content.

## Censorship Methods in India

- **5 Censorship Methods:** The report evaluates countries on five censorship methods:
  1. Internet connectivity restrictions,
  2. Blocks on social media platforms,
  3. Blocks on websites,
  4. Blocks on VPNs, and
  5. Forced content removal.
- **Further Censorship Actions:** India has also been involved in blocking websites featuring political, social, or religious content, disrupting ICT networks, deploying pro-government commentators to manipulate online discussions, and conducting technical attacks against government critics and human rights organizations.
- **Digital Freedom Index:** On a scale of 1 to 100, where '100' represents the highest digital freedom and '1' signifies the worst repression, India received a score of 50. In contrast, Iceland emerged as the leader with a score of 94, boasting the best climate for Internet freedom.

### Implications for India

- **Uneven Playing Field:** As India prepares for general elections in 2024, the government's expanding censorship regime is highlighted as a threat to Indian democracy.
- **Curb on free speech:** It suppresses criticism and independent reporting on the ruling party.

### Conclusion

- The report's findings underscore the global decline in Internet freedom, driven partly by the increasing use of AI for censorship and disinformation campaigns.
- The implications of this trend on freedom of expression, privacy, and democracy necessitate vigilant monitoring and international action to protect digital rights in an increasingly interconnected world.

## 11. Diabetes in India

Scientific evidence shows that diets heavy with ultra-processed food and beverages or high in sugar, fat, and salt are risky and can lead to diabetes.

### Diabetes

- Diabetes mellitus is a chronic metabolic disorder which is the most common pancreatic endocrine disorder (Non-Communicable Disease).
- **Characteristics-** It is caused due to insufficient, deficient or failure of insulin secretion.
  - **Hyperglycaemia-** Increase in blood sugar level
  - **Glycosuria-** Excretion of excess glucose in the urine
  - **Polyuria-** Frequent urination
  - **Polydipsia-** Increased thirst
  - **Polyphagia-** Increase in appetite
- **Types of Diabetes -** There are 3 main types of diabetes.
  - **Type 1 diabetes** is thought to be caused by an autoimmune reaction that stops your body from making insulin.
  - **Type 2 diabetes** is caused when your body does not use insulin well and can't keep blood sugar at normal levels.
  - **Gestational diabetes** is caused by the insulin-blocking hormones that are produced during pregnancy.

#### What is the relation between processed foods and diabetes?

- **Ultra processed foods-** According to the World Health Organization, consumption of unhealthy ultra-processed foods and beverages such as carbonated drinks, instant foods, Sugar-sweetened beverages, processed meat products, etc. cause diabetes.
  - A 10% increase in the consumption of ultra-processed food a day is associated with a 15% higher risk of type-2 diabetes among adults.
- **Obesity-** When food is ultra-processed, its structure is destroyed and cosmetic additives, colours, and flavours are added.
- This makes people eat more, gain weight, and heightens the risk of diabetes and other chronic diseases.
- **Complications-** Obesity and diabetes are key risk factors for heart disease and deaths.

#### How India become a playground for the food industry?

- **Fall in sale in other countries-** It is reported that the sale of sugar-sweetened beverages has fallen in the last 20 years in many high-income countries.
- To compensate for the loss of sales, companies are now focusing on low- and middle-income countries such as India.
- **Marketing-** Billions of rupees are spent on marketing and advertising ultra-processed food and beverages, which leads to increased consumption by vulnerable populations.
- Celebrity endorsements also determine their consumption decisions.

- It targets younger generations and the growing middle class, making it hard for an individual to choose healthy food options.
- **Environment-** While the food industry blames people for bad choices, it is not the people but the environment around them that is to blame.
- **Women-** Women bear the silent burden of this illness as gestational diabetes is common among pregnant women where hormonal changes make the blood sugar levels oscillate.
- **Issues with the food industry-** They do not want any restrictions on marketing and they offer partnerships as well as arguments of economic development as 'stakeholders'.
- The food industry also participates in programmes such as 'Eat Right', making false promises.
- **Lack of regulation-** The Food Safety and Standards Authority of India (FSSAI) has allowed a dominating role to the food industry where front-of-package labelling is still not in place.

#### What lies ahead?

- **Institutionalisation-** States like Tamil Nadu and Kerala have tasked Accredited Social Health Activists (ASHAs) and Anganwadi workers with door-to-door screening, doing glucometer checks, and counselling people.
- **Legal framework-** Regulatory policy on restricting the marketing of ultra-processed foods and providing warning labels on junk food and beverages is the need of the hour.
- **Awareness-** The people must be informed of the risk of consuming such food.

#### 12. Kalakkad Mundanthurai Tiger Reserve

The Madras High Court ordered notice to the State on a public interest litigation petition that sought a direction to restrict the entry of outsiders and vehicles inside Kalakkad Mundanthurai Tiger Reserve.

#### Kalakkad Mundanthurai Tiger Reserve (KMTR):

- Kalakkad Mundanthurai Tiger Reserve (KMTR) is situated in the **South Western Ghats montane rain forests in Tamil Nadu**.
- It stands as the **second-largest protected area** in Tamil Nadu and is a segment of the **Agasthyamala Biosphere Reserve**.

#### Historical Background:

- KMTR was established in **1988** by merging **Kalakad Wildlife Sanctuary** and **Mundanthurai Wildlife Sanctuary**, both of which were set up in **1962**.

- A proposal exists to designate a **400 km<sup>2</sup> core area** of this reserve as a **national park**.
- The continuation of "**Project Tiger**" in KMTR was approved by the **National Tiger Conservation Authority** in **2010**.

### Geographical Insights:

- The reserve spans an elevation range from **40 to 1,800 meters**, with **Agasthiyamalai (1681 m)** situated in its core zone.
- It serves as the **catchment area for 14 rivers and streams**, crucial for irrigation and drinking water in the region.
- **Seven major dams** are located within the reserve.

### Conservation Efforts:

- KMTR is a part of the inter-state **Agasthyamalai Biosphere Reserve**, spanning **Kerala and Tamil Nadu**.
- The region is recognized as one of India's **five centres of biodiversity and endemism** by the **International Union for Conservation of Nature (IUCN)**.
- Efforts are underway to get it recognized as a **UNESCO World Heritage Site**.
- Conservation programs aim to **reduce local dependency on forests** and **raise awareness about biodiversity**.

### Flora and Fauna:

- The reserve boasts of **150 endemic plants, 33 fish, 37 amphibians, 81 reptiles, 273 birds, and 77 mammal species**.
- As of **2018**, the **tiger population** is estimated between **16 to 18**.
- Other notable species include **leopards, elephants, Nilgiri tahr, Nilgiri langur**, and many more.

## 13. When can a Bill be designated as a 'Money Bill': SC to hear challenge

- CJI announced that a seven-judge bench will be established to address a series of petitions challenging the government's use of the money bill route to pass significant legislations.
- This move aims to provide clarity on the interpretation and application of money bills under Article 110 of the Constitution and their validity.

### Understanding the Money Bill Issue



- **The PMLA Challenge:** CJI Chandrachud's statement came during the hearing of challenges against amendments made to the Prevention of Money Laundering Act (PMLA).
- **Previous Judgment:** In July 2022, a three-judge bench upheld the PMLA and the extensive powers of the Enforcement Directorate (ED). However, the validity of amendments to the PMLA passed as money bills remained open for review by a larger Constitution bench.
- **Finance Acts' Impact:** Key amendments to the PMLA were introduced through Finance Acts passed in 2015, 2016, 2018, and 2019, which are presented as money bills during the budget sessions under Article 110 of the Constitution.

## Challenges beyond PMLA

### [A] Aadhaar Controversy:

- The issue of whether a bill qualifies as a money bill under Article 110 was first raised during the Aadhaar case.
- In a 4:1 majority ruling in 2018, the Supreme Court upheld the Aadhaar Act as a valid money bill.
- Notably, Justice Chandrachud dissented, criticizing the government's passage of the Aadhaar Act as a money bill, labelling it a "fraud on the Constitution."

### [B] Tribunal Reform:

- In the case of *Roger Matthew vs. Union of India* (2019), the Supreme Court addressed challenges related to changes in the service conditions of tribunal members, introduced as a money bill in the Finance Act of 2017.
- While declaring the law unconstitutional for interfering with judicial independence, the court referred the money bill aspect to a larger constitution bench, expressing doubts about the correctness of its 2018 verdict upholding the Aadhaar Act.

## Understanding a Money Bill

- **Article 110(1):** A bill is considered a money bill if it exclusively pertains to matters specified in Article 110(1)(a) to (g), such as taxation, government borrowing, and appropriation of funds from the Consolidated Fund of India.
- **Lok Sabha Exclusive:** Money bills can only be introduced in the Lok Sabha and do not require Rajya Sabha's consent.
- **Role of Speaker:** According to Article 110(3), the Speaker of the Lok Sabha has the final say in determining whether a bill is a money bill. However, the court in the Aadhaar case emphasized that the Speaker's decision is subject to judicial scrutiny.

## Conclusion

- The formation of a seven-judge bench signifies a significant step towards resolving controversies surrounding money bills and their passage, ensuring a clearer understanding of their application under the Constitution.
- This move underscores the importance of judicial review in upholding the constitutional principles of parliamentary proceedings and ensuring transparency and accountability in legislative processes involving money bills.

## 14. Aligning higher education with the United Nations SDGs

- Though it has been eight years since the inception of these goals, the SDGs Report 2023 flagged slow progress and painted a grim picture.
- The SDGs Report 2023 highlights sluggish progress exacerbated by the lingering effects of COVID-19, climate change impacts, geopolitical conflicts, and a fragile global economy. This universal struggle is particularly pronounced in the least developed countries, including India. Despite India's resilience in facing global crises, achieving the SDGs remains a challenge.

## SDGs

- The United Nations Sustainable Development Goals (SDGs) represent a global commitment to address pressing socio-economic and environmental challenges.
- These 17 goals with 169 targets, unanimously agreed upon by all 193 UN member states, aim to eradicate poverty, enhance education, reduce inequality, and stimulate economic growth by 2030.

## NEP 2020 and Its Alignment with SDGs

- India's commitment to realizing the SDGs is evident through recent actions and policies.
- The National Education Policy (NEP) 2020 in India closely aligns with the United Nations Sustainable Development Goals (SDGs), particularly SDG4, which focuses on quality education.

## Here's how NEP 2020 aligns with the SDGs:

- **Quality Education and Lifelong Learning (SDG4):** NEP 2020 emphasizes quality education for all in India, addressing disparities and promoting inclusivity, in alignment with SDG4. It also recognizes the importance of

lifelong learning, supporting SDG4's objective of inclusive and equitable quality education throughout one's life.

- **Gender Equality (SDG5):** The policy promotes gender equality in education, ensuring equal opportunities for girls and women. It aims to eliminate gender-based discrimination and stereotypes in education, aligning with SDG5's objective.
- **Employability and Skills Development (SDG8):** NEP 2020 focuses on equipping students with practical skills and knowledge, making them more employable. This aligns with SDG8's goal of promoting sustained, inclusive, and sustainable economic growth, full and productive employment, and decent work for all.
- **Environmental Sustainability (SDG 13):** The policy acknowledges the significance of environmental education and sustainability. It encourages eco-friendly practices and awareness of environmental issues among students, aligning with SDG 13's objective of combating climate change.
- **Research and Innovation (SDG9):** NEP 2020 underscores the importance of research and innovation in higher education. It seeks to foster a culture of innovation and entrepreneurship, aligning with SDG 9's goal of promoting inclusive and sustainable industrialization and fostering innovation.
- **Global Partnerships for Development (SDG17):** The policy promotes international collaboration in higher education and research. It aims to establish partnerships with global institutions, foster knowledge exchange, and align with SDG17's objective of strengthening global partnerships for sustainable development.

### Enhancing the Role of Universities

- **Research-Teaching Nexus:** Universities should strengthen the connection between research and teaching in higher education. By bridging the gap between research and teaching, universities can provide students with real-world insights and solutions to global challenges.
- **Multidisciplinary and Interdisciplinary Education:** Universities should promote multidisciplinary and interdisciplinary approaches to education. Such systems produce well-rounded individuals capable of conducting research and finding innovative solutions to complex issues.
- **Innovative Solutions and Start-ups:** Collaboration with private companies and the development of innovative solutions and start-ups should be encouraged. Universities can serve as hubs for innovation and entrepreneurship, contributing to SDG 9 (Industry, Innovation, and Infrastructure).
- **Value-Based Education (VBE):** Introducing value-based education can help instill a sense of responsibility in citizens towards themselves, society, and the

planet. This values-based approach can align with SDG 15 (Life on Land) by fostering a deeper connection between individuals and the environment.

### Suggestions for the Universities

- **Mapping Operations with SDGs:** NEP 2020 should guide Indian higher education institutions to align their daily operations with the SDGs.
- **Ranking according to SDGs:** While ranking universities based on SDG achievement is commendable, it should be bolstered with comprehensive measures to meet the SDG deadline.
- **Stakeholder Education and Orientation:** All stakeholders in higher education should be educated and oriented to ensure no activities neglect the SDGs. Collaboration among the 56,205 higher educational institutions and universities in India is essential.
- **Community Engagement:** Universities should actively engage with their local communities, focusing on community health, energy conservation, efficient resource allocation, waste reduction, and skill development. Sharing resources and infrastructure with other universities and external partners should become the norm.
- **Institutional Strategies:** Sustainability and SDGs should be integrated into the core institutional strategies of universities, influencing daily administration, teaching, and research.
- **Socio-economic Integration:** Higher education must be closely integrated with socio-economic development to ensure meaningful and multiple impacts on the SDGs. Universities should contribute directly to the well-being and nation-building of every citizen.

### Conclusion

- India's commitment to the SDGs, particularly in higher education through NEP 2020, is a positive step towards achieving the 2030 agenda. To accelerate progress, universities must embrace sustainability as a guiding principle and incorporate the SDGs into their daily operations. By doing so, they can play a pivotal role in addressing pressing global challenges and ensuring a better future for all.

### 15. Israel 'at war' as Hamas attack leaves 200 dead

Israel has declared a state of war against the Palestinian militant group Hamas. Operation Iron Sword. According to Hamas, attacks are driven by Israel's escalated

attacks on Palestinians in the West Bank, Jerusalem, and against Palestinians in Israeli prisons.

### **The History of the Conflict:**

- After the defeat of the Ottoman Empire in World War 1, the British got the custody of Palestine (Arab majority, Jewish minority).
- 1920s and 1940s, Jews fled from Europe to Palestine; and later demanded a motherland in the region.
- 1947: UN voting to divide Palestine into separate Jewish and Arab states (Jerusalem to be under international administration). Not Implemented.
- 1948: British authorities withdrew; Jewish leaders declared the founding of Israel (USA recognition the same day)
- Multiple wars:
- 1956: Raid of Suez canal as Egypt nationalized it and didn't allow movement of Israeli Ships
- 1967: Six-day War.
- 1973: Yom Kippur war

### **Why has Hamas attacked now?**

- **Deepening Occupation:**
  - Palestine-Israel relations have deteriorated, marked by frequent military raids in the occupied West Bank.
  - High casualties on both sides in 2023, escalating tensions.
  - The raid on Jerusalem's Al Aqsa Mosque compound triggered rocket attacks from Gaza and Israeli airstrikes.
  - Lack of a peace process, pervasive violence, and growing anger among Palestinians against Israeli occupiers and the Palestinian Authority.
  - Hamas leveraged public anger against occupation to emerge as the leading pole of the Palestinian cause.
- **Divisions in Israel:**
  - Israel's right-wing government seeks to overhaul power structures to concentrate power in the elected government.
  - Controversial legislative agenda to curtail judicial powers sparked massive protests and military reservists' involvement.
  - Perception of internal weakness in Israel could have emboldened Hamas to launch a major attack.
- **Geopolitical Angle:**
  - 
  - The attack coincided with advanced normalisation talks between Israel and Saudi Arabia.

- Saudi Crown Prince Mohammed bin Salman indicated progress in these talks.
- A potential Saudi-Israel normalisation deal could shift West Asian geopolitics, disadvantage Hamas.
- Iran and Hezbollah, Hamas supporters, welcomed the attack, complicating the prospects for Saudi-Israel normalisation.
- As Gaza faces Israeli retaliation, immediate normalisation between Saudi Arabia and Israel becomes more complex.

### Significance:

- Understanding the motives behind Hamas' attack is crucial for assessing the evolving situation in the Middle East.
- The attack underscores the complex interplay of regional dynamics, internal politics, and the Israeli-Palestinian conflict.

### Solutions:

- Promoting diplomatic efforts to resume peace talks between Israelis and Palestinians.
- Encouraging international mediation to address the root causes of the conflict.
- Monitoring and addressing regional geopolitical developments that impact the stability of the region.

### India's stance

- India stands in solidarity with Israel, in this difficult time.
- Explicitly stating that these are terrorist attacks.
- De-hyphenation: Support the cause of Palestine and the oppressed Palestinians, but we do support a peaceful process to resolve the differences.

## 16. India- Afghanistan relations

The Ministry of Foreign Affairs of the Islamic Republic of Afghanistan has recently announced the closure of the Embassy of Afghanistan in India.

### India-Afghanistan Relations:

- The Afghanistan Embassy in India represented the Islamic Republic of Afghanistan which was **deposed** through a military campaign by the **Taliban in 2021**.

- The Afghanistan embassy in India was performing a **symbolic role**, working as a **stateless mission** as it did not represent the current rulers of Afghanistan (**Taliban**).
- The Taliban fighters were not recognised by India as de facto rulers citing **human rights abuses** by the regime.
- Afghanistan Embassy was only helping their citizens and travellers in India to deal with the difficulties they may have faced because of the lack of **diplomatic relations** between the two countries.

### **Will the move affect travel and trade between Afghanistan and India?**

- Despite the closure of the embassy, both countries have engagement with each other.
- India has maintained a **technical team in Afghanistan** where the staff **provides visas to** Afghan traders and travelers to India.
- Some **Indian goods** are also entering Afghanistan through **Iran** and the **UAE**.
- India's refusal to recognize the Taliban indicates the informal nature of the relationship, **preventing formal diplomatic ties** from taking off.

### **Will India and the Taliban ever establish formal ties?**

- Indian diplomats have been engaged with the Taliban since the immediate aftermath of the fall of Afghanistan in **2021**.
- Both representatives meet under **multilateral initiatives**.
- **Iran, Pakistan, the UAE, Russia, Qatar, and China** have maintained ties with the Taliban.
  - There is obvious pressure on India to **reconsider its position** on the Taliban.
- The Taliban want India's support for its economic revitalisation through projects like **electricity generation** and **road-building works**.

## **17. Higher Education and SDGs**

Educational institutions have to rethink their approach so that it is in tune with the National Education Policy which will be crucial in realising the 2030 deadline for SDGs.

### **Why focus on higher education is vital?**

SDG 4 pertains to access to quality education

- Higher Education Institutes (HEIs) can integrate SDGs into their curriculum, campus operation, idea incubation and creation of start-ups to one or a combination of more goals under the SDGs.
- NEP 2020 has been prepared in tune with most of the SDGs.
- **Employability-** As per OECD data, people with a higher education degree are more employable and earn an average of 54% more than those who only have completed senior secondary education.
- **University inclusive education-** It will help improve SDGs
- **Promotes research-** HEIs are at the forefront by integrating them into teaching-learning-research processes. Students will become direct benefactors of the knowledge generated from research.
- **Innovative solutions-** Multidisciplinary and interdisciplinary systems of education produce multitalented people who can pursue research, and find innovative solutions to global challenges such as
  - Affordable and clean energy (SDG7),
  - Sustainable cities and communities (SDG11),
  - Climate change and global warming (SDG13).
- **Community engagement-** HEIs have an institutional responsibility to engage with communities for information, communication, education, and transformation purposes.
- **SDG as reality-** Sustainable development is possible only if we radically change the way we produce and consume.
- **Sustainability based recognition-** Certifications like Green Campus Program (GCP) launched by Climate Reality India and rankings launched by UI Green Metrics from the University of Indonesia and Impact Rankings from the Times Higher Education (UK) have revolutionized the sustainability-based recognition landscape for HEIs.
- **Green campus-** It becomes a laboratory for students to learn, innovate and be inspired to become change-makers.
- **Value based education-** It will help citizens become responsible towards self, society and the planet and help our nation achieve “Life on Land” (SDG15).
- **Eco-friendly-** Universities have started adopting bicycles and Electric Vehicles (EVs) into campus lifestyle.
- **Digital technology-** This has made virtual education a reality which led to reducing carbon footprint thereby contributing to sustainability by going paperless.

### What lies ahead?

- **Align with SDGs-** NEP 2020 demands that Indian higher education be committed to mapping its day-to-day operations with SDGs.



- **Sustainability Ranking-** Ranking universities according to the achievement of SDGs is a welcome move.
- **Cooperation-** To accelerate the progress towards achieving 2030 agenda, stakeholders of higher education should be educated and oriented so that none of the activities leave any SDG behind.
- **University culture-** Community health, energy-saving measures, efficient resource allocation, waste reduction, development of local skills, sharing of services and facilities with other universities should become a culture in universities.
- **Sustainability-** Sustainability can be embedded into life skills education, value-based education and campus happiness index.
- **Institutionalisation-** Embedding HEIs into SDGs will help them gain respect among peers, students, parents, academic and industry partners and policymakers.
- **Integration-** It has been realised that higher education cannot work in isolation rather it must be directly integrated with socio-economic development where each activity and transaction has meaningful and multiple impacts on SDGs.

## 18. Toofan Al-Aqsa Crisis

The recent escalation of violence between Hamas, the Palestinian terrorist group, and Israel has resulted in a significant loss of life and raised concerns internationally. At the heart of this conflict is Operation Al-Aqsa Deluge, initiated by Hamas, which has led to a series of events with far-reaching implications for the region. The recent Hamas operation, Toofan Al-Aqsa (Al-Aqsa Flood), bears uncanny similarities to the launch of the 19-day Yom Kippur War that occurred 50 years ago. While the Yom Kippur War had inconclusive results, it led to a significant regional shift, ultimately resulting in Israel's acceptance of the 'land for peace' formula at the Camp David Accords six years later.

- **Muhammad Deif's Statement:** Muhammad Deif, the military commander of Hamas, delivered a recorded message, characterizing the operation as a moment for people to regain their revolution.
- **The Significance of Al-Aqsa Mosque:** Central to this conflict is the Al-Aqsa Mosque, one of the holiest sites in Islam after Mecca and Medina. Situated on a hill known as Temple Mount to Jews and the Noble Sanctuary to Muslims, the mosque is located in the heart of Jerusalem's Old City. It houses two important Muslim holy sites: the Dome of the Rock and the Al-Aqsa Mosque (also known as the Qibli Mosque), dating back to the 8th century AD.

- **Historical Context:** The Al-Aqsa Mosque complex overlooks the Western Wall, a sacred site for Jews believed to have been constructed 3,000 years ago by King Solomon.
- **Capture by Israel:** In 1967, during the Middle East War, Israel captured the site and later annexed it, actions not recognized internationally.
- **Triggering Tensions:** The Al-Aqsa Mosque has been a long-standing focal point of Israeli-Palestinian tensions, leading to clashes and conflicts.
- **2021 Conflict:** Recent clashes in 2021 resulted in a 10-day-long war, leading to casualties on both sides.
- **April Clashes:** In April of the same year, Israeli police clashed with Palestinians at the site, sparking cross-border exchanges of fire.
- **International Concern:** The ongoing violence, particularly centered around Al-Aqsa Mosque, has raised international concerns and has broader implications for regional stability.

### Potential Outcomes of the Ongoing Conflict

- **Israel's Military Superiority:** Israel is not under an existential threat from Hamas, and the outcome of the conflict is expected to favor Israel. A massive ground incursion into Gaza may follow to restore morale, re-establish strategic dominance, and rescue captives.
- **Reevaluation of Israeli Strategies:** The conflict's experiences, including intelligence failures and overreliance on high-tech missile defense and artificial intelligence, may compel Israel to revise its strategic doctrines.
- **Impact on Non-State Arab Militias:** Depending on the conflict's endgame, it could potentially boost the standing of non-state Arab militias such as Hamas, Islamic Jihad, Hezbollah, and others in the region.
- **Geographic Confinement:** The crisis is likely to remain geographically confined to Gaza and its immediate surroundings, due to limited support for Hamas and Islamic Jihad in the region.
- **The Palestinian Authority's Dilemma:** The Palestinian Authority is divided between the West Bank and Gaza, with Fatah losing credibility. Hamas and Islamic Jihad are capitalizing on this to establish their presence in the West Bank.
- **Regional Non-Support for Hamas:** Regionally, there is little support for Hamas, except for Turkey. Egypt, in particular, does not favor Hamas, given its past ties to the Muslim Brotherhood. Gulf monarchies, except Qatar, strongly disapprove of Hamas.
- **Iran's Involvement:** Iran has been a mentor to Hamas and Islamic Jihad and has attempted to supply weapons to Gaza. Iran's involvement could escalate the crisis further.

### Impact on the Region

- **Risk of Delay in Regional Diplomacy:** The crisis may delay regional diplomatic efforts, including the potential rapprochement between Saudi Arabia and Israel, due to Israel's reluctance to make concessions sought by Riyadh.
- **Repercussions for the Abraham Accords:** The Abraham Accords, which normalized relations between Israel and some Arab states, could face challenges due to the ongoing conflict.
- **Potential Iranian Gains:** Iran may feel emboldened by the conflict, potentially affecting regional dynamics and tensions.

### Impact on India

- While India is not directly affected, it could feel some indirect effects, such as an oil price rise, impacts on the Indian diaspora, and potential setbacks for regional economic initiatives.
- However, India's reputation as a stable and fast-growing economy may be enhanced in this context.

### Conclusion

- The Toofan Al-Aqsa crisis has regional implications that could alter the dynamics in the Middle East. As the situation evolves, it remains essential for stakeholders, including India, to monitor developments closely and prepare for potential repercussions while seeking avenues for diplomatic engagement and stability in the region.

## 19. Mental Health of Informal Workers

Informal workers, despite their significant contribution to national income, are perennially exposed to economic, physical, and, in turn, mental vulnerabilities.

### Informal workers

- **Informal employment-** It broadly refers to workers who are employed in jobs where they do not have access to social security benefits under existing labour legislations.
- They are private unincorporated or unregistered enterprises, owned by households or individuals.
- This can be either because of the informal nature of the enterprise where a person is employed, or due to the nature of the work itself, which can be casual, part-time, or home-based self-employment.

### Why informal workers face mental health issues?

A study by the International Labour Organization (ILO) says that 15% of working-age adults, globally, live with a mental disorder.

- **Mental health-** Unemployment, unstable or precarious employment, workplace discrimination, etc. can all pose a risk to a worker's mental health.
  - As per United Nations Development Programme (UNDP), unemployment and poor-quality employment have consistently been detrimental to mental health
- **Psychological risks-** Workers in low-paid, unrewarding or insecure jobs, or working in isolation, are more likely to be exposed to psychosocial risks, thus compromising their mental health.
- **Safety risk-** Working in unsafe working environments, enduring for long hours, little access to social or financial protections, etc. add to the issue.
- **Patriarchy-** The structures and practices in social and familial spaces put women without social protection.
  - The State of Inequality in India Report 2022 observes that the unemployment rate actually increases with educational levels, particularly for educated young women who show an unemployment rate of 42%
- **Negative emotions-** Youth unemployment is one of the highest in India which, along with the stigma around unemployment, significantly impacts their mental health.
  - Centre for the Study of Developing Societies' survey among 9,316 youth aged between 15 to 34 years in India has shown that they are highly susceptible to negative emotions.
- **Old age-** The absence of proper financial and health-care security among the working elderly can severely impact their physical and mental health, aggravating their vulnerability.
  - The Census of India 2011 shows that 33 million elderly people are working post-retirement in informal work.

The theme of World Mental Health Day (October 10) 2023 is 'Mental Health as a Universal Human Right'.

### **How the lack of social security impact the mental health of informal workers?**

- **Mental distress-** Informal workers face mental distress due to accumulating debt and rising health-care costs, which are intertwined and mutually reinforcing.
- **Post COVID-** A study by Women in Informal Employment: Globalizing and Organizing (WIEGO) among informal workers in Delhi, mostly migrants, indicates that recovery post COVID-19 remains uneven among informal workers

- **Basic necessities-** Mental health and well-being are impacted by factors such as food security, access to livelihood and financial stability.
- **Lack of funding-** Schemes such as the Mahatma Gandhi National Rural Employment Guarantee Scheme (MNREGS) have seen their funding slashed in this Budget.
- **Code on Social Security 2020-** The current Code on Social Security does not universalise social security.

In 2021, the National Crime Records Bureau (NCRB) reported that 26% of the people who died by suicide were daily wage earners.

### What lies ahead?

- India need to increase budgetary allocation for mental health, currently it is 1% of total health budget.
- World Mental Health Report 2022 observed, addressing mental health involves strengthening community-based care, and people-centred, recovery-oriented and human rights-oriented care.
- There is an urgent need for proactive policies to improve mental health recognition and action.
- Mental health is critical in upholding the basic human right to good health, including mental health, and in advancing to the Sustainable Development Goals (SDGs) especially
  - **SDG 3-** Good health and well-being
  - **SDG 8-** Decent work for all/ economic growth

## 20. Transition of Power in the Maldives and India vs. China

- The recent presidential election in the Maldives has demonstrated the vitality of democracy in South Asia's smallest nation-state.
- The Maldives' recent fair and free election, which enhanced its international standing, underscores the importance of a nuanced understanding of its politics rather than portraying it as a China vs. India contest. Voter concerns, especially among the youth, are primarily centered on economic well-being.
- **Maumoon Abdul Gayoom's Era (1978–2008):** For three decades, Maumoon Abdul Gayoom ruled as the President, maintaining a one-party system. This period marked a lack of political pluralism and democracy in the Maldives.
- **Emergence of Multiparty Democracy (Late 2000s):** The Maldives began to transition towards a multiparty democracy under a new constitution, signaling a shift away from Gayoom's authoritarian rule.

- **Mohamed Nasheed's Presidency (2008–2012):** Mohamed Nasheed, a charismatic leader, became the first directly elected President of the Maldives. However, his presidency was short-lived, as he did not complete his full five-year term.
- **Shared Presidency (2012–2013):** Mohamed Nasheed's resignation led to a period of political uncertainty. Mohamed Waheed Hassan assumed the presidency during this transitional phase.
- **Abdulla Yameen's Presidency (2013–2018):** Abdulla Yameen became president and was notably the most pro-China president during his tenure. His presidency marked a shift in the Maldives' foreign policy towards China.
- **Ibrahim Mohamed Solih's Presidency (2018–2023):** Ibrahim Mohamed Solih, representing the Maldivian Democratic Party (MDP), assumed the presidency and adopted an 'India First' policy, emphasizing strong ties with India.
- **Transition to Mohamed Muizzu (Upcoming):** Following Ibrahim Mohamed Solih's defeat, the presidency is set to transition to Mohamed Muizzu, the opposition candidate backed by an alliance of political parties. Muizzu, who currently serves as the mayor of the capital city, Male, will be sworn in as the new president.

### Challenges Faced by Ibrahim Mohamed Solih

- **Historical Incumbent Disadvantage:** The Maldives has a history of not re-electing incumbent presidents, posing a significant challenge to Solih's re-election.
- **Intraparty Conflict:** Internal divisions within the ruling MDP, exacerbated by Mohamed Nasheed's departure, weakened party cohesion and campaign effectiveness.
- **Disinformation Campaign:** The opposition alliance launched a disinformation campaign exploiting MDP's internal divisions and injecting unnecessary geopolitical issues into the election discourse.
- **Loss of Nasheed's Influence:** Mohamed Nasheed's departure deprived the MDP of his charismatic leadership and effective communication skills, further straining party unity.

### The Path Ahead for the Maldives

- **Leadership Dynamics:** Watch for the evolving relationship between President-elect Muizzu and former President Yameen, a key figure in the new administration.
- **Transition to Presidential Role:** Expect Mayor Muizzu to shift from his mayoral role to acting as president, focusing on domestic development and regional responsibilities.

- **Domestic Priorities:** Muizzu is likely to prioritize issues like employment, housing, and education for Maldivian citizens while leveraging foreign policy for national interests.
- **Foreign Policy Options:** The new administration faces choices in foreign policy: revert to 'India Out,' continue 'India First,' or adopt a balanced approach involving India and China.
- **Changing Global Landscape:** Consider the impact of challenges to China's Belt and Road Initiative, the Sri Lankan financial crisis requiring India's help, and shifts in India-Gulf State relations on the Maldives' stance.
- **Islamist Constituency:** Monitor the attitude of the Maldives' Islamist constituency, which historically had complex relations with India, in response to changing regional dynamics.
- **Reduced Interest in Pakistan:** Observe how diminishing interest in Pakistan in West Asia may affect the Maldives' security and its handling of extremism-related challenges.

### Recommendations for India's approach in the evolving Maldivian political landscape

- **Positive Public Sentiment:** India enjoys a positive image among the Maldivian people, thanks to extensive development work and community projects. This sentiment can be leveraged for stronger bilateral relations.
- **Engagement with Youth:** Thousands of Maldivian youth have benefited from training and capacity-building programs in India. Continued engagement with youth is vital for fostering long-term ties.
- **Diverse Engagement:** India plays a significant role in the Maldives, including in tourism, trade, and investment. This multifaceted engagement should be nurtured and expanded.
- **Strengthening Regional Initiatives:** New Delhi should focus on strengthening regional initiatives, such as the Colombo Security Conclave, with tangible outcomes in maritime security and the development of the Blue Economy.
- **BIMSTEC Involvement:** India should consider reimagining regional cooperation by inviting the Maldives as an observer in the Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation (BIMSTEC) at its next summit. This could enhance regional collaboration.
- **Resource Allocation:** There is a need for additional resources to support India's strategic community and media organizations in taking a more active interest in the Maldives. Building bridges of mutual understanding and trust is essential.

### Conclusion

- The Maldives' recent presidential election underscores the resilience of democracy and the evolving political landscape in South Asia. As the nation embarks on a new chapter, prudent diplomacy and strategic engagement will be essential for the Maldives and its regional partners, including India, to navigate the challenges and opportunities on the horizon.

## 21. Mental Health of Informal Workers

Informal workers, despite their significant contribution to national income, are perennially exposed to economic, physical, and, in turn, mental vulnerabilities.

### Informal workers

- **Informal employment-** It broadly refers to workers who are employed in jobs where they do not have access to social security benefits under existing labour legislations.
- They are private unincorporated or unregistered enterprises, owned by households or individuals.
- This can be either because of the informal nature of the enterprise where a person is employed, or due to the nature of the work itself, which can be casual, part-time, or home-based self-employment.

### Why informal workers face mental health issues?

A study by the International Labour Organization (ILO) says that 15% of working-age adults, globally, live with a mental disorder.

- **Mental health-** Unemployment, unstable or precarious employment, workplace discrimination, etc. can all pose a risk to a worker's mental health.
  - As per United Nations Development Programme (UNDP), unemployment and poor-quality employment have consistently been detrimental to mental health
- **Psychological risks-** Workers in low-paid, unrewarding or insecure jobs, or working in isolation, are more likely to be exposed to psychosocial risks, thus compromising their mental health.
- **Safety risk-** Working in unsafe working environments, enduring for long hours, little access to social or financial protections, etc. add to the issue.
- **Patriarchy-** The structures and practices in social and familial spaces put women without social protection.
  - The State of Inequality in India Report 2022 observes that the unemployment rate actually increases with educational levels, particularly for educated young women who show an unemployment rate of 42%



- **Negative emotions-** Youth unemployment is one of the highest in India which, along with the stigma around unemployment, significantly impacts their mental health.
  - Centre for the Study of Developing Societies' survey among 9,316 youth aged between 15 to 34 years in India has shown that they are highly susceptible to negative emotions.
- **Old age-** The absence of proper financial and health-care security among the working elderly can severely impact their physical and mental health, aggravating their vulnerability.
  - The Census of India 2011 shows that 33 million elderly people are working post-retirement in informal work.

The theme of World Mental Health Day (October 10) 2023 is 'Mental Health as a Universal Human Right'.

### **How the lack of social security impact the mental health of informal workers?**

- **Mental distress-** Informal workers face mental distress due to accumulating debt and rising health-care costs, which are intertwined and mutually reinforcing.
- **Post COVID-** A study by Women in Informal Employment: Globalizing and Organizing (WIEGO) among informal workers in Delhi, mostly migrants, indicates that recovery post COVID-19 remains uneven among informal workers
- **Basic necessities-** Mental health and well-being are impacted by factors such as food security, access to livelihood and financial stability.
- **Lack of funding-** Schemes such as the Mahatma Gandhi National Rural Employment Guarantee Scheme (MNREGS) have seen their funding slashed in this Budget.
- **Code on Social Security 2020-** The current Code on Social Security does not universalise social security.

In 2021, the National Crime Records Bureau (NCRB) reported that 26% of the people who died by suicide were daily wage earners.

### **What lies ahead?**

- India need to increase budgetary allocation for mental health, currently it is 1% of total health budget.
- World Mental Health Report 2022 observed, addressing mental health involves strengthening community-based care, and people-centred, recovery-oriented and human rights-oriented care.

- There is an urgent need for proactive policies to improve mental health recognition and action.
- Mental health is critical in upholding the basic human right to good health, including mental health, and in advancing to the Sustainable Development Goals (SDGs) especially
  - **SDG 3-** Good health and well-being
  - **SDG 8-** Decent work for all/ economic growth

## 22. Transition of Power in the Maldives and India vs. China

- The recent presidential election in the Maldives has demonstrated the vitality of democracy in South Asia's smallest nation-state.
- The Maldives' recent fair and free election, which enhanced its international standing, underscores the importance of a nuanced understanding of its politics rather than portraying it as a China vs. India contest. Voter concerns, especially among the youth, are primarily centered on economic well-being.
- **Maumoon Abdul Gayoom's Era (1978–2008):** For three decades, Maumoon Abdul Gayoom ruled as the President, maintaining a one-party system. This period marked a lack of political pluralism and democracy in the Maldives.
- **Emergence of Multiparty Democracy (Late 2000s):** The Maldives began to transition towards a multiparty democracy under a new constitution, signaling a shift away from Gayoom's authoritarian rule.
- **Mohamed Nasheed's Presidency (2008–2012):** Mohamed Nasheed, a charismatic leader, became the first directly elected President of the Maldives. However, his presidency was short-lived, as he did not complete his full five-year term.
- **Shared Presidency (2012–2013):** Mohamed Nasheed's resignation led to a period of political uncertainty. Mohamed Waheed Hassan assumed the presidency during this transitional phase.
- **Abdulla Yameen's Presidency (2013–2018):** Abdulla Yameen became president and was notably the most pro-China president during his tenure. His presidency marked a shift in the Maldives' foreign policy towards China.
- **Ibrahim Mohamed Solih's Presidency (2018–2023):** Ibrahim Mohamed Solih, representing the Maldivian Democratic Party (MDP), assumed the presidency and adopted an 'India First' policy, emphasizing strong ties with India.
- **Transition to Mohamed Muizzu (Upcoming):** Following Ibrahim Mohamed Solih's defeat, the presidency is set to transition to Mohamed Muizzu, the opposition candidate backed by an alliance of political parties. Muizzu, who

currently serves as the mayor of the capital city, Male, will be sworn in as the new president.

### Challenges Faced by Ibrahim Mohamed Solih

- **Historical Incumbent Disadvantage:** The Maldives has a history of not re-electing incumbent presidents, posing a significant challenge to Solih's re-election.
- **Intraparty Conflict:** Internal divisions within the ruling MDP, exacerbated by Mohamed Nasheed's departure, weakened party cohesion and campaign effectiveness.
- **Disinformation Campaign:** The opposition alliance launched a disinformation campaign exploiting MDP's internal divisions and injecting unnecessary geopolitical issues into the election discourse.
- **Loss of Nasheed's Influence:** Mohamed Nasheed's departure deprived the MDP of his charismatic leadership and effective communication skills, further straining party unity.

### The Path Ahead for the Maldives

- **Leadership Dynamics:** Watch for the evolving relationship between President-elect Muizzu and former President Yameen, a key figure in the new administration.
- **Transition to Presidential Role:** Expect Mayor Muizzu to shift from his mayoral role to acting as president, focusing on domestic development and regional responsibilities.
- **Domestic Priorities:** Muizzu is likely to prioritize issues like employment, housing, and education for Maldivian citizens while leveraging foreign policy for national interests.
- **Foreign Policy Options:** The new administration faces choices in foreign policy: revert to 'India Out,' continue 'India First,' or adopt a balanced approach involving India and China.
- **Changing Global Landscape:** Consider the impact of challenges to China's Belt and Road Initiative, the Sri Lankan financial crisis requiring India's help, and shifts in India-Gulf State relations on the Maldives' stance.
- **Islamist Constituency:** Monitor the attitude of the Maldives' Islamist constituency, which historically had complex relations with India, in response to changing regional dynamics.
- **Reduced Interest in Pakistan:** Observe how diminishing interest in Pakistan in West Asia may affect the Maldives' security and its handling of extremism-related challenges.

## Recommendations for India's approach in the evolving Maldivian political landscape

- **Positive Public Sentiment:** India enjoys a positive image among the Maldivian people, thanks to extensive development work and community projects. This sentiment can be leveraged for stronger bilateral relations.
- **Engagement with Youth:** Thousands of Maldivian youth have benefited from training and capacity-building programs in India. Continued engagement with youth is vital for fostering long-term ties.
- **Diverse Engagement:** India plays a significant role in the Maldives, including in tourism, trade, and investment. This multifaceted engagement should be nurtured and expanded.
- **Strengthening Regional Initiatives:** New Delhi should focus on strengthening regional initiatives, such as the Colombo Security Conclave, with tangible outcomes in maritime security and the development of the Blue Economy.
- **BIMSTEC Involvement:** India should consider reimagining regional cooperation by inviting the Maldives as an observer in the Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation (BIMSTEC) at its next summit. This could enhance regional collaboration.
- **Resource Allocation:** There is a need for additional resources to support India's strategic community and media organizations in taking a more active interest in the Maldives. Building bridges of mutual understanding and trust is essential.

## Conclusion

- The Maldives' recent presidential election underscores the resilience of democracy and the evolving political landscape in South Asia. As the nation embarks on a new chapter, prudent diplomacy and strategic engagement will be essential for the Maldives and its regional partners, including India, to navigate the challenges and opportunities on the horizon.

## 23. One year of Tele-MANAS

India's round-the-clock mental health helpline - Tele-MANAS that was launched in World Mental Health Day, October 10, 2022 has completed one year.

### Tele MANAS

- **About-** Tele Mental Health Assistance and Networking across States (Tele MANAS) is the National Tele Mental Health Programme of India.

- It is conceptualised as the “digital arm of the National Mental Health Programme”.
- **Announced in** - Union Budget 2022
- **Nodal agency**- Ministry of Health and Family Welfare (MoHFW)
- **Aim**- To provide universal access to equitable, accessible, affordable and quality mental health care through 24X7 tele-mental health services.
- **Objectives**-
  - To exponentially scale up the reach of mental health services to anybody who reaches out, across India, any time
  - To implement a full-fledged mental health-service network (counselling, integrated medical and psychosocial interventions)
  - To extend services to vulnerable groups of the population and difficult to reach populations.
- **Technology partner**- International Institute of Information Technology, Bengaluru
- **Nodal centre**- NIMHANS, Bengaluru
- **Health system domain**- National Health Systems Resource Centre
- **Helpline numbers**- 14416 and 18008914416
- **Institutional mechanism**- MoHFW formed a National Technical Advisory Group (NTAG) and 3 technical advisory sub-committees to achieve specific goals and objectives of Tele MANAS.
- **Two tier system**-
  - **Tier 1**- State Tele MANAS cells, which include trained counsellors and mental health specialists
  - **Tier 2**- District Mental Health Program (DMHP)/Medical college resources

### What is the need to launch Tele MANAS?

- **COVID-19 lockdown** - It witnessed a ‘mental health pandemic’ unfolding burnout, fatigue, anxiety.
  - As per National Crime Record Bureau (NCRB), 1.64 lakh people took their lives in 2021, due to pandemic-induced economic stress.
- **Mental illness**- Even before the pandemic, the World Health Organisation(who) has noted that India has one of the world’s largest populations of people with some degree of mental illness.
- **Shortage of fund**- India spends less than 1% of its entire healthcare budget on mental health translating into a shortage of professionals, specialised facilities and hospitals, especially in rural areas.

### How significant is Tele MANAS in the past 1 year?

- **Calls received-** Since its launch in 2022, it received over 3,40,000 calls from 51 cells spread across 32 States and Union Territories.
- **Response to COVID 19-** The helpline acknowledged the mental health crisis in wake of the COVID-19 pandemic and stressed on the urgent need to establish a digital mental health network.
- **Safety-** No calls are recorded and the principles of confidentiality and consent are kept as fundamental.
- **Medical support-** People needing targeted, prolonged care and support are referred to appropriate healthcare facilities and specialists including psychologists, psychiatrists and social workers.
- They may also be linked with e-Sanjeevani, Ayushman Bharat health and wellness centres and emergency psychiatric facilities.
- **Callback-** There is a procedure to schedule callbacks until the crisis is handled or the person says they don't need further help.

### What are the concerns of Tele MANAS?

- **Privacy-** NIMHANS revealed in an RTI response that Tele-MANAS does not have a data privacy policy.
- Patient data is stored in cloud services of companies approved by the Centre's Ministry of Electronics and Information Technology.
- The Supreme Court has affirmed in 2017 that data privacy laws apply to all information about a person (including mental health).

In 2023, vaccine portal CoWIN's data was breached, with a Telegram bot spewing out personal details like name, Aadhaar and passport numbers.

- **Lack of clarity-** It is unclear what data is recorded, how it is used and who has access to it.
- **Lack of transparency-** NIMHANS is working on incorporating data protection rules per the provisions of the new Act, but it "cannot disclose" how this will be implemented.
- **Lack of regulation-** The absence of regulation poses a considerable risk to the protection of mental health data and rights of persons with mental illness.
- **Lack of data-** There is no detailed, disaggregated record of the socio-economic profile of callers, their gender, caste or class status, making it hard to assess the reach of these services among the unreached.
- **Poor accessibility-** Those with mental health issues and most in need of help often experience poor digital literacy and lack access to smartphones and internet connections.

- A recent pilot study in Andhra Pradesh dominated by STs shows that the poor internet connectivity and limited infrastructure plagued its impact.
- **Gender disparity-** Less than a third of Indian women own a mobile phone, about 33% fewer women than men have access to the internet to know about government run helplines.
- **Over emphasis-** Experts warn against favouring one solution over tackling other systemic barriers.
  - The budgetary estimate for the Tertiary Care Programme dropped by 42% this year.
- **Telepsychiatry-** Public health scholars have cautioned that telepsychiatry may trade quality care for market efficiency, productivity and cutting costs, redistributing existing psychiatric resources rather than creating and investing in community mental health, rehabilitation, recovery and caregiving.
- **Prank calls-** About 4% of calls so far have been fake, some making offensive and sexual remarks.

### What lies ahead?

- The data should be protected under India's Information Technology Act, 2000 and the contentious Digital Personal Data Protection Act, 2023.
- 2024 is crucial not only for raising awareness and reaching out to people, but also overcoming recruitment challenges currently hindering the helpline.
- Every nook and corner of the country must be made aware of the toll free number, they must know that help is just a phone call away.

## 24. UN Security Council reform

- The issue of fundamental reforms at the United Nations (UN) has resurfaced at the ongoing General Assembly session.
- President Recep Tayyip Erdoğan of Türkiye has declared that the Security Council no longer guarantees world security but serves as a battleground for a select few. UN Secretary-General António Guterres warns that the organization must evolve to reflect the changing world.

### The need for reform within the UN Security Council

- **Outdated Structure:** The current composition of the Security Council reflects the geopolitical realities of 1945 and fails to account for the significant changes in the world since then.
- **Inadequate Representation:** In 1945, the Council had 11 members out of 51 UN member countries, representing 22% of the states. Today, with 193 member states, the Council consists of only 15 members, less than 8% of the total.
- **Lack of Equitability:** The existing composition gives undue weight to the balance of power of 1945. For instance, Europe, with just 5% of the world's population, controls 33% of the Council's seats.
- **Historical Inequity:** Some countries, like Japan and Germany, which have been major financial contributors to the UN, are still labeled as enemy states in the UN Charter, despite their significant contributions.
- **Failure to Address Current Challenges:** The Council's inability to adapt to the contemporary world hampers its effectiveness in addressing current global issues and crises.
- **Global Dynamics Have Changed:** The world has changed significantly since 1945, and the Council needs to evolve to remain relevant and capable of addressing 21st-century challenges.

### Obstacles to Reform

- **High Bar for Charter Amendment:** One of the primary obstacles to reforming the UN Security Council is the high bar set for amending the UN Charter. Any amendment requires a two-thirds majority of the overall UN membership, which translates to the support of 129 out of 193 states in the General Assembly. This level of consensus is challenging to achieve.
- **Ratification Hurdles:** Beyond the General Assembly's approval, amendments must also be ratified by two-thirds of the member states. Ratification is typically a parliamentary procedure, making it essential for the proposed reforms to gain widespread support and avoid opposition from any member state.
- **Resistance from Current Permanent Members:** Existing permanent members of the Security Council, notably China, may resist reforms that could dilute their status as the only Asian permanent member. This resistance can be a significant roadblock to any reform efforts.
- **African Representation:** Africa, with 54 member states, insists on having two permanent seats. However, resolving the rival credentials of nations like Nigeria, South Africa, and Egypt poses a substantial challenge.
- **No Consensus on Semi-Permanent Members Proposal:** A proposal to create a second category of semi-permanent members with 10-year electable terms



has not found acceptance among the principal aspirants, adding to the complexity of reform discussions.

- **Geopolitical Conflicts:** Ongoing geopolitical conflicts, such as the Ukraine crisis, highlight the Security Council's gridlock in responding effectively to global issues when permanent members exercise their veto powers.

### Stances by Countries

- Reforming the Security Council faces opposition from both rival countries and those who fear losing their influence.
- The high bar for amending the UN Charter, requiring a two-thirds majority of member states and ratification by the same, makes change difficult.
- China resists diluting its status as the sole Asian permanent member, Pakistan opposes India's inclusion, and Indonesia has reservations.
- In Latin America, Brazil's claims clash with those of Argentina and Mexico. Africa, with 54 member states, demands two permanent seats, further complicating the issue.

### The case for India's inclusion in the UNSC

- **Population Size:** India is the world's second-most populous country, with over 1.3 billion people.
- **Economic Significance:** India has emerged as one of the world's fastest-growing major economies.
- **Peacekeeping Contributions:** India has been a consistent and substantial contributor to UN peacekeeping missions.
- **Regional Influence:** India's geographical location places it in a critical region of Asia. Its inclusion in the Security Council would provide a balanced representation of Asian interests and perspectives.
- **Diplomatic Engagement:** India has a long history of active engagement in international diplomacy and has played a constructive role in various global forums.
- **Democracy and Pluralism:** India is the world's largest democracy, with a diverse and pluralistic society.
- **Representation of the Global South:** India's presence in the Security Council would provide greater representation to the Global South, addressing concerns of equity and diversity in international decision-making.

### The issue of continuing gridlock

- **Lack of Progress Over Decades:** Despite the urgent rhetoric, the UN has missed several milestones for reform, including the 50th, 60th, 70th, and 75th anniversaries of the organization.

- **Obstructionism and Veto Use:** The ongoing gridlock in the Security Council is exemplified by instances where permanent members have used their veto powers to block resolutions on critical issues. For example, Russia's repeated use of the veto has obstructed resolutions related to Ukraine, Mali, Syria, and North Korea.
- **Failure to Respond to Crises:** The Security Council's inability to respond effectively to crises, such as when a permanent member invaded a sovereign UN member state (as seen in the Ukraine conflict), underscores the Council's limitations in addressing pressing global challenges.
- **Stalemate in Financial Institution Reforms:** The gridlock extends to other areas, such as reforms of international financial institutions like the World Bank and the International Monetary Fund.

### Way Forward

- **Acknowledging the UN's importance:** Recognize the vital role that the United Nations (UN) plays as the only global platform that brings all countries together. It serves as a crucial forum for international cooperation, diplomacy, and conflict resolution.
- **Addressing the Challenges:** While acknowledging the challenges and obstacles to reform, member states should actively engage in discussions and negotiations to find viable solutions.
- **Building Consensus:** Prioritize the process of building consensus among member states on the need for Security Council reform. Diplomatic efforts should focus on finding common ground and shared objectives.
- **Flexible Reform Proposals:** Explore flexible reform proposals that can accommodate the diverse interests and aspirations of member states. Proposals should be open to adjustments and compromises to secure broader support.

### Conclusion

- The ongoing debate on Security Council reform must prioritize maintaining the UN's relevance in the 21st century by achieving equitable representation through innovative solutions that balance emerging powers' aspirations with existing permanent members' concerns, ensuring the UN fulfills its mission as a global platform for peace and progress.

## 25. Inclusion of PM Vishwakarma Scheme under Payments Infrastructure Development Fund (PIDF) Scheme

The Reserve Bank of India (RBI) has recently stated that the **beneficiaries** of **PM Vishwakarma** will now be included under the **Payments Infrastructure Development Fund (PIDF) Scheme**.

- Earlier, **PM Vishwakarma scheme** has offered up to **8% subsidy** for loans given to artisans.

Latest decisions of RBI

- The RBI has **increased** the **tenure** of **PIDF Scheme** by another **2 years** or till the end of **2025**.
- The decision to expand the **targeted beneficiaries** under the **PIDF scheme** will promote **digital transactions** at the **grassroots level**.

**PIDF Scheme:**

- The PIDF Scheme aims at incentivising the **deployment** of **payment acceptance infrastructure** such as physical **Point of Sale (PoS)**, **Quick Response (QR) codes** in **tier-3 to tier-6 centres**, **north-eastern states** and **Union Territories** of Jammu & Kashmir and Ladakh.
- With the operationalisation of the scheme, acquiring banks, non-banks, and merchants will benefit due to **lower overall acceptance infra cost**.
- It will allow **merchants** engaged in **services** such as **transport** and **hospitality**, **government payments**, fuel pumps, public distribution system (PDS) shops, healthcare and kirana shops to accept payments through **debit** and **credit cards**.
- Its **objective** was to **strengthen** the **payment acceptance** infra by including **30 lakh touch points**, which includes **10 lakhs physical** and **20 lakh digital payment devices** every year.
- The scheme was operationalised in **2021**.
- As per the **original plan**, the **tenure** of PIDF scheme was fixed for **3 years** or till the end of **2023**.
- The **initial contribution** to the fund of **Rs 250 crore** will be made by the **RBI**.
- Beneficiaries of **PM SVANidhi Scheme** in **Tier-1** and **2 centres** were later included under the **PIDF scheme**.
- **Suggestion:** Deployment of emerging modes of payment acceptance, such as **soundbox devices** and **Aadhaar-enabled biometric devices**, must also be encouraged under the PIDF Scheme.

**Management of scheme:**

- An Advisory Council chaired by RBI Deputy Governor will manage the PIDF.
- The Advisory Council had devised a **transparent mechanism** for the allocation of **targets** to **acquiring banks** and **non-banks** in different segments and locations.
- The **RBI**, with assistance from **card networks**, the **Indian Banks' Association (IBA)**, and the **Payments Council of India (PCI)**, had monitored the **implementation** of these targets.

### How will the PIDF scheme be implemented?

- The scheme focused on **targeting merchants** who had yet to be **terminalized**- those **without** any **payment acceptance devices**.
- It was decided that **tier-3** and **tier-4 centres** would receive **30%** of the **acceptance devices**, **tier-5** and **tier-6 centres** would get **60%**, and the **north eastern states** would be given **10%**.
- Multiple payment acceptance devices funded under this scheme includes- infrastructures that supports underlying card payments, such as physical Point of Sale, mobile Point of Sale, General Packet Radio Service (**GPRS**), Public Switched Telephone Network (**PSTN**) etc.

### Impact of the PIDF scheme:

- RBI has reported impressive growth in the number of **physical** and **digital payment acceptance devices** deployed under the PIDF Scheme.
- As of the end of **2022**, the **total number** of **physical** and **digital payment acceptance devices** was about **1.87 crore**.
  - This marks a significant jump from the initial figure at the time of the scheme's launch.

### PM Vishwakarma scheme:

- The scheme provides **collateral-free loans** of up to **₹3 lakh** to **artisans** in 18 fields at a very affordable interest rate of **5%**.
- Initially, **₹1 lakh loan** will be given and the **beneficiary** would be **eligible** for an **additional ₹2 lakh** after repayment schedule of **18 months**.
- The components includes- **financial support**, advanced skill training, knowledge of modern digital techniques and efficient green technologies, brand promotion, linkage with local and global markets, digital payments, and social security etc.

## 26. Legal provisions are available regarding Custodial Death

The Gujarat State Law Commission (SLC) has recently submitted a report to the state government making several suggestions, to the increasing incidents of custodial death in Gujarat.

### Custodial death

- Custodial deaths are events of the demise of persons who are detained by police during pretrial or after conviction.
- **Classification-** It can be broadly classified into 3 types
  - Death in police custody
  - Death in judicial custody
  - Death in custody of army or paramilitary force
- **Cause**
  - Illness
  - Suicide
  - Infighting among prisoners
  - Police brutality and torture
  - Fake encounters
- **Issues-** Custodial deaths are one of the highest forms of violation of human rights.
- It is a blunt attack on the Right to life and liberty (Article 21) guaranteed by the Indian Constitution.

### What legal provisions are available regarding Custodial Death?

- **IPC Section 330-** If any public servant causes injury to any person to extort confession he will be liable for punishment with imprisonment upto 7 years.
- **Right not to be a witness against himself-** Article 20(3) of the Constitution provides that no accused person will be compelled to be a witness against himself.
- **Section 163 of CrPC-** It prohibits the investigating officers from forcing any person to make any statement which he would like to make on his free will.
- **Indian Evidence Act, 1872-** Section 25 states that no confession made to a police officer can be used to prove any offence against him.
- Section 26 makes all confessions made during custody inadmissible unless made in the immediate presence of a Magistrate.
- **Supreme Court judgements-** The SC has mandated that all police stations and investigation agencies must install CCTV cameras.

- **Joginder Kumar v. State Of U.P and Others 1994-** The SC held that the police officer shall inform the arrested person when he is brought to the police station of this right.
- **D.K. Basu Vs State of West Bengal (1997)-** The Supreme Court issued a list of 11 guidelines.
  - Details of all personnel handling the interrogations of the arrested person must be recorded in a register.
  - A memorandum of arrest at the time of the arrest should be prepared.
  - Police must notify a detainee's time, place of detention, and place of custody.

### What are the recommendations of the report on custodial death?

- The report has suggested the need for reforms
  - To sensitise the police to function within the constitutional framework.
  - To promote transparency by installation of video-audio enabled CCTV cameras at police stations and prisons.
  - To take strict legal action against police personnel who misuse their official position.
  - To conduct regular health check-ups of prisoners.
  - To have exclusive interrogation teams specialising in the process of gathering evidence from those detained.
- It has also highlighted the fact that the doubts on the functioning of the police are raised rampantly because many of the policemen are trying their best to misuse their power.

### 27. Interlinking of Rivers and its concerns

India's river interlinking projects, aimed at addressing droughts and floods, may worsen water stress and disrupt monsoon patterns, according to a study in Nature.

#### Key highlights of the study

- **Research team-** Indian Institute of Technology, Bombay and the Indian Institute of Tropical Meteorology, Pune.
- **Analysis-** It analysed major river basins – namely Ganga, Godavari, Mahanadi, Krishna, Cauvery and Narmada-Tapi – between 1991 and 2012, observing the summer rainfall patterns between May and October each year.
- **Methodologies-** They used climate regional models, reanalysis datasets and delineation techniques to see how inter-basin water transfers impact the water cycle and different atmospheric variables, such as the El Niño-Southern Oscillation, which controls soil moisture across basins.

- **Land atmosphere feedback**-The water transfer could have an effect on nearby basins through land-atmosphere feedback, especially given how strongly the land interacts with the atmosphere in the Indian region.

Land atmosphere feedback refers to the energy exchange between land surface and atmosphere.

- The research debunked the idea that river basins act as independent entities as they are connected to one another through feedback loops between the land and atmosphere, links that are formed when water evaporates from one basin or when winds transport water across basins.
- **Alter moisture content**- The study showed that since land-atmosphere feedback connects basins, changes in water levels in one can travel to neighbouring basins, altering the moisture content of the air and patterns of wind.
  - They impact summer monsoons and create a feedback loop, impacting water availability and climate patterns.
  - Thus, over time, moisture from the Ganga basin might play a role in how clouds are formed across Chhattisgarh and Odisha around the Mahanadi basin.
- Land-atmosphere feedbacks produce causal pathways between river basins in India using causal delineation techniques, a coupled regional climate model, and multiple reanalysis datasets.
  - The analysis disproves the conventional assumption of independence when planning hydrological projects by showing how river basins are connected through feedback between the land and atmosphere
- **Hydro-meteorological effects**- There is no proper study about hydro-meteorological effects in the interlinking of rivers projects that involve the transfer of water through reservoirs and canals from river basins that are in surplus to those that are in deficit.
- **Impact on monsoon**- Interlinking of rivers will have impact on the Indian summer monsoon, potentially reducing September rainfall in arid regions and escalating water stress.
- **Increase water stress**- Increased irrigation from the transferred water reduces mean rainfall in September by up to 12% in already water-stressed regions of India.
  - India is among the most water-stressed countries in the world, as climate change increases the frequency of floods and droughts, groundwater quality and levels decline, and urbanisation and encroachment ail water body health.

- The current per capita availability of water in India is around 1400 cubic meters, slated to reduce to about 1200 cubic meters by 2050, according to the Central Water Commission
- **Excess irrigation-** Excess irrigation (using transferred water) caused soil moisture to dry up, which corresponded with a decline in rainfall and increased temperatures across the entire central Indian belt (from Rajasthan to east coast), more visible during the La Niña years (which last between one to three years).
- **Atmospheric variables-** It highlights the significance of taking atmospheric variables into account in large-scale hydrological projects and offers a ground-breaking scientific assessment of the interconnectedness of river basins.
- **Delicate balance-** The results provide understanding of potential effects of river interlinking, emphasising the need for a careful balance between ecological sustainability and meeting water needs.
- **Reduction in precipitation-** This can dry rivers post monsoon, augmenting water stress across the country and rendering interlinking dysfunctional.
- **Alteration of river flow-** The environmental experts and activists have advocated for policymakers to evaluate the impact how groundwater, land atmosphere feedback, local ecosystem, monsoon patterns respond to inter-basin water transfers or other projects that alter the natural flow of rivers.
- **Earlier studies-**
  - 2017 study warned that “moving even slightly away from the natural flow regime (the recorded historical pattern of floods and droughts) can lead to a collapse in the structure of ecological networks.”
  - In 2011 researchers also found any interlinking project could cause lasting changes in the aquatic system and fish diversity.

### What lies ahead?

- Inter-basin water transfer was pushed to be resilient solutions present conflicting dual objectives of meeting water demands and balancing ecological sustainability.
- The present study finds it of “utmost importance” to understand complex hydro-meteorological systems when planning and implementing infrastructure projects and to “carefully consider the potential consequences of river interlinking on the nation’s water security and climate resilience”.



## 28. India needs more doctors

- The demand for doctors exceeds the supply in large parts of India.
- The demand for doctors in India consistently surpasses the available supply, while the pursuit of medical education often outstrips the number of seats available. Reducing this demand-supply gap in medical education has proven to be a challenging endeavor, with potential implications for the availability of healthcare professionals.

### Expanding Medical Education

- Over the last decade, India has made significant strides in expanding medical colleges and seats at both undergraduate (UG) and postgraduate (PG) levels.
- UG seats have nearly tripled, PG seats have almost quadrupled, and the number of medical colleges has doubled since 2010-11.
- Despite this expansion, in 2021, India had only 4.1 medical graduates per lakh population, falling behind countries like China, Israel, the US, and the UK.

### Challenges in scaling

- **Regulatory and Financial Constraints:** On average, Indian medical colleges offer 153 UG seats per college, significantly fewer than Eastern Europe (220) and China (930). This discrepancy is a result of regulatory and financial constraints.
- **Infrastructure Limitations:** Expanding UG seats in a public medical college from 150 to 200 required additional resources, such as a larger library, increased daily outpatient department (OPD) footfalls, and more nursing staff, as per the draft guidelines for establishing new medical colleges in 2015.
- **Quality Maintenance:** Concerns that disproportionate scaling can impact the quality of pedagogy and, subsequently, the quality of doctors produced
- **Faculty Shortages:** Both public and private colleges face teaching faculty shortages, despite better remuneration structures in public colleges. Scaling up can further strain the already limited pool of qualified teaching staff.
- **Economic Viability for Private Colleges:** Investing in scaling can be risky for private colleges if seats remain vacant and costs aren't recovered. This can lead to high capitation fees and price distortions.
- **Curriculum Limitations:** The nature of the competency-based curriculum dictates constraints on scalability. For example, there can't be more than 15 students surrounding a bed or in any other practical class.
- **Equity Concerns:** The goal of producing doctors evenly across regions might not result in efficient production. Migration of doctors from states with higher production can be an issue.

## Quality vs. Scale vs. Equity: A triad of challenges

- **Quality:**
  - Ensuring the highest standards of medical education, which translates into competent, skilled, and ethical practitioners.
  - The competency-based curriculum in India requires small-group teaching to ensure a thorough understanding and hands-on experience for students.
  - There's a concern that rapid scaling could lead to a decline in the quality of education and subsequently the quality of doctors produced.
  - Quality assurance becomes even more critical given the life-and-death implications of medical practice.
- **Scale:**
  - Increasing the number of medical graduates to meet the country's healthcare needs.
  - Despite the expansion of UG and PG seats in medical colleges, the demand-supply gap persists.
  - Regulatory, infrastructural, and financial constraints pose significant challenges in scaling up.
- **Equity:**
  - The National Medical Commission prioritizes an even distribution of medical colleges and seats. They aim for localized doctor production to ensure different regions have adequate healthcare.
  - Policies such as the cap on UG seats and the location restrictions of new colleges highlight this focus.
  - However, this might not lead to efficient doctor production due to phenomena like interstate migration of doctors.

## Way forward

- **Regulatory Reforms:** Streamline regulations to facilitate the establishment and expansion of medical colleges while ensuring quality standards.
- **Faculty Development:** Prioritize investment in faculty development programs to address shortages and retain experienced educators.
- **Technology Integration:** Embrace technology to enhance scalability and access to medical education, including e-learning and telemedicine tools.
- **Competency-Based Curriculum:** Continue to implement competency-based curricula to produce doctors with practical skills and real-world readiness.
- **Incentives for Rural Service:** Develop and implement policies that incentivize medical graduates to serve in underserved rural areas, addressing healthcare disparities.

- **Public-Private Collaboration:** Foster collaboration between public and private sectors to expand the availability of medical education seats and improve educational infrastructure.

## Conclusion

- Bridging the gap between the demand for doctors and the supply of medical education is a multifaceted challenge in India. To meet the growing healthcare needs of the population, policymakers must carefully consider the trade-offs between quality, scale, and equity in medical education.

## 29. Electoral bonds case to 5-judge Constitution Bench

- Chief Justice of India D.Y. Chandrachud has referred the challenge to the validity of the electoral bonds scheme to a Constitution Bench of five judges.
- The scheme allows for anonymous donations to political parties, and its legality has been a matter of contention.
- The case has been pending for over eight years in the Supreme Court.

## Key Points

- The challenge to the electoral bonds scheme was referred to a larger Constitution Bench due to the importance of the issue.
- The case will be listed for a hearing on October 31, signalling that the court is committed to addressing the matter promptly.
- The petitioners argue that the scheme legalises anonymous donations to political parties, violating citizens' right to information about political funding and potentially promoting corruption.
- The case involves potential violations of Articles 19, 14, and 21 of the Constitution.
- The Constitution Bench may not immediately address the question of whether the scheme passed as a Money Bill but may await a seven-judge Bench's decision on this issue.

## Background

- The electoral bonds scheme has been contentious as it enables anonymous and sanitised political donations, limiting public transparency about the sources of funding.

- Amendments in the Companies Act allowed companies to donate to political parties via electoral bonds while maintaining anonymity.
- Critics argue that the scheme, established through Finance Acts in 2016 and 2017, opens the doors to unlimited political donations.

## Conclusion

- The reference to a Constitution Bench underscores the significance of the electoral bonds scheme challenge.
- The court's decision to proceed promptly signals its intent to address the long-standing issue of anonymous political donations and the potential consequences for transparency and corruption in political funding.

## 30. Judicial Appointments in India

The Supreme Court told the Union government that the Collegium's recommendations for appointing judges could not be put on hold.

- **Until 1993**, judges in India were appointed by the President in consultation with the Chief Justice and two other senior-most judges of the Supreme Court.
- **Since 1993**, the **Collegium system**, evolved by the Supreme Court, has been responsible for appointments and transfers of judges in the higher judiciary. However, the nominal appointing authority remains the **President of India**.

### Collegium System:

- The **Collegium system**, which is not explicitly mentioned in the Constitution of India, has evolved through the Supreme Court's three judgments, known as the **Three Judges Cases (1981, 1993, and 1998)**.

### Three Judges Cases:

- **S. P. Gupta v. Union of India (1981)**: Also known as the Judges' Transfer case.
- **Supreme Court Advocates-on Record Association vs Union of India (1993)**: The court established the principle of judicial independence, ensuring that no other state branch would influence the appointment of judges.
- **Third Judges Case (1998)**: Not a case but an opinion on the collegium system, raised by the then President of India under his constitutional powers.

## Procedure for Appointment of Judges to the Supreme Court:

**Article 124 (2)** of the Constitution details the process for appointing judges to the higher judiciary.

Under the **Collegium system**:

- The **Chief Justice of India** and his **4 senior colleagues** make recommendations for candidates to be appointed as **Supreme Court and High Court judges** to the **President**.
- The Collegium for the **Supreme Court** can recommend two types of appointments: **elevation of high court judges to the Supreme Court** and **direct appointment of senior lawyers as Supreme Court judges**.
- For appointments to the high courts, the **Supreme Court Collegium** consists of the **Chief Justice of India** and **two senior-most judges**.
- For appointments to the **Supreme Court**, the Collegium consists of **five judges**.

**High courts' Collegium:**

- **High courts** also have a **Collegium**, headed by the **chief justice of the high court** and **two senior-most judges** as members.
- This high court Collegium sends its judicial appointment recommendation to the **Supreme Court Collegium**.

## Procedure for Appointment of Judges to High Courts:

The **Memorandum of Procedure (MoP)** for the appointment of High Court judges provides a detailed process:

- The **High Court Collegium** makes the recommendation to the **state government**.
- The state government forwards the names to the **Centre** with its input.
- The Centre sends the names to the **Intelligence Bureau (IB)** for background checks. The IB then sends its report to the **Supreme Court Collegium**.
- The Supreme Court Collegium reviews the IB report and recommends the names to the **Centre** for appointment.
- The Centre can either accept the appointments or return the file to the Collegium for reconsideration.
- The Collegium can reiterate names sent back by the Centre. If the Collegium reiterates a name, the Centre is bound to appoint the candidate, though no specific time limit is set for this.

- A similar procedure is followed for the appointment of judges to the **Supreme Court**, with the initial recommendation coming directly from the **Supreme Court Collegium**.

### 31. Right of Unborn Child

Recently, the Supreme Court refused to permit the married woman to terminate her 26 week pregnancy, thereby upholding the right of unborn child.

Unsafe abortions continue to be the 3<sup>rd</sup> leading cause of maternal mortality. 60% of abortions carried out in India are unsafe.

#### Recent Supreme Court ruling about

- **Petition** - A 27-year-old married woman, who already has two sons, has pleaded that the current pregnancy was unplanned.
- It was stated that the petitioner was physically, mentally, financially and medically unable to carry, deliver or raise a child.
- **Counter arguments-** The medical reports show a healthy foetus with no abnormalities.
- It also said the woman was well past the abortion limit of 24 weeks under the Act.
- This is no longer a case of pro-life [life of the child] or pro-choice [reproductive autonomy of the woman].
- The government is willing to undertake the expenses of the delivery at the appropriate time and if the parents desire the centre would facilitate the adoption of child.
- **Court ruling-** It noted that the medication taken by the woman for her mental condition had not affected the foetus.
- The Court made it clear that the woman cannot claim an “absolute, overriding right” to abort, especially when multiple reports from the AIIMS medical board have confirmed that the pregnancy was neither a cause of immediate danger to her life nor that of the foetus.
- **Condition for pregnancy termination-** Section 5 of the Medical Termination of Pregnancy Act prescribes medical termination if the pregnancy was “immediately necessary to save the life of the pregnant woman”.
- The court’s concern expand beyond the pregnant women to embrace the rights and well-being of the unborn child.
- The court said the term ‘life’ used in this provision cannot be equated to the broader meaning in which life is used in Article 21.

Article 21 - Fundamental Right to a Dignified and Meaningful Life

## What are the concerns with the recent court ruling?

- **Foetal viability** – Foetal viability is time after which a foetus can survive outside the womb.
- The test of “foetal viability” as a benchmark to allow abortion is new in India.
- The landmark 1973 US Supreme Court verdict made abortion a constitutional right allowed abortion up to the point of foetal viability.
- Foetal viability in 1973 was pegged at 28 weeks (7 months), which is now lowered at 23-24 weeks (6 months). It has been argued, that foetal viability is an arbitrary standard.
- **Criticism of MTP Act**- The decision to terminate after 20 weeks is shifted to doctors and not the woman.
- **Right of unborn child**- The Indian legal framework on reproductive rights tilts to the side of the woman’s autonomy to decide and choose more than towards the rights of the unborn child.
  - No international law recognises the right of the foetus or right of the unborn child.
- In 2005, Rajasthan High Court in Nand Kishore Sharma vs Union of India rejected a challenge to the constitutional validity of the MTP Act on the grounds that it violates the fundamental right to life of an unborn child.
- The right of an unborn child has formed the basis of legislation that deal with succession or the law banning sex-determination of foetus.
- Section 416 of the Code of Criminal Procedure also provides for postponement of the death sentence awarded to a pregnant woman.

## 32. Digital India Act 2023 (DIA)

**Ministry of Electronics and Information Technology (MEITY)** recently announced Digital India Act 2023 (DIA) representing a significant step towards establishing a future-ready legal framework for developing digital ecosystem of the country.

### Digital India Act 2023 (DIA):

- The act will replace **Information Technology Act of 2000 (IT Act)**.
- It is designed to address the **challenges** and **opportunities** presented by the rapid development of the internet and emerging technologies.

### Need for the Act:

- **Updating Regulatory Landscape:** To bring India's regulatory framework in line with the digital revolution of the 21st century.

- **Outdated IT Act (2000):** The IT Act of 2000, which was created when the internet was just getting started, has had a difficult time keeping up with the quick advancements in technology and user behaviour.
- **Explosive Growth in Internet Users:** Since its inception, India's internet user base has increased from a mere 5.5 million to a staggering 850 million.
- **Emergence of New Challenges:** The nature of internet usage has evolved, with the emergence of various intermediaries and the proliferation of new forms of user harm, such as cyberstalking, trolling, and doxing.

### Key provisions of the Act:

#### Emphasis on online safety and trust:

- It places a strong emphasis on **online safety and trust**, with a commitment to **safeguarding citizen's rights** in the digital realm while remaining adaptable to shifting market dynamics and **international legal principles**.

#### Addressing growing importance of new-age technologies:

- Recognising the growing importance of new-age technologies such as **artificial intelligence** and **blockchain**, the DIA provides **guidelines** for their **responsible utilisation**.
  - Through this, it aims to not only **encourage the adoption** of these **technologies** but also to ensure that their deployment is in line with **ethical and legal principles**.
- DIA does not just leave it to the market to dictate the course of new-age technologies but actively engages in shaping their development and use within a regulatory framework.
  - By doing so, the DIA strikes a balance between fostering innovation and safeguarding against potential harms.
- It promotes **ethical AI practices**, **data privacy in blockchain** applications, and mechanisms for **accountability** in the use of these technologies.

#### Upholds the concept of an open internet:

- The act upholds the **concept of an open internet**, striking a balance between accessibility and necessary regulations to **maintain order and protect users**.
- It mandates stringent **Know Your Customer (KYC) requirements** for wearable devices, accompanied by criminal law sanctions.

#### Safe harbour principle:



- It contemplates a review of the **safe harbour principle**, which presently **shields online platforms from liability** related to **user-generated content**, indicating a potential shift in **online accountability standards**.

#### Issues with the Act:

##### Impact on innovation and the ease of doing business:

- Stricter regulations, particularly in emerging technologies, could unintentionally **stifle entrepreneurial initiatives** and **deter foreign investments**.

##### Infringing freedom of expression:

- The **review of the safe harbour principle** could lead to a more cautious approach among online platforms, possibly **impinging on freedom of expression**.

##### Depends on effective enforcement:

- The DIA's success depends on **effective enforcement**, which will require substantial **resources, expertise, and infrastructure**.

### 33. Foundation Day of CSIR

The **82nd foundation day of the Council of Scientific & Industrial Research (CSIR)**, was celebrated recently at CSIR- Indian Institute of Integrative Medicine (IIIM), Jammu.

#### About CSIR:

- CSIR was established as an **autonomous body in 1942** by Arcot **Ramasamy Mudaliar** and **Shanti Swaroop Bhatnagar** for expertise in research and development (R&D) of scientific and technological fields.
- **Aim:** To address **societal challenges** like environmental issues, healthcare, clean drinking water, food, housing, energy, and agricultural sectors.
- It covers **diverse areas** like oceanography, geophysics, chemicals, drugs, genomics, biotechnology, nanotechnology, mining, aeronautics, instrumentation, environmental engineering, and information.
- It functions under the ambit of **Ministry of Science & Technology**.

- It is administered by a **Governing body**, **Bbody** and **Performance Appraisal boards** under the overall **Presidency of the Prime Minister**.

### Significance:

- It is the **largest R&D organization** in India having 37 national laboratories, 39 outreach centers, an Innovation Complex, and three units across India.
- India's **intellectual property movement** is strengthened by its **patent portfolio**, which files Indian and foreign patents and secures them among publicly funded research organizations.
- By 2022, 3521 active scientists and 4162 technical and support personnel contributed to its **research initiatives**.

### 34. India's Growing Stake in the Middle East

- As tensions continue to escalate in the Middle East, diplomatic efforts have gained momentum. US President Joe Biden's decision to visit Israel to assess Israeli plans is a significant development.
- The world finds itself sharply divided on this issue, with emerging geopolitical faultlines becoming increasingly solidified. These divisions are not limited to international boundaries but are also being mirrored within nations. Given India's growing interests in the Middle East, it cannot remain indifferent to the reverberations from its extended neighborhood.
- **Remarkable Foreign Policy Achievement:** India's engagement in the Middle East, under Prime Minister Modi's leadership, stands as a remarkable foreign policy achievement. This success transcends the often-debated.
- **Building Strong Ties:** prime Minister's efforts have resulted in India building strong ties with key stakeholders in the Middle East. These relationships have given India a distinct and influential role in the region.
- **Beyond Ideology:** While the India-Israel relationship has been growing steadily since the 1990s. Prime minister Modi has emphasized the need for India's Arab partners to build a relationship that addresses 21st-century challenges, shifting the focus away from religious heritage.

### India's Balanced Approach

- **Pragmatism in Diplomacy:** India's approach to the Middle East is marked by pragmatism and balance. It seeks to navigate the complex dynamics of the region with a steady hand.

- **Solidarity with Israel:** India's expression of solidarity with Israel in the wake of a terror attack should not be viewed as a shift in policy, but as a natural response to support a friendly nation in a time of crisis.
- **Support for a Two-State Solution:** India's Ministry of External Affairs reaffirms its support for negotiations aimed at establishing a sovereign, independent, and viable Palestinian state living in peace alongside Israel. This stance reflects India's long-standing position and commitment to a peaceful resolution.

### India's Transformational Role

- **Recognizing Regional Shifts:** India's engagement with the Middle East is shaped by its keen recognition of the transformative changes taking place in the Arab world. It was among the first to acknowledge and adapt to these shifts.
- **Pragmatic Engagement:** India's foreign policy in the Middle East is no longer driven solely by religious considerations. Instead, it emphasizes pragmatic engagement with regional stakeholders.
- **Critical Player:** This transformational role positions India as a critical player in the region. It allows India to respond effectively to emerging challenges and opportunities in a rapidly changing Middle East.

### Conclusion

- As the Middle East sees soaring tensions, Indian diplomacy will inevitably be under scrutiny. While challenges in the region aren't new for New Delhi, what has evolved is its ambition to play a significant role in alignment with changing strategic realities.

### 35. Belt and Road Initiative at 10, some hits, many misses

The Belt and Road Initiative (BRI) has been a significant global undertaking by China, aimed at fostering economic connectivity and development. As the initiative completes a decade, it is crucial to assess its impact, achievements, and challenges. The recent Third Belt and Road Forum for International Cooperation in Beijing brought the initiative into focus, shedding light on its evolution and repercussions.

#### Issues:

- **BRI's Intent and Early Debates:** BRI was conceived as a means for China to transition from a regional power to a global one and to reboot globalization. It sought to address concerns about the vulnerability of China's economy due to the Strait of Malacca.

- **Global Influence and Branding:** BRI served as a platform for President Xi Jinping to project China's global power and influence. It entered the Chinese Communist Party's constitution and gained prominence in the nation's plans and international cooperation pacts.
- **Massive Infrastructure Gap:** The World Bank has identified significant global infrastructure deficits in areas like electricity, potable water, and broadband coverage. BRI aimed to bridge these gaps with substantial investments in infrastructure projects.
- **Unsavory Realities:** Despite the lofty goals, BRI has faced criticism and challenges. Ecological damage, displacement of people, disputes over payments, and labour issues have marred its progress. Examples from Indonesia, Laos, and the China-Pakistan Economic Corridor (CPEC) illustrate these concerns.
- **Perceptions of Inequality:** BRI's "win-win cooperation" slogan has been tarnished by perceptions that it primarily benefits China at the expense of other stakeholders, as seen in cases like Gwadar Port's revenue distribution.

### Significance:

- **Global Infrastructure Investment:** BRI's significance lies in its substantial investments in infrastructure, addressing critical global infrastructure deficits.
- **China's Global Power Projection:** BRI has allowed China to assert itself as a global power, with economic and political influence across nations.
- **Alternative Initiatives:** The challenges posed by BRI have spurred the development of alternative initiatives, such as the United States-Japan infrastructure investment, the Build Back Better World (B3W) initiative, and the India-Middle East-Europe Corridor (IMEC).

### Solutions:

- **Addressing Environmental and Social Concerns:** China should address ecological and social issues associated with BRI projects to improve its reputation and ensure genuine cooperation.
- **Transparency and Equity:** Promote transparency and equitable agreements in BRI projects to counter perceptions of inequality.
- **Global Alternatives:** Encourage global alternatives to BRI, like the B3W initiative and IMEC, that prioritize sustainable development and equitable cooperation.

### 36. Legislators Immunity from Bribery Charges

Recently, Supreme Court referred to a 7 judge bench to question whether the legal immunity of legislators under Articles 105(2) and 194(2) protects them from bribery chargers.

#### Provisions that grant legislators immunity from prosecution

- **Article 105** –It deals with the powers, privileges, etc. of the Houses of Parliament and of the members and committees thereof.
- **Article 105(2)**- No MP shall be liable to any proceedings in any court in respect of anything said or vote given by him in Parliament and no person shall be liable in respect of the publication by or under the authority of either House of Parliament of any report, paper, votes or proceedings.
- This provision exempts MPs from any legal action for any statement made or act done in the course of their duties.
- **Article 194(2)** extends this immunity to MLAs.
- **Defamation** – The defamation suit cannot be filed for a statement made in the House
- **Immunity to non-members**- Attorney General of India or a Minister who may not be a member but speaks in the House.
- **Role of Speaker**- In cases where a member oversteps or exceeds the contours of admissible free speech, the Speaker of the House will deal with it, as opposed to the court.

#### What is the Supreme Court ruling regarding immunity?

- **1988 ruling**- In **PV Narasimha Rao vs. State (1988)**, the court held that legislators have immunity against criminal prosecution on bribery charges for any speech or vote in Parliament.
- **Current ruling** - Observing the need to examine the “correctness” of its 1998 constitution bench, the SC referred the verdict to a larger bench for fresh consideration.
- The court added that the purpose of Articles 105(2) and 194(2) is to ensure that MPs and MLAs can discharge their duties without fearing the consequences and not to set apart them as persons who wield higher privileges in terms of immunity.

### 37. SLLs need to be reformed

The article highlights the importance of including Special and Local Laws (SLLs) in criminal law reforms in India, given their substantial role in the legal landscape.

- Recent bills on criminal laws aim to reform substantive criminal law codified in the Indian Penal Code (IPC), Code of Criminal Procedure (CrPC), and Indian Evidence Act (IEA).
- However, the focus has been primarily on general criminal law, while a significant aspect of criminal laws lies within Special and Local Laws (SLLs).

### **Significance of Special and Local Laws (SLLs)**

- SLLs are highly relevant in India's criminal justice system, accounting for approximately 39.9% of all cognizable offences registered in 2021.
- They have sparked critical debates concerning the limits of the state's power in criminalization and the impact on individual rights and liberties.

### **Reform Needs in SLLs**

- SLLs suffer from vague definitions and ambiguity, exemplified by laws like the Unlawful Activities (Prevention) Act (UAPA) and the Maharashtra Control of Organised Crime Act (MCOCA).
- Concerns have arisen about criminalising conduct through SLLs that would otherwise be considered civil or regulatory offences, like consensual activities between minors.
- Due process values are being diluted through SLLs, granting authorities expanded search and seizure powers and allowing the admissibility of confessions recorded by police officers.
- Stringent bail provisions in various SLLs make securing bail nearly impossible.

### **A Shift in Criminal Laws**

- Over time, there has been a significant shift in the landscape of criminal laws with a surge in SLL enactments.
- This shift differs from the original concept of comprehensive codification, as seen in the Indian Penal Code.
- The IPC was initially envisioned as an all-inclusive collection of rules, a "Pannomion," containing all criminal laws.
- Although the IPC is criticised for archaic and colonial elements, the idea of codification within it has been successful.

### **The Need for Comprehensive Reforms**

- SLLs that criminalise or aim to criminalise specific conduct should be incorporated as separate chapters within the existing penal code.
- The procedural elements associated with Special and Local Laws (SLLs), covering aspects like reporting of offences, arrest, investigation, prosecution,

trial, evidence, and bail, should be incorporated either as distinct procedures within the Code of Criminal Procedure (CrPC) or as special cases within its standard provisions.

- Omitting the substantive and procedural aspects of SLLs from ongoing reform initiatives is a significant limitation.
- Second-generation reforms are necessary to address these gaps and ensure the comprehensive reform of India's criminal laws.

### 38. 2023 Global Survey Report on PwDs and Disasters



A global survey on impact of natural disasters on **People with Disabilities (PwD)** was released before the International Day for Disaster Risk Reduction (October 13).

- It was released by **United Nations Office for Disaster Risk Reduction (UNDRR)** to assess the **progress in government policies** to protect **people with disabilities** during natural disasters over the past decade.
- It covered **6,000 individuals** from **132 countries**.

#### Key Findings of the Survey:

- **Lack of awareness:**
  - It rose from **71% (2013) to 84% (2023)** on crucial information like evacuation routes, shelter locations, and the need for emergency supplies, which are essential parts of **personal preparedness plans**.
  - **Only 11%** of respondents reported were **aware of a disaster management plan** in their local area, a decrease from 17% in 2013.

- **Accessibility:** 44% people were **unaware of the availability of disaster risk** information in accessible formats, essential to make informed decisions during disasters.
- **Disasters and Inequality:** Unequal access to services leaves vulnerable individuals exposed to disaster risks, and its impact can further push **marginalized groups into poverty.**
- **Impact on People with Disabilities:** 16% of the world's people have some form of disability and are **2-4 times more likely** to be killed by disasters than the rest of the population.
  - For example, PwDs were **twice** as likely to die in the **Great East Japan Earthquake** of 2011.

### Need for inclusion of PwDs:

- The world is projected to face some **560 disasters every year by 2030**, and their exclusion of PwDs can lead to dire consequences and **exacerbate existing inequalities.**
- Despite an **increased interest** in participating (57% in 2023 and 51% in 2013), the individuals who felt excluded from community-level disaster planning, **remained unchanged at 86%** since the 2013 survey.

### Recommendations:

- **Good Practices across the world:**
  - Dedicated **emergency lines for the deaf** to report emergencies (**Jordan**),
  - Participation in **legal frameworks** on disaster & climate management (**Uganda**),
  - Individualized **community emergency** preparedness plans (**Australia**).
- **Early Warning System:** If provided with sufficient early warning, 39% of respondents would not face difficulty in evacuation, as compared to **26% if no warning was issued.**
  - Half of the countries lack such mechanisms.
- **Sendai Framework for Disaster Risk Reduction (2015-2030):**
- It called for **disability inclusion**, provision of **accessible disaster risk information** and establishing inclusive and **end-to-end early warning systems.**

### International Day for Disaster Risk Reduction:

- It is celebrated **since 1989** by the **United Nations General Assembly** to promote a global culture of risk awareness and disaster reduction.



- Held **every 13 October**, the day celebrates how people and communities around the world can **reduce their exposure to disasters** and raises awareness about its risk reduction.
- In 2023, this day would explore the **reciprocal relationship** between **disasters and inequality** as unequal access to services like **finance and insurance**, exposes danger of disasters.

#### **Convention on the Rights of Persons with Disabilities:**

- It is a **legally binding international instrument** signed in 2006, which guarantees that States **will promote and protect** the rights of people with disabilities.
- It was designed by **representatives** of people with disabilities, government officials, and nongovernmental organizations to change how PwDs are viewed and treated in the society.

#### **United Nations Office for Disaster Risk Reduction (UNDRR):**

- It is a part of the **United Nations Secretariat** and supports the implementation of **International Strategy for Disaster Reduction (ISDR)** and reviews the **Sendai Framework for Disaster Risk Reduction**.
- It was **created in 1999** with the vision to **break the cycle of disaster > response > dependency > repeat**, which switches the focus from **managing disasters to managing risk**.
- **Headquarters:** Geneva, Switzerland and 5 regional offices.

#### **Sendai Framework:**

- It was adopted by the **Third UN World Conference on Disaster Risk Reduction** in March 2015.
- It is a **15-year voluntary approach** to disaster risk reduction.
- It focuses on a **people-centred approach**.
- It succeeds the **2005-2015 framework**.

### **39. A Roadmap for Better, Bolder and Bigger MDBs**

G20 expert group recently presented a roadmap for 'bigger, bolder, better' **Multilateral Development Banks (MDBs)**.

#### **Multilateral Development Bank (MDB)**

- An MDB is an **international financial institution** chartered by **2 or more countries** for the purpose of encouraging **economic development** in poorer nations.

- **Example-** World Bank, International Monetary Fund (IMF)
- They consist of **member nations** from **developed** and **developing countries**.
- Its concept originated after **World War II** in order to rebuild war-ravaged nations and stabilize the global **financial system**.
- MDBs provide **loans** and **grants** to **member nations** to fund projects that support **social** and **economic development**, such as the building new roads or providing clean water to communities.

#### Key highlights of Initial report:

- In the **initial volume** of the **report** presented in previous meeting of G20 finance ministers and central bank governors, the expert group outlined a threefold agenda for **reforming MDBs**.
- It recommended **tripling** the **annual lending levels** of MDBs to \$390 billion by 2030, adopting a **triple mandate** for MDBs to eliminate extreme poverty, **boost shared prosperity** & contribute to **Global Public Goods (GPGs)** and expand and modernize funding models.

#### Key highlights of final report:

- The final report has focused on **three broad sets of recommendations**:
  - Convert MDB operating models to **support transformational investments**.
  - Place the **engagement** with the **private sector** at the center
  - Scale up **financing** at an **affordable cost**.

#### Reduction of processing time.

- An ideal **MDB** by **2030**, should see its **processing time**, from **concept note** to **first disbursement**, shrink from **25 months** (the average in 2017 for World Bank Group) to **12 months**.

#### Private capital mobilization:

- It should **enhance private capital mobilization** from **0.6 dollars**, (the average in 2019) for each dollar they lend to **1.5-2 dollars**.
- MDBs should be **investing \$3 trillion** by **2030** to transition on to the path of **“low-carbon, equitable, resilient and rapid economic growth”**.
  - To achieve these funding demands, MDB financing support must triple to **\$390 billion** by **2030** in addition to their role in promoting and **catalyzing private investment**.

#### Adapt to multi-year country programmes:

- MDBs should adapt to **multi-year country programmes** and **invest in institutional capacity** and **local consultation** with an eye on the “**comparative advantage**” that MDBs can offer.
- The **largest external financing gaps** are in **low- and middle-income countries**, and thus banks must focus on **non-concessional lending** in climate action, while **concessional finance** can be centered on SDGs.

#### **Bigger MDBs:**

- Set up Global Challenges Funding Mechanism (GCFM) to **target investors** that are seeking a vehicle to earn a **financial return** while also supporting SDGs, GPGs and other impact areas.
  - GCFM would support projects nested in the activities of the MDB, using the **project selection, governance, and quality assurances of the institution.**
- Triple **MDB concessional finance**, which requires more donor pledges for the **International Development Association** (another arm of **World Bank Group**).

#### **Leverage private finance:**

#### **What is the need for the roadmap?**

- The World requires MDBs to **accelerate new investments** in EMDEs.
- **G20 Leaders’ Declaration** called for effective implementation of the **2030 agenda on sustainable development**, acceleration of efforts and enhancement of resources to meet Paris Agreement goals, and reforms for better, bigger and more effective MDBs.

### **40. Electoral bonds case referred to 5-judge Constitution Bench of Supreme Court**

The Supreme Court (SC) recently referred the case of **Electoral bonds**, which challenges the **validity** of the **electoral bonds scheme**, to constitution bench.

#### **Electoral bonds scheme:**

- It is a **bearer instrument**, like a **Promissory Note**, that was introduced in 2018 in order to address the problem of **anonymous cash donations** made to political parties leading to generation of **black money** in the economy.
- It is **payable** to the **bearer on demand** and are free of **interest**.
- The electoral bonds can be redeemed only through the **registered accounts** of a political party in a prescribed **time frame**.

- The electoral bonds have a life of **15 days**, during which they can be used to make **donations** to political parties registered under the **Representation of the Peoples Act, 1951**.
- A **citizen of India** or a body incorporated in India can purchase the bond.
- The **donor** and the **party** details are available to the **bank**, but the **political party** might **not** be aware of who the **donor** is.
  - Name of the **donor** is **not** mentioned on the bond.

### Key Features:

- It can only be encashed by political parties, which had secured **at least 1 %** of the votes polled in the recent **Lok Sabha** or **state election**.
  - Such political parties should be registered under **Section 29A** of the **Representation of the People Act, 1951**.
- It can be purchased for any value in **multiples** of Rs. 1,000; Rs. 10,000; Rs.10 lakhs; and Rs.1 crore from **State Bank of India (SBI)**.
- It can only be encashed by political parties through a **designated bank account** with the **authorised bank**.
- A donor will get a **deduction** and the **recipient**, or the **political party**, will get **tax exemption**, provided **returns** are filed by the political party.

### What are the advantages of the electoral bonds scheme?

- The electoral bonds would keep a tab on the use of **black money** for **funding elections**.
- It will **curb** the practice of donation by the businesses who used to siphon off money from their businesses.
- As donor, parties and amount of donation all are recorded, it ensures some sort of **transparency**.

### What are the issues with the electoral bonds scheme?

- The legalisation of **anonymous donations** to **political parties** violates citizens' **right to information** about the **funding** of political parties and promotes **corruption**.
  - Both leads to violation of **Articles 19, 14 and 21** of the Constitution.
- The electoral bonds scheme was passed as a **Money Bill**, and thus surpassed the **Rajya Sabha**.
- The amendments made to **Finance Acts** of **2016** and **2017**, both passed as **Money Bills**, had allowed the **unlimited political donations** through the electoral bonds scheme.

- The amendments were introduced in the **Companies Act**, under which a company can use the **anonymity** of scheme in order to donate to its **favoured political parties**, thus **increasing** the scope of **corruption**.
- The **Finance Act of 2017** had introduced the use of electoral bonds which exempted it from **disclosure** under the **Representation of Peoples Act, 1951**, allowing **unchecked**, and **unknown** funding to political parties.
- The **Finance Act 2016**, had amended the **Foreign Contribution Regulation Act, 2010**, in order to allow **foreign companies** with **subsidiaries** in India to fund political parties in India.
  - This may make Indian politics prone to foreign influence.
- As **neither** the **purchaser** of the bond **nor** the **political party** receiving the donation has to disclose the **donor's identity**, the **shareholders** of a **corporation** will remain **unaware** of the company's **contribution**.

#### Other key facts:

- **Article 19-** Protection of certain rights regarding **freedom of speech** including speech and expression, to **assemble**, to form associations or unions, to **reside** and **settle** in any part of the territory of India and to practise any **profession** or to carry on any occupation, trade or business.
  - These rights are **not** absolute and includes **reasonable restrictions** imposed by the state.
- **Article 14- Equality before the law** or equal protection of the laws within the territory of India.
- **Article 21-** No person shall be deprived of his life or **personal liberty** except according to a **procedure established by law**.

## GS 3 : Economy, Science and Technology, Environment

### 1. Angel Tax



The **Income Tax Department** recently **notified new angel tax rules** that comprise a **mechanism to evaluate** the shares issued by **unlisted startups to investors**.

#### Angel Tax:

- An angel tax is **imposed on unlisted businesses** that are funded by the **angel investor** in order to curb **money laundering** and make it easier for businesses to comply with the tax norms.

- When an **angel investor funds** the new business venture, the **startup is obliged** to pay a part of their **investment** as tax to the government under Section 56 (2) of the Income Tax Act 1961.
- The rate of tax is **30.6%**, which is levied when an unlisted company issue shares to an investor at a price **higher** than its **Fair Market Value (FMV)**.
- Earlier, it was imposed **only on investments** made by a resident investor.

#### Key highlights of the changes:

- The methods for valuation of shares include **Discounted Cash Flow (DCF)** and **Net Asset Value (NAV)** method, available to residents under Rule 11UA.
- Five more **valuation methods** were **added** namely, Comparable Company Multiple Method, Probability Weighted Expected Return Method, Option Pricing Method, Milestone Analysis Method, Replacement Cost Method.
- **Consideration for issue of shares:** As notified by the Central Government, the price of the equity shares may be taken as the FMV for resident and non-resident investors.

#### Addition of new provisions:

- **FMV shall not exceed** the **aggregate consideration** received from the notified entity.
- Consideration from the notified entity must be **within 90 days** before or after the date of issue of shares.
- **Price matching** for resident and non-resident investors would be available with reference to investment by **Venture Capital Funds** or **Specified Funds**.
- **Valuation methods** to calculate FMV of **Compulsorily Convertible Preference Shares (CCPS)** have been provided.
- A **safe harbour** of **10% variation** in value was provided.
- It provides for **expansion** of the **valuation methodologies** to include globally **accepted methodology** and provide parity to resident and non-resident investors.

## 2. Indian Standards on Biofuel



The **Bureau of Indian Standards (BIS)** has recently developed the **Indian Standards on biofuel** to complement with the objectives of the **Global Biofuel Alliance (GBA)**.

### Indian standards to aid Global Biofuel Alliance (GBA):

- The **Bureau of Indian Standards (BIS)**, will develop relevant **Indian Standards** and necessary quality **parameters** or **performance** specifications for **GBA**.
  - BIS is the **National Standards Body of India**.
- These standards would aid stakeholders, including manufacturers, traders, and other entities, in dealing with **biofuel** or related matters.
- BIS is also developing standards on **paraffinic (green) diesel** (derived from **2G feedstock**).
- These standards would increase **capacity** of **biofuel production** and will provide multipronged benefits.
- They would help in meeting the target of **net zero** by **2070** and **50% energy** through renewable sources.
- It helps to achieve the objectives of **Make in India**, **Atmanirbhar Bharat**, **Waste to Wealth (GOBARDhan)**, and increasing **farmers' income**.



### Global ethanol market:

- **USA, Brazil, and India** are the **major producers** and consumers of **biofuels**, collectively contributing to **85% production** and **81% consumption** of ethanol globally.
- The global ethanol market is expected to grow at a Compound Annual Growth Rate (CAGR) of **5%** by **2032**.
  - **CAGR** (Compound Annual Growth Rate) measures an investment's **average annual growth** over a given period.
- It will create opportunities for Indian industries and contribute to **farmers' income, job creation**, and Indian ecosystem development.

### India's fuel requirements:

- Currently, **98%** of the **fuel requirement** in India for the **transportation** sector is met by **fossil fuels** and the remaining **2%** by **biofuels**.
- India's **import of petroleum** in **2020-2021** cost about **55 billion dollars** to the exchequer.
- The **Russia-Ukraine war** has spiked global oil prices and expenses for the **import of oil and gas**.
- **Ethanol Blending** up to **20%** with gasoline will lead to savings on import expenses.

### India's efforts to shift to Biofuels:

- **Indian Oil Manufacturing Companies (OMCs)** are working towards new **distilleries** for the production of **1G and 2G ethanol**.
- **Indian vehicle manufacturers** are developing **engines** suitable for the **ethanol-blended fuel**.
- The government has started **interest subvention scheme** for **molasses and grain-based distilleries** to promote **ethanol production**.
- The **flex-fuel vehicles** (utilising **ethanol-blended gasoline** up to **85%**) are operational in the **USA and Brazil** and will be soon brought to **India**.

## 3. Green Revolution

MS Swaminathan, Father of India's Green Revolution who played a crucial role in combating India's food insecurity, passed away recently.

### How about the case of food security during 20<sup>th</sup> century?

- **Pre-independence** - In 1943, India was ravaged by a *famine in the Bengal* region.

- Over 3 million people lost their lives due to starvation.
- Back then, India suffered from an acute food shortage partly due to the colonial hangover and mainly depended on foreign aid for imports of wheat.
- **Post- independence-** India signed a long-term **Public Law (PL) 480 agreement** to get food aid under Government agricultural trade development assistance, with the US in 1954.
- The ships would land on our shores with grains and they would directly go to feed the people and they called it a “*ship-to-mouth*’ existence.
  - During 1961-65, foodgrain production growth halved from nearly 3% in 1955-60 as India depended on rain-fed agriculture.
- **C Subramaniam’s role** - C Subramaniam, who became the Food and Agriculture Minister in Shastri’s Cabinet came up with two-point formula.
- To provide price incentives to farmers
- To go in for science and technology application
- *Fourth Five Year Plan* was redrafted with higher financial allocation for agriculture and agricultural research was given priority.

### Green revolution

- Green revolution refers to the large increase in production of food grains resulting from the use of **high yielding variety (HYV) seeds** especially for wheat and rice.
- The problem with the traditional wheat and rice varieties was that they were *tall and slender*.
- They fell flat on the ground when they grew and their earheads were heavy with well-filled grains produced in response to high fertiliser doses.
- The seeds of the Green revolution were sown in the 1940s, when an American scientist named **Norman Borlaug** was hard at work creating his dwarf varieties with **Norin-10 dwarfing genes**.
- Dr. Swaminathan was the key architect of this movement who worked towards safeguarding India’s food security.

### Key features of Green revolution

- The main features of the green revolution movement in India include
  - The HYV seeds,
  - Use of chemical fertilizers and pesticides,
  - Application of modern farm machines,
  - Extensive irrigation facilities,
  - Multiple cropping,
  - Improved credit facilities,
  - Support price policy,
  - Improved R&D and extension infrastructure

- GR technology was more suited to the areas that had adequate irrigation facilities as well as proper water *irrigation system*.
- While on the one hand the HYV seeds required high doses of *chemical fertilizers* for their growth, the use of fertilizers in turn generated weeds, requiring the *application of weedicides*.
- One of the key features of HYV seeds is that they had *shorter period of maturity* which gave opportunity to farmers to grow more number of crops in a year thus increasing cropping intensity.
- In order to release the land for next crop, farmers needed to do various farm operations for the next crop, in time. For this, use of *modern farm machines* such as tractors, threshers, irrigation pumps, etc were required.
- Thus, the GR technology helped in attracting more investment in manufacturing of farm machines, irrigation pumps, etc. and also to set up banking and marketing infrastructure *facilities in small towns and rural areas*.

The success of 'green revolution' during 1960s was only possible when the semi-dwarf gene or sd1 gene (mutant allele of plant height) was discovered in the Chinese cultivar 'Dee-geo-woo-gen' (DGWG).

## Impacts of Green revolution

### Positive impacts

- **Increase in Production and Productivity of Food Grains** - Green revolution shaped India from producing just 10-12 million tonnes of wheat in a year in the early 1960s, to over 110 million tonnes today.
- Per hectare yield of food grains increased from 6.3 quintal per hectare (Q/ha) in 1965-66 to 10.2 Q/ha in 1978-79.
- These productivity increases enabled India to become an exporter of food grains.
- **Employment Generation** - GR technology in terms of 'seeds-fertilizer-irrigation' package had substantial positive impact on employment generation in agriculture.
- Moreover, farm machines and equipment also helped generate additional employment in the non-farm activities by way of forward and backward linkages.
- **Flow of Public/Private Investment in Agriculture** - The share of mechanical and electrical power in India increased substantially from 39.4% in 1971-72 to 86.6% in 2005-06.
- This trend implies that private investment in agriculture after the green revolution significantly increased following the stimulus provided by increased public investment.

- **Land Saving** - GR technology is considered land-saving as it significantly increased the per hectare yield of various agricultural crops.
- Productivity growth in agriculture has also indirectly saved the forest land as in the absence of increased agricultural output due to GR.
- **Impact on Rural Non-farm Economy** - Expansion of demand for farm inputs, repairs & maintenance of farm tools and machines, transportation and marketing services, etc. generated additional income and employment to rural households engaged in non-agricultural activities.

### Negative Impacts

- **Decline in Soil Fertility** - Absence of reliable advice and soil testing facilities contributes to the indiscriminate and harmful use of chemicals.
- Use of Farm Yard Manure and Green Manure has declined due to decline in draught animals, change in the cropping pattern etc.
- It is also argued that green revolution technology could not promote crop-diversification but rather encouraged the crop-concentration.
  - As per the Working Group Report on 'Natural Resource Management' (2007), the estimated loss to the economy on account of soil degradation during 1980s and 1990s ranged from 11 to 26% of GDP.
- **Loss of Biodiversity** - The use of HYV seeds displaced indigenous species and agricultural system that had been built up over generations thus aggravating the genetic vulnerability of many valuable gene pools.
- **Depletion of Groundwater Resources** - The exponential growth of tube-wells in the Indo-Gangetic regions has been the main reason in the rapid decline of groundwater resources.
- Providing agricultural subsidy on critical inputs, lack of effective regulation on sustainable groundwater usage, etc. have contributed to rapid depletion of ground water resources.
- **Impact on Small and Marginal Farmers** - Shifting from traditional farming to monoculture had negative effects on small farmers.
- Small and marginal farmers had to purchase costly HYV seeds, fertilizers, and pesticides for which they took loans at relatively higher interest rates and consequently came under '*debt trap*'.
- **Over-capitalization in Agriculture** - The new agricultural technology required huge investment in modern farm machines, tractors, pump sets, etc. which in most of the cases remained underutilized due to division of operational holdings.
- **Widening Disparities** - The benefits of the new technology was mainly limited to the few crops, such as wheat, rice, sugarcane and few agriculturally developed regions, having adequate irrigation facilities.
- **Impact on Environment** - The intensive use of fertilizers, pesticides, and weedicides resulted in degradation of natural resources.

- **Energy Problems** - It is argued that increase in the cost of energy-based agricultural inputs has resulted in an increase in the prices of agricultural products making the GR system economically and ecologically questionable.
- High demand for diesel import has also put more pressure on India's foreign currency reserves.

### What lies ahead?

- While we've had one green revolution already, in the words of Dr Swaminathan, today we need an "*evergreen revolution*" – one that combines science with ecology.
- *Green Revolution 2.0* has to be about varieties that can withstand extreme temperature and rainfall variations, while yielding more, using less water and nutrients accompanied by better crop planning and market intelligence

### 4. India's rise is the big story.

- The Indian economy grew at 7.8 percent in the first quarter of the ongoing financial year. There is a decline in FDI.
- Projections by experts, including the RBI and the IMF, indicate a prospective annual growth rate of 6–6.5 percent, reaffirming India's status as a global growth powerhouse. However, beneath this optimistic narrative lies a concerning trend: foreign direct investment (FDI) in India has been steadily declining.

### India's growth prospects

- India is likely to grow at around 6–6.5 percent over the full year.
- Medium-term assessments, such as those by the IMF, peg growth at roughly 6 percent between 2023 and 2028.
- This momentum positions India as a formidable player in global growth, potentially rivaling China.
- Multinationals are increasingly eyeing India as an alternative investment destination, capitalizing on shifting geopolitical dynamics.

### Declining trend in FDI in India

- **FDI Decline:** FDI inflows into India have been declining. In the fiscal year 2022–23, FDI stood at \$71.3 billion, which marked a 16 percent decrease compared to the previous fiscal year (2021–22). This trend of decline continued in the first four months of the current fiscal year, with a 26 percent drop in FDI inflows compared to the same period the previous year.

- **Equity Flows:** A substantial portion of the decline has been in fresh equity flows. Equity flows decreased from approximately \$59.6 billion in 2021–22 to around \$47.6 billion in 2022–23. In the first four months of the current year, equity flows further plummeted to \$13.9 billion, down from \$22 billion the previous year.
- **Policy Uncertainty:** One possible explanation for the decline in FDI is the presence of policy uncertainty in India. An uncertain business environment, an uneven playing field, and the fear of arbitrary changes to rules and regulations may be acting as deterrents to foreign investors.
- **Trade Agreements:** India's absence from major trading blocks, such as the RCEP agreement, and the lack of trade agreements with entities like the European Union can disadvantage India in the global manufacturing ecosystem. Comprehensive trade agreements with lower tariffs and other benefits can incentivize foreign investment.
- **Comparative Analysis:** Despite rising interest rates in developed economies, countries like Vietnam and Indonesia have managed to maintain or increase their FDI inflows.

#### Key sectors affected by the decline in FDI

- **Automobile Industry:** The decline in FDI has had an impact on the automobile industry in India. This sector plays a crucial role in the country's manufacturing landscape and contributes significantly to both economic growth and employment.
- **Construction (Infrastructure Activities):** Infrastructure development is essential for India's economic growth. The decline in FDI may slow down construction and infrastructure activities, potentially affecting the country's development.
- **Metallurgical Industries:** Metallurgical industries, which include sectors like steel production, are also mentioned in the article as being affected by the decline in FDI. These industries are vital for various manufacturing processes and contribute to both domestic consumption and exports.

#### Areas that India might need to address to reverse this trend

- **FDI Decline in Multiple Sectors:** The decline in FDI is not limited to a specific sector but has affected various industries, including technology, the automobile industry, construction, and metallurgical industries. This broad-based decline underscores the need for comprehensive solutions.
- **Navigating Policy Uncertainty:** To attract foreign investors, India needs to provide a stable and predictable business environment, reduce regulatory uncertainty, and ensure a level playing field.

- **Global Investment Landscape:** India's FDI decline is notable when compared to countries like Vietnam and Indonesia, which have managed to maintain stable FDI inflows. This highlights the need for India to remain competitive in the global investment landscape.
- **The Trade Agreement Imperative:** The absence of India from major trading blocks, such as the RCEP agreement, could be a factor contributing to the FDI decline. India may benefit from pursuing trade agreements that lower trade barriers and enhance market access.

## Conclusion

- The decline in FDI flows to India raises pertinent questions about the country's attractiveness as an investment destination. While India's growth story appears promising, investors seek stability, policy clarity, and access to global trade networks. Addressing these concerns and leveraging India's potential as a China plus one option requires a comprehensive strategy to reinvigorate FDI inflows and capitalize on its growth prospects.

## 4. The trouble with a Nobel for mRNA COVID vaccines

- The 2023 Nobel Prize for Physiology or Medicine was awarded to Katalin Karikó and Drew Weissman for developing the mRNA vaccine technology.

### Evolution of mRNA as means for vaccine delivery

- Katalin Karikó became interested in mRNA when it was still a new concept, and her work continued through various obstacles.
- Genetic information in DNA is transferred to messenger RNA (mRNA) in human cells.
- mRNA serves as a template for protein production, which is essential for cell growth and repair.
- In the 1980s, scientists discovered that mRNA could be used for vaccines and therapies through a process called in vitro transcription.
- However, there were several obstacles to overcome, such as delivery challenges and inflammatory reactions.
- She then partnered with immunologist Drew Weissman, who studied dendritic cells crucial for immune response.
- They modified mRNA bases over time to improve delivery and eliminate inflammation.
- Their work began in 2005, 15 years before the COVID-19 pandemic, but its significance became apparent in 2019 when scientists taught mRNA vaccines

to instruct human cells to produce the S protein found on the COVID-19 virus, triggering antibody creation.

- This was the foundation for the fastest vaccine development program in history during the COVID-19 pandemic.
- The award also recognizes the contributions of a female scientist.
- Only 13 women have won the Nobel Prize for Medicine out of 225 awarded and 62 women winning any Nobel Prize out of 894 men.
- Interdisciplinary collaboration and persistent scientific research have led to the success of mRNA vaccines.

### **Issues with the commercialisation of mRNA vaccine**

- The Nobel Prize for Medicine must be awarded for a discovery that confers the greatest benefit to humankind, but some critics point out that mRNA vaccines used during the pandemic may not meet this standard.
- Dr. Karikó and Dr. Weissman began working together on the mRNA platform at the University of Pennsylvania.
- The university licensed its patents to mRNA RiboTherapeutics, which sublicensed them to CellScript, which sublicensed them to Moderna and BioNTech for \$75 million each.
- Dr. Karikó joined BioNTech as senior vice president in 2013, and the company enlisted Pfizer to develop its mRNA vaccine for COVID-19 in 2020.
- Governments and public funds often cover the costs of researching and identifying potential bio-molecular targets for drugs and vaccines, with estimated costs ranging from \$1-2.5 billion and taking several decades to develop.
- Companies then commercialize and profit from these discoveries, often at the expense of the same people who funded the initial research through taxes.
- While this model can promote innovation and eventual price competition, it also imposes a “double spend” on consumers and encourages profit-driven tendencies among companies.

### **Equity in vaccine availability**

- Moderna and Pfizer’s mRNA COVID-19 vaccines were initially limited to North America and Europe due to export restrictions and negotiations over pricing and liability.
- This highlights the challenges faced in distributing medical resources globally.
- COVAX, a program aimed at ensuring poorer countries have access to sufficient stocks of mRNA vaccines, failed to meet its targets.



- India, Russia, and China exported billions of doses of their vaccines, but their efforts were marred by concerns about manufacturing capacity (in the case of India) and quality (in the case of Russia and China).
- There were reports of several African countries having to discard large quantities of vaccine doses due to expiration dates.
- The WHO encouraged these countries to use the expired doses, but this required a level of community engagement and risk communication that was lacking in many of these countries.

### **Corbevax - A case for ethical scientific discovery**

- Researchers at Baylor College of Medicine and Texas Children's Hospital Centre for Vaccine Development developed Corbevax, a protein subunit vaccine, and licensed it to India's Biological E for manufacturing without patenting it.
- Kenya's Ambassador to the United Nations Martin Kimani praised the developers for providing "ethical and scientific leadership" in their efforts.

### **Conclusion**

- Despite the potential benefits of mRNA technology, it did not reach everyone during the pandemic due to administrative mistakes.
- While it is unfair to criticize scientists for seeking financial gain from their research, governments should work towards more equitable access to medical resources so they benefit all of humankind.

## **5. Prachand Helicopters**



Indian Air Force (IAF) had recently proposed the government for ordering 'Made-in-India' Prachand attack helicopters from Hindustan Aeronautics Limited (HAL), an Indian public sector aerospace and defence company.

### Prachand Helicopters:

- Also known as **Light Combat Helicopter (LCH)**, it was designed to meet requirements of the military in **high-altitude areas (up to 20,000 feet)** like Kashmir, Ladakh, and Arunachal.
- It will be **deployed** on **China** and **Pakistan fronts** by the IAF and Indian Army.
- It is equipped with HAL's **new-generation Shakti engine**, co-developed with the French engine-maker **Safran**.
- **Functions: Close air support (CAS)** aircraft in high-altitude terrain for conducting **destruction of enemy air defense (DEAD)** missions, destroying enemy tanks, executing high-altitude bunker-busting operations, and intercepting slow-moving **remotely piloted aircraft (RPAs)**.

### Features of Prachand:

- It is the **only helicopter** in the **world** that can **operate** at **altitudes** above 5,000 to 6,000 meters while carrying a **substantial offensive payload**.
- It has **heliborne strike capabilities** and can execute successful **landings** at **forward camps** situated at **Siachen**.
- It is armed with a **20-millimeter (mm) cannon** mounted below its **nose**, capable of **piercing light armor**.
- It will be armed with **advanced Dhruvastra air-to-ground missiles**, to target hardened enemy shelters in **high-altitude** and **diverse terrains**.

## 6. Manufacturing PMI eased to 5-month low

- India's manufacturing sector experienced a slowdown in September, reaching a five-month low, according to the seasonally adjusted S&P Global India Manufacturing Purchasing Managers' Index (PMI).
- The PMI eased to 57.5 from August's 58.6. A reading of 50 reflects no change in activity levels.

### Purchasing Managers' Index (PMI)

- PMI is an indicator of business activity – **both in the manufacturing and services sectors**.
- It is a survey-based measure that asks the respondents about changes in their perception of some key business variables from the month before.

- It is **calculated separately** for the manufacturing and services sectors and then a **composite index** is constructed.
- The PMI is compiled by IHS Markit based on responses to questionnaires sent to purchasing managers in a panel of around 400 manufacturers.

### How is the PMI derived?

- The PMI is derived from a series of qualitative questions.
- Executives from a reasonably big sample, running into hundreds of firms, are asked whether key indicators such as output, new orders, business expectations and employment were stronger than the month before and are asked to rate them.

### How does one read the PMI?

- A figure above 50 denotes expansion in business activity. Anything below 50 denotes contraction.
- Higher the difference from this mid-point greater the expansion or contraction. The rate of expansion can also be judged by comparing the PMI with that of the previous month data.
- If the figure is higher than the previous month's then the economy is expanding at a faster rate.
- If it is lower than the previous month then it is growing at a lower rate.

### Analysis and Outlook

- **Mild Slowdown:** The manufacturing industry in India showed mild signs of a slowdown in September, primarily due to a softer increase in new orders, which tempered production growth.
- **Positive Outlook:** Despite the slowdown, both demand and output saw significant improvements, and manufacturers maintained a strongly positive outlook for production.
- **Job Creation and Input Stocks:** Upbeat forecasts continued to drive job creation efforts and initiatives to replenish input stocks, indicating a favourable trajectory for the Indian manufacturing industry.
- **Concerns:** However, the solid increase in output charges, despite easing cost pressures, could limit sales in the coming months, prompting caution.

## 7. Climate Change in Sundarbans

India and Bangladesh have agreed on a **joint stakeholder initiative** to raise **climate-linked loss and damage** in the **Sundarbans** at global platforms including COP28.

- Sundarbans is **disproportionately affected** despite its **minimal carbon emissions**.

### Suggestions at Joint Stakeholder Initiative:

- Estimate the **extent of loss and damage** already suffered by the Sundarbans.
- Explore **innovative funding** approaches and **expand the donor base** for the Sundarbans.
- Prioritise **grants over loans**, and **tax fossil fuels** to generate money.

### Climate Change Impacts on Sundarbans:

- The **transboundary Sundarbans** are one of the **global hotspots of climate change**.
- There are **increasing high-intensity cyclones**, **sea level rise** of more than double the global average, and high degree of **erosion** leads to large-scale forced migration of people.
- The sharp **temperature rise** leads to increased **climate risks** in **India and Bangladesh**.
- The **rising sea levels** change the quality of **water and soil**, alters flora and fauna, and livelihoods of the population are adversely affected.
- The **Indian Sundarbans** have lost **210 square kilometres** of land due to **sea level rise** in the last six decades.
- **Salinisation** causes a **shortage** of drinking water, **water scarcity**, decline in **freshwater fish species**, and changes in the **composition of mangrove species**.

### Measures to Cope with Climate Change in Sundarbans:

- **Embankment upgrading:** The development of **embankments**, **cyclone shelters**, and **early-warning** and evacuation **systems** can reduce **mortality** from cyclone impacts.
- **Green and Grey Infrastructure:** It requires **mangrove protection and restoration** (green) with strengthening **building** (gray) infrastructure, such as **cyclone shelters** and **embankments**.
  - Healthy **mangroves** will reduce damage to adjacent coastal lands from **cyclonic storm surges**.
  - **Brick houses** can serve as **cyclone shelters**.

- **Multipurpose cyclone shelters** are currently being built by the **Bangladesh** government in collaboration with **the World Bank** and **Asian Development Bank**.
- **Global reduction of emissions** and replacement of fossil fuels with **renewable energy**.
- **Early-warning and evacuation systems**: The current early-warning system for cyclones in the region is **not specific** to small areas, and does not give **area-specific inundation-depth** warnings.

### About the Sundarbans:

- The Sundarbans is a cluster of **low-lying islands**, lying on the delta, created by the **confluence** of the **Ganges, Brahmaputra, and Meghna** rivers on the **Bay of Bengal**.
- It is spread across **India** and **Bangladesh**.
- It is famous for its unique **mangrove forests** and **Royal Bengal Tigers**.
  - **Sundarban Reserve Forest (SRF)** of Bangladesh is the **largest mangrove forest** in the world.
- It is the largest **active delta region** in the world. (**40,000 sq km**).
- It is a **UNESCO World Heritage Site** and a **Wetland of international importance** between India (40%) and Bangladesh (60%).
  - **Sundarbans West** (Bangladesh), **Sundarbans South** (Bangladesh), **Sundarbans East** (Bangladesh) and **Sundarbans National Park** (India) are **4 protected areas** enlisted as UNESCO World Heritage Sites.
- The **Indian Sundarbans** were considered **endangered** in **2020** under the International Union for Conservation of Nature (**IUCN**) **Red List** of Ecosystems framework.
- The word **Sundarban** has originated from **Sundari or Sundri**, the local name of the **mangrove species *Heritiera fomes*** abundant in the area.

### 8. e-FIR and Law Commission

The Law Commission has recently recommended allowing the filing of online **first information reports (e-FIRs)** for **cognisable offences** to overcome difficulties in filing FIRs and improve **police to public ratio**.

#### Recommendations of Law Commission:

- To enable the **online submission** of FIRs for two specific situations:
  - When the accused is **unknown**.
  - When the accused is **known**, but the **potential jail term** for the offense is **up to three years**.

- It has been **partially implemented** in some states but the commission has recommended expanding the facility.

### About the Cognizable Offenses:

- **Cognisable offences** are those in which police officers can arrest an accused without a warrant or court permission. (**Code of Criminal Procedure,1973**)
  - Examples: Murder, rape, and abduction.
- **Non-cognisable offences** are those in which police officers do **not** have the authority to **arrest** without a **warrant**.

### About e-FIR:

- For filing an e-FIR, the complainant does **not** have to visit the police station.
- They can register their complaint **through a mobile app** or the **police's online network**.
- Once an FIR is filed, designated investigating officers contact the complainant.
- This initiative is being implemented partially in Delhi, Gujarat, Karnataka, Madhya Pradesh, Odisha, Rajasthan, Uttar Pradesh, and Uttarakhand.
  - It only works in a **non-heinous case (theft, reporting lost items and vehicle thefts)**.
- The law panel has now recommended expanding this facility.

### Benefits of e-FIRs:

- **Increased Accessibility:** In areas with security or infrastructural issues, e-FIRs offer a convenient alternative rather than visiting a police station.
- **Overcoming Reluctance:** e-FIRs can mitigate the reluctance of policemen in cases of petty offences.
- **Addressing Police-to-Public Ratio:** It would overcome the difficulties resulting from low police to public ratio.
- **Reporting crimes in real time:** e-FIR would tackle the long persisting issue of delay in registration of FIRs by reporting crime in real time.

### Criticisms of e-FIRs:

- **Potential for Exaggeration:** There's a risk of complainants exaggerating claims, which can lead to legal complexities and discomfort for the accused.
  - Thus, it requires checks and balances.
- **Lack of Immediate Investigation:** E-FIRs might **not** be suitable for cases requiring immediate investigation, such as fatal accidents or grievous hurt incidents.

- **Infrastructure Constraints:** Not all police stations have the necessary infrastructure to handle e-FIRs efficiently.
  - There are 17,535 police stations in total, of which 628 are operating **without a landline**, while 285 run **without wireless/mobile** connection. (Ministry of Home Affairs)
  - The total number of **computers** in 17,535 police stations is **172,168**.

#### About Law Commission:

- It is a **non-statutory** body, working under the **Union Ministry of Law and Justice**.
- It conducts research in the field of law and makes **recommendations** to the Centre in the form of reports.
- These recommendations are **not binding** on the government.
- Action on the said recommendations **depends** on the **ministries/departments**, which are concerned with the subject matter of the recommendations.

#### 9. Counting rural women's labour

- In a concerning revelation, India grapples with one of the world's lowest female labor force participation rates, while rural women face widening gender wage gaps and continue to make substantial, often unpaid, contributions to the economy.
- As the International Day of Rural Women approaches, it is essential to shed light on the grim reality that India is grappling with. India not only records one of the lowest female labor force participation rates (LFPR) globally, but also ranks lower than most South Asian nations, trailing only Afghanistan and Pakistan.

#### Rural Women's Employment Landscape

- **Low Labor Force Participation Rate (LFPR):**
- India has one of the lowest female LFPRs globally. The LFPR for women in the working-age group (15–59 years) is just 35.6 percent, and this figure varies significantly between rural and urban areas.
- In rural regions, the LFPR is comparatively higher at 39.3 percent, while in urban areas, it is much lower at 26.5 percent, according to the Periodic Labour Force Survey (PLFS) data for 2021–22.
- **Self-Employment and Agriculture:**

- A significant portion of rural women in India are engaged in self-employment, particularly in agriculture and allied activities.
- Nearly three-fourths of rural working women are involved in these sectors, which include crop cultivation, livestock rearing, and related tasks.
- Agriculture remains a crucial source of livelihood for many rural women.

### Gender Wage Gap in Rural India

- **Higher Gender Wage Gap in Rural Areas:** Rural women working as regular and casual wage laborers face a more pronounced gender wage gap compared to their urban counterparts. This wage disparity is particularly significant in the rural employment sector.
- **Self-Employed Women's Earnings:** Self-employed rural women, particularly those engaged in agriculture and related activities, earn significantly less than self-employed men in similar roles. The self-employed rural women earn less than half of what self-employed men earn, indicating a substantial gender earning gap.
- **Worsening of the Gender Wage Gap:** The gender wage gap for self-employed women has deteriorated from 2017 to 2021. This means that the income divide between rural men and women is widening over time.

### Unpaid and underpaid labor

- **Unpaid Domestic Chores:** A significant portion of rural women's work involves unpaid domestic chores. While there has been a decline in the proportion of women engaged in these chores from 60 percent in 2017–18 to 46 percent in 2021–22, one-third of rural women will still remain involved in unpaid domestic chores in 2021–22.
- **Time Allocation:** The Time Use Survey conducted in 2019 reveals that, on average, rural women spend over five hours daily in unpaid domestic services and more than two hours in unpaid caregiving services. This is substantially more than the time men spend on these activities, highlighting the unequal distribution of domestic and caregiving responsibilities.
- **Contribution to Agriculture:** Rural women also make substantial unpaid contributions to agriculture. They spend over seven hours daily growing crops for both household use and the market in 2019, which is a critical but unpaid aspect of their work.

### Land Ownership Disparity

- Women face a substantial gender disparity in land ownership in rural areas.
- The agriculture census of 2015–16 revealed that only 14.7 percent of operational landholdings were owned by women.



- Moreover, women's landownership is concentrated in the marginal and small holding categories.

### **Government Initiatives in the Context of Rural Women's Employment**

- **MGNREGA (Mahatma Gandhi National Rural Employment Guarantee Act):** MGNREGA is a significant government initiative aimed at providing rural women with income-generating opportunities. It guarantees 100 days of wage employment per year to rural households, helping increase the labor force participation of rural women.
- **PM-SYM (Pradhan Mantri Shram Yogi Maandhan):** This scheme is designed to offer financial security to unorganized sector workers, including rural women. It encourages them to save for retirement by providing a pension after the age of 60, thereby ensuring economic well-being in their later years.
- **PMJDY (Pradhan Mantri Jan Dhan Yojana):** PMJDY promotes financial inclusion among rural women by encouraging them to open bank accounts. This initiative allows women to save money, receive government benefits directly, and access credit facilities for income-generating activities.
- **PMKVY (Pradhan Mantri Kaushal Vikas Yojana):** PMKVY focuses on skill development for rural youth, including women, to enhance employability. It offers training programs in various sectors to equip them with the necessary skills for job opportunities.
- **Beti Bachao, Beti Padhao:** This campaign encourages the education and welfare of girls in rural areas, indirectly empowering rural women by reducing gender disparities and promoting education among girls.
- **National Rural Livelihood Mission (NRLM):** NRLM aims to reduce poverty among rural women by promoting self-employment and entrepreneurship. It provides training, financial support, and market access, empowering women to start and run their own businesses.
- **Support for Training and Employment Programs for Women (STEP):** STEP is another initiative focused on skill development and employment for disadvantaged women in rural areas. It offers training in various trades to enhance their employability.

### **Addressing the issue of unpaid labor in rural India requires a multi-faceted approach**

- **Recognition:** There is a need to recognize and value the significant contributions of rural women to unpaid domestic chores and agriculture. Acknowledging this work is crucial for appreciating its economic and societal importance.
- **Gender Equity:** Promoting gender equity in domestic and caregiving responsibilities is essential to reducing the burden on rural women.

Encouraging men to share these responsibilities can free up women's time for productive activities.

- **Economic Empowerment:** Empowering rural women through education, skill development, and access to income-generating opportunities can help them transition from unpaid to paid work, improving their economic status.
- **Policy Support:** Government policies should be designed to address the gender disparities in unpaid labor and provide support mechanisms, such as access to affordable childcare and elderly care facilities, to reduce the time spent on unpaid caregiving.

## Conclusion

- The contributions of rural women in India, whether unpaid, unaccounted, or underpaid, are the backbone of the country's rural economy. Only by acknowledging the hidden work of rural women and bridging the gender gap in land ownership and access to support schemes can we truly empower the rural women of India and pave the way for a more equitable future.

## 10. Delhi Excise Policy Scam

- A Delhi court has remanded a member of Rajya Sabha in Enforcement Directorate (ED) custody in the Delhi Excise Policy Scam.
- This has created a big furore among people over the alleged involvement of a hardliner political party which was established solely to fight political corruption.

## Delhi Excise Policy Scam

- **Background:** Both individuals face corruption allegations related to the formulation and implementation of the Delhi Excise Policy 2021-22, which came into effect but was later scrapped.
- **Procedural Lapses:** The allegations stemmed from a report submitted by Delhi Chief Secretary to the Lieutenant Governor in July 2022. The report pointed to procedural lapses in the policy's formulation.
- **Financial Losses:** The report claimed that "arbitrary and unilateral decisions" led to estimated "financial losses to the exchequer."
- **Alleged Irregularities:** It alleged that leaders received "kickbacks" from businesses for preferential treatment, such as discounts, license fee waivers, and relief due to disruptions caused by the Covid-19 pandemic. These funds were purportedly used for electoral influence.

## Involvement of the Enforcement Directorate (ED)

- **ED's Role:** Following the CBI's FIR, the ED asserted that the alleged proceeds of crime required investigation to establish the modus operandi.
- **Investigation Details:** The ED alleged that the "scam" involved irregularities in the wholesale liquor business, margin-fixing, and receiving kickbacks. It claimed that the policy was designed with "deliberate loopholes" to benefit key figures.
- **Financial Transactions:** The ED also alleged that individuals, acting as intermediaries, received substantial sums from a group, allowing them access to various businesses.

### Differences in the Delhi Excise Policy

- **Policy Goals:** The Delhi Excise Policy 2021-22 aimed to exit the state from the liquor business, eliminate black marketing, increase revenue, enhance consumer experiences, and ensure equitable distribution of liquor vends.
- **Private Operation:** Under the policy, Delhi was divided into zones, each with liquor vends operated by private licensees. Licensees had the freedom to offer discounts and set prices.

### Issues and Reversals

- **Deviation from Procedures:** A report in July 2022 highlighted deviations from established procedures in the policy formulation.
- **Market Distortions:** The report pointed out that discounts offered by liquor retailers were causing market distortions.
- **Policy Reversals:** It noted policy reversals, leading to questions about the justification for such changes.
- **Blanket Relaxations:** The report flagged blanket relaxations granted for default in license fee payments.

### ED Chargesheets and Allegations

- **Campaign Funding:** The ED has alleged financial improprieties related to campaign funding.
- **Conduit for Financial Transactions:** Individuals are alleged to have acted as intermediaries in financial transactions.
- **Involvement of Key Figures:** The ED has claimed the involvement of certain individuals in meetings and interactions related to the case.

### Conclusion

- The scam has led to arrests and legal proceedings involving corruption allegations and procedural lapses.

- Allegations of financial improprieties and irregularities in the policy's implementation have created a complex legal landscape.
- The involvement of the Enforcement Directorate adds to the intricacies of the case, while ongoing investigations seek to establish the veracity of the allegations.

### **11. Territorial Army inducts five Chinese language interpreters for border talks**

The Territorial Army (TA) has inducted five Chinese language interpreters in August to assist the Army at the Border Personnel Meetings (BPM) with China, defence sources said. Also, there are plans for the recruitment of cyber experts.

#### **Territorial Army:**

- - Part-time, voluntary, and citizen's military reserve force.
  - Under the Territorial Army Act 1948.
  - Integral part of the Indian Army and provides an opportunity for civilians to serve the nation and support the regular army in times of need.
  - Currently has 60 units, of which 14 are deployed in counter-insurgency duties in support of the Army and two units are on the Andaman and Nicobar islands.
  - It has departmental TA battalions funded by the Ministries of Environment and Forests, Jal Shakti, Railways and Petroleum.
  - Two new ecological battalions are set to be raised in Maharashtra later this month on the request of the State government.
- **Recent Contributions:**
  - - Deployed to support the Army in eastern Ladakh as part of Operation Snow Leopard at the peak of the stand-off with China in 2020
    - In May, as the crisis unfolded in Manipur, the TA oil units stepped in and took control of oil installations that were not operational and augmented manpower in order to ensure supplies of essential petroleum and oil products and refuelling of aircraft.

## 12. Five amphibians are threatened with extinction due to climate change.

Recent studies show that two of five **amphibians** are threatened with extinction due to climate change.

### Key Highlights of the report:-

- Habitat loss, diseases, and climate change are majorly deteriorating the status of vertebrates.
- **Climate change** is the new driver pushing the amphibian population towards extinction.
- Climate change was the primary **threat for only 1 percent of amphibian species** whose conservation status in the International Union for Conservation of Nature (IUCN) Red List of Threatened Species worsened between 1980 and 2004.
- But since then, it has emerged as the primary **threat for 39 percent of species.**
- **Two of every five amphibians were threatened** with extinction.
- Amphibians were also found to be **particularly vulnerable**, with **7 percent of the species being globally threatened** – the highest for any species.
- The status of amphibians, according to the latest Red List, continues to be **deteriorating globally, especially for salamanders** of which three of every five species are threatened.
- Disease and habitat loss drove 91 percent of status deteriorations between 1980 and 2004.
- The highest concentration of threatened species was mapped to be located in **India's Western Ghats, Sri Lanka, Madagascar, Caribbean islands, tropical Andes, Mesoamerica, and the mountains and forests of western Cameroon and eastern Nigeria. (Wildlife Institute of India (WII))**
- Other geographic locations of high concentrations included the **Atlantic Forest biome of southern Brazil, central and southern China, and the southern Annamite Mountains of Vietnam.**
- The second most threatened group of vertebrates included **cycads which faced 69 percent threat.**
- **Sharks and rays** faced 37.4 percent threat, conifers faced 34 percent, reef-building corals 33.4 percent, mammals 26.5 percent, and reptiles 21.4 percent.
- **Dragonflies, birds, and cone snails** faced 16 percent, 12.9 percent, and 6.5 percent threats respectively.

### About Amphibians:-

- Amphibians come in a **range of sizes**.
- The **smallest** is a frog known as **Paedophryne amanuensis** from New Guinea, which is the size of a housefly.
- The **largest is the Chinese Giant Salamander** which can grow to six feet in length and weigh 140 pounds.
- They are **Ectothermic (cold-blooded)**.
- They live on both **land and water**.
- They are **Vertebrates**.
- They can smell, see, and hear.
- They have 4 legs except for some salamanders and caecilians.
- They have teeth but **swallow their prey whole**.
- They have lungs and **permeable skin**.
- They are **carnivorous**.

### 13. Building an India for manufacturers

- In a major economic development, India's service exports surged by \$60 billion over three years, with diversification beyond IT services. Additionally, domestic tech startups are poised to expand into manufacturing, potentially revitalizing the sector and bolstering job creation.
- Two significant transformations are reshaping India's services sector, potentially defining the nation's growth trajectory. These changes involve the rapid evolution of service exports and the transformation of domestic services. As both of these sectors modernize, they are not only changing in form but also venturing into manufacturing, offering exciting prospects for India's economic future.

#### India's services export sector

- In recent years, India's service exports have undergone a remarkable expansion, delivering an additional \$60 billion in annual revenues compared to just three years ago.
- The catalyst behind this surge was the COVID-19 pandemic, which spurred a surge in demand for IT services due to the widespread adoption of remote work arrangements.
- However, India's service exports have transcended their traditional roles, shedding their identity as merely call centers or software solution providers.
- Instead, India now proudly offers an extensive array of professional services, encompassing accounting, legal, HR, business development, design, and cutting-edge R&D.

#### Key players

- **Large IT Firms:** Large information technology (IT) companies have traditionally been prominent players in India's services export sector. They continue to play a significant role in providing IT services, software solutions, and technology-related services to clients worldwide.
- **Mid-sized IT Firms:** While large IT firms remain influential, mid-sized IT companies have been gaining market share in the services export sector. These mid-sized firms have demonstrated their ability to compete and thrive in the global market, contributing to the sector's growth.
- **Consulting Firms:** Consulting firms are another crucial category of key players. They have expanded their service export portfolios to include a wide range of advisory and consulting services, catering to the needs of global clients.
- **Global Capability Centers (GCCs):** India boasts the world's largest share of Global Capability Centers (GCCs). These entities, initially focused on providing tech support to multinational parent companies, have evolved into offering higher-value-added services such as legal, audit, design, and research and development (R&D). GCCs have become integral to India's service export landscape.

### Global Capability Centers (GCCs)

- The GCCs are specialized centers or units established by multinational corporations (MNCs) in India to provide a wide range of services to their parent companies and global operations.
- Originally, GCCs primarily focused on offering technical and IT support services to their parent MNCs.
- However, over time, they have evolved and expanded their service offerings to include higher-value-added functions and services.
- In 2022-23, around 1,600 GCCs made up a market of \$46 billion, employing 1.7 million.
- Although professional and consulting services exports account for only a quarter of India's services exports when compared to IT services, they have experienced the fastest growth with a compounded annual growth rate (CAGR) of 31% over the last four years. This is followed by computer services with a 16% CAGR and R&D services with a 13% CAGR.

### Future Prospects

- **Permanent Shift Towards Remote Work:** The enduring trend of remote work is expected to drive ongoing demand for IT services.
- **India's Diverse Skill Portfolio:** India's workforce boasts a wide range of skills, from engineering to design, catering to a broad spectrum of services.

This diversity positions India as a versatile service provider capable of meeting evolving global demands.

- **Cost Competitiveness:** India's cost-competitive advantage in providing high-quality IT services is likely to endure. As businesses seek cost-effective solutions without compromising on quality, India remains an attractive destination for outsourcing IT services.
- **Tipping Point for Stronger Growth Trends:** India is at a crucial juncture where the growth trends in services exports are expected to become even more robust.
- **Government Support and Policy Initiatives:** The Indian government's initiatives to promote the IT and services sector, such as the Digital India campaign and the development of technology parks, will likely continue to foster an enabling environment for growth.
- **Comparison with Other Economies:** India's growth trajectory resembles that of countries like the US, the UK, Germany, and Ireland, which saw rapid acceleration in services exports once they reached a certain size. This suggests the potential for even higher growth.

### Manufacturing Sector Potential

- Digital infrastructure can alleviate common challenges faced by small manufacturers.
- Start-ups can facilitate access to formal credit, cheaper raw materials, larger markets, improved warehousing and logistics, and enhanced quality control for small manufacturers.
- Evidence shows that domestic services sector companies, particularly in transport services, procurement support, and e-commerce, are venturing into manufacturing.

### Conclusion

- India's services sector is at an exciting crossroads, with both services exports and domestic services undergoing transformation. Embracing this potential requires proactive policy measures and continued innovation in the services sector to propel India toward higher economic prosperity.

### 14. Atto-Physics: new tools to fathom the world of electrons

- The 2023 Nobel Prize in Physics was awarded to Anne L'Huillier, Pierre Agostini, and Ferenc Krausz.



- It cited their pioneering work in attosecond science, enabling the study of electron dynamics in matter at an unprecedented timescale of one quintillionth of a second, or  $10^{-18}$  seconds.

## Attosecond

**Definition: An attosecond is a minuscule unit of time, equal to one quintillionth of a second ( $10^{-18}$  seconds). It is the timescale at which electron properties change.**

- **Attosecond Science:** Attosecond science, or attophysics, focuses on generating ultra-short light pulses and employing them to investigate rapid processes, such as those involving electrons.

## Atto-Physics: The science behind

- **High-Harmonic Generation:** Researchers, including Anne L’Huillier, discovered that passing an infrared light beam through a noble gas resulted in emitted light with frequencies that were multiples of the beam’s frequency. This phenomenon, known as high-harmonic generation, paved the way for attosecond pulse generation.
- **Wave Mechanics:** Attosecond pulse production is rooted in wave mechanics. The emitted light is a consequence of electrons gaining and losing energy as they interact with oscillating electric and magnetic fields in the light beam.
- **Constructive Interference:** Attosecond pulses are produced through constructive interference when peaks of different overtones merge. Destructive interference occurs when peaks align with troughs, leading to the cancellation of signals.

## Producing Attosecond Pulses

- **Interference Combinations:** Researchers manipulate interference combinations of multiple overtones to generate attosecond pulses with durations of a few hundred attoseconds.
- **Precise Frequency Range:** Attosecond pulses are produced when the beam’s frequency falls within a specific plateau range, as dictated by interference effects.

## Measuring Attosecond Pulses: RABBIT Technique

- Pierre Agostini and his colleagues developed the RABBIT (Reconstruction of Attosecond Beating by Interference of Two-photon Transitions) technique.

- It involves measuring electrons kicked out from noble gas atoms by attosecond pulses and a longer-duration pulse, providing insights into pulse properties, including duration.

### Applications of Attophysics

- **Solar Power Enhancement:** Attosecond studies have refined our understanding of the photoelectric effect, a fundamental process in solar power generation. Insights gained from atto-physics could lead to improved solar technologies.
- **Electron-Dependent Fields:** Attophysics impacts various scientific disciplines where electron properties play a crucial role, spanning physics, chemistry, and biology. By studying electron behavior at attosecond timescales, researchers can unlock new possibilities and applications.

### 15. Space-tech Industry

- Demand for satellite technology applications will primarily depend on Earth-based requirements and demands, according to a report by Deloitte India, published with the Indian Space Association and NASSCOM.
- The report focuses on analysing the 'downstream' opportunities in space technology (spacotech), referring to services like communications, earth imaging, and navigation facilitated by satellites.

### Rising Importance of Earth-Based Demand

- The trajectory of satellite-enabled services is increasingly determined by the demand from people and organisations on Earth.
- Satellite constellations are already orbiting the Earth, providing internet coverage to areas without terrestrial networks, further highlighting the importance of consumer and organisational demand.

### Challenges in the Indian Space Market

- Despite advancements in satellite technologies, India's share in the global spacotech market remains relatively small.
- The report highlights that India faces limitations in terms of significant growth opportunities for satellite applications.

### Market Potential for Satellite Applications

- The report indicates that satellite internet for remote areas, a widely discussed application, is expected to have a market value of \$263 million over the next five years.

- Other applications such as ecological monitoring, surveying, and logistics tracking are estimated to have market potentials that rarely exceed \$1 billion.
- In contrast, DTH satellite TV, a relatively older technology, is estimated to have a market potential of \$12.69 billion.

## 16. Link between Consanguinity and Genetic Diseases

Many key insights that are biomedically relevant have been unearthed by looking through the lens of consanguinity.

### Consanguinity

- **Consanguinity** – It is the practice of marrying close relatives, an age-old tradition that is still practised widely in several human societies.
- It is the kinship characterized by the sharing of common ancestors.

Kin are of two basic kinds: consanguineous (sharing common ancestors) and affinal (related by marriage).

- It is a social as well as genetic construct.
  - **Social context**- Marriage between individuals related by blood.
  - **Genetic context (inbreeding)**- Marriage between genetically related individuals.
- Studies have found that a significant fraction of the global population practises consanguinity and that that has increased the mortality and the rate of recessive genetic diseases in these peoples.
- **Global status** - There is an evidence that suggest those of the Egyptians and Incas, among others, could have practised inbreeding or consanguinity.
- **Status of India**- With more than 4,000 endogamous (groups people marrying within the same caste/tribe or group), India has been a fertile ground for consanguinity.

According to one estimate, approximately 15-20% of the world's population practises inbreeding, especially in Asia and West Africa.

### Benefits of consanguinity

- **Social impact**- It leads to
  - Stable marital relationships
  - Improved female autonomy
  - Less domestic violence and lower divorce rates

- **Economic impact-** It
  - Reduces the instances of dowry and the preservation of landholdings
  - Reduces the risk of family financial problems
- **Cultural impact-** Consanguinity provides opportunities for the transmission of cultural values and cultural continuity
  - Better compatibility with in-laws
  - Ease of marriage arrangements
- **Genetic traits-** Consanguinity may cause homozygosity of alleles in offsprings, preserving the advantageous genetic traits in human as well as animal populations.
- **Disease protection-** Protection against disease has been postulated because of the selection of protective genotypes or homozygosity of protective alleles.
- Parental consanguinity seems to protect against breast cancer in the Tunisian population.
- The protective role of consanguinity against multiple sclerosis has also been reported.
- **Health-** Consanguineous families are helpful in the identification of novel disease gene by linkage analysis.

### What is the link between consanguinity and diseases?

- **Recessive disease-** Many modern consanguineous societies, like the Amish population in the U.S., have been studied for recessive diseases.
- **Autozygosity-** Scientist have extensively used autozygosity as an approach to identify new genetic diseases in populations where consanguineous marriage practices is the norm.
- **Disease-** The results of these studies have helped us uncover previously unknown genetic diseases as well as estimate different population's genetic predisposition to common diseases.
  - Recent study suggested that consanguinity could increase the risk and the rate of diseases like type-2 diabetes.
- **Genomic research-** Advances in genomic research will provide innovative solutions to mitigate the risks associated with consanguinity or genetic diseases.
- **Genetic diagnostics-** The genomic research would result in personalised medicine, genetic diagnostics and genetic counselling that will play a pivotal role in improving the health outcomes of affected individuals and their families.

### What lies ahead?

- Improved family finances, public health awareness, and higher female education can decrease consanguinity rates.

- Premarital genetic screening should be offered for the most common population-specific genetic disorders.
- Physicians should be educated on the importance of focusing on consanguinity-associated diseases like hearing loss, thalassemia, cystic fibrosis, intellectual disability, etc.

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Kin are of two basic kinds: consanguineous (sharing common ancestors) and affinal (related by marriage).

- It is a social as well as genetic construct.
  - **Social context**- Marriage between individuals related by blood.
  - **Genetic context (inbreeding)**- Marriage between genetically related individuals.
- Studies have found that a significant fraction of the global population practises consanguinity and that that has increased the mortality and the rate of recessive genetic diseases in these peoples.
- **Global status** - There is an evidence that suggest those of the Egyptians and Incas, among others, could have practised inbreeding or consanguinity.
- **Status of India**- With more than 4,000 endogamous (groups people marrying within the same caste/tribe or group), India has been a fertile ground for consanguinity.

According to one estimate, approximately 15-20% of the world's population practises inbreeding, especially in Asia and West Africa.

### Benefits of consanguinity

- **Social impact**- It leads to
  - Stable marital relationships
  - Improved female autonomy
  - Less domestic violence and lower divorce rates
- **Economic impact**- It
  - Reduces the instances of dowry and the preservation of landholdings
  - Reduces the risk of family financial problems
- **Cultural impact**- Consanguinity provides opportunities for the transmission of cultural values and cultural continuity

- Better compatibility with in-laws
- Ease of marriage arrangements
- **Genetic traits-** Consanguinity may cause homozygosity of alleles in offsprings, preserving the advantageous genetic traits in human as well as animal populations.
- **Disease protection-** Protection against disease has been postulated because of the selection of protective genotypes or homozygosity of protective alleles.
- Parental consanguinity seems to protect against breast cancer in the Tunisian population.
- The protective role of consanguinity against multiple sclerosis has also been reported.
- **Health-** Consanguineous families are helpful in the identification of novel disease gene by linkage analysis.

### What is the link between consanguinity and diseases?

- **Recessive disease-** Many modern consanguineous societies, like the Amish population in the U.S., have been studied for recessive diseases.
- **Autozygosity-** Scientist have extensively used autozygosity as an approach to identify new genetic diseases in populations where consanguineous marriage practices is the norm.
- **Disease-** The results of these studies have helped us uncover previously unknown genetic diseases as well as estimate different population's genetic predisposition to common diseases.
  - Recent study suggested that consanguinity could increase the risk and the rate of diseases like type-2 diabetes.
- **Genomic research-** Advances in genomic research will provide innovative solutions to mitigate the risks associated with consanguinity or genetic diseases.
- **Genetic diagnostics-** The genomic research would result in personalised medicine, genetic diagnostics and genetic counselling that will play a pivotal role in improving the health outcomes of affected individuals and their families.

### What lies ahead?

- Improved family finances, public health awareness, and higher female education can decrease consanguinity rates.
- Premarital genetic screening should be offered for the most common population-specific genetic disorders.
- Physicians should be educated on the importance of focusing on consanguinity-associated diseases like hearing loss, thalassemia, cystic fibrosis, intellectual disability, etc.

## 19. Multimodal Artificial Intelligence

Recently Microsoft-backed OpenAI made ChatGPT multimodal giving the bot the ability to analyse images and speak to users via its mobile app.

### Multimodal AI

- **Multimodal AI** - It is artificial intelligence that combines multiple types or modes of data to create more accurate determinations, draw insightful conclusions or make more precise predictions about real-world problems.
- Multiple modalities include video, audio, speech, images, text and a range of traditional numerical data sets.
  - Example - OpenAI's text-to-image model, **DALL.E**, upon which ChatGPT's vision capabilities are based, is a multimodal AI model that was released in 2021.
- **Conventional AI** - Most AI systems today are unimodal that are designed and built to work with one type of data exclusively.
  - Example- **ChatGPT** uses natural language processing (**NLP**) algorithms to extract meaning from text content, and the only type of output the chatbot can produce is text.

### How does multimodality work?

- Multimodal AI architecture typically consists of the following components.
- **Input module** - It consists of unimodal neural networks which receive and pre-process different types of data separately.
- This module may use different techniques, such as natural language processing or computer vision, depending on the specific modality.
- **Fusion module** - It is meant for integrating information from multiple modalities, such as text, images, audio, and video.
- Its goal is to capture the relevant information from each modality and combine it in a way that leverages the strengths of each modality.
- **Output module** - It is responsible for generating the final output or prediction based on the information processed and fused by the earlier stages of the architecture.

### What are the advantages of multimodal AI over the current AI?

- **Versatility**- It can handle multiple types of data, making it more adaptable to different situations and use cases.
- **Natural interaction**- By integrating multiple modalities, multimodal AI can interact with users in a more natural and intuitive way, similar to how humans communicate.



- **Improved accuracy-** Multimodal AI can also improve the accuracy of its predictions and classifications.
- **Enhanced user experience-** It can enhance the user experience by providing multiple ways for users to interact with the system.
- **Robustness against noise-** Multimodal AI can be more robust against noise and variability in the input data.
  - For example, in a speech recognition system, the system can continue to recognize speech even if the audio signal is degraded or the speaker's mouth is partially obscured.
- **Efficient usage of resources-** It can help to make more efficient use of computational and data resources by enabling the system to focus on the most relevant information from each modality.
- **Better interpretability-** It can help to improve interpretability by providing multiple sources of information that can be used to explain the system's output.

### What are the applications of multimodal AI?

- **Healthcare-** It can help doctors and patients communicate more effectively, especially for those who have limited mobility or are non-native speakers of a language.
  - According to a report, the healthcare industry is expected to be the largest user of multimodal AI technology, with a CAGR of 40.5% from 2020 to 2027.
- **Education-** It can improve learning outcomes by providing more personalized and interactive instruction that adapts to a student's individual needs and learning style.
- **Entertainment-** It can create more immersive and engaging experiences in video games, movies, and other forms of media.
- **Agriculture-** It can help monitor crop health, predict yields, and optimize farming practices.
  - By integrating satellite imagery, weather data, and soil sensor data, farmers can gain a richer understanding of crop health and optimize irrigation and fertilizer application, resulting in improved crop yields and reduced costs.
- **Manufacturing-** It can be leveraged to improve quality control, predictive maintenance, and supply chain optimization.
  - By incorporating audio visual data, manufacturers can identify defects in products and optimize manufacturing processes, leading to improved efficiency and reduced waste.

- **Voice assistants-** It can enable more sophisticated and personalized voice assistants that can interact with users through speech, text, and visual displays.
- **Smart homes-** It can create more intelligent and responsive homes that can understand and adapt to a user's preferences and behaviours.
- **Virtual shopping assistants-** It can help customers navigate and personalize their shopping experience through voice and visual interactions.
- **Law and order-** Microblogging platform X has updated policies to fight a stream of misleading videos and hate speech on the platform since the renewed conflict between Israel and Palestine.
- In 2020, Meta was working on a multimodal system to automatically detect hateful memes on Facebook.

### What lies ahead?

- Businesses can unlock insights that were previously hidden, enabling them to make better decisions and improve outcomes, by combining the strength of different modalities.
- As technology continues to evolve and become more advanced, we can expect even greater innovation and impact from multimodal AI in the years ahead.

## 20. New Royalty Rates for Strategic Minerals, Lithium and REEs

- The Centre has approved royalty rates of 3% each for lithium and niobium and 1% for Rare Earth Elements (REEs).
- These changes enable competitive royalty rates for these strategically vital minerals (critical minerals) and open the doors to private sector participation through concession auctions.

### Critical Minerals

- Critical minerals are elements that are crucial to modern-day technologies and are at risk of supply chain disruptions.
- These minerals are used in making mobile phones, computers, batteries, electric vehicles, and green technologies like solar panels and wind turbines.
- Minerals such as antimony, cobalt, gallium, graphite, lithium, nickel, niobium, and strontium are among the 22 assessed to be critical for India.
- Many of these are required to meet the manufacturing needs of green technologies, high-tech equipment, aviation, and national defence.

## Implications of the Amendment

- **Alignment with Global Benchmarks:** The amendments, involving specifying new royalty rates, bring India's royalty rates in line with global standards. This is crucial to attract bidders' in future mineral auctions.
- **Competitive Royalty Rates:** The Second Schedule of the Mines and Minerals (Development and Regulation) Act, 1957, previously set a 12% royalty rate for unspecified minerals, which was significantly higher than international benchmarks. The revised rates are 3% for lithium and niobium, and 1% for REEs, based on price benchmarks, enhancing the attractiveness of mining in India.
- **Domestic Mining Promotion:** Lower royalty rates and commercial exploitation opportunities aim to encourage domestic mining, reduce imports, and stimulate related industries like electric vehicles (EVs) and energy storage solutions.
- **Energy Transition Commitment:** Access to critical minerals is integral to India's commitment to energy transition and achieving net-zero emissions by 2070, aligning with global environmental goals.

## Economic significance of the move

### (A) Lithium

- **Import Dependence:** India currently imports all its required lithium. The government's push for lithium mining extends beyond Jammu & Kashmir to explore lithium extraction from Rajasthan and Gujarat's brine pools, as well as Odisha and Chhattisgarh's mica belts.
- **Economic Offensive:** This initiative is part of India's economic strategy to reduce dependency on China for lithium-ion energy storage products, given China's dominant position in the market.
- **EV Growth:** With EVs on the cusp of disruption, securing a lithium supply chain is strategically vital. The global lithium battery market has seen significant growth in recent years.

### (B) Rare Earth Elements

- **Global Supply Challenges:** Rare earth elements, primarily sourced from or processed in China, pose challenges in the EV supply chain. Securing supplies can be difficult, and China's dominance has raised concerns.
- **Usage in Motors:** Rare earth elements are crucial in EV motors, particularly permanent magnet motors. Elements like neodymium, terbium, and dysprosium are used in magnets for generating a constant motor flux, enhancing motor efficiency.

- **Environmental Concerns:** Mining rare earth elements often involves environmentally damaging open-pit operations, raising environmental and ecological concerns.

### (C) Niobium for Industry

- **Corrosion Resistance:** Niobium, known for its resistance to corrosion due to a surface oxide layer, is used in various industries. It strengthens alloys, particularly stainless steel, making them ideal for applications in aerospace, construction, and pipelines.
- **Superconducting Properties:** Niobium's superconducting properties find applications in magnets for particle accelerators and MRI scanners.
- **Global Sources:** The main source of niobium is the mineral columbite, found in several countries, including Canada, Brazil, Australia, and Nigeria.

### Conclusion

- India's decision to amend mining laws for strategic minerals is a significant step toward aligning with global standards, promoting domestic mining, and securing supplies for emerging industries like EVs and energy storage.
- It underscores India's commitment to sustainable energy transition and reduced import dependency while addressing environmental concerns in mining rare earth elements.

## 21. UAE-India High-Level Joint Task Force on Investments

The **11<sup>th</sup> Meeting** of the **UAE-India High-Level Joint Task Force on Investments** was held recently in **Abu Dhabi**.

### High-Level Joint Task Force on Investments:

- It was **established** in **2013** in order to promote **trade, investment** and **economic ties** between India and the UAE.
- It provided an effective **mechanism** for **discussion** on pending issues, opportunities, prospects for investments, and **resolution** of **issues** faced by the investors of the 2 countries in a **mutually acceptable** and **time-bound manner**.

### Key discussions in 11<sup>th</sup> Joint Task Force:

### Implementation of Comprehensive Economic Partnership Agreement (CEPA):

- **CEPA** came into force in **2022** as a landmark agreement for **cooperation**, strengthening long-standing **cultural, political and economic ties**.

- CEPA is a kind of **free trade agreement (FTA)** that covers negotiation on the **trade in services and investment**, and other areas of **economic partnership** by **reducing or removing tariffs** on products, eliminating **tariffs** etc.
- It could **reduce tariffs** on **more than 80%** of **product lines**, eliminate barriers to trade, and create new pathways for **investment** and **joint ventures**.
- The **bilateral non-oil trade** reached **US\$50.5 billion** within a year, by growth of **5.8%** as compared to the previous year.
- The two countries have **targeted** the **non-oil trade** of **US\$100 billion** by **2030**.

### India-UAE Bilateral Investment Treaty:

- Negotiations were done to accelerate the **bilateral discussions** for an **early conclusion** of a balanced agreement that benefits both the countries and their investors.
- The **ways and incentives** for further growth in investment flows from **UAE sovereign** investment entities into India.
- The opportunities for **investments** in **priority sectors** like renewable energy, health, semiconductors, and asset monetization sectors in India were shared.

### Review of projects under I2U2 Framework:

- A **security corridor-related investment** under India was discussed to **address food security** challenges, boost supply of essential food items, and establish a resilient value chain.
  - The **I2U2 group** was formed in **2021**, by **Israel, India, UAE, and U.S.A.** to **jointly invest** in water, energy, transportation, space, health, and food security.

### New initiatives:

- **Fast track Mechanism:** To facilitate Indian investment in UAE and use it as a channel for developing more competitive and accommodative ecosystems for private sector expansion opportunities in each other's markets.
- **India-UAE Start-Up Bridge:** It is a **joint initiative** between the **UAE Ministry of Economy** and India's **Ministry of Commerce and Industry**.
  - It would act as a **one-stop platform** for training sessions and knowledge-sharing on market access, investment funds, venture capital, incubators and business landscape.
- **Abu Dhabi - India Virtual Trade Corridor:** To increase overall trade volumes by developing data exchange systems to **facilitate paperless trade**, improve efficiencies and security.

- **Abu Dhabi Investment Authority (ADIA):** It would be established in **Gujarat International Finance Tec-City** (a financial free zone in Gujarat), for facilitating future investments into India.
  - India invited other **Sovereign Wealth Funds** in UAE to establish a similar presence in India.
- **MOU for Industry:** It was signed between Ministry of Industry & Advanced Technology (UAE) and Ministry of Commerce & Industry (India) for cooperation in Industry and **Advanced Technology, space, healthcare, renewable energy, artificial intelligence**, among others.
  - It aims to develop cooperation efforts, build an **institutional framework** to promote and develop bilateral cooperation for the **diversification** and **growth** of economies.

#### Agreement for digital payment:

- It was signed between **Al Etihad Payments** (under Central Bank of UAE), and **National Payments Corporation of India (NCPI)** for strategic partnership to develop UAE's **Domestic Card Scheme (DCS)** for digital financial infrastructure.
- It will be the **nation's first unified, secure, and efficient card payment platform**, accelerating the UAE's transition to a digital economy by the growth of e-commerce, customized offerings for consumers, enhanced financial inclusion, and reduced cost of payments.

## 22. Bridging the Gap in Asia and the Pacific'

The '**Sustainable Finance: Bridging the Gap in Asia and the Pacific**' report was recently launched by United Nations Economic and Social Commission for Asia and the Pacific (**ESCAP**).

About the report:

- The report outlines **10 actionable principles** to mobilize and deploy financing for critical **Sustainable Development Goals**, with a focus on **climate action**.
- It aimed to **stimulate robust** and **informed debate** among member states on measures towards sustainability, focus on benefits and consequences of selected policy and financing choices in the **short** and **long term**.

#### 10 Principles to finance climate action:

- Developing **new climate finance partnerships**
- Developing effective **NDC financing strategies**

- Developing **policy coherence** and capacities across key government ministries
- Taking decisive regulatory action to shift capital in **Asia** and the **Pacific** towards the **Net Zero transition**
- Driving investment in the capacities of financial personnel
- Driving investment in much-needed sectoral and project-based financial data is undertaken
- Committing to **Net Zero pledges** for **2050** with credible transition pathways and including **2030** goals
- Increasing local-currency financing of **energy transition projects** as well as **green technologies** and other **net-zero investments**
- Expanding and accelerating **concessional financing** and risk-sharing by **multilateral development banks**, bilateral development financial institutions, and public development banks
- Increasing investment of time and effort with partners in project preparation

#### Key Highlights of the report:

- With **rising global emissions** and **energy needs**, financing climate action in **Asia** and the Pacific has lagged due to **macroeconomic** challenges and **public debt sustainability** concerns.
- Average economic losses in the **Asia-Pacific countries** from disaster-related and other natural hazards could rise to **\$1.1 trillion** in a moderate climate-change scenario and **\$1.4 trillion** in a worst-case scenario.
- Only **17** of the **51 Asia-Pacific countries** party to the UN Framework Convention on Climate Change (UNFCCC) have assessed and reported their financial needs to meet their Nationally Determined Contributions (NDC).
- 7 countries had broken down **financial needs** between adaptation and mitigation.
- There is **sufficient capital** and **liquidity** to close the global financing gap in sustainable finance but **deploying capital** for climate action faces challenges.

#### About UNESCAP:

- It is one of the **five regional commissions** under the jurisdiction of **United Nations Economic and Social Council (ECOSOC)**.
- It was established in **1947** and later renamed to **increase economic activity** in Asia and Far East, and foster its economic relations with other areas of the world.
- It consists of **53 Member States** and **nine Associate members**, mostly from the Asia (including India) and Pacific regions but also **includes France, Netherlands, U.K., and U.S.A.**

- This covers **4.1 billion people or two-thirds of the world's population**, making ESCAP the **most comprehensive** of the United Nations' five regional commissions.

#### **Key areas of co-operation:**

- Macroeconomic Development, poverty reduction and financing
- Trade, investment and innovation
- Transport
- Information communication technology and disaster management
- Social Development
- Statistics
- Energy

### **23. Women and water and the potential of green jobs**

- Water, a vital resource for life, is poised to play a central role in the transition to a green economy. This transition brings not only environmental benefits but also the potential to drive significant employment growth, particularly for women.
- Water is essential for a green economy, offering immense potential for job generation, particularly for women. Women globally are pivotal players in water management, yet their expertise remains underutilized. As green jobs surge in India, how can women's roles in water management be enhanced and recognized?

#### **Backdrop**

- **Green Jobs in Water Management:** These jobs contribute to preserving or restoring environmental quality. A promising estimate by the International Labour Organisation posits that jobs in this sector could escalate from 3 million (2020) to 19 million by 2030 in India.
- **Water and Global Employment:** A 2016 UN report underscores that nearly 1.5 billion people, or half the global workforce, are in water-related sectors. Water thus fosters both direct (managing resources, infrastructure, services) and indirect jobs.

#### **Harse reality**

- A World Bank evaluation of 122 water projects found that those involving women were six to seven times more effective than those that did not.



- Despite this evidence, women constitute less than 17 percent of the paid workforce in water, sanitation, and hygiene in developing economies, and women's representation as technical experts remains disproportionately low.

### **The Role of Women in Efficient Water Management**

- **Household Water Management:** Women are typically responsible for managing water within households. They oversee water collection, storage, and distribution for domestic use, ensuring a safe and sustainable water supply for their families.
- **Community Engagement:** In many communities, women actively engage in the management of communal water sources. They take the lead in maintaining these sources, making sure they remain accessible and functional for all community members.
- **Agriculture:** Women play a crucial role in agriculture, which is a major consumer of water resources. They are involved in activities such as irrigation, crop cultivation, and livestock care. Their knowledge of efficient water use is vital for agricultural sustainability.
- **Environmental Stewardship:** Women often act as environmental stewards, safeguarding local ecosystems, rivers, lakes, and forests. Their traditional practices and knowledge contribute to the preservation of water resources and the environment.
- **Community Development:** Women actively participate in community development projects related to water infrastructure, sanitation, and hygiene. They serve on water and sanitation committees, helping plan and implement projects that benefit the entire community.
- **Innovative Solutions:** Women frequently devise innovative solutions to address water-related challenges. They may create rainwater harvesting techniques, sustainable farming practices, or household-level water treatment methods, enhancing water resource management.

### **Unlocking Opportunities through Government Programs**

- Traditionally, women's involvement in water management has been limited to voluntary or part-time roles, often at the lowest level of decision-making.
- Recent government initiatives in India, such as the Jal Jeevan Mission, Atal Mission for Rejuvenation and Urban Transformation, Atal Bhujal Yojana, and Jal Shakti Abhiyan, present an opportunity to expand women's participation in water management and provide access to decent work.
- These programs prioritize community ownership and support both direct and indirect jobs.

### **The Potential of Jal Jeevan Mission**

- The Jal Jeevan Mission, in particular, has the potential to generate a substantial number of jobs.
- A study by the Indian Institute of Management, Bangalore, estimated that the mission could create millions of person-years of direct and indirect employment, although gender-disaggregated data are lacking.

### Way forward

- **Addressing Skill Gaps and Capacity Building:**
- Water management jobs require specific skills and training, yet there is often a gap between the skills needed and the expertise available.
- While some training programs exist for wastewater treatment and watershed management, they do not cover emerging employment opportunities in the water sector.
- **Promoting Sustainable Employment:**
- Despite robust policies for community participation, sustainable employment creation has been lacking.
- Investing in training women, providing access to finance, and leveraging self-help groups can foster women's self-employment in water management, strengthening water security in both rural and urban areas.

### Conclusion

- Government initiatives such as the Jal Jeevan Mission are poised to unlock this potential. By addressing skill gaps and promoting women's participation, India can not only create green jobs but also empower women in the vital task of water management, contributing to a more sustainable and inclusive future.

### 24. Methane emission

A recent study states that cutting down on **Methane emission** by Targeted methane mitigation can avoid 0.1°C warming in 2050.

#### Key Highlights of the report:-

- The report was released jointly by the **International Energy Agency, the United Nations Environment Programme (UNEP) and the UNEP-convened Climate and Clean Air Coalition.**
- Around 580 million tonnes (Mt) of methane is emitted every year globally, **60 per cent of which comes from human activities**, according to the latest assessment.

- Under current trajectories, total anthropogenic methane emissions **could rise by up to 13 per cent between 2020 and 2030.**
- The report called for **rapid cuts in methane emissions** from fossil fuels as it will prevent global warming to an extent greater than the emissions impact of immediately taking all cars and trucks in the world off the road.
- It urged that methane abatement measures should be **above and beyond the decarbonization efforts** for the energy sector.
- Without targeted action on methane, even with deep reductions in fossil fuel use, the increase in the global average surface temperature will likely exceed 1.6°C by 2050.
- The fossil fuel sector likely holds the largest potential for rapid and low-cost reductions in methane emissions.
- **More than 80 Mt of annual methane emissions** from fossil fuels can be avoided by 2030 using existing technologies, often at low – or even negative – costs.
- Around \$75 billion is required by 2030 for all methane abatement measures in the oil and gas sector in the Net Zero scenario, according to the findings. “This is equivalent to less than 2 per cent of the income generated by the oil and gas industry in 2022,”.
- Controlling methane emissions will also provide **health benefits** and **enhance food security.**

#### **Methane Emission:-**

- Methane (CH<sub>4</sub>) is the **simplest hydrocarbon**, consisting of one carbon atom and four hydrogen atoms.
- It is a **colorless, odorless, and highly flammable gas**, and the main component in natural gas.
- It is such a **potent heat absorber.**
- It is the primary **component of natural gas.**
- It is a **powerful greenhouse gas.**
- It warms the planet **more than 80 times** as quickly as a comparable volume of atmospheric CO<sub>2</sub> over a comparable amount of time.
- It is estimated to have been responsible for **30 per cent of global warming** since the Industrial Revolution.
- Methane pollution, which is a **primary component of ground-level ozone.**
- It has been linked to **heart disease, birth defects, asthma and other adverse health impacts.**

#### **Sources of Methane:-**

- **Biological Sources:** it is made from some organic compounds by methane-generating microbes known as

- **Agriculture:** Livestock emissions from manure and gastroenteric releases account for roughly 32% of human-caused methane emissions.
  - Cows also belch out methane.
- **Emissions from Fuel and Industries.**

#### **Initiatives to reduce methane emission:-**

- **COP 26 Pledges:** At COP26 in Glasgow, over 100 countries signed an agreement to cut methane emissions by 30% by 2030 as methane might be easier to deal with than carbon dioxide.
- **MethaneSAT:** a planned American-New Zealand space mission scheduled for launch later in 2022.
  - It will be an Earth observation satellite that will monitor and study global methane emissions in order to combat climate change.
- **UN Initiatives:** The UN Food Systems Summit in September 2021 was also aimed at helping make farming and food production more environmentally friendly.
- **India's Initiative:** Central Salt & Marine Chemical Research Institute (CSMCRI) in collaboration with the country's three leading institutes developed a seaweed-based animal feed additive formulation that aims to reduce methane emissions from cattle.

## **25. Need of Skill Development in Hydrocarbon Sector**

Recently Society for Human Resource Management (SHRM) said that it has joined forces with Hydrocarbon Sector Skill Council (HSSC) for skill development and capacity building in the hydrocarbon sector.

### **Why there is a need of skill development in hydrocarbon sector?**

- **Demand for blue collar jobs-** All segments of the sector need blue collar workers
  - Upstream- Exploration and production
  - Downstream- Refining and retailing
  - Midstream- Pipeline networks

Blue collar refers to a job that is manual labour

- **Skilled workforce-** The entire value chain of the hydrocarbon sector requires huge skilled, semi-skilled and unskilled manpower.
- **Increased hiring-** There has been a significant increase in hiring with the renewable energy sector, driven by the global focus on sustainability, this led to reduced reliance on fossil fuel.

- **Hydrogen technologies-** This has led to increased hiring for the roles related to hydrogen production. Hydrogen infrastructure development is also seeing demand.

### How SHRM and HSSC will work together?

- **Job creation-** It will create employment opportunities across various sectors with a primary focus on hydrocarbon (oil and gas) sector.
- **Skill enhancement-** The partnership aim to increase skill competencies of the Indian workforce and make them more attractive candidates for employment in the hydrocarbon sector.
- **Leadership-** The collaboration aims to nurture leadership capabilities, which will be valuable in various roles and industries beyond oil and gas sector and get into manufacturing, railways, auto and other major infrastructure and service sectors.
- **Improve the demand-** The demand for skilled and competent workforce in the hydrocarbon sector is substantial, the training will look at skill building, behavioural and skill assessments, behavioural training programs.
- **Skill building-**It will be on specific projects focused on skill development, capability enhancement, and related hard core technical activities.
- **Assessments-** Behavioural and skill assessments will include content, platforms and execution, to evaluate and enhance the behavioural skills and technical skills of the workforce. They are designed to benefit other industries also.
- **Behavioural training program-** It aim to enhance behavioural skills and leadership capabilities. The focus here is on nurturing the soft skills and leadership attributes that are essential for career growth and success in various professional settings.

### What lies ahead?

- Trained and skilled resources are a much-needed component for every sector. It will sensitise the sector to take on future challenge as most of the companies are diversifying into various other segments of the energy space.
- The entire value chain's requirement of appropriately trained manpower in quantity and quality on a sustained and evolving basis is the need of the hour. What is needed is to sustain it and keep refreshing their skills in sync with the changing times.

## 26. Multimodal AI (Artificial Intelligence): Importance and Applications

In generative AI, multimodality refers to a model's ability to generate various outputs such as text, images, or audio based on the input.

### Multimodal AI (Artificial Intelligence)

- **Multimodal AI systems** allow users to engage with AI in **multiple ways**, such as through **images, sounds, videos, and text**.
- Humans absorb ideas and form context by drawing meaning from various **sources** around them.
- To mimic the human mind closely, AI systems need to be **multimodal**.

### Leading AI Companies in Multimodality

- Leading AI companies are focusing on developing **multimodal systems**.
- **OpenAI's** GPT-3.5 and GPT-4 models can analyze **images** and convert them into **words**.
- **OpenAI's mobile apps** are equipped with **speech synthesis** for full-fledged **conversations**.
- **Google's** multimodal large language model, **Gemini**, is under **testing** in several companies.

### How Multimodality Works?

- **OpenAI's DALL.E**, a text-to-image model, is an example of a multimodal AI system.
- DALL.E is built on another model called **CLIP**, which links **text** and **images** during the **training phase**.
- These systems generate **images** based on the **text prompts** provided by users.
- For audio systems, training works similarly. For instance, **OpenAI's Whisper** can recognize **speech** and translate it into **simple text**.

### Applications of Multimodal AI

- Earlier multimodal systems combined **computer vision** and **natural language processing** or **audio** and **text**.
- These systems were used for tasks like **automatic image caption generation**.
- In 2020, **Meta** developed a system to detect **hateful memes** on **Facebook** using multimodality.
- **Google researchers** created a system in 2021 to predict the **next lines of dialogue** in **videos**.

- **Meta's ImageBind** is an open-source AI multimodal system that can process **text, visual data, audio, temperature, and movement readings**.
- Future AI systems might cross-reference various sensory data, like **touch, speech, smell, and brain fMRI signals**.
- Applications include **virtual reality simulations, autonomous driving, robotics, and medicine**.
- **Speech translation** is another area for multimodality, with tools like **Google Translate** and **Meta's SeamlessM4T** model offering various **translation modes**.

## 27. Women's Labour Market Outcomes

Recently, Claudia Goldin won the 2023 Nobel Prize for economics, for her work that overturned assumptions about gender equality.

**What did her research reveal?**

- **Female labour-** The economic growth ensuing in varied periods did not translate to reducing gender differences in the labour market.
- She demonstrated that several factors have historically influenced and still influence the supply and demand for female labour.
- **Opportunities-** The female employment opportunities include combining paid work and a family, decisions related to pursuing education and raising children, technical innovations, laws and norms, and the structural transformation in an economy.
- **Unequal paradigm-** Men are able to have a family and step up because women step back in terms of their jobs.

**How did female participation move over years?**

- **U shaped curve-** The participation of married women in the workforce decreased with the transition from an agrarian to an industrialised society in the early 19<sup>th</sup> century.
- It started to increase again with the growth of the services sector in the early 19<sup>th</sup> century.
- **Incorrect assessment-** She observed how female participation in labour force was incorrectly assessed.
  - For example, categorising women's occupation as "wife" in records was incorrect because the identification did not account for activities

other than domestic labour such as working alongside husbands in farms or family businesses.

- The corrected data enumerated that the employment rate for married women was three times greater than the registered Census.
- **Historical inconsistency**- She observed that prior to the advent of industrialisation in the 19<sup>th</sup> century, women were more likely to participate in the labour force.
- Even though unmarried women were employed in manufacturing during the industrial era, the overall female force had declined.
- These two factors combined form the basis of the claim that there is no historical consistency between female engagement in the overall labour force and economic growth.
- **Technology**- The beginning of the 20<sup>th</sup> century marked the upward trajectory for female participation in the labour force due to technological progress, growth of services sector and education.
- However social stigma, legislation and other institutional barriers limited their influence.
- **Feminist movements**- It occurred during 1960s and 1970s that led to a “Quiet Revolution” as more and more women entered the workforce for longer periods to pursue careers.
- Two factors are of particular importance during 20<sup>th</sup> century
  - **Marriage bars** - It is the practice of firing and not hiring women once married, it peaked during the 1930’s Great Depression.
  - **Future career decisions** - The women at varied points were subject to different circumstances when deciding on their life choices.
- **Extended exit**- Extended exit from workforce post marriage explains why the average employment level for women was low despite the massive influx of women into the labour market.
- **Birth control pills**- Introducing this created conditions for women to plan their careers better but this did not translate to the disappearance of the earnings gap between men and women.

### What about the pay discrimination?

Employees being paid differently because of factors such as colour, religion or sex among others is called as pay discrimination.

- **Service sector**- The pay discrimination increased significantly with the growth of the services sector in the 20<sup>th</sup> century.
- **Parenthood effect**- Women’s career goals today are impacted by the tug between care and work.



- **Greedy jobs-** These are careers that require significant time and attention from workers and are more likely to reward those who are available at all times.
- The value of greedy jobs has greatly increased since the early 1980s, which means that either the man or the woman must be employed in a greedy job to have a substantial family income.
- **Glass ceiling effect-** It prevents women from reaching high position in their company which affects career trajectory, status and lifetime earning potential.
- **Gender divide-** Her study had shown that the advance in the economic status of women and the gender divide in the workplace were due to long standing societal trends.
- **Gender equality-** Goldin ultimately advocates for reimagining work and care so that men and women can have it all - fulfilling careers and fulfilling family lives.

### What do her books convey about her work?

- **Role of education-** In first half of the 19<sup>th</sup> century, education raced ahead of technology, but later, technology raced ahead of educational gains.
- The study showed that the sharp rise in economic inequality largely to an educational slowdown.
- **Aged women working-** She found that the American women working more than ever during their 50s and 70s increased around 1980s.
- Education, work experience, disruption in household finance, access to retirement benefits etc., were quoted as reason.
- **Career & Family-** In her book, she brought up the issue of couple equity in the house, and the importance of sharing house work.

## 28. The Need for Nuclear Energy

The rapid economic growth of India and the status of the primary energy consumption stands which stands at 3<sup>rd</sup> highest globally triggers the demand for energy.

### Nuclear energy

- Nuclear energy is a form of energy released from the nucleus, the core of atoms, made up of protons and neutrons.
  - **Nuclear fission-** It is a reaction where the nucleus of an atom splits into two or more smaller nuclei, while releasing energy.
  - **Nuclear fusion** -It is produced when nuclei fuse together.
- **Nuclear fission-** In 1939, German Scientist Otto Hahn and F.Strassman discovered that when a uranium nucleus is bombarded with a neutron, it

breaks up into 2 smaller nuclei of comparable mass along with the emission of a few neutrons and energy.

- Nuclear reactor is the important part of the nuclear power plant which controls the nuclear chain reaction
- Each time the reaction occurs, there is a release of energy in the form of heat and radiation.
- The heat can be converted into electricity in a nuclear power plant, similar to how heat from fossil fuels such as coal, gas and oil is used to generate electricity.
- **European Pressurized Water Reactor-** It is a 3<sup>rd</sup> generation PWR design, compared to the most modern reactors.
- EPRs are more powerful, with 14% higher power output capacity.
- 3<sup>rd</sup> generation reactors are much safer than their predecessors.

### What is the need for nuclear energy?

- **Issues with fossil fuel-** It is the major contributor of global warming, hence focusing on nuclear energy would reduce the dependency on fossil fuel.
- **Net zero target-** There is a global consensus to reach net zero goal before a 2045–2070 time frame.
  - India has promised to become carbon neutral by 2070.
- Transition to net zero involves massive transformation of energy systems which also includes nuclear energy, involving new technologies, restructuring of energy systems etc.,
  - A study done by Vivekananda International Foundation and IIT-Bombay reveals that nuclear energy would need to be scaled up to a couple of thousand GWe for an optimum solution to reach net-zero in a developed India.
- **Improve HDI-** India requires a minimum of 2400 kilogram oil equivalent energy consumption (kgoe) per capita per year. If the energy is used efficiently the energy consumption could be improved to around 1400 kgoe.
  - With the improvement in deployment of other renewable energy like hydro we need to make rapid strides in nuclear energy as well.
- **Eco-friendly-** Nuclear power is a clean and environment friendly base load source of electricity generation, which is available 24 x 7.
- **Combat climate change-** It is a low-carbon source of energy, because unlike coal, oil or gas power plants, nuclear power plants practically do not produce CO<sub>2</sub> during their operation.
- **Energy security-** It also has a huge potential and can provide the country long term energy security in a sustainable manner.

- **Sustainable development**-It will help the country to achieve SDG 7 “Ensure access to affordable, reliable, sustainable and modern energy for all”.

### What are the challenges regarding nuclear energy in India?

- **Lack of safety**- If nuclear energy is not generated adhering to the highest standards of safety, there is possibility of catastrophic accidents such as Chernobyl, Three Mile Island, improper disposal of Cobalt 60 in New Delhi and Fukushima nuclear accident.
- **Poor skill base**- India lacks the necessary skill set to deploy the technology.
- **Waste disposal**- India lacks policy framework on waste disposal and its management.
  - Recently, Japan began releasing wastewater from the crippled Fukushima nuclear plant into the Pacific Ocean, as tanks containing the radioactive water neared capacity.

### How India can scale up the nuclear energy?

- **Indigenous PHWR**- 700 MWe PHWR, the first unit of which is already in commercial operation, should be the prime workhorse for base load electrical capacity addition.
- **Build indigenous SMRs**- Small Modular Reactor is proposed class of nuclear fission reactors, smaller than conventional nuclear reactors.
- They can be used to replace the retiring coal plants that would be vacated in coming decades.
- **Captive units**- A well-proven 220 MWe PHWR units can be offered as partially owned captive units for electricity and hydrogen for energy-intensive industries such as metals, chemicals, and fertilisers.
- **Cheap green hydrogen production**- Develop a high temperature reactor for direct hydrogen production without resorting to electrolysis to reduce pressure on excessive electrification of the energy system in the country.
- **Utilise resources**- Bhabha Atomic Research Centre has the requisite capability to speed up 2<sup>nd</sup> and 3<sup>rd</sup> stage nuclear-power programme development to unleash thorium energy potential in accordance with the pre-existing plans for long-term sustainable energy supply.

### What lies ahead?

- India’s PHWRs are globally competitive both in terms of performance and capital cost and are a good fit for meeting these requirements.
- Thorium-HALEU fuel in PHWR can make these reactors even more attractive in terms of economics, safety, waste management and proliferation resistance.

- India should encash this opportunity through piloting a major international co-operation for global efforts to address climate change challenges.

## 29. Sustainable Water Management and its concerns

The theme for World Food Day (October 16) 2023 'Water is Life, Water is Food' calls for urgent action in managing water wisely.

### Concerns with water management

- **Water stress-** Countries face severe challenges such as drought, floods, unseasonal rains and prolonged dry spells.
- Availability or a lack of water has become more critical with increasing climate extremes.
- **Rainfed agriculture-** Rain and soil moisture variations can severely affect food and nutrition security.

Irrigated agriculture accounts for 72% of global freshwater withdrawals.

- **Water degradation-** It is due to decades of poor water management, pollution, and the climate crisis.
- **Land degradation-** About 40% of the planet's total land area is degraded, leaving farmers with less productive land.
- **Food scarcity-** Extreme weather events and variability in water availability are severely affecting agricultural production, changing agro-ecological conditions and shifting growing seasons.

### What steps were taken for sustainable water management in agriculture sector?

- **Crop forecasting framework-** Food and Agriculture Organization (FAO) is piloting a model in certain States to aid rainfed farmers in making informed decisions.
- **Irrigation-** It is an effective measure to make agriculture more resilient, and enable farmers to transform their livelihoods by growing, consuming and selling high-value crops such as nutritious fruits and vegetables.
- **Soil conservation-** The World Food Programme (WFP) supports soil and water conservation through building or fixing of irrigation canals, dams, ponds, and dykes, as well as flood barriers through food assistance in exchange for labour.
  - In 2021 alone, 8.7 million people across 49 countries benefited directly from such support.
- **Policy framework-** International Fund for Agriculture (IFAD) supports States in leveraging the Mahatma Gandhi National Rural Employment Guarantee

Act scheme to ensure that micro-irrigation infrastructure is environmentally sustainable and financially viable.

### What steps need to be taken for effective management of water?

- **Two pronged strategy-** India needs to adopt a two-pronged strategy with respect to water in agriculture.
  - **Supply side-** Augment buffer stocking of water during the monsoon season in its reservoirs, recharge groundwater through check dams and watersheds, etc.
  - **Demand side-** Ensure more rational allocation and efficient use of water across crops.
- **Water productivity-** There is a need to shift from land productivity to water productivity.
  - Punjab land productivity of rice is one of the highest, its irrigation water productivity is the lowest.
  - Drip irrigation will save half the water in the water guzzling crops like sugarcane.
- **Sustainable farming practices-** Direct seeded rice, Alternate wet and dry irrigation, zero till, etc., can be rewarded as they will save water.
- **Political will-** There is a need of political commitment to achieve global food and nutrition security.
- The state governments should charge for the electricity involved in groundwater irrigation.
- **Use of technology-** There is an urgent need to adapt to climate change by promoting technologies and practices that make rainfed production more resilient and sustainable.
- **Foster investment-** There is a need to attract private sector investments in reservoirs and canal network.
- **Sustainable development-** With less than 7 years left to achieve UN Sustainable Development Goals (SDGs), FAO, IFAD, UN's WFP, lay stress on the need to adopt innovative approaches for improved management and conservation of scarce water resources.

### 30. Wildlife Protection Act 2022

- The recent inclusion of a plethora of species in the new schedules of the Wildlife Protection (Amendment) Act, 2022 has raised numerous questions among ecologists.

- The inclusion of a multitude of species in its schedules has raised concerns about the lack of an objective and replicable process. While the intention behind the amendment is to enhance conservation efforts, it is imperative to address the issues it raises in terms of conservation, its impact on people, and its implications for research.

### Overview of the New Act

- **Schedule 1:** Houses around 600 species of vertebrates and numerous invertebrates, with the highest protection.
- **Schedule 2:** Contains roughly 2,000 species, including 1,134 bird species.
- **Alignment with CITES:** The act also incorporates the CITES appendices.

### Concerns for Conservation

- **Ambiguity in Resource Allocation:** The act does not provide a clear direction on prioritizing species for resource allocation.
- **Uniform Protection Levels:** Species ranging from tigers to jackals and from great Indian bustards to common barn owls are accorded the same protection level.
- **Unintended Consequences:** Acts meant to conserve might sometimes yield counterproductive results. For instance, listing the invasive spotted deer (chital) in Schedule 1 has inadvertently protected it, despite the harm it inflicts on the Andaman Islands' ecosystem.

### Impact on Humans

- **Human-Wildlife Conflict:** The WLPA underlines the concept of co-existence, often neglecting the harm certain species can cause to humans, both physically and psychologically. By elevating wild pigs and nilgai to Schedule 1, the act potentially limits states' abilities to cull problematic animals, disregarding farmers' concerns.
- **Traditional Practices Overlooked:** Despite hunting and use of certain animals being traditional practices, the WLPA imposes restrictions. There's a lack of balance between conservation needs and societal traditions.
- **Research Constraints:** The listing of a vast number of species could inhibit research. Securing permits for research becomes a convoluted process. Furthermore, the act's implications on citizen science and data sharing remain unclear.

### Broader Issues

- Some ecologists have been observed to neglect the broader issues.

- Their operations sometimes resemble ‘parachute science’, taking more than they give back to local communities.
- The implications of this act not only hinder research, but also severely impact these communities.

### Way Forward

- **Transparent Inclusion Process:** Develop a replicable and objective process for the inclusion of species in the schedules. This could be based on ecological significance, population sizes, and expert consultations.
- **Reassess and Reclassify Species:** A re-evaluation of species, especially those like the spotted deer in the Andaman Islands, is necessary. Reallocating species between schedules can ensure more appropriate protection levels.
- **Resource Allocation Blueprint:** Given the vast number of species included, a clear guideline for resource allocation is essential. It should be based on urgency, ecological significance, and conservation viability.
- **Human-Wildlife Conflict Mitigation:** Design a more nuanced policy for managing conflicts. It should include better conflict response, compensation schemes, and awareness programs, especially in areas where Schedule 1 species are in direct conflict with human populations.
- **Reconsideration of Traditional Practices:** Address the disconnect between the Act and traditional practices by incorporating provisions for regulated and sustainable use of species, especially where they are abundant and pose no threat to their populations.

### Conclusion

- The imperative now is a balanced approach that ensures human safety, bases management actions on research, and permits observation without harming the ecosystem, respecting both human rights and wildlife conservation

### 31. Appreciation of currency

The rupee **appreciated** by 5 paise to 83.22 against the US dollar recently.

- At the interbank foreign exchange, the rupee opened at 83.24 against the dollar and then touched an early high of 83.22.

#### Appreciation of currency:-

- It is an increase in the value of one currency in relation to another currency in a **floating exchange rate system**.

- **Causes:** Currencies appreciate against each other for a variety of reasons, including **government policy, interest rates, trade balances and business cycles.**
- **Impact on trade:** Currency appreciation discourages a country's export activity as its products and services become costlier to buy.

#### Factors affecting appreciation:-

- Appreciation is **directly linked to demand.**
- If the value of the **currency appreciates** (or goes up), **demand for the currency also rises.**

#### Effects of currency appreciation on India:-

- **Export costs rise:** If the Indian Rupee (INR) appreciates, foreigners will find Indian goods more expensive because they have to spend more for those goods in INR.
  - That means that with the higher price, the **number of Indian goods being exported** will likely drop.
  - This eventually leads to a **reduction in gross domestic product (GDP).**
- **Cheaper imports:** If Indian goods become more expensive on the foreign market; foreign goods, or imports, will become cheaper in India.

#### About Exchange rate:-

- Exchange rate is a rate at which a currency of one country can be exchanged with the currency of another country.
- Under a **fixed exchange rate system**, devaluation and revaluation are official changes in the value of a country's currency relative to other currencies.
- **Devaluation** is when the price of the currency is officially decreased in a fixed exchange rate system.
- **Revaluation** is when the price of the currency is increased within a fixed exchange rate system.
- Under a **floating exchange rate system**, market forces generate changes in the value of the currency, known as currency **depreciation or appreciation.**
- Currency appreciation refers to the increase in value of one currency relative to another in the forex markets.
- Currency depreciation is a fall in the value of a currency in a floating exchange rate system. **Rupee Depreciation**

#### Effects of currency depreciation:-

- Improves export competitiveness.
- May lead to pulling of foreign investment.



- A weaker currency may escalate imported oil and edible oil prices and lead to higher food inflation.

## 32. Copyright Infringement

The Delhi High Court has issued summons to an Instagram account called People of India (POI), in a copyright infringement suit filed by the storytelling platform Humans of Bombay (HOB).

### Copyright

- It refers to the right given by the law to creators of literary, dramatic, musical, and artistic works and producers of cinematograph films and sound recordings.
- It is a bundle of rights that includes rights of reproduction, communication to the public, adaptation, and translation of a work related to
  - Literary works such as novels, poems, plays, reference works, newspaper articles
  - Computer programs, databases
  - Films, musical compositions, and choreography
  - Artistic works such as paintings, drawings, photographs, and sculpture
  - Architecture
  - Advertisements, maps, and technical drawings.

### Copyright Infringement

- **Infringement** - Copyright is considered infringed only if a substantial part is made use of without authorisation.
- In cases of infringement, the copyright owner can take legal action against any person who infringes on or violates their copyright.
- Copyright owner is entitled to remedies such as injunctions, damages, and accounts.
- **Injunction** - It is an official order given by a law court, usually to stop someone from doing something.
- It only acts as a deterrent and does not mean that all alleged instances of misuse will be corrected immediately.
- **Substantial Imitation** - The concept of 'substantial' varies from case to case. Often, it is a matter of quality rather than quantity.
  - For example, lyricist copying words from another song.
- **Passing Off** - If the infringed content is identical or substantially similar to the original content.

- It is a species of unfair trade competition or of actionable unfair trading by which one person, through deception, attempts to obtain an economic benefit of the reputation of other.
  - Suppose a brand logo is misspelt in a way that's not easy for the consumer to distinguish.

### Copyright Act of 1957

- It was first passed in 1958 and the most recent amendment was in 2012.
- It is a legal right that protects original literary, dramatic, musical, artistic works and cinematograph films from unauthorized uses.
- **Rights under copyright**
  - **Economic rights** – Owner can derive financial reward.
  - **Moral rights** – To protect the non-economic interests.
- The owner has exclusive rights to adapt, reproduce, publish, translate, and communicate the work to the public.
- It safeguards expressions of ideas rather than the ideas themselves.
- **Term of copyright** – Allowed for the life time of the author and 60 years beyond i.e. 60 years after his death.
- In case of joint authorship, the term is to be construed as a reference to the author who dies at last.
- 25 years of broadcasting reproduction right every broadcaster.
- Central Government to constitute copyright board for settlement of disputes, granting of licenses, etc.
- **Punishment** - Imprisonment for a term which may extend up to 3 years.

### Copyright (Amendment) Rules 2021

- It aims to bring the copyrights in line with other relevant laws and ensures accountability and transparency in the collection and distribution of royalties.
- The Copyright Board has been merged with the Appellate Board.
- The applicant has the option to file the first 10 and last 10 pages of the source code, or the entire source code if it is less than 20 pages, with no blocked or redacted portions.
- The Central Government has 180 days to respond to an application for registration as a copyright society.

### What are the IP challenges in India?

India remains one of the world's most challenging major economies with respect to protection and enforcement of IP according 2022 Special 301 Report of USTR.

- **Lack of Consistency** – Over the past year, India has remained inconsistent in its progress on IP protection and enforcement.
- **Poor Dispute Resolutions** – It failed to resolve recent and long-standing challenges.
- It created new concerns for right holders.
- **Impact of Indian Patents Act**- Potential threat of patent revocations, lack of presumption of patent validity and narrow patentability criteria impact companies across different sectors.
- **High customs duties** – IP intensive products such as medical devices, pharmaceuticals, information and communications technology products, solar energy equipment and capital goods are under heavy customs duty.

### 33. Digital uncertainty

- The Government of India released a comprehensive report highlighting opportunities arising from the AI wave.
- Recent advances in Generative AI have captivated the public, businesses, and governments, including the Government of India, which has published a report on AI opportunities. Yet, this surge presents both promise and pressing challenges that require immediate focus.

#### Digital Uncertainty

- Digital Uncertainty refers to the state of unpredictability and ambiguity that arises from the rapid advancements in digital technology and its impact on various aspects of society, economy, and governance.

#### Complex Digital Infrastructure

- It is an intricate and interconnected network of technologies, systems, and components that underpin the functioning of digital ecosystems, including the internet and various digital services.
- This infrastructure consists of multiple layers, each serving a specific purpose and relying on the others for seamless operation.

#### Cognitive Warfare

- Cognitive Warfare is a term used in the article to describe a modern form of warfare that goes beyond traditional military strategies and focuses on manipulating human perception, cognition, and behavior using advanced technological tools, often in the realm of digital and information warfare.

## Implications of Cognitive Warfare

- **Destabilization of Institutions:** Cognitive warfare employs sophisticated tactics, such as disinformation campaigns, to undermine and destabilize governments and institutions.
- **Media Manipulation:** It involves manipulating news media through fake news and social media amplification to shape public perception and influence political outcomes.
- **Altering Human Cognition:** Cognitive warfare uses psychological techniques, often through digital means, to manipulate how individuals think and behave, often without their awareness.
- **National Security Concerns:** It's a significant national security threat, as it can disrupt governance, stability, and security on a large scale.
- **Truth Decay:** Cognitive warfare contributes to truth decay, making it increasingly difficult to distinguish between facts and falsehoods, undermining the very concept of objective truth.

## Emergence of AGI (Artificial General Intelligence)

- **Definition:** AGI, or Artificial General Intelligence, represents AI systems that can replicate human-like intelligence and adaptability in various tasks.
- **Machine Self-Learning:** The article mentions that AGI is increasingly emerging through machine learning processes, where AI systems improve themselves without extensive human intervention.
- **Autonomy:** AGI possesses the capability to autonomously learn, adapt, and problem-solve, potentially surpassing human cognitive abilities.

## Disruptive Potential of AGI

- **Radical Disruption:** AGI's emergence can bring about fundamental disruptions across sectors as it can replace human decision-making, creativity, and intuition.
- **Economic Impacts:** AGI's automation potential, highlighted in the article, may lead to significant job displacement and economic disparities.
- **Behavioral Changes:** AGI's influence on human cognition and behavior could lead to unpredictable societal changes and a potential breakdown of trust in information.

## Challenges of AGI

- **Unpredictable Decision-Making:** AGI systems may make unpredictable and uncontrollable decisions, raising concerns about safety, ethics, and accountability.

- **Job and Economic Displacements:** The article discusses how AGI's automation capabilities can result in widespread job displacement and economic disruptions.
- **Ethical and Governance Concerns:** AGI poses complex ethical and governance challenges, including issues related to transparency, bias, and control over increasingly autonomous AI systems.

### AI in Conflict: The Hamas-Israel conflict

- AI can be exploited and manipulated skillfully in certain situations, as was possibly the case in the current Hamas-Israeli conflict, sometimes referred to as the Yom Kippur War 2023.
- Israel's massive intelligence failure is attributed by some experts to an overindulgence of AI by it, which was skillfully exploited by Hamas.
- AI depends essentially on data and algorithms, and Hamas appears to have used subterfuges to conceal its real intentions by distorting the flow of information flowing into Israeli AI systems.

### Conclusion

- Over-reliance on AI, underestimating its limitations, and the rise of AGI as a new type of arms race emphasize the necessity for collaborative efforts between states and the technology sector, although implementation remains a challenge.

### 34. Concerns with Cotton Subsidies

World Trade Organisation (WTO) is yet to address one of the unfinished agendas of disciplining the trade-distorting cotton subsidies in rich countries that push millions of poor cotton farmers into poverty.

#### World Trade Organisation (WTO)?

- **Aim-** To promote free trade, which is done through trade agreements that are discussed and signed by the member states.
- **Established in-** 1995
- **Marrakesh Agreement-** WTO officially commenced under the Marrakesh Agreement, replacing the General Agreement on Tariffs and Trade (GATT).
- It is created by Uruguay round of negotiations.
- **Member countries-** 164 members and 22 observer governments, with Afghanistan and Liberia being the latest to join.
- **Principles**

- Non-discrimination
  - Most-favored-nation (MFN) rule
  - National treatment principle
- Reciprocity
- Enforceable commitments
- Transparency
- Safety valves
- **Headquarters-** Geneva, Switzerland
- **General Council-** It is the top day-to-day decision-making body. It has representatives from all member governments and also meets, under different rules, as the Dispute Settlement Body.
- **Ministerial Conference (MC)** - It is the highest decision-making body, where members are represented by its trade ministers, which meets every 2 years.
- All decisions are taken through consensus and any member can exercise a veto.

### What is the issue with the cotton subsidies?

- The number of people engaged in the cotton sector is massively higher than the US.
- Despite the challenges like marketing problems, inadequate institutional support, low farm income, and farm distress, the cost of cultivation is low compared to US which gives them a competitive advantage in the market.
- However, enormous subsidies from rich countries such as the US offset the competitive advantage of the developing countries.

### How cotton subsidies in rich countries affect the poor countries?

US has spent more than 40 billion dollars on cotton subsidies between 1995 and 2020.

- **Support-** US offers substantial support to cotton farmers through a wide range of measures including crop insurance, price deficiency like payments and market facilitation programmes.
- **High subsidy-** When cotton produce is highly subsidised and subsequently exported, it causes a dip in international prices.
- It makes the cotton production and exports by poor countries uncompetitive in the international market against the subsidised cotton exports.
- **Trade distorting practices-** The per farmer cotton subsidy is significantly higher in the US as compared to India and China.
  - The Oxfam report “Cultivating poverty” found that enormous US cotton subsidies destroyed the livelihoods of cotton farmers in Africa

by depressing international cotton prices and diminishing their prospects of cotton exports.

- **Artificial advantage-** These enormous subsidies from rich countries confer an artificial competitive advantage to their farmers at the expense of poor farmers of developing and least-developed countries.

### What measures are available to regulate the subsidies?

- **Regulate subsidies-** The WTO Agreement on Subsidies and Countervailing Measures (SCM) regulates the use of subsidies and the actions that countries can take to counter their effects.
- **Countervailing measures-** It provides extra duties that countries can impose on subsidized imports that are found to cause injury to domestic producers.
- **MC 6-** The Hong Kong Ministerial Conference in 2005 took the decision to reduce cotton subsidies ambitiously but has failed to deliver on the promise till now.
- **MC 12-** It yielded a package of deliverables called as Geneva package, but there was no solid outcome on cotton subsidies.
- **MC 13-** It is approaching in 2024, but there is no consensus on cotton subsidies between members.

### How the WTO rules related to subsidies support rich countries?

- **Set a limit-** Both developing and developed countries can subsidise cotton production, but there are limits on the amount of trade-distorting support a country can provide under the **Agreement on Agriculture (AoA)** at the WTO.
- **Limit of support-** The developing countries can provide support only up to a maximum limit of **10% of their total value** of cotton production.
- If the limit is breached, their policies can be challenged at the WTO whereas this limit is not applicable for the developed countries.
  - For instance, in 2001, the US provided a cotton subsidy that constituted 74% of the value of cotton production and yet was compliant with the WTO rules.
- **MC 5-** In order to address the discrimination, the C-4 countries have been consistently demanding a substantial reduction in the developed countries' flexibilities to provide trade-distorting cotton subsidies since the 2003 Cancun WTO Ministerial meeting.
- The rich countries have been unwilling to yield to the requests made so far, and continue to maintain trade-distorting cotton subsidies that essentially displace exports from farmers of poor countries.

## What lies ahead?

- The collective demand of the C-4 and others to discipline trade-distorting cotton subsidies needs to be met expeditiously to reduce the space available to the rich countries to depress international prices.
- It will raise the farm income of poor farmers by making their cotton produce more competitive.
- This would go some distance in reducing the inequalities embedded in the WTO rules and essentially help in achieving Sustainable Development Goals of eradicating poverty and hunger.

## 35. Impact of Disasters on Agriculture and Food Security

A report was released by the UN's Food and Agricultural Organization reveals the staggering economic impact of natural and man-made disasters on global agriculture over three decades.

### About the report:

- **Title:** The impact of disasters on agriculture and food security
- It was released by the **Food and Agriculture Organization (FAO)**.

### Key Findings of the report:

- World has faced over **\$120 billion** in losses annually, accounting for **5%** of the global agricultural GDP.
- Major contributors to these losses include **floods, droughts, insect infestations, storms, diseases, and wars**.
- Disasters have led to a yearly loss of **\$123 billion** in food production between **1991** and **2021**.
- Disasters have increased from **100 events per year** in the 1970s to around **400 events annually** in the past two decades.
- Average annual grain losses were **69 million tonnes**, equivalent to France's cereal production in **2021**.
- World lost **40 million tonnes** of fruits and vegetables and **16 million tonnes** of meat, dairy, and eggs due to disasters.
- **23%** of the losses from disasters occurred in the **agricultural sector**.

### Global Impact:

- Agriculture is highly exposed to disasters due to its **reliance on natural resources and climate conditions**.



- **Lower-income countries** experienced the highest relative losses, with up to **15%** of their total agricultural GDP affected.
- **Small Island Developing States (SIDS)** reported a loss of 7% of their agricultural GDP.

#### **Impact on Women:**

- Women were disproportionately affected by these disasters due to challenges in accessing **resources, information, and financial instruments.**

#### **Future Concerns:**

- **Climate Change** is identified as a major systemic driver of disaster risk.
- Other factors contributing to disaster risks include pandemics, epidemics, and armed conflicts.

#### **Recommendations:**

- **Resilience in Agriculture:** Implementing a range of practices can enhance the resilience of agricultural systems. This includes agronomic techniques and improved warning systems.
- **Prevention Measures:** Early warning systems, as seen during the locust invasion in the Horn of Africa in 2020 and 2021, can be highly effective. For every dollar invested in prevention, \$15 of crop losses were avoided.

#### **About Food and Agriculture Organization (FAO):**

- The Food and Agriculture Organization (FAO) is a **specialized agency of the United Nations.**
- It is the oldest permanent **specialized agency of the United Nations** established in **October 1945.**
- Its primary mission is to **lead international efforts to defeat hunger.**
- **Headquarters:** Rome, Italy
- **Members:** 195 members, including 194 countries and the European Union.
- **Objectives:**
  - To achieve **food security for all.**
  - 
  - To ensure that people have regular access to enough **high-quality food to lead active, healthy lives.**

### 36. India's Space Economy

Indian National Space Promotion and Authorization Centre (IN-SPACe) has recently unveiled the **decadal vision** and **strategy** for the Indian space economy.

- The current size of the **Indian space economy** is about **\$8 billion** (2% of the global space economy).
- The **global space economy** is currently valued at **\$440 billion**, with an estimated growth of **\$1 trillion** by **2040**.
- India is on track to reach the **\$44 billion mark** in **2033**, to achieve **8%** global space economy.
- The existing **\$8 billion space economy** in India primarily consists of **three main segments**:
  - \$1.3 billion in the **upstream** segment
  - \$.1 billion from **midstream** segment
  - \$7 billion in the **downstream** segment
- **Upstream** segment consists of **launch systems and vehicles** and **satellite manufacturing**.
- **Midstream** segment consists of ground, **segment systems**, and **network equipment**.
- **Downstream** segment includes **data and satellite services** (broadcast, interactive communication, navigation, EO data, and data products), User equipment (GNSS devices and chipsets, TV dishes, radio receivers).

#### The decadal vision and strategy:

- The decadal vision and strategy have been developed by **IN-SPACe** and **ISRO** along with the other stakeholders.
- It addresses the creation of **demand, local manufacturing capabilities, and infrastructure**, it provides a clear and comprehensive **regulatory framework**.
- It will **encourage** and **facilitate** non-governmental entities' (NGE) **participation** in the growth of the space sector.
- This can be achieved by **IN-SPACe** through the following strategic capabilities:

#### Recommendations for Growth of Space Economy:

- Encourage mass adoption of **satellite internet** to rival terrestrial communication.
- Expand strengths in satellite and launch vehicle **manufacturing** to become a global leader in **end-to-end space component production**.
- Develop capabilities in high-commercial-potential sectors like **space mining, in-space manufacturing, and in-orbit servicing**.

- Explore emerging ventures like **space tourism** and entertainment for future cost-effective services.
- Innovate in **green space** with **sustainable fuel**, reusable spacecraft, and eco-friendly technologies.
- IN-SPACe is a **single-window**, independent, nodal agency that functions as an **autonomous agency** in the **Department of Space (DOS)**.
- It was formed after the **Space sector reforms** to enable and facilitate the participation of **private players**.
- It acts as an interface between **ISRO** and **NGEs**.
- Assesses the scope of India's **space resources** and increases space-based activities.
- Assesses the needs and demands of **private players**, educational, and research institutions.
- It is responsible for **promoting, enabling, authorizing, and supervising** various space activities of non-governmental entities. (4 wheels of IN-SPACe)
- It includes **building launch vehicles and satellites**, providing **space-based services**, and sharing space **infrastructure and premises** under the control of **DOS, ISRO**.
- IN-SPACe has following 10 objectives for decadal vision and strategy:
  - Demand generation
  - Earth Observation (EO) Platform
  - Communication platform
  - Navigation platform
  - Research & Development eco-system
  - Creation of a talent pool
  - Access to finance
  - International synergy
  - Collaboration
  - Policy and regulation

#### Other key facts:

- The space ecosystem into **3 groups**- (i) Space-for-Earth (ii) Access-to-Space (iii) Space-for-Space.

### 37. Harnessing Farmer Producer Organizations (FPOs)

- The Indian government's multidimensional approach to augment farmers' income has spotlighted the role of Farmer Producers' Organisations (FPOs).

- The government is employing multiple strategies to elevate farmers' income, including productivity boosts and climate-resilient techniques. Historically, fragmented landholdings have impeded growth and investment. FPOs are introduced as a remedy to this challenge.

## FPOs

- FPOs are clusters of farmers grouped by geography.
- They can register as a company or a cooperative.
- Their potential lies in enabling cluster-based farming, technological adoption, quality assurance, and helping farmers in marketing produce.

## Formation and Growth of FPOs

- The central government has taken proactive steps by launching a scheme aimed at creating and promoting 10,000 FPOs.
- These organizations encourage collaboration among farmers in various aspects, such as input management, value addition, and market linkages.

## Financial Incentives and Support

- **Interest Subvention:** The Agriculture Infrastructure Fund, constituted by the central government, provides a 3% interest subvention for credit extended to develop post-harvest infrastructure. Uttar Pradesh's state government offers an additional 3% subvention to FPO's and agriculture entrepreneurs, effectively reducing the interest rate to approximately 3%.
- **Convergence of Schemes:** The government is actively fostering the convergence of various schemes related to farm mechanization, seed production and processing, agri-marketing, MSP-based procurement, nutrition mission, and supply of inputs like seeds, fertilizers, pesticides, technological interventions, and organic farming.

## Success Stories and Innovations

- **Crop Diversification:** FPOs have played a pivotal role in crop diversification and value addition in Uttar Pradesh. They are involved in various sectors, including cereals, horticulture, pulses, oilseeds, millets, medicinal and aromatic crops, and sugarcane-based products. Seed processing units, Farm Machinery Banks, and climate-resilient strategies like direct seeding of rice are being facilitated through FPOs.
- **Nutrition Enhancement:** FPOs are promoting nutrition-rich agri-products like millets, mushrooms, moringa, and fortified cereals. Collaborations with district administrations have improved nutritive outcomes in the region.

- **Business Collaborations:** Over 200 MoUs have been signed between FPOs and companies for commodity marketing, input supply, technical dealership, and financial linkage. These collaborations are facilitated by the government and have led to the registration of local products under Geographical Indications (GI), further promoting indigenous agriculture.

## Conclusion

- FPO's are the evolving backbone of Indian agriculture. Their role is pivotal in modernizing practices, introducing innovations, and reshaping the agrarian landscape to be more sustainable and profitable.

## 38. Implications of Water Crisis

World Wide Fund for Nature (WWF) recently released a report 'The High Cost of Cheap Water' on World Food Day, highlighting the **critical global water crisis** and its impacts.

### Key Findings of the Report:

- It calculated the **first annual economic value of water** and freshwater ecosystems at around \$58 trillion, equivalent to 60% of the global **Gross Domestic Product (GDP)**.
- **One-third of the world's** remaining wetlands and freshwater wildlife populations have **declined by 83% since 1970**.
- This led to growing **water shortages, food insecurity, extremes of drought, flooding, pollution, and increased economic pressures**.
- **By 2050, around 46% of global GDP** could come from areas facing **high water risk**, marking a **10% increase** from current values.

### Global impacts:

- It **undermines global efforts** to reverse nature loss and adapt to the worsening impacts of climate change, from devastating droughts and extreme floods to sea level rise.
- **Rio Grande/Rio Bravo (RGRB):** Located in U.S.A. and Mexico is drying up due to extensive human water withdrawals and climate change.
  - **Without immediate action**, its basin could lose **25% of its river flow by 2050**, and resulting affect the local population, wildlife, and businesses reliant on it.
- **Europe's Danube basin:** Its floodplains are essential for flood and drought risk mitigation, groundwater recharge, and water filtration, but **80% of the basin was lost**.

- Only **16% of rivers in its basin** retained natural or near-natural state and **less than 20%** are near-natural to slightly altered.
  - The Danube is the **second longest river in Europe**, after the Volga.

#### Utility of water ecosystem:

- The **direct economic benefits** of water for consumption, irrigated agriculture, and industries, amount to a minimum of **\$7.5 trillion annually**.
- The **unseen positives** like water purification, enhanced soil health, storage of carbon, and community protection from extreme floods and droughts **are seven times higher** (\$50 trillion per year).

#### Impact of Human Activity:

- **Unsustainable agricultural practices** were among the primary threats to rivers and floodplains.
- **Over 70% of freshwater** is used for agriculture and its over-extraction for crop irrigation reduces its availability as natural flows that support fisheries.
- **Agricultural fields occupying floodplains** have reduced purification, flood and drought risk capacities of river systems.
- **Excessive fertilizer use** creates diffuse pollution affecting surface and groundwater.
- **Food production practices** are primary contributors to **biodiversity loss**, climate change, land erosion, and **reduced capacity of landscapes** to deal with water scarcity and droughts.

#### Measures:

- Protecting and restoring river systems, including their **floodplains**, is crucial for ensuring **food security**.
- Implementing **natural water retention strategies** and maintaining free-flowing rivers can bolster agricultural productivity.
- Nations should emphasize **nature-positive food production** and champion sustainable land use practices that facilitate natural water retention.
- **Governments, businesses, and financial institutions** must prioritize investments in sustainable water infrastructure.
- Initiatives like the **Freshwater Challenge**, aiming to rejuvenate **300,000 km** of degraded rivers and 350 million hectares of degraded wetlands globally by **2030**, should be embraced.
- Adopting diets that minimize the demand for water-intensive products and promoting the food industry's role in sustainable practices is essential.

- Leveraging healthy water ecosystems for climate adaptation can help counter extreme floods, enhance resilience to **droughts, storms, and erosion, regulate temperatures and micro-climates, and sustain deltas.**

### Recommendations and Solutions:

- Implementing better **water management practices.**
- Investing in nature-based solutions like **reforestation and wetland restoration.**
- Reducing water waste in **agriculture and supply chains.**
- Encouraging industries to adopt **water-saving technologies.**
- Governments and businesses must recognize the **value of water** and prioritize its sustainable management.

### About World Wide Fund for Nature (WWF):

- It is a **Swiss-based international non-governmental organization** founded in 1961 that works for **wilderness preservation** and reduction of human impact.
- It is the **world's largest conservation organization**, operating in more than 100 countries.
- **Aim:** To stop the degradation of the planet's natural environment and to build a future in which humans live in harmony with nature.
- **Headquarters:** Gland, Switzerland
- **Important index:** Living Planet Report published every two years since 1998.
- **Campaigns:** Earth Hour and Debt-for-nature swap
- **Work Areas:** Food, climate, freshwater, wildlife, forests, and oceans

### 39. Project Udbhav

The Indian Army, in collaboration with the United Service Institution of India (USI), has initiated Project Udbhav to integrate India's ancient strategic knowledge into contemporary military practices. The project aims to develop an indigenous strategic vocabulary rooted in India's philosophy and culture.

#### Details:

- **Ancient Wisdom Integration:** The project seeks to combine ancient wisdom, philosophy, and cultural insights with modern military pedagogy, fostering a holistic approach to address current security challenges.
- **Cultural Heritage:** The project recognizes the deep cultural and philosophical roots of India and aims to derive valuable strategic insights from this heritage.

- **Educational Initiatives:** Through interdisciplinary research, workshops, leadership seminars, and the compilation of knowledge, Project Udbhav aims to educate military leaders and enrich military training curricula.
- **Heritage Preservation:** Project Udbhav contributes to the preservation and promotion of India's rich heritage by integrating ancient wisdom and knowledge into modern military thought.
- **Strategic Insights:** By exploring ancient texts like the Arthashastra and Mahabharata, the project aims to uncover previously underexplored strategic theories, contributing to a deeper understanding of warfare and statecraft.
- **Military Education:** The project enriches the education of junior and senior military leaders and academia by introducing them to classical texts and teachings from India's rich history.

**Publication and Dissemination:** Reports and papers prepared during the project should be documented and widely disseminated to share the insights gained and serve as valuable references for further studies.

#### 40. Earthquakes in Afghanistan and India

A magnitude 6.3 earthquake recently hit **Western Afghanistan**, following a series of earthquakes in **Herat province**.

- This raised concerns about **earthquake preparedness in India** and its vulnerability to seismic activity.

#### How does an Earthquake occur?

- The earth is made up of chunks of solid rocks called **tectonic plates** and discontinuities in them are called **fault lines**.
- These fractures are a result of **tectonic forces and stress** that build up in the earth's lithosphere, causing the rocks to break and slip.
- An **earthquake occurs** when blocks of lithosphere **suddenly slip past one another**, releasing energy and sending seismic waves through the ground.
- The surface where parts of the lithosphere slip becomes a **fault plane**.
- The point within the earth where the fault rupture starts and produces an earthquake is called the focus or the **hypocentre**.
- The point on the surface of the earth directly above it is called the **epicentre**.
- **Tectonic plates** are slow moving but are **always in motion**, mostly due to the heat energy generated inside the earth.
- The **edges of these plates** are called **plate boundaries** and consist of faults, where most earthquakes occur.



### Why do frequent earthquakes occur in Afghanistan?

- Afghanistan is situated over **multiple fault lines** where the **Indian** and **Eurasian tectonic plates** converge.
- The frequent collision of these plates results in significant tectonic activity in the region.
- The **Hindu Kush Mountain range** and the **Pamir Knot** are complex geological regions where these tectonic plates meet.
- The ongoing movement of the **Indian Plate towards the Eurasian Plate** leads to compression, causing the uplift of the **Himalayas** and transmitting tectonic stress across the region, including Afghanistan.
- Afghanistan also has various active fault systems, such as the **Chaman Fault** and the **Main Pamir Thrust**, which are sources of many regional earthquakes.

### High intensity of earthquakes:

- The tectonic plates are **not colliding directly**, but are partly sliding past each other.
- The resultant earthquakes tend to be **more shallow**, and so the shaking is much closer to the surface.
- Even though an earthquake may be of **moderate size**, its impact can be **extremely destructive**.
- **Other factors:** Buildings are made of **timber and adobe** (a type of mud brick), or weak concrete which **lacks earthquake resistance**.

### Issues on tackling Earthquakes in India:

- India's earthquake preparedness policy primarily focuses on structural details, guided by **National Building Codes**.
- It specifies **scientifically sound dimensions** of structural members and details of reinforcements, but the view on earthquake preparedness is myopic.
- The policy excludes the buildings **constructed before 1962**, relies only on penalization and illegalities and overlooks the interconnectivity of buildings in urban areas.
- **Urban renewal programmes** including the **Smart Cities Mission** have not devised an urban policy for earthquake preparedness.
- The buildings existing in clusters, collapse as a system during an earthquake resulting in damage to other buildings and blocking evacuation routes.
- **Judicial intervention** and state **government capacity** are insufficient for comprehensive earthquake preparedness.
- Recent seismic activities in **earthquake-prone Himalayas**, Meghalaya, Joshimath, and Chamoli raises concerns.

- **Political challenges** and public denial of earthquake threats hinder transformation.

### What are the suggestions proposed for improvement?

#### Scaling Preparedness and policy:

- The **Delhi High Court** had directed the need for a comprehensive structural safety action plan within urban renewal programs to prevent catastrophic consequences.
- It must be addressed through the realm of policy and not just legal enforcement at both building and city levels.
- Building details should involve surgical retrofitting of existing structures and enforcing seismic codes more efficiently, as done under the National Retrofitting Programme (2014).
  - Under the programme, the **Reserve Bank of India** directed banks to deny loans for any building activity that does not meet the standards of earthquake-resistant design.
- Implementation of **tax-based or development rights-based incentives** for seismic retrofitting.
- **Urban-level policy** should include surveys, audits, and earthquake vulnerability maps that consider vulnerable structures, evacuation routes, urban density, and proximity to relief services.
- **Flood zone mapping** is a successful exercise in terms of timely evacuation and efficient implementation.
- **Timely adoption of new advanced town planning** schemes like wide roads, routes for evacuation and relief were implemented by the **Gujarat government**, following the 2001 **Bhuj earthquake**.

#### Learning from Global Examples:

- **Japan** had invested heavily in technological measures for earthquake mitigation and cultivated expertise through an industry approach.
- Skyscrapers are built with **counterweights** and other **high-tech provisions** to minimise the impact of tremors.
- **Small houses** are built on flexible foundations and public infrastructure is integrated with automated triggers that **cut power, gas, and water lines during earthquakes**.
- **San Francisco** implemented policy changes similar to Japan after a devastating earthquake in 1906, that **minimized the damage to life and property** in 1989.

- Collaboration with **international partners** like Japan and the U.S. via **Urban 20 meetings** could enhance knowledge exchange.

