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## PRELIMS



## POLITY &amp; GOVERNANCE



## CABINET COMMITTEE ON SECURITY

**Context:** The Cabinet Committee on Security (CCS) recently approved an important proposal to procure 240 aero-engines for the Su-30 MKI aircraft of the Indian Air Force (IAF) at a cost of over Rs 26,000 crore.

**Background:**

- The engines will be sourced from Hindustan Aeronautics Limited (HAL), furthering the nation's self-reliance in military technology.

**About Cabinet Committee on Security (CCS)**

- **The Cabinet Committee on Security (CCS)** is led by the Prime Minister and includes the Ministers for Finance, Defence, Home Affairs, and External Affairs.
- The CCS is tasked with making major decisions regarding national security, significant appointments in security bodies, and defence expenditure.
- In addition to defence matters, the CCS addresses issues related to law and order, internal security, and security-related foreign policy matters. It also considers matters concerning atomic energy.

**About Cabinet committees**

- After the Union Cabinet is sworn in and ministerial portfolios are allocated, the Prime Minister forms various high-profile Cabinet committees with selected Cabinet members, assigning specific functions to each.
- **The Prime Minister has the authority to create, modify, or dissolve committees** and adjust their functions. Membership typically ranges from three to eight members, predominantly Cabinet ministers, though non-Cabinet ministers or special invitees may also be included.
- **When the Prime Minister** is a member of a committee, he serves as the committee's head. These committees resolve issues, propose solutions for Cabinet consideration, and make decisions on assigned matters, with the Cabinet having the power to review these decisions.
- During the Manmohan Singh government, there were 12 Cabinet committees, in addition to numerous **Groups of Ministers (GoMs) and Empowered Groups of Ministers (EGoMs)**.
- **Currently, there are eight Cabinet committees:**
  - Appointments Committee of the Cabinet
  - Cabinet Committee on Economic Affairs
  - Cabinet Committee on Political Affairs
  - Cabinet Committee on Investment and Growth
  - Cabinet Committee on Security
  - Cabinet Committee on Parliamentary Affairs
  - Cabinet Committee on Employment & Skill Development

- o Cabinet Committee on Accommodation
- The Modi government introduced the Cabinet Committee on Investment and the **Cabinet Committee on Employment & Skill Development in 2019**. All committees, except the Cabinet Committee on Accommodation and the Cabinet Committee on Parliamentary Affairs, are headed by the Prime Minister.

Source: [Indian Express](#)

## CREATION OF FIVE NEW DISTRICTS IN LADAKH

**Context:** Recently, the Ministry of Home Affairs has granted “in-principle approval” for the creation of five new districts in Ladakh.

### **B Background:** -

- This will increase the total number of districts in the Union Territory from two to seven. The move is aimed at improving governance and development in the region.

### **About Ladakh**

- Ladakh is a Union Territory in northern India, situated between the Karakoram Mountain range in the north and the main Himalayas to the south.
- It is bordered by the Tibet Autonomous Region to the east, the Indian state of Himachal Pradesh to the south, the Union Territory of Jammu and Kashmir to the west, and the southwest corner of Xinjiang across the Karakoram Pass in the far north.

### **New Districts in Ladakh:**

- The Ministry of Home Affairs has granted “in-principle approval” for the creation of five new districts in Ladakh. The new districts are: **Zaskar, Drass, Sham, Nubra and Changthang**.

### **Who has the Authority to Declare New Districts?**

- The authority to declare new districts in a state or Union Territory in India lies with the respective state government or the central government, depending on the region:
- **States:** The state government has the authority to create new districts. This is typically done through a notification in the official gazette after approval from the state legislature.
- **Union Territories:** The central government, specifically the Ministry of Home Affairs, has the authority to create new districts in Union Territories. This is done through an official notification after considering various administrative and logistical factors.

### **How will the creation of new districts impact the local governance and administration?**

- Improved Accessibility
  - o **Closer Administrative Services:** With more districts, administrative offices and services will be closer to the residents, reducing travel time and making it easier for people to access government services.
  - o **Better Implementation of Schemes:** Localized administration can ensure more effective implementation of government schemes and programs, tailored to the specific needs of each district.
- **Enhanced Governance**



- **Focused Development:** Each district can focus on its unique developmental needs, leading to more balanced and inclusive growth across the Union Territory.
- **Efficient Resource Allocation:** Resources can be allocated more efficiently, addressing the specific challenges and opportunities of each district.
- **Increased Representation**
  - **Local Representation:** More districts mean better representation of local communities in governance, ensuring that their voices and concerns are heard and addressed.
  - **Community Engagement:** Smaller administrative units can foster greater community engagement and participation in local governance.
- **Economic and Social Benefits**
  - **Economic Growth:** Improved infrastructure and services can stimulate local economies, creating jobs and boosting economic activities.
  - **Social Development:** Enhanced access to education, healthcare, and other essential services can improve the overall quality of life for residents.

Source: [Indian Express](#)

## JUDICIAL DELAY

**Context:** Flagging the culture of adjournment in deciding cases, President Droupadi Murmu recently said that the poor from the villages are still anxious to approach courts as they feel that fighting for justice will make their lives even more difficult, and termed it the ‘Black Coat Syndrome’.

**Background: -**

- According to information available on the National Judicial Data Grid, over five crore cases are pending across different levels of the system

**Case Pendency Statistics:**

- Over five crore cases are pending across various courts in India.
- Uttar Pradesh has the highest number of pending cases, exceeding 1.18 crore in subordinate courts.
- **Pending cases are distributed as follows:**
  - Supreme Court: 84,045 cases
  - High Courts: 60,11,678 cases
  - District and subordinate courts: 4,53,51,913 cases
- **Factors Contributing to Case Pendency:**
  - **Infrastructure and Staffing:** Inadequate physical infrastructure and court staff.
  - **Case Complexity:** Complexity of facts, nature of evidence, and cooperation of stakeholders including the bar, investigation agencies, witnesses and litigants.
  - lack of prescribed time frame by courts for disposal of various kinds of cases, frequent adjournments and lack of adequate arrangement to monitor, track and bunch cases for hearing
  - **Judge Shortage:** India has 15 judges per 10 lakh people, significantly below the 50 judges per 10 lakh recommended by the Law Commission's 120th report in 1987.
- **Recent Case Highlights:**

- o **Ajmer Case:** On August 20, a POCSO court convicted six individuals to life imprisonment, 32 years after a blackmail and sexual abuse case involving hundreds of girls was exposed.
- o **Delhi High Court:** On August 29, a complainant was allowed to withdraw a case due to "litigation fatigue" caused by frequent court appearances impacting her work.
- o These two cases, in two different courts, illustrate the problem that President Droupadi Murmu sought to highlight in her address at the National Conference of the District Judiciary — "Black Coat Syndrome".
- **Reform Needs:**
  - o **Long-term Planning:** A comprehensive plan is needed to address systemic issues causing prolonged case pendency.
  - o **Balancing Act:** Reforms should aim to speed up case resolution while ensuring due process and maintaining judicial integrity.

Source: [Indian Express](#)

## LAW COMMISSION OF INDIA

**Context:** The Central Government has recently notified the constitution of the 23rd Law Commission, which will function from September 1, 2024, to August 31, 2027.

### Background: -

- This move is part of the government's ongoing efforts to ensure that India's legal framework remains relevant and effective.

### About Law Commission

- A Law Commission is an independent body established to review and recommend reforms to the legal system of a country.
- The new commission will advise the government on complex legal issues and review existing laws to ensure they align with current economic and social needs.

### Origins and History:

- **First Law Commission:** Established in 1834 under the Charter Act of 1833, chaired by Lord Macaulay. It recommended the codification of the Penal Code and the Criminal Procedure Code.
- **Post-Independence:** The first Law Commission of independent India was established in 1955, chaired by M.C. Setalvad, the then Attorney-General of India.

### Structure and Functioning:

- **Non-Statutory Body:** The Law Commission is neither a constitutional nor a statutory body. It is an executive body established by an order of the Government of India.
- **Advisory Role:** It works as an advisory body to the Ministry of Law and Justice, primarily comprising legal experts.
- **Tenure:** Each commission is established for a fixed tenure, usually three years.

### Functions:

- **Legal Reforms:** The primary function is to work for legal reforms by reviewing existing laws and suggesting new ones.
- **Research and Studies:** Undertakes research in law and studies for bringing reforms in the justice delivery system, eliminating delays, and reducing litigation costs.
- **Recommendations:** Makes recommendations to the government in the form of reports, which are laid in Parliament and forwarded to concerned departments for implementation.

#### 23rd Law Commission:

- **Structure:** The commission will have a full-time Chairperson, four full-time Members, including a Member-Secretary, and several ex-officio and part-time Members.
- **Appointments:** For the first time, serving judges of the Supreme Court and High Courts can be appointed as Chairperson and Members.
- **Focus Areas:** The commission will work on reviewing obsolete laws, developing Standard Operating Procedures (SoPs) for periodic reviews, and addressing legislative references from various departments.

Source: [Indian Express](#)

## PUBLIC ACCOUNTS COMMITTEE (PAC)

**Context:** Public Accounts Committee (PAC) is set to conduct a performance review of regulatory bodies established by Acts of Parliament, including the Securities and Exchange Board of India (SEBI) and the Telecom Regulatory Authority of India (TRAI).

#### Background: -

- The review will focus on the effectiveness and efficiency of these bodies in fulfilling their mandates.

#### About Public Accounts Committee (PAC)

- **Public Accounts Committee (PAC)** is one of the three Financial Parliamentary committees, the other two are the Estimates Committee and the Committee on Public Undertakings.
- Parliamentary committees draw their authority from Article 105 (on privileges of Parliament members) and Article 118 (on Parliament's authority to make rules for regulating its procedure and conduct of business).

#### Establishment:

- The Public Accounts Committee was introduced in 1921 after its first mention in the Government of India Act, 1919 also called Montford Reforms.
- The Public Accounts Committee is now constituted every year under Rule 308 of the Rules of Procedure and Conduct of Business in Lok Sabha.

#### Appointment:

- The Chairman of the Committee is appointed by the Speaker of Lok Sabha.
- It is to be noted that the Committee, not being an executive body, can only make decisions that

are advisory by nature.

- It presently comprises 22 members (15 members elected by the Lok Sabha Speaker, and 7 members elected by the Rajya Sabha Chairman) with a term of one year only.
- No Minister can be a member of the Public Accounts Committee (PAC). This rule ensures that the PAC remains independent and unbiased in its scrutiny of government.

#### Key Functions of the PAC:

- **Examine Appropriation Accounts:** Reviews the accounts showing the appropriation of the sums granted by the Parliament to meet the government's expenditure.
- **Audit Reports:** Scrutinizes the reports of the Comptroller and Auditor General (CAG) of India on the expenditure of the government. Also examines various audit reports on revenue receipts, government expenditure, and accounts of autonomous bodies.
- **Financial Oversight:** Ensures that public funds are used efficiently and for the intended purposes. Also checks for any irregularities or deviations from the approved budget.
- **Review of Savings and Excesses:** Investigates savings arising from incorrect estimating or procedural defects. It examines any excess expenditure over the approved budget.
- **Accountability:** Holds government departments accountable for their financial operations. Ensures that expenditures are made within the "scope of demand" approved by the Parliament.
- **Recommendations:** Makes recommendations to improve financial management and accountability. It suggests measures to rectify any identified issues or irregularities.

Source: [The Hindu](#)

## ENEMY PROPERTY

**Context:** A parcel of land in Uttar Pradesh, previously belonging to the family of former Pakistan President Pervez Musharraf, is set to be auctioned under The Enemy Property Act.

#### Background:

- The Union Home Affairs Ministry said in a notice erected on the plot that around 13 bighas of land in the **Kotana Bangar village in Baghpat district** has been directed for sale through e-auction until September 12.

#### Enemy Property and the Enemy Property Act

- Enemy Property refers to the properties left behind by individuals who migrated to Pakistan or China following the India-Pakistan wars of **1965 and 1971**, and the Sino-Indian War of 1962. These properties were classified as "**enemy property**" under Indian law, as the people who left India acquired the nationality of an enemy country.
- The Indian government took control of these properties and vested them in the Custodian of Enemy Property for India, a government-appointed authority, under the Defence of India Rules (formulated under the **Defence of India Act, 1962**).
- The **Enemy Property Act**, enacted in 1968, provided for the continuous vesting of enemy property in the Custodian of Enemy Property for India.

- The **Tashkent Declaration of January 10, 1966**, featured a clause stating that India and Pakistan would consider the restitution of property and assets taken over during the fight. However, the Pakistani government disposed of all such properties throughout the country in 1971.

#### Key Features of the Enemy Property Act:

- **Under the Enemy Property Act 1968**, Custodian manages enemy properties on behalf of the Government of India, ensuring that these assets cannot be transferred or claimed by anyone.
- **Enemy Property (Amendment and Validation) Act, 2017**: In 2017, the Indian government amended the Enemy Property Act of 1968 to address legal issues and prevent claims by legal heirs. The key amendments included:
  - **Expansion of Definitions:**
    - The amended Act expanded the definition of the term “enemy subject”, and “enemy firm” to include the legal heir and successor of an enemy, whether a citizen of India or a citizen of a country which is not an enemy; and the succeeding firm of an enemy firm, irrespective of the nationality of its members or partners.
- **Vesting of Property:**
  - The amended law provided that enemy property shall continue to vest in the Custodian even if the enemy or enemy subject or enemy firm ceases to be an enemy due to death, extinction, winding up of business or change of nationality, or that the legal heir or successor is a citizen of India or a citizen of a country which is not an enemy.
- **Disposal of Enemy Property:**
  - The Custodian, with the approval of the central government, is empowered to sell or dispose of enemy property. The proceeds from such disposals are intended to benefit the government.
- **Purpose of enemy property act amendment**
  - The amendment effectively barred any claims of inheritance or succession on enemy property, regardless of whether the legal heir resides in India or a non-enemy country.
  - This move was aimed at preventing prolonged litigation, such as the case of the Raja of Mahmudabad, whose heirs fought a long legal battle to reclaim the properties.

Source: [Indian Express](#)

### NATIONAL COMMISSION FOR PROTECTION OF CHILD RIGHTS (NCPCR)

**Context:** The National Commission for Protection of Child Rights (NCPCR) has told the Supreme Court that madrasas are unsuitable or unfit places for children to receive proper education.

#### Background:

- The submissions by NCPCR were in response to petitions challenging an Allahabad High Court judgment which struck down the Uttar Pradesh Board of Madrasa Education Act, 2004. The High Court had ordered the transfer of madrasa students to regular schools. The apex court stayed the implementation of the High Court decision in April.



**About National Commission for Protection of Child Rights (NCPCR)**

- The **National Commission for Protection of Child Rights (NCPCR)** is a statutory body established in 2007 under the Commission for Protection of Child Rights Act, 2005.
- The commission works under the **Ministry of Women and Child Development**, Government of India.
- **NCPCR's** mandate is to ensure that all laws, policies, programs, and administrative mechanisms are aligned with the child rights perspective as enshrined in the Constitution of India and the **United Nations Convention on the Rights of the Child (UNCRC)**. A child is defined as a person falling in the age group of 0 to 18 years.

**Functions:**

- **Examine and Review Laws:** Examine and review the safeguards provided by or under any law for the time being in force for the protection of child rights and recommend measures for their effective implementation.
- **Inquiries into Child Rights Violations:** It can inquire into violations of child rights, either through complaints received or suo motu (on its own).
- **Monitor Implementation of Laws:** NCPCR monitors the implementation of laws like the Right to Education Act, 2009, Protection of Children from Sexual Offences (POCSO) Act, 2012, and Juvenile Justice (Care and Protection of Children) Act, 2015.
- **Conduct Research and Studies:** The commission conducts studies and research on issues related to child rights.
- **Spread Awareness:** NCPCR undertakes initiatives to spread awareness about child rights among various stakeholders including schools, civil society, and the general public.

**Composition:**

- The Chairperson is appointed by the Central Government, preferably a person with experience in child welfare.
- It has six members, of whom at least two should be women. These members are also appointed by the Central Government.
- NCPCR enjoys powers akin to a civil court. It can:
  - Summon individuals and examine them on oath.
  - Demand documents and public records.
  - Issue recommendations for action against violators of child rights.

Source: [The Hindu](#)

**EMERGENCY PROVISIONS AND THE IMPACT ON CENTRE-STATE RELATIONS**

**Context:** The recent spate of renewed violence in Manipur has once again triggered the discussion around Centre-State relations and the use of emergency provisions by the Centre.

**Background:**

- Large-scale violence against innocent civilians, women and children; looting of ammunition from

police armoury; drone and missile attacks targeting civilians cannot be viewed as just an ordinary breakdown of law and order.

### Key takeaways

- India operates as a federation with governments at both the Centre and State levels. The Seventh Schedule of the Constitution distributes powers between them. Maintaining law and order is primarily the responsibility of State governments.

### Emergency Provisions:

- The emergency provisions are found in Part XVIII of the Constitution.
- **Articles 355 and 356** deal primarily with the affairs of government in a State under this part.
- **Article 355** obliges the Centre to protect States from external aggression and internal disturbance and ensure State governments function according to the Constitution.
- **Article 356** allows for President's rule if a State government fails to operate in line with constitutional provisions. While similar federal roles exist in countries like the U.S., they lack provisions to remove State governments.
- **B.R. Ambedkar emphasized that Article 355** ensures the Centre only intervenes under constitutional duty, preventing misuse of Article 356.

### Judicial Interpretations:

- Dr. Ambedkar had hoped that Articles 355 and 356 would remain inactive, but Article 356 has been misused in the past to remove State governments. **This changed after the S.R. Bommai case (1994)**. The court held that Article 356 should be imposed only in the event of a breakdown of constitutional machinery, as distinguished from an ordinary breakdown of law and order. It also held that the imposition of the President's rule is subject to judicial review and should not be misused for political reasons.

### Commission Recommendations:

- **Several commissions, including the Sarkaria Commission (1987), National Commission (2002), and Punchhi Commission (2010)**, recommended that Article 356 be used only as a last resort in serious crises. They emphasized that Article 355 grants the Centre both the duty and power to act as needed to ensure constitutional governance.

### Current Relevance (Example of Manipur):

- In situations like the Manipur violence, the breakdown of law and order, including civilian attacks and looting of police arms, should not be seen as ordinary unrest. While Article 356 hasn't been invoked due to political expediency, all actions under Article 355 should be pursued to restore order.

Source: [The Hindu](#)



## INTERNATIONAL RELATIONS



### PACIFIC POLICING INITIATIVE (PPI)

**Context:** The Pacific Islands Forum (PIF) recently endorsed the Australia-funded Pacific Policing Initiative (PPI).

**Background:** -

- The PPI represents a significant investment in the security and stability of the Pacific region, reflecting Australia's commitment to supporting its Pacific neighbours.

**About Pacific Policing Initiative (PPI)**

- The Pacific Policing Initiative (PPI) is a comprehensive program funded by Australia.
- It aimed at enhancing policing capabilities across the Pacific region.
- This initiative, with a budget of approximately AU\$400 million over five years, aims to reshape policing across the Pacific region.

**The PPI focuses on three main areas:**

- **Regional Training Centres of Excellence:** These will be located throughout the Pacific to enhance police training.
- **Pacific Police Support Group:** A multinational force that can respond to regional emergencies, such as natural disasters and transnational crime.
- **Central Coordination Hub:** Based in Brisbane, Australia, this hub will support the regional centres and the Pacific Police Support Group.

**Objectives:**

- **Strengthen Regional Security:** By enhancing the capabilities of local police forces, the PPI aims to improve overall security in the Pacific region.
- **Promote Cooperation:** The initiative encourages collaboration among Pacific nations, fostering a united approach to common security challenges.
- **Build Resilience:** Through training and support, the PPI seeks to build resilience against various threats, including natural disasters, transnational crime, and geopolitical tensions.

**Pacific Islands Forum (PIF)**

- **The Pacific Islands Forum (PIF)** is an inter-governmental organization that aims to enhance cooperation among countries and territories in the Pacific region.
- It was established in 1971 (originally as the South Pacific Forum, renamed in 1999 to be more inclusive of all Pacific nations).
- PIF members include 18 countries and territories, including Australia, New Zealand, Fiji, Papua New Guinea, and several smaller island nations.
- **PIF Headquarters is in Suva, Fiji.**

Source: [News on AIR](#)

### PM MODI IN BRUNEI

**Context:** Prime Minister Narendra Modi landed in Bandar Seri Begawan, the capital of Brunei Darussalam, on Tuesday (September 3) for his official visit to the country.

**Background:**

- Narendra Modi is the first Indian PM to visit the Southeast Asian nation. His trip also marks 40 years since India and Brunei officially established diplomatic ties.

**Brunei's population and Indian diaspora**

- **As of 2023, Brunei** has an estimated population of **450,500**. Brunei citizens make up approximately 76% of the population, while the rest are permanent or temporary residents. Ethnically, over 80% of the population is Malay or Chinese.
- **Indian migration to Brunei began** in the 1920s, coinciding with the discovery of oil. Currently, around 14,000 Indians reside in Brunei.
- The significant contributions of Indian doctors and teachers to the development of Brunei's healthcare and education sectors have been widely recognized.

**Strategic Importance of Brunei**

- **Brunei holds strategic significance within India's 'Act East' Policy** and Indo-Pacific Vision. The 'Act East' Policy evolved from the 'Look East' Policy, which was initiated in the 1990s.
- In the post-Cold War era, following the **dissolution of the USSR**—India sought to deepen its relationships with countries in Southeast Asia. The northeastern states of India, due to their geographic proximity, were envisioned as key players in this engagement.
- In **2014, the policy was revitalized as 'Act East,'** emphasizing more proactive efforts to strengthen these connections. Prime Minister Narendra Modi has identified ASEAN (Association of Southeast Asian Nations) as the "central pillar" of this policy, with Brunei being one of the ASEAN members.
- **Economic growth in Southeast Asia** over the past few decades has made commerce a central focus of India's ties with the region. Brunei, as one of the largest oil and gas producers in Southeast Asia, plays a significant role in this economic engagement.
- The emphasis on Southeast Asia and the Indo-Pacific also gains importance in light of China's rising global influence.
- **Under President Xi Jinping,** China has adopted a more authoritarian stance, and while its economic power enables it to finance numerous projects and provide loans to other countries, its actions—such as its conduct in the South China Sea—**have caused friction in the region.**
- India's engagement in Southeast Asia, including its relationship with Brunei, serves as a counterbalance to China's growing influence.

Source: [Indian Express](#)

## India-Middle East-Europe Economic Corridor (IMEC)

**Context:** External Affairs Minister S Jaishankar recently said that the India-Middle East-Europe Economic Corridor (IMEC) will be a cornerstone of global connectivity.

**Background: -**

- IMEC, announced during the G20 summit last year, has opened new possibilities according to

experts.

### Key takeaways

- The India-Middle East-Europe Economic Corridor (IMEC) is a significant initiative aimed at enhancing economic connectivity and integration between Asia, the Persian Gulf, and Europe.
- IMEC is designed to bolster economic development by creating a multi-modal transport network that includes rail, shipping lines, high-speed data cables, and energy pipelines.

### Route and Connectivity

- **The proposed route for IMEC includes:**
  - **India:** Starting from India's west coast.
  - **United Arab Emirates (UAE):** Connecting via sea routes.
  - **Saudi Arabia:** Crossing the Arabian Peninsula by rail.
  - **Jordan and Israel:** Further rail connectivity.
  - **Europe:** Goods will be transported by sea from the Israeli port of Haifa to the Greek port of Piraeus, and then to various European destinations.

### Key Components

- **Rail Connectivity:** Establishing a rail network across the Arabian Peninsula.
- **Shipping Lines:** Enhancing maritime routes between India, the Middle East, and Europe.
- **High-Speed Data Cables:** Laying undersea cables to improve internet connectivity.
- **Energy Pipelines:** Developing pipelines for the transportation of clean energy.

Source: [Times of India](#)

## FORUM FOR CHINA-AFRICA COOPERATION (FOCAC)

**Context:** At last week's Forum on China–Africa Cooperation (FOCAC) summit in Beijing, China stopped short of providing the debt relief sought by many African countries.

### Background: -

- The Forum for China-Africa Cooperation (FOCAC) launched in 2000 took on an enhanced role after the 2013 inception of President Xi Jinping's Belt and Road Initiative (BRI).

### About Forum on China-Africa Cooperation (FOCAC)

- The Forum on China-Africa Cooperation (FOCAC) is a multilateral platform established to foster cooperation and partnership between China and African countries.

### Member Countries:

- FOCAC involves China and 53 African countries (all African nations except Eswatini, which recognizes Taiwan). It also includes the African Union (AU).

### Objectives:

- **Economic Cooperation:** Enhancing trade, investment, and infrastructure development.
- **Aid and Development:** China provides loans, aid, and development assistance to African countries.



- **Political Cooperation:** FOCAC promotes multilateral cooperation on global governance issues.
- **Cultural and Educational Exchanges:** Fostering mutual understanding through student exchanges, training programs, and cultural exchanges between China and Africa.
- **Peace and Security:** Supporting African efforts to maintain peace and security, with China providing assistance in conflict zones, UN peacekeeping, and military cooperation.

#### Criticisms and Challenges:

- China has sought to use FOCAC to counter growing competition in Africa from the United States, the European Union, Japan and others.
- **Debt Trap Diplomacy:** Critics argue that Chinese loans to African nations may lead to debt dependency, with concerns that some African countries might struggle to repay Chinese debts, resulting in loss of control over key assets.
- **Labor and Environmental Concerns:** There have been concerns about the use of Chinese labor for construction projects instead of hiring local African workers, as well as issues related to the environmental impact of certain Chinese-led projects.
- **Lack of Transparency:** Some observers have criticized the lack of transparency in the terms of Chinese loans and agreements, raising concerns about governance and accountability in FOCAC-related projects.

Source: [Reuters](#)

## INDIA – SINGAPORE BILATERAL RELATIONS

**Context:** Prime Minister Narendra Modi recently met with his Singaporean counterpart, Lawrence Wong, to discuss and strengthen bilateral ties between India and Singapore.

#### Background: -

- The leaders agreed to elevate the bilateral relationship to a Comprehensive Strategic Partnership, reflecting the depth and breadth of their cooperation.

#### Key takeaways

- Singapore, is an island country and city-state in maritime Southeast Asia.
- It is about one degree of latitude north of the equator, off the southern tip of the Malay Peninsula, bordering the Strait of Malacca to the west, the Singapore Strait to the south along with the Riau Islands in Indonesia, the South China Sea to the east, and the Straits of Johor along with the State of Johor in Malaysia to the north.
- India and Singapore share a robust and multifaceted relationship, which has evolved significantly over the years.

#### Historical Context

- **Colonial Era:** The relationship dates back to 1819 when Sir Stamford Raffles established a trading station in Singapore. Singapore was governed from Kolkata until **1867**.

- **Post-Independence:** Both countries have maintained strong ties since their independence, with regular political engagement and cooperation.

### Economic Relations

- **Trade:** Singapore is one of India's largest trading partners, with significant trade volumes. The **Comprehensive Economic Cooperation Agreement (CECA)** signed in 2005 has boosted trade and investment.
- **FDI:** Singapore is the largest source of Foreign Direct Investment (FDI) into India, contributing significantly to various sectors.

### Strategic and Defence Cooperation

- **Strategic Partnership:** In 2015, India and Singapore elevated their relationship to a Strategic Partnership, enhancing cooperation in various fields.



- **Defence:** Both countries conduct regular joint military exercises and have strong defence ties, focusing on maritime security and counter-terrorism.

### Recent Developments

- **Comprehensive Strategic Partnership:** Recently, the bilateral relationship was further elevated to a Comprehensive Strategic Partnership.

- **MoUs Signed:** During the latest bilateral meeting, four Memorandums of Understanding (MoUs) were signed in the fields of digital technologies, semiconductors, health cooperation, and skill development.

### Cultural and People-to-People Ties

- **Cultural Exchange:** The upcoming inauguration of India's Thiruvalluvar Cultural Centre in Singapore highlights the cultural ties between the two nations.
- **Diaspora:** A significant Indian community resides in Singapore, contributing to the vibrant cultural and economic exchanges.

### Geopolitical Significance

- **Indo-Pacific Region:** Both countries share a common vision for a free, open, and inclusive Indo-Pacific region, emphasizing the importance of peace and stability in the South China Sea.
- **ASEAN Relations:** Singapore is a key member of ASEAN, and India's engagement with ASEAN is crucial for its Act East Policy.

Source: [Indian Express](#)

## EXTRADITION TREATY BETWEEN INDIA AND BANGLADESH

**Context:** The chief prosecutor of Bangladesh's International Crimes Tribunal (ICT) has announced plans to seek the extradition of ousted leader Sheikh Hasina from neighbouring India.

**Background: -**

- Ms. Hasina sought refuge in India in August after a mass uprising compelled her to step down. Since her departure, numerous criminal cases have been lodged against her and her aides, encompassing charges of murder, torture, abduction, crimes against humanity, and genocide.

**Key takeaways**

- India and Bangladesh have a bilateral extradition treaty in place that could allow for sheikh Hasina's return to face trial.

**2013 Extradition Treaty (Amended in 2016):**

- Originally aimed to address insurgency and terrorism along shared borders.
- Facilitated extradition of fugitives like two convicts in Sheikh Mujibur Rahman's assassination and ULFA leader Anup Chetia.

**Conditions for Extradition:**

- Crimes must carry a minimum sentence of one year.
- Dual criminality required, meaning the offence must be punishable in both countries.
- Since the charges against Ms. Hasina are prosecutable in India, and the penalties for her alleged crimes are also substantial, she qualifies for extradition on these grounds.
- 2016 amendment eased extradition by only requiring an arrest warrant issued by a competent court in the requesting country for initiation of extradition process.

**Grounds for Refusal:**

- **Political Nature:** Extradition can be refused for politically motivated offences, but crimes like murder and terrorism are excluded from this exemption.
- **Good Faith Clause (Article 8):** Extradition can be denied if the accusation is not in good faith or involves military offences not considered general crimes.
- India could potentially refuse extradition on the ground that the charges against Ms. Hasina have not been levelled in good faith and there is a possibility of her being subjected to political persecution or an unfair trial upon her return to Bangladesh.

**Implications:**

- Extradition is not guaranteed and will depend on diplomatic negotiations.
- Denial of the request may only cause minor political tension without significantly impacting bilateral relations as per experts.
- Bangladesh is India's largest trade partner in South Asia, with bilateral trade valued at \$15.9 billion in FY 2022-23.
- India has pledged continued support to Bangladesh under the new interim government, despite the regime change.

Source: [The Hindu](#)

## INDIA AND IRAN

**Context:** Iran's Supreme Leader listed India along with Gaza and Myanmar as one of the places where Muslims are suffering. Reacting to this, India "strongly deplored" the comments and called them "misinformed" and "unacceptable".

**Background:** -

- Although this is not the first time Iran's spiritual leader has named India as a place where Muslims are suffering, it is unclear what provoked him to make the latest comment. In March 2020, after the north-east Delhi riots sparked criticism, Khamenei had called the riots a "massacre of Muslims".

**India and Iran Relations:**

- **India-Iran relations** span centuries marked by meaningful interactions as the two countries shared a border till 1947 and share several common features in their language, culture, and traditions.
- Diplomatic relations between the two countries were formalized in 1950, with embassies established in Tehran and New Delhi.
- Bilateral trade has witnessed steady growth, with both countries exploring avenues to enhance economic collaboration. India-Iran bilateral trade during the FY 2022-23 was \$2.33 billion, **registering a growth of 21.76% YOY.**
- The India-Iran-Afghanistan Trilateral Agreement facilitates easier trade and connectivity.
- India's development of the Chabahar Port in Iran aims to create a strategic transit route, bypassing Pakistan, and enhancing connectivity to Afghanistan and Central Asia.
- Both countries share concerns regarding regional security, leading to collaborative efforts in countering terrorism and extremism.
- India and Iran are key stakeholders in the International **North-South Transport Corridor (INSTC)**, a major transportation network connecting India and Iran to Europe.
- Efforts have been made to establish a special purpose **vehicle (INSTEX-like mechanism)** for facilitating trade despite international sanctions to demonstrate the resilience of economic cooperation.

**Issues/Concerns in India-Iran Relations:**

- Iran has been subject to various international sanctions, particularly those related to its nuclear program. These sanctions have limited the scope of economic cooperation between India and Iran, hindering trade and investment opportunities.
- India's close relations with Israel and Iran's ties with China are also bones of contention in the bilateral relations.
- **India's dependency on Iranian oil** has been a point of contention, especially considering the fluctuating geopolitical dynamics in the region. Balancing energy needs with geopolitical pressures, such as those from the United States, poses a challenge to India's relationship with Iran.

- **Iran's tough statement on the Indian government's abrogation of Article 370** of the Indian Constitution giving special status to Kashmir is another cause of tension. Iran's previous regime had on a couple of occasions made statements instigating the Muslims of Kashmir against the governance which was reprimanded by India severely.
- **The security situation in the Middle East**, including conflicts in Syria, and Yemen, and the rivalry between Iran and Saudi Arabia, can indirectly impact India-Iran relations.
- **Both India and Iran face threats** from terrorism and extremism. The activities of terrorist groups in the region can strain the security cooperation between the two nations.
- India's relationship with the **United States, particularly in the context of the U.S.-Iran relationship, can impact its interactions with Iran**. Striking a balance between maintaining ties with both countries amid their geopolitical differences poses a diplomatic challenge for India.

Source: [Indian Express](#)

### INDUS WATERS TREATY (IWT)

**Context:** India has served formal notice to Pakistan seeking “review and modification” of the Indus water treaty under Article XII (3) of the pact.

**Background:** -

- **Under Article XII (3) of the IWT**, its provision may from time to time be modified by a duly ratified treaty concluded for that purpose between the two governments.

**Key takeaways**

- The Indus water treaty between India and Pakistan was signed on September 19, 1960, for the use of water available in the Indus and its tributaries.
- **It was signed in Karachi** by then Prime Minister Jawaharlal Nehru and then Pakistan President Mohammed Ayub Khan after nine years of negotiations arranged by the World Bank.
- According to the IWT, India enjoys the “unrestricted use” of the three “Eastern Rivers [Beas, Ravi, Sutlej] except as otherwise expressly provided” whereas Pakistan got control of the three “**Western Rivers**” [Indus, Chenab, Jhelum]. **According to Article III (1) of the IWT**, “India is under obligation to let flow” waters of the Western Rivers to Pakistan.
- The treaty also mandated the establishment of a Permanent Indus Commission, with a commissioner from each country, to maintain communication and address implementation issues. Additionally, a dispute resolution mechanism was established.
- In effect, the treaty gave India about 30% of the water carried out by the “Indus Rivers System” while Pakistan got 70% of the waters.



### Division of rivers as per Indus Waters Treaty

Eastern rivers to India: Sutlej, Beas, Ravi | Western rivers to Pakistan: Chenab, Jhelum and Indus



- India has significant strategic advantage by being situated upstream on all six rivers. In contrast, Pakistan's lower geographical position rendered it reliant on its neighbours for water.

- As the only major cross-border water-sharing treaty in Asia, the Indus Water Treaty plays a crucial role in maintaining peace between two nuclear-armed neighbours.

### What challenges has the Indus Waters Treaty faced?

- Over the years, numerous disputes have been amicably resolved through the Permanent Indus Commission.

- **However, a significant challenge to the treaty arose in 2017** when India completed the

construction of the Kishanganga dam in Kashmir and continued work on the Ratle hydroelectric power station on the Chenab River.

- This occurred despite Pakistan's objections and ongoing discussions with the World Bank regarding whether these **projects violated the treaty's terms**.
- As explained before, under the terms of the treaty, the waters of the Indus, Jhelum, and Chenab were allocated to Pakistan, while India was entitled to generate electricity from run-of-the-river (doesn't involve water storage) projects. However, Pakistan has repeatedly raised objections to these projects.
- **India served formal notice to Pakistan on August 30 (2024)**, seeking review and modification of the IWT. India's notification highlights "fundamental and unforeseen changes in circumstances" that require a reassessment of obligations under various Articles of the IWT.
- Among various concerns, important ones include change in population demographics; environmental issues — need to accelerate **development of clean energy to meet India's** emission targets; impact of persistent cross-border terrorism. Source: [Indian Express](#)

## SRI LANKAN POLLS: ECONOMY TAKES CENTRE STAGE

**Context:** Sri Lanka's presidential election will be held on September 21. Since it is the first time that citizens will have a chance to elect their leader after the unprecedented financial meltdown in 2022, their economic concerns are the chief poll issue.

### Background: -

- This marks a departure from the nation's last few elections that were dominated by promises of eradicating terrorism (the country's three decade-long civil war ended in 2009), and pledges of delivering good governance, or national security. All main contenders running for president this time have promised to fix the country's broken economy.

### What happened in 2022?

- President Gotabaya Rajapaksa resorted to rash policy decisions, including significant tax cuts, an abrupt ban on chemical fertilizers, and a failure to devise a plan to meet debt repayment deadlines, especially after foreign reserves dwindled in the wake of the pandemic.
- **In April 2022**, Sri Lanka announced it would default on its foreign loans as the “last resort”. As the imports-reliant country ran out of dollars, essential supplies were severely hit.
- With no solution in sight, citizens took to the streets. The formidable mass uprising evicted Mr. Gotabaya from presidency. Soon after, Ranil Wickremesinghe was elected through a parliamentary vote.

### When did the IMF step in?

- In March 2023, agreement for a **\$3-billion Extended Fund Facility (EFF)** was finalised. The EFF sought to restore Sri Lanka’s macroeconomic stability and debt sustainability, safeguard financial stability, and step up structural reforms to unlock the country’s growth potential.
- Although Sri Lanka had obtained **IMF assistance 16 times earlier**, this was its first agreement after defaulting on its loans. In order to meet the targets set, the government undertook various policy measures.
- It restored the taxes that were cut by the previous administration and increased the **Value Added Tax (VAT)** to 18% from January 2024. It went for market-pricing of fuel and energy, and agreed to “reform” state-owned enterprises, best known for their huge losses.

### What is the status of Sri Lanka’s debt?

- In June this year, Sri Lanka sealed an agreement with the Official Creditor Committee (OCC), to restructure the debt owed to its bilateral lenders, and signed a separate agreement with China for debt treatment.
- The OCC is a platform comprising 17 countries including India and members of the Paris Club, that Sri Lanka has borrowed from. It was formed in **May 2023 to simplify Sri Lanka’s debt negotiations following its default.**
- Sri Lanka on September 19, 2024 said it reached agreements in principle to restructure approximately **\$14.2 billion** of sovereign debt with the holders of its International Sovereign Bonds.
- On the **domestic debt front**, Sri Lanka’s effort at restructuring has sought to protect local banks, while transferring the burden to superannuation funds, including the Employees’ Provident Fund. The move, which diminishes the rate of return on investments and the final value of workers’ savings has been challenged in the Court.

### Has the economy recovered?

- State revenue is up from 8% of the Gross Domestic Product (GDP) in the crisis year to 11%. The staggering 70% inflation seen in September 2022 dropped to 5.9% in February 2024. Sri Lanka’s economy is expected to grow around 2% to 3% this year, after the near-8% contraction in 2022.
- Foreign investment of around \$1.5 billion made its way last year. The tourism industry saw

arrivals double, compared to 2022. Remittances showed an uptick of over 50%, amounting to nearly \$6 billion in 2023. Sri Lanka's gross official reserves rose to \$5.9 billion in August 2024.

- Flagging these macroeconomic gains President Ranil Wickremesinghe, who is among the contenders this election, is running on the plank of economic stability.

#### How do people view the government's claim of stability?

- Affluent sections, appreciate the President's efforts towards economic recovery. However, a majority of Sri Lankans are reeling under the enduring impact of the crisis, and the austerity measures introduced as part of the IMF-led recovery programme.
- The **electricity tariff hike in 2023** threw over a million families off the grid, as they could not afford their bills.
- The reduced rate of inflation is routinely cited by the Central Bank to signal respite, but it has not softened the blow for consumers. Meanwhile, higher utility bills, mainly electricity and water, cooking gas and transport costs, have only further drained the stagnant incomes of **families. Add to this the 18% VAT.**

Source: [The Hindu](#)

## INDIA'S LEGACY IN INTERNATIONAL MEDIATION

**Context:** International Day of Peace is observed every year on September 21. World is grappling with conflicts, wars and looming threats of escalation in regions like West Asia. In this context, recalling India's historical role in peacemaking and international mediation is important

#### Background: -

- The International Day of Peace was established in 1981 by the United Nations General Assembly (UNGA) for commemorating and strengthening the ideals of peace both within and among all nations and peoples.

#### Key takeaways

- India has consistently advocated for democratic dialogue and diplomacy to resolve global conflicts, rooted in its national movement and Non-Aligned Movement policy.
- Under Prime Minister Nehru, India played a significant peacekeeping role, mediating in several international conflicts during the Cold War era.

#### Key Peace Mediation Efforts:

- **Korean Crisis (1950-53):** India's resolution on Korea was adopted by the UN in 1952. India facilitated an armistice in 1953, chaired the Neutral Nations Repatriation Commission (NNRC) which was tasked to decide the fate of prisoners of war. A Custodian Force led by Lieutenant General K. S. Thimayya was deployed along the 38th parallel. India was also an active member of the UN Commission on Korea and the Neutral Nations Supervisory Commission.
- **Vietnam (1950s-60s):** India served as co-chair of the International Commission for Supervision and Control, mediating during the Vietnam War.
- **Austria (1955):** Nehru played key role in mediating between the USSR and Austria for the

withdrawal of Soviet troops and successfully convincing Austria to declare neutrality in 1955.

- **Protests Against Invasions:** India opposed China's invasion of Vietnam (1979), the Soviet invasion of Afghanistan (1979), the US invasions of Iraq (2003), and Afghanistan (2001).
- India's image as a neutral power in South Asia, strong political leadership and proactive diplomacy by charismatic leaders alongside institutional support from the UN were the factors that led to the success of India's mediation in Korea and other international hostilities.

#### Current Role in Russia-Ukraine Conflict:

- India has consistently called for dialogue and diplomacy since the war began.
- In 2022, Prime Minister Modi, along with other world leaders, helped prevent a nuclear strike by Moscow on Kyiv.
- India has made efforts to revive the Black Sea Grain Initiative, following Russia's withdrawal in July 2023.
- Modi has engaged with both President Putin and President Zelensky, positioning India as a potential mediator for peace.
- Putin acknowledged India as a sincere peace partner, while Ukraine also expressed trust in India's peace-making role.

#### Feasibility of India's Peace Proposal:

- India's non-aligned position, close ties with Russia and the West, and diplomatic legacy strengthen its potential as a mediator in the Russia-Ukraine conflict.
- India's successful mediation in past conflicts like Korea could serve as a model for its peace efforts in Ukraine.
- Modi's upcoming meetings with Zelensky and Putin (**BRICS and sidelines of Quad summits**) indicate further opportunities for India to facilitate negotiations.
- India's proactive diplomacy, institutional support from the UN, and humanitarian stance position it as a credible peace mediator, building on its historic legacy of international conflict resolution.

Source: [Indian Express](#)

## THE ESCALATION IN WEST ASIA

**Context:** Tensions in West Asia have spiked after pagans and hand-held radios exploded in two days of coordinated attacks across Lebanon and parts of Syria, killing at least 37 persons and injuring more than 3,500, according to the Lebanese government.

#### Background:

- **Israel's military believes that it has been able to "substantially"** degrade the capabilities of Hamas in Gaza. Therefore, it believes, the time has come to shift focus more substantially towards Hezbollah, the much more powerful adversary in the north.

#### Key takeaways

- Hezbollah, the **Iranian-backed Lebanese** political party and militant group, has accused Israel of carrying out the attacks, which the Israelis have neither owned nor disowned.
- Israeli fire is **reported to have killed more than 450 Hezbollah** members and more than 100 civilians in Lebanon over **the past 11 months**.
- The attacks are also meant to deliver a message to the leadership in Tehran, the main benefactor of

not just Hezbollah, but also Hamas and the Houthis of Yemen — that enemies of Israel are not safe anywhere.



Fallout of the attack

- **Tehran could coordinate with its partners in the so-called Axis of Resistance — Hamas, Hezbollah and the Houthis — to carry out attacks on Israel.** Or it could target Israeli officials in third countries, perhaps after waiting for some time. Israel, on its part, could carry out an aerial offensive against not just Hezbollah but also the Lebanese state apparatus.

- All these scenarios present serious concerns for India.

- India has so far managed to walk the diplomatic tightrope between **Israel and the Palestinians.** But any

escalation between Israel and Hezbollah will mean Iran will be part of the conflict, which could draw in the United States as well — this could present New Delhi with a far more complex diplomatic challenge.

- **Some 9 million Indians live and work in the region.** These people are often the sole breadwinners of their families, and the largest source of remittances to India. New Delhi would be worried for their safety and security.
- About two-third of India's crude oil and natural gas comes from the West Asian region, and an impact on crude prices and supply could impact the country's energy security.

Source: [Indian Express](#)

## ISRAEL AND HEZBOLLAH

**Context:** Prime Minister Benjamin Netanyahu said that Israeli forces would continue to strike Lebanon with full force until the Shiite militant group Hezbollah stops firing rockets at Israel.

### Background:

- Israeli attacks on Lebanon **have killed 700 people** in the last week alone, and the exchange of fire between Israel and Hezbollah, which began soon after the October 7, 2023 attacks by Hamas in southern Israel, has led to the displacement of thousands.

### Key takeaways

- The Israel-Hezbollah conflict has deep roots in the history of southern Lebanon.
- The establishment of the state of Israel in 1948 was accompanied by the violent displacement of more than 750,000 Palestinian Arabs in the event known as the Nakba, or catastrophe. Many of those who were displaced settled in south Lebanon.



- Lebanon had a large Christian population and conflicts between the Palestinians and Christian militias were fuelled by Soviet support for the Arabs and US backing for the Christian coalition.
- In the 1960s and 70s, militants affiliated with the Palestine Liberation Organisation (PLO) began



to build a base in south Lebanon, which they used as a launchpad for attacks on northern Israeli towns.

- In **March 1978**, in response to a massacre of Israelis near Tel Aviv by Palestinian militants based in Lebanon, Israel invaded south Lebanon. In a short war that followed, Israeli forces pushed the PLO back from south Lebanon, creating a buffer north of Israel.

- But the PLO attacks from Lebanon continued and, four years later, Israel mounted another invasion. The Israel Defence Forces (IDF), along with their Lebanese Christian allies, laid siege to Beirut.

- By 1985, Israel had withdrawn from most of Lebanon but maintained

a 15-20-km wide security zone in south Lebanon to prevent cross-border attacks. This area was patrolled by the **South Lebanon Army (SLA)**, a Christian militia allied with Israel.

- Hezbollah was formed in the early 1980s in response to the Israeli occupation of Lebanon. The group was founded with support from Ayatollah Khomeini's regime in Iran.
- The group's initial goal was to resist Israeli occupation, but as it strengthened, its objectives expanded to establishing a theocratic state in Lebanon, similar to the one in Iran following the **revolution of 1979**.
- But all this might be about to change, as Netanyahu's government moves the focus of the war away from Gaza, and IDF tanks line up in northern Israel, seemingly in preparation for another ground invasion of **south Lebanon**.

Source: [Indian Express](#)



## ECONOMY



## DIGITAL AGRICULTURE MISSION

**Context:** Recently, the Union Cabinet Committee chaired by the Prime Minister of India approved the Digital Agriculture Mission with an **outlay of Rs. 2817 Crore**, including the central share of **Rs. 1940 Crore**.

**Background:** -

- This initiative is part of the broader vision of **Viksit Bharat@2047**, aiming to transform the agriculture sector through digital solutions.

**About Digital Agriculture Mission**

- **The Digital Agriculture Mission** is an initiative by the Ministry of Agriculture and Farmers' Welfare.
- The mission aims to create a robust Digital Public Infrastructure (DPI) for the agriculture sector.
- This includes initiatives like the Digital General Crop Estimation Survey (DGCEs) and other IT projects by various government bodies.

**Objectives:**

- **Enhance Farmers' Income:** By providing timely and reliable information, the mission aims to improve the income of farmers.
- **Digital IDs for Farmers:** Farmers will receive digital identities similar to Aadhaar, known as Farmer IDs.
- **Nationwide Crop Surveys:** Implementing comprehensive crop surveys to gather accurate data on agricultural production.
- **Job Creation:** The mission is expected to create around 2.5 lakh jobs.
- **Development of AgriStack:** This will include a Krishi Decision Support System and Soil Profile Mapping, providing essential data to farmers.

**Benefits:**

- **Improved Service Delivery:** By leveraging data analytics, AI, and remote sensing, the mission aims to make service delivery mechanisms more efficient and transparent.
- **Enhanced Decision-Making:** Farmers will have access to timely and accurate information, aiding in better decision-making.
- **Increased Productivity:** With better access to information and resources, farmers can increase their productivity and profitability.
- **Sustainable Agriculture:** The mission promotes sustainable agricultural practices by providing data on soil health, crop patterns, and more.
- **Economic Growth:** By boosting the agriculture sector, the mission contributes to the overall economic growth of the country.

Source: [PIB](#)

## E SHRAM PORTAL

**Context:** The Ministry of Labour & Employment (MoLE) has recently reported that the eShram portal has registered over 30 crore unorganised workers.

**Background:** -

- This significant milestone highlights the portal's widespread adoption among workers in the unorganised sector, including migrant workers, gig workers, agricultural workers, and many others.

#### About eShram portal

- The eShram portal was launched by the Ministry of Labour and Employment on **August 26, 2021**.
- The eShram portal aims to create a comprehensive national database of unorganised workers to facilitate the delivery of social security and welfare schemes.
- This initiative is a crucial step towards ensuring better access to benefits and protections for these workers.

#### Key Benefits for Migrant Workers:

- **Comprehensive Registration:** Migrant workers can register themselves on the portal, ensuring they are included in the national database of unorganised workers.
- **Family Details:** The portal captures family details of migrant workers, which can be crucial for accessing various welfare schemes.
- **Access to Social Security:** By registering on eShram, migrant workers can easily access social security benefits and welfare schemes designed for unorganised workers.
- **Job Opportunities:** Integration with the **National Career Service (NCS)** Portal allows migrant workers to search for suitable job opportunities using their **Universal Account Number (UAN)**.
- **Skill Development:** The portal is linked with the Skill India Digital portal, providing migrant workers with opportunities for skill enhancement and apprenticeships.
- **Pension Scheme:** Migrant workers aged between 18-40 years can register for the **Pradhan Mantri Shram-Yogi Maandhan (PM-SYM)** pension scheme using their UAN.
- **Government Schemes:** Through integration with the My Scheme portal, migrant workers can discover and apply for various government schemes they are eligible for.

Source: [PIB](#)

### AGRI FUND FOR START-UPS & RURAL ENTERPRISES (AGRISURE)

**Context:** Recently, the union minister for Agriculture and Farmers' Welfare and Rural Development launched the AgriSURE Scheme in New Delhi.

#### Background: -

- This scheme is part of the government's broader efforts to empower farmers and boost the agricultural sector, ensuring increased production, reduced costs, and better prices for farmers.

#### About AgriSURE

- Agri Fund for Start-ups & Rural Enterprises (AgriSURE) Fund is an innovative fund which is a pioneering step toward revolutionizing the agricultural landscape in India.
- The AgriSURE Fund is a financial initiative aimed at supporting agricultural start-ups and rural

enterprises in India.

- It is a collaborative initiative between the Ministry of Agriculture and Farmers Welfare and the **National Bank for Agriculture and Rural Development (NABARD)**.
- The fund aims to support agricultural start-ups and rural enterprises by providing financial assistance through a blended capital **fund of ₹750 crore**. It provides both equity and debt support to agritech start-ups and agripreneurs.
- It targets high-risk, high-impact activities across the agriculture value chain.
- **AgriSURE** Fund is registered as a Category-II Alternative Investment Fund (AIF) with SEBI.

#### Objectives:

- **Investment-Friendly Climate:** Create an environment conducive to investment for start-ups in agriculture and allied activities.
- **Growth Acceleration:** Accelerate the growth of start-ups within the agricultural ecosystem.
- **Capital Commitments:** Increase and sustain capital commitments to sector-specific AIFs.
- **Encouraging Entrepreneurs:** Support young entrepreneurs with innovative, technology-driven ideas.
- **Liquidity Provision:** Provide liquidity to existing agri and agri-tech start-ups.
- **Linkage Systems:** Strengthen the farm produce value chain.
- **Access to Technology:** Enable FPOs, FPCs, and Primary Cooperative Societies to access the latest farm technologies.
- **Employment Opportunities:** Create additional employment opportunities for rural and urban youth.
- **Youth Retention and Encouragement:** Retain and encourage youth in agriculture.
- **Investment Attraction:** Attract more investment into the agri and rural start-up ecosystem.

#### Target Beneficiaries:

- The fund aims to support about 85 start-ups by the end of its life, with variable ticket sizes of up to ₹25 crore.
- Beneficiaries include start-ups in sectors like agritech, food processing, animal husbandry, fisheries, supply chain management, farm mechanisation, biotechnology, waste management, renewable energy, and more.

Source: [PIB](#)

## FINANCIALISATION

**Context:** Chief Economic Adviser (CEA) V. Anantha Nageswaran cautioned that financialisation might distort macroeconomic outcomes.

#### Background:

- India's stock market capitalisation was about 140% of the GDP, the Indian financial sector is seeing high profitability all pointing towards the surge of financialisation.

#### About Financialisation

- Financialisation refers to the increasing dominance of financial motives, financial markets, financial actors, and financial institutions in the economy.

### Key Aspects of Financialisation

- **Growth of the Financial Sector:** Financialization involves the expansion of financial services, such as banking, insurance, and investment, relative to the overall economy.
- **Securitization:** This is the process of turning assets into financial instruments, which can be traded in markets. It has led to a massive increase in the variety and volume of financial products.
- **Shift from Industrial to Financial Capitalism:** Economies have moved from being driven by industrial production to being driven by financial activities.
- **Influence on Corporate Governance:** Companies increasingly focus on maximizing shareholder value, often prioritizing short-term financial gains over long-term investments.

### Impacts of Financialization

- **Economic Policy and Corporate Behavior:** Financial markets and institutions have a significant influence on economic policies and corporate strategies.
- **Income Inequality:** Financialization has contributed to increasing income inequality, as the financial sector often sees higher income growth compared to other sectors.
- **Wage Stagnation:** There has been a transfer of income from the real sector (goods and services) to the financial sector, leading to wage stagnation in non-financial industries.
- **Decline in Manufacturing:** In some countries, like the U.S., financialization has been linked to the decline of manufacturing jobs as capital is diverted to financial markets rather than industrial investments.

Source: [Hindu](#)

## GST STRUCTURE — COMPLICATIONS AND THE WAY AHEAD

**Context:** Recently, a restaurant owners complaint to Union Finance Minister regarding absurdity in get structure has gone viral.

**Background:** -

- During the meeting with Finance Minister, the chairperson of a popular restaurant chain in Tamil Nadu, flagged the challenges faced by restaurateurs due to the varying GST rates on food items.

### Key takeaways

- **Simplification of GST Structure:** A less-complex GST structure essentially would imply a reduction in the number of tax slabs, minimal carve outs and exemptions, easier compliance mechanism and rates at a level at which both states and the Centre are able to safeguard their revenue streams.
- **Multiplicities in Tax Rates:**
  - Issues raised over different GST rates for similar items (e.g., **buns vs. cream buns**).
  - Classification (to different tax slabs) disputes often lead to legal challenges.
- **Revenue Stability and Challenges:**

- o GST collections have stabilized around Rs 1.8 lakh crore monthly.
- o Merging tax slabs (e.g., 12% and 18%) risks revenue loss. Around 70 per cent of the GST revenue is coming from 18 per cent tax slab. Even a 1% reduction in the 18% slab could reduce revenue by 3.5%.
- **Concerns of States and Central Government:**
  - o Any indication of a deceleration in revenue growth due to any tinkering of the GST rates, at a time when many southern states are already asking for a greater share of revenues under the Finance Commission mechanism, is not going to be easily agreeable to states.
  - o Revenue neutrality is crucial, preventing a slowdown in revenue growth.
- **Potential Solutions for Rate Simplification:**
  - o Flat rates with no exemptions (**similar to Singapore/New Zealand**) were considered but rejected for India's diverse market.
  - o **Standard Rate Proposal: In 2018**, former F M Arun Jaitley suggested that as revenue grows, a standard GST rate between 12% and 18% should be fixed, with exemptions for luxury and sin goods. The country should eventually aim for GST slabs of zero, 5%, and a standard rate.
  - o **Simplifying B2C Items:** Experts suggest revisiting GST rates for simple B2C items, especially those sold by smaller manufacturers. A rejig of rates could provide relief without significant revenue loss.
  - o The equivalence principle need to be applied to similar B2C items. For eg: bakery items could be clubbed together with a valuation threshold for the premium segment products.

Source: [Indian Express](#)

## WHOLESALE PRICE INDEX (WPI)

**Context:** India's wholesale price index (WPI)-based inflation cooled to a 4-month low of 1.31% in August, down from 2.04% in July.

**Background:** -

- The reduction in WPI could help maintain low retail inflation, albeit with a time lag (change in prices should be passed on from wholesale level to retail level).

**About Wholesale Price Index (WPI)**

- The Wholesale Price Index (WPI) tracks changes in the price of goods that are traded in bulk or wholesale. It is used as an inflationary trend indicator

**WPI vs. CPI:**

- While WPI measures inflation at the wholesale level, the Consumer Price Index (CPI) measures inflation at the retail level (prices paid by consumers).
- WPI excludes services, whereas CPI includes both goods and services.
- The base year for WPI is different from CPI, and the basket of goods considered also varies.
- In India, the WPI is published by the Office of the Economic Adviser, under the Ministry of Commerce and Industry. It is released on a monthly basis.



- The current base year for WPI is 2011-12.
- **The WPI basket is classified into three major groups:**
  - **Primary Articles** (e.g., food, non-food articles) – 22.62% weightage.
  - **Fuel and Power** (e.g., coal, electricity) – 13.15% weightage.
  - **Manufactured Products** (e.g., textiles, chemicals) – 64.23% weightage.
- Manufactured products hold the highest weightage, reflecting their significance in the economy.

#### Limitations of WPI:

- WPI excludes services, which form a significant part of the economy.
- It is less reflective of the cost of living for consumers compared to CPI, as it only measures goods prices at the wholesale level.
- WPI may not capture the final burden of inflation on consumers as it deals with prices at the producer or distributor level.

Source: [IBEF](#)

### THE DEPOSIT ISSUE: WHY BANKS ARE STRUGGLING TO LEND

**Context:** Banks are currently experiencing a deposit crunch, which is limiting their ability to extend credit.

#### Background: -

- The Reserve Bank of India Governor Shaktikanta Das had, in July, raised concerns over slower deposit mobilisation compared to credit growth stating that as it may create structural liquidity issues.

#### Key takeaways

- **India is among the fastest-growing** large economies of the world largely driven by the government's elevated expenditure on infrastructure development.
- While government capital expenditure has spurred the growth rate, job creation remains a concern with youth unemployment touching 17 per cent, as highlighted by the World Bank.
- Private investment, measured by private Gross Fixed Capital Formation (GFCF), has been subdued, declining to a four-quarter low of 6.46 per cent in Q4FY24, down from 9.7 per cent in the previous quarter.
- The **Economic Survey 2023-2024** also highlighted that between FY19 and FY23, the share of private non-financial corporations in overall GFCF increased only by 0.8 percentage points from 34.1 per cent to 34.9 per cent.
- In a worrying trend, S&P Global forecasted that year-on-year credit growth is set to decline during the current financial year to 14 per cent, compared to 16 per cent in the previous fiscal year.
- One key reason for this is the reduced risk appetite from banks for lending to the private sector, which is the economy's largest job creator.
- S&P Global also said that "**regulatory actions to tame unsecured lending**" are also slowing credit growth. The RBI recently increased risk weights for unsecured loans which has

moderated loan growth in this segment in recent months.

### Widening Credit-Deposit Gap

- A healthy credit growth rate is essential to maintain economic growth, especially in India where bank credit is a key component. However, for banks to extend credit, deposits must grow in tandem. But banks are currently experiencing a deposit crunch, which is limiting their ability to extend credit. This has led to a widening gap between bank deposits and credit growth.
- **Current and savings accounts (CASA)** – the banks' primary low-cost funding sources, account for 41 per cent of total deposits, down from 43 per cent last year.

### Changing investment habit

- The slowdown in deposit growth comes amid an outflow of household savings from banks to capital markets. Following the Covid pandemic, the Indian capital markets have seen a meteoric rise. However, economists say that **the shift in households'** saving behaviour towards alternative saving instruments have not alone lowered bank deposits as a move to alternate saving instruments would still imply that the money finds its way into bank deposits.
- "A shift in the savings portfolio of a household alone does not lead to a fall in deposits. It does, however, **change the composition of deposits – for instance, a shift to CASA** from term deposit or a move towards shorter tenure term deposits compared to longer tenure. This in turn could have an adverse impact on the money multiplier and the deposit creation process," HDFC Bank said in a research report.
- **Low government spending in the run up to** the election has also exaggerated the deposit problem in recent months. Government spending remained low in the run up to the elections over the last few months and this led to an increase in government cash balances with the RBI.

Source: [Indian Express](#)

## CREDIT DEFAULT SWAPS (CDS)

**Context:** Securities and Exchange Board of India (SEBI) announced that mutual funds can now sell credit default swaps (CDS) citing the need to aid liquidity growth in corporate bond market, according to its latest circular.

### Background: -

- The move follows RBI's directive in 2022 to provide revised regulatory framework for debt derivatives. So far, only buying CDS's were permitted. Allowing both purchase and sale of the instrument will improve flexibility for MFs.

### About Credit Default Swap (CDS)

- Credit Default Swap (CDS) is a financial derivative that allows an investor to transfer the credit risk of a debt instrument, such as a bond, to another party.
- A CDS is essentially a contract between two parties: the buyer and the seller. The buyer of the CDS makes periodic payments to the seller in exchange for protection against the default of a debt instrument, such as a bond or loan.

How Does a CDS Work?

- **Premium Payments:** The buyer pays regular premiums to the seller, similar to an insurance policy.
- **Credit Event:** If the underlying debt instrument defaults or a specified credit event occurs (e.g., bankruptcy, failure to pay), the seller compensates the buyer.
- **Compensation:** The compensation typically includes the face value of the debt instrument and any unpaid interest.

**Illustration:**

- **Imagine Company X** has issued a bond worth ₹100 crore. An investor, Investor A, has purchased the bond but is concerned that Company X might default on its debt obligations. To mitigate this risk, Investor A buys a CDS from Bank B, a financial institution willing to take on this credit risk.
- **Investor A (Protection Buyer) pays a regular premium to Bank B (Protection Seller) for insuring the bond issued by Company X (Reference Entity).**
- If Company X continues to make payments on the bond, Investor A will continue paying the premium, and the CDS will expire without being triggered.
- If Company X defaults on its bond, Bank B will compensate Investor A for the value of the loss (say ₹100 crore or a part of it depending on the terms).

**Key Uses of CDS**

- **Hedging:** Investors use CDS to hedge against the risk of default on debt instruments they hold.
- **Speculation:** Traders can speculate on the creditworthiness of a company or country by buying or selling CDS.

**Risks and Criticisms:**

- **Counterparty Risk:** If the CDS seller (e.g., Bank B) itself becomes insolvent, the buyer of the CDS (e.g., Investor A) may not receive the payout even if a default occurs.
- **Market Instability:** During the 2008 financial crisis, CDS contracts exacerbated the instability as financial institutions struggled to honor CDS payouts.

Source: [The Hindu](#)



## GEOGRAPHY



## LA NINA

**Context:** India Meteorological Department (IMD) has forecasted a rainy September for several parts of north India due to the expected La Nina conditions.

**Background:** -

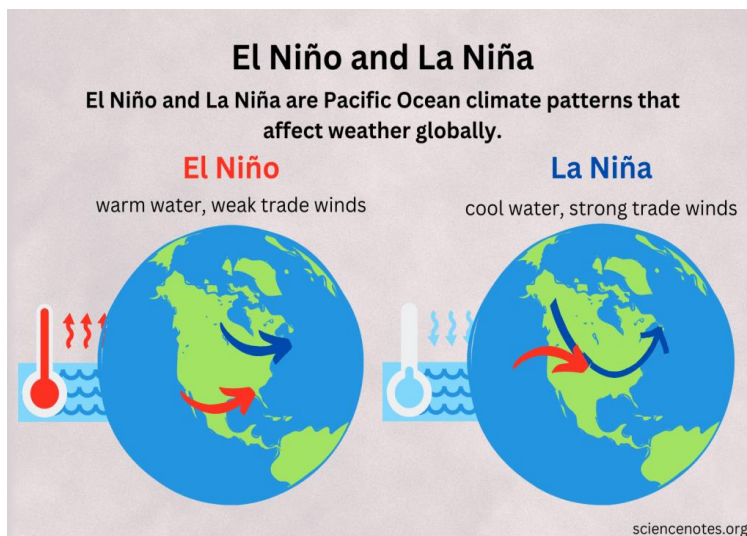
- La Niña has several notable effects on India, primarily due to its influence on the monsoon season and overall weather patterns.

**About La Niña**

- La Niña is a climate pattern characterized by the cooling of sea surface temperatures in the central and eastern tropical Pacific Ocean.
- This phenomenon is part of the larger **El Niño-Southern Oscillation (ENSO)** cycle, which also includes **El Niño (the warming phase)** and a neutral phase.

**Key features of La Niña:**

- **Cooler Ocean Temperatures:** The central and eastern Pacific Ocean experiences cooler-than-average sea surface temperatures.
- **Weather Impacts:** La Niña typically brings wetter-than-normal conditions to Southeast Asia, Australia, and parts of India, while causing drier conditions in the southwestern United States and parts of South America.
- **Monsoon Influence:** In India, La Niña is often associated with stronger monsoon seasons, leading to above-average rainfall.
- **Global Effects:** It can influence global weather patterns, including increased hurricane activity in the Atlantic and cooler, wetter winters in the northern United States.

**Effects of La Niña on India**

- **Enhanced Monsoon Rains:** La Niña typically brings above-average rainfall during the monsoon season (June to September). This can be beneficial for agriculture, as it improves water availability.
- **Flooding Risks:** While increased rainfall can be beneficial, it also raises the risk of flooding, particularly in low-lying areas and regions with poor drainage systems.
- **Agricultural Productivity:** The increased rainfall can lead to better crop yields for rain-fed crops like rice, sugarcane, and pulses. However, excessive rain can also damage crops and lead to waterlogging.

- **Water Resources:** La Niña can improve the water levels in reservoirs, rivers, and groundwater, which is crucial for irrigation and drinking water supplies.
- **Temperature Variations:** La Niña can lead to cooler-than-normal temperatures in some parts of India, especially during the winter months.
- **Pest and Disease Outbreaks:** The wetter conditions can create a favourable environment for pests and diseases, which can harm crops and reduce yields.

Source: [The Hindu](#)

## AMAZON RAINFORST

**Context:** Nearly 40 per cent of the areas of the Amazon rainforest most critical to curbing climate change have not been granted special government protection, as either nature or indigenous reserves, according to an analysis by nonprofit Amazon Conservation.

**Background:** -

- Those parts of the Amazon have the biggest, densest trees and the most continuous canopy cover, meaning that the areas hold the most carbon.



### Key takeaways

- The **Amazon Rainforest**, also known as **Amazonia**, is a vast tropical rainforest that covers much of the Amazon Basin in South America.

- **Location:** The Amazon spans across nine countries: Brazil, Peru, Colombia, Venezuela, Ecuador, Bolivia, Guyana, Suriname, and French Guiana.

- **Weather:** The Amazon experiences high rainfall, high humidity, and consistently high temperatures throughout the year.

- **Size:** It covers approximately 6 million square kilometers (2.3 million square miles), making it the largest rainforest in the world
- **Biodiversity:** The Amazon is home to about 10% of all known species of flora and fauna.
- **Carbon Sink:** The rainforest plays a crucial role in regulating global climate by absorbing 2 billion tons of CO<sub>2</sub> annually, making it one of the largest carbon sinks in the world.
- **River System:** The Amazon River, the second-longest river in the world, flows through the rainforest and discharges more water than any other river, contributing 20% of Earth's freshwater supply.



- **Climate Regulation:** As the largest rainforest, it plays a significant role in regulating global climate patterns and producing 20% of the Earth’s oxygen.
- **Brazil’s Role:** Brazil holds the largest portion of the Amazon and is critical for any global conservation efforts. It has seen fluctuating government policies regarding deforestation.

Source: [Deccan Herald](#)

## GULF OF MEXICO

**Context:** About 42% of crude oil production and 53% of natural gas output in the U.S. Gulf of Mexico were shut last week in the wake of Hurricane Francine.

**Background:** -

- Francine tore through the U.S. Gulf of Mexico's prime oil and gas producing areas and slammed into the Louisiana coast as a Category 2 hurricane.



### About Gulf of Mexico

- The Gulf of Mexico is a large ocean basin and a marginal sea of the Atlantic Ocean, bordered by the United States, Mexico, and Cuba.

### Geography and Size

- **Area & Depth:** Approximately 1.55 million square kilometers in area. The average depth is about 1,615 meters, with the deepest point, the Sigsbee Deep, reaching around 4,384 meters.

- **Shape:** Roughly oval, the Gulf is **about 1,500 kilometers wide**.

### Boundaries

- **North and Northeast:** Bordered by the U.S. states of Texas, Louisiana, Mississippi, Alabama, and Florida.
- **South and Southwest:** Bordered by the Mexican states.
- **Southeast:** Bordered by Cuba

### Hydrology

- **Major Rivers:** The Mississippi River and the Rio Grande are the primary rivers draining into the Gulf.
- **Connections:** Linked to the Atlantic Ocean through the Straits of Florida and to the Caribbean Sea



via the Yucatán Channel.

### Climate and Currents

- **Climate:** Ranges from tropical to subtropical. The Gulf Stream, a warm and swift Atlantic ocean current, originates here.
- **Water Temperature:** Surface temperatures vary from 18°C in the northern parts during winter to about 32°C in the summer.
- **Hurricanes:** The warm waters of the Gulf are a breeding ground for powerful hurricanes, particularly during the hurricane season from June to November.

### Ecological and Economic Importance

- **Biodiversity:** Home to diverse marine life, including fish, crustaceans, and coral reefs.
- **Oil and Gas:** One of the world's most important offshore petroleum production regions, contributing significantly to the U.S. oil supply.
- **Fisheries:** Supports a robust fishing industry, providing shrimp, oysters, and various fish species.

### Environmental Concerns

- **Pollution:** Oil spills, such as the Deepwater Horizon spill in 2010, have had significant environmental impacts.
- **Dead Zones:** Areas with low oxygen levels, primarily due to agricultural runoff, affecting marine life.

Source: [Reuters](#)

## TYPHOON YAGI

**Context:** Millions of people in Southeast Asia continue to struggle with torrential rains, floods, and landslides triggered by Typhoon Yagi — the strongest tropical cyclone Asia has seen this year and the second most powerful storm in the world so far this year after Hurricane Beryl.

### Background: -

- While Typhoon Yagi has severely impacted multiple countries, **including the Philippines, China, Laos, Myanmar, and Thailand, it has hit Vietnam the hardest, where** the death toll stands at around 233.

### Key takeaways

- Tropical cyclones form over warm ocean waters near the equator. When the warm, moist air from the ocean surface rises upward, a lower air pressure area is formed below. Air from surrounding areas with higher air pressure rushes into this low pressure area, eventually rising, after it also becomes warm and moist.
- As warm, moist air rises, it cools down, and the water in the air forms clouds and thunderstorms. This whole system of clouds and winds gains strength and momentum using the ocean's heat, and the water that evaporates from its surface.
- **Typhoon Yagi started as a tropical storm in the western Philippine Sea on September 1.** It made landfall in the Philippines the next day and started to weaken.
- However, due to unusually warm waters in the South China Sea, the storm intensified again. By September 4, it strengthened into a strong typhoon with Category 3 winds.
- The next day, it became a Category 5 typhoon with peak maximum sustained winds of 260

kmph.

- The category of a tropical cyclone is determined by its sustained wind speed, as measured by the Saffir-Simpson Hurricane Wind Scale. It is classified into five categories — **Category 1 to Category 5**. While Category 1 tropical cyclones bring winds of 119 to 153 kmph, Category 5 tropical cyclones, which are the strongest, have winds of 252 kmph or higher. Storms that reach Category 3 and higher are considered major tropical cyclones due to their potential to inflict significant damage.

**Additional information:** What is the difference between a hurricane and a typhoon?

- Hurricanes and typhoons are the same weather phenomenon: tropical cyclones.
- A tropical cyclone is a generic term used by meteorologists to describe a rotating, organized system of clouds and thunderstorms that originates over tropical or subtropical waters and has closed, low-level circulation.
- The weakest tropical cyclones are called tropical depressions. If a depression intensifies such that its **maximum sustained winds reach 63 kmph**, the tropical cyclone becomes a tropical storm. Once a tropical cyclone reaches maximum sustained winds of 119 kmph or higher, it is then classified as a hurricane, typhoon, or tropical cyclone, depending upon where the storm originates in the world.
- In **the North Atlantic**, central North Pacific, and eastern North Pacific, the term hurricane is used. The same type of disturbance in the **Northwest Pacific is called a typhoon**.
- Meanwhile, in the South Pacific and Indian Ocean, the generic term tropical cyclone is used, regardless of the strength of the wind associated with the weather system.

Source: [Indian Express](#)

## LEBANON

**Context:** The detonation of thousands of pagers targeting Hezbollah in Lebanon has left a mysterious trail from Taiwan to Hungary, while raising the prospect of another full-scale war in the Middle East between the Iran-backed group and arch-foe Israel.



### Background: -

- Israel's Mossad spy agency, which has a long history of pulling off sophisticated attacks on foreign soil, planted explosives inside pagers imported by Hezbollah months before Tuesday's detonations that killed nine people.

### About Lebanon

- Lebanon, officially known as the Republic of Lebanon, is a country located in the Levant region of West Asia. It is bordered by Syria to the north and east, Israel to the south, and the Mediterranean Sea to the west.

- **Capital and Largest City:** Beirut
- **Languages:** Arabic (official), with French and English widely spoken
- **Ethnic Groups:** Predominantly Arab, with Armenian and other minorities.
- **History-** Lebanon has a rich history that dates back to ancient times:
- **Phoenician Civilization:** From around 3200 to 539 BC, Lebanon was part of Phoenicia, a maritime empire known for its trade and navigation.
- **Roman and Byzantine Periods:** In 64 BC, Lebanon became part of the Roman Empire and later a major center for Christianity under the Byzantine Empire.
- **Islamic Caliphates:** After the 7th century, the region came under the rule of various Islamic caliphates, including the Rashidun, Umayyad, and Abbasid caliphates.
- **Ottoman Rule:** Lebanon was part of the Ottoman Empire from the 16th century until the end of World War I.
- **Independence:** Lebanon gained independence from France on November 22, 1943.
- **Civil War:** The country experienced a devastating civil war from 1975 to 1990.
- **Recent Conflicts:** Lebanon has faced ongoing political instability and conflicts, including tensions with Israel and internal sectarian divisions.

Source: [Reuters](#)

## TAIWAN STRAIT

**Context:** A Japanese warship cruised for the first time to assert its freedom of navigation through the Taiwan Strait.

**Background:** -

- Washington and its allies are increasingly crossing the Taiwan Strait to reinforce its status as an international waterway, **angering Beijing.**

### About Taiwan Strait

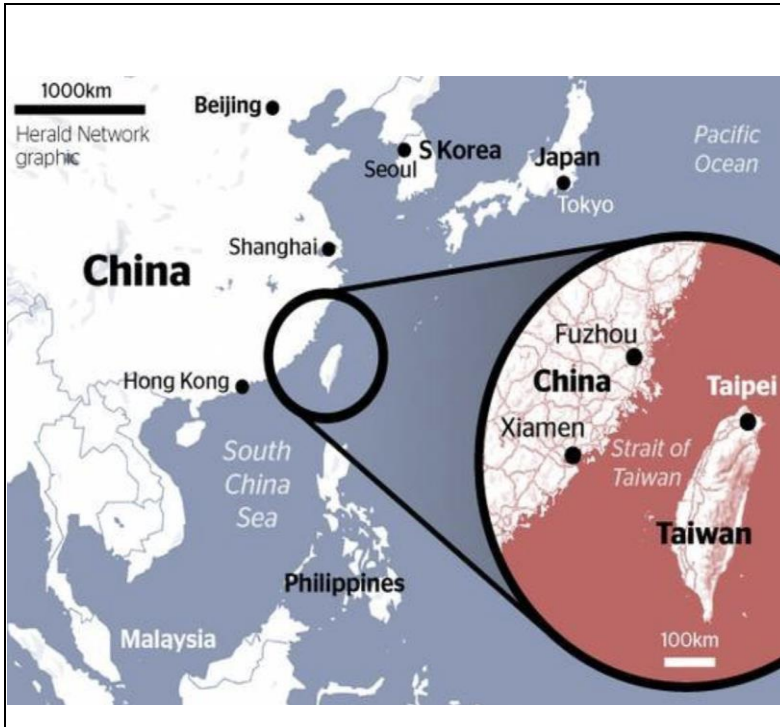
- The Taiwan Strait is a significant body of water that separates the island of Taiwan from the Asian mainland, specifically the Fujian province of China.

### Geography

- **Width:** The strait is approximately 180 kilometers (110 miles) wide at its broadest point, narrowing to about 130 kilometers (81 miles) at its narrowest.
- **Depth:** The average depth of the Taiwan Strait is around 200 feet.
- **Location:** It connects the South China Sea to the East China Sea.

### Historical Significance

- The Taiwan Strait has been a hotspot for geopolitical tensions, particularly between the People's Republic of China (PRC, China) and the Republic of China (ROC, Taiwan). Several crises have occurred here:



- o **First Taiwan Strait Crisis (1954-1955):** The PRC shelled islands controlled by the ROC, leading to significant military confrontations.

- o **Second Taiwan Strait Crisis (1958):** Another round of shelling by the PRC, which again led to heightened tensions and military engagements.

- o **Ongoing Tensions:** The strait remains a focal point of military and political tension, with both the PRC and ROC maintaining significant military presences in the area.

Source: [The Hindu](#)



## ENVIRONMENT AND ECOLOGY



### INDIA GENERATES HIGHEST PLASTIC POLLUTION IN WORLD

**Context:** India contributes to a fifth of global plastic pollution according to a study published in the journal Nature recently.

**Background:** -

- The study was carried out by researchers from University of Leeds.

**Key takeaways from the study**

- **Plastic Waste in India:**
  - o India burns roughly 5.8 million tonnes (mt) of plastic each year, and releases another 3.5 mt of plastics into the environment (land, air, water) as debris.
  - o Total contribution to global plastic pollution: 9.3 mt per year, surpassing Nigeria (3.5 mt), Indonesia (3.4 mt), and China (2.8 mt).
- **Global Plastic Waste Production:**
  - o The world produces 251 mt of plastic waste annually.
  - o Around 52.1 mt (20%) of this waste is unmanaged, i.e., released into the environment.
- **Managed vs Unmanaged Waste:**
  - o Managed waste is collected and either recycled or sent to landfills.
  - o Unmanaged waste includes burnt plastic releasing toxic gases like carbon monoxide and unburned debris (polluting both land and water bodies globally).
- **Unmanaged Plastic Statistics:**
  - o 43% (22.2 mt) of unmanaged waste is unburned debris.
  - o The remaining 29.9 mt is burned in open fires or dumpsites, causing significant air pollution.
- **Global North-South Divide:**
  - o 69% of plastic pollution comes from 20 countries in Southern Asia, Sub-Saharan Africa, and Southeast Asia.
  - o **High-income countries (HICs)** in the Global North produce more plastic waste but have better waste management, resulting in less pollution.
- **Plastic Pollution in the Global South:**
  - o Open burning is the dominant form of pollution due to poor waste management infrastructure.
  - o The Global South lacks the resources to implement robust waste management systems, contributing to more uncontrolled debris and burning.

**International Treaty on Plastic Pollution:**

- o Negotiations for a legally binding international treaty on plastic pollution began in 2022.
- o In 2022, the UN Environmental Assembly agreed to develop such a treaty — which experts say might be the most important environmental accord since the Paris

Agreement on climate change in 2015 — by the end of 2024.

- **Debates around the Treaty:**

- Fossil-fuel producing countries and industry groups, view plastics pollution as a “waste management problem”, and want to focus on waste management instead of curbing production through treaty.
- Critics on the other hand argue that viewing plastic pollution as a "waste management problem" ignores the need for upstream solutions like reducing production. Managing plastic waste alone may not be enough, as increasing production leads directly to more pollution.

Source: [Indian Express](#)

## NATIONAL TIGER CONSERVATION AUTHORITY (NTCA)

**Context:** Conservationist organisations across India have demanded withdrawal of ‘illegal’ relocation of villagers from tiger reserves which is ordered by the National Tiger Conservation Authority (NTCA).

**Background: -**

- The notification issued on June 19, 2024, identified 89,808 families from 848 villages and directed the state authorities to relocate the residents living inside core areas of tiger reserves on a priority basis.
- These residents mostly belong to the Adivasi and other forest-dwelling communities and are entitled to live and use the forest produce for their livelihood as enshrined in the Forest rights Act, 2006 as well as The Wildlife (Protection) Act, 1972.

**About National Tiger Conservation Authority (NTCA)**

- The National Tiger Conservation Authority (NTCA) is a statutory body under the Ministry of Environment, Forest and Climate Change, Government of India.
- It was established in 2006 under the provisions of the Wildlife (Protection) Act, 1972, as amended in 2006.
- The NTCA is responsible for implementing Project Tiger, a centrally sponsored program aimed at the protection and conservation of tigers in India.

**Key Functions of NTCA:**

- **Policy and Planning:**
  - Formulates guidelines and policies for the management of tiger reserves across India.
  - Coordinates and supports scientific monitoring, habitat management, and anti-poaching activities.
- **Legal Oversight:**
  - Ensures strict implementation of the Wildlife Protection Act and other legal measures for tiger conservation.
  - Provides legal support to tackle wildlife crimes related to tigers, including poaching and trafficking.
- **Tiger Reserves Management:**



- o Oversees the establishment, expansion, and maintenance of tiger reserves.
- o Ensures the involvement of local communities in conservation efforts and addresses issues of human-tiger conflict.
- **Monitoring and Evaluation:**
  - o Regularly monitors the tiger population, habitat conditions, and other biodiversity in tiger reserves.
  - o Publishes the All India Tiger Estimation reports every four years to track the status of the tiger population.
- **Funding and Support:**
  - o Provides financial assistance to states for the effective management of tiger reserves and conservation activities.
  - o Promotes eco-tourism in tiger reserves to create awareness and generate revenue for conservation efforts.
- **Research and Capacity Building:**
  - o Supports research on tigers, their prey, and habitat to inform conservation strategies.
  - o Enhances the capacity of forest staff through training programs and equipping them with necessary tools for conservation.

Source: [Down To Earth](#)

## TEAL CARBON

**Context:** India's first study on 'teal carbon', undertaken at Keoladeo National Park (KNP) in Rajasthan's Bharatpur district, has highlighted the significance of wetland conservation to address the challenges of climate adaptation and resilience.

**Background:** -

- The concept of teal carbon is a recent addition to the environmental science

**About Teal Carbon**

- Teal carbon refers to carbon stored in non-tidal freshwater wetlands, encompassing carbon sequestered in vegetation, microbial biomass, and dissolved and particulate organic matter.
- Teal carbon being a colour-based terminology reflects the classification of the organic carbon based on its functions and location rather than its physical properties.
- As opposed to teal carbon, black and brown carbon are primarily produced by incomplete combustion of organic matter from sources such as wild fires, fossil fuel combustion, and industrial activities. They contribute to global warming.
- At the global level, the storage of teal carbon across the **ecosystems is estimated to be 500.21 petagrams of carbon (PgC)**, which is a unit to measure carbon. Peatlands, freshwater swamps, and natural freshwater marshes account for significant amount of this storage.

**Additional information**

- The study in news has depicted the potential of teal carbon as a tool to mitigate climate change if the anthropogenic pollution in the wetlands can be controlled.
- Though wetlands play a crucial role in regulating greenhouse gases, they are vulnerable to

degradation from pollution, land use changes, water extraction, and landscape modifications.

- Wetlands, when degraded, could release methane and carbon dioxide into the atmosphere.
- Source: [The Hindu](#)

## NATIONAL BOARD FOR WILDLIFE (NBWL)

**Context:** The standing committee of the National Board for Wildlife (SC-NBWL) has cleared multiple projects - a transmission line in Little Rann of Kutch, a controversial transmission line project in Goa's Mollem national park as well as a clutch of infrastructure projects in tiger corridors of central India, among others.

### Background:

- The NBWL is primarily responsible for promotion and conservation of wildlife.

### About National Board for Wildlife (NBWL)

- The National Board for Wildlife (NBWL) is a statutory organization under the Wildlife Protection Act, 1972. It was constituted in 2003, replacing the Indian Board for Wildlife, which was formed in 1952.
- Chaired by the Prime Minister of India, it serves as the top advisory body on matters concerning wildlife conservation and protection.

### Key Functions:

- **Policy and Planning:** The NBWL is responsible for formulating policies and plans for the conservation of wildlife and forests in India.
- **Approval of Projects:** It evaluates projects like construction, mining, or development activities in or around protected areas such as national parks and wildlife sanctuaries. No project can be carried out in such areas without NBWL's clearance.
- **Advisory Role:** It advises the central and state governments on wildlife-related issues, including the creation and management of protected areas.
- **Conservation of Endangered Species:** The NBWL plays a significant role in identifying and protecting endangered species. It helps in creating programs and laws to ensure their protection.
- **Monitoring Protected Areas:** It oversees the functioning of national parks, wildlife sanctuaries, and biosphere reserves, ensuring their proper management.
- **Safeguarding Biodiversity:** The board promotes measures for the conservation of biodiversity, aligning with international treaties like the Convention on Biological Diversity.
- **Boundary Alterations:** No changes to the boundaries of protected areas can be made without the NBWL's approval.

### Composition:

- The NBWL has 47 members including the chairperson. Among these, 19 members are ex-officio members. Every new government constitutes a new board, based on the provisions of the WLPA, with the new PM as the chair.
- **Chairperson:** The Prime Minister.

- **Vice-Chairperson:** The Minister of Environment, Forest, and Climate Change.
- Under the **provisions of the Wild Life (Protection) Act, 1972 (WLPA)**, the NBWL can constitute a Standing Committee (SC-NBWL). This committee focuses on project clearances, while the NBWL deals with broader policy-level decisions.

#### Key takeaways from NBWL meeting

- The SC-NBWL, headed by Union Environment Minister Bhupender Yadav, pulled up the Madhya Pradesh tourism department for carrying out constructions in Son Gharial sanctuary and adjacent tiger corridors without permits.
- Even after intense protests against deforestation in Bhagwan Mahaveer Sanctuary and Mollem National Park, the NBWL conditionally cleared the 400 k/V transmission line on 27 hectares of forest.
- Two approvals were granted for erection of transmission lines in Gujarat. One in the Kutch Desert Wildlife Sanctuary in the Great Rann of Kutch and another in the Wild Ass sanctuary in Little Rann of Kutch over 100 hectares.
- The board approved widening of the National Highway 46 between Itarsi and Betul through the tiger corridor between Satpura and Melghat tiger reserve. The project will use 101 hectares of forest land and approval was granted with the condition that the National Highways Authority of India will build animal passages.
- Source: [Indian Express](#)

### DIGITAL PUBLIC INFRASTRUCTURE (DPI)

**Context:** India's G20 task force's release of comprehensive report outlining global strategy for digital public infrastructure development has triggered public debate about DPI.

#### Background: -

- DPI has the power to dramatically improve the lives of citizens and transform governance.

#### About Digital Public Infrastructure (DPI)

- **Digital Public Infrastructure (DPI)** refers to the foundational digital systems and services that enable efficient, inclusive, and secure delivery of public and private services to citizens.
- DPI is designed to serve as a shared platform, providing public goods that are open, scalable, and interoperable, fostering innovation and economic growth.

#### Key Elements of Digital Public Infrastructure:

- **Digital Identity:** A robust and secure digital identity system allows individuals to prove their identity online and access various services. In India, Aadhaar is a prime example, providing a unique identification number to residents, used for accessing government benefits, financial services, and more.
- **Digital Payments:** A reliable and inclusive digital payment system ensures that financial transactions can be performed electronically with ease and security. In India, platforms like Unified Payments Interface (UPI) have revolutionized digital payments, enabling seamless real-time bank transfers across the country.

- **Data Exchange:** Secure platforms that allow the sharing of data between individuals, businesses, and governments while respecting privacy. For example, India's DigiLocker enables citizens to store and share documents digitally, reducing paperwork and increasing efficiency.
- **Public Digital Platforms:** These platforms provide foundational services that are reusable across multiple sectors. Examples include the India Stack, which includes tools like Aadhaar for identity, UPI for payments, and e-KYC (Know Your Customer) for authentication.

**Key Benefits:**

- **Inclusivity:** DPI enables access to essential services (e.g., healthcare, education, banking) for all, especially underserved populations. It reduces the digital divide by creating accessible digital systems.
- **Efficiency:** DPI leads to faster, more transparent service delivery. It eliminates manual, paper-based processes and enhances government-to-citizen, business-to-customer, and peer-to-peer interactions.
- **Cost-effectiveness:** DPI reduces transaction costs for businesses and governments by minimizing reliance on intermediaries and streamlining operations.
- **Fosters Innovation:** By providing open and interoperable digital tools, DPI creates an environment for startups, businesses, and developers to build applications and services on top of it, driving economic growth.

**Issues to be examined with regard to DPI:**

- DPIs are essentially multi-sided platforms, where the value of the platform on one side increases with the increase in the number of participants on the other side. These inherent network effects of DPIs can lead to winner-takes-all outcomes, resulting in the creation of monopolies or oligopolies.
- For instance, the UPI payment system has resulted in the creation of a virtual duopoly of service providers. Participants captured these zero-price markets while harvesting vast amounts of user data over time.
- Concerns regarding the privatisation of public data, data security, and data privacy arise due to the operation of private entities.

Source: [Indian Express](#)

## MUMBAI'S SALT PANS

**Context:** Recently, the Centre approved the transfer of 256 acres of salt pan land in Mumbai to the Dharavi Redevelopment Project Pvt Ltd (DRPPL), a joint venture between Adani Realty Group and the Maharashtra government, for building rental housing for slum dwellers.

**Background:** -

- In a rapidly expanding city, the salt pans are among the last few crucial natural belts that maintain a delicate balance in the ecosystem.

**About Mumbai's Salt pans**

- Salt pan lands are low-lying areas where seawater flows in and evaporates, leaving behind salt

and minerals.

- According to the Coastal Regulation Zone (CRZ) notification of 2011, the ecologically sensitive salt pans fall under CRZ-1B category, where no economic activity is allowed with the exception of salt extraction and natural gas exploration.
- **Mumbai Salt Pan Lands:**
  - o 5,378 acres, nearly nine times the size of Dharavi.
  - o 31% located in residential/commercial belts; 480 acres encroached upon.
  - o 1,672 acres considered “developable” (State Govt. study, 2014).
- **National Distribution:** 60,000 acres spread across Maharashtra, Andhra Pradesh, Tamil Nadu, Odisha, Gujarat, and Karnataka.
- **Andhra Pradesh (20,716 acres) boasts** the largest expanse of such land, followed by Tamil Nadu (17,095 acres) and Maharashtra (12,662 acres).

#### Risk to Mumbai’s Salt Pan Lands

- **Land Demand:** Salt pans are among the last undeveloped lands in Mumbai, making them a target for development projects.
- **State Governments’ Proposals:** State government is proposing to use the salt pan lands for slum relocation, rehabilitation and affordable housing.

#### Importance of Salt Pans

- **Flood Prevention:** Salt pans collect rainwater and seawater, preventing flooding in Mumbai’s eastern suburbs.
- **Ecological Role:** Host various species of birds and insects, and complement mangroves in flood prevention.

Source: [Indian Express](#)

### PALAMAU TIGER RESERVE

**Context:** Forest officials from the Palamau Tiger Reserve have informed the National Tiger Conservation Authority (NTCA) that Naxal insurgency is negatively impacting the reserve.

#### Background: -

- Left-wing extremism and security personnel movements inside Palamau Tiger Reserve have reduced prey availability, causing tigers to move to neighbouring Chhattisgarh and Odisha. The reserve has faced **extremism issues since the 1990s**. Recruitment of staff has been pending since then, **with over 60% of positions**, including forest guards, vacant.

#### About Palamau Tiger Reserve

- **Location:** Situated in the Latehar district of Jharkhand. It is the only Tiger Reserve in Jharkhand state.
- The reserve covers an area of approximately 1,129.93 square kilometers, including the core area of Betla National Park and the Palamau Wildlife Sanctuary.
- **Established:** It was one of the first nine tiger reserves established in India under Project Tiger in

1973.

- **Geography:** The reserve lies within the Chota Nagpur Plateau and is known for its rich biodiversity, including dry deciduous and tropical forests.
- Palamau Tiger Reserve is drought-prone area due to rain-shadow effect. Most of the rainfall is received from the southwest monsoon.
- **Fauna:** The keystone species are Tigers, Elephants, Leopards, Grey Wolf, Gaur, Sloth Bear, Four-horned Antelope, Indian Ratel, Indian Otter and Indian Pangolin.

Source: [The Tribune](#)

## WORLD OZONE DAY

**Context:**September 16 is observed as the international day for the Preservation of the Ozone Layer.

**Background:** -

- The theme for world ozone day 2024 is “Montreal Protocol: Advancing Climate Actions,” which underscores the Montreal protocol’s vital role in both ozone layer protection and broader climate action efforts.

**Key takeaways**

- World Ozone Day, officially known as the International Day for the Preservation of the Ozone Layer, is observed every year on September 16th.
- This day was designated by the United Nations General Assembly in 1994 to commemorate the signing of the Montreal Protocol on Substances that Deplete the Ozone Layer in 1987.

**About ozone layer**

- The ozone layer, also known as the ozone shield, is a region of Earth’s stratosphere that contains a relatively high concentration of ozone ( $O_3$ ) molecules. This layer is crucial for life on Earth as it absorbs most of the Sun’s harmful ultraviolet (UV) radiation, particularly UV-B and UV-C rays.

**Structure and Location**

- The ozone layer is primarily found in the lower portion of the stratosphere, about 15 to 35 kilometers above Earth’s surface.
- The concentration of ozone in this layer is about 10 parts per million, which is significantly higher than the average ozone concentration in the Earth’s atmosphere as a whole.

**Formation of the Ozone Layer**

- Ozone is formed when oxygen molecules ( $O_2$ ) are split by ultraviolet light into individual oxygen atoms. These atoms then combine with  $O_2$  molecules to form ozone ( $O_3$ ).

**Importance of the Ozone Layer**

- The ozone layer absorbs 97-99% of the Sun’s medium-frequency ultraviolet light (200-315 nm wavelength). Without this protective layer, humans would be at a higher risk of skin cancer, cataracts, and other health issues. Additionally, increased UV radiation can harm marine ecosystems, including phytoplankton, which form the base of the oceanic food chain.

Source: [Times of India](#)



## COP29 IN AZERBAIJAN: FOCUS TO BE ON CLIMATE FINANCE AGREEMENT

**Context:** While countries are still struggling to come to an agreement over the quantum of finance that developed nations must mobilise in the coming years to fight climate change, Azerbaijan, the host of this year's climate conference, has decided to launch a new fund to finance climate action.

**Background:** -

- Climate finance refers to the investments that are needed to tackle climate change by way of either preventive steps to reduce emissions, known as mitigation or preparatory steps to tackle its impacts, known as adaptation.

**Key takeaways**

- **The Climate Finance Action Fund (CFAF) would** seek “voluntary” contributions from fossil-fuel producing countries and companies, with Azerbaijan, itself a petroleum economy, making the initial contribution.
- **The CFAF is** part of a large package of proposals that Azerbaijan has prepared for inclusion in the final outcome of COP29 (29th edition of the Conference of Parties to the UN Framework Convention on Climate Change), which is to be held in the country's capital, Baku, in November.
- **The main agenda of COP29 is** to finalise an agreement on climate finance, including the amount of money that developed countries must raise in the post-2025 period to help the developing world fight climate change.
- The rich and industrialised countries have been under an obligation to mobilise at least \$100 billion every year from 2020. The 2015 Paris Agreement, however, mandates that this sum must be scaled up after 2025 and every five years thereafter.
- Negotiations on the contours of this finance agreement have been going on throughout this year, but little progress has been made.
- **The plan for the CFAF was** revealed a few months ago by Azerbaijan, the president of COP29, and now it has been formally included in the COP29 Action Agenda.
- **Other proposals include** a pledge to increase the global energy storage capacity by six times by 2030, a declaration on working towards a global market on green hydrogen, and an agreement to ensure the emissions footprint from the growth of digitisation and data centres is kept to a minimum.
- **The CFAF would be the latest addition to** the long list of existing climate funds, almost all of which are short on money.

Source: [Indian Express](#)

## INDIA'S FIRST CO<sub>2</sub>-TO-METHANOL PILOT PLANT

**Context:** In a significant step, Abhay Karandikar, Secretary to the Department of Science and Technology (DST), laid the foundation stone for India's first CO<sub>2</sub>-to-methanol pilot plant at Thermax Limited in Pune, Maharashtra.

**Background:** -

- With a capacity of 1.4 tons per day (TPD), the plant marks a pioneering effort in carbon reduction and conversion technology.

### Key takeaways

- The project is being implemented under a Public-Private Partnership (PPP) between the Indian Institute of Technology (IIT), Delhi, and Thermax Limited.
- The pilot plant will serve as a pioneering platform for the demonstration and advancement of indigenous Carbon Capture and Utilization (CCU) cutting-edge technologies.

### About Carbon Capture and Utilization (CCU)

- **Carbon Capture and Utilization (CCU)** technologies are crucial in the fight against climate change. They involve capturing carbon dioxide (CO<sub>2</sub>) emissions from sources like power plants and industrial processes, and then either storing it or using it to create valuable products. Following are the steps involved:

#### 1. Capture

- o The first step is to capture CO<sub>2</sub> from emission sources. There are three main methods:
  - **Post-combustion capture:** CO<sub>2</sub> is captured after fossil fuels are burned. This is the most common method and involves using solvents to absorb CO<sub>2</sub> from flue gases.
  - **Pre-combustion capture:** This involves converting the fuel into a gas mixture consisting of hydrogen and CO<sub>2</sub> before it is burnt. Once the CO<sub>2</sub> is separated, the remaining hydrogen-rich mixture can be used as fuel.
  - **Oxy-fuel combustion:** Fossil fuels are burned in oxygen instead of air, producing a flue gas that is mainly water vapor and CO<sub>2</sub>, which can be easily separated.

#### 2. Transport

- o Once captured, CO<sub>2</sub> needs to be transported to a storage or utilization site. This is typically done via pipelines, but it can also be transported by ship, truck, or rail.

#### 3. Utilization

- o Captured CO<sub>2</sub> can be used in various ways:
  - **Enhanced Oil Recovery (EOR):** CO<sub>2</sub> is injected into oil fields to increase oil recovery.
  - **Chemical production:** CO<sub>2</sub> can be used to produce chemicals like methanol and urea.
  - **Building materials:** CO<sub>2</sub> can be used to cure concrete, making it stronger and reducing the carbon footprint of construction.

#### 4. Storage

- o If not utilized, CO<sub>2</sub> can be stored underground in geological formations such as depleted oil and gas fields or deep saline aquifers. This is known as Carbon Capture and Storage (CCS).

### Benefits and Challenges

- **Benefits:** CCU technologies can significantly reduce greenhouse gas emissions, help meet climate targets, and create economic opportunities through the production of valuable products.
- **Challenges:** High costs, energy requirements, and the need for extensive infrastructure are major barriers. Additionally, the long-term storage of CO<sub>2</sub> needs to be carefully managed to prevent

leaks.Source: [Hindu Businessline](#)

## WHY SOUTH AMERICA IS BURNING

**Context:**South America is witnessing its worst forest fire season in nearly two decades, breaking a previous record for the number of blazes seen in a year.

### Background:

- Satellite data analysed by Brazil's space research agency INPE has spotted 346,112 fire hotspots so far this year in all 13 countries of South America, surpassing the previous record of 345,322 hotspots in 2007.

### Key takeaways

- Since the beginning of this year, fires have ravaged the Amazon rainforest, engulfing parts of Brazil, Peru, Bolivia, Colombia, and others. Millions of acres of forest are currently burning across South America.
- **The worst hit is Brazil**, the largest country in the continent and home to 60% of all the currently burning fires in the region.
- **Three of the six vast ecosystems** — the Amazon, the Cerrado (the world's most biodiverse savanna), and the Pantanal wetlands — have been severely affected.
- After Brazil, Bolivia witnessed the highest number of fires this month, according to INPE data. Bolivia is followed by Peru, Argentina, and Paraguay.

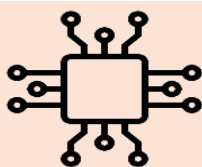
### Why is this happening?

- Every year, South America witnesses a high number of blazes between August and October, which is the continent's wildfire season. During this time, farmers intentionally burn their lands to cultivate them and most often, fires escape into the forests.
- This year's season has been particularly bad due to several reasons: The continent is currently experiencing one of its worst droughts. These extreme dry conditions fueled by the El Niño event (it ended earlier this year) have propelled fires to spread across the region.
- High levels of deforestation, especially in the Amazon, have also played a role in exacerbating wildfires — clearing the land creates more opportunities for blazes to spread. The crisis has been made worse by global warming.

### For Your Information:

- The forest fire season in India lasts between November to June. Factors like temperatures, precipitation, vegetation, and moisture contribute to the scale and frequency of these fires.
- According to experts, three factors cause the spread of forest fires — fuel load, oxygen and temperature. Dry leaves are fuel for forest fires. The Forest Survey of India (FSI) website states that nearly 36 per cent of India's forests are prone to frequent fires.

Source: [Indian Express](#)



## SCIENCE &amp; TECHNOLOGY



## GENOME MAPPING

**Context:** Gujarat Biotechnology Research Centre (GBRC) has published the only fully mapped genome of the Chandipura Vesiculovirus (CHPV) — the viral infection that caused at least a third of the encephalitis or brain swelling cases in Gujarat during the outbreak in July-August.

**Background:**

- Chandipura is a viral infection that can lead to outbreaks of Acute Encephalitis Syndrome (AES) or brain swelling. It is known to cause fever, headache, and encephalitis leading to convulsions, coma, and death, usually within a few days of the symptoms showing up.

**What is Genome Mapping?**

- Genome mapping is the process of finding the specific locations of genes on each **chromosome**. It is akin to creating a map that helps scientists navigate the genome, much like how a city map helps people find their way around.

**Steps in Genome Mapping**

- **Sample Collection:** DNA is extracted from the cells of the organism being studied.
- **Marker Identification:** Identifying genetic markers, which are known sequences of DNA that vary among individuals.
- **Mapping:** Using genetic or physical mapping techniques to determine the positions of these markers on the chromosomes.
- **Data Analysis:** Analyzing the data to create a map that shows the relative or absolute positions of genes and markers.

**Applications of Genome Mapping**

- **Disease Research:** Genome mapping provides important clues on where a virus comes from, how it is changing, and whether it has any mutations that are likely to make it more transmissible or deadly. Sequencing viral genomes helps researchers keep an eye on viruses that may lead to outbreaks in the future.
- **Agriculture:** Assists in breeding programs by identifying genes responsible for desirable traits in crops and livestock.
- **Evolutionary Biology:** Provides insights into the genetic relationships and evolutionary history of different species.

**Notable Projects**

- **Human Genome Project:** One of the most significant genome mapping projects, which aimed to map the entire human genome. It provided a foundation for many advances in genetics and medicine.
- **1000 Genomes Project:** Aimed to create a detailed map of human genetic variation by sequencing

the genomes of a large number of people from different populations

Source: [Indian Express](#)

## DRUG REPURPOSING

**Context:** Researchers have been exploring the potential of repurposing existing drugs, including antidepressants, for cancer management.

**Background:** -

- This research group **has shown that Selegiline (L-deprenyl)**, an antidepressant drug from a class of **drugs called monoamine oxidase (MAO) inhibitors**, might be applied as anticancer therapeutics for breast cancer.

**About Drug Repurposing**

- Drug repurposing, also known as drug repositioning or reprofiling, involves identifying new therapeutic uses for existing or investigational drugs.
- It is the technique of using an existing drug or drug candidate for a new treatment or medical condition for which it was not indicated before.
- The goal of drug repurposing is to quickly identify compounds with an established safety profile and known therapeutic advantages that may prove efficacious for other indications.

**Benefits of Drug Repurposing:**

- **Cost-Effective:** Utilizes existing drugs with known safety profiles, reducing the need for extensive safety testing.
- **Faster Development:** Can expedite the process of bringing treatments to market, especially in urgent situations like the COVID-19 pandemic.
- **Broad Applications:** Effective for a wide range of conditions, including rare diseases, oncology, and infectious diseases.

**Examples of Successful Drug Repurposing:**

- **Sildenafil (Viagra):** Originally developed for hypertension, later found effective for erectile dysfunction and pulmonary hypertension.
- **Thalidomide:** Initially used for morning sickness, repurposed for leprosy and multiple myeloma.

**Challenges:**

- **Regulatory Hurdles:** Navigating the regulatory landscape for new indications can be complex.
- **Intellectual Property Issues:** Patent and exclusivity concerns may arise when repurposing drugs.

Source: [DST](#)

## SIGNIFICANCE OF THE FIRST CLEAR IMAGES OF MERCURY'S SOUTH POLE

**Context:** On Thursday, the BepiColombo spacecraft, operated by the European Space Agency and Japan, made its closest approach to Mercury, capturing sharp images of the planet's south pole and craters at sunrise.

**Background:** -

- A joint mission between the European and Japanese space agencies, BepiColombo was launched in 2018. It will go into orbit around Mercury in 2026.

**Significance of the BepiColombo Mission**

- **Studying Mercury:**
  - Mercury is the least-studied rocky planet in the solar system.
  - BepiColombo's two orbiters will study the planet's composition, geology, and magnetic field, offering insights into its origins and evolution.
- **Challenging Mission:**
  - Reaching Mercury is difficult because spacecraft accelerate when approaching the sun.
  - A series of flybys of Earth, Venus and Mercury are helping to slow down BepiColombo, which will eventually maneuver the mission into orbit around Mercury.
  - Thursday's flyby was the fourth of six planned, bringing the spacecraft just 103 miles above Mercury's surface.
- **Key Areas of Interest:**
  - BepiColombo captured images of 2 peak ring basins (Vivaldi & Stoddart), which could provide clues about ancient volcanic activity.
  - Mercury's south pole was imaged, offering a preview of better data to come. BepiColombo is expected to collect better data of the southern hemisphere than NASA's Messenger spacecraft, which the agency crashed into the planet in 2015 after an 11-year mission.
- **Unique Characteristics of Mercury:**
  - Mercury has a core that is oversized compared with the rocky shell surrounding it.
  - Water ice exists on its surface, despite scorching exposure to the sun without an atmosphere to protect it.
  - The planet has an unexpected magnetic field and is rich in volatiles — elements like chlorine, sulfur and potassium — thought to readily evaporate on planets with high temperatures.
  - These traits suggest Mercury may have formed farther from the sun than its current location.
- **Next Steps:**
  - After the remaining flybys in December and January, BepiColombo will spend nearly two years circling the sun. It is expected to enter orbit around Mercury by end of 2026.

Source: [Indian Express](#)

### PresVu

**Context:** Mumbai-based Entod Pharmaceuticals announced that the Drug Controller General of India (DCGI), the nation's top drug regulatory authority, has approved its innovative eye drops designed specifically to reduce the need for reading glasses in individuals with presbyopia.

**Background:** -



- According to the company, the eye drop PresVu is the first of its kind in India, and Entod has applied for a patent for this invention in terms of its formulation and the process.

### Key takeaways

- Presbyopia is an age-related disorder in which the eyes gradually lose their capacity to concentrate on adjacent objects.
- **Cause:** Presbyopia occurs due to the gradual stiffening of the lens inside the eye. The lens becomes less flexible, reducing its ability to change shape and focus light on the retina for close-up tasks.
- This condition typically becomes noticeable in individuals around the age of 40 and continues to progress with age. Doctors believe that spectacles are one of the most efficient strategies to manage the illness.

### About PresVu

- **The active ingredient** — chemical compounds in medicines that have an effect on the body — in PresVu is pilocarpine.
- The compound contracts the iris muscles, which control the size of the pupil and help humans see things clearly, thereby enabling one's eyes to focus better on nearby objects, according to Entod Pharmaceuticals.
- PresVu also claims to employ **"advanced dynamic buffer technology"** — effectively, a base solution — to adapt to the pH level of tears. This guarantees that the eye drop has consistent efficacy and safety for extended use, keeping in mind that such drops will be used for years at a stretch.
- PresVu is a prescription-only medication, and experts say its effects are unlikely to endure more than four to six hours.

### Additional Information

- Although Entod's claims suggest that PresVu is a new therapy, pilocarpine, the key ingredient in the eye drop, has been available in India for decades. In 2021, the US Food and Drug Administration approved a pilocarpine eye drop to treat presbyopia.

Source: [Indian Express](#)

## ANTIMICROBIAL RESISTANCE (AMR)

**Context:** Ahead of the September 26 UN General Assembly High-Level Meeting on antimicrobial resistance, the World Health Organization last week published its first-ever guidance on antibiotic pollution from manufacturing.

### Background: -

- AMR — and consequently, the creation of "superbugs" — affects healthcare everywhere, but has especially poor outcomes in patients suffering from multiple diseases.

### Key takeaways

- Antimicrobial resistance (AMR) is a significant global health threat that occurs when microorganisms such as bacteria, viruses, fungi, and parasites evolve to resist the effects of antimicrobial drugs like antibiotics, antivirals, antifungals, and antiparasitics. This resistance

makes infections harder to treat, leading to prolonged illness, higher medical costs, and increased mortality.

#### Causes of AMR:

- **Misuse and Overuse of antimicrobials:**
  - The primary drivers of AMR are the misuse and overuse of antimicrobials in humans, animals, and agriculture. For example, using antibiotics for viral infections or not completing prescribed antibiotic courses can contribute to resistance.
  - Excessive use of antimicrobial drugs can lead to the creation of resistant or extremely resistant superbugs, which can circulate in hospitals, through drinking water, or sewers. Infections caused by these pathogens will not respond to commonly prescribed antibiotics.
- **Poor Infection Control:** Inadequate infection prevention and control practices in healthcare settings can also accelerate the spread of resistant microorganisms.

#### Impact on Health:

- **Treatment Challenges:** AMR makes common infections harder to treat and increases the risk of disease spread, severe illness, and death. It also complicates medical procedures like surgeries and cancer treatments, which rely on effective antimicrobials to prevent infections.
- **Economic Burden:** The economic impact of AMR is substantial, with significant healthcare costs and potential losses in global GDP.

#### Preventive Measures:

- **Infection Prevention:** Enhancing infection prevention and control measures in healthcare settings and communities.
- **Vaccination:** Promoting vaccination to reduce the need for antimicrobials by preventing infections.
- **Global Collaboration:** International cooperation is essential to tackle AMR effectively, as resistant pathogens do not respect borders.

Source: [Indian Express](#)

## POLARIS DAWN MISSION

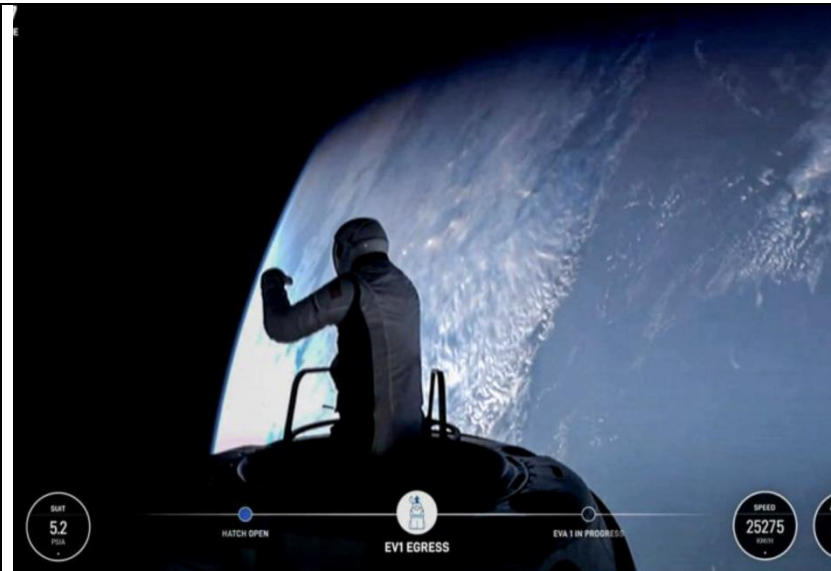
**Context:**After conducting the first-ever commercial spacewalk and traveling farther from Earth than anyone in more than half a century, the astronauts of the Polaris Dawn mission returned to Earth safely early Sunday.

#### Background:

- Launched on September 10 aboard SpaceX's Crew Dragon spacecraft, Polaris Dawn ascended to an impressive altitude of 870 miles, surpassing previous records and venturing farther from Earth than any humans have traveled on a non-lunar mission.

#### Key takeaways

- The Polaris Dawn mission is a groundbreaking private spaceflight initiative led by Jared Isaacman in collaboration with Elon Musk's SpaceX.
- This mission is part of the Polaris Program, which aims to push the boundaries of human spaceflight



This still image taken from a SpaceX and Polaris broadcast on September 12, 2024, shows US fintech billionaire Jared Isaacman partially outside the hatch during the first private spacewalk performed by the crew of the SpaceX Polaris Dawn mission [Polaris Program/AFP]

and pave the way for future missions to the Moon, Mars, and beyond.

### Objectives & Achievements

- First Commercial Spacewalk

- o In a historic moment, mission commander Jared Isaacman and SpaceX engineer Sarah Gillis conducted the first-ever commercial spacewalk on September 12.

- o The pair spent approximately 12 minutes each outside the Crew Dragon capsule, testing SpaceX's newly developed **extravehicular activity (EVA)** suits. This

demonstrates the potential for private companies to perform complex space operations.

- **Record-Breaking Orbital Altitude**

- o The Polaris Dawn crew reached an orbital altitude of 1,400 kilometers above Earth.
- o This achievement made Sarah Gillis and Anna Menon the first women to travel so far from Earth, and marked the highest Earth orbit reached by humans since the Apollo missions.

- **Radiation Belt Research**

- o By venturing into the lower **Van Allen radiation belt**, the crew conducted valuable research on the effects of space radiation on human health.
- o This data will be crucial for planning future long-duration missions to the Moon and Mars, as astronauts will need to pass through these radiation belts.

- **Science Experiments**

- o **Throughout their mission, the four-person crew performed approximately 40 scientific experiments.**
- o These studies focused on the effects of microgravity and space radiation on the human body, contributing to our understanding of long-term space travel's impact on astronaut health.
- o The mission also tested new technologies, including laser-based communications between the Crew Dragon capsule and SpaceX's Starlink satellite constellation.

Source: [India Today](#)

## EARTH TO TEMPORARILY GET A 'MINI MOON'

**Context:** According to a new study, the Earth's gravitational field will temporarily capture a small asteroid, called 2024 PT5, in late September. The asteroid will stay for two months before flying off into space.

**Background:**

- While gaining a “mini-moon” is not new for Earth, the phenomenon is rare — in most cases, asteroids either miss the planet or burn upon entering the Earth’s atmosphere.

### Key takeaways

- Mini-moons are asteroids that fail to escape Earth’s gravity and end up orbiting the planet for some time.
- They are usually very small and hard to detect — only four mini-moons of Earth have ever been discovered, and none are still orbiting Earth.
- **The asteroid 2024 PT5** will be temporarily captured by Earth's gravity until around November. It will orbit Earth from September 29 to November 25 before breaking free from the planet's gravitational pull.
- Astronomers refer to it as a “temporarily captured flyby” since it won’t complete a full orbit. In contrast, mini-moons that do complete a full orbit are known as “temporarily captured orbiters”.

### About 2024 PT5

- The asteroid was discovered with the help of the NASA-funded **Asteroid Terrestrial-impact Last Alert System (ATLAS)**. It is estimated to be just 33 feet long and is too small to be visible to the naked eye or through typical amateur telescopes.
- 2024 PT5 has come from the Arjuna asteroid belt (a secondary asteroid belt made of space rocks that follow orbits very similar to that of Earth at an average distance to the Sun of about 150 million kilometres). The observations of 2024 PT5 will help scientists expand the knowledge of asteroids that pass close to the Earth and those that sometimes collide with it.
- Many asteroids contain valuable minerals and water, which companies hope to extract one day and use for purposes such as rocket fuel.

Source: [Hindustan Times](#)

## SQUARE KILOMETER ARRAY (SKA)

**Context:** Square Kilometer Array (SKA), the world’s largest radio telescope in the making, has carried out its first observations, signalling that at least a part of the yet-to-be-completed facility has become functional.

### Background: -

- The SKA is an international science project with headquarters in the United Kingdom. In December last year, India, which has been collaborating on the project since its inception, became a full member country in the international consortium building this telescope across two continents.

### About Square Kilometer Array (SKA)

- The Square Kilometre Array (SKA) is an ambitious international project aimed at building the world’s largest and most sensitive radio telescope.
- **Purpose:** The SKA is designed to explore the universe in unprecedented detail, addressing fundamental questions in astrophysics, cosmology, and even the search for extraterrestrial life.
- **Location:** The SKA will be split between two primary sites: the Karoo region in South Africa and

the Murchison region in Western Australia.

### Structure and Technology

- **Components:** The SKA will consist of two main arrays:
  - **SKA-Mid:** Located in South Africa, this array will include 197 large dish antennas to observe mid-frequency radio waves (350 MHz to 15.4 GHz).
  - **SKA-Low:** Located in Australia, this array will feature 131,072 low-frequency (50 – 350 MHz) antennas designed to detect radio waves from the early universe.
- **Collecting Area:** The combined collecting area of the SKA will be approximately one square kilometre, making it 50 times more sensitive than any current radio telescope.
- **Interferometry:** The SKA will use a technique called aperture synthesis, linking multiple telescopes to act as a single, large telescope. This will provide extremely high-resolution images.

### Scientific Goals

- **Cosmology:** Study the formation and evolution of the first stars and galaxies after the Big Bang.
- **Dark Matter and Dark Energy:** Investigate the nature of dark matter and dark energy, which make up most of the universe's mass-energy content.
- **Astrobiology:** Search for signs of extraterrestrial life by detecting bio-signatures and technosignatures.
- **Fundamental Physics:** Test Einstein's theories of gravity and explore the properties of gravitational waves.

Source: [Indian Express](#)

## VENUS

**Context:** India is set to expand its space exploration efforts beyond the Moon and Mars, as the Union Cabinet approved the Venus Orbiter Mission (VOM) on Wednesday, 18 September.

### Background:

- The 'Venus Orbiter Mission' aims for better understanding of the Venusian surface and subsurface, atmospheric processes and influence of Sun on Venusian atmosphere.

### About Venus

- Second planet from the Sun and often referred to as Earth's "twin" due to its similar size and mass. **Rotation:** It has a retrograde rotation, meaning it rotates in the opposite direction to most planets, including Earth.
- **Brightness:** Venus is the third brightest object in the sky after the Sun and the Moon. One day on Venus is longer than its year; Venus takes about 225 Earth days to complete one orbit around the Sun. A day on Venus (one full rotation) takes about 243 Earth days, which is longer than its year.
- **Atmosphere:** Dense and composed mostly of carbon dioxide (~96%), with thick clouds of sulfuric acid, making it the hottest planet in the solar system due to the runaway greenhouse effect.
- **Surface temperature:** Averages around 465°C, hot enough to melt lead.
- The atmospheric pressure on Venus is 92 times greater than Earth's at sea level

- **No liquid water:** Extremely dry surface due to high temperatures and pressure.

#### Space Missions and Exploration:

- The Soviet Union, United States, European Space Agency and Japan have conducted missions to Venus.
- NASA's Mariner 2 was the first spacecraft to visit any planet beyond Earth when it flew past Venus on Dec. 14, 1962. NASA is planning two new missions to Venus: VERITAS, and DAVINCI.
- ESA's Venus Express has provided insights into Venus's atmosphere and magnetic field.
- **Akatsuki (Japan) studied Venus's climate**, cloud formation, and weather patterns from orbit around Venus. Late April, 2024, Japan reported that it had lost contact with the spacecraft.

#### Scientific Importance:

- **Atmospheric Studies:** Venus helps scientists study the greenhouse effect and its implications for climate change on Earth.
- **Astrobiology:** In 2020, traces of phosphine gas, which could potentially indicate microbial life, were reported in Venus's upper clouds, sparking renewed interest in astrobiology.
- **Comparative Planetology:** Studying Venus is essential for understanding why two planets (Earth and Venus) with similar sizes and compositions evolved so differently.

Source: [PIB](#)





## HISTORY AND ART & CULTURE



### FESTIVAL OF KARMA OR KARAM PARV

**Context:** Tribal populations in Jharkhand, West Bengal, Bihar, Madhya Pradesh, Chhattisgarh, Assam, and Odisha celebrated the harvest festival of Karma or Karam Parv last week.

#### Background:

- At the heart of the **Karma festival is the Karam tree** — traditionally seen as a symbol of Karam Devta or Karamsani, the god of strength, youth, and vitality, and the object from which the festival takes its name.

#### Key takeaways

- The Karam Parv, also known as the Karma Festival, is a harvest festival celebrated primarily in the Indian states of Jharkhand, West Bengal, Bihar, Uttar Pradesh, Madhya Pradesh, Chhattisgarh, Assam, Odisha, and even in Bangladesh. This festival is dedicated to the worship of Karam-Devta, the god of power, youth, and youthfulness.
- The festival is popular especially among the Munda, Ho, Oraon, Baiga, Kharia, and Santhal peoples.
- **Timing:** The festival is observed on the Ekadashi tithi (eleventh day) of the lunar fortnight in the month of Bhado (August-September).
- Rituals:
  - o **Planting Seeds:** Unmarried girls plant and nurture nine types of seeds (like rice, wheat, and corn) for 7-9 days.
  - o **Karam Tree Worship:** On the festival day, villagers go to the forest to collect branches of the Karam tree, which are then worshipped and planted in the village center.
  - o **Singing and Dancing:** The festival is marked by traditional songs and dances, creating a lively atmosphere.
- **Cultural Significance:** The festival symbolizes the community's connection to nature and their prayers for a good harvest and overall well-being.

Source: [Indian Express](#)

### ANTYODAYA DIWAS 2024

**Context:** Pandit Deendayal Upadhyaya was born on September 25, 1916. His birth anniversary is observed every year on the same day as Antyodaya Diwas.

#### Background: -

- It serves as a day to remember and celebrate Pandit Deendayal Upadhyaya's life and legacy, as he was one of the most influential leaders in Indian political history.

#### Key takeaways

- Pandit Deendayal Upadhyaya (1916–1968) was an Indian politician, philosopher, economist, and a key proponent of Hindutva ideology.

- He was a significant figure in India's political landscape, particularly within **the Rashtriya Swayamsevak Sangh (RSS)** and Bharatiya Jana Sangh (BJS), the precursor to the **Bharatiya Janata Party (BJP)**.

#### Early Life, Education and Political Career:

- **Birth:** Deendayal Upadhyaya was born on September 25, 1916, in a Brahmin family in the small village of Nagla Chandrabhan, near Mathura in Uttar Pradesh.
- **Childhood:** Orphaned at an early age, Deendayal was brought up by his maternal uncle. Despite these hardships, he excelled academically and earned a scholarship to attend high school.
- **Education:** He studied at the prestigious Birla College in Pilani (now Birla Institute of Technology and Science) and later went to Prayag (Allahabad) University. He completed a Bachelor of Arts degree and cleared the civil services exam but did not join the service. He instead dedicated himself to public service through nationalist organizations.
- **RSS Involvement:** Upadhyaya joined the Rashtriya Swayamsevak Sangh (RSS) in the 1930s, where he emerged as a pracharak (full-time worker). His organizational skills and dedication soon brought him to the forefront of the RSS.
- **Bharatiya Jana Sangh (BJS):** In 1951, Upadhyaya became closely involved with the newly founded Bharatiya Jana Sangh (BJS), led by Syama Prasad Mukherjee. He was instrumental in shaping the BJS's ideology and was appointed General Secretary. He remained in this role for nearly 15 years.
- **Party Leadership:** After the untimely death of Syama Prasad Mukherjee in 1953, Deendayal Upadhyaya became the de facto leader of the BJS. In 1967, he was formally elected as the President of Bharatiya Jana Sangh.

#### Ideological Contributions:

- **Integral Humanism:**
  - Upadhyaya is best known for formulating the philosophy of Integral Humanism (Ekatma Manavavad), which was officially adopted as the guiding philosophy of the Bharatiya Jana Sangh in 1965.
  - **Integral Humanism** seeks to create a harmonious balance between the individual, society, and the state. It rejected both capitalism and socialism, proposing a middle path that was grounded in Indian culture, values, and ethos.
  - The philosophy advocates for a holistic development approach that integrates the physical, mental, and spiritual dimensions of life. It emphasizes the dignity of the individual and the importance of self-reliance, decentralization of power, and social justice.
- **Antyodaya:**
  - Upadhyaya championed the idea of Antyodaya, which means the "rise of the last person." This concept emphasized the upliftment of the most disadvantaged sections of society. It is a principle that resonates in several welfare schemes implemented by Indian

governments even today.

- **Death:** Pandit Deendayal Upadhyaya's life was tragically cut short when he was found dead under mysterious circumstances near Mughalsarai railway station (now Deen Dayal Upadhyaya Junction) in February 1968.
- **Schemes in His Name:** Several government schemes, such as the Deen Dayal Upadhyaya Grameen Kaushalya Yojana and Deen Dayal Antyodaya Yojana, have been named after him, focusing on rural development, skill training, and poverty alleviation.
- **Integral Humanism Today:** His philosophy of Integral Humanism continues to be a guiding principle in Indian politics. It remains relevant in discussions about India's development trajectory, blending economic progress with cultural values.

Key Quotes:

- **"We should have before us the ideal of Integral Man,** and on that basis, we should keep in view the individual, family, society, nation, and humanity. Only then can we have an integral development of man."

Source: [Indian Express](#)

## DEFENCE & SECURITY.

### PROJECT NAMAN

**Context:** The Indian Army recently launched the first phase of Project NAMAN.

**Background: -**

- In the first **phase, 14 Common Service Centres (CSCs)** have been established in key locations across India, including New Delhi, Jalandhar, Leh, Dehradun, Lucknow, Jodhpur, Bengdubi, Gorakhpur, Jhansi, Secunderabad, Saugor, Guntur, Ahmedabad, and Bangalore.

**About Project NAMAN**

- Project NAMAN is an initiative under the Ministry of Defence.
- It aimed at providing dedicated support and services to Defence Pensioners, Veterans, and their families.
- It focuses on implementing the SPARSH (System for Pension Administration Raksha) digital pension system to streamline pension-related processes.

**Components:**

- **SPARSH Digital Pension System:** Streamlines pension-related processes for Defence Pensioners.
- **Common Service Centres (CSCs):** Established at key locations to offer various services.
- **Tripartite MoU:** Between the Indian Army's Directorate of Indian Army Veterans, CSC e-Governance India Limited, and HDFC Bank Limited.
- **Village Level Entrepreneurs (VLEs):** Manage the CSCs, selected from veterans or Next of Kin (NOKs).

**Purpose:**

- **Streamline Pension Processes:** Implement the SPARSH system to make pension-related processes more efficient and accessible.
- **Provide Accessible Facilitation Points:** Establish CSCs to offer **SPARSH-enabled pension services, Government to Citizen (G2C) services, and Business to Consumer (B2C) services.**
- **Support Veterans and Families:** Offer essential care and support to veterans, pensioners, war widows, and NOKs.

**Benefits:**

- **Convenience:** All services are available at a single, convenient location.
- **Financial Assistance:** HDFC Bank provides a monthly grant of ₹20,000 for the first 12 months to VLEs to help stabilize and sustain the centres.
- **Comprehensive Training:** VLEs receive training to deliver the required services effectively.
- **Community Support:** Extends services to the entire resident population of military stations and surrounding localities.

Source: [PIB](#)

### EXERCISE VARUNA

**Context:** Recently, a P8I aircraft of the Indian Navy has reached France to participate in 'Exercise Varuna' with the French Navy.

**Background: -**

- The P8I Poseidon is a specialized aircraft designed for maritime patrol and reconnaissance missions, playing a crucial role in coastal patrolling, monitoring the seas, anti-submarine warfare, and search-and-rescue missions.

**About Exercise Varuna**

- Exercise Varuna is an annual bilateral naval exercise between the Indian Navy and the French Navy, reflecting the strategic partnership between India and France.

**History and Significance**

- **Initiation:** The exercise began in 1993 and was named 'Varuna' in 2001.
- **Purpose:** It aims to enhance interoperability, improve coordination, and share best practices between the two navies.

**Scope and Activities**

- **Operations:** The exercise includes a wide range of naval operations such as cross-deck operations, replenishment-at-sea, minesweeping, anti-submarine warfare, and information sharing.
- **Phases:** Typically conducted in multiple phases, it involves complex tactical manoeuvres and joint operations.

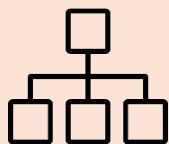
**Recent Edition (2024)**

- **Location:** Held in the Mediterranean Sea from September 2 to September 4, 2024.
- **Participants:** The Indian Navy deployed the INS Tabar and a P8I Poseidon aircraft, marking the first European deployment of this aircraft.
- **Significance:** This edition is notable for being the first time in 63 years that an Indian Navy aircraft operated from a French airbase.

**Objectives**

- **Enhancing Cooperation:** The exercise aims to foster mutual cooperation for maintaining good order at sea and ensuring maritime security.
- **Skill Development:** It provides an opportunity for both navies to hone their warfighting skills and improve their operational capabilities.

Source: [Hindu](#)



## RETIRED SPORTSPERSON EMPOWERMENT TRAINING (RESET) PROGRAMME

**Context:** Union Minister of Youth Affairs & Sports and Labour & Employment, Dr. Mansukh Mandaviya launched “Retired Sportsperson Empowerment Training” (RESET) Programme recently.

### Background:

- RESET Programme represents a significant step towards recognizing and utilizing the invaluable experience and expertise of our retired athletes.

### About Retired Sportsperson Empowerment Training (RESET) Programme

- The Retired Sportsperson Empowerment Training (RESET) Programme is an initiative launched by the Ministry of Youth Affairs & Sports in India to support retired athletes.
- **Launch Date:** August 29, 2024, on National Sports Day.
- **Objective:** To empower retired sportspersons with career skills and knowledge, enhancing their employability and enabling them to contribute to the sports ecosystem.

### Eligibility Criteria

- **Age:** Retired athletes aged between 20 and 50 years.
- **Achievements:** Winners of an International Medal/participants in international events or have been National medallists/State medallists/participants in competitions recognized by National Sports Federations/Indian Olympic Association/Ministry of Youth Affairs and Sports are eligible to apply for courses under RESET Programme.
- Initially, the **programmes will be of two levels based** on educational qualifications viz., Class 12th and above and Class 11th and below.
- Mode of Learning: Hybrid mode, combining self-paced online learning with on-ground training.
- **Lead Institute:** Lakshmi Bai National Institute of Physical Education (LNIPE) is the lead institute for implementing the programme.

### Support and Opportunities

- **Placement Assistance:** Guidance and support for job placements.
- **Entrepreneurial Guidance:** Support for starting entrepreneurial ventures.
- **Internships:** Opportunities for internships in sports organizations, competitions, training camps, and leagues.

### Implementation and Benefits

- **Self-Paced Learning:** Participants can learn at their own pace through a dedicated online portal.
- **On-Ground Training:** Practical training sessions to enhance skills.
- **Evaluation and Certification:** Participants will be evaluated and certified upon successful completion.



of the programme.

Source: [PIB](#)

## 2G BIO-ETHANOL

**Context:** The Indian government is planning to set up dedicated enzyme manufacturing facilities to boost ethanol production.

### Background: -

- The first plant is expected to be established in Manesar, Haryana. This facility will likely supply enzymes to proposed 2G bio-ethanol plants in Uttar Pradesh, Punjab, and an existing plant in Haryana. This initiative is part of the BioE3 policy, which aims to enhance biotechnology-driven manufacturing in India.

### About 2G (second-generation) bio-ethanol

- 2G (second-generation) bio-ethanol is produced from non-food biomass, such as agricultural residues, wood chips, and other lignocellulosic materials.
- Unlike first-generation bio-ethanol, which is made from food crops like corn and sugarcane, 2G bio-ethanol uses feedstocks that are not part of the human food chain. This makes it a more sustainable and environmentally friendly option.
- The process involves breaking down the complex carbohydrates in the biomass into simple sugars, which are then fermented to produce ethanol. This typically requires specialized enzymes to convert the lignocellulosic materials into fermentable sugars.

### Key benefits of 2G bio-ethanol:

- **Reduces waste:** Utilizes agricultural residues that would otherwise be discarded or burned.
- **Lower greenhouse gas emissions:** Produces fewer emissions compared to fossil fuels and first-generation bio-ethanol.
- **Energy security:** Reduces dependence on imported fossil fuels by providing a renewable energy source.

### Ethanol

- Ethanol, also known as ethyl alcohol, is a clear, colourless liquid that is flammable and has a characteristic odour.
- It is produced through the fermentation of sugars by yeast or through chemical processes like the hydration of ethylene.
- Ethanol can be derived from both biological and chemical sources, while bioethanol is exclusively produced from biological sources.

### Uses of Ethanol

- **Beverages:** Ethanol is the type of alcohol found in alcoholic beverages such as beer, wine, and spirits.
- **Fuel:** It is used as a biofuel and is often blended with gasoline to produce ethanol-blended fuels.

This helps reduce greenhouse gas emissions and reliance on fossil fuels.

- **Industrial Solvent:** Due to its ability to dissolve a wide range of substances, ethanol is used as a solvent in the manufacturing of pharmaceuticals, perfumes, and other products.
- **Medical and Laboratory Uses:** Ethanol is used as an antiseptic, disinfectant, and preservative in medical and laboratory settings.
- **Chemical Feedstock:** It serves as a feedstock for the production of various chemicals.

Source: [The Hindu](#)

## MISSION POSHAN 2.0

**Context:** The Ministry of Women and Child Development recently launched the 7th Rashtriya Poshan Maah 2024. This initiative, part of Mission Poshan 2.0.

**Background:** -

- The campaign emphasizes themes such as Anaemia, Growth Monitoring, Complementary Feeding, Poshan Bhi Padhai Bhi (Nutrition and Education), Technology for Better Governance, and Ek Ped Maa Ke Naam (One Tree for the Mother).

**About Mission Poshan 2.0**

- Mission Poshan 2.0 is a significant initiative by the Government of India aimed at addressing malnutrition and promoting nutritional well-being across the country.
- It was launched by the Ministry of Women and Child Development.

**Mission Poshan 2.0 aims to:**

- **Integrate Nutrition Schemes:** Merge various nutrition-related schemes to create a comprehensive approach to tackling malnutrition.
- **Enhance Nutritional Content:** Improve the quality and delivery of nutritional services.

**Objectives:**

- **Reduce Malnutrition:** Address issues of stunting, undernutrition, anaemia, and low birth weight among children, adolescent girls, pregnant women, and lactating mothers.
- **Promote Health and Wellness:** Develop practices that nurture health, wellness, and immunity.
- **Leverage Technology:** Use tools like the 'Poshan Tracker' for better supervision and management of services.
- **Community Engagement:** Foster social and behavioural change communication (SBCC) to promote better nutrition practices.

**Benefits:**

- **Nutritional Support:** Provides supplementary nutrition through hot cooked meals and take-home rations.
- **Diet Diversity:** Encourages the consumption of micronutrient-rich foods and fortified foods.
- **Improved Infrastructure:** Strengthens and modernizes Anganwadi centers to provide better

services.

- **Sustainable Practices:** Promotes the establishment of nutrition gardens in Anganwadis, schools, and gram panchayats.

Source: [DD News](#)

## CENTER, TRIPURA SIGN PEACE PACT WITH TWO INSURGENT GROUP

**Context:** Over 328 cadres of the National Liberation Front of Tripura (NLFT) and the All Tripura Tiger Force (ATTF) will give up arms after the banned insurgent outfits signed a memorandum of settlement with the Central and Tripura Governments.

### Background: -

- Tripura has experienced prolonged insurgency driven by ethnic tensions, political instability, and socio-economic challenges.

### Key takeaways

- The roots of the conflict date back to the early 20th century, but insurgency in its organized form began in the 1960s and escalated in the 1980s.
- The main cause of insurgency was the demographic change in Tripura caused by the large-scale migration of Bengalis from East Pakistan (now Bangladesh) after the Partition in 1947. This migration led to the indigenous tribal population feeling politically marginalized and economically dispossessed.

### Major Insurgent Groups

- **Sengkrak:**The first insurgent group in Tripura, Sengkrak, was formed in 1967. Though it did not last long, it laid the foundation for future insurgent movements by voicing the concerns of the indigenous tribal people.
- **Tripura National Volunteers (TNV) (1978):**The TNV accused the Indian government of neglecting tribal rights and opposed the influx of Bengali migrants. The TNV signed a peace accord with the government in 1988, which led to its disbandment.
- **National Liberation Front of Tripura (NLFT) (1989):**One of the most notorious insurgent groups in Tripura, the NLFT was formed with the goal of establishing an independent Tripuri state. It operated from sanctuaries in Bangladesh.
- **All Tripura Tiger Force (ATTF) :Formed in 1990,** the ATTF aimed to expel Bengali migrants from Tripura and restore tribal rights. Like the NLFT, it also operated from bases in Bangladesh. By the late 2000s, it had become largely inactive due to internal splits, desertions, and counter-insurgency operations.

### Key Phases of the Insurgency

- **Early Insurgency (1960s–1970s):**
  - The insurgency began with the formation of groups like Sengkrak, which focused on protecting tribal identity and opposing the influx of Bengali settlers. This phase was characterized by sporadic violence and political movements aimed at protecting tribal

land rights.

- **Escalation in the 1980s–1990s:**
  - o The late 1980s and early 1990s saw a sharp rise in insurgent activity, as groups like the NLFT and ATTF became more organized and militant. Insurgents launched attacks on security forces, carried out kidnappings, and imposed "taxes" on civilians. This period was the most violent.
- **Counter-Insurgency Efforts and Decline (Late 1990s–2000s):**
  - o The Indian government responded to the insurgency with a combination of military action and peace initiatives. The Tripura State Rifles (TSR), a specialized paramilitary force, played a key role in counter-insurgency operations. The Left Front government, led by the Communist Party of India (Marxist), adopted a mix of force and incentives to reduce insurgent violence.
- Several insurgent leaders surrendered in exchange for economic rehabilitation packages, which included an immediate grant of Rs. 1.5 lakh, vocational training, and a monthly stipend of Rs. 2,000. These measures significantly weakened insurgent groups and led to a sharp decline in violence.

#### Factors Behind the Decline of Insurgency

- **Government Rehabilitation Programs:** The government offered lucrative rehabilitation packages to surrender, which included financial grants, vocational training, and employment opportunities.
- **Development Initiatives:** The government focused on economic development and infrastructure in Tripura, which helped address some of the grievances of the tribal population, including unemployment and lack of access to basic services.
- **Counter-Insurgency Operations:** The Indian Army, Border Security Force (BSF), and the TSR launched coordinated counter-insurgency operations, effectively dismantling insurgent camps and cutting off supply lines from Bangladesh.
- **Improved Relations with Bangladesh:** Cooperation between India and Bangladesh played a crucial role in curbing insurgency. The Bangladesh government, particularly under Sheikh Hasina, cracked down on insurgent bases and reduced the ability of groups like the NLFT and ATTF to operate from across the border.

Source: [Indian Express](#)

### AFRICA AND INDIA'S CRITICAL MINERAL MISSION

**Context:** In the Union Budget 2024-25, Finance Minister Nirmala Sitharaman announced the establishment of a Critical Mineral Mission. In August, the Ministry of Mines held a seminar to outline the mission's objectives. The government is actively pursuing various strategies to ensure critical mineral security.

#### Background:

- India have to collaborate with countries which has a significant amount of the world's known

critical mineral reserves.

### Indias efforts in critical mineral front

- The Mines and Minerals (Development and Regulation) Amendment Act, 2023 amended the Mines and Minerals (Development and Regulation) Act, 1957, with the aim of strengthening the exploration and extraction of critical minerals.
- The **amendment removed 6 minerals from the list of 12 atomic minerals** limited to exploration by State agencies (i.e., **lithium, beryllium, niobium, titanium, tantalum and zirconium**). This opens up opportunities for private sector involvement in their exploration and mining.
- **Khanij Bidesh India Limited (KABIL):** To engage with mineral-rich countries overseas with a mandate to secure supply of critical minerals, a joint venture of three public sector undertakings, Khanij Bidesh India Limited (KABIL), was founded in 2019.
- **Lithium Agreement:** In January 2024, KABIL signed its first major agreement for lithium exploration and mining, accessing five blocks in Catamarca province, Argentina.

### Africa in India's Supply Chain

- **African Mineral Reserves:** Africa holds 30% of the world's known critical mineral reserves, crucial for India's Critical Mineral Mission.
- **India-Africa Relations:** Strong political, economic, and historic ties, including a 3-million-strong Indian diaspora, offer a foundation for collaboration.
- **Trade and Investments:** In 2022-23, India-Africa bilateral trade totaled \$98 billion, with \$43 billion from the mining and mineral sectors. India also invests in African energy assets, sourcing 34 million tonnes of oil from the region.
- **Opportunities:** African countries are shifting to value-added mineral processing, which aligns with India's goals. For example, Tanzania is developing a multi-metal processing facility, and Zimbabwe and Namibia have banned raw mineral exports.

### China Factor

- **China's Influence:** China dominates the critical minerals value chain, with significant control over cobalt mining in the Democratic Republic of Congo. This poses economic and security risks for India.

### Collaboration Opportunities

- **Infrastructure Development:** Indian companies have completed projects in 43 African countries, such as transmission lines and hospitals. Strategic infrastructure projects can support critical mineral extraction.
- **MoUs with Zambia and Zimbabwe:** India has agreements for geological mapping, mineral deposit modeling, and capacity building.
- **Training Programs:** India's Indian Technical and Economic Cooperation (ITEC) program has trained 40,000 Africans, providing a pathway to build a critical mineral workforce.

### Technology and Startups

- **Role of Indian Startups:** Innovating tools for mining exploration, ecological impact reduction, and mineral ore beneficiation. These startups offer niche services that African governments can

leverage for value addition.

### Prioritizing Responsible Practices

- **Value Addition:** African leaders emphasize the need for value-added processing to transform lives. India's Critical Mineral Mission should focus on responsible practices amid the geopolitics of the green energy transition.
- **Challenges:** India's exploration and processing capacity for critical minerals is still developing. It lacks manufacturing capacity for end-use components and needs to upskill its labor force, especially in battery manufacturing.

Source: [Hindu](#)

## CENTRALISED PENSION PAYMENT SYSTEM (CPPS)

**Context:** The Union Labour Ministry has cleared a proposal for Centralised Pension Payment System (CPPS) for about 78 lakh pensioners under the Employees' Pension Scheme, 1995.

### Background: -

- The CPPS aims to provide a more efficient, seamless, and user-friendly experience for pensioners.

### About Centralised Pension Payment System

- **The Centralised Pension Payment System (CPPS)** is a new initiative by the Indian government to modernize pension disbursements under the Employees' Pension Scheme (EPS).
- Unlike the current system, which is as of now decentralised and managed by individual Zonal/Regional Offices of the **Employees' Provident Fund Organisation (EPFO)**, the new system CPPS will centralise the pension disbursement at a national level.
- The new system enables pension disbursement through any bank, any branch across the country.
- This system is part of the **EPFO's Centralized IT Enabled System (CITES 2.01)**. The system will enable pensioners to access their pensions without the need for physical verification at bank branches.

### Key points about CPPS:

- **Nationwide Access:** Starting January 1, 2025, pensioners will be able to receive their pensions from any bank, any branch across India.
- **No PPO Transfers:** Pensioners will no longer need to transfer Pension Payment Orders (PPOs) when moving or changing banks, addressing long-standing issues faced by retirees.
- **Immediate Pension Credit:** Pensions will be credited immediately upon release, with no need for branch visits for verification.
- **Aadhaar-Based Payment System:** In the next phase, CPPS will transition to an Aadhaar-based payment system (ABPS), further enhancing efficiency and security.
- **The Employees' Pension Scheme (EPS)**
- **The Employees' Pension Scheme (EPS)**, introduced in 1995, is a social security initiative managed



by the Employees' Provident Fund Organisation (EPFO).

**Key details:**

- **Eligibility:** Employees who are members of the EPFO and have completed at least 10 years of service are eligible for EPS benefits. The pension is typically available from the age of 58, with early pension options starting at 50.
- **Contributions:** Both the employee and employer contribute 12% of the employee's basic salary and Dearness Allowance (DA) to the EPF. Out of the employer's contribution, 8.33% goes to the EPS.
- **Pension Calculation:** The pension amount is calculated based on the average salary of the last 60 months and the total years of service.
- **Minimum Pension:** The scheme guarantees a minimum monthly pension of ₹1,000, regardless of the contributions made.
- **Benefits:** EPS provides a fixed income after retirement, disability pension, and family pension in case of the member's death.

Source: [The Hindu](#)

## FASTER ADOPTION AND MANUFACTURING OF ELECTRIC VEHICLES (FAME) SCHEME

**Context:** The Indian government is set to launch the third phase of the Faster Adoption and Manufacturing of Electric Vehicles (FAME-III) scheme within the next two months.

**Background: -**

- FAME-III will continue the momentum from the previous phases, which significantly increased EV sales and industry participation. The scheme is expected to focus on local manufacturing and sustainable growth in the EV sector.

**About Faster Adoption and Manufacturing of Electric Vehicles (FAME)**

- The Faster Adoption and Manufacturing of Electric Vehicles (FAME) scheme is a significant part of India's National Electric Mobility Mission Plan (NEMMP).
- It aims to promote the adoption of electric and hybrid vehicles in the country through incentives and subsidies.

**Objectives of FAME:**

- **Reduce Vehicular Emissions:** To decrease pollution from vehicles and improve air quality.
- **Promote Electric Mobility:** Encourage the use of electric and hybrid vehicles.
- **Develop Charging Infrastructure:** Establish a widespread network of charging stations.
- **Boost Domestic Manufacturing:** Support the local manufacturing of electric vehicles and related components.

**Phases of FAME:**

- **FAME-I (2015-2019)**

- o **Objective:** To promote the use of electric and hybrid vehicles.
- o **Incentives:** Provided subsidies for electric two-wheelers, three-wheelers, four-wheelers, and buses.
- o **Impact:** Helped in the initial adoption of EVs and raised awareness about their benefits.
- **FAME-II (2019-2024)**
  - o **Objective:** To expand the scope and scale of FAME-I.
  - o **Incentives:** Focused on public and shared transportation, including electric buses, three-wheelers, and four-wheelers.
  - o **Infrastructure:** Emphasized the development of charging infrastructure.
  - o **Impact:** Significant increase in EV sales and infrastructure development.
- **Upcoming FAME-III**
  - o **Objective:** To further accelerate EV adoption and local manufacturing.
  - o **Focus Areas:** Likely to include more incentives for local manufacturing, innovation, and sustainable growth in the EV sector.
  - o **Timeline:** Expected to be launched within the next 1-2 months.

Source: [IBEF](#)

## PRADHAN MANTRI SCHOOLS FOR RISING INDIA (PM-SHRI)

**Context:** After Punjab, the AAP government in Delhi has also relented under financial pressure and agreed to sign a Memorandum of Understanding (MoU) with the Centre to implement the Pradhan Mantri Schools for Rising India (PM-SHRI) scheme in the Capital.

### Background: -

- The Education Ministry had stopped funds under the Samagra Shiksha Abhiyan (SSA), the flagship school education programme, to three Opposition-ruled states — Delhi, Punjab and West Bengal — due to their reluctance to participate in the PM-SHRI scheme.

### About PM- SHRI Scheme

- The PM SHRI is a centrally sponsored scheme initiated by the Government of India.
- Its objective is to establish over 14,500 PM SHRI Schools, overseen by the Central Government, State/UT Governments, local bodies, as well as Kendriya Vidyalaya Sangathan (KVS) and Navodaya Vidyalaya Samiti (NVS).
- These schools aim to create an inclusive and welcoming atmosphere for every student, ensuring their well-being and providing a secure and enriching learning environment.
- The goal is to offer a diverse range of learning experiences and ensure access to good physical infrastructure and appropriate resources for all students.
- These schools will not only focus on enhancing cognitive development but also creating holistic and well-rounded individuals equipped with key 21st-century skills.
- The pedagogy adopted in these schools will be more experiential, holistic, integrated, play/toy-

based (particularly in the foundational years), inquiry-driven, discovery-oriented, learner-centred, discussion-based, flexible, and enjoyable.

- The focus will be on the learning outcomes of every child in every grade. Assessment at all levels will be based on conceptual understanding and application of knowledge to real-life situations and will be competency-based.
- PM SHRI Schools will help showcase the implementation of the National Education Policy 2020 and emerge as exemplar Schools over a period of time.

#### Current issue

- States must confirm their participation in PM SHRI by signing a Memorandum of Understanding (MoU) with the Education Ministry.
- **Five states** — Tamil Nadu, Kerala, Delhi, Punjab and West Bengal — are yet to sign the MoU. While Tamil Nadu and Kerala have indicated their willingness, Delhi, Punjab and West Bengal had earlier refused, prompting the Centre to stop their SSA funds.
- **The AAP-ruled Punjab and Delhi** had held out over the implementation of PM-SHRI saying they have their own schemes along similar lines, called Schools of Specialised Excellence in Delhi and Schools of Eminence in Punjab. Both had not received crores worth of SSA funds.
- **Punjab was the first to end the logjam on July 26** when Punjab Education Secretary wrote to Union Education Secretary, expressing willingness to implement the scheme in the state.
- On September 2, Delhi also relented. Its Secretary (Education) has written saying that Delhi is interested in signing the MoU for establishing PM-SHRI schools in Delhi.
- With this, West Bengal is now the only state holding out on the implementation of the scheme. The state opposes prefixing 'PM-SHRI' to the names of its schools, especially since it bears 40% of the cost.

Source: [Indian Express](#)

### ANUSANDHAN NATIONAL RESEARCH FOUNDATION

**Context:** Prime Minister Narendra Modi on Tuesday (September 10, 2024) convened the first meeting of the Governing Board of the Anusandhan National Research Foundation (ANRF).

#### Background: -

- The ANRF was conceived as a funding body to galvanise science and engineering research in the country.

#### About Anusandhan National Research Foundation

- The Anusandhan National Research Foundation (ANRF) was established under the ANRF 2023 Act to promote and direct research and development (R&D) across India.
- ANRF acts as an apex body to oversee and guide scientific research efforts.
- The Science and Engineering Research Board (SERB), established by an act of Parliament in 2008, has been subsumed into ANRF.

#### Objectives and Functions

- **Promote R&D:** ANRF aims to seed, grow, and promote R&D and foster a culture of research and innovation throughout India's universities, colleges, research institutions, and R&D laboratories.
- **Strategic Direction:** It provides high-level strategic direction for scientific research in the country, aligning with the recommendations of the National Education Policy (NEP).
- **Collaboration:** ANRF forges collaborations among industry, academia, government departments, and research institutions.

#### Additional information

- The ANRF aims to establish a ₹50,000 crore corpus with ₹36,000 crore of it coming in from non-government sources. For the current financial year, the ANRF has been earmarked ₹2,000 crore in the Union Budget.

Source: [The Hindu](#)

### Ayushman Bharat Pradhan Mantri Jan Arogya Yojana (AB PM-JAY)

**Context:** The Union Cabinet cleared the expansion of the Ayushman Bharat Pradhan Mantri Jan Arogya Yojana (AB PM-JAY) to provide health coverage to all senior citizens aged 70 years and above irrespective of their income.

#### Background: -

- Ayushman Bharat was launched as recommended by the National Health Policy 2017, to achieve the vision of Universal Health Coverage (UHC).

#### About Ayushman Bharat

- Ayushman Bharat adopts a continuum of care approach, comprising of two inter-related components, which are -
  - Health and Wellness Centres (HWCs)
  - Pradhan Mantri Jan Arogya Yojana (PM-JAY)

#### About AB PM - JAY:

- Ayushman Bharat Pradhan Mantri Jan Arogya Yojana (AB PM-JAY) is a flagship health insurance scheme launched by the Government of India in 2018 under the broader Ayushman Bharat Mission.
- It aims to provide financial protection to economically vulnerable families by offering free healthcare services through a health insurance model.

#### Key Features

- AB PM-JAY is the largest publicly funded health insurance scheme globally, aiming to cover over 12 crores poor and vulnerable families (approximately 55 crore beneficiaries) that form the bottom 40% of the Indian population.
- **PM-JAY** is fully funded by the Government and cost of implementation is shared between the Central and State Governments.
- **Insurance Coverage:** Each eligible family receives annual health insurance coverage of up to ₹5 lakh for secondary and tertiary care hospitalization.

- **Cashless and Paperless Access:** The scheme provides cashless treatment at public and empaneled private hospitals, covering over 1,500 procedures, including critical illnesses like cancer, heart disease, and kidney ailments. It covers up to 3 days of pre-hospitalization and 15 days post-hospitalization expenses such as diagnostics and medicines. There is no restriction on the family size, age or gender.
- **Nationwide Implementation:** The scheme is implemented across all states and union territories, with both urban and rural poor beneficiaries identified based on the Socio-Economic Caste Census (SECC) 2011 data. Empanelment of Hospitals: Public and private hospitals are empaneled to deliver services, making quality healthcare accessible even in remote areas.

### Objectives

- **Reduce Out-of-Pocket Expenditure (OOPE):** AB PM-JAY is designed to reduce the financial burden on poor families by covering expensive treatments that often push households into poverty.
- **Access to Quality Healthcare:** By empaneling private hospitals and offering treatment for a wide range of diseases, the scheme aims to ensure access to quality healthcare for all beneficiaries.
- **Strengthen Health Infrastructure:** The scheme incentivizes investment in healthcare infrastructure, especially in underserved areas, by promoting the empanelment of private hospitals.
- **Universal Health Coverage (UHC):** It is a step towards achieving UHC by ensuring financial protection for healthcare services, in line with the global Sustainable Development Goal (SDG) 3 (Good Health and Well-being).

Source: [Indian Express](#)

## REAPING THE SILVER DIVIDEND

**Context:** The Centre's decision, last week, to extend the Ayushman Bharat Pradhan Mantri Jan Arogya Yojana (AB-PMJAY) with a Rs 5 lakh top-up for all older adults aged above 70 years, not covered by other public health insurance schemes, is a step in the right direction.

### Background: -

- The demographic transition will change India's age structure, disease profile, and social security needs.
- Promoting healthy and active ageing is essential to leverage the "silver dividend," the economic contributions of an ageing population.

### Key takeaways

- **Increasing Ageing Population & Low Health Insurance Coverage:**
  - o India, now the world's most populous country, is also among the fastest ageing nations. Life expectancy is 70 years, but the healthy life years are only 63.5.
  - o Rising burden of non-communicable diseases, disabilities, and bedridden elderly, particularly in the 70–80 and 80+ age groups.

- Only 1 in 5 people above 60 is covered by health insurance.
- **High Out-of-Pocket (OOP) Expenditure & Inadequate Social Security:**
  - 92% of India's workforce is in informal labour, making them vulnerable to financial shocks from healthcare costs.
  - Elderly face double the OOP expenses for inpatient care compared to younger populations.
  - Nearly half of households seeking hospitalisation or outpatient care encounter catastrophic health expenditure (CHE), leading to impoverishment for 15% of these households.
  - India's social security system for older adults is weak, leaving them financially vulnerable.
  - The government's extension of AB-PMJAY health insurance aims to support the elderly, especially in times of rising economic dependency and care poverty.

#### Challenges with the AB-PMJAY Extension:

- **Insufficient Budget:** The government has allocated ₹3,437 crore for the extension of AB-PMJAY. Estimates show ₹14,282 crore is required to cover all eligible beneficiaries, meaning current funding is four times less than needed.
- **Limited Coverage of Healthcare Needs:**
  - AB-PMJAY and most private schemes only cover secondary and tertiary care, excluding outpatient services (which account for 46% of health spending).
  - Exclusion of outpatient care impacts preventive healthcare and does not address long-term care needs like palliative care for the elderly.

#### Structural Issues in India's Healthcare System:

- **Low Public Health Spending:**
  - Public healthcare spending has stagnated at 0.9 to 1.35% of GDP for over seven decades.
  - Expanding insurance coverage without increasing public health infrastructure will not solve the healthcare crisis.
- **Need for Comprehensive Reforms:**
  - India's healthcare system needs more integrated reforms, combining primary, secondary, and tertiary care to address the continuous needs of the ageing population.
  - Public health spending, infrastructure, and healthcare workforce must expand in tandem with insurance schemes.
- **International Models and Warnings:**
  - **Less Effective Models:** India seems to be following a US-style insurance-based system, which can inflate healthcare costs.
  - **Effective Models:** Countries like Canada, Europe, and Australia view healthcare as a public service and treat health as a form of human capital.

Source: [Indian Express](#)



**Context:** Prime Minister Narendra Modi laid the foundation stone of PM Mega Integrated Textile Regions and Apparel (PM MITRA) Park in Maharashtra's Amravati on Friday.

**Background:** -

- The 1000-acre park is being developed by the Maharashtra Industrial Development Corporation (MIDC) as the State Implementation Agency. The central government had approved setting up 7 PM MITRA Parks for the textile industry.

**About PM MITRA Scheme**

- Ministry of Textiles (MoT) has launched PM Mega Integrated Textile Regions and Apparel Parks (MITRAs) Scheme to strengthen the Indian textile industry by way of enabling scale of operations, reduce logistics cost by housing entire value chain at one location, attract investment, generate employment and augment export potential.
- The scheme will develop integrated large scale and modern industrial infrastructure facility for total value-chain of the textile industry for example, spinning, weaving, processing, garmenting, textile manufacturing, processing & printing machinery industry.
- Vision: Inspired by the 5F vision of the Prime Minister - Farm to Fibre to Factory to Fashion to Foreign.
- **Financial Support**
  - **Development Capital Support (DCS):** The Central Government will provide DCS in the form of Grant in Aid (Capital) to the Park SPV. DCS is a support for creation of Core Infrastructure as well as Support Infrastructure.
  - **Competitive Incentive Support (CIS):** For incentivizing manufacturing units to get established early in PM MITRA Park, there is a provision of ₹ 300 Cr per park. Incentive will be provided to manufacturing units up to 3% of the total sales turnover to the unit established in the PM MITRA Park to reduce its cost and offset its disadvantages to a certain extent. The CIS will be Fund Limited and it will be available on a first come first serve basis.

Source: [Economic Times](#)

## MISCELLANEOUS

### VANDE BHARAT TRAINS

**Context:** Prime Minister flags off 3 Vande Bharat trains.

**Background:** -

- The trains flagged off by PM through video conferencing connect Meerut with Lucknow, Madurai with Bengaluru, and Chennai with Nagercoil, taking the number of Vande Bharat trains above 100.

**Key takeaways**

- The **Vande Bharat Express, also known as Train 18**, is a significant project by Indian Railways aimed at modernizing and speeding up rail travel in India.
- **Launch:** The first Vande Bharat Express was launched in 2019.
- **Purpose:** It is designed to provide a high-speed, comfortable, and efficient travel experience.

**Features**

- **Speed:** The train can reach speeds up to 180 km/h, although it typically operates at around 130 km/h due to track conditions.
- **Design:** It features a sleek, aerodynamic design with fully air-conditioned chair car coaches. Vande Bharat sleeper coaches will be available soon.
- **The Integral Coach Factory (ICF)** in Chennai, designs and manufactures the Vande Bharat Express trainsets. The ICF is the largest rail coach manufacturer in the world and is owned and operated by the Indian Railways.
- **Comfort:** The train offers modern amenities such as onboard Wi-Fi, GPS-based passenger information systems, and bio-vacuum toilets.
- **Self-Propelled:** Unlike traditional trains, the Vande Bharat Express is self-propelled, meaning it doesn't require a separate locomotive. This is called a distributed traction power system. Distributed power gives the train higher acceleration and deceleration compared to loco-hauled trains, which take a much longer time to reach top speed or to gradually come to a halt.
- **Energy Efficiency:** It is equipped with regenerative braking systems that save energy by converting kinetic energy into electrical energy during braking.

Source: [Indian Express](#)

### NAMIBIA PLANS TO KILL HUNDREDS WILD ANIMALS FOR MEAT

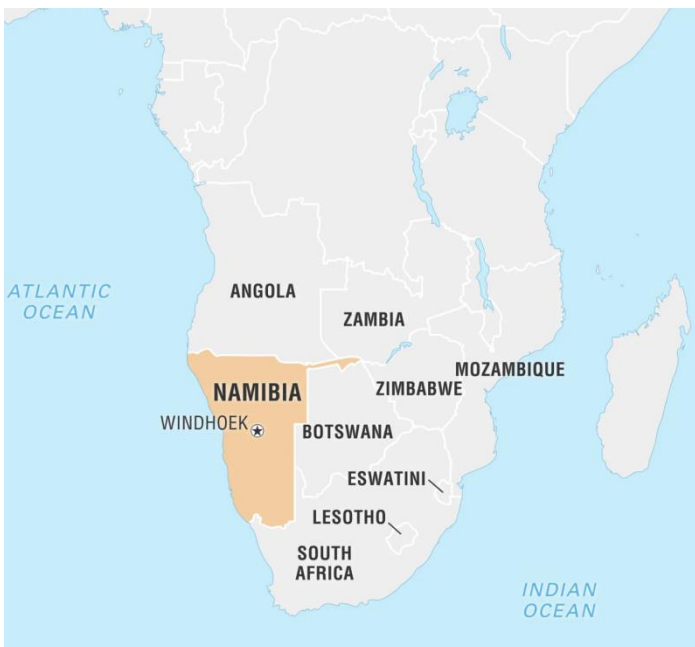
**Context:** Namibia plans to kill hundreds of wild animals, including dozens of elephants and hippopotamuses, to provide meat for its 1.4 million people who are reeling under the worst drought in a century.

**Background: -**

- Namibia, located in drought-prone southern Africa, frequently experiences severe droughts, having declared national emergencies in 2013, 2016, and 2019.

**Key takeaways**

- The drought, which began in Botswana in October 2023, has spread and intensified across Angola, Zambia, Zimbabwe, and Namibia, affecting most of southern Africa.



- The severity of the situation is largely attributed to El Niño. Numerous studies have shown that rising global temperatures due to climate change are making extreme weather events, such as droughts and floods, more frequent and intense.

- Food availability in Namibia, typically low from July through September, has been further strained by the drought. Staple crops like maize have withered, large numbers of livestock have perished, and nearly 84% of the country’s food reserves are depleted.

- As food stocks dwindle, prices have soared, severely limiting access to food for many people.

- The Namibian government is considering culling wild animals, not just for meat, but to prevent them from migrating in search of food and water, which could lead to conflicts with humans.
- Namibia is home to a significant number of wild animals, including approximately 24,000 elephants, one of the largest populations in the world.

**About Namibia: Namibia is located on the southwestern coast of Africa.**

**Geography**

- Bordered by Angola to the north, Zambia to the northeast, Botswana to the east, South Africa to the southeast and south, and the Atlantic Ocean to the west.
- Known for its diverse landscapes, including the Namib Desert along the coast, the Kalahari Desert in the east, and savannas and mountains.
- **Climate:** Mostly arid to semi-arid, with the coastal areas being cooler due to the Benguela Current.

**Additional Information**

- Colonial Era: Formerly known as South West Africa, it was colonized by Germany in the late 19th century and later administered by South Africa after World War .
- Independence: Gained independence from South Africa on March 21, 1990.
- GovernmentType: Republic with a semi-presidential system.

- Capital: Windhoek.
- Main Industries: Mining (diamonds, uranium, gold), agriculture, and tourism<sup>2</sup>.

Source: [Down To Earth](#)

## CRIME AGAINST WOMEN

**Context:** Prime Minister Narendra Modi recently emphasised that atrocities committed against women and the safety of children are a serious concern in society.

**Background:** -

- The United Nations defines violence against women as “any act of gender-based violence that results in, or is likely to result in, physical, sexual, or mental harm or suffering to women, including threats of such acts, coercion or arbitrary deprivation of liberty, whether occurring in public or in private life”.

**Status of Crimes Against Women in India as per NCRB Data (2022):**

- Total cases: 4,45,256 (4% increase from 2021).
- Main categories: The majority of cases under crime against women were registered under ‘cruelty by husband or his relatives’ at 31.4 per cent followed by kidnapping and abduction of women at 19.2 per cent assault on women with intent to outrage her modesty at 18.7 per cent and rape at 7.1 per cent.
- Cyber crimes against women – cyber pornography/ hosting/ publishing obscene sexual material – accounted for **14,409 cases (21.8 per cent)**.
- The crime rate registered per lakh women population was 66.4 in 2022 compared to 64.5 in 2021.

**There are various types of violence faced by women, such as:**

- **Femicide:** It is the deliberate killing of a woman or a girl simply because she is female. Gender-based violence can also encompass honor killings, which involve the murder of a family member due to the belief that the individual has brought shame upon the family.
- **Sexual Violence:** According to UN Women, Sexual violence is any sort of harmful or unwanted sexual behaviour that is imposed on someone. It includes acts of abusive sexual contact, forced engagement in sexual acts, attempted or completed sexual acts with a woman without her consent, sexual harassment, verbal abuse, threats, exposure, unwanted touching, incest, and others. Sexual violence can include sexual harassment, rape, corrective rape, and other forms of sexual assault.
- **Domestic Violence:** Section 3 of the Domestic Violence Act, 2005 (DV Act), defines domestic violence as any act, omission, commission or conduct of the respondent that harms or injures or endangers the health, safety, life, limb or well-being, whether mental or physical, of the aggrieved person or tends to do so and includes causing physical abuse, sexual abuse, verbal and emotional abuse and economic abuse.
- **Technology-facilitated Violence:** Cyberbullying, doxing, non-consensual sexting, image-based

abuse.

- **Child Marriage:** Early marriage leading to health risks and reduced decision-making power for girls.

Legal Frameworks for Women's Safety in India

- **Constitutional Provisions:**
  - **Article 14:** Equal rights and opportunities.
  - **Article 15:** Prohibits gender-based discrimination.
  - **Article 15(3):** Special provisions for women.
  - **Article 16:** Equal job opportunities.
  - **Article 39(c):** Equal pay for equal work.
  - **Article 42:** Just and humane working conditions, maternity relief.
  - **Article 51(A)(e):** Renounce practices derogatory to women's dignity.
- **Key Acts:**
  - **PoSH Act, 2013:** Sexual harassment prevention at workplaces.
  - **Domestic Violence Act, 2005:** Protection from abuse by partners/family members.
  - **POCSO Act, 2012:** Protection of children from sexual offences.
  - **Dowry Prohibition Act, 1961:** Criminalizes dowry demands.
  - **Child Marriage Restraint Act, 1976:** Raises legal marriage age (18 for girls, 21 for boys).
  - National Commission for Women Act, 1990: Established NCW to safeguard women's rights.

Source: [Indian Express](#)

## UNFCCC LOSS AND DAMAGE FUND

**Context:** Following the recent devastating landslides in Kerala's Wayanad district, a critical discussion has arisen about whether subnational entities, like states, can seek compensation through the Loss and Damage Fund (LDF) under the United Nations Framework Convention on Climate Change (UNFCCC).

**Background: -**

- While the demand for access to LDF by states is justifiable, accessing climate funds is far more complex than it appears.

**Loss and Damage Fund (LDF)**

- **Established:** At the 2022 UNFCCC Conference (COP27) in Egypt.
- **Purpose:** To provide financial support for economic and non-economic losses caused by climate change (e.g., extreme weather events, rising sea levels).
- **Oversight:** Managed by a Governing Board, with the World Bank serving as the interim trustee.
- **Access Mechanisms:** Currently being developed, including direct access, small grants, and rapid disbursement options.
- **Challenges:** Concerns that funds may be slow to disburse, especially for subnational entities and

local communities.

### India's Role

- **Damage Costs:** India incurred over \$56 billion in damages from weather-related disasters between 2019 and 2023.
- **Focus on Mitigation:** India's National Climate Action Policy prioritizes mitigation over adaptation, leading to limited engagement in Loss and Damage dialogues at COP meetings.
- **Need for Legal Framework:** A clear legal and policy framework is required to streamline climate finance, especially for adaptation and loss and damage.
- **Climate Finance Taxonomy:** Introduced in Union Budget 2024, raising hopes for more international climate finance.
- **Advocacy:** India should push for decentralised fund disbursement methods from the LDF to ensure better access for vulnerable communities.

### State-Level Interventions

- State governments often bear the burden of disaster recovery, as seen in Kerala's Rebuild Kerala Development Programme after the 2018 floods, funded by loans from international institutions.
- **International Climate Finance:** Plays a critical role in rebuilding infrastructure (e.g., roads, bridges) post-disaster.
- **Assessment Gaps:** India lacks a standardised method for assessing slow-onset disaster-related damages, which could hinder access to LDF in the future.

### Conclusion

- **Policy Need:** India needs a stronger domestic framework focused on locally led adaptation and clearer guidelines for accessing loss and damage funds to protect vulnerable communities from climate change impacts.

Source: [Hindu](#)

## CHALLENGES TO ROAD SAFETY IN INDIA

**Context:** The "India Status Report on Road Safety 2024," prepared by the TRIP Centre at IIT Delhi, highlights India's slow progress in meeting goal of reducing road accident fatalities.

### Background: -

- The report analyses road safety in India, using data from First Information Reports (FIRs) from six States and audits of State compliance with Supreme Court directives on road safety governance.

### Key takeaways from the report

- India is lagging in reducing road accident fatalities and is unlikely to meet the UN Decade of Action for Road Safety goal of halving traffic deaths by 2030.
- **Public Health Challenge:**
  - Road traffic injuries were the 13th leading cause of death and the 12th leading cause of health loss in India in 2021.
  - In some States (Haryana, Jammu and Kashmir and Ladakh, Punjab, Rajasthan,



Uttarakhand, Uttar Pradesh), road injuries rank among the top 10 causes of health loss.

- **Need for Crash Surveillance:**

- o India's national road safety data systems are insufficient for guiding public policy.
- o Currently, there is no national crash-level database. Road safety statistics at both State and national levels are compiled from individual police station records, which are aggregated at district, State, and national levels before being published. These tables allow only the most basic analyses, preventing effective intervention or program evaluation.

- **Significant variance in road safety across States:**

- o Tamil Nadu, Telangana, and Chhattisgarh recorded the highest death rates, at 21.9, 19.2, and 17.6 per 1,00,000 people, respectively.
- o In contrast, West Bengal and Bihar had the lowest rates, at 5.9 per 1,00,000 in 2021
- o Six States - **Uttar Pradesh, Maharashtra, Madhya Pradesh, Karnataka, Rajasthan, and Tamil Nadu** - account for nearly half of all traffic fatalities.
- o Pedestrians, cyclists, and motorcyclists are the most affected; trucks are the leading impacting vehicles.

- **Traffic Safety Gaps:**

- o Helmet usage is low in rural areas, especially among motorcyclists.
- o Only eight States have audited more than half of their National Highway lengths, and very few States have done the same for their State Highways.
- o Basic traffic safety measures, including traffic calming, markings, and signage, are still lacking in most States.

- **Global Comparison: India** fares poorly in comparison to developed nations, with road fatalities much higher in 2021 compared to 1990, indicating worsening road safety conditions.

- The report questions whether better-equipped vehicles with more advanced safety features are the solution, given that two-wheeler riders, cyclists, and motorcyclists represent the majority of road fatalities.

#### Way Forward:

- Central and State governments need to scale up road safety interventions.
- Establish a national fatal crash database with public access to improve risk understanding and intervention effectiveness.
- Tailored strategies are essential to address the diverse road safety challenges across different States.

Source: [The Hindu](#)

## TARDIGRADES

**Context:**Detailed 3D images of the first tardigrade fossils ever discovered have helped scientists predict

when tardigrades evolved their near-indestructibility (tun state)— a trait that might have helped them survive multiple mass extinctions.

**Background: -**

- Researchers have reexamined ancient fossils trapped in amber, uncovering when these tiny creatures first developed their ability to enter a "tun state." This special state allows them to survive in harsh conditions by shutting down their bodies.

**About Tardigrades**

- Tardigrades, also called "**water bears**" or "**moss piglets**," are tiny, water-dwelling micro-animals measuring just 0.3 to 0.5 millimeters in length.
- **Body Structure:** They have a cylindrical shape with four segments, each bearing a pair of legs. Each leg ends in tiny claws or suction disks.



- They are known for their toughness and ability to survive in extreme environments.

**Unique Survival Abilities:**

- **Tun State:** Tardigrades can enter a "tun state," where they lose almost all water from their bodies and shrivel into a structure about one-third its original size, called a tun. In this state, their metabolism slows down drastically, helping them survive extreme conditions.

- A tun state is a type of cryptobiosis. Cryptobiosis is a reversible ametabolic state—the suspension of metabolism—that has inevitably been compared to death and resurrection. In the cryptobiotic state, all

measurable metabolic processes stop, preventing reproduction, development, and repair.

- This death-like survival state could have helped tardigrades survive several major extinction events dating back to the Permian extinction, or Great Dying, around 252 million years ago, when massive volcanic explosions triggered uninhabitable changes in the Earth's climate.
- **Extreme Survivors: They can withstand:**
  - o Temperatures from  $-272^{\circ}\text{C}$  to  $150^{\circ}\text{C}$ .
  - o The vacuum of space and intense radiation (They possess a unique protein called Dsup (damage suppressor) that protects their DNA from radiation)
  - o High pressures that are several times greater than those found in the deepest ocean trenches.
  - o Desiccation (drying out) for decades and then revive when exposed to water.
- Where are they found?
  - o Tardigrades live almost everywhere on Earth, from mountaintops to ocean floors and

from tropical rainforests to Antarctica. They are often found in moss, lichen, soil, and leaf litter.

- **Diet:** Tardigrades feed on plant cells, algae, and small invertebrates. Some species are even known to eat other tardigrades.
- **Reproduction:** They reproduce both sexually and asexually (parthenogenesis). Female tardigrades lay eggs, which can hatch into new tardigrades.
- **Scientific Importance:** Tardigrades are studied for their ability to repair DNA, protect cells from radiation, and survive desiccation. Understanding these mechanisms might have implications for medical research and space exploration.

Source: [Live Science](#)

### PINK BOLLWORM (PBW) ATTACK

**Context:** Haryana has seen an overall fall in acreage under cotton cultivation to 4.76 lakh hectares (lh) this kharif season from 6.65 lh in 2023. The reduction in the cotton area — also reported in neighbouring Rajasthan and Punjab — has been attributed mainly to PBW infestation.

#### Background:

- The pink bollworm first appeared in north India during the 2017-18 season in a few districts in Haryana and Punjab, primarily cultivating Bt cotton, and spread to Rajasthan by 2021.
- The pest's infestation has not been the only factor. In May-June this year, at the time of sowing, the price of kapas (raw unginned cotton) averaged Rs 6,700-6,800 per quintal in Haryana mandis. This was against the average Rs 11,100-11,200 per quintal two years ago.

#### Key takeaways

- Pink Bollworm (PBW) is a destructive pest affecting cotton crops worldwide, including India.
- PBW, known among farmers as gulabi sundhi, damages the cotton crop by burrowing its larvae into the cotton bolls. This results in the lint being cut and stained, making it unfit for use.

#### Impact on Cotton:

- The pest reduces cotton yield and affects fibre quality, leading to economic losses for farmers.
- Infestation leads to premature boll opening, lint damage, and poor seed development, which diminishes the commercial value of cotton.

#### Geographical Spread:

- The pest was first detected in North India during the 2017-18 season and has since caused considerable damage in the region. The infestation has also been reported in Maharashtra, Gujarat, Andhra Pradesh, Telangana, and Karnataka.
- The pest has historically been a threat in both irrigated and rain-fed cotton areas.
- PBW primarily spreads through the air. Residue of infected crops, often left by farmers on the field to be used as fuel, can also harbour PBW larvae which can then infect future crops. Infected cotton seeds are another reason behind the pest's spread.

Source: [Indian Express](#)



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## MAINS

### PAPER 1

#### BRITISH COLONIZATION OF INDIGENOUS TRIBES

##### GS I –Colonization

**Context:** New Zealand's Māori King, Kiingi Tuheitia Pootatau Te Wherowhero VII, at age 69, days after the celebration of his 18th year on the throne. He was the seventh monarch in the Kiingitanga Movement, holding a position created in 1858 to unite New Zealand's Indigenous Māori tribes in the face of British colonization.

##### Colonialism:

- It occurs when one nation subjugates another, conquering its population and exploiting it, often while forcing its own language and cultural values upon its people.

##### Indigenous Tribes Colonized by Europeans:

- The exclusive Māori world in New Zealand transformed into one dominated by Pākehā (Europeans) in terms of population, politics, society, and economy between 1769 and 1914.
- **Wairau Valley Clash (1843), Flagstaff War (1845-46),** and Waikato War (1863-64) took place between Māori and Europeans in New Zealand over land ownership and British control of indigenous resources.
- The aboriginal land in Australia was taken over by British colonists on the premise that the land belonged to “no one” (‘terra nullius’). Australia’s colonization resulted in a drastic decline in the Aboriginal population. Many Indigenous men, women, and children died of introduced diseases to which they had no resistance such as smallpox, influenza, measles, and organised massacres like the Myall Creek massacre (1838).
- Red Indian of North **America was colonized by the Europeans in 1492 resulting** in a substantial decline in the size of the Native American population because of newly introduced diseases like Smallpox. By the late 19th century, fewer than 238,000 Indigenous people remained, a sharp decline from the estimated 5 million to 15 million living in North America when **Columbus arrived in 1492.**
- Boers were South Africans of Dutch or German descent, especially one of the early settlers of the Transvaal and the Orange Free State. Boer Wars in South Africa took place between Boers and the British in 1899 and 1902.
- German colonial authorities brutally suppressed uprisings by the Herero and Nama people, who resisted the expropriation of their lands, livestock, and resources in Namibia.
- The Indigenous **Bedouin and Senussi tribes in Libya resisted** the Italian attempts to expropriate their lands and resources during Italy's colonial rule

##### Issues/Challenges Faced by Indigenous People:

- They are among the first to face the direct consequences of climate change as it threatens the habitats and ecosystems on which Indigenous people rely for food, water, medicine, livelihood, and cultural identity.
- Global North countries often target territories of indigenous peoples in Global South countries to promote militarised fortress conservation models. This phenomenon is called ‘green colonialism’ and it explains how big green conservation NGOs from the Global North are reinforcing colonial power over Indigenous Peoples.
- Indigenous Peoples’ lands which are home to over 80% of our planet’s biodiversity and often rich in natural resources, such as oil, gas, and minerals are routinely appropriated, sold, leased, or simply plundered and polluted by vested authorities.
- Neocolonialism is a form of imperialism where a state uses economic, political, and psychological pressure to control and exploit another country while maintaining the appearance of national sovereignty. It is a system

where former colonial powers and new superpowers use economic and political strategies to maintain control of a region. For example, the US invasions of Vietnam and Afghanistan and the US invoking regime change in unfriendly countries.

- Many indigenous peoples are denied the right to freely choose their government or political systems. For example, the Indonesian government has employed military and police forces to suppress dissent and resistance in West Papua.

They are forced to assimilate into broader society. For example, during the 19th and 20th centuries, Canada removed Indigenous children from their families and placed them in federally funded boarding schools in which they were not allowed to speak their languages or express their cultural heritage and identities.

## CHOLA ADMINISTRATION

### GS I – Indian Culture

**Context:**Port Blair, the capital city of Andaman and Nicobar Islands, will now be known as ‘Sri Vijaya Puram’, Union Home Minister said in a post on X. He said the decision to change the name was inspired by the vision of Prime Minister, “**to free the nation from colonial imprints**”.

#### Chola Administration:

- King was the most powerful individual and he had complete power, although he was guided by a council of ministers.
- Top authorities were known as Peruntaram, while the inferior officials were known as Siruntaram.
- **The Chola empire was divided into mandalams or provinces and these, in turn, were divided into valanadu and nadu.**
- Sometimes princes of the royal family were appointed governors of provinces.
- Chola administration encouraged local self-government in the villages all over their empire.
- There is a mention of two assemblies, Ur and the Sabha or Mahasabha, in many inscriptions (including the Uthiramerur Inscriptions). Ur was a general assembly of the village.
- Mahasabha was a gathering of adult men in Brahmana villages which were called agraharas.
- Villages enjoyed a large measure of autonomy. The affairs of villages were managed by an executive committee to which educated persons owning property were elected.
- Cholas paid attention to irrigation. River Kaveri and other rivers were used for this purpose. Many tanks and wells for irrigation were built.
- In addition to land tax, Chola rulers drew their income from tolls on trade, taxes on professions, etc.
- Chola kings gave some rich landowners titles like muvendavelan (a velan or peasant serving three kings), araiyar (chief), etc.
- **Brahmanas often received land grants or brahmadeya.**

Cholas had an efficient army and navy. The Chola army consisted of elephants, cavalry, and infantry. Rajaraja’s son Rajendra I developed a navy for his expeditions in Ganga Valley, Sri Lanka, and countries of Southeast Asia.

#### Note:

- According to some historical documents, Rajendra I, the 11th-century Chola ruler, utilised the Andaman Islands as a strategic naval base to launch an invasion of Srivijaya, which is now in Indonesia.
- According to an inscription discovered in Thanjavur dated 1050 CE, the Cholas referred to the island as Ma-Nakkavaram land (great open/naked country), which may have given rise to the contemporary name Nicobar under the British.
- According to historian Herman Kulke’s co-edited book, Nagapattinam to Suvarnadwipa: Reflections on the Chola Naval Expeditions to Southeast Asia (2010), the Chola invasion of Srivijaya was a unique event in Indian history and “its otherwise peaceful relations with the states of Southeast Asia which had come under India’s strong cultural influence for about a millennium.”

## INTERLINKING OF RIVERS

### GS I – Geography



**Context:**The Maharashtra government has approved the Wainganga-Nalganga River linking project.

**Interlinking of Rivers:**

- It is an ambitious initiative designed to create a network of canals and reservoirs that connect major rivers across India.
- It aims to transfer water from surplus to water deficit areas in the country that seek to mitigate the impacts of floods and droughts.
- In India, **the National River Linking Project (NRLP)** aimed to link different surplus rivers of the country with the deficient rivers so that the excess water from the surplus region could be diverted to the deficient region.
- In 2021, the Union Cabinet approved the implementation of the first interlinking of rivers project - the Ken Betwa River link.

**Significance of Interlinking of Rivers:**

- It helps to augment irrigation facilities. As per the National Perspective Plan, the Interlinking of Rivers Projects aims to benefit 35 million hectares of irrigation (25 million ha from surface waters and 10 million ha by increased use of ground waters). Irrigation and agriculture provide livelihood opportunities to the people, thus helping to reduce poverty.

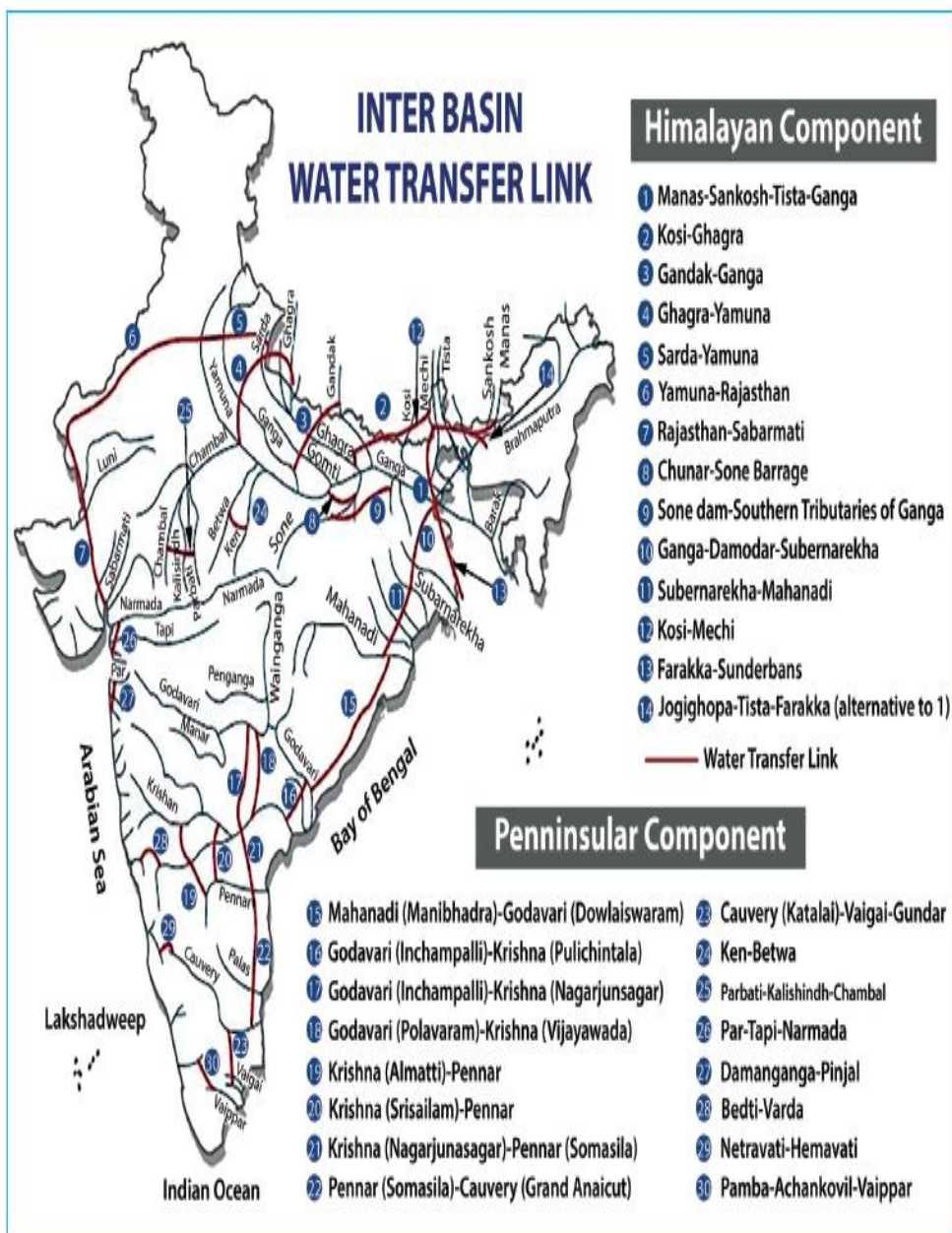
- It helps in hydropower generation. As per the National Perspective Plan, the Interlinking of Rivers Project helps in the generation of around **34000 Megawatt of hydropower**.

- It provides water security by increasing water availability for drinking and industrial purposes.
- It helps in the construction of inland waterways by building canals as they will be used as waterways for navigation, reducing stress on road/rail transport.

- It helps to tackle droughts and floods. As per the World Meteorological Organisation, Economic losses in 2022 due to disasters relating to floods in India are estimated to be over **US\$ 4.2 billion**.

**Issues/Challenges regarding Interlinking of Rivers:**

- It may give rise to water disputes among states as interlinking rivers require consensus among states,



which is difficult to achieve. For example, the Cauvery water dispute between Tamil Nadu and Karnataka.

- It may lead to the disturbance of very complex natural cycles that can have far-reaching adverse impacts on monsoon cycles and biodiversity. For example, Ken River hosts a unique medicinal fish not found in Betwa. Diverting Ken's water to Betwa could disrupt local biodiversity, with unknown impacts on the native fish population.
- It leads to the loss of forest vegetation. The proposed Daudhan dam for the Ken Betwa Link Project is expected to put over 10 percent of the tiger habitat of Panna Tiger Reserve under water.
- It creates livelihood issues for people living in the vicinity of the project. For example, **the Polavaram Link project, part of the interlinking of the Mahanadi-Godavari-Krishna-Pennar-Cauvery-Vaigai Rivers**, has affected around 1 lakh families, with 80% being tribals.
- It may create bilateral challenges as the Himalayan Rivers like the Ganga and Brahmaputra flow across multiple international boundaries.
- It requires a huge investment to complete the project. For example, the Wainganga-Nalganga River linking project will cost **around ₹87,342.86 crore**.

It may lead to alteration in the physiography of a place creating environmental problems as the interlinking of rivers has to be created through bombarding rocky structures.

#### Wainganga-Nalganga River Linking Project:

- Under the project, water from the Wainganga (Gosikhurd) River in the Godavari basin will be redirected to **the Nalganga (Purna Tapi) project in Buldhana district by constructing 426.52km of link canals**.

#### Note:

The Interlinking of Rivers Project in India has been managed by the National Water Development Agency (NWDA) under the Ministry of Water Resources. It has the following three parts:

- A northern Himalayan River Interlinking.
- A southern Peninsular River Interlinking.
- An Intra-State River Interlinking.

## TROPICAL CYCLONES

**GS I** – Important Geophysical phenomena such as earthquakes, tsunamis, volcanic activity, cyclones, etc

**Context:** Millions of people in Southeast Asia continue to struggle with torrential rains, floods, and landslides triggered by Typhoon Yagi — the strongest tropical cyclone Asia has seen this year and the second most powerful storm in the world so far this year after Hurricane Beryl.

#### Tropical Cyclones:

- They are an intense circular storm that originates over warm tropical oceans in the region between the Tropics of Capricorn and Cancer.
- They are characterized by strong winds, heavy rainfall, and storm surges.
- They are energized by the release of latent heat on account of the condensation of moisture that the wind gathers after moving over the oceans and seas.
- Horizontally, they extend up to 500-1,000 km and vertically from the surface to 12-14 km.
- According to **the National Oceanic and Atmospheric Administration (NOAA)**, storm systems with wind speeds of 119 kmph and above are classified as hurricanes, typhoons, or tropical cyclones.
- The category of a tropical cyclone is determined by its sustained wind speed, as measured by the Saffir-Simpson Hurricane Wind Scale. It is classified into five categories — Category 1 to Category 5. While Category 1 tropical cyclones bring winds of 119 to 153 kmph, Category 5 tropical cyclones, which are the strongest, have winds of 252 kmph or higher. Storms that reach Category 3 and higher are considered major tropical cyclones due to their potential to inflict significant damage.

#### Conditions for Formation of Tropical Cyclone:

- It needs a warm **sea surface temperature above 27 degrees Celsius**.
- It requires supply of large and continuous supply of warm and moist air that can release enormous latent heat.
- It requires a strong Coriolis force that can prevent the filling of low pressure at the centre (the absence of Coriolis force near **the equator prohibits the formation of** tropical cyclones between 0°-5° latitude).
- It often forms in unstable conditions through the troposphere that create local disturbances around which a cyclone develops.
- There should be an absence of a strong vertical wind wedge, which disturbs the vertical transport of latent heat.

#### Consequences of Tropical Cyclones:

- They are characterized by powerful winds that can cause extensive damage to buildings, infrastructure, and vegetation as these winds can reach **speeds exceeding 119 kilometers per hour (74 mph)** in tropical storms and much higher in **severe hurricanes/typhoons/cyclones**.
- They bring intense rainfall, which can lead to flash floods and river flooding that can cause landslides, damage crops, and disrupt water and sanitation systems, increasing the risk of waterborne diseases.
- They can cause storm **surge, a coastal flood**, or a rise in sea level caused by the strong winds and low atmospheric pressure of a cyclone. It results in the inundation of human settlements, and agricultural fields.
- They can result in food shortages as high winds and rains ruin the standing crops and food stock lying in low-lying areas. The salt from the seawater may get deposited on the agricultural land and increase the salinity.

#### Safety Measures required/taken during Tropical Cyclones:

- Timely warnings and alerts by **meteorological agencies that monitor and track cyclones using** satellites, weather radar, and other tools are crucial for providing advance notice to people in the affected areas.
- Local authorities must act quickly on developing evacuation plans to relocate residents from high-risk areas to safer locations.
- There should be infrastructure preparedness in place by constructing buildings and infrastructure that are designed to withstand cyclonic winds **and storm surges that can help** minimize damage.
- Awareness camps about educating communities about cyclones, their impacts, and necessary safety measures can help people understand the risks and take appropriate actions. This includes teaching individuals how to
- There should be adequate preparations for post-cyclone relief and recovery operations, including providing medical **assistance, restoring essential services**, and facilitating the distribution of food, water, and other necessities.

#### Way Forward/Risk Reduction Measures:

- The practice of coastal belt plantation acts as a wide buffer zone against strong winds and flash floods.
- Hazard Mapping is useful in disaster risk preparedness as a hazard map will show areas vulnerable to cyclones

The adoption of good construction practices like all elements holding the structures need to be properly anchored to resist the uplift or flying off of the objects, constructing wind and water-resistant buildings, buildings storing food supplies protected against the winds and water, installing communication lines underground, providing strong halls for community shelter in vulnerable locations.

#### Note:

- Typhoon Yagi has severely impacted multiple countries, including the Philippines, China, Laos, Myanmar, and **Thailand, but it has hit Vietnam the hardest, where the death toll stands at around 233.**

## POLITICAL EMPOWERMENT OF WOMEN

**GS I** – Issues related to women

**Context:** The union government introduced a bill to provide one-third reservation to women in the Lok Sabha and

State Assemblies as the historic first legislation in the new Parliament House, but the fine print ensures that the quota will not be implemented in next year's general election.

#### Status of Political Representation of Women in India:

- In the Lok Sabha, the percentage of women members has risen from 5-10% until 2004 to 13.6% in the current 18th Lok Sabha, **while in the Rajya Sabha, it is 13%**.
- The representation of women in State Legislative Assemblies has been low. The highest is in **Chhattisgarh (14.4%)** followed by West Bengal (13.7%) and Jharkhand (12.4%).
- India ranks 143 out of 185 countries in terms of women's representation in the lower house of Parliament.

#### Significance of Political Empowerment of Women in India:

- It facilitates direct engagement in public decision-making and is a means of ensuring better accountability for women.
- It helps in undertaking reforms that can make all elected officials more effective at promoting gender equality in public policy **and ensuring** their implementation.
- It helps to dismantle the patriarchal nature of Indian politics.
- According to UN Women, higher numbers of women in parliament generally contribute to stronger attention to women's issues so **political representation of women ensures appropriate policy responses to address women-sensitive issues**.
- It is a fundamental prerequisite for gender equality and democracy as it helps establish public enquiries on women's issues and uses findings to place issues on government agendas and within legislative programmes.
- According to UN University, women legislators improve the economic performance of their constituencies by 1.8 percent more than male legislatures. For example, the evaluation of Pradhan Mantri Gram Sadak Yojana shows the share of incomplete road projects is 22 percentage points lower in female-led constituencies.

#### Reasons behind the low political representation of women in India:

- Patriarchal norms and gender stereotypes limit women's participation in politics along with household responsibilities, lack of family support, and disparities in education and economic empowerment, especially in rural areas contribute to such barriers.
- The lack of internal quotas or affirmative action policies hinders women's candidacy and male-dominated parties often hesitate to field women candidates, relegating them to safe or unwinnable seats.
- The **first-past-the-post system favours established male candidates with strong financial and organisational backing**.
- The high election costs and the prevalence of criminalisation and money power in politics further limit women's participation in politics.
- The delayed **implementation of the 73rd and 74th** constitutional amendments, which provide for one-third reservation for women in local bodies, has limited the pipeline of women entering politics.

#### Measures taken to Improve Political Empowerment of Women in India:

- Nari Shakti Vandana Adhiniyam (Women Reservation Act) has been passed to provide 33% reservation for women in the Lok Sabha and State Legislative Assemblies.
- The 73rd and 74th Amendments Act provided 33% reservation to women in local bodies. Some states like Bihar have increased the women's reservation in the local bodies to 50%.
- In 1997 (11th Lok Sabha), the Parliamentary Committee on Empowerment of Women was formed to advance the position of women.

The Rules of the Lok Sabha were made completely gender-neutral in 2014 under the leadership of Meira Kumar. Since then, every document has called the head of a Lok Sabha Committee as the chairperson.

## PAPER 2

### JUDICIAL PENDENCY

#### GS II – Judiciary

**Context:** Flagging the “culture of adjournment” in deciding cases, the President said that the poor from the villages are still anxious to approach courts as they feel that fighting for justice will make their lives even more difficult, and termed it the ‘Black Coat Syndrome’.

#### Status of Judicial Pendency in India:

- More than five crore cases are pending in various courts across India, with a maximum of over 1.18 crore in the subordinate courts of Uttar Pradesh, according to the government’s written reply in the Lok Sabha (2024).
- Around 84,045 cases are pending in **the Supreme Court, while 60,11,678 are** pending in the various high courts.

#### Factors/Reasons for Judicial Pendency:

- **India has only 15 judges per 10 lakh population**, far below the Law Commission’s 1987 recommendation of 50 judges per 10 lakh population.
- There is a shortage of courtrooms, and many existing ones aren’t ideal. Nationally, there’s a lack of support staff, **averaging 26%**.
- Varying levels of skill and knowledge among both lawyers and judges result in continuous procedural delays. Additionally, when there’s a mismatch in language skills, clarity of arguments, and final decisions, it increases the number of appeals.
- A culture within the legal profession that is permissive and potentially collusive enables the proliferation of unfounded applications, continuous adjournments, and meritless appeals. Lawyers employ tactics to deliberately prolong the trials.
- Adoption of technology in courts is hindered by inconsistent access to electricity, uneven internet bandwidth, and resistance from users.
- Efforts such as **mandatory mediation, Lok Adalat**, specialized courts, and prioritizing specific cases face structural deficiencies.
- There is a lack of prescribed time frame by courts for disposal of various kinds of cases, frequent adjournments, and lack of adequate arrangement to monitor, track, and bunch cases for hearing leads to judicial pendency.

#### Way Forward:

- Increase the strength of the judicial services by appointing more judges at the subordinate level as the improvements must start from the bottom of the pyramid.
- The appointments and improvements will require significant but necessary expenditure.
- The Supreme Court should mandate summary disposal of all ‘hibernating’ PILs – those pending for more than 10 years before HCs – if they do not concern a question of significant public policy or law. Mechanisms such as **Alternative Dispute Resolution (ADR)**, Lok Adalats, and Gram Nyayalayas should be effectively utilized.

### INDIA-ASEAN RELATIONS

#### GS II – Regional Groupings

**Context:** Indian Prime Minister’s visits to Singapore and Brunei, highlights the strengthening of bilateral ties with ASEAN.



### Significance of ASEAN for India:

- It constitutes the 3rd largest market in the world. This can help India utilize its export potential.
- It is a crucial component of India's "Act East" **policy and its "Indo-Pacific"** strategy, reflecting the convergence of interests in the region.
- It can serve as a counterbalance to China's influence in the region.
- It can boost economic development in India's northeastern states by positioning them as a hub for regional trade and commerce.
- It plays a central role in promoting a rules-based security architecture in the Indo-Pacific region, which is essential for the region's stability and prosperity.

### Areas of Cooperation between India and ASEAN:

- The formal engagement of India with ASEAN **began as a "Sectoral Dialogue Partner"** in 1992 and subsequently **as a "Dialogue Partner" in 1996**. It was upgraded to the Summit level in 2002. India currently has annual summits with ASEAN.
- India and ASEAN have signed an FTA that has boosted trade and investment between the two. ASEAN is India's 4th largest trading partner. Its total trade stood at \$110.4 **billion in 2021-22**. ASEAN-India Business Council (AIBC) was set up in 2005 to foster closer business linkages.
- India is working on enhancing connectivity with ASEAN countries through the India-Myanmar-Thailand (IMT) Trilateral Highway, the Kaladan Multimodal Transit Transport Project, etc.
- India and ASEAN have strengthened defence cooperation by conducting joint military exercises such as the ASEAN-India Maritime Exercise and the **ASEAN Defense Ministers' Meeting Plus (ADMM+)**.
- India has established the ASEAN-India Centre at the Research and Information System for Developing Countries (RIS) to promote research and studies on ASEAN-India relations.
- Delhi Dialogue of 2009 is an annual Track 1.5 forum for discussing politico-security, economic, and socio-cultural issues between ASEAN and India.
- India has provided financial assistance to ASEAN countries from the ASEAN-India Cooperation Fund, ASEAN-India S&T Development Fund, and ASEAN-India Green Fund.
- The establishment of the **ASEAN-India Network of Universities in 2022** and Initiatives like the ASEAN-India Artists' Camp and Music Festival strengthen academic and cultural exchanges.
- **ASEAN's rapidly digitalizing economies** present significant opportunities for India's IT sector and start-up ecosystem. The inaugural **ASEAN-India Start-up Festival** showcases the potential for collaboration in areas like fintech, e-commerce, and artificial intelligence. The **ASEAN-India Science and Technology Development Fund**, with its recent **USD 5 million boost**, supports joint research in cutting-edge fields.

### Issues/Challenges in India-ASEAN Relations:

- India's trade deficit with ASEAN has increased over the years. This has led to concerns in India about the **benefits of the ASEAN-India Free Trade Agreement. Imports to ASEAN amount to \$68 billion as compared to \$42 billion in exports in 2021-22**
- India still engages with ASEAN countries more on a bilateral basis rather than through a multilateral approach.
- Engagement with other regional agreements like the Regional Comprehensive Economic Partnership (RCEP) and the **Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP) diverts attention and resources away from the ASEAN-India relationship.**
- **The existence of other regional powers like China limits** the ability of ASEAN to harness India's potential for regional stability.  
Despite efforts to enhance connectivity, physical and digital connectivity between India and ASEAN countries remains limited, which affects trade, investment, and people-to-people ties.

### Association of Southeast Asian Nations (ASEAN):



- It is a regional grouping that aims to promote economic and security cooperation among its ten members: Brunei, Cambodia, Indonesia, Laos, Malaysia, Myanmar, the Philippines, Singapore, Thailand, and Vietnam.

#### News:

#### Key Highlights of Indian PM's visit to Brunei, the first bilateral visit by an Indian PM:

- Strategic issues and enhancing defence cooperation. At present, they are not strategic partners but do participate in military exercises and are working on a Joint working group to institutionalize the relationship.
- An MoU renewing space cooperation including research and training, also Brunei hosts at Telemetry Tracking **Command Centre for ISRO**
- Increasing energy supplies from Brunei, have dropped sharply as India has bumped up its intake of Russian oil. They discussed a long-term contract for LNG
- Despite India's trade with other ASEAN countries doubling in the past decade, trade with Brunei has declined- from hovering around US \$500mn, it is down to about \$200 million last year. In comparison, China- **Brunei trade stands at about \$3 billion.**

#### Key Highlights of Indian PM's visit to Singapore:

- Singapore is India's biggest trade partner in the ASEAN grouping with bilateral trade at about \$35 billion, which has **seen 2.5 times increase since they signed the CECA agreement in 2005.** About 9,000 Indian companies are registered in Singapore-
- **Singapore is also India's biggest source of FDI globally** – a cumulative \$160 billion since 2000, although levels dropped a sharp 30% last year.
- India and Singapore have the strongest strategic partnership amongst ASEAN countries and, the highest **number of military exchanges and exercises.**

The signing of a Semiconductor Ecosystem Partnership, along with MoUs on digital cooperation, health, and skill development.

## PUBLIC HEALTH SECTOR

### GS II – ISSUES RELATING TO HEALTH

**Context:**The recent Union Budget has been critiqued for its inadequate focus on the social sector, specifically the public health sector.

#### Public Health:

- **According to WHO, "Public health refers to all organized measures to prevent disease, promote health, and prolong life among the population as a whole. Its activities aim to provide conditions in which people can be healthy and focus on entire populations, not on individual patients or diseases."**

#### Public Health Sector in India:

- India's primary health sector consists of sub-centers (SCs) and primary health centres (PHCs), which form the foundation of the public healthcare system.
- The secondary health sector in India consists of Community Health Centers (CHCs), which serve as referral units for PHCs.
- The tertiary health sector consists of district hospitals, medical college hospitals, and other highly specialized facilities.

#### Significance of the Public Health Sector in India:

- A recent study by Lancet ranked India at 145th among 195 countries in terms of quality and accessibility of healthcare, behind its neighbours China, Bangladesh, Sri Lanka, and Bhutan. The robust public health sector improves access to healthcare through improved quality of medical professionals and infrastructure.

- Improved public healthcare leads to early detection and treatment of diseases, resulting in improved health outcomes and a decrease in the burden of illness.
- According to the WHO, 55 million people fall into poverty or deeper poverty every year due to catastrophic expenditures on health. The robust and developed public healthcare services can alleviate the financial burden and improve household financial stability by reducing high out-of-pocket expenditures.
- It helps to promote **social justice and implementation** of DPSPs as the publicly funded health system provides timely, effective, and free care, irrespective of social class.

#### Issues/Challenges faced by the Public Health Sector in India:

- The critical public health issue is inadequate access to healthcare due to shortage of health professionals and lack of infrastructure, particularly in rural and underserved areas.
- There has been a lack of focus on the holistic development of primary and secondary healthcare capabilities but a myopic focus on short-term initiatives that promise immediate results, such as opening new hospitals, subsidised treatments, and populist health policies.
- The government (centre and states put together) spends about Rs 2.8 lakh crore, which is roughly **around 1.1% of the GDP. This is extremely low** when compared to other government health expenditures in countries like **China (3%), Thailand (2.7%), Vietnam (2.7%) and Sri Lanka (1.4%)**.
- There has been a lack of adequate attention to maintaining population health like sanitation, disease surveillance, and public health education which are critical to prevent disease outbreaks.
- There has been a loss of trust towards healthcare providers due to exploitation by private sector healthcare for their commercial interests.
- There is a lack of a comprehensive **approach towards public sector healthcare as India's current public health approach is physician-centric**, without adequate focus on expertise from various fields such as environmental science, sociology, urban planning, and economics.

Despite its importance in reducing disease incidence and healthcare costs, preventive healthcare is undervalued in India. This becomes significant as India faces a 'triple burden of disease', comprising communicable diseases, non-communicable diseases, **and emerging infectious diseases**.

#### Government Initiatives related to the development of the Public Health Sector in India:

- **Ayushman Bharat Pradhan Mantri Jan Arogya Yojana (AB-PMJAY)** is a publicly **funded health insurance scheme (PFHI)** that provides financial protection to over 100 million families for secondary and tertiary care hospitalization.
- **Health and Wellness Centers (HWCs)** are planned to provide comprehensive primary healthcare services, including preventive and promotive care.
- **Pradhan Mantri Swasthya Suraksha Yojana (PMSSY)** aims to enhance tertiary care capacities and strengthen medical education in the country by setting up new AIIMS (All India Institutes of Medical Sciences) institutions and upgrading existing government medical colleges.
- **Pradhan Mantri Bhartiya Janaushadhi Pariyojana (PMBJP)** aims to provide quality generic medicines at affordable prices through Jan Aushadhi Kendras.
- **National Digital Health Mission (NDHM)** aims to create a digital health ecosystem, including health IDs for citizens and the establishment of a national digital health infrastructure.

#### Note:

Health needs in India can be categorized into three major areas:

- Diseases of Poverty include communicable diseases, malnutrition, and maternal and child health issues that disproportionately affect the poor.
- Environmental issues like air and water pollution, sanitation, and climate change-related health issues.

With the rising burden of non-communicable diseases, there is a growing demand for curative and long-term care.

## INDIA AND THE UNITED ARAB EMIRATES (UAE) RELATIONS

### GS II –INDIA'S BILATERAL RELATIONS

**Context:**In a first, India and the United Arab Emirates (UAE) signed a Memorandum of Understanding (MoU) for civil nuclear cooperation.

### India-UAE Bilateral Relations:

- The diplomatic relations between India and the **UAE** were **established in 1972**. The greater push was achieved in bilateral relations when the visit of India's Prime Minister to the UAE in 2015 marked the beginning of a new strategic partnership between the two countries.
- The Crown Prince of Abu Dhabi visited India in 2017 as the chief guest at **India's Republic Day celebrations**, it was agreed that bilateral relations were to be upgraded to a comprehensive strategic partnership which gave momentum to launch negotiations for an **India-UAE comprehensive economic partnership agreement**.
- The economic partnership between India and the UAE has flourished, with **bilateral trade reaching USD 85 billion in 2022-23**. The UAE is India's third-largest trading partner and second-largest export destination. The aim is to boost bilateral merchandise trade to above USD 100 billion and services trade to USD 15 billion in five years.
- Under India's revamped **FTA strategy**, the Government has prioritized at least six countries/regions to deal with, which the UAE figures at the top of the list for an **early harvest deal (or Interim Trade Agreement)**, the others are the UK, the EU, Australia, Canada, Israel and a group of countries in the **Gulf Cooperation Council (GCC)**. The UAE too announced earlier its intent to pursue bilateral economic agreements with India and seven other countries (U.K., Turkey, South Korea, Ethiopia, Indonesia, Israel, and Kenya).
- The UAE is home to more than 3.3 million Indians, and Emiratis are well acquainted with and open to Indian culture. India participated as the **Guest of Honour Country in the Abu Dhabi International Book Fair 2019**.
- Indian cinema/TV/radio channels are easily available and have good viewership; major theaters/cinema halls in the UAE screen commercial Hindi, Malayalam, and Tamil films.
- Initiatives such as the acceptance of the **RuPay card in the UAE in 2019** and the operationalization of a **Rupee-Dirham settlement system** demonstrate mutual convergence in digital payment systems. The framework for the use of local currencies for transactions between India and the UAE aims to put in place a **Local Currency Settlement System (LCSS) that** would enable exporters and importers to invoice and pay in their respective domestic currencies, which in turn would enable the development of an **INR-AED (United Arab Emirates Dirham) foreign exchange market**, according to the RBI.
- India and the UAE are actively engaged in various regional groupings and initiatives such as the **I2U2 and the India-Middle East-Europe Economic Corridor (IMEC)**, reflecting shared interests and strategic alignment.

### Issues/Challenges in India-UAE Relations:

- **Non-tariff barriers (NTBs) like Sanitary and Phytosanitary (SPS)** measures and Technical Barriers to Trade (TBT), notably mandatory **Halal certification**, have impeded Indian exports, particularly in sectors such as poultry, meat, and processed foods. These barriers have led to a significant decline in processed food exports to the UAE by almost 30% in recent years, according to a report from India's Ministry of Commerce and Industry.
- **China's "Cheque Book Diplomacy,"** characterized by offering low-interest loans, has overshadowed Indian economic endeavors in the UAE and the broader Middle East.
- **The Kafala system in the UAE**, which grants employers considerable power over immigrant labourers, especially those in low-wage jobs, presents significant **human rights concerns**. Instances of **passport confiscation**, delayed wages, and poor living conditions underscore the challenges faced by migrant workers under this system.
- The UAE's substantial financial aid to Pakistan raises apprehensions about the **potential misuse of these funds**, considering Pakistan's history of sponsoring cross-border terrorism against India.
- India finds itself in a delicate diplomatic position due to the ongoing **conflict between Iran and Arab nations**, notably the UAE. The recent outbreak of **war between Israel and Hamas** further aggravates the challenges as it runs the proposed IMEC into rough weather.

### Way Forward:

- India and the UAE should work together to address non-tariff barriers that impede Indian exports,

particularly in sectors such as processed foods. Both countries can engage in dialogues to streamline regulations and facilitate smoother trade flows.

- India can boost its economic presence in the UAE by increasing investments in key sectors and exploring opportunities for joint ventures and partnerships. Fostering a conducive business environment and promoting entrepreneurship can attract more Indian businesses to the UAE.
- India and the UAE can collaborate to counter Chinese economic influence in the region by promoting transparency, sustainability, and fair business practices.

Both countries should work towards improving the rights and welfare of migrant workers in the UAE, **including reforming the Kafala system**. Ensuring fair wages, decent living conditions, and protecting workers' rights.

#### Recent Agreements Signed Between India and UAE:

- A Memorandum of Understanding (MoU) was signed between India and UAE for civil nuclear cooperation. It involves the Nuclear Power Corporation of India Limited (NPCIL) and the Emirates Nuclear Energy Company (ENEC) for the operation and maintenance of the Barakah Nuclear Power Plant.
- A Memorandum of Understanding (MoU) was signed for long-term Liquefied Natural Gas (LNG) supply between UAE and India.
- A Memorandum of Understanding (MoU) was signed with India Strategic Petroleum Reserve Limited (ISPRL) for the supply of petroleum.

A Memorandum of Understanding (MoU) was signed with the Government of Gujarat on food parks development in India.

## ANTIMICROBIAL RESISTANCE (AMR)

### GS II – GOVERNMENT POLICIES AND INTERVENTIONS FOR DEVELOPMENT IN VARIOUS SECTORS AND ISSUES ARISING OUT OF THEIR DESIGN AND IMPLEMENTATION.

**Context:** Ahead of the September 26 UN General Assembly High-Level Meeting on antimicrobial resistance, the World Health Organization last week published its first-ever guidance on antibiotic pollution from manufacturing.

#### Antimicrobial Resistance (AMR):

- **Antimicrobial Resistance (AMR)** occurs when bacteria, viruses, fungi, and parasites change over time and **no longer respond to medicines, making infections harder to treat** and increasing the risk of disease spread, severe illness, and death.
- As a result of drug resistance, antibiotics and other antimicrobial medicines become ineffective and infections become increasingly difficult or impossible to treat.
- It is estimated that bacterial AMR was directly responsible for 1.27 million global deaths in 2019 and 4,95 million deaths were associated with drug-resistant infections.
- The main drivers of antimicrobial resistance include the misuse and overuse of antimicrobials and, the lack of access to clean **water, sanitation, and hygiene (WASH)** for both humans and animals.

#### Challenges/Concerns related to antimicrobial resistance in India:

- India's high rates of AMR are a serious problem. High rates of AMR can result in antibiotics becoming ineffective in treating common infections, leading to increased morbidity and mortality. India has one of the highest rates of AMR in the world, with **more than 60,000 newborns dying each year from antibiotic-resistant infections**.
- India faces a significant burden of infectious diseases like tuberculosis, malaria, typhoid, cholera, and pneumonia. The **emergence of AMR makes these diseases more difficult to treat effectively**. It's especially concerning because these diseases are already major public health challenges in the country.
- The absence of **infection prevention and control measures in healthcare settings is problematic**. Proper infection control practices are essential to prevent the transmission of resistant infections in healthcare facilities, which can contribute to the spread of AMR.
- The existence of a large and unregulated market for antibiotics is a major contributing factor to AMR.

Overuse, misuse, and self-prescription of antibiotics can lead to the development of resistance. This issue calls for better regulation and enforcement to control the distribution and use of antibiotics.

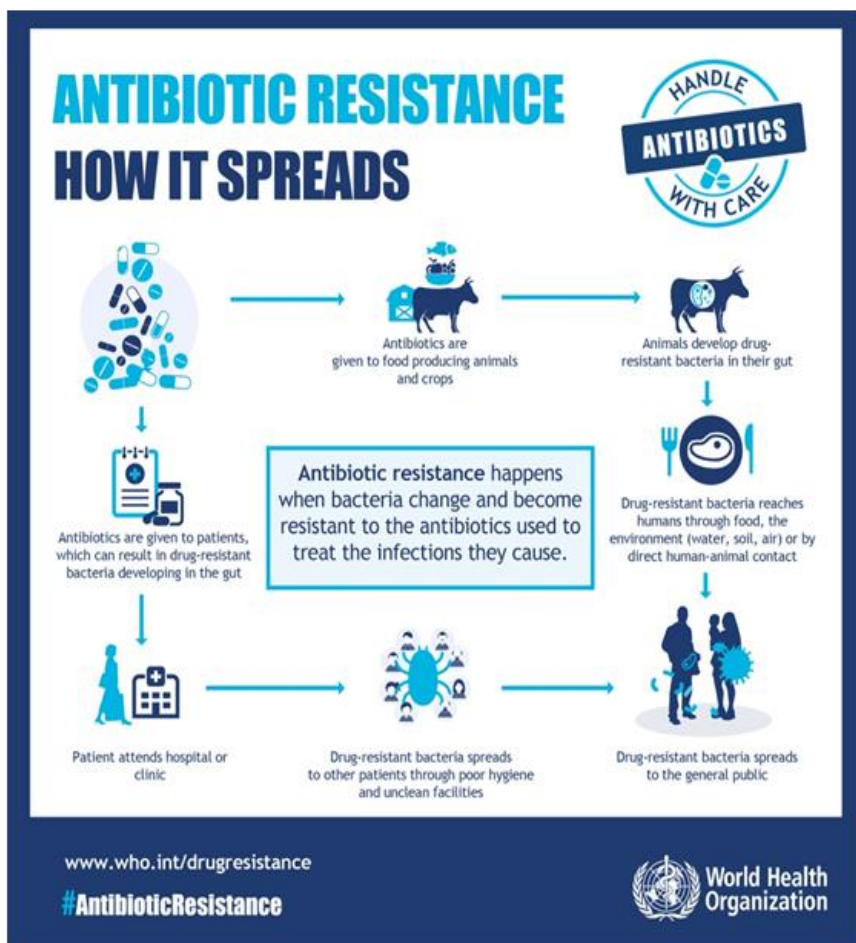


Image Source: WHO

- The absence of adequate surveillance, monitoring, and reporting systems for AMR is a significant concern. Effective monitoring and reporting are essential for tracking the spread of resistant strains and implementing appropriate interventions.
- Research and innovation in the **development of new antibiotics, diagnostics, and vaccines to combat AMR are crucial**. The scarcity of such efforts in India is concerning, as it limits the arsenal of tools available to combat resistant infections.

**Steps/Measures taken by the Indian Government to address AMR:**

- **The National Action Plan (NAP) for AMR** was released by the Union Ministry of Health and Family Welfare with its objectives of increasing awareness, strengthening surveillance, promoting research, and improving infection prevention and control.
- **The Delhi Declaration on**

**Antimicrobial Resistance (AMR)** is an inter-ministerial consensus that was signed by the ministers of the concerned ministries in India. It aims to address AMR in a mission mode by involving research institutes, civil society, industry, and small and medium-sized enterprises, and encouraging public-private partnerships.

- **The Indian Council of Medical Research (ICMR)** has initiated the **Antibiotic Stewardship Program (AMSP)** on a pilot project basis in 20 tertiary care hospitals across India. The program aims to control the misuse and overuse of antibiotics in hospital wards and ICUs.
- On the recommendations of the ICMR, the Drug Controller General of India (DCGI) has banned 40 **fixed-dose combinations (FDCs)** that were found to be inappropriate.
- The ICMR, in collaboration with the Indian Council of Agriculture Research, the Department of Animal Husbandry, Dairy and Fisheries, and the DCGI, has banned the use of Colistin as a growth promoter in animal feed in poultry.
- The government is working on a One Health approach by encouraging interdisciplinary collaboration at the human-animal-environmental interface. The key priority areas include zoonotic diseases, food safety, and antibiotic resistance.

The ICMR has undertaken a project on an "Integrated One Health Surveillance Network for Antimicrobial Resistance" in collaboration with the Indian Council of Agriculture Research to assess the preparedness of Indian Veterinary laboratories to participate in an integrated AMR surveillance network.

**World Health Organization’s first-ever guidance on antibiotic pollution from manufacturing. Its key elements are:**

- Defining targets for resistance selection and ecological effects, based on exposure and risk assessments.
- Establishing risk management processes to achieve these targets using recognized risk management tools, such as the principles of hazard analysis and critical control points, alongside internal audits and public communications.
- Conducting independent audits to verify that targets are being met.



**Note:****Global measures to tackle AMR:**

- **World Antimicrobial Awareness Week (WAAW)** has been held annually since 2015, is a global campaign that aims to raise awareness of antimicrobial resistance worldwide and encourage best practices among the general public, health workers, and policymakers to slow the development and spread of drug-resistant infections.
- **The Global Antimicrobial Resistance and Use Surveillance System (GLASS)** was launched by the WHO in 2015 to continue filling knowledge gaps and to inform strategies at all levels. It has been **conceived to progressively incorporate data** from surveillance of AMR in humans, surveillance of the use of antimicrobial medicines, and AMR in the food chain and the environment.
- WASH is an acronym that **stands for the interrelated areas of Water, Sanitation, and Hygiene**. It is a **component of WHO's 13th General Programme of Work 2019–2023** which aims to contribute to the health of three billion through multisectoral actions like better emergency preparedness and response; and one billion with **Universal Health Coverage (UHC)**.

**AYUSHMAN BHARAT SCHEME**

**GS II** – Government policies and interventions for development in various sectors and issues arising out of their design and implementation.

**Context:** The Union Cabinet cleared the expansion of the Ayushman Bharat Pradhan Mantri Jan Arogya Yojana (AB PM-JAY) to provide health coverage to “all senior citizens aged 70 years and above irrespective of their income”..

**Ayushman Bharat Pradhan Mantri — Jan Arogya Yojana (AB PM-JAY):**

- Ayushman Bharat, a flagship scheme of the Government of India, was launched as recommended by the National Health Policy 2017, to achieve the vision of Universal Health Coverage (UHC).
- This initiative has been designed to meet Sustainable Development Goals (SDGs) and its underlining commitment, which is to “leave no one behind.”
- It is the world's largest health insurance scheme fully financed by the government.
- It is an entitlement-based scheme that targets the beneficiaries as identified by the latest **Socio-Economic Caste Census (SECC)** data.
- The **National Health Authority (NHA)** has been constituted as an autonomous entity under the Society Registration Act of 1860 for the effective implementation of PM-JAY in alliance with state governments.

**Objectives of AB-PMJAY:**

- To **reduce the financial burden of out-of-pocket expenditure (OOPE)** on healthcare for the beneficiaries.
- To improve the access and affordability of healthcare services for the beneficiaries.
- To enhance the quality and efficiency of healthcare delivery systems in the country.
- To promote preventive, promotive, and curative health interventions for the beneficiaries.

**Provisions/Features of AB-PMJAY:**

- It is a centrally sponsored scheme where the **funding ratio is 60:40 for most states, 90:10 for northeastern states** and Himalayan states, and **100:0 for union territories without a legislature**.
- It provides a health cover of **Rs 5 lakh per family per year for secondary and tertiary care hospitalization** to more than **12 crore families**.
- It covers medical and surgical procedures for almost all health conditions through a **comprehensive list of 1,949 packages**, including **cancer care, cardiac care, neurosurgery, orthopaedics, burns management, mental disorders**, etc.
- It uses a robust IT platform **to ensure seamless delivery of services and prevent fraud and abuse**. The platform includes features such as a **beneficiary identification system, hospital empanelment module**,

**transaction management system**, claim management system, grievance redressal mechanism, etc.

- It has a network of **more than 27,000 empanelled hospitals** across the country, out of which more than half are private hospitals.
- It has a **dedicated workforce of Pradhan Mantri Arogya Mitras (PMAMs)** who guide and assist the beneficiaries at every step of their journey under the scheme. They are responsible for **beneficiary verification, registration, pre-authorisation, claim submission, etc.**
- It has a **monitoring and evaluation mechanism to ensure accountability and transparency.**
- It has a **National Anti-Fraud Unit (NAFU)** that designs, implements, and oversees anti-fraud initiatives.
- It has a call centre that makes calls to every beneficiary who has availed of treatment **within 48 hrs of discharge** to verify the quantity and quality of the treatment. Another **call is made after 15 days** to know about the prognosis.

#### Issues/Challenges faced by AB-PMJAY:

- Many eligible beneficiaries are not aware of their entitlements or how to avail them. It faces a low awareness level among the potential beneficiaries, **especially in rural areas.**
- There is an **uneven distribution and availability of healthcare infrastructure** and human resources in the country which results in a supply-side constraint.
- It faces the challenge of **ensuring timely and adequate reimbursement of claims to empanelled hospitals**, especially private ones.
- **There is a loophole** in preventing and detecting fraud and abuse by some unscrupulous elements who try to exploit the scheme for personal gain.

#### News:

- According to the government statement, the PM-JAY, which is the world's largest publicly funded health assurance scheme, has covered 7.37 crore hospital admissions, including 49 percent of women beneficiaries, at a cost of over Rs 1 lakh crore, so far.
- The senior citizens aged 70 years and above belonging to families already covered under AB PM-JAY will get an additional (shared) top-up cover up to Rs 5 lakh per year for themselves.

Senior citizens the age 70 years and above who are already availing benefits of other public health insurance schemes such as Central Government Health Scheme (CGHS), Ex-Servicemen Contributory Health Scheme (ECHS), Ayushman Central Armed Police Force (CAPF) may either choose their existing scheme or opt for AB PM-JAY. It has been clarified that senior citizens of 70 years and above who are under private health insurance policies or Employees' State Insurance Scheme will be eligible to avail benefits under AB PM-JAY

### TAPI PIPELINE

**GS II – Bilateral, Regional, and Global Groupings and Agreements involving India and/or affecting India's interests**

**Context:** Afghanistan said work would begin on a \$10 billion gas pipeline traversing South Asia as officials joined dignitaries in neighbouring Turkmenistan to celebrate its completion on that side of the border.

#### Turkmenistan, Afghanistan, Pakistan, and India (TAPI) Pipeline Project:

- It is a 1,814-kilometre pipeline that aims to transport 33 billion cubic metres of gas from Turkmenistan to Afghanistan, Pakistan, and finally, India.
- It will supply gas to **Afghanistan (5%), Pakistan (47.5%), and India (47.5%)** during its 30-year operational period.
- It is also known as the 'Peace Pipeline' due to its potential to foster regional cooperation and stability.
- It comprises the procurement, installation, and operation of the pipeline and related facilities within Afghanistan and Pakistan.
- It was originally conceived in the 1990s, and an inter-governmental agreement was signed in 2010 by the heads of four member nations. A Gas Pipeline Framework Agreement was signed in December 2010, and a bilateral gas sale agreement was signed in May 2013. In February 2018, a ground-breaking ceremony for Afghanistan's section of the TAPI gas pipeline was held in the western Afghan city of Herat.



- It is being funded by the Asian Development Bank (ADB), which is also acting as transaction adviser for the development.
- The **TAPI Pipeline Company Limited (TPCL)**, is responsible for the construction and operation of the pipeline. The company is a joint venture of Turkmenistan, Afghanistan, Pakistan, and India, each holding shares in the project.

#### Significance of TAPI Pipeline:

- It provides opportunities for economic growth in Afghanistan and Pakistan through transit fees and job creation. It can spur investment in renewable energy sources in these countries.
- It helps in reducing carbon dioxide emissions as it offers a crucial alternative to coal as compared to coal-fired energy
- It could facilitate a transition to cleaner energy sources and help meet India's ambitious emission reduction goals (**Net-Zero Emissions Target**).
- It plays a major role in the broader geopolitical competition for influence in Central Asia as the US sees the pipeline as a strategic counter to the Iran-Pakistan-India (IPI) pipeline, which is supported by Iran and Russia.
- It represents a chance to diversify Turkmenistan's export markets and reduce dependency on existing routes to **China and Russia**.
- It has the potential to enhance cooperation among Central and South Asian countries, potentially fostering collaborations in energy, communication, and transportation.
- It positions Turkmenistan as a crucial **energy partner for India, enhancing India's connectivity with Central Asia**.
- It aligns with India's broader strategy of improving regional connectivity and energy security.

#### Issues/Challenges faced by the TAPI Pipeline:

- Ensuring the smooth implementation of the project has been a recurring issue as the major part of the pipeline will traverse Afghanistan which is known for its political instability and humanitarian crisis.
- Funding for the project remains a major hurdle as the Asian Development Fund is expected to contribute a small portion, with the rest to be sourced from private investors.
- Turkmenistan's limited integration into the **global market as it is a closed economy poses a significant challenge to attracting investment**.
- India and Pakistan have a troubled relationship which raises questions about its long-term commitment and cooperation to the TAPI pipeline.  
The extraction and transportation of natural gas involve risks such as water and soil pollution, and the potential for earthquakes from fracking which is of environmental concern.

## FACIAL RECOGNITION TECHNOLOGY

**GS II** – Government policies and interventions for development in various sectors and issues arising out of their design and implementation

**Context:** There is potential for abuse of facial recognition technology such as Digi Yatra by private entities and more guard rails are needed to prevent the misuse of biometric data.

#### Facial Recognition Technology (FRT):

- It is an algorithm-based technology that creates a digital map of the face by identifying and mapping an individual's facial features, which it **then matches against the database to which it has access**.
- It works primarily by capturing the face and its features through the camera and then using various kinds of software to reconstruct those features which are then stored in a database, that can be integrated with any kind of software that may be used for security purposes, banking services, etc.

#### Uses of Facial Recognition Technology (FRT):

- **It helps for 1:1** verification that is used to unlock phones as the facial map is obtained to match it against the person's photograph on a database to authenticate their identity.
- It is helpful for law enforcement agencies such as police usually to procure FRT for 1: n identification.
- It offers a unique, smooth, and fast user experience, avoiding the need for time-consuming office visits or video conferences and wait times.
- It is used for identification and authentication purposes with a success rate of almost 75%.
- It can act as a force multiplier as it neither requires too much manpower nor regular upgradation.
- It along with video identification is the only method recognised as a standard for remote identity verification for high-risk operations.

#### Issues/Concerns associated with Facial Recognition Technology (FRT):

- It faces challenges like misidentification, particularly across racial and gender demographics that can lead to wrongful disqualification of legitimate candidates.
- According to a study, disparities based on race and gender in FRT accuracy potentially exclude deserving candidates and reinforce societal biases.
- It may lead to the exclusion of individuals from accessing essential government services through failures in biometric authentication, **such as under the Aadhaar system.**
- In India, there is a lack of comprehensive data protection laws that make FRT systems vulnerable to misuse, with inadequate safeguards for the collection, storage, and use of biometric data. It raises ethical questions about the balance between public safety and individual rights, as well as the potential for misuse and abuse of the technology.

#### Digi Yatra App:

- It envisages that travellers pass through various checkpoints at the airport through paperless and contactless processing, using facial features to establish their identity, which would be linked to the boarding pass.

The entry of passengers would be automatically processed based on the facial recognition system at all checkpoints – including entry into the airport, security check areas, aircraft boarding, etc.

## CAPITAL PUNISHMENT

**GS II** – Issues arising out of the design and implementation of policies

**Context:** The Aparajita Woman and Child (West Bengal Criminal Laws Amendment) Bill, 2024, adopted by the West Bengal government, introduces the death penalty for the offence of rape.

#### Capital Punishment:

- It is defined as a death penalty ordered by the state owing to the commission of a crime.
- Crimes that can result in the death penalty are known as capital crimes or capital offences.
- The prime reason behind capital punishment is its efficacy in deterring identical or similar crimes.

#### Capital Punishment in India:

- The Air Force Act of 1950, the Army Act of 1950, and the Navy Act of 1957 provide punishment for offences, including hanging or death by shooting.
- According to the 'Death Penalty in India: **Annual Statistics 2022**' Report released by Project 39A, the Supreme Court awarded the death penalty to only seven people from 2007 to 2022.
- Trial courts awarded 165 death sentences in 2022, the highest in over two decades. 98.3% of the death penalty cases were decided by trial courts "**without any materials on mitigating circumstances of the accused** and without any state-led evidence on the question of reform.

#### Arguments in Favour of Capital Punishment:

- It provides retributive justice that honours the victim, helps console grieving families, and guarantees that

the perpetrator never has an opportunity to cause future tragedy.

- It is often justified with the argument that by executing **convicted murderers, we will deter would-be murderers from killing people.**
- It punishes the guilty with respect to the severity of the crime. The death penalty must be imposed on convicts of severe crimes like murder and rape.
- It is needed in law books to contain terrorism as it forms part of the national response against terrorist activities.
- It prevents the **recommitting of crimes by repetitive offenders.**

#### Arguments Against Capital Punishment:

- According to the theory of reformation, which is one of the objectives of punishment is the obligation of society to reform a convicted person. However, this objective will be entirely defeated in the case of capital punishment since the offender does not continue to live.
- The report of the **Justice J.S. Verma Committee said that capital punishment** is a regressive step and may not provide deterrence. It recommended the life sentence for the most grievous of crimes.
- It gives arbitrary power to the government for taking a human life is a violation of the right to life guaranteed **under Article 21 of the constitution.**
- It aggravates social injustices by targeting people who cannot afford good lawyers.
- Human rights activists argue that it is inhumane and barbaric to sentence criminals to the death penalty.
- There is no sufficient evidence to prove that the death penalty is any more effective in reducing crime than imprisonment. Notably, brutal rapes in India have not decreased despite the enforcement **of the Criminal Law (Amendment) Act, 2013** which prescribes the death penalty and life imprisonment for sexual assaults that result in the victim dead or being reduced to a persistent vegetative state.
- It reduces the chances of survival of the victim. For example, the death penalty would motivate rapists to do more harm to their victims.

#### Supreme Court Judgement on Capital Punishment in India:

- In **Jagmohan Singh v. State of Uttar Pradesh Case of 1972**, the constitutional validity of the death penalty was upheld by the Supreme Court.
- In the **Rajender Prasad v. State of Uttar Pradesh Case of 1979**, the court held that the death penalty directly affects the life of the people guaranteed under Article 21 of the Constitution. It mentioned two things that are required to impose the death penalty. They are:
  - The special reasons should be recorded for imposing the death penalty in a case.
  - The death penalty must be imposed only in extraordinary circumstances.
- In **the Bachan Singh vs the State of Punjab Case of 1980**, the Supreme Court upheld the death penalty, but limited it to the 'rarest of rare cases'. It upheld the Rule of Law which holds that the death sentence is only legal if it serves as an alternative to life in prison.

In the **Deena Dayal vs Union of India and Others Case of 1983**, the Supreme Court upheld capital punishment by ruling that hanging is "as painless as possible" and "causes no greater pain than any other known method".

## COLLEGIUM SYSTEM

### GS II – Judiciary

**Context:** Underlining that the Collegium is not a "search committee", the Supreme Court asked the Attorney General to submit a report on the status of the names that were reiterated for appointment as Judges but were yet to be cleared by the Centre.

#### Collegium System:

- It is a system of appointment and transfer of judges of the Supreme Court and High Courts.
- Under the system, the Chief Justice of India (CJI), along with four senior-most Supreme Court judges, recommends the appointment and transfer of judges.
- It was laid down by a nine-judge Bench of the Supreme Court in **Supreme Court Advocates-on-Record Association vs Union of India (1993)**, commonly known as the Second Judges Case.

- The ruling made the recommendations of the SC collegium binding on the Centre and gave the power to appoint and transfer judges of the higher judiciary to the judiciary.
- Under the collegium system, judges choose judges and while the government can delay their appointments, it cannot reject the collegium's choice.

#### Evolution of the Collegium System:

- **In S P Gupta Vs Union of India, 1981 (First Judge Case)**, the Supreme Court held that consultation in the process of appointing judges does not require concurrence, and instead only involves the exchange of views.
- In the Supreme Court Advocates-on-Record Association Vs Union of India, 1993 (Second Judge Case), the Supreme Court reversed its previous and altered the definition of consultation to mean concurrence. It was decided that the advice tendered by the CJI regarding the appointment of judges to the Supreme Court is binding on the President. Further, the CJI is required to consult with two of his most senior colleagues before tendering such advice.
- **In the Third Judge Case, 1998, the Supreme Court** stated that the consultation process to be adopted by the CJI requires 'consultation of plurality judges'. The CJI should consult a collegium of four senior-most judges of the Supreme Court. Even if two judges give an adverse opinion, they should not send the recommendation to the government.

#### Concerns/Issues Related to the Collegium System:

- It does not provide any specific criteria for testing the candidate for the post of CJI which leads to a wide scope for nepotism and favouritism which gives rise to non-transparency of the judicial system, which may create harmful conditions for the law-and-order regulation in the country.
- It completely excludes the executive from the judicial appointment process creating a system where a few judges appoint the rest in complete secrecy and they are not accountable to any administrative body that may lead to the wrong choice of the candidate while overlooking the right candidate.
- It is against the principle of check and balance as it gives immense power to the judiciary, which leaves little room for checks and poses the risk of misuse.
- It is seen as a closed-door affair as it does not have any official secretariat and secrecy of its working as there is no public knowledge of how and when a collegium meets, and how it takes its decisions.
- It does not ensure adequate representation of women in the judiciary.

#### Recommendations of the Law Commission of India:

- There should be an equal role for the judiciary and the executive in the selection and appointment of judges to High Courts and the Supreme Court.
- The retirement age of the judges of the High Court should be increased to 65 years, and that of the judges of **the Supreme Court should be increased to 68 years.**

Article 124(3) contemplates the appointment of judges of the Supreme Court from three sources. However, in the last fifty years, not a single distinguished jurist has been appointed. From the Bar also, less than half a dozen judges have been appointed. It recommended that suitably meritorious persons from these sources be appointed.

### QUAD

**GS II – Regional and Global Groupings and Agreements involving India and/or affecting India's interests.**

**Context:**The leaders of the Quad group of countries met at their sixth summit-level meeting at Archmere Academy, Delaware, to announce a broad range of outcomes which includes the launch of a new coast guard exercise, a logistics network, expansion of maritime surveillance, and a project to combat cervical cancer.

#### QUAD:

- It is a strategic forum comprising four countries - the United States, Japan, India, and Australia.
- It is also known as the Quadrilateral Security Dialogue.
- It is aimed at promoting **regional security** and economic cooperation in the Indo-Pacific region.

**Importance/Significance of QUAD for India:**

- **It is strategically important as it gives** a platform to discuss and address the common challenges faced by the Indo-Pacific region, such as China's increasing assertiveness in the region through the **string of pearls** theory.
- **It promotes economic development in the region as it serves as a platform to** launch initiatives such as the **Asia-Africa Growth Corridor, the Blue Dot Network, and the Supply Chain Resilience Initiative.**
- **It plays an important role in ensuring maritime security** by conducting joint naval exercises and coordinating on issues like freedom of navigation, piracy, and illegal fishing.
- **It enhances** regional stability in the Indo-Pacific region based on the principles of a free, open, and inclusive Indo-Pacific.
- **It aligns with India's 'Act East Policy',** emphasizing deeper engagement with East Asian nations and strengthening maritime security cooperation.

**Issues/Challenges associated with the QUAD:**

- **It faces challenges as it does not have a definitive formal structure with** a secretariat or any permanent decision-making body.
- **China views QUAD with suspicion which makes it difficult to engage China constructively.**
- **The members of QUAD** do not have the same levels of financial resources, strategic awareness, and military capabilities in the Indian Ocean **which makes it seem like an imbalanced cooperation.**

**It lacks coherent actions in dealing with** the issues in the Indo-Pacific region which can undermine the group's credibility in addressing regional challenges.

**News:**

- The Quad strongly condemned aggression in the East and South China Sea and expressed alarm over the war in Ukraine.
- It launched the '**Quad Cancer Moonshot**' which involves contributions from all four countries to combat cervical cancer.
- It **announced the Quad-at-Sea Ship Observer Mission in 2025** to improve interoperability and maritime safety.

It launched Maritime Initiative for Training in the Indo-Pacific (MAITRI), to train Quad partners "to monitor and secure their waters, enforce their laws, and deter unlawful behaviour". India will host the first MAITRI workshop in 2025.

**ASSAM ACCORD****GS II – Government Policies and Interventions**

**Context:**After a meeting with representatives of the All Assam Students' Union (AASU), the Chief Minister of Assam set the ball rolling for the implementation of 52 recommendations of the Justice Biplab Sarma Committee regarding Clause 6 of the Assam Accord, as announced by the Assam government.

**Assam Accord:**

- It was a Memorandum of Settlement between the Rajiv Gandhi-led union government and the leadership of the Assam Movement, primarily the All Assam Students' Union (AASU), which was signed in 1985.
- The accord ended the six-year-long agitation in Assam against the entry of Bangladeshi migrants into the state.
- Clause 6 of the accord states that "Constitutional, legislative and administrative safeguards, as may be appropriate, shall be provided to protect, preserve and promote the cultural, social, linguistic identity and heritage of the Assamese people." It aims to address concerns regarding the state's demographic and cultural integrity amidst the influx of migrants.

**The main provisions of the Assam Accord included:**

- Detection, deletion, and deportation of illegal immigrants who entered Assam after March 25, 1971.
- Safeguarding the political, social, and cultural rights of the Assamese people.
- Providing constitutional, legislative, and administrative safeguards to protect and preserve the cultural, social, and linguistic identity and heritage of the Assamese people.
- Accelerating the economic development of Assam.

#### Significance of the Assam Accord:

- It helped in bringing peace to Assam after years of unrest and protests.
- It ensured that illegal immigrants would have to leave the state, and the government would take steps to protect Assam's culture, language, and heritage.
- It clearly defined who would be considered an Indian citizen in Assam which was crucial in ending the uncertainty around citizenship for many people living there.
- It is still relevant because the issue of immigration continues to be a big issue in Assam. Even today, the questions about who is a citizen and who is not are debated and discussed. The National Register of Citizens (NRC), which was updated in Assam in 2019, is a part of this ongoing issue.

#### Biplab Sarma Committee:

- It was formed by the Union Home Ministry in July 2019 to provide recommendations on **implementing Clause 6 of the Assam Accord**.
- **It is a 14-member committee chaired by retired Assam High Court Justice Biplab Kumar Sarma.**
- The committee submitted its final report in **February 2020**.

#### Key Recommendations made by the Biplab Sarma Committee:

- According to the definition provided by the Committee, Assamese People include:
  - Indigenous Tribals
  - Other **Indigenous Communities of Assam**
  - Indian citizens residing in Assam on or before January 1, 1951, and their descendants
  - Indigenous Assamese People
- It recommended reservations for "Assamese people" in Parliament, the state Assembly, local bodies, and jobs.
- The Assam government has accepted the **1951 cut-off date** for the specific recommendations of the Justice Biplab Sarma Committee report.
- **It recommended Special Revenue Circles** as areas where only Assamese people can own and transfer land.
- **It suggested** a three-year program to grant land titles to Assamese people who have long occupied land without proper documentation.
- **It recommended Char Areas Survey** to treat newly formed chars as government land, prioritizing allocation to those affected by river erosion.
- **It suggested retaining** Assamese as the official state language per the **1960 Assam Official Language Act**, with provisions for local languages in certain regions.
- **It recommended issuing** all state government acts, rules, and orders in both Assamese and English along with establishing an **Autonomous Language Council** to preserve and promote the indigenous languages of Assam.
- **It recommended making** Assamese a compulsory subject in all English medium schools up to Class VIII or Class X.
- **It supported** setting up an autonomous body to oversee the development of sattras and provide them with financial assistance.
- The autonomous councils of Assam's Sixth Schedule Areas, including the Bodoland Territorial Council, the North Cachar Hills Autonomous Council, and the Karbi Anglong Autonomous Council, will decide whether to implement the 52 recommendations. These councils have certain legislative and judicial autonomy under the Sixth Schedule of the Constitution.



Note:

- The Sixth Schedule of the Constitution provides for the administration of tribal areas in Assam, Meghalaya, Tripura, and Mizoram to safeguard the rights of the tribal population in these states. This special provision is **provided under Article 244(2) and Article 275(1) of the Constitution.**
- The Inner Line Permit was established by the British government under the Bengal Eastern Frontier **Regulation, 1873 to safeguard tribals** of the eastern part of Bengal. It is a document that allows an Indian citizen to visit or stay in a state that is protected under the ILP system. It is obligatory for all those who reside outside the protected states. It can be issued for travel purposes solely by the state government concerned.
- **The Sixth Schedule provides a list of ten tribal areas in Assam (3), Meghalaya (3), Tripura (1) and Mizoram (3).** Each of these tribal areas constitutes an autonomous district. Each **autonomous district has an Autonomous District Council (ADC).** ADCs have up to 30 members with a term of five years, of whom four are nominated by the governor, and the remaining 26 are elected based on adult franchise. The term of the District Councils is for five years from the date of their constitution.

## INDIA - US RELATIONS

### GS II – ISSUES AND CHALLENGES PERTAINING TO THE FEDERAL STRUCTURE

**Context:** The Union Cabinet approved the terms of reference to Krishna Water Disputes Tribunal-II (KWDT-II) under the Inter-State River Water Disputes (ISRWD) Act, 1956.

#### Inter-State Water Dispute in India: Factors and Mechanisms

##### Factors:

- Upstream state advantage creates asymmetry between states.
- Rising water demand in India, projected to increase by 22% and 32% in 2025 and 2050, stressing limited water reserves.
- Power to use water for storage, electricity, irrigation, etc., under Schedule VII of the Indian Constitution, interconnected, creates ambiguity on water usage rights.
- Water governance architecture in India is fragmented, relying on numerical measures, neglecting social, ecological, and cultural processes associated with water.

##### Mechanisms:

- Seventh Schedule of the Constitution allows for regulation and development of inter-State rivers and river valleys.
- Parliament can adjudicate disputes concerning the use, distribution, or control over the waters of, or in, any inter-state river or river valley.
- **Parliament has enacted the Inter-State Water Disputes (ISWD) Act of 1956 and the River Boards Act of 1956.**
- National Water Policy 2012 addresses issues such as scarcity of water, inequities in its distribution, and lack of a unified perspective in planning, management, and use of water resources.

##### Issues/Challenges:

- Delay in resolution due to prolonged proceedings and disposal of river water disputes.
- The politicization of disputes as some political parties use interstate water disputes for pursuing political goals.
- Lack of multidisciplinary approach due to tribunals primarily consisting of judiciary members, limiting the quality of orders.

##### Krishna Water Dispute:

- **Krishna Water Disputes Tribunal-I (KWDT)** divided 2060 TMC of Krishna water at 75% dependability.
- KWDT-II, instituted in 2004, made allocations of Krishna water at 65% dependability and for surplus flows.

In 2014 after the creation of Telangana as a separate state, Andhra Pradesh asked to include Telangana as a separate party at KWDT and that the allocation of Krishna waters be reworked among four states, instead of three. However, Maharashtra and Karnataka are now arguing that Telangana was created following the bifurcation of Andhra Pradesh. Therefore, the allocation of water should be from Andhra Pradesh's share which was approved by the tribunal.

## NAGORNO-KARABAKH

### GS II – India's Bilateral Relations



**Context:** On the sidelines of the Quad leaders' summit, the Indian Prime Minister held a meeting with the United States President.

#### India - US Relations:

- India and the US found themselves on opposite sides during the Cold War as India was pursuing non-alignment and the US aligning with India's major rival of the time Pakistan.
- **Before 1991 India and the U.S.A. despite** being the largest and oldest democracies respectively remained detached.
- **The relationship began to thaw in the 1990s with India's** economic liberalization and the end of the Cold War. This period saw the beginning of strategic dialogues and increased economic cooperation.
- The 2008 Civil Nuclear Agreement signed between the US and India marked a watershed moment in India-US relations. It effectively ended India's nuclear isolation and recognized it as a responsible nuclear power by integrating India into the global nuclear order, despite not being a signatory to the Non-Proliferation Treaty.
- The defence cooperation between India and **the US has grown exponentially since the early 2000s.**
- India was elevated to Strategic Trade Authorization tier 1 status in 2018 which allowed India to receive licence-free access to a wide range of military and dual-use technologies regulated by the US Department of Commerce.
- India has signed foundational agreements like **GSOMIA (2002), LEMOA (2016), COMCASA (2018), and BECA (2020)** with the US which has enabled deeper military cooperation.
- Both countries have enhanced their strategic ties through joint exercises like Malabar and the establishment of the 2+2 Ministerial Dialogue.
- The bilateral trade between **India and the US stood at USD 118.28 billion in 2023-24. The US is also a** significant source of FDI.
- Both countries have signed an agreement to set up a semiconductor fabrication plant in India, which would make chips for use in national security, next-generation telecommunications, and green energy applications.
- The two countries have increased technological cooperation in emerging technologies like AI, quantum computing, and 5G through multiple initiatives like the US-India Science and Technology Endowment Fund, the US-India Artificial Intelligence Initiative, and the Critical and Emerging Technology Initiative (iCET).
- India and the US are working on a broad range of technology partnerships, from joint research conducted by NASA and ISRO on the International Space Station to a pact for critical minerals supply chains and emerging digital technologies in Asia and Africa.
- The US and India have enhanced their geopolitical cooperation due to the rise of China by reviving the Quadrilateral Security Dialogue (Quad) and the inclusion of India in the US Indo-Pacific strategy.

#### Issues/Challenges in India - US Relations:

- **The economic challenges between India and the US** include India's trade surplus (USD 36.74 billion in 2023-24), market access barriers, and intellectual property rights concerns from the US side along with the removal of India from the Generalized System of Preferences (GSP) in 2019 and ongoing disagreements at the WTO over agricultural subsidies further complicate trade relations.
- India's muted criticism of the Russian invasion of Ukraine in 2022 expectedly led to some frustration in the West, raising questions over India's credibility as a security partner.
- The US is concerned about India's acquisition of arms like the S-400 air defence system, as it strengthens Russian power, hinders interoperability and secure communications between US and Indian forces, and prevents sharing of sensitive weapons technologies.
- **The US's CAATSA sanctions threat looms over India's defence choices.**
- There persist issues in technology transfer and joint production in the defence sector as India seeks advanced technologies and greater technology sharing but the export control regulations of the US often limit such transfers.
- **The U.S. expresses concern about India's treatment of minorities**, especially Muslims, and its illiberal policies. The revocation of Jammu and Kashmir's special status, the Citizenship Amendment Act, and religious freedom issues have raised eyebrows.
- There is **a constant issue of contention between both countries** about Intellectual property rights (IPR)

protection including India's use of compulsory licensing for pharmaceuticals and placing India on the Priority Watch List in the Special 301 Report of the US, citing concerns over patent laws, copyright piracy, and trademark infringement.

**The Generalized System of Preferences (GSP) provided** special privileges to India, allowing duty-free exports of goods like textiles and engineering products to the US market. However, the US has withdrawn these benefits, impacting Indian exports.

**Four Foundational Agreements:**

- The General Security of Military Information Agreement (GSOMIA) of 2002 allows militaries to share intelligence gathered by them.
- The Logistics Exchange Memorandum of Agreement (LEMOA) of 2016 gives both countries access to designated military facilities for refuelling and replenishment.
- Communication Compatibility and Security Agreement (COMCASA) of 2018 is a legal framework for the transfer of highly sensitive communication security equipment from the US to India
- Basic Exchange and Cooperation Agreement for Geospatial Intelligence (BECA) of 2020 allows both countries to share geospatial and satellite data with each other

## PAPER 3

### AIR QUALITY LIFE INDEX (AQLI) 2024

#### GS III – Environmental Pollution

**Context:** The Energy Policy Institute at the University of Chicago (EPIC) released the Air Quality Life Index (AQLI) 2024.

#### Air Quality Life Index (AQLI):

- It is a pollution index that translates the effect of particulate air pollution into its impact on life expectancy.
- It combines the relationship between long-term human exposure to air pollution and life expectancy to provide the true cost of particulate pollution in communities around the world.

#### Key Findings of the Air Quality Life Index (AQLI) 2024:

- It revealed that if **PM2.5 (particulate matter that is 2.5 micrometres or less in diameter)** pollution was reduced to meet the guidelines set by the World Health Organization (WHO), the average person could live 1.9 years longer, adding a total of 14.9 billion life years globally.
- The effects of air pollution surpass those of smoking, and heavy drinking and are several times greater than other major health risks like HIV/AIDS and malnutrition.
- The burden of pollution is not evenly distributed. People in the most polluted areas breathe six times more polluted air than those in the cleanest **regions, reducing their life expectancy by an average of 2.7 years.**
- While many countries have established national air quality standards, the report finds that enforcement and compliance remain significant challenges. According to the report, 94 countries have established PM 2.5 standards, of which 37 fail to meet their guidelines. Additionally, 158 countries have not set any standards at all.
- The potential benefits of meeting WHO pollution standards are substantial. If all countries achieved their goals, the average person in these regions would gain 1.2 years of life expectancy.

#### Global Findings in Air Quality Life Index (AQLI) 2024:

- The United States, Europe, and China have implemented stringent policies, leading to significant reductions in pollution levels. In China, air pollution has **decreased by 41% since 2014 and extended the life of Chinese** by 2 years. The US has reduced pollution by 67.2% since 1970, extending the average lifespan by 1.5 years. Europe has seen a 30.2% reduction since 1998, adding 5.6 months to life expectancy.
- South and Southeast Asia saw notable improvements in 2022, observing a 4% decline in PM2.5 levels compared to 2012. Despite this improvement, South Asia remains the world's most polluted region, accounting for **45% of global life years lost due to high pollution. Bangladesh, India, Nepal, and Pakistan are among the most polluted countries globally.**
- Air pollution in **Central and West Africa has remained largely unchanged in 2022.** The region's average PM2.5 concentration is 22.2 micrograms per cubic meter ( $\mu\text{g}/\text{m}^3$ ), 4.4 times higher than the WHO guideline. This pollution level is reducing life expectancy by an average of 1.7 years across the region.
- The Middle East and North Africa (MENA) region has emerged as a new pollution hotspot, reducing life **expectancy by an average of 1.3 years across the region.** Qatar and Iraq are the most polluted countries in the region.
- Latin America's **PM2.5 levels increased by 4.8% from 2021 and 3% from 1998.** Bolivia is the most polluted country in Latin America; air pollution in Guatemala reduces life expectancy by 2.1 years.

#### India Specific Findings in Air Quality Life Index (AQLI) 2024:

- Cleaner air that meets WHO guidelines of  $5 \mu\text{g}/\text{m}^3$  can increase the life expectancy of Delhi's 18.7 million residents by 7.8 years. Achieving India's national air quality standard ( $40 \mu\text{g}/\text{m}^3$ ) could increase life expectancy by 4.3 years.

- Delhi is the most polluted city in India, with an average PM<sub>2.5</sub> level of 84.3 µg/m<sup>3</sup> in 2022. However, with an average annual PM<sub>2.5</sub> concentration of 84.3 µg/m<sup>3</sup> in 2022, Delhi has seen significant improvement.
- India saw a decrease in particulate pollution from an average of 49 µg/m<sup>3</sup> over the last decade to 41.4 µg/m<sup>3</sup> in 2022. If this reduction continues, the average Indian could live 9 months longer than if exposed to the previous decade's pollution levels.
- While particulate pollution takes 3.6 years off the life of an Indian resident, malnutrition takes off 1.6 years, tobacco 1.5 years, and unsafe water and sanitation 8.4 months.

## ORGANIC FARMING

### GS III – Agriculture

**Context:** Union Minister of Home and Cooperation urged Uttarakhand farmers to adopt organic farming.

#### Organic Farming:

- As per **the United States Department of Agriculture (USDA)**, organic farming is a system that largely excludes the use of synthetic inputs (fertilizers, pesticides, etc.) and relies upon crop rotations, crop residues, animal manures, organic waste, and biological system of nutrient mobilization.
- According to the Food Safety and Standards Authority of India (FSSAI), '**organic farming**' is a system of farm design and management to create an ecosystem of agriculture production without the use of synthetic external inputs such as chemical fertilizers, pesticides synthetic hormones, or genetically modified organisms.
- It aims to enhance soil health, biodiversity, animal welfare, and ecological balance while minimizing environmental pollution and health risks.
- The major organic exports from India have been flax seeds, sesame, soybean, tea, medicinal plants, rice, and pulses.
- Sikkim became the **first State in the world to become fully organic in 2016**.
- Currently, India ranks 33rd in terms of total land under organic cultivation and 88th in terms of the ratio of agricultural land under organic crops to total farming area.

#### Significance/Benefits of Organic Farming in India:

- It prevents soil and water pollution due to the elimination of the use of chemicals that can leach into groundwater and surface water and contaminate the food chain.
- It helps in the conservation of disease-free and healthy biodiversity by maintaining a variety of crops, animals, and microorganisms that can resist pests and diseases naturally, and provide ecosystem services such as pollination, **nutrient cycling, and pest control**.
- It is cost-effective due to the use of natural products such as animal manures, composts, biofertilizers, biopesticides, and crop residues that are locally available and cheaper than synthetic inputs.
- It helps in maximisation of resource utilisation as organic farming optimizes land, water, energy, and labour with **practices like crop rotation**, intercropping, mulching, rainwater harvesting, vermicomposting & agroforestry, enhancing soil fertility, water retention, carbon sequestration & biomass production.
- It increases the nutritional content of food by producing crops that have higher levels of antioxidants, vitamins, minerals, and **phytochemicals than conventionally grown foods**.
- It produces toxin-free food that reduces health issues earlier caused by the absorption of toxins by crops. This improves the immunity, vitality, and well-being of consumers who prefer organic foods for their safety and quality.
- **It helps in meeting twin challenges** of food security job creation, and poverty reduction as it can increase food production by improving crop yields and diversifying food sources along with creating more employment opportunities for rural people by involving more labour-intensive activities such as weeding, composting, and harvesting.

#### Issues/Challenges related to Organic Farming in India:

- Many farmers in India are not aware of the benefits of organic farming or how to transition to this method

of production. This lack of awareness can make it difficult for farmers to adopt organic farming practices.

- The upfront costs of transitioning to organic farming can be high, as farmers may need to purchase new seeds, fertilizers, and pesticides.
  - It typically produces lower yields than conventional farming, which can make it difficult for farmers to make a profit. This is because organic farming relies on natural processes to control pests and diseases, which can lead to crop losses.
  - There is a limited market for organic produce in India, which can make it difficult for farmers to sell their products. This is **because consumers are often not aware of the benefits of organic food or are willing to pay a premium for it.**
  - It requires a transition period of at least three years to convert a conventional farm to an organic farm, during which the yield may decline.
  - It suffers from a shortage of quality organic seeds, planting materials, bio-fertilizers, bio-pesticides, and other organic inputs.
- It competes with the conventional farming system, which is heavily subsidized and supported by government policies and programs

#### Government Measures to Promote Organic Farming in India:

- Paramparagat Krishi Vikas Yojana, launched in 2015 is an elaborated component of **Soil Health Management (SHM)** of the major project **National Mission of Sustainable Agriculture (NMSA)**. Under PKVY, organic farming is promoted through the adoption of organic villages by cluster approach and Participatory Guarantee System (PGS) certification.
- **The National Program for Organic Production (NPOP)** grants organic farming certification through a process of third-party certification for **export purposes**.
- Participatory Guarantee System (PGS) is a process of certifying organic products, which ensures that their production takes place in accordance with laid-down quality standards.

Jaivik Bharat/PGS Green logo is given by FSSAI to chemical-free produce under transition to 'organic'.

## NUCLEAR TRIAD

### GS III – Defence Technology

**Context:**India's second nuclear submarine, the Arighaat, was commissioned into the Indian Navy at Visakhapatnam.

#### Nuclear Triad:

- It refers to a three-sided military-force structure consisting of land-launched nuclear missiles, nuclear-missile-armed submarines, and strategic aircraft with nuclear bombs and missiles.
- Nuclear triad countries include the United States, Russia, China, India, and France.

#### Significance of India's Nuclear Triad:

- It helps the country to counter-attack a nation after being attacked by nuclear warheads which ensures that even after being hit by a nuclear warhead, one can counter the attacking nation.
- It plays a crucial role as India shares its borders with its nuclear-empowered adversaries such as Pakistan and China which have sophisticated arsenals and believe they have the assets to credibly harm India.
- It is one of the objectives of India's Nuclear Doctrine which is complemented by possessing a fully operational nuclear triad as it provides sufficient deterrence from any attacking nation by creating a fear of the consequences (**Second strike**).
- As per the Nuclear Doctrine, India's second strike would be massive and the triad supplements it by providing resilience and feasibility to counter.

#### Limitations of India's Nuclear Triad:

- There is a need for more than one Ship, Submersible, Ballistic, Nuclear (nuclear-powered ballistic missile submarine) to ensure continuous deployment at sea.

- The United States (US), Russia, the United Kingdom (UK), France, and China possess larger nuclear submarines with longer-range missiles. For ex- China has 12 nuclear submarines, of which six are nuclear-powered attack submarines. The United States has 14 Ohio-class SSBNs and 53 fast-attack submarines.
- The air component of the triad includes nuclear warheaded Strategic Bombers for which India depends on other countries like Russia (Sukhoi), France (Rafale), etc which increases the import burden on the country as well. Thus, indigenisation of the platforms and missiles is the need of the hour.
- Around 30 percent of the fleet is under refit (repair and renovation), which has brought down the strength of operational submarines.
- India has Intercontinental Ballistic Missiles (ICBMs) as part of the triad but these can be tracked by Ballistic Missile Defence technology in the early phase of flight.
- There is a lack of sufficient nuclear testing that undermines the extent to which the re-entry vehicles could be designed to carry the warheads.
- Advanced technologies such as Fractional Orbital Bombardment Systems (FOBS), Hypersonic Glide Vehicles, Hypersonic Cruise Missiles, etc. are in the development stage in India.

#### Sea-Based Deterrence:

- **INS Arihant is India's first indigenous Ballistic Missile Submarine (SSBN).** Its induction into the Navy in 2016 provided India with maritime strike capability for the first time. It conducted its first deterrence patrol in 2018, thus establishing India's nuclear triad.
- INS Arighat is India's second indigenously built nuclear-powered ballistic missile submarine (SSBN). It is the successor of India's first nuclear-powered submarine, INS Arihant.
- S-4 will be India's third indigenous nuclear ballistic missile submarine (SSBN) after INS Arihant and Arighat. The S-4 submarine will be bigger than the INS Arihant and Arighat, with more space for nuclear-tipped ballistic missiles.

#### Land Based Deterrence:

- The Agni series of ballistic missiles are among India's most prominent strategic weapons. It **includes Agni-I (700-1,250 km range), Agni-II (2,000-3,000 km range), Agni-III (3,000-5,000 km range), Agni-IV (4,000 km range), and Agni-V (5,000 range).** Agni-V, intermediate-range ballistic missile (IRBM) with Multiple Independent Re-entry Vehicles, capable of reaching targets as far as Europe and China.
- Prithvi series comprises short-range ballistic missiles designed for tactical use. Prithvi I (150 km range) and Prithvi II (250-350 km range) can carry both conventional and nuclear warheads, providing India with a flexible deterrence option against regional threats.
- Shaurya is a land-based hypersonic missile developed by India, designed to deliver nuclear payloads with precision at hypersonic speeds. Its range is around 700-1,000 km, enhancing India's deterrence capabilities by introducing a fast and maneuverable delivery system.

#### Air Based Deterrence:

- Rafale aircraft has provided the Indian Air Force with a sophisticated aircraft with nuclear-warhead-carrying capability.

The aircraft that would work as bombers include the Sukhoi Su-30MKI, Mirage 2000H, and SEPECAT Jaguar.

## BIOTECHNOLOGY IN INDIA

### GS III – Biotechnology

**Context:**The Union Cabinet cleared a proposal to bolster biotechnology-based manufacturing, called BioE3 (Biotechnology for Economy, Environment and Employment) Policy for Fostering High-Performance Biomanufacturing.

#### Biotechnology:

- It is a field that intertwines biology with technology and generates cellular and biomolecular processes to develop technologies and products that help improve our lives and the health of our planet.



### Status of Biotechnology in India:

- India ranks among the top 12 biotechnology destinations globally.
- India's bioeconomy has seen a meteoric rise, **from USD 10 billion in 2014 to over USD 130 billion in 2024**, with projections to **reach USD 300 billion by 2030**.

### Significance of Biotechnology:

- Biotech in the field of medicine, enables the development of advanced drugs, vaccines, and therapies, including personalised medicine, gene therapy, and targeted cancer treatments.
- In agriculture, it involves genetic modification and engineering in plants that can produce crops that are more resistant to pests, diseases, and environmental stressors like drought, thus improving food security.
- **It helps to reduce carbon footprints by producing cleaner biofuels and** reducing reliance on fossil fuels.
- It drives economic growth by creating jobs in the research, development, and manufacturing sectors.
- It helps mitigate the effects of climate change through capturing and utilization of carbon dioxide from the atmosphere.
- It plays a major role in production of the novel materials, including bio-based fibers and high-performance bio-composites, which have applications in industries ranging from fashion to aerospace.

### Issues/Challenges for Biotechnology in India:

- It faces challenges due to the absence of a comprehensive strategic roadmap for biotechnology that outlines competitive areas and industry-specific research and development needs.
- There is a **need for effective bio-networking** to enhance interaction among biotechnology businesses, address intellectual property rights, and ensure biosafety and bioethics.
- There is a need for more specialized human resources in biotechnology, particularly in remote regions.
- The regulatory environment for biotechnology in India is very complex, particularly for genetically modified **organisms (GMOs) which involves** multiple agencies.
- It faces challenges related to data integration and the establishment of technical standards as it requires extensive IT support for data management.

### Bio E3 Policy:

- It is aimed at 'Fostering High-Performance Biomanufacturing' aligned with National initiatives of the government of India such as '**Net Zero' carbon economy and Mission LiFE** (Lifestyle for the environment).
- Under the scheme, the six thematic themes were:
  - Bio-based chemicals and enzymes;
  - Functional foods and Smart proteins;
  - Precision biotherapeutics;
  - Climate resilient agriculture;
  - Carbon capture and its utilization;

Futuristic marine and space research.

## DIGITAL AGRICULTURE MISSION

### GS III – Agriculture

**Context:**The Union Cabinet approved the Rs 2,817-crore Digital Agriculture Mission for the creation of Digital Public Infrastructure (DPI) in the farm sector.

### Digital Agriculture Mission:

- It was originally planned for the financial year 2021-22 but was delayed due to the Covid-19 pandemic.
- It is an umbrella scheme to support digital agriculture initiatives, such as creating Digital Public Infrastructure, implementing the Digital General Crop Estimation Survey (DGCES), and taking up other IT initiatives by the central government, state governments, and academic and research institutions.
- **Its total outlay is Rs 2,817 crore of which Rs 1,940 crore is from the centre and the remaining amount is**

from states and Union Territories (UTs).

- Its objective is to create Digital Public Infrastructure (DPI) in the agriculture sector, similar to other e-governance initiatives like Aadhaar, Digi Locker, eSign, UPI, and electronic health records.
- The three Pillars of the Mission are:
  - AgriStack is the farmer-centric DPI that consists of three foundational agri-sector registries or databases - Farmers' Registry, Geo-referenced Village Maps, and Crop Sown Registry, all of which will be created and maintained by state/ UT governments.
  - The Krishi Decision Support System, which was unveiled recently, will create a comprehensive geospatial **system to unify remote sensing-based information on crops, soil, weather, water resources, etc.**
  - **Soil Profile Maps (on a 1:10,000 scale)** of about 142 million hectares of agricultural land are envisaged to be prepared.
- **Digital General Crop Estimation Survey (DGCES)** is an additional component which is a tech-based system to provide accurate estimates of agricultural production. It aims to offer reliable data for policy decisions, agricultural planning, and resource allocation.

#### Benefits of Digital Agriculture Mission:

- It increases agriculture productivity by giving timely and accurate information needed to improve agriculture.
- It prevents soil degradation as it reduces chemical application in crop production.
- It helps in the efficient use of water resources.
- It disseminates modern farm practices to improve the quality and quantity which reduces the cost of production.
- It changes the socio-economic status of farmers by increasing their income.

#### Issues/Challenges Faced by Digital Agriculture Mission:

- It discourages farmers from adopting digital methods of farming due to high capital costs.
- Indian farms are very small in size and 1-2 acres farm plots are the most common which makes it difficult to adopt digital agriculture.
- Due to both limited financial resources and small farm plots, renting and sharing platforms rather than outright purchase for equipment and machinery like tractors, harvesters, etc.

The lack of basic computer literacy among farmers hinders the fast development of e-agriculture.

## FOOD SAFETY IN INDIA

### GS III – Food Security

**Context:**As the trade of agricultural and processed food products grows, food safety management is becoming increasingly important.

#### Food Safety:

- It refers to the procedures, practices, and regulations implemented to ensure that food is safe for consumption. It covers all measures taken to prevent foodborne illnesses, contamination, and other hazards that may arise during the production, processing, storage, distribution, and preparation of food.
- The Food Safety and Standards Authority of India (FSSAI) was established in September 2008 under the provisions of the Food Safety and Standards (FSS) Act, 2006 as the apex authority on all matters of food safety and to ensure safe and wholesome food to consumers.

#### Issues/Challenges to Food Safety in India:

- There is a prevalence of widespread adulteration of food products which includes fruits, milk, spices, and edible oils, which remains a grave challenge to food safety in India.
- Major food brands that cater to packed products contain items that have no nutritive value like added sugar which are major cause of diabetes, cardiovascular diseases, and obesity in India.

- Due to the absence of strict enforcement of food safety regulations, many food businesses operate without proper licenses and continue to compromise on safety standards.
- The Fast Moving Consumer Goods industry players are often found to indulge in violation of the labelling requirements for the ingredients in their products.
- The food safety standards domain in India suffers from the challenge of a shortage of laboratories, trained personnel, and funds **necessary for regular and stringent food inspections**.
- There is a lack of awareness among a significant proportion of the Indian population regarding food safety practices, including proper food handling, storage, and hygiene.
- The complex regulatory framework for food safety makes it difficult for small and medium enterprises businesses, to adhere to the necessary standards. These also lead to regulatory gaps and inconsistencies in enforcement.

#### Effects/Consequences of the Decline in Food Safety Standards in India:

- Consumption of contaminated or adulterated food leads to a range of public health issues like foodborne illnesses, gastrointestinal disorders, cardiovascular diseases, obesity, and diabetes. The impact is particularly severe on vulnerable populations like children and the elderly.
- The decline in food safety standards often leads to massive product recalls, loss of consumer trust, and damage to the reputation of **the food brand**.
- **Adulterated food safety standards deter both domestic and international consumers** from embracing Indian products which becomes a significant roadblock in India's effort to promote indigenous manufacturing and boost exports under the 'Make in India' initiative.
- The overuse of pesticides along with substandard and unsafe agricultural practices harm the environment through pollution and the mishandling of food waste contributes to ecological degradation.

#### Initiatives taken by the FSSAI and the Government to promote Food Safety:

- Eat Right India Movement is aligned with the National Health Policy 2017 with its focus on preventive and promotive healthcare to transform the country's food system to ensure safe, healthy, and sustainable food for all Indians.
- **Eat Right Station Certification is awarded by FSSAI** to railway stations that set benchmarks in providing safe and wholesome food to passengers.
- Food Hygiene Rating Scheme is a certification system developed by FSSAI for food businesses supplying food directly to consumers, either on or off-premise.
- The Food Safety Mitra scheme aims to create an ecosystem of Food Safety Mitras (FSM) that will help Food Business organisations (FBO) with licensing and registration, training, and auditing hygiene among others.

The State Food Safety Index was developed by FSSAI to measure the performance of states on five significant parameters of food safety- compliance, Human resources and institutional data, Food testing- infrastructure and surveillance, training & capacity building, and consumer empowerment.

#### News:

- **The Union budget for 2024-25 has allocated funds** to set up 50 multi-product food irradiation units in the MSME sector.
- Food irradiation technology extends the shelf life of agrifood products, ensuring they reach consumers in optimal condition while reducing food losses along the production and supply chain.
- Food irradiation involves exposing food, whether packaged or in bulk, to ionizing radiation in a controlled environment. This method reduces the risk of foodborne illnesses by eliminating harmful microorganisms.
- It also prevents spoilage by slowing down the process of decay and minimizes food loss by delaying premature ripening, germination, or sprouting. It also reduces the need for chemical preservatives, contributing to a more sustainable food supply chain.
- **In India, irradiated food is regulated as per the Atomic Energy (Control of Irradiation of Food) Rules, 1996.**

## URBAN BIODIVERSITY

GS III – Environmental Conservation

**Context:** A conscious focus on land and marine biodiversity across the country could greatly help address the climate issues we face today.

#### Urban Biodiversity:

- It refers to the variety of living organisms, including plants, animals, and microorganisms found in urban areas, and their interactions within urban environments. It encompasses the genetic, species, and ecosystem diversity found in **cities and their surroundings**.
- It plays a critical role in ensuring ecological balance and enhancing the quality of life for urban residents.

#### Need for Conservation of Urban Biodiversity:

- Urban centers are significant contributors to carbon emissions. According to a World Economic Forum (WEF) report, cities contribute nearly 80% to the global economy but are responsible for almost three-fourths of global greenhouse gas emissions. Cities like Delhi, Mumbai, and Bengaluru exemplify this, where increasing emissions have exacerbated environmental degradation.
- The loss of green cover results in the reduction of the potential for evaporative cooling and increases the net heat stored in the urban environment. This results in the development of Urban Heat Islands (UHIs), thus developing a **peculiar 'micro-climate'** in and around the urban landscape. For ex- Thermal and Urban Heatwave stress in India.
- The WEF report estimates that **around 44% of global GDP in cities**, equivalent to \$31 trillion, is at risk due to biodiversity losses. This economic vulnerability underscores the importance of preserving urban biodiversity as a buffer against economic disruptions.
- Unplanned urban development has resulted in the loss of critical ecosystems, such as wetlands, that play a vital role in **natural disaster management**. The **2015 Chennai** floods, worsened by the loss of the city's natural wetlands, highlight the importance of maintaining urban biodiversity for disaster resilience.

#### Significance of Well-maintained Urban Biodiversity:

##### Environmental Benefits of Urban Biodiversity:

- It helps to improve air quality by cooling and cleaning the air and reducing smog, ground-level ozone, and greenhouse effect. They help in mitigating the heat island effect by giving green lungs to cities.
- It helps in sequestering huge amounts of carbon by capturing carbon dioxide from the atmosphere.
- Trees and forests present in urban areas provide shelter and habitat to many important animals, especially avifauna.
- It plays a key role in supporting water management in and around urban settlements through water provisioning, regulating, recharging, and filtering role.

##### Social Benefits of Urban Biodiversity:

- It helps in **checking rapid and unplanned urbanization**, and the development of slums by demarcating city limits and industrial spaces.
- It enhances the beauty and environmental quotient of the city by increasing the aesthetic quality of residential streets and community parks. For ex- Award of 'World Green City Award 2022' to Hyderabad.
- It reduces stress and improves physical health for urban residents while providing spaces for people to interact. Green parks also provide a break from the busy, tiring, often repetitive, and tedious routine jobs for the urban population.
- Urban forests in the form of parks, botanical gardens, zoological gardens, avenue trees, and other urban green spaces are centres of education on flora and fauna.
- Urban green spaces help in the enhancement of cultural activities by providing venues for local festivals, civic celebrations, political gatherings, and theatrical performances. For example, the celebration of Vat-Savitri pooja in the Urban Centres of Bihar.

##### Economic Benefits of Urban Biodiversity:

- Landscaping with trees— in yards, in parks and greenways, along streets, and in shopping centres- helps in increasing property values and providing commercial benefits.
- Tree planting and maintenance in urban forests is labour-intensive and provides work opportunities for the urban poor.  
It offers significant benefits in reducing building air-conditioning demand and reducing energy consumption.

#### Government Initiatives for Enhancing Urban Biodiversity in India:

- The Nagar Van Udyan **Program aims to develop 200 Nagar Vans (City Forests)** across India, engaging local communities, educational institutions, and organizations in establishing and maintaining urban forests.
- Many cities under the Smart Cities Mission have incorporated green cover enhancement as part of their urban planning efforts, promoting sustainable urban growth.
- **As part of the National Action Plan for Climate Change (NAPCC)**, the National Mission for Green India aims to enhance forest cover and increase tree cover in urban areas, contributing to biodiversity conservation and climate resilience.
- Various state and local governments have launched urban afforestation programs to increase tree cover in cities. For example, Pune's Urban Forest Garden Project and the adoption of the Miyawaki method in cities across India are notable efforts.

**The Ministry of Housing and Urban Affairs (MoHUA)** has issued Urban Greening Guidelines, recommending a minimum green cover of 12% to 18% in urban areas to ensure sustainable development

### INDUSTRIAL SMART CITIES

#### GS III – Infrastructure

**Context:**The Union Cabinet approved 12 “industrial smart cities” in 10 states to boost domestic manufacturing with an estimated investment of Rs 28,602 crore.

#### Industrial Smart Cities:

- It is an urban area that integrates advanced technologies and data analytics to enhance the efficiency of industrial operations and promote sustainable development.
- It aims to integrate advanced urban concepts like 'plug-and-play' and 'walk-to-work' and attract foreign investment, boost domestic manufacturing, and drive employment.

#### Industrial Smart Cities in India:

- The Union **Cabinet has approved the establishment of 12** industrial smart cities across 6 major industrial corridors in 10 states under the National Industrial Corridor Development Programme which aims to develop advanced industrial cities that can compete with the world's top manufacturing and investment destinations.
- The chosen cities for the industrial projects are Uttarakhand, Punjab, Maharashtra, Kerala, Uttar Pradesh, Bihar, Telangana, Andhra Pradesh, and Rajasthan. These cities will be part of a 'necklace of industrial cities' along the Golden Quadrilateral, enhancing connectivity and industrial growth.
- It is implemented by the National Industrial Corridor Development and Implementation Trust (NICDIT) and the National Industrial Corridor Development Corporation Limited (NICDC).
- It aligns with the government's goal of achieving USD 2 trillion in exports by 2030.
- It is expected to generate around **10 lakh direct jobs and up to 30 lakh indirect jobs, with an investment potential of Rs 1.5 lakh crore.**
- It will act as a catalyst for **achieving \$2 trillion in exports by 2030**, reflecting the government's vision of a self-reliant and globally competitive India.

#### Significance of developing Industrial Smart Cities:

- It represents a significant leap forward in India's quest to enhance its manufacturing capabilities and economic growth by equipping cities with advanced infrastructure and efficient industrial operations.
- It has the potential to attract **potential investments of ₹1.5 lakh crore**, creating a potential 1 million direct

and up to 3 million indirect jobs.

- It creates job opportunities and encourages shared use of infrastructure, boosting productivity and competitiveness.
- It attracts Foreign Direct Investment and stimulates growth in manufacturing activities.
- It will act as a catalyst for achieving \$2 trillion in exports by 2030, reflecting the government's vision of a self-reliant and globally competitive India.
- The cities developed under the NICDP will promote sustainability by integrating ICT-enabled utilities and green technologies to reduce environmental impact, while providing ready-to-allot land parcels to attract domestic and international investors, aiming to strengthen India's role in global value chains.

#### Issues/Challenges in Developing Industrial Smart Cities:

- There are significant investment and logistical challenges in upgrading outdated urban industrial infrastructure to support IoT devices, high-speed internet, and data centers, especially in older cities.
- There exists an **issue of data privacy and security** as industrial smart cities have to ensure the protection of vast amounts of data collected from smart devices against security breaches.
- It is very challenging to secure substantial financial investment from public or private sources as it is a task to convince stakeholders of the long-term benefits and Return on Investment (ROI).
- It creates roadblocks for the implementation due to complex and time-consuming government regulations and policies.

## SEMICONDUCTOR INDUSTRY IN INDIA

### GS III – Infrastructure

**Context:** To develop a vibrant semiconductor ecosystem, the Union Cabinet approved the proposal of Kaynes Semicon Pvt Ltd to set up a semiconductor unit in Sanand, Gujarat.

#### Status of Semiconductor Manufacturing in India:

- India has become the hub for semiconductor design with nearly 2,000 chips being designed per year.
- India's consumption of semiconductors is **projected to exceed \$80 billion by 2026 and \$110 billion by 2030**.
- It has the potential to generate 6 lakh employment opportunities by 2030; an exceptional semiconductor design talent pool making up to 20% of the world's semiconductor design engineers.
- Consumption of semiconductors is expected to reach India \$110 billion by 2030.

#### Need for promoting Semiconductor Industry:

- Semiconductors and displays are at the core of modern electronics, driving the next phase of digital transformation under Industry 4.0.
- Its manufacturing capabilities can help tap the global market and contribute to export earnings narrowing the trade deficit.
- It helps in **employment generation in domains like design, fabrication, assembly, and testing**.
- It provides national security by reducing dependence on imported semiconductors and safeguarding critical infrastructure, defense systems, and sensitive data from vulnerabilities.
- It promotes sustainable development by enabling energy-efficient technologies and solutions contributing to a low carbon footprint.
- It has spillover effects by enabling digital transformation in healthcare, energy, and agriculture.

#### Factors responsible for recent disruptions:

- There was a surge in demand for consumer electronics such as laptops during the COVID-19 pandemic, with people spending more time at home and remote work becoming the norm.
- Global scramble such as the automotive sector, began competing for the same raw materials, intensifying the shortage.



- The increased demand outpaced the supply of semiconductor chips, leading to shortages of consumer durables and vehicles, which were previously unheard of.
- Palladium and neon are crucial resources for semiconductor chip production, with Russia supplying over 40% of the world's **palladium and Ukraine producing 70% of neon**.
- Taiwan accounts for 92% of advanced semiconductors. Ongoing trade tensions between the United States and China have impacted chip production in Taiwan.

#### Issues/Challenges faced by the Semiconductor Industry in India:

- Its highly capital-intensive nature as semiconductor fabrication unit undertakings costs billions of dollars for large facilities.
- It requires a **high-quality supply of water, electricity, and insulation** from the elements, reflecting the high degree of capital needed to make sophisticated circuits.
- A semiconductor fab is a multiple-step sequence by which electronic circuits are gradually created, which **requires high skills and technology in which India is lagging**.
- There is a scarcity of raw materials like Germanium, Gallium arsenide, and Silicon carbide as they are not available in India and need to be imported.
- It causes environmental pollution as many toxic materials are used in the fabrication process such as arsenic, antimony, and phosphorous.

#### Government Initiatives to Promote Semiconductor Industry in India:

- Make in India **aims to transform India into a global hub for Electronic System Design and Manufacturing (ESDM)**.
- **Under the Production-Linked Incentive (PLI)** Scheme, the government will provide an incentive of 4% to 6% on goods manufactured in India and covered under target segments to eligible companies for five years.
- The **Government of India has allowed 100 percent (FDI)** under the automatic route in the Electronics Systems Design & Manufacturing sector.
- Design-Led Incubation (DLI) Scheme offers financial incentives and design infrastructure support at different stages of semiconductor design and development, **including Integrated Circuits (ICs)**, Chipsets, System on Chips (SoCs), Systems & IP Cores, and semiconductor-linked design.
- India Semiconductor Mission (ISM) envisions building a vibrant semiconductor and display design and innovation ecosystem to establish India as a global hub for electronics manufacturing and design.
- Semicon India aims to provide attractive incentive support to companies that are engaged in semiconductor industries.
- The Modified Scheme for setting up of Semiconductor Fabs in India aims to attract large investments for setting up semiconductor wafer fabrication facilities in the country. It extends fiscal support of 50% of the project cost on an equal footing basis for setting up Silicon **complementary metal-oxide semiconductor (CMOS)** based Semiconductor fabrication in India.

## INSURGENCY IN NORTH EAST INDIA

### GS III – Internal Security

**Context:** Over 328 cadres of the National Liberation Front of Tripura (NLFT) and the All Tripura Tiger Force (ATTF) will give up arms after the banned insurgent outfits signed a memorandum of settlement with the Central and Tripura Governments.

#### Reasons/Factors Leading to Insurgency in North East India:

- There exist inter-tribal conflicts due to changes in the religious composition of tribal groups, particularly the Jamatias compounding existing tribal-non-tribal conflicts.
- It is due to an altered demographic profile due to the mass migration from East Pakistan (now Bangladesh) post-1947 which turned a predominantly tribal region into one dominated by Bengali-speaking plainsmen. It fuelled discontent among the indigenous tribes.
- The formation of insurgent groups like the Tripura Upajati Juba Samiti (TUJS) in 1971, the Tripura National

Volunteers (TNV) in 1981, and the National Liberation Front of Tripura (NLFT) in 1989 due to discontent over land and demographic changes intensified the insurgency.

- The lack of development and limited economic opportunities in Northeast India, especially for the youth, has led to widespread poverty and unemployment which has led to recruitment by insurgent groups, offering a means of livelihood and social status.
- The northeastern region shares 98% of its borders with other countries, highlighting weak geographical links with the rest of India.
- The deprivation of agricultural lands for tribals pushed them into the forests, leading to widespread resentment and tensions which became a major driver of insurgency.
- The feel of neglect felt by the northeastern ethnic communities from the central government due to geographical distance and limited political representation led to demands for autonomy or independence to protect their cultural identity and resources.

#### Major Peace Process in North Eastern Region (NER):

- There has been significant improvement in the security situation in the North Eastern (NE) States since 2014. Compared to 2014, there has been a 76% reduction in insurgency incidents, 90% in Security Forces casualties, and 97% in Civilian deaths in 2022.
- A Memorandum of Settlement (MoS) was signed with the National Liberation Front of Tripura (NLFT/SD) in 2019 following which 88 cadres of NLFT(SD) surrendered with 44 arms.
- Bru Agreement was signed in 2020 with representatives of Bru migrants on 16.01.2020 for the permanent settlement of Bru (Reang) families in Tripura.
- A Memorandum of Settlement (MoS) was signed in 2020 with Bodo Groups of Assam to solve the long pending Bodo issue following which 1615 cadres of NDFB groups surrendered on 30.1.2020 and disbanded on 9th-10th March 2020.
- Karbi Accord was signed in 2021 with representatives of Karbi Groups to end the decades-old crisis in the Karbi Anglong area of Assam, following which over 1000 armed cadres have abjured violence and joined the mainstream of society.
- Adivasi Peace Accord was signed in 2022 with representatives of 8 Adivasi Groups to end the decades-old crisis of Adivasis and tea garden workers in Assam, following which 1182 cadres of Adivasi groups have joined the mainstream by laying down arms.
- A Memorandum of Understanding (MoU) was signed in New Delhi in 2022 by the Chief Minister of Assam and the Chief Minister of Meghalaya to resolve the decades-long problem of the interstate boundary between the States of Assam and Meghalaya in respect of six areas of difference out of total twelve areas of difference. Both States have constituted Regional Committees to finalize the settlement of the remaining 6 areas of difference.

The States of Assam and Arunachal Pradesh signed a Declaration in 2022 at Namsai, Arunachal Pradesh to minimize the border dispute between the two states in respect of 123 villages. 12 Regional Committees have been notified by both State Governments to resolve the areas of differences.

#### Significance of the Peace Pact:

- It helps to restore peace and stability in Tripura as the armed groups are pledging to end violence. It aims to break the violence cycle and foster a safer environment for development.
- It facilitates the integration of former insurgents into mainstream society, addressing issues of alienation and disenfranchisement among tribal communities.
- The central government has approved a special development package for the tribal population in Tripura. This financial commitment highlights the government's focus on socio-economic development as a strategy to prevent future conflicts.
- It supports the preservation of the cultural heritage, languages, and identities of Northeast tribal groups. This is crucial for fostering a strong sense of belonging and community among these populations.

#### ASSET RECONSTRUCTION COMPANIES (ARCS)

##### GS III – Banking

**Context:** Asset Reconstruction Companies (ARCs) have experienced a slowdown in growth due to Non-Performing Asset (NPAs) reaching a 12-year low of 2.8% in March 2024.

### Asset Reconstruction Companies (ARCs):

- They are specialized financial institutions that purchases the bad debts of a bank at a mutually agreed value and attempts to recover those debts or associated securities by itself.
- They are registered under the Reserve Bank of India and are regulated under the Securitization and Reconstruction of Financial Assets and Enforcement of Securities Interest Act, 2002 (SARFAESI Act, 2002).
- They function under the supervision and **control of the Reserve Bank of India (RBI)**.
- Its objective is to take over a portion of the bank's non-performing assets (NPAs) and engage in asset reconstruction or securitization, aiming to recover the debts.

### Issues/Challenges faced by Asset Reconstruction Companies (ARCs):

- It is facing low business potential as there is a decrease in new non-performing corporate assets which has made ARCs focus on smaller, less profitable retail loans.
- The RBI 2022 directed ARCs to invest at least 15% of bank investments in security receipts or 2.5% of the total security receipts issued, whichever is higher.
- The RBI raised the minimum net owned funds requirement for ARCs **from Rs 100 crore to Rs 300 crore** to ensure that ARCs have robust balance sheets that imposed additional constraints on ARCs capital usage.
- The establishment of **the state-owned National Asset Reconstruction Company Ltd (NARCL)** which offers security receipts that are guaranteed by the government represents a significant challenge to ARCs.
- The RBI mandated that ARCs must obtain approval from an independent advisory committee for all settlement proposals which has led to delays in the approval of settlements, especially in retail loans, as advisory committees are cautious to avoid future scrutiny.
- There might be a trust deficit **between the RBI and ARCs as the RBI has** expressed concerns that some transactions may be helping defaulting promoters to regain control of their assets which amounts to circumventing the provisions of Section 29A of the Insolvency and Bankruptcy Code (IBC).

### Way Forward:

- The asset portfolios of the ARCs should be diversified by exploring opportunities beyond traditional corporate and retail loans.
- ARCs should ensure transparency in their compliance by working closely with the RBI and other regulatory bodies.
- ARCs can employ technology such as **AI-driven analytics which could help in faster** evaluation, thus minimising delays while maintaining compliance.
- ARCs must focus on faster recovery mechanisms by focusing on differentiating their services by offering specialized solutions.

## NATURAL FARMING

### GS III – Agriculture

**Context:**The Finance Ministry has shot down a proposal from the Agriculture Ministry to provide a one-time incentive of Rs 20,000 per hectare to farmers who adopt natural farming, saying it was much higher than what was earlier approved.

### Natural Farming:

- It is a chemical-free farming method that uses locally available resources and traditional practices.
- It is based on agroecology and integrates crops, trees, and livestock.
- It is a diversified farming system that integrates crops, trees, and livestock, allowing the optimum use of functional biodiversity.

### Significance of Natural Farming:

- It minimizes the cost of production as it is dependent only on locally available resources.
- It promotes better health as it does not use any synthetic chemicals, and health risks and hazards are eliminated.
- It creates employment as its input enterprises, value addition, marketing in local areas, etc are invested in the village itself.
- It helps in environmental conservation by improving soil biology, agrobiodiversity, and more judicious usage of water with **much smaller carbon and nitrogen** footprints.
- The integration of livestock helps in restoring the ecosystem. For example, eco-friendly bio-inputs, such as Jivamrit and Beejamrit, are prepared from cow dung and urine.

#### Issues/Concerns Related to Natural Farming:

- There are instances of decreasing yields in farms opting for various natural farming techniques after a few years. For instance, Sikkim known to be India's first organic state, has seen some decline in yields following conversion to organic farming. It may lead to farmers reverting to conventional methods.
- It has not yet made a **significant impact in boosting productivity and** farmers' income.
- There is a lack of readily available natural inputs as every farmer does not have the time, patience, or labour to develop their inputs.

A study in Nature Sustainability states that while the nutrient value of the natural inputs is similar to the chemical ones used in low-input farms (farms using lower quantities of fertilizers and pesticides), it is less in high-input farms. These nutrient deficiencies when aggregated at a large scale, might hamper the yield over the years, potentially leading to food security concerns.

#### National Mission on Natural Farming (NMNF):

- Under this proposed mission, a one-time incentive of Rs 20,000 per hectare to farmers who adopt natural farming was made. But it was rejected by the Finance Ministry.
- Under the NMNF, the Centre aims to bring about 7.5 lakh hectares of land under natural farming, offering incentives to farmers who adopt it.
- It is an improvement on the Bhartiya Prakritik Krishi Paddhti (BPKP).

## MUTUAL EVALUATION REPORT ON INDIA

### GS III – Money laundering and its prevention

**Context:** The Financial Action Task Force (FATF)

released its Mutual Evaluation Report on India that highlights India's progress towards combating illicit finance.

#### Key Highlights of the Mutual Evaluation Report on India by the Financial Action Task Force (FATF):

- It was found that India was partially compliant in three areas - **Non-Profit Organisations (NPOs), Politically Exposed Persons (PEPs)**, and Designated Non-Financial Businesses and Professions (DNFBPs).
- The Non-Profit Organisations (NPOs) registered as charitable organizations and enjoying tax exemptions could be vulnerable to terror funding.
- There are ambiguities regarding the source of wealth, source of funds, and beneficial ownership for domestic **Politically Exposed Persons (PEPs)**.
- There exists a gap in the regulation and supervision of Designated **Non-Financial Businesses and Professions (DNFBPs)**, especially regarding money laundering and terror financing.
- The primary source of money laundering in India is illegal activities within India that include fraud, cyber fraud, corruption, and drug trafficking.
- The large amounts of funds can be moved through precious metals and stones (PMS) without leaving an ownership trail due to its size as the sector includes approximately 1,75,000 dealers, but only 9,500 are **registered with the Gems and Jewellery Export Promotion Council (GJEPC)**. The FATF report noted that criminal networks operating cross-border in the PMS sector may be under-investigated by law

enforcement.

- India faces significant terrorism threats, particularly from the Islamic State of Iraq and the Levant (ISIL) and Al-Qaeda-linked groups active in and around Jammu and Kashmir.
- The report also notes regional insurgencies in the northeast and left-wing extremist groups pose terrorism risks.
- It reports there is a sharp rise in bank account holders and the increased use of digital payment systems in India to enhance financial inclusion
- It **also acknowledged the Jan Dhan-Aadhaar-Mobile (JAM)** initiative for promoting digital payments and appreciated the **implementation of Goods and Services Tax (GST)**, e-invoices, and e-bills for increasing supply chain transparency.
- It acknowledged India's effective action against terror financing by the National Investigation Agency (NIA) and the Enforcement Directorate.

#### Implications of FATF's Mutual Evaluation for India:

- The recognition given to India by FATF enhances its ability to cooperate with other nations and improves collaboration with global financial watchdogs in tracking and recovering illicit assets, including those related to fugitive offenders.
- The improved ratings given to India by the FATF improve access to global financial markets, enabling easier borrowing and investments from international institutions.
- The positive evaluation increases India's credibility and boosts foreign investor confidence in financial markets by making India a more attractive destination for foreign direct investments (FDI).

#### Recommendations made by FATF:

- The pending money laundering trials in India need to expedite the conclusion and improve its handling of crimes like human trafficking and drug-related offences.
- There must be a framework to ensure the freezing of funds and assets without delay and streamline communication regarding sanctions in India.

India needs to define domestic PEPs under its anti-money laundering laws and implement risk-based enhanced measures for them.

#### Financial Action Task Force (FATF):

- It is an intergovernmental policy-making and standard-setting body dedicated to combating money laundering and terrorist financing.
- Its objective is to establish international standards, and to develop and promote policies, both at national and international levels, to combat money laundering and the financing of terrorism.
- It is headquartered in Paris, France.

## DIAMOND SECTOR

### GS III – Industry

**Context:** The think tank **Global Trade Research Initiative (GTRI)** noted India's diamond sector is facing a severe crisis as both imports and exports have sharply declined in the past three years, which has triggered defaults, factory closures, and widespread job losses.

#### Diamonds:

- Diamonds are valuable gems, shaped deep inside the Earth's crust over tens of millions of years, maintaining both cultural and economic importance.
- It is the hardest known natural substance. It is also chemically resistant and has the highest thermal conductivity of any natural material.
- The top natural diamond producers are Russia, Botswana, Canada, Australia, South Africa, and Congo (Zaire).
- In India, the South Indian Tract region comprises parts of Anantapur, Kadapa, Guntur, Krishna,

Mahabubnagar, and Kurnool districts of Andhra Pradesh, the Central Indian Tract of Madhya Pradesh – Panna Belt, and the Surat, also known as the ‘Diamond City’ of Gujarat hosts significant diamond reserves and extraction activities.

#### Current Status of Crisis in India's Diamond Industry:

- The diamond imports and exports fell sharply as rough diamond imports fell by 24.5%, from USD 18.5 billion in FY 2021-22 to USD 14 billion in FY 2023-24. The exports of cut and polished diamonds dropped by 34.6%, **from USD 24.4 billion in FY 2022 to USD 13.1 billion in FY 2024.**
- There is a wide gap between net imports of rough diamonds and net exports of cut and polished diamonds, from USD 1.6 billion in FY 2022 to USD 4.4 billion in FY 2024.
- The percentage of unsold diamonds returned to India rose from 35% to 45.6% during the period from FY 2022 to FY 2024.
- The diamond industry provides direct employment to 1.3 million workers but has been hit hard leading to joblessness and suicides.
- India techniques over 90% of the diamonds utilized in jewellery globally. Indian artisans skilfully transform tough stones into fantastic gems that beautify hands, necks, and ears throughout the world.

#### Reasons for the Crisis in India's Diamond Industry:

- There is a sharp drop in demand for polished diamonds in key markets like the US, China, and Europe due to economic uncertainty, inflation, and geopolitical tensions, leading to reduced consumer spending on luxury goods, including diamonds.
- The global diamond supply chain has been disrupted due to the Russia-Ukraine conflict with sanctions on Russia, a major rough diamond producer.
- The fluctuations in global diamond prices **have caused uncertainty, with buyers hesitant to purchase rough diamonds in anticipation of further price drops.**
- There is a shift in consumer preferences toward lab-grown diamonds, which are more affordable, ethical, and sustainable which is also impacting the demand for natural diamonds.
- The increasing rising operational costs such as high labour, energy, and materials cost and reduced profit margins in the global diamond trade, have made it difficult for many polishing units to remain viable.
- The tighter credit conditions like higher interest rates and reduced lending from banks to the diamonds have made it difficult for companies to purchase rough diamonds and are stalling diamond production further.
- The high corporate tax regime in India imposed on foreign suppliers of rough diamonds has led to more rough diamonds being re-exported from UAE, rather than India thus weakening **India's Special Notified Zones (SNZs)** in Mumbai and Surat.

There is a significant portion of cut and polished diamonds exported from India are being returned due to quality issues, overstocking by buyers, etc which is costly and time-consuming due to complex customs procedures, putting further strain on exporters.

### ARTIFICIAL INTELLIGENCE (AI) IN HEALTHCARE

#### GS III – Artificial Intelligence

**Context:** News about the possibility of a “free AI-powered primary-care physician for every Indian, available 24/7” within the next five years is ambitious. It raises critical questions about feasibility, sustainability, and the readiness of India to tackle such enormous undertakings as India cannot jump into AI-driven health care without first addressing the foundational issues within its health system.

#### Artificial Intelligence:

- According to NITI Aayog, “AI refers to the ability of machines to **perform cognitive tasks like thinking, perceiving, learning, problem-solving and decision making.**”
- AI uses various technologies such as computer vision, audio processing, cognitive robotics, speech analytics, language processing, and machine learning techniques to derive AI-based solutions.

#### Healthcare Sector in India:



- As per the NASSCOM report, the market size of the healthcare industry in India was valued at \$372 billion in 2022 and is expected to grow **at a compound annual growth rate (CAGR)** of nearly 20% from 2023 to 2030.
- AI expenditure in India is expected to reach \$11.78 billion by 2025 and add \$1 trillion to India's economy by 2035, as per a World Economic Forum report. The AI in Healthcare Market is projected to grow from \$14.6 Billion in 2023 to \$102.7 Billion by 2028.
- In the Union Budget 2023-24, the healthcare sector has been allocated INR 89,155 crore to undertake all the new-age research and innovation-based healthcare initiatives on a massive scale.

#### Significance of Artificial Intelligence (AI) in Healthcare:

- India has only 64 doctors available per 1,00,000 people compared to the global average of 150. AI can help with the shortage of healthcare workers in India by allowing doctors to consult patients remotely through telemedicine, reaching those in remote areas.
- AI tools can quickly analyze medical tests and images, helping doctors make accurate diagnoses. Virtual health assistants can monitor patients and give advice.
- AI has been used to develop a digital nurse to help people monitor a patient's condition and follow up with treatments, between doctor visits.
- According to Harvard's School of Public Health, using AI to make diagnoses may reduce treatment costs by up to 50% and improve health outcomes by 40%.
- AI helps monitor the medication courses of patients which is very important to ensure the proper dose regime to be followed by the patient.

#### Challenges in using Artificial Intelligence (AI) in Healthcare:

- Due to the limited availability of high-quality, labelled healthcare data needed to train AI models. The patient data is often fragmented across different systems and formats, making integration difficult.
- Inadequate digital infrastructure, particularly in rural areas, affects the deployment of AI solutions. The poor internet connectivity in remote regions hampers the use of AI-driven services.
- Shortage of skilled professionals with expertise in both AI and healthcare. There is a need for continuous education and training programmes for healthcare providers to effectively use AI tools.
- There is an absence of a comprehensive regulatory framework specific to AI in healthcare which puts patient data privacy at risk and biases in training data can lead to unfair diagnoses.
- High initial costs of AI technologies and the need for significant investment in infrastructure and training.
- Resistance from healthcare providers and patients to adopt new AI technologies.
- The vast and diverse population presents varied healthcare needs, making standardised AI solutions challenging. Socioeconomic disparities lead to unequal access to healthcare technologies, particularly in rural and underserved communities.

#### Government Measures to Integrate AI in Healthcare:

The government of India has created a National Digital Health Infrastructure to implement the digital health systems across the country, which includes:

- Healthlocker includes the digital national health database backed with a cloud-based storage system which serves as a single source of health data for the nation.
- Personal Health Records (PHR) allow data to be available for citizens and medical research purposes.
- Digi Doctors is a digital directory of doctors along with their names, specialization, qualifications, and number of years of experience.
- Coverage and claims digital platform.
- National health analytics platform.
- Unique digital health ID for each citizen.

#### Way Forward:

- There is a need for a comprehensive and collaborative approach to improve data quality and availability,

strengthen infrastructure, address skill gaps, develop a regulatory framework, ensure financial sustainability, raise awareness and encourage adoption, ensure interoperability, build trust and reliability, and address cultural and socioeconomic barriers.

There should be collaborative efforts between government, private sector, and academia, along with investments in education, infrastructure, and innovation, which are crucial for successful AI integration.

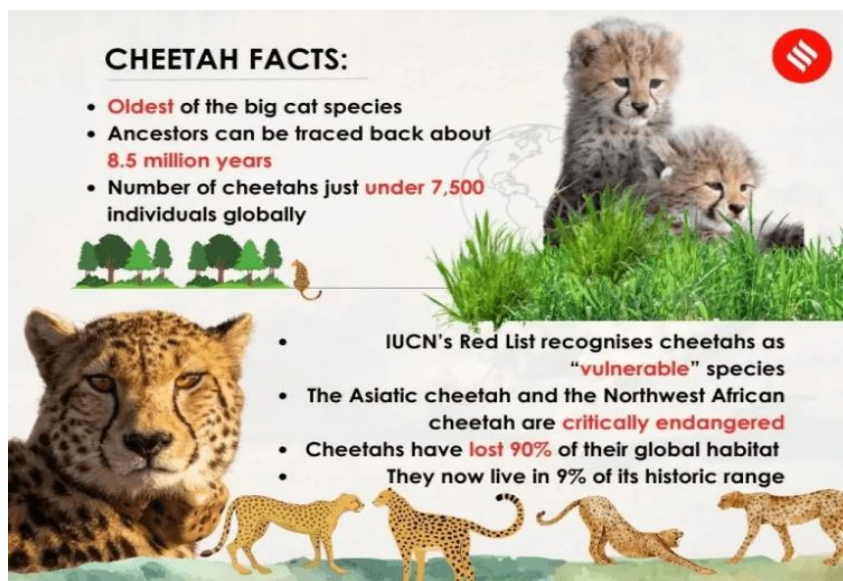
## PROJECT CHEETAH

### GS III – Biodiversity

**Context:** Project Cheetah, which saw the introduction of the African sub-species of the wild cat in India has completed two years.

#### Project Cheetah:

- It is a program to reintroduce cheetahs to India.
- It began in September 2022 and involves moving cheetahs from South Africa and Namibia to Kuno National Park in Madhya Pradesh.
- Its goal is to establish a self-sustaining population of cheetahs by bringing in 5-10 animals each year for the next decade.
- It is implemented by the **National Tiger Conservation Authority (NTCA)** in collaboration with the **Madhya Pradesh Forest Department, Wildlife Institute of India (WII)**, and cheetah experts from Namibia and South Africa.
- The ambitious project has two overarching objectives:
  - To establish a stable, breeding population of cheetahs in central India; and
  - To use cheetahs as an umbrella species to restore open natural ecosystems such as scrubs, savannahs, grasslands, and degraded forests.



#### Significance of Project Cheetah:

- It has helped in restoring the natural balance of the ecosystem by **protecting** open forestland grassland ecosystems that enhance water security, carbon sequestration, and soil moisture conservation.
- **Its success can serve as a model for the reintroduction of other critically endangered species** like the **Great Indian Bustard**.
- It led to an **increase in wildlife tourism** and job creation like **Cheetah**

**Mitras** which benefited communities living around national parks.

- It helped in **reviving their cultural importance** in India, as Cheetahs have historically been symbols of strength and agility in Indian mythology and folklore.

#### Issues/Challenges faced by Project Cheetah:

- **There is a habitat crunch** as Cheetahs are a low-density species with **1-2 Cheetahs existing in 100 sq km**.
- One of the project's most significant obstacles is a lack of prey. According to the project's most recent yearly report, the density of chital, the principal prey for cheetahs (and leopards), has dropped from 23.43 animals per square kilometre in 2021 to 17.5 animals per square kilometre in 2024.
- Due to **less prey availability** Cheetahs have to travel **long distances to hunt** which is not optimal in the current environment for their long-term survival.
- Adapting to the impacts of climate change on the habitat has posed challenges for the cheetah population's long-term survival.

**Interspecies competition may occur as** Tigers from the **Ranthambore Tiger Reserve** in Rajasthan which is 140 km away from Kuno, migrate to the park in search of prey.

**Status Report on Project Cheetah:**

- Eight (40%) of the 20 translocated cheetahs perished for a variety of reasons, including attacks during mating and septicaemia induced by tick infestation under the cheetahs’ radio collars. Five of the 17 cubs (29%) have died. Currently, 24 cheetahs (12 adults and cubs each) remain.
- The next batch of 6-8 African cheetahs will be relocated to the Gandhi Sagar Wildlife Sanctuary in Madhya Pradesh.

The ‘Action Plan for Reintroduction of Cheetah in India’ proposes bringing in 12-14 cheetahs each year from South Africa, Namibia, and other African countries for five years to build a founder stock.

**PERIODIC LABOUR FORCE SURVEY (PLFS) REPORT 2023-24**

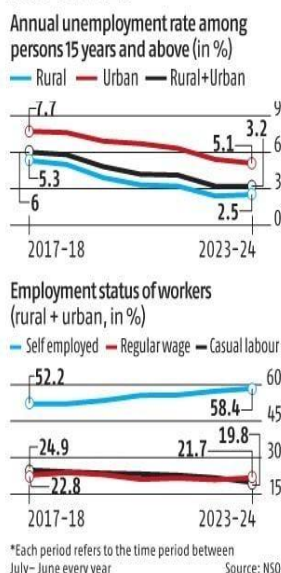
**GS III – Employment**

According to the latest annual Periodic Labour Force Survey (PLFS) Report, released by the National Statistical Office (NSO), India’s unemployment rate stagnated at 3.2 percent in July-June 2023-24, after witnessing a decline for five consecutive years.

**Periodic Labour Force Survey (PLFS) Report:**

- It measures the employment and unemployment situation in India.
- It is conducted by the National Statistical Office (NSO) under the Ministry of Statistics and Programme Implementation (MoSPI).
- Its major objectives are:
  - To measure the dynamics of labour force participation and employment status at short intervals (every three months) for urban areas using the Current Weekly Status (CWS) approach.
  - To measure labour force estimates for both rural and urban areas using the Usual Status and CWS parameters.

**JOB ISSUES**



**Key Highlights of the PLFS Report 2023-24:**

- It reported a stagnant unemployment rate at 3.2% even for 2023-24 same as in 2022-23. It is the first time since the inception of the PLFS in 2017-18 that the unemployment rate has not shown a year-on-year decline.
- It showed a significant increase in the **Labour Force Participation Rate (LFPR)** from 57.9% in 2022-23 to 60.1% in 2023-24 at the national level.
- The **rural Labour Force Participation Rate (LFPR)** rose to 63.7%, while the urban LFPR increased to 52%. It suggests more people are seeking work in rural areas, possibly due to reverse migration or limited urban job opportunities during and after the pandemic.
- It reported an increasing trend in **Worker Population Ratio (WPR)** at 58.2% in the year 2023-2024. The same for males and females were 76.3% and 40.3% respectively.
- It showed a marginal improvement in job quality, with the share of salaried or regular wage workers increasing

by 0.8 percentage points to 21.7%.

- The data showed the unemployment rate in rural areas slightly increased to 2.5 percent in 2023-24 from 2.4 percent in 2022-23. Meanwhile, the unemployment rate in urban areas declined to 5.1 percent from 5.4 percent during the period.
- The unemployment rate for women rose to 3.2% (up from 2.9% in 2022-23), while for men, it slightly decreased to 3.2% from 3.3%.
- The share of people engaged in self-employment, including unpaid household work and small businesses, increased to 58.4% from 57.3% in 2022-23.

- It mentioned challenges in creating decent jobs are pushing more people into self-employment, often in the informal sector or unpaid family roles.

In terms of broad employment status, which gives an idea of the quality of employment, the share of people having regular or wage employment increased to 21.7 percent in 2023-24 from 20.9 percent in 2022-23.

**Note:**

- Labour Force Participation Rate (LFPR) is the percentage of the working-age population (aged 15 years and above) that is either employed or unemployed, but willing and looking for employment.
- Worker Population Ratio (WPR) is defined as the percentage of employed persons in the population.

## SUPERCOMPUTERS

### GS III – Achievements of Indians in Science & Technology

**Context:** Three new supercomputers, installed at premier scientific institutions in Delhi, Pune, and Kolkata, to boost research in the fields of astronomy, medicine, and high-energy physics.

**Supercomputer:**

- It is a computer that performs at or near the currently highest operational rate for computers.
- It encompasses multiple central processing units that break down the required tasks into multiple parts and process them simultaneously, which effectively results in high-speed computation.
- It is primarily designed to be used in enterprises and organizations that require massive computing power.
- The performance of supercomputers is measured in terms of floating-point operations per second (FLOPs).
- Globally, China has the maximum number of supercomputers and maintains the top position in the world, followed by the US, Japan, France, Germany, Netherlands, Ireland, and the United Kingdom.
- PARAM supercomputers are designed and assembled by the Centre for Development of Advanced Computing (C-DAC) in Pune, India.
- PARAM 8000 was India's first supercomputer and PARAM Shivay was the first supercomputer assembled indigenously.
- The AI Supercomputer 'AIRAWAT' and PARAM Siddhi – AI are currently the fastest supercomputers in India. AIRAWAT has been ranked 75th in the world as of June 2023.

**Significance/Applications of Supercomputers:**

- The supercomputer fed with data gathered via satellites, radars, and weather balloons becomes better equipped to advise the public on weather-related issues.
- It helps in mitigating disasters. For example, during cyclone Amphan, supercomputer-enabled forecasts helped in the timely evacuation of nearly half a million people in West Bengal and Odisha.
- The National Supercomputing Mission, which aims to install more than 70 supercomputers across India, is expected to significantly attract foreign R&D investments and collaborations.
- It has been used to detect solar flares, predict turbulence, and approximate aeroelasticity to build better aircraft.
- It plays a significant role in increasing farmers' income by giving accurate information about weather events which helps farmers plan their agricultural activities.
- It can create simulations to predict energy loss and optimise performance in plasma, used in the tokamak research.
- It can be used to collect huge quantities of geophysical seismic data to aid in finding and developing oil reserves.
- It is vital for defence applications as it allows the military to perform virtual testing of nuclear explosions and ballistic weapons.
- It helps to predict fog and other pollution and smog levels in a particular region.

**Issues/Concerns regarding Supercomputers:**

- They are physically large and require lots of space. A supercomputer typically takes more than 1000 square feet of area.
- It requires special software and expertise are needed to detect failures and the computer's overall usage.
- It should be equipped with enough storage space to acquire the full capacity of a supercomputer to accommodate all the produced data.
- It is equipped with a large number of processors all of which can generate a significant amount of heat during their operations which may lead to damage of devices.

It typically consumes large amounts of electricity. For example, a supercomputer needs around 4 megawatts (MW) of electricity.

#### **National Supercomputing Mission (NSM):**

- It was launched in 2015 to connect national academic and research and development institutions with a grid of high-performance computing facilities.
- It is jointly managed by the **Department of Science and Technology (DST) and the Ministry of Electronics and IT (MeitY)**.
- It is implemented by the Centre for Development of Advanced Computing (**C-DAC**) in Pune and the **Indian Institute of Science (IISc)** in Bengaluru.
- It aims at creating a powerful supercomputing capability for the country and offers powerful computational facilities to boost research.
- **The main objectives of the mission are:**
  - Make India a world leader in HPC and enhance the national capability in solving grand challenge problems of national and global relevance
  - Empower scientists & researchers with state-of-the-art computing facilities for their cutting-edge research in their respective domains
  - **Reduce redundancies and avoid duplication of efforts and investments**
  - Create an ecosystem for positioning India as a major power for supercomputing and attain global competitiveness and self-reliance in HPC



## PAPER 4

## CONFLICT OF INTERESTS OF PUBLIC OFFICIALS

## GS IV – Ethical Concerns and Dilemmas in Government and Private Institutions

**Context:** A US-based firm accused the Chairperson of SEBI of violating SEBI's Code of Conduct, leading to a potential conflict of interest. It presents a new potential for conflict of interests between civil servants or individuals in high-ranking positions, involving their private interests and public duties.

**Conflict of Interest:**

- It arises when there is an actual or apparent conflict between public duty and the private interest of a public official. In such a situation, an official's private interests could improperly influence the performance of official duties.

**Ethical Issues Involved in Conflict of Interests:**

- It undermines public trust as any perception or reality of biased decision-making makes it difficult for the public to believe in the fairness and impartiality of government actions.
- It may lead to **corrupt practices, such as bribery, favouritism, and nepotism** which go against the ethical and legal standards.
- It can result in biased and skewed decision-making by public functionaries, effectively compromising neutrality and impartiality.
- It undermines the principles of equality and fairness by leading to decisions that favour a few at the expense of the many.
- It may impact businesses' brand image and reputation negatively due to potential scandals, negative media coverage, etc.

**Ways to Resolve a Conflict-of-Interest Situation:**

- Publicly or formally disclose the conflict of interest to relevant parties, such as supervisors, colleagues, or stakeholders. This step is essential for transparency and allows others to assess the situation objectively.
- Evaluate the nature and extent of the conflict of interest. Consider the potential impact on decision-making, the organization, and the stakeholders involved.
- Determine the best course of action to address the conflict. This may include recusal from decision-making processes, modifying behavior to mitigate the conflict, or seeking guidance from ethics advisors or committees.
- If necessary, remove oneself from decision-making processes where a conflict exists. This step helps ensure that decisions **are made impartially and without bias**.
- Take steps to minimize the impact of the conflict of interest on decision-making. This could involve implementing safeguards, such as oversight mechanisms or transparency measures.
- Continuously monitor the situation to ensure that the conflict of interest is effectively managed. Regular review and assessment can help identify any new conflicts or changes that require attention.

Maintain records of the conflict of interest, disclosure, and actions taken to resolve it. Documentation helps demonstrate compliance with ethical standards and organizational policies.

**Legal Framework for Public Servants to Prevent Conflict of Interest in India:**

- **According to the Central Civil Services (Conduct) Rules of 1964**, civil servants must declare any private interests relating to their public duties and take steps to resolve any conflicts in a way that protects the public interest; Civil Servants should not misuse his/her position as a civil servant and not take decisions to derive financial or material benefits for himself, his family, or his friends.
- The Central Vigilance Commission has created guidelines for various procurements, bidding, and other processes outlining Conflict of Interest.
- According to **the SEBI's Code on Conflict of Interests for Board Members**, "A member shall take all steps necessary to ensure that any conflict of interests to which he may be subject does not affect any decision of the Board."





Practice Questions



Q1.) Consider the following statements:

1. La Niña is a climate pattern characterized by the unusual warming of surface waters in the eastern tropical Pacific Ocean.
2. La Niña typically brings wetter-than-normal conditions to Southeast Asia, Australia, and parts of India.

Which of the statements given above is/are correct?

- A. 1 only
- B. 2 only**
- C. Both 1 and 2
- D. Neither 1 nor 2

Q2.) With reference to the Anti-dumping duty, consider the following statements:

1. Anti-dumping duty is a protectionist tariff that a domestic government imposes on foreign imports believed to be priced below fair market value.
2. The primary purpose of anti-dumping duties is to protect domestic industries from unfair competition.
3. In India the Directorate General of Trade Remedies makes the final decision to impose the anti-dumping duty.

Which of the statements given above is/are not correct?

- A. 1 and 2 only
- B. 3 only**
- C. 2 and 3 only
- D. 1,2 and 3

Q3.) Pacific Policing Initiative (PPI), recently seen in news is funded by

- A. USA
- B. UN
- C. IMF
- D. Australia**

Q4.) With reference to the Project NAMAN, consider the following statements:

1. Project NAMAN is an initiative under the Ministry of Home Affairs.

2. It aimed at providing dedicated support and services to Defence Pensioners, Veterans, and their families.

Which of the statements given above is/are correct?

- A. 1 only
- B. 2 only**
- C. Both 1 and 2
- D. Neither 1 nor 2**

Q5.) With reference to the Digital Agriculture Mission, consider the following statements:

1. The Digital Agriculture Mission is an initiative by the Ministry of Agriculture and Farmers' Welfare.
2. The mission aims to create a robust Digital Public Infrastructure (DPI) for the agriculture sector.
3. This initiative is part of the broader vision of Viksit Bharat@2047 that aiming to transform the agriculture sector through digital solutions.

Which of the statements given above is/are correct?

- A. 1 and 2 only
- B. 3 only
- C. 2 and 3 only
- D. 1,2 and 3**

Q6.) With reference to the Mission Poshan 2.0, consider the following statements:

1. It aimed at addressing malnutrition and promoting nutritional well-being across the country.
2. It was launched by the Ministry of Women and Child Development.
3. It addresses issues of stunting, undernutrition, anaemia, and low birth weight among children, adolescent girls, pregnant women, and lactating mothers.

Which of the statements given above is/are correct?

- A. 1 and 2 only
- B. 3 only
- C. 2 and 3 only
- D. 1,2 and 3**

Q7.)With reference to the Agri Fund for Start-ups & Rural Enterprises (AgriSURE)Fund, consider the following statements:

1. The AgriSURE Fund is a collaborative initiative between the Ministry of Agriculture and Farmers Welfare and the SEBI.
2. AgriSURE Fund is registered as a Category-II Alternative Investment Fund (AIF) with SEBI.

Which of the statements given above is/are correct?

- A. 1 only
- B. 2 only**
- C. Both 1 and 2
- D. Neither 1 nor 2

Q8.)Consider the following statements:

1. Drug repurposing is the technique of using an existing drug or drug candidate for a new treatment or medical condition for which it was not indicated before.
2. The goal of drug repurposing is to quickly identify compounds with an established safety profile and known therapeutic advantages that may prove efficacious for other indications.

Which of the statements given above is/are correct?

- A. 1 only
- B. 2 only
- C. Both 1 and 2**
- D. Neither 1 nor 2

Q9.)Exercise Varuna, recently seen in news is an annual bilateral naval exercise between the India and the

- A. Australia
- B. France**
- C. Israel
- D. Malaysia

Q10.)With reference to the Centralised Pension Payment System (CPPS), consider the following statements:

1. CPPS aims to modernize pension disbursements under the Employees' Pension Scheme (EPS).
2. Under the CPPS pensioners of the country can receive their pension from any bank, any branch, anywhere in the country.

Which of the statements given above is/are correct?

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- A. 1 only
- B. 2 only
- C. Both 1 and 2**
- D. Neither 1 nor 2

Q11.)Which of the following statements about the BepiColombo Mission is/are correct?

1. BepiColombo is designed to study Mercury's composition, geology, and magnetic field to understand the planet's origins and evolution.
2. The BepiColombo mission reached orbit around Mercury in 2024 after conducting six flybys of Earth, Venus, and Mercury.

Which among the statement given above is/are correct?

- a) **1 only**
- b) **2 only**
- c) Both 1 and 2
- d) Neither 1 nor 2

Q12.)With reference to the Public Accounts Committee (PAC), consider the following statements:

1. The PAC examines the reports of the Comptroller and Auditor General (CAG) of India on government expenditure to ensure funds are used as intended.
2. The Chairman of the Committee is appointed by the Speaker of Lok Sabha.
3. No Minister can be a member of the Public Accounts Committee.

Which of the statements given above is/are correct?

- A. 1 and 2 only
- B. 3 only
- C. 2 and 3 only
- D. 1,2 and 3**

Q13.)Consider the following countries:

1. Malaysia
2. Indonesia
3. Laos
4. Thailand

How many of the above-mentioned countries share land border with Singapore?

- A. Only one**
- B. Only two
- C. Only three

D. All four

Q14.)With reference to the National Food Security Act (NFSA), 2013, consider the following statements:

1. The NFSA aims to provide food and nutritional security by ensuring access to adequate quantities of quality food at affordable prices.
2. It covers various stages of life, including children, pregnant women, and lactating mothers.
3. The NFSA is implemented through the Targeted Public Distribution System (TPDS), which aims to distribute food grains to eligible households.

How many of the above given statements are not correct?

- A. Only one
- B. Only two
- C. All three
- D. None**

Q15.)Which of the following statements regarding "Teal Carbon" is/are correct?

1. Teal carbon refers to carbon stored in non-tidal freshwater wetlands.
2. Unlike black and brown carbon, teal carbon contributes to global warming.
3. Peatlands, freshwater swamps, and natural freshwater marshes account for a significant portion of global teal carbon storage.

Select the correct answer using the code given below:

- (a) 1 and 2 only
- (b) 1 and 3 only**
- (c) 2 and 3 only
- (d) 1, 2 and 3

Q16.)Consider the following statements regarding the Mpox (Monkeypox) virus:

1. Mpox is a viral zoonotic disease caused by a virus belonging to the Orthopoxvirus genus.
2. The first human case of Mpox was detected in the Democratic Republic of the Congo in 1970.
3. Human-to-human transmission of Mpox occurs primarily through respiratory droplets and contaminated objects.
4. There is a specific antiviral treatment for Mpox, and the WHO has recommended tecovirimat as the primary treatment.

Which of the above statements are correct?

**(a) 1, 2, and 3 only**

(b) 1 and 2 only

(c) 3 and 4 only

(d) 1, 2, 3, and 4

Q17.)Which of the following statements is/are correct regarding the Anusandhan National Research Foundation (ANRF)?

1. The ANRF was established under the ANRF 2023 Act to promote and research and development (R&D) across India.
2. The Science and Engineering Research Board (SERB), established in 2008, has been subsumed into ANRF.
3. ANRF solely focuses on funding research through government sources, aiming to create a ₹50,000 crore corpus.
4. ANRF aligns its strategic direction with the recommendations of the National Education Policy (NEP).

Select the correct answer using the code given below:

(a) 1 and 2 only

**(b) 1, 2, and 4 only**

(c) 2, 3, and 4 only

(d) 1, 3, and 4 only

Q18.)Which of the following statements is/are correct regarding Natural Farming and the Andhra Pradesh Community Managed Natural Farming (APCNF) program?

1. Natural farming promotes the use of chemical-free inputs derived from livestock and plant resources.
2. Practices like mixed cropping, use of local seeds, and integration of livestock are essential components of natural farming.
3. The APCNF program is recognized as the world's largest agroecology program, benefitting over a million smallholder farmers in Andhra Pradesh.
4. The APCNF program won the 2023 Gulbenkian Prize for empowering farmers to switch to chemical-intensive farming methods.

Select the correct answer using the code given below:

**(a) 1, 2, and 3 only**

(b) 1, 3, and 4 only

(c) 2, 3, and 4 only

(d) 1, 2, and 4 only

Q19.) Consider the following statements regarding the National Board for Wildlife (NBWL):

1. The NBWL is a statutory organization constituted under the Wildlife Protection Act, 1972, and is chaired by the Prime Minister of India.
2. Projects involving construction or development activities in or around protected areas require the clearance of the NBWL.
3. The NBWL can directly alter the boundaries of national parks and wildlife sanctuaries without further approval from any other authority.

Which of the statements given above is/are correct?

**(a) 1 and 2 only**

(b) 2 and 3 only

(c) 1 and 3 only

(d) 1, 2, and 3

Q20.) Consider the following statements regarding the PradhanMantriAwasYojana (PMAY):

1. PMAY-Urban is implemented as a Centrally Sponsored Scheme (CSS), except for the Credit Linked Subsidy Scheme (CLSS) vertical, which is a Central Sector Scheme.
2. Under PMAY-Gramin, the cost of unit assistance is shared between the Central and State Governments in a 60:40 ratio in all areas of India.
3. The selection of beneficiaries under PMAY-Gramin is based on housing deprivation parameters in the Socio Economic and Caste Census (SECC), 2011.

Which of the statements given above is/are correct?

**(a) 1 and 3 only**

(b) 1 and 2 only

(c) 2 and 3 only

(d) 1, 2, and 3

Q21.) Consider the following statements regarding Digital Public Infrastructure (DPI):

1. Digital Public Infrastructure (DPI) in India includes platforms like Aadhaar for digital identity and

Unified Payments Interface (UPI) for digital payments.

2. DPI fosters innovation by providing closed, proprietary systems that restrict access to startups and developers to ensure data privacy and security.
- Which of the statements given above is/are correct?

**(a) 1 only**

(b) 2 only

(c) Both 1 and 2

(d) Neither 1 nor 2

Q22.) Consider the following statements regarding the National Commission for Protection of Child Rights (NCPCR):

1. NCPCR can conduct suomotu inquiries into violations of child rights.
2. The Chairperson of NCPCR is appointed by the President of India and must be a retired supreme court judge.

Which of the above statements is/are correct?

**a) 1 only**

b) 2 only

c) Both 1 and 2

d) Neither 1 nor 2

Q23.) Consider the following statements regarding Ayushman Bharat PradhanMantri Jan ArogyaYojana (AB PM-JAY):

1. AB PM-JAY is the largest publicly funded health insurance scheme globally.
2. The scheme provides health insurance coverage of up to ₹5 lakh per family annually for both primary and tertiary healthcare services.
3. Beneficiaries can avail cashless treatment in empaneled public and private hospitals across India, regardless of the state they belong to.

Which of the statements given above is/are correct?

**(a) 1 and 3 only**

(b) 1 and 2 only

(c) 2 and 3 only

(d) 1, 2, and 3

Q24.) Consider the following statements regarding the geographical location of Mexico:

1. Mexico is bordered by both the Atlantic Ocean and the Pacific Ocean.
2. The Tropic of Cancer passes through Mexico.
3. Mexico shares its northern border with Guatemala and Belize.

Which of the statements given above is/are correct?

- A. 1 and 2 only  
 B. 2 and 3 only  
 C. 1 and 3 only  
 D. 1, 2, and 3

Q25.) Consider the following statements regarding the geographical relationship between India and Bangladesh:

1. The Brahmaputra River originates in Bangladesh and flows into India.
2. The Sundarbans mangrove forest is located in the delta region of the Ganges and Brahmaputra Rivers and is shared by both India and Bangladesh.
3. Bangladesh is bordered by the Bay of Bengal to the west and south.

Which of the statements given above is/are correct?

- A. 1 and 2 only  
**B. 2 and 3 only**  
 C. 1 and 3 only  
 D. 1, 2, and 3

Q26.) Consider the following statements regarding the Gulf of Mexico:

1. The Gulf of Mexico is connected to the Caribbean Sea via the Straits of Florida and to the Atlantic Ocean through the Yucatán Channel.
2. The Gulf of Mexico is one of the most significant regions for offshore petroleum production, contributing heavily to the U.S. oil supply.

Which of the statements given above is/are correct?

- a) 1 only  
**b) 2 only**  
 c) Both 1 and 2  
 d) Neither 1 nor 2

Q27.) Consider the following statements regarding the Pink Bollworm (PBW):

1. The Pink Bollworm affects cotton crops by burrowing its larvae into cotton bolls, leading to lint damage and reducing the commercial value of the cotton.
2. The pest was first detected in India during the 2017-18 season in the states of Maharashtra and Gujarat.

Which of the statements given above is/are correct?

- a) 1 only**  
 b) 2 only  
 c) Both 1 and 2  
 d) Neither 1 nor 2

Q28.) Consider the following statements regarding the International Day of Democracy:

1. The International Day of Democracy was established by the United Nations General Assembly in 2007 based on the Universal Declaration on Democracy adopted by the United Nations.
2. The International Day of Democracy is celebrated annually on September 15th.

Which of the above statements is/are correct?

- (a) 1 only  
**(b) 2 only**  
 (c) Both 1 and 2  
 (d) Neither 1 nor 2

Q29.) Consider the following statements regarding Palamau Tiger Reserve:

1. Palamau Tiger Reserve was one of the first nine tiger reserves established in India under Project Tiger in 1973.
2. The reserve is situated in the rain-shadow region of the Chota Nagpur Plateau, making it drought-prone.

Which of the above statements is/are correct?

- (a) 1 only  
 (b) 2 only  
**(c) Both 1 and 2**  
 (d) Neither 1 nor 2

Q30.) Which of the following statements regarding the Wholesale Price Index (WPI) in India is/are correct?

1. The Wholesale Price Index (WPI) measures the changes in the prices of goods at the retail level.
2. The WPI in India is published by the Office of the Economic Adviser, Ministry of Commerce and Industry.
3. Manufactured products have the highest weightage in the WPI basket, followed by primary articles and fuel & power.

Select the correct answer using the codes given below:

- a) 1 only  
**b) 2 and 3 only**  
 c) 1 and 2 only  
 d) 1, 2, and 3

Q31.) Which of the following statements about the geography of Lebanon, Israel, and the Levant region is/are correct?

1. The Levant region includes countries such as Lebanon, Israel, Jordan, and Syria.
2. Lebanon's coastline runs along the Mediterranean Sea.

Select the correct answer using the codes given below:

- a) 1 only  
 b) 2 only  
**c) Both 1 and 2**  
 d) Neither 1 nor 2

Q32.) Consider the following statements regarding jute production in India:

1. Jute requires warm, humid climates and thrives best in alluvial soil, which is rich in nutrients and well-drained.
2. West Bengal is the largest producer of jute in India, contributing more than 80% of the country's jute production.

Which of the statements given above is/are correct?

- (a) 1 only  
 (b) 2 only  
**(c) Both 1 and 2**

- (d) Neither 1 nor 2

Q33.) Consider the following statements regarding Carbon Capture and Utilization (CCU) technologies:

1. Pre-combustion capture involves capturing CO<sub>2</sub> after fossil fuels are burned using solvents.
2. Captured CO<sub>2</sub> can be used in Enhanced Oil Recovery (EOR) and in the production of chemicals like methanol and urea.

Which of the statements given above is/are correct?

- (a) 1 only  
**(b) 2 only**  
 (c) Both 1 and 2  
 (d) Neither 1 nor 2

Q34.) 2024 PT5, recently seen in news is

- a) a Generative AI  
**b) a Small asteroid**  
 c) a virus  
 d) None of the above

Q35.) Consider the following statements regarding the PM-AASHA scheme:

1. The Price Support Scheme (PSS) under PM-AASHA involves the procurement of pulses, oilseeds, and horticultural crops at market prices by central agencies.
2. The Price Deficiency Payment Scheme (PDPS) compensates farmers for the difference between the MSP and the actual selling price without involving physical procurement.
3. The Price Stabilization Fund (PSF) helps control price volatility by maintaining buffer stocks.

Which of the statements given above is/are correct?

- a) 1 and 3 only  
 b) 2 only  
 c) 1 and 2 only  
**d) 2 and 3 only**

Q36.) Consider the following statements regarding the Indus Water Treaty (IWT):

1. The Indus Water Treaty was signed in 1960 by India's Prime Minister Jawaharlal Nehru and



Pakistan's President Ayub Khan after negotiations mediated by the United Nations.

2. Under the IWT, India has unrestricted use of the waters of the three Eastern Rivers — Beas, Ravi, and Sutlej.
3. The treaty allocates 70% of the Indus River System's waters to India and 30% to Pakistan.

Which of the statements given above is/are correct?

- a) 1 and 3 only  
**b) 2 only**  
 c) 1 and 2 only  
 d) 1, 2, and 3

Q37.) Consider the following statements regarding the Square Kilometre Array (SKA):

1. The SKA will be split between two primary sites: the Karoo region in South Africa and the Atacama Desert in Chile.
2. SKA-Low, located in Australia, is designed to detect low-frequency radio waves from the early universe.
3. The combined collecting area of the SKA will be approximately one square kilometre, making it 50 times more sensitive than any current radio telescope.

Which of the statements given above is/are correct?

- (a) 1 and 2 only  
**(b) 2 and 3 only**  
 (c) 1 and 3 only  
 (d) 1, 2, and 3

Q38.) Consider the following statements regarding the PM MITRA scheme:

1. The scheme is designed to promote the textile industry by developing large-scale, modern industrial infrastructure for the entire value chain at one location.
2. Competitive Incentive Support (CIS) under the scheme provides up to 10% of the total sales turnover to manufacturing units established in PM MITRA parks.

Which of the statements given above is/are correct?

- (a) 1 only**  
 (b) 2 only  
 (c) Both 1 and 2  
 (d) Neither 1 nor 2

Q39.) Consider the following statements regarding the Red Sea:

1. The Red Sea is connected to the Mediterranean Sea through the Bab el-Mandeb Strait.
2. The Red Sea crisis of 2023 is linked to the Israel– Hamas war and the broader Iran–Israel proxy conflict.

Which of the statements given above is/are correct?

- (a) 1 only  
**(b) 2 only**  
 (c) Both 1 and 2  
 (d) Neither 1 nor 2

Q40.) With reference to the National Investigation Agency (NIA), consider the following statements:

1. The NIA has the authority to investigate and prosecute offenses across states without the need for special permission from state governments.
2. The NIA Amendment Act, 2019 empowered the agency to investigate offenses committed outside India.
3. The NIA can investigate cases related to human trafficking, counterfeit currency, and cyber-terrorism under the NIA Act, 2008, as originally enacted.

Which of the statements given above is/are correct?

- (a) 1 and 2 only**  
 (b) 2 and 3 only  
 (c) 1 and 3 only  
 (d) 1, 2, and 3

Q41.) With reference to Venus, consider the following statements:

Venus rotates in the same direction as most planets in the solar system, including Earth.

The surface temperature on Venus is higher than that of Mercury due to a runaway greenhouse effect.

Which of the statements given above is/are correct?

- (a) 1 only  
**(b) 2 only**

(c) Both 1 and 2

(d) Neither 1 nor 2

Q42.) With reference to quantum technology, consider the following statements:

1. Quantum entanglement enables secure communication by linking qubits of the sender and receiver, ensuring that any change in one qubit is reflected in the other, irrespective of the distance.
2. In classical computing, a bit can exist in a superposition of '0' and '1', allowing for faster computation.

Which of the statements given above is/are correct?

**(a) 1 only**

(b) 2 only

(c) Both 1 and 2

(d) Neither 1 nor 2

Q43.) Dengue is primarily transmitted to humans by the bite of infected *Aedes aegypti* mosquitoes.

1. Dengue is highly contagious and can be spread from person to person through close contact.
2. Urbanization, climate change, and global movement of people are key factors contributing to the spread of dengue.

Which of the statements given above is/are correct?

- A. 1 and 3 only**  
**B. 1 and 2 only**  
**C. 2 and 3 only**  
**D. 1, 2, and 3**

Q44.) With reference to the Quadrilateral Security Dialogue (QUAD), consider the following statements:

3. QUAD includes India, the United States, Japan, and Australia.
4. QUAD has a permanent secretariat headquartered in New Delhi.
5. The primary focus of QUAD is military cooperation in the middle east region.

Which of the statements given above is/are correct?

- A. 1 only**  
**B. 1 and 3 only**  
**C. 2 and 3 only**  
**D. 1, 2, and 3**

Q45.) The Taiwan Strait, often in the news, holds significant geopolitical importance. Which of the following statements about the Taiwan Strait is/are correct?

1. The Taiwan Strait is a body of water that separates Taiwan from the Philippines.
2. The Strait is a key global shipping route and is crucial for international trade.
3. It is a strategic flashpoint for tensions between China and Taiwan due to territorial claims.

Select the correct answer using the code given below:

a) 1 and 2 only

**b) 2 and 3 only**

c) 1 and 3 only

d) 1, 2, and 3

Q46.) Consider the following statements regarding the G4 nations:

1. The G4 nations consist of Brazil, Germany, India, and Japan, and they support each other's bid for permanent seats on the United Nations Security Council (UNSC).
2. The Uniting for Consensus movement, which includes countries like Italy, Pakistan, and South Korea, actively supports the G4 nations' proposals for UNSC reforms.

Which of the above statements is/are correct?

**a) 1 only**

b) 2 only

c) Both 1 and 2

d) Neither 1 nor 2

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