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CREATING CIVIL SERVANTS FOR THE NATION

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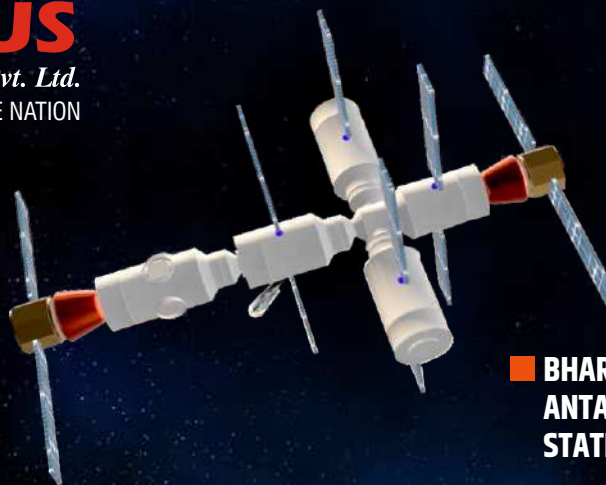
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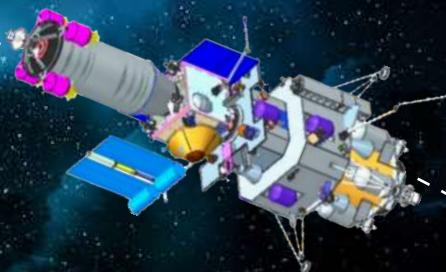
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# NEW SPACE
## INITIATIVES

**Other topics**
- Digital Agriculture Mission
- Great Nicobar Island Infrastrucutre Project
- Disaster Management (Amendment) Bill
- One Nation One Election
- QUAD Leaders' Summit

A **MONTHLY PERIODICAL** FOR ASPIRANTS OF UPSC CSE

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Sources

THE HINDU  *The Indian* EXPRESS  live**mint**  ET

pib  PRS LEGISLATIVE RESEARCH  PRS  NITI Aayog  BusinessLine  Government Reports

# 1. POLITY & GOVERNANCE

## 1.1    CHILD SEX ABUSE LAW IN INDIA

### Context
- The Supreme Court clarifies how the Protection of Children from Sexual Offences (POCSO) Act should be interpreted and enforced.

### Highlights of the Judgment
- The Supreme Court ruled that **storing child pornographic material shows an intention to transfer it, and this is a serious crime under the POCSO Act.** The court overturned an earlier decision of the Madras High Court, which stated that storage alone, without intent to share, is not an offence.
- The court highlighted that **if someone does not delete or report child pornography they possess, it can serve as evidence to charge them under Section 15 of the POCSO Act**, which punishes storage, possession, or transmission of such material, with penalties ranging from penalties to imprisonment of three to five years.
- The **court recommended changing the term "child pornography" to "child sexual exploitative and abusive material"** to better reflect the severity of the crime and align with international standards.

### About the POCSO Act
- Before the POCSO Act was established in 2012, child abuse in India was primarily addressed through various sections of the Indian Penal Code (IPC). However, these laws had many limitations. For example, IPC Section 375 did not protect male victims.

> **Doctrine of Constructive Possession**
> - It is a legal concept that means **that a person can be held responsible for an item, even if they do not have it physically in their hands.**
> - This doctrine applies when someone has the ability and intention to control an object, even if they are not physically holding it. For example, if a person knows about illegal items stored in a place they can access, they can be considered to have constructive possession of those items.
> - However, **ignorance or lack of awareness about the item does not count as constructive possession**. If someone is unaware of an object's existence or holds items without knowing about it, they cannot be held responsible under this doctrine.

### Highlights of the POCSO Act
- It **defines different forms of sexual offences against children**, such as sexual assault and harassment.
- It **protects all children, regardless of gender**, acknowledging that both boys and girls can be victims.
- It **requires adults to report incidents of child sexual abuse**, failing to do so can lead to legal consequences.
- It **established special courts to expedite trials and includes child-friendly procedures** for reporting and collecting evidence.

> In 2019, the POCSO Act was amended to impose stricter penalties. For example, it set a minimum punishment of **10 years** for penetrative assault, increasing to **20 years** if the victim is under **16** years old.

## Challenges

- The Act defines a child as anyone under 18 years old, which may **not consider cases involving individuals with mental disabilities.**
- The Act requires reporting of sexual abuse for minors seeking abortions, while the Medical Termination of Pregnancy Act (1971) protects the identity of minors, leading to **confusion for medical professionals.**
- **The law assumes all sexual acts with minors are crimes, including consensual relationships among adolescents.** This has led to unfair prosecutions, often fueled by parental disapproval based on caste or religion.
- Many victims and their families are afraid to report abuse due to **stigma and the risk of social boycotts, which results in underreporting of cases.**
- Many people are **not fully aware of their legal responsibilities under the POCSO Act**, which hinders effective protection for children.
- The POCSO Act aims to speed up trials, but delays in the judicial system often prolong the suffering of victims, discouraging them from seeking justice.

## Way Forward

- The **government and NGOs should provide counselling, legal help, and rehabilitation for child victims** to ensure they receive the necessary support.
- **Training for law enforcement, judicial officials**, and social workers is vital to create a supportive environment for victims.
- **Legal provisions must clearly define the responsibilities of different stakeholders**, such as law enforcement and child protection agencies.
- **Developing comprehensive support systems for victims,** including timely compensation, psychological counselling, and educational support, is crucial for their reintegration into society.
- **Public education on the POCSO Act** and the importance of reporting child sexual abuse can create a supportive environment for victims.
- **Continuous evaluation of the POCSO Act's implementation** will help identify gaps and areas needing improvement.
- Government initiatives should work alongside NGOs to ensure a well-rounded approach to child protection. These organisations can play a vital role in raising awareness and providing support to victims.

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**National Crime Records Bureau (NCRB) Report 2021**

- **About 28.9% of children in the country have faced some form of sexual crime**. During the COVID-19 lockdown, CHILDLINE, a helpline for children, received 92,105 calls reporting abuse.
- **Most child sexual abuse occurs within the family or by someone the child knows,** approx 90% of the cases involve trusted individuals, making it hard for children to speak up.
- **Every hour nearly 17 crimes against children occurred in India.** Overall, there were 149,404 cases reported in 2021; about 409 crimes against children each day.
- Around 36.1% of all crimes against children were classified as sexual offences under the Protection of Children from Sexual Offences (POCSO) Act. Most victims of these crimes are adolescent girls aged between 12 and 16 years, making up over 99% of reported cases under this act.
- The Report revealed that five states; **Madhya Pradesh, Maharashtra, Uttar Pradesh, West Bengal, and Odisha, contributed to nearly half of all crimes against children in India.**

## 1.2    KOVIND COMMITTEE ON ONE NATION, ONE ELECTION

### Context

- The Union Cabinet has approved the proposal of simultaneous elections, commonly referred to as "One Nation, One Election" to hold elections for both the Lok Sabha and State Assemblies at the same time.

### Background

- Historically, **elections in India were held simultaneously from 1951 to 1967**. After that, separate election cycles were adopted.
- In 1999, the **Law Commission suggested** that elections for the Lok Sabha and all State Assemblies should happen every five years.
- **A Parliamentary Committee in 2015 recommended** methods for implementing simultaneous elections.
- In September 2023, a high-level committee led by former President Ram Nath Kovind was formed to explore this proposal further.

### Key Recommendations of the Kovind Committee

- The committee emphasized that **elections should be held simultaneously across the country**.
- It suggested that conducting simultaneous elections is **expected to promote stable governance by reducing disruptions caused by frequent electoral events.** This could lead to better policy implementation and increased voter engagement.
- A research paper mentioned by the committee suggested that **simultaneous elections could boost economic growth, reduce inflation, and improve government spending.**
- To implement simultaneous elections, **it suggested Phased Elections**:

    o **Phase 1**: Elections for the Lok Sabha and State Assemblies.
    o **Phase 2**: Elections for local bodies, which would take place within 100 days after the first phase.
- To align all elections, the committee proposed a **one-time dissolution of all state assemblies during the next Lok Sabha election, regardless of their remaining term**. This will ensure that all elections will coincide every five years.
- The committee suggested defining the term "full term" for the Lok Sabha and State Assemblies as five years. If the house is dissolved before the end of this term, the remaining period will be referred to as the "unexpired term", and a **new election will be called for the "unexpired term."**

**The committee recommended 15 Constitution amendments, which would be implemented through two bills:**

- **Bill 1**: Focused on managing simultaneous elections and handling early dissolutions.
- **Bill 2**: Related to municipal and panchayat elections and the establishment of a Single Electoral Roll.

**To implement simultaneous elections, the committee proposed several new provisions:**

- **Article 82A**: This would outline the transition process for the end of legislative terms in line with Lok Sabha elections.
- **Article 327 Amendments**: Expanding Parliament's authority to conduct simultaneous elections.
- **Article 324A**: Granting Parliament the power to coordinate local body elections with general elections.

**Currently, two bodies oversee elections in India:**

1. **Election Commission of India (ECI)**: Manages elections for the Lok Sabha, State Assemblies, and other national positions.
2. **State Election Commissions (SECs)**: Responsible for local elections, including municipalities and panchayats.

- The committee proposed a single electoral roll to streamline the process and minimize redundancy. The ECI would be authorized to prepare a unified electoral roll in collaboration with the SECs.

## Potential Advantages

- Holding all elections at the same time can **significantly reduce costs**. When elections occur simultaneously, the **government can better utilize resources like security and logistics**. For example, the same police force can manage multiple voting sites, which lowers expenses.
- Frequent elections can lead to instability as political parties change policies rapidly to win votes. With simultaneous elections, all elected officials operate on the same timeline, **promoting stable governance**. This can help **maintain continuity in policies**, which is essential for long-term development.
- Voters can cast their votes for state, and national elections on the same day. This makes it **easier for people to participate in the electoral proces**s, as they won't have to take multiple days off work or deal with the hassle of voting several times.
- If elections happen less frequently, **elected representatives can dedicate more time to their responsibilities**. They won't be constantly campaigning, which allows them to concentrate on implementing policies and serving the public.

## Challenges and Considerations

- One major challenge is creating a single voter list for both state and national elections. **Merging the voter rolls from different states can be complicated**. It requires careful administration to ensure that the list is accurate and up-to-date.
- To implement simultaneous elections, **changes need to be made to the Representation of the People Act, 1951, and some constitutional provisions**. These

changes require discussions with state governments, many of which might oppose anything that undermines their autonomy.

- **Organizing elections in various regions, especially in remote areas**, is a significant logistical challenge. Setting up polling booths and ensuring they are accessible to everyone can be tough, given the diverse geography of India.
- When national and state elections are held together, there's a risk that **local issues may be overlooked.** The focus might shift to broader national problems, which could ignore the specific needs of local communities.

## Way Forward

- The first step is to **amend the Representation of the People Act, 1951, and relevant parts of the Constitution**. This will help align the electoral cycles of the Lok Sabha and State Legislative Assemblies.
- The Election Commission of India (ECI) must **create a unified electoral roll**, ensure that polling facilities are ready, and train staff to deal with the complexities of simultaneous elections.
- **Both state and central government bodies need to be prepared for the increased workload**. This means having the right resources and support in place to manage the elections effectively.
- To gain public support, awareness campaigns are essential. These should explain how simultaneous elections could affect local and national governance, addressing any concerns people might have.

## Conclusion

- For simultaneous elections to succeed, constitutional amendments and careful planning by the Election Commission of India (ECI) are essential. The process requires public awareness and acceptance to address concerns related to governance. If implemented effectively, simultaneous elections could enhance the efficiency of the electoral system and lead to more stable governance in India.

## 1.3 RIGHTS OF THE ACCUSED IN PMLA CASES

### Context

- The Supreme Court has strengthened the protection of accused individuals under the Prevention of Money Laundering Act (PMLA).

### Highlights of the Supreme Court Judgement

- The Supreme Court stressed that **under Article 22 of the Constitution, an accused person has a fundamental right to know the reasons for their custody.** This right guaranteed transparency and legality in the arrest procedure.
  - Earlier, the Enforcement Directorate (ED) only had to inform the accused orally. The Court established that the ED must now submit documented grounds for the arrest.

- The Court maintained the PMLA's strict bail conditions while also recognising the right to bail **under Section 436A of the Code of Criminal Procedure, according to this clause, a person detained for half of the maximum time of prison specified for the offence must be released on bail.**
  - This verdict balances the need for strict anti-money laundering procedures and the accused's rights to fair treatment and timely release.
- The Supreme Court highlighted that the **reasons for arrest under the PMLA must be credible and suitable.** This means that authorities must have strong evidence and valid justifications for detaining an individual.
- The Court concluded that confessions obtained by force or methods that violate the

right to self-incrimination cannot be used as

evidence.

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**Prevention of Money Laundering Act (PMLA) 2002**
- The PMLA was introduced to prevent and control money laundering and to establish mechanisms for confiscating property resulting from such illegal actions.
- Individuals found guilty face **strict imprisonment for three to seven years.**
- **It grants powers to designated officials to provisionally attach property** believed to be proceeds of crime for 180 days.
- It creates a specialised authority established by the central government to adjudicate matters related to the PMLA.
- The **Enforcement Directorate (ED) enforces the Prevention of Money Laundering Act (PMLA), the Foreign Exchange Management Act of 1999 (FEMA), and the Fugitive Economic Offenders Act 2018.**
  o ED was established in 1956 and **operates within the Department of Revenue and the Ministry of Finance**.

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## Concerns related to the PMLA
- Critics claim that the Enforcement Directorate (ED) utilised the PMLA to target political opponents and dissenters.
- The PMLA involves strict bail conditions, making it **difficult for the accused to get bail.**
- The act's **broad definition of money laundering encompasses a wide range of acts,** which can result in persons being prosecuted for minor violations.
- Under the PMLA, the **accused bears the burden of proof** that contradicts the standard concept of "innocent until proven guilty."
- Considering multiple investigations and arrests, the **conviction rate under the PMLA remains low.**
- According to a report presented in the Parliament, the Enforcement Directorate (ED)

registered 5,297 money laundering cases around the country over the last decade, but just 43 trials have been concluded.

## Way Forward
- Individual rights will be better protected if the PMLA's **severe bail conditions are modified to reflect the principle of "innocent until proven guilty".**
- The ED must **improve the quality of investigations and prosecutions** to increase conviction rates under the PMLA. This includes providing greater investigator training, implementing new forensic procedures, and ensuring that cases are based on strong evidence.

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## 1.4    SUPREME COURT'S "CAGED PARROT" REMARK ON CBI

## Context
- The Supreme Court of India once compared the Central Bureau of Investigation (CBI) to a "caged parrot."

## Background
- The CBI is often referred to as **a "caged parrot," a phrase first used by Justice R.M.**

**Lodha in 2013** and echoed in a 2024 Supreme Court judgment by Justice Ujjal Bhuyan. **This term suggests that the CBI is restricted and unable to function independently, largely because of government control.**
- The agency's image has suffered due to allegations that it lacks the freedom to investigate powerful people or political cases

without interference. This has led to public mistrust in its ability to conduct fair investigations.

## About Central Bureau of Investigation (CBI)

- The **CBI was formed in 1963, but its roots go back to 1941 when a police unit was set up** to handle bribery and corruption cases during World War II. After the war, **the Delhi Special Police Establishment Act of 1946 expanded its powers** to investigate corruption in all Central Government departments.
- The CBI is India's top agency for handling cases like corruption, economic offences, and major crimes that affect the nation. **It works under the Ministry of Personnel, Public Grievances, and Pensions.**
- **The CBI is headed by a Director. He is appointed by the Union Government** based on the recommendations from a **three-member Appointment Committee;**
  o The Prime Minister
  o The Leader of the Opposition in the Lok Sabha
  o The Chief Justice of India or a judge chosen by him
- To ensure stability, the **Director of the CBI has a fixed two-year term**. This rule was established under the Central Vigilance Commission (CVC) Act of 2003.
- The CBI's main job is to investigate serious crimes, including corruption and economic fraud. However, **to investigate crimes within a state, it needs permission from that state's government.**

## Challenges faced by the CBI

- The term "caged parrot" highlights the main issue the CBI faces: a lack of independence. The agency reports to the Department of Personnel and Training, which makes it difficult for the CBI to act independently in politically sensitive cases.
- The CBI needs consent from state governments to investigate cases within their

borders. **If states don't give general permission, the CBI must seek permission on a case-by-case basis.** This limits its ability to work freely.
- **The CBI struggles with a shortage of staff and experts**. As of 2019, 1,709 positions were vacant. The lack of modern equipment, forensic labs, and trained investigators further reduces the CBI's effectiveness.
- Public confidence in the CBI has also been shaken by several controversial cases, where the agency was accused of bias or mishandling investigations.

## Way Forward

- Many experts believe the **CBI should be given more independence**. One suggestion is to make it an autonomous body like the Election Commission of India, which would mean it answers directly to Parliament rather than the government.
- The Second Administrative Reforms Commission (ARC) also recommended that the **CBI should have structural independence to protect it from political interference.**
- To improve transparency, it's been suggested that civil society members or retired judges could be involved in the process of appointing the Director. Moreover, an independent body could oversee the CBI's work to ensure it remains unbiased.
- Improving the CBI's capabilities will also **require better recruitment and specialized training, especially in areas like cybercrime and economic offences.** Technologies like Artificial Intelligence and blockchain could also help the CBI track evidence more effectively.
- The Standing Committee on Personnel, Public Grievances, Law, and Justice highlighted the need for the CBI to develop expertise in white-collar crime.

**Conclusion**

- The "caged parrot" metaphor is a clear sign that the CBI needs reforms to function more freely. By making the CBI more independent and providing it with the necessary resources and training, India can restore public trust in the agency and ensure it can carry out its investigations without political interference.

## 1.5 SHORT ARTICLES

# White Revolution 2.0

### Context

- White Revolution 2.0 is an initiative launched by the Union Home and Cooperation Minister to improve the dairy sector, empower women, and fight malnutrition.

### About White Revolution 2.0

- The White Revolution began in the 1960s and **made India the world's top milk producer.** White Revolution 2.0 aims to continue that success with a stronger focus on modernizing the dairy industry and supporting women farmers.

**Dairy Sector in India**

- The dairy sector makes up **5% of India's GDP** and employs over **8 crore farmers**.
- India produces **25% of the world's total milk output**, making it a key player in global milk production.
- Indians consume **459 grams of milk per person per day**, which is much higher than the global average of **322 grams**.

### Key objectives of the White Revolution 2.0

- It seeks to formally acknowledge women working in the dairy sector, ensuring their contributions are recognized.
- **Payments for milk procurement will be directly transferred** into women's bank accounts, helping them become financially independent.

- The initiative will improve local cooperative institutions, increasing community involvement and milk production.
- Efforts will be made to **improve breeding processes, animal health, and the overall quality of milk** to increase exports and farmer incomes.

### Key Components

- The government plans to **create two lakh new Multipurpose Primary Agriculture Cooperative Societies (MPACS),** dairy cooperatives, and fishing cooperatives to support farmers.
- **Dairy farmers will get RuPay Kisan Credit Cards, and micro-ATMs** will be set up in dairy cooperatives, making it easier for them to access banking services.
- The government will **computerize 67,930 Primary Agriculture Credit Societies (PACS)** to make their operations more efficient.

# Law Regarding Early Election

### Context

- The Delhi Chief Minister Arvind Kejriwal resigned and called for early elections in Delhi.

### Who Decides When Elections Happen?

- According to **Article 324** of the Indian Constitution, th**e Election Commission of India (ECI) is in charge of overseeing and conducting elections.** The ECI usually starts preparing for elections before the Assembly's five-year term ends to ensure everything is ready in time.
- **Section 15(2) of the Representation of the People Act, 1951 states that if an Assembly is dissolved early, the ECI can only announce elections six months before the end of its**

**term.** This means that unless the Assembly is officially dissolved, the ECI is not required to hold elections just because the Chief Minister asks for them.

### Can a Chief Minister Call for Early Elections?

- **According to Article 174(2)(b) of the Indian Constitution, the Governor has the power to dissolve a Legislative Assembly.** The Chief Minister can suggest that the Assembly be dissolved early.
- Delhi is a **Union Territory** with its own Legislative Assembly, governed by the **Government of National Capital Territory of Delhi Act, 1991 (GNCTD Act)**. Under **Section 6(2)(b)** of this act, the **Lieutenant Governor (LG)** has the authority to dissolve the Assembly. This means the power to dissolve the Assembly isn't solely in the Chief Minister's hands. **Even if the Chief Minister suggests dissolution, the final decision lies with the central government, represented by the LG.**

## Sukanya Samriddhi Yojana

### Context

- The government has introduced a new rule regarding Sukanya Samriddhi Yojana (SSY) accounts.

### About Sukanya Samriddhi Yojana

- It is a savings scheme **launched by the Union Government in 2015**. It is part of the **Beti Bachao Beti Padhao** campaign, aimed at promoting the welfare of girl children in India.

### Key Features of SSY

- **A natural or legal guardian can open an SSY account for a girl child**. The girl must be less than **10 years old**.
- A guardian can open accounts for **up to two girls**. If there are twins or triplets, a **third account** can be opened with a medical certificate.
- The account requires a **minimum deposit of Rs 250**. The **annual limit for deposits is Rs 1.5 lakh**.

- The account offers a **competitive interest rate**, which is compounded annually. The government reviews and sets this rate every quarter. For example, the interest rate from **July to September 2024** is **8.2%**.
- Deposits made in the SSY are **eligible for tax deductions under Section 80C of the Income Tax Act,** helping parents save on taxes.
- The **guardian manages the account until the girl turns 18**. After that, she can take over, but the guardian can still deposit money.

### New Rule Announcement

- Recently, the government announced a new rule. **If an SSY account was not opened by a legal guardian, it must be transferred to one by October 1, 2024**. If this does not happen, the account will be permanently closed.

### Withdrawals and Maturity

- **Partially withdraw from the account after the girl turns 18.** This can be for higher education or marriage expenses.
- **The account matures at the age of 21 years.** However, if the girl gets married before this period, the account must be closed before her marriage.
- In extreme hardship situations, like medical emergencies, the account can be closed early with the government's approval.

## Supreme Court on "Bulldozer Justice"

### Context

- The Supreme Court has raised serious concerns about the "Bulldozer Justice".

### About "Bulldozer Justice"

- **"Bulldozer Justice" refers to the practice of demolishing the houses and properties of people accused of crimes, often without following the correct legal processes**. This action raises serious questions about the fairness of the law and the rights of individuals.
- The term highlights the risks **of misusing power by those in authority, as it allows local officials to act as both the investigator and**

the judge, **which goes against the principle of separation of powers** that our constitution upholds.

### Supreme Court's Observations

- The Supreme Court **criticized the hasty demolitions that occur without due process**. The Court stated that even if someone is convicted, their property cannot be demolished without following the law. This reinforces the idea that everyone is entitled to fair treatment before the law.
- The Court **emphasized the importance of procedural fairness, especially before taking drastic actions like demolitions**. It stressed the need to balance maintaining order in society while also respecting individual rights.
- The court highlighted that the legal guidelines are clear: **demolitions should only occur under specific conditions, and property owners deserve a fair chance to defend their rights**. Ignoring these safeguards violates constitutional rights, such as the **right to property (Article 300A) and the right to a fair trial (Article 21).**

### Concern

- Using demolitions as a way to punish individuals immediately can create a dangerous precedent. **It allows the government to bypass the judiciary, which can lead to arbitrary actions against citizens.**
- While authorities might argue that quick demolitions help in managing communal tensions and crimes, **ignoring due process undermines the foundational principle of the rule of law.**

### Way Forward

- The **Supreme Court has called for clear guidelines regarding demolitions to uphold the rule of law and protect citizens from arbitrary decisions made by authorities.** Respecting due process is vital to ensure that the legal system works fairly for everyone, regardless of their circumstances. There is a need to create a balance between enforcing

laws and protecting individual rights in a democratic society.

# Port Blair Renamed

### Context

- The Union Home Minister recently announced that Port Blair has been renamed Sri Vijaya Puram.

### Details

- Port Blair was originally named after Archibald Blair, a British naval officer who mapped the Andaman Islands in the late 18th century.
- **The new name "Sri Vijaya Puram"** highlights the city's historical connection to the Chola Empire and Emperor Rajendra I, who, in the 11th century, led a naval expedition against the Srivijaya Empire in Southeast Asia. The Andaman Islands were referred to as "Ma-Nakkavaram" in Chola records.

### About Port Blair

- Port Blair, now officially known as Sri Vijaya Puram, is the capital of the Andaman and Nicobar Islands.
- The city has historical significance, including its role as the **headquarters of the Azad Hind Government under Subhas Chandra Bose during 1943–44.**
- The city is also known for landmarks like the Cellular Jail (Kala Pani) and nearby islands such as Ross Island and Viper Island.
- **India's first tri-command of the Army, Air Force, and Navy is located here**, emphasizing its strategic importance.

### Renaming a State

- A **State Legislature can start the renaming process by passing a resolution with a simple majority. The Parliament may also start this process.**
- The Ministry of Home Affairs (or a state ministry) prepares a Bill to explain the new name and any other important changes.
- The **Bill is first introduced in Parliament**—either in the **Lok Sabha** or **Rajya Sabha**. If it concerns a state, the Bill is sent to the **State**

**Legislative Assembly**. They check it and give their feedback.

- Both houses of Parliament vote on the Bill. It must **pass with a simple majority**.
- After passing in the Parliament, the bill goes to the **President of India** for approval. The President's signature makes the Bill a law.
- **Once the law is passed, an official notification is issued** to update maps, records, and all legal documents.

### Renaming a Place (City, Street, or Landmark)

- **Local authorities** like municipalities or city corporations **can suggest changing a place's name**. For example, a city council may want to rename a street after a famous person.
- The **proposal is sent to the State Government**, which checks if the change is necessary or important.
- The **State Government drafts a Bill** with the new name and reasons for the change.
- The **Bill is debated and voted on in the State Legislature**. If it gets approved, it might also be sent to the **central government**, especially if it affects major places or public institutions.
- **If approved, the State Government or central authorities issue an official notification**, and the new name is updated on maps, records, and public signs.

# Restatement of Values of Judicial Life

## Context

- The visit of the Prime Minister to the Chief Justice of India's residence for Ganapati puja has sparked discussions about the independence of the judiciary.

## Details

- The Prime Minister's recent visit to the Chief Justice of India's house for Ganapati puja has raised some important questions about how judges should act to keep their jobs fair and impartial. This situation relates to a set of guidelines called the "Restatement of Values of Judicial Life," adopted by the Supreme Court in 1997.

### About Restatement of Values of Judicial Life

The Restatement of Values of Judicial Life is a **document that lays down moral standards for judges**. The key points are:

- **Judges must remain independent from politicians and the executive branch** to ensure that they can make fair decisions. They should not be influenced by outside pressures.
- To keep the public's trust, **judges need to avoid close relationships with active lawyers**. This helps in preventing any appearance of bias in their decisions.
- **Judges must disclose any financial ties to companies involved in cases they are hearing**. This transparency helps in maintaining the integrity of the judiciary.
- **Judges should stay neutral in political matters.** This neutrality is essential so that they can interpret laws without political influence.
- **Judges should avoid speaking to the media or giving interviews** that might sway public opinion about ongoing cases. This helps keep their decisions fair and unbiased.
- **Judges should not accept gifts unless they come from close friends or family**. They also need to show clarity in financial activities, like trading shares, to avoid any conflict of interest.

### Way Forward

- Respecting these guidelines is vital to maintaining public trust in the judiciary. If judges act ethically and uphold these standards, it will ensure that justice is delivered fairly, without fear or bias. This way, the public can have confidence in the legal system, knowing that judges are committed to their duties and responsibilities.

# Parliamentary Committee on Official Language

## Context

- The Union Home Minister re-elected as the Chairperson of the Parliamentary Committee on Official Language.

## About Parliamentary Committee on Official Languages

- It was **established in 1976 under the Official Languages Act of 1963**. Its main objective is to promote and ensure the effective use of **Hindi** in government functions.
- The committee consists of **30 members**:
    - **20 members** from the **Lok Sabha**
    - **10 members** from the **Rajya Sabha**
- The **Union Home Minister** acts as the **chairman** of the committee.
- The committee evaluates how well Hindi is used in various government departments and agencies.
- It looks for ways to improve Hindi usage and **submits reports to the President** with recommendations on how to promote and enhance the use of Hindi in government affairs.

## Official Languages

- The **Eighth Schedule** of the Indian Constitution **lists the official languages** recognized by the **Government of India**.
- When the Constitution was adopted **in 1950, it included only 14 languages**. Over time, this list has expanded through several amendments, as of **now, the Eighth Schedule includes 22 languages:**
- **Amendments to the Eighth Schedule**
    - **21st Amendment (1967)**: Added **Sindhi** to the list.
    - **71st Amendment (1992)**: Added **Konkani**, **Manipuri**, and **Nepali**.
    - **92nd Amendment (2003)**: Added **Bodo**, **Dogri**, **Maithili**, and **Santhali**.

# New Guidelines on Passive Euthanasia

## Context
- The Union Health Ministry has released new Draft Guidelines on Passive Euthanasia.

## Details
- The Union Health Ministry recently released new draft guidelines about passive euthanasia. These guidelines, called *Draft Guidelines for Withdrawal of Life Support in Terminally Ill Patients*, explain how life-support treatments should be stopped for people with terminal illnesses.

## What is Terminal Illness?
- According to the guidelines, *terminal illness* **means an incurable condition that will soon lead to death**. The guidelines list four main conditions under which life support can be withdrawn:
    1. **Brainstem death** – when the patient is declared brain dead.
    2. **Advanced disease** – when doctors believe aggressive treatments won't help anymore.
    3. **Informed refusal** – when the patient or their legal representative chooses to stop life support after understanding the medical condition.
    4. **Following the Supreme Court's procedures** – obeying the legal rules set by the Supreme Court of India.

## What is Passive Euthanasia?
- Passive euthanasia happens **when life-support treatments like ventilators or feeding tubes are stopped, allowing a person to die naturally from their illness.**
- This is considered **when a patient has no hope of recovery or suffers from a terminal condition**. The decision can be made by the patient, or if the patient can't decide, by family members or legal representatives.

## Status of Passive Euthanasia in India

- In India, passive euthanasia became a topic of public debate during the Aruna Shanbaug Case in 2011. While the court didn't allow it for Aruna Shanbaug, it recognized passive euthanasia as legal under specific conditions. Later, **in the Common Cause Case of 2018, the Supreme Court went further and allowed patients to refuse life-saving treatments by preparing a 'living will' in advance.**

- In 2023, the process was simplified. Now, a **gazetted officer can sign the living will, and it is stored in the National Health Digital Record so doctors across the country can access it easily**. If a hospital refuses to honour the living will, the patient's family can ask the High Court to review the case.

**Active Euthanasia v/s Passive Euthanasia**

- In **India, active euthanasia—where steps are directly taken to end a person's life—is illegal** and is treated as

**Global Perspective**

In countries like the Netherlands, Belgium, Luxembourg, and Spain, euthanasia is legal. In Switzerland, assisted suicide is allowed, and in Canada, both euthanasia and assisted suicide are legal. In the United States, states like Oregon, Washington, and California permit assisted suicide under strict regulations.

**ACTIVE EUTHANASIA**
- It is when death is brought by an act. For example, taking a high dose of drugs.
- To end a person's life by use of drugs, either by oneself or by the aid of physician.

**PASSIVE EUTHANASIA**
- When death is brought by an Omission. For example, when someone lets the person die; this can be done by withdrawing or withholding treatment.
- **Withdrawing treatment:** For example, switching off a machine that keeps the person alive.
- **Withholding treatment:** For example, not carrying out a surgery that will extend life of the patient for a short time.

a crime under sections 302 or 304 of the Indian Penal Code (IPC). This is different from passive euthanasia, where doctors stop treatments and let the illness take its course naturally.

## 1.6 SNIPPETS

| Topics | Details |
|---|---|
| **Cruise Bharat Mission** | • The Union Minister of Ports, Shipping & Waterways launched the Cruise Bharat Mission at the Mumbai port. <br> • This mission aims to **enhance cruise tourism by targeting a goal of doubling the number of cruise passengers by 2029.** <br> • The mission will be **implemented in three phases from October 1, 2024, to March 31, 2029.** <br> • The mission is built on **five strategic pillars:** <br>   o Developing world-class terminals and digital solutions for improved operations. <br>   o Streamlining processes with e-clearance systems and e-visa facilities. <br>   o Promoting international marketing and investment, linking cruise circuits, and hosting events like the Cruise India Summit. <br>   o Establishing supportive policies and a National Cruise Tourism Policy. <br>   o Emphasizing skill development and creating a Centre of Excellence for research in the cruise sector. |
| **Unified Logistics** | • The Unified Logistics Interface Platform (ULIP) Hackathon 2.0 was |

| Interface Platform (ULIP) | launched by NICDC Logistics Data Services Ltd. (NLDSL). <br>• The **ULIP Hackathon 2.0 aims to tackle challenges in logistics**; finding ways to make logistics more environmentally friendly, and simplifying the complicated steps involved in moving goods. <br>• The **ULIP launched in 2022 integrates information from 37 systems across 10 ministries** involved in logistics to promote data sharing between government and private organizations. <br>• **NICDC Logistics Data Services Ltd. (NLDSL) was established in 2015** through a partnership between the Government of India and NEC Corporation, a Japanese IT company **to leverage advanced technology to improve efficiency and transparency in the logistics sector.** |
|---|---|
| 'Paryatan Mitra' And 'Paryatan Didi' | • On World Tourism Day, the Ministry of Tourism launched the Paryatan Mitra and Paryatan Didi initiative. <br>• The initiative encourages everyone in the tourism sector, like cab drivers, restaurant workers, and shopkeepers, to treat tourists as special guests. <br>• The program **focuses on empowering women and youth by turning their knowledge about their areas into job opportunities**. The Ministry to give them titles of Paryatan Mitra and Paryatan Didi to recognize their efforts. <br>• **World Tourism Day is celebrated every year on September 27** to mark the establishment of the United Nations World Tourism Organization (UNWTO) in 1970. **In 2024, the theme will be "Tourism and Peace."** |
| Standing Committee On Statistics | • The Union Government has dissolved the Standing Committee on Statistics (SCoS). <br>• The SCoS was **established in July 2023. It was a restructured version of the earlier Standing Committee on Economic Statistics (SCES).** <br>• It had 14 members **responsible for overseeing the statistical surveys conducted by the Ministry of Statistics and Programme Implementation (MoSPI).** <br>• The committee focused on improving survey methods and sampling strategies to ensure accurate data collection. |
| SAARTHI App | • The Open Network for Digital Commerce (ONDC) launched the Saarthi App. <br>• The **Saarthi App was created by the ONDC with the help of Bhashini** to make online shopping easier for people who speak different languages. <br>• It **plans to support all 22 official languages** under the 8th Schedule of the Indian Constitution. <br>• The **ONDC was started by the Department for Promotion of Industry and Internal Trade (DPIIT) in 2021** to create an open e-commerce network where businesses can connect more easily. <br>• The **Bhashini platform was launched in 2022** to break language barriers in the digital world. It **uses Artificial Intelligence (AI) to translate content across different Indian languages**. |
| Subhadra Scheme | • Subhadra Yojana was launched in Odisha to provide direct cash support to women from economically weaker sections of society. <br>• **Each woman enrolled in the program will receive ₹10,000 every year**. This |

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| | **amount will be given in two payments of ₹5,000 each**. The payments will be made on two special occasions:<br>o **Rakhi Purnima** (also known as Raksha Bandhan) in **August**<br>o **International Women's Day** on **March 8**<br>• **Beneficiaries will receive a Subhadra Debit Card**, which they can use to withdraw their money and make online transactions.<br>• To qualify for the scheme, women must meet the following criteria:<br>o Be aged between **21 to 60 years.**<br>o Not be a government employee, income tax payer, or someone who receives ₹**1,500** or more monthly from other government schemes.<br>• The Scheme will be implemented over **five years**, from **2024-25 to 2028-29**. |
| **International Day of Democracy** | • The International Day of Democracy is celebrated on September 15.<br>• **In 2007, the United Nations General Assembly officially recognized September 15** as the International Day of Democracy to promote democratic values around the world.<br>• In 2024, **the theme for the day is "Artificial Intelligence as a Tool for Good Governance."** |
| **BHASKAR** | • The BHASKAR Platform launched to boost startup ecosystem.<br>• The Bharat Startup Knowledge Access Registry (BHASKAR) Platform was **launched by the Department for Promotion of Industry and Internal Trade (DPIIT)**, **Ministry of Commerce and Industry**.<br>• **It aims to centralise and connect various players in the startup world**, including startups, investors, mentors, and other stakeholders. |
| **National Test House (NTH)** | • The National Test House (NTH) and the Bureau of Energy Efficiency (BEE) signed a Memorandum of Understanding (MoU) to work together on promoting energy efficiency.<br>• NTH was **established under the Railway Board in Kolkata in 1912. It now operates under the Ministry of Consumer Affairs.**<br>• NTH collaborates with the Bureau of Indian Standards (BIS) to set National Standards for quality control.<br>• **BIS was established in 2002** under the Energy Conservation Act of 2001. It **operates under the Ministry of Power**.<br>• BIS plays a significant role in implementing the Standards and Labelling (S&L) Program. It conducts energy audits and promotes energy-efficient projects. |
| **Adjusted Gross Revenue (AGR)** | • The Supreme Court rejected telecom companies' curative appeals against a 2019 ruling, asking them to pay over ₹1 lakh crore in dues related to Adjusted Gross Revenue (AGR).<br>• **Adjusted Gross Revenue (AGR) is a method for the telecom sector to figure out how much fees companies should pay to the government.** These fees are divided into:<br>o **Spectrum Usage Charges (SUC):** This is the fee telecom companies pay to use radio frequencies. It ranges from 3-5% of their AGR.<br>o **License Fees:** Telecom operators also pay about 8% of their AGR for |

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| | their operating licenses.<br>• A **curative petition is the last chance for someone to ask the Supreme Court to change its final judgment**. It's only used when all other legal options, including review petitions, have been tried. The court **introduced the concept in the 2002 Rupa Ashok Hurra v/s Ashok Hurra case.** |
| **Food Import Rejection Alerts (FIRA)** | • The Food Import Rejection Alerts (FIRA) Portal was launched by the Food Safety and Standards Authority of India (FSSAI) during the Global Food Regulators Summit 2024.<br>• The **platform notifies the public and food safety authorities when food imports are denied at Indian borders.**<br>• It shares information between global food safety authorities so that health concerns related to rejected food imports are communicated quickly.<br>• **Global Food Regulators Summit 2024 was organized by FSSAI in New Delhi** to strengthen global cooperation on food safety and regulatory rules.<br>• The Food Safety and Standards Authority of India (FSSAI) was **established in 2008, it operates under the Ministry of Health and Family Welfare.**<br>• FSSAI's main job is to **set scientific standards for food products, regulate their production, storage, sale, and import,** and ensure public safety through strict food safety measures. |
| **Shops And Establishments Act** | • Investigation against SRBC & Co. LLP after the tragic death of a 26-year-old auditor uncovered that the company, which has been operating since 2007, wasn't registered under the Maharashtra Shops and Establishments Act.<br>• **Each state has its own version of the Shops and Establishments Act** to meet local business needs.<br>• It regulates businesses like shops, offices, and other establishments (but does not apply to factories under the Factories Act 1948) to ensure companies follow rules that protect employee welfare.<br>• **Key points covered by this law:** Working hours, Rest and meal breaks, No child labour, Leave entitlements, Wages.<br>• A business must display its registration certificate. If the business plans to close, it must notify the Chief Inspector within 15 days. |
| **National Consumer Disputes Redressal Commission (NCDRC)** | • In a recent case, Justice Nisha Banu had a dispute with SBI over home loan repayments. The NCDRC refused to give the bank extra time to submit its defence.<br>• **NCDRC was set up under the Consumer Protection Act 1986** (now replaced by the 2019 Act) to settle disputes.<br>• Three levels of the Consumer Disputes System<br>   o **District Level:** Handles cases where the claim is up to ₹1 crore.<br>   o **State Level:** For claims between ₹1 crore and ₹10 crore.<br>   o **National Level:** Deals with claims over ₹10 crore.<br>• If the NCDRC makes a decision and a person is still not satisfied, they can take their case to the Supreme Court within 30 days.<br>• **The 2019 Act set up the Central Consumer Protection Agency (CCPA)** to make sure that companies don't mislead consumers. |

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|---|---|
| **23rd Law Commission** | • The Union Government established the 23rd Law Commission, which will function from September 1, 2024, to August 31, 2027.<br>• The **Law Commission of India is a non-statutory body created by the Ministry of Law and Justice** to conduct legal research and make recommendations to the government.<br>• It **reviews existing laws, suggests new legislation, and identifies outdated laws that need repeal**.<br>• The **first law commission in India, chaired by Lord Macaulay, was established in 1834**, and the first independent India Law Commission was established in 1955. |
| **Supreme Court's New Flag And Insignia** | • The President has released a new flag and emblem for the Supreme Court.<br>• The blue flag symbolises the importance of upholding the law of Dharma in justice and progress.<br>• The emblem includes the **inscription "Yato Dharmastato Jayah" in the Devanagari script, which highlights the Court's guiding principle of "Where there is Dharma, there is victory."** |
| **Smart Cities Mission (SCM)** | • The Ministry of Housing and Urban Affairs has announced that 90% of projects under the Smart Cities Mission (SCM) have been completed.<br>• It is a **Centrally Sponsored Scheme launched in 2015** to transform urban areas into more efficient, sustainable, and livable spaces.<br>• It **focuses on upgrading existing areas, redeveloping outdated spaces, and developing new urban areas** to accommodate growing populations.<br>• Each Smart city sets up a Special Purpose Vehicle (SPV) to streamline project execution. |
| **Aparajita Bill** | • The West Bengal State Assembly has passed the Aparajita Bil to introduce the death penalty in rape cases.<br>• It amends existing laws to make the death penalty the maximum punishment for all rape cases by replacing life imprisonment.<br>• It **establishes a special task force in each district to handle rape investigations** and sets up special courts for speedy trials.<br>• It increases penalties for repeat offenders and tightens regulations around disclosing victim identities and publishing court proceedings. |
| **Zero FIR** | • The Union Ministry of Home Affairs guidelines for Union Territories to ensure that "zero FIR" registered in the local language must carry a translated English copy when forwarded to another state<br>• **Zero FIRs can be filed at any police station, regardless of the crime's location or jurisdiction.**<br>• It was **introduced on the recommendations of the Justice Verma Committee (2013).**<br>• The registration process is similar to a regular FIR, with the police station numbering the case '0'.<br>    ○ When the case is transferred to the authorised jurisdiction, the police station assigns it a number, similar to a normal FIR. |

| Rule 70 of Drugs Act | • The Supreme Court has criticized the AYUSH Ministry for directing state authorities to prohibit the application of Rule 170 of the Drugs and Cosmetics Act.<br>• **Rule 170 was introduced in 2018 to regulate the production, storage, and marketing of Ayurvedic, Siddha, and Unani medicines.**<br>• AYUSH drug makers are prohibited from marketing their products without obtaining formal approval and a unique identification number from the state licensing authority. |
|---|---|
| e-Dispute Resolution Scheme | • The Central Board of Direct Taxes (CBDT) has introduced the e-Dispute Resolution Scheme 2022 under the Income-tax Act 1961.<br>• Dispute Resolution Committees (DRCs) are established in all 18 regions under the Principal Chief Commissioner of Income Tax, who review and settle disputes.<br>• It allows eligible taxpayers to **file dispute resolution applications online with their regional DRC.**<br>• The DRC **must issue an order within six months** of the application's acceptance date. |

## 1.7 ADDITIONAL TOPICS FOR READING FROM IASGYAN WEBSITE

| TOPIC NAME | UPLOADED ON IAS GYAN WEBSITE ON |
|---|---|
| Performance Review Of Regulatory Bodies | 7th September, 2024 |
| 10 Years of Swachh Bharat Mission (SBM) | 11th September, 2024 |
| Pradhan Mantri Awas Yojana-Gramin | 12th September, 2024 |
| Establishment of Gram Nyayalaya | 13th September, 2024 |
| Effectuation of Fundamental Duties | 14th September, 2024 |
| LGBTQIA+ Rights | 16th September, 2024 |
| Impact of Emergency Provisions on Center-State Relations | 17th September, 2024 |
| Death Penalty | 18th September, 2024 |
| New Criminal Codes, Same Old Challenges of The Justice System | 21st September, 2024 |
| Food Adulteration-Related Provisions In India | 21st September, 2024 |
| Constitutional Idea of Personal Liberty | 23rd September, 2024 |
| Assam Accord | 27th September, 2024 |
| Digitisation and Land Reforms | 30th September, 2024 |
| How SC Deals with Errant Judges | 30th September, 2024 |

# 2. INTERNATIONAL RELATIONS

## 2.1 'LEGALLY BINDING' PACT ON THE USE OF AI

### Context

- The Council of Europe introduced the first-ever legally binding international treaty on Artificial Intelligence (AI).

### Aims and Objective of the Treaty

- The treaty intends to **provide a uniform framework for regulating and monitoring AI technologies, assuring their ethical, safe, and beneficial use.**
- It addresses concerns about AI-powered spying, privacy issues, and automated weapons.

The treaty was **signed by Andorra, Georgia, Iceland, Norway, Moldova, San Marino, the United Kingdom, Israel, the United States of America, and the European Union**.

### Highlights of the Treaty provisions

- The Treaty is a risk-based agreement that **regulates AI systems proportionate to the risk associated with their use.**
- It **applies to both public and private sector AI systems** and requires signatories to ensure they do not produce harmful or discriminatory outcomes.
- The treaty is **designed to be applicable across different countries**, providing a unified global standard for AI regulation.
- **Member nations must ensure that their AI systems uphold human rights**, protect privacy and equal rights, and respect judicial independence.
- Victims of AI-related rights violations **must have access to legal remedies.**
- The treaty **exempts national security, research, and development from its provisions**.
- Members need to ratify the treaty to implement its **legally binding provisions** in their jurisdictions.

**About Council of Europe (CoE)**

- It was **founded in 1949** to protect human rights, democracy, and the rule of law across Europe.
- It includes **46 member states.**
- It operates independently of the European Union (EU), which has 27 members.
- **No country has ever joined the European Union without first joining the Council of Europe.**
- It is an **official United Nations observer**.
- The European Court of Human Rights operates within the Council of Europe framework.
- The **headquarters and Court of Human Rights are located in Strasbourg, France.**
- The Council uses English and French as its official languages.


Timeline of the EU AI Act

## Concern

- The fundamental challenge in developing a global AI treaty is **achieving an agreement among governments with diverse political and strategic priorities.**
- **Different countries have different developments in technology**, regulatory frameworks, and ethical standards, making effective implementation difficult.
- **Clear criteria are required to ensure regional adoption** while meeting international standards.
- **The treaty must be adaptable to future developments** and unexpected challenges in AI technology.

## Way Forward

- **Designing and releasing detailed strategies for the implementation of the treaty** will assist member countries in ensuring its effectiveness.
- **An international agency or committee should be established** to monitor the treaty's implementation.
- **Implement systems must regularly monitor and study AI technology** to adjust treaty requirements as needed.
- **Create a clear mechanism to address noncompliance**, such as sanctions, fines, or corrective actions for treaty violations.
- **Encourage international collaboration** by holding periodic conferences, workshops, and information-sharing platforms to discuss common concerns and best practices.
- P**rovide technical assistance and resources to countries** with less advanced technological infrastructure to help them fulfil their treaty obligations.
- Encourage the **formulation of ethical principles and standards for AI that are aligned with the treaty's goals** and address potential abuse and unintended consequences.

## Steps taken to Regulate AI technology
### Legal Binding Treaties

- The Council of Europe has signed a legally enforceable treaty to safeguard human rights, democracy, and the rule of law.

## Non-Binding Principles

- The OECD established non-binding AI principles in 2019 that prioritise transparency, explainability, reliability, security, safety, accountability, and respect for human rights.

## National Frameworks

- The UK government released a white paper describing a pro-innovation approach to AI legislation.

## International Collaboration

- International organisations such as the G7 are working on drafting global norms and tighter safeguards for AI technology.

## Conclusion

- The treaty is a significant global law for AI that intends to promote technical advancement while protecting human rights. The treaty's effectiveness depends on its successful implementation and the regulatory framework's capacity to keep up with rapid technological changes.

## 2.2    INDO-PACIFIC ECONOMIC FRAMEWORK FOR PROSPERITY

## Context

- India signed an agreement with the US-led Indo-Pacific Economic Framework for Prosperity (IPEF) to build a cleaner and fairer economy.

## About Indo-Pacific Economic Framework for Prosperity (IPEF)

- It was **launched in May 2022 by the US President** with the objective to connect countries in the Indo-Pacific region and work together on economic challenges.
- **Fourteen countries, including India, are part of IPEF**. These nations **represent 40% of the world's economy and 28% of global trade in goods and services.**



Economic Framework (IPEF) partners

## India's Role in IPEF

- **India has joined three key areas of the IPEF:** Supply Chain Resilience, Clean Economy, and Fair Economy. These areas focus on making economies stronger, greener, and more transparent.
- **India has also taken an observer role in Trade**, meaning it is involved in discussions without fully committing to decisions.

## India and the Clean Economy Agreement

- India's Clean Economy Agreement under IPEF is all about **fighting climate change and boosting energy security.** The goal is to reduce the country's dependence on fossil fuels, like coal and oil, and invest more in renewable energy, such as solar power. This will not only protect the environment but also help create new jobs in the green energy sector.

- **India is working hard to increase its solar energy capacity to 100 gigawatts by 2025**. With this agreement, India can attract more investments in green technologies, which will help the country achieve its ambitious energy goals.



**IPEF focuses on four major Pillars:**

**Trade:** This pillar seeks to promote fair and robust trading practices. It aims to establish high-standard trade standards that promote fair competition and safeguard workers' rights.

**Supply Chains:** This pillar aims to improve supply chain resilience. It seeks to guarantee that supply chains are strong and able to tolerate disruptions, ensuring the flow of critical commodities and services.

**Fair Economy:** This pillar focuses on tax and anti-corruption efforts. It seeks to create a more equitable economic environment by eliminating corruption and ensuring transparent tax systems.

**Clean Economy:** This pillar emphasizes infrastructure development, clean energy, and carbon reduction. It promotes investments in environmentally friendly technologies and infrastructure to counteract climate change.

## India and the Fair Economy Agreement

- The Fair Economy Agreement focuses on **creating a fair and transparent business environment**. It aims to fight corruption and improve tax transparency across IPEF member countries, which will make it easier for businesses to operate internationally.

- India has already taken steps to fight financial crimes through laws like the Fugitive Economic Offenders Act, to catch people who commit large-scale financial fraud. **With the Fair Economy Agreement, India can gain more resources and support from other countries in prosecuting financial criminals.**

## Financial Support for a Greener Economy

- The IPEF has set up funds to help countries like India meet their clean economy goals. **A Catalytic Capital Fund, with an initial investment of $33 million, was created to support green technology projects.** This fund aims to attract $3.3 billion in private investments.

- These financial resources will help India to develop projects like the Green Hydrogen Mission, which aims to produce 5 million tons of green hydrogen each year by 2030. Green hydrogen is seen as a cleaner energy source that could reduce pollution.

## Balancing International and National Interests

- Although the IPEF agreements offer many benefits, **India needs to be careful not to give up too much control over its domestic policies.** For example, India must ensure that international rules don't interfere with its national projects, like building affordable housing under the Pradhan Mantri Awas Yojana (Urban).

- **India has a history of balancing global commitments with local needs.** For example, under the Paris Agreement, India developed the National Action Plan on Climate Change (NAPCC) to meet both international goals and local requirements. **A similar approach can be used with the IPEF to ensure that India's national interests are protected.**

## Conclusion

- India's participation in the IPEF is a positive step toward building a greener and more transparent economy. By signing the Clean and Fair Economy agreements, India has committed to addressing major global challenges like climate change and economic corruption. However, India must ensure that these commitments do not limit its ability to make decisions in the best interest of its people and economy.

## 2.2    INDIA- PALESTINE RELATIONS

### Context

- The Indian Prime Minister met with the Palestinian Prime Minister during his visit to New York.

### Background

- The meeting took place after India abstained from a UN vote that required Israel to leave occupied Palestinian areas. This decision highlights India's careful stance, balancing its relations with both Israel and Palestine. India wants to maintain good ties with both sides while pushing for peace.

### Highlights of the Meeting

- During the meeting, the Indian Prime Minister expressed concern over the humanitarian crisis in Gaza, prolonged fighting and blockades have caused severe shortages of food, water, and medical supplies.
- **India called for a ceasefire, the release of refugees, and renewed talks between Israel and Palestine**. This reflects India's long-standing support for a two-state solution, where both countries can live peacefully side by side.

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**About Palestine**

- Palestine is a region in southern West Asia, and **it is recognized as a country by 145 out of 193 United Nations member states**.
- Its **borders include the West Bank and the Gaza Strip**, areas that have been occupied by Israel.
- Most of the country's boundaries are shared with Israel, while Jordan and Egypt border it to the east and southwest.
- While Palestine claims Jerusalem as its capital, its administrative centre is in Ramallah. Palestine has been a **non-member observer state in the United Nations since 2012.**

**Israeli-Palestinian Conflict**

- The conflict between Israel and Palestine has a long history, beginning around World War I. During that time, **Britain took control of Palestine from the Ottoman Empire**.
- **Britain allowed many Jewish immigrants to settle there**, which led to rising tensions between the Jewish and Palestinian Arab populations.
- By 1947, Britain gave the matter to the United Nations, which suggested dividing the area into separate Jewish and Arab states. However, this plan was not successful, and conflict broke out.
- **In 1948, the war in Palestine led to the removal of most of the Palestinian Arab population and the creation of Israel**. This event is known as the Nakba, or "catastrophe," for Palestinians.
- In the 1967 Six-Day War, Israel took control of the West Bank and Gaza Strip, areas that were previously governed by Jordan and Egypt.

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- The Palestinian Liberation Organization (PLO) declared Palestine's independence in 1988 and signed peace agreements with Israel in 1993. These agreements allowed for limited Palestinian self-rule through the Palestinian Authority (PA) in some areas of the West Bank and Gaza Strip.
- **In 2005, Israel withdrew its troops from Gaza**, but the area is still under Israeli control in many ways. The situation became more complicated in 2007 when Hamas, a Palestinian political group, took control of Gaza after internal disagreements with Fatah, the leading party in the Palestinian Authority.
- Now, the **West Bank is partly governed by the PA, while Hamas controls Gaza.**

## About India-Palestine Relations

### Historical Ties

- India has always supported the Palestinian people's right to self-determination.
- **India was the first non-Arab country to recognize the Palestine Liberation Organization (PLO)** as the legitimate representative of Palestinians in 1974.
- In 1988, India officially recognized Palestine.
- India supported various UN resolutions that stand up for Palestine's rights.

### Development Assistance

- India helps Palestine not just politically but also through financial aid. Over the past two years, India provided around $141 million in development support, helping in areas like education, health, and infrastructure.

### Economic Relations

- Though trade between India and Palestine goes mostly through Israel, India is keen on building stronger economic ties.
- As per the latest available data, in 2020, trade between the two nations was worth about $67.77 million, and both countries have signed agreements to boost business and economic cooperation.

### Humanitarian Support

- **India has contributed over $36.5 million to the United Nations Relief and Works Agency (UNRWA),** which supports Palestinian refugees. This is part of India's broader commitment to helping Palestine.

### Challenges and Way Forward

- While India continues to support Palestine, its growing ties with Israel, especially in defence and technology, have complicated its stance. **India must maintain a delicate balance between supporting Palestine's rights and building strategic relations with Israel.**
- By **promoting peace through international platforms and providing humanitarian and economic aid**, India can navigate these challenges while staying dedicated towards its commitment to Palestinian welfare.

**Conclusion**

- India's relationship with Palestine is marked by history and shared ideals. Though India faces challenges in balancing its relationships with both Israel and Palestine, its ongoing support for a two-state solution and peace in the region remains firm.

## 2.4    PACT OF THE FUTURE

**Context**

- The 'Pact of the Future' adopted by the United Nations General Assembly is a significant move toward improving the United Nations Security Council (UNSC).

**Background**

- The **United Nations Security Council (UNSC) was created in 1945 to maintain peace and security in the world.** Back then, there were only 51 countries in the UN, but today, there are 193. A lot has changed since then, and many believe the UNSC needs to change too.

## About the 'Pact of the Future'

- The 'Pact of the Future' is a new **agreement adopted by the UN General Assembly**. It suggests **reforming the UNSC to make it more representative and inclusive.** Right now, Africa, Asia-Pacific, Latin America, and the Caribbean are underrepresented.
- **The pact encourages discussions on how to change the UNSC**. It suggests adding more permanent and non-permanent members to make the council more balanced and capable of handling today's complex problems.

**Why is the UNSC's structure a problem?**

- The UNSC has 15 members: five permanent ones (the United States, the United Kingdom, France, Russia, and China) and ten non-permanent members who are elected for two years. **The permanent members can use a veto, which means they can block any decision they don't agree with.**

  

  General Assembly
  - 193 member states (countries)
  - Each has one vote, regardless of size
  - Discusses and votes on resolutions

  Secretary-General
  - Servant of the member states
  - Makes recommendations to the General Assembly (GA) and Security Council (SC)
  - Currently elected by the SC, which puts forward only one candidate for the GA to approve

  The United Nations power dynamic

  Security Council
  - Final authority on issues of peace and security
  - All members of the UN must accept and implement decisions made by the Security Council

  5 Permanent Members with the power to veto
  10 temporary members 5 of the 10 countries are rotated each year

  Secretary-General

  - o This has caused problems because these countries sometimes use their veto to protect their own interests, even when the world needs action. For example, Russia's veto during the Russia-Ukraine conflict stopped the UNSC from acting.

- **Many countries, including India, argue that the current UNSC doesn't reflect today's world.** Back in 1945, the world was different, but now countries like India, which has the largest population and one of the fastest-growing economies, deserve more say.
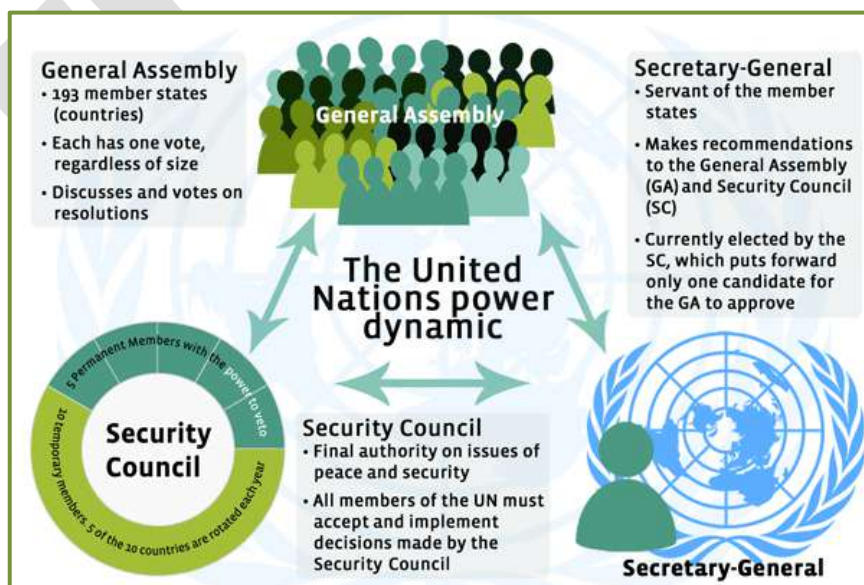
- o India has contributed to many UN peacekeeping missions, proving it plays a key role in maintaining global peace.
- o As a non-permanent member of the UNSC in 2021-22, India demonstrated its commitment to global peace, security, and development. This period highlighted why India believes it should have a permanent seat.

## Challenges

- Changing the UNSC won't be easy. **The veto power of the five permanent members is a big hurdle**. Often, the UNSC cannot act because the permanent members disagree, like during the Israel-Hamas conflict. This has made the UNSC seem slow and ineffective at solving global problems. **Without reform, the UNSC's power and credibility may continue to fade.**

| Potential Reform Area | |
|---|---|
| More Seats in the Security Council | The Security Council makes important decisions about peace and security and hasn't changed its membership since 1945. **Countries like India, Brazil, and some from Africa should be made permanent members.** This would reflect their growing influence in world affairs. |
| Rethinking Veto Power | Currently, five permanent members (the US, Russia, China, France, and the UK) can veto any decision in the Security Council, there is a **need to remove or reduce this veto power**. Regions like Africa and Latin America should be given more representation in global decisions. |
| Strengthening the General Assembly | The UN General Assembly represents all 193 member countries, but its decisions often lack real power. To make the UN more effective, **the General Assembly should be given more authority.** This would help ensure that the global community's decisions carry more weight in shaping world policies. |
| Strengthen UN Peacekeeping | UN peacekeeping missions help maintain peace in conflict areas. However, **peacekeepers need clearer goals and better funding.** If they have the right tools and support, they can do their jobs more effectively. |
| Tackling Modern Challenges | The world is facing new challenges, like cybercrime, terrorism, and climate change. The UN should focus more on these issues. For example, a dedicated agency for cybersecurity could help countries deal with digital threats that cross borders. |
| Making the UN System More Efficient | The UN has many agencies, but some of them overlap in their work. **Simplifying the system and cutting out unnecessary agencies will save resources and make the UN more efficient.** Focusing on performance-based outcomes can help ensure that resources are well-spent. |

## Conclusion

- The 'Pact of the Future' is just the beginning. World leaders must now commit to real change to create a UNSC that can address modern global challenges. A more democratic, fair, and effective UNSC is essential for a more peaceful and secure world.

## 2.5    QUAD LEADERS' SUMMIT

## Context

- The Prime Minister of India participated in the 6th Quad Leaders' Summit in Delaware, United States.

## About Quadrilateral Security Dialogue (QUAD)

- The **QUAD** is a group of four countries: **India, Australia, Japan, and the United States**. These nations work together to keep the **Indo-Pacific region** peaceful and open.
- The idea of QUAD was **initiated in 2007 when Japan's Prime Minister Shinzo Abe suggested** that the countries should come together to support democracy and security in the Indo-Pacific region. However, after some opposition from China and India's hesitation, talks slowed down. But **in 2017, the Quad was revived, and by 2019, it had become a more formal and important group.**
- **QUAD is not a formal alliance** like NATO. **There's no headquarters or decision-making body.** Instead, the group functions through meetings, summits, military exercises, and sharing information.

**Global Response**
- Russia has called the QUAD an "Asian NATO" and criticizes it for being part of the US's aggressive policies.
- China views the QUAD as an attempt to prevent its influence and refers to it as a Cold War-style alliance.
- Western Countries generally support the QUAD's efforts to keep the Indo-Pacific region free and open.

## Key Objectives

- Protecting **freedom of navigation** and ensuring the stability of the Indo-Pacific region.
- Promoting **democratic values** and supporting **international law**.
- Working together on **global issues** like **climate change**, **pandemic response**, and **disaster relief**.
- Encouraging **economic cooperation** to strengthen trade and **supply chains**.

## 6th Quad Leaders' Summit (2024)

- Recently, the Quad leaders met in Delaware, USA, and made important decisions to achieve their shared goals. They signed the **Quad Wilmington Declaration**, emphasizing their commitment to a **free, open, and inclusive Indo-Pacific**. India will host the next Quad Leaders' Summit in 2025.

## Key outcomes of the summit

- **Maritime Initiative for Training in the Indo-Pacific (MAITRI)**– a new maritime training initiative to help Indo-Pacific countries use tools like the **Indo-Pacific Maritime Domain Awareness** (IPMDA) to improve security and prevent illegal activities in their waters. India will host the first **MAITRI** workshop in 2025.
- **Quad Cancer Moonshot** – a program to reduce cancer cases in the Indo-Pacific by combining investments and scientific knowledge from the four countries.
- **Quad-at-Sea Ship Observer Mission** – In 2025, the coast guards from the four Quad countries will sail together to improve marine safety.
- **Quad Ports of the Future Partnership** – a plan to develop strong and sustainable port infrastructure in the Indo-Pacific.

- **Quad Indo-Pacific Logistical Network** – a project to improve how the four nations respond to natural disasters by sharing their airlift capacity.
- **Semiconductor Supply Chain Contingency Network** – an agreement to strengthen the supply of semiconductors, which are crucial for making electronic devices, ensuring stability in this important industry.
- The Quad also announced plans to improve **energy efficiency** by developing affordable **cooling systems** in the Indo-Pacific.

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**India-USA Bilateral Meeting (2024)**

- India and the US also agreed to work together to boost India's **renewable energy** capacity, with a plan to raise **$1 billion** through the **International Bank for Reconstruction and Development** (IBRD). They announced a **semiconductor fabrication plant** in India, which will boost India's role in the global **semiconductor supply chain**.
- **97 Indian antiques** were returned to India by the USA.

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## Significance of QUAD for India

- **Strategic Value**: For India, the QUAD offers a chance to tackle challenges in the Indo-Pacific, especially concerning China's growing presence through its **String of Pearls** strategy (China's effort to create strategic bases around India).
- **Economic Opportunities**: India stands to gain from the economic plans of the QUAD, like the **Asia-Africa Growth Corridor** and the **Supply Chain Resilience Initiative**.
- **Maritime Safety**: India benefits from QUAD's focus on **maritime security**, particularly in areas like anti-piracy and ensuring free movement in international waters.
- **Post-COVID Diplomacy**: The pandemic disrupted global supply chains. QUAD members like **Japan** and the **US** are planning to shift their industries out of China, which could benefit India.

## Conclusion

- The QUAD is a key group that aims to keep the Indo-Pacific region free and secure, with a particular focus on countering China's growing influence. While it faces some challenges, the group has many promising areas of cooperation, ranging from economic initiatives to maritime security.

## 2.6    SHORT ARTICLES

# 2nd Asia-Pacific Ministerial Conference on Civil Aviation

### Context

- The 2nd Asia-Pacific Ministerial Conference on Civil Aviation was held at Bharat Mandapam in New Delhi.

### Details

- The 2nd Asia-Pacific Ministerial Conference on Civil Aviation was held at the Bharat Mandapam in New Delhi. It was organized by the Ministry of Civil Aviation in collaboration with the International Civil Aviation Organization (ICAO) to address the growth and challenges in the aviation sector in the Asia-Pacific region.

### Delhi Declaration

- The conference adopted the **Delhi Declaration to emphasise the need for sustainable and inclusive growth in civil aviation.**

- The focus is on **strengthening regional cooperation to tackle aviation challenges**, ensuring that the industry can expand sustainably.
- It serves as a framework for increased teamwork among Asia-Pacific nations to improve aviation services.
- It promotes efforts to reduce the carbon footprint of aviation, balancing growth with environmental responsibility.
- It highlights the importance of enhanced safety protocols, ensuring that all countries meet the highest aviation safety standards.
- The **International Buddhist Circuit was proposed by India** to strengthen infrastructure and boost economic growth by improving connectivity between nations.

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**Indian Aviation Sector**

- India's aviation history began in 1911 with the first commercial flight. **After independence, the government nationalized the airline industry in 1953,** creating two major carriers: Air India for international travel and Indian Airlines for domestic flights.
- The liberalization of the 1990s allowed private airlines to enter the market, increasing access to air travel for more people.
- The **Directorate General of Civil Aviation (DGCA), established in 1931, regulates aviation in India, ensuring safety and licensing**. Meanwhile, the Airports Authority of India (AAI) manages airport operations.
- **The sector contributes about 5% to India's GDP**, supporting around 4 million jobs.
- According to the International Air Transport Association (IATA), **India is now the third-largest domestic aviation market, expected to surpass China and the U.S. by 2030.**

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# India–Gulf Cooperation Council (GCC) Summit

## Context

- India and the Gulf Cooperation Council (GCC) have adopted a Joint Action Plan (2024-2028) to enhance cooperation in health, trade, security, agriculture, food security, energy, and culture.

## About the Gulf Cooperation Council (GCC)

- The Gulf Cooperation Council (GCC) is a **group of six countries in the Gulf region: Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and the United Arab Emirates (UAE).**
- It **was formed in 1981** with the objective of improving cooperation among its members in politics, economics, and security.



GULF COOPERATION COUNCIL

## Key Highlights of the Joint Action Plan

- The plan aims to **improve partnerships for future health crises**. Both regions will share expertise, medical technologies, and health research.
- India and the GCC to **boost economic growth by improving trade routes** and making it easier for businesses to access markets.
- The geopolitical importance of the Gulf region requires strong security cooperation, including defence and counter-terrorism initiatives to ensure regional stability.

- There are rising concerns about global food security. **Collaboration in sustainable agriculture and food supply chains to prevent shortages and maintain resilience.**
- **Strengthening energy ties is vital**, as the Gulf is a major oil and gas supplier. At the same time, India's transition to renewable energy opens up new opportunities for working together on clean energy technologies.

## India-Gulf Cooperation Council (GCC) Relations

- **In 2023-24, bilateral trade reached $161.59 billion**. The Joint Action Plan aims to increase this trade value by promoting free trade agreements (FTAs) and reducing trade barriers. For example, Oman is a key energy supplier to India, and a stronger FTA could lead to cooperation in the manufacturing and digital sectors.
- Millions of Indians work in the GCC, especially in the UAE and Saudi Arabia.
- In 2023, **remittances from the Gulf made up about 40% of total remittances to India.**
- **GCC countries provide around 35% of India's oil imports and 70% of its gas imports.**

# Philadelphi Corridor

## Context

- Israel plans to control the Philadelphi Corridor to prevent Hamas from smuggling weapons and rearming.

## About Philadelphi Corridor

- It is a **narrow strip of land that runs along the border between the Gaza Strip and Egypt.**
- It **extends from the Mediterranean Sea to the Kerem Shalom crossing**, which connects Israel and Gaza.
- **This area includes the Rafah crossing,** the main point for people and goods moving between Gaza and Egypt.



- In 2005, Israel pulled its troops and settlements out of Gaza, after this the Corridor was designated as a demilitarized zone. Hamas started using the Philadelphi Corridor to dig tunnels for smuggling weapons and supplies.
- Israel believes controlling the Philadelphi Corridor is essential to prevent Hamas from smuggling weapons and rearming.

# Globe NETWORK

## Context

- India has recently been elected to the 15-member steering committee of the GlobE Network, a global group aimed at fighting corruption.

## About the GlobE Network

- The **Global Operational Network of Anti-Corruption Law Enforcement Authorities (GlobE Network)** was created to help countries work together to tackle corruption and financial crimes.
- It was started as a G-20 initiative and was launched **officially in June 2021**. Now, the

network has 121 countries and 219 member authorities.

- **The GlobE Network helps countries share ideas and strategies to combat corruption.** It allows members to quickly share information about corruption-related crimes, making it easier to act fast. Its goal is to create strong plans to fight corruption globally.
- The network is guided by a steering committee, which includes India now. This committee gives leadership and ensures that the network functions smoothly.
- The **United Nations Office on Drugs and Crime (UNODC) provides the secretariat to manage the network and promote communication among its members.**

### Significance for India
- India has a lot of experience in fighting corruption, which means it can contribute greatly to the network's work.
- Being part of the steering committee allows India to influence global anti-corruption policies.
- **The Central Bureau of Investigation (CBI) and the Enforcement Directorate (ED) are key agencies from India involved in this global effort**, and the **Ministry of Home Affairs coordinate India's participation**.
- By being part of this network, India can also help strengthen international cooperation in fighting corruption, especially in cross-border cases. This is a big step forward for India on the global stage.

# Mineral Security Finance Network
### Context
- India has officially joined the US-led Minerals Security Finance Network (MSFN) to secure its supply chains for critical minerals.

### About Minerals Security Finance Network (MSFN)
- The **MSFN is a group formed to ensure a steady supply of critical minerals**. These minerals are in high demand, especially with the rise of clean energy technologies.

However, **China controls about 60% of the production of rare earth minerals and processes around 80% of them.** This means that most countries, including India, depend heavily on China for these resources.

- **The MSFN is part of the Minerals Security Partnership (MSP), which was created to reduce reliance on China and ensure more countries can access these critical minerals**. The MSP was formed in 2022 and now includes 14 countries including the USA, Australia, Canada, Germany, Japan, and India.

### Why is the MSFN Important?
- The MSFN **helps countries work together to build supply chains for critical minerals** that are diverse, sustainable, and reliable.
- It also **encourages countries to invest in projects that focus on producing, processing, and responsibly recycling these minerals.**
- The group has already identified 150 potential projects, including battery materials development and setting up a mineral processing facility in South America.

### Significance of India's Participation
- **Diversifying Mineral Supply:** India aims to reduce its dependence on China by sourcing critical minerals from other countries like Argentina, Chile, and Australia. These minerals are essential for India's push towards electric vehicles and renewable energy.
- **Boosting Manufacturing:** India wants to become a leader in electronics manufacturing, which requires a steady supply of minerals like lithium and copper. In 2023 alone, India spent around ₹34,000 crore on importing these minerals.
- **Supporting Clean Energy:** India's energy sector is shifting towards renewable energy, and critical minerals are needed for this transition. Joining the MSFN will help India secure the materials necessary for this energy shift.
- By joining this network, India is positioning itself to not only meet its growing demand for these minerals but also play a key role in the

global supply chain for clean energy technologies.

- This is a major step towards securing India's future in renewable energy and electric

vehicles while reducing dependence on China for critical minerals.

## 2.7    SNIPPETS

| Topics | Details |
|---|---|
| Asia Power Index | <ul><li>India has recently been ranked as the third-largest power in the Asia Power Index 2024, surpassing Japan.</li><li>The Asia Power Index is a comprehensive report that **assesses the power dynamics of 27 countries in the Asia-Pacific region.**</li><li>It measures several factors, including economic capability, military strength, and diplomatic influence.</li><li>The index **published by the Lowy Institute**, ranks countries based on their influence in the Asia-Pacific region. The **United States ranks first, followed by China and India.**</li></ul> |
| Morality Law | <ul><li>The Taliban government in Afghanistan enacted a new "morality law" to impose strict rules on women.</li><li>The **morality law sets strict guidelines for how women should behave and dress in public.** Key Highlights are:<ul><li>**Women must cover their entire bodies** when they are in public places. This means they cannot show any skin.</li><li>**Women are not allowed to sing or read aloud in public.** This restricts their freedom of expression.</li><li>**Public interactions between unrelated men and women are forbidden.** This creates a barrier in social communication.</li><li>**Men must avoid wearing shorts above the knee** and must keep their beards closely trimmed.</li></ul></li></ul> |
| FOCAC Summit | <ul><li>The 9th Forum on China-Africa Cooperation (FOCAC) Summit was held in Beijing, China in September 2024.</li><li>The **theme of this year's summit was "Joining Hands to Advance Modernization and Build a High-Level China-Africa Community with a Shared Future."**</li><li>The Forum on China-Africa Cooperation (FOCAC) was **established in 2000 to strengthen ties between China and African countries.**</li><li>China announced a $51 billion fund for infrastructure projects across Africa.</li></ul> |
| Colombo Security Conclave (CSC) | <ul><li>A Memorandum of Understanding (MoU) was signed to establish the Colombo Security Conclave (CSC) Secretariat in Colombo, Sri Lanka.</li><li>It is a **regional security platform** that unites member nations to address common security challenges in the Indian Ocean region (IOR).</li><li>It was **formed in 2011 as a trilateral maritime security organisation with India, Sri Lanka, and the Maldives.**<ul><li>**Mauritius joins** as the fourth member in 2022.</li></ul></li><li>**Bangladesh and Seychelles have joined the alliance as observer nations.**</li></ul> |

## 2.8   ADDITIONAL TOPICS FOR READING FROM IASGYAN WEBSITE

| TOPIC NAME | UPLOADED ON IAS GYAN WEBSITE ON |
|---|---|
| India Has A Special China Problem Above World's General China Problem | 3rd September, 2024 |
| India's Neighbourhood Watch, Past And Present | 5th September, 2024 |
| Prime Minister's Visit To Brunei | 5th September, 2024 |
| Prime Minister's Visit To Singapore | 7th September, 2024 |
| Visit Of Uae Prince To India | 10th September, 2024 |
| India European Union Relations | 10th September, 2024 |
| South China Dispute | 11th September, 2024 |
| Outer Space Treaty 1967 | 13th September, 2024 |
| Indus Water Treaty | 19th September, 2024 |
| Houthis, Israel, Yemen | 20th September, 2024 |
| India As A Security Provider In Indian Ocean Region (Ior) | 20th September, 2024 |
| Regime Change In Sri Lanka: Impact On India | 26th September, 2024 |
| India Japan Relations | 28th September, 2024 |

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# 3. ECONOMY & AGRICULTURE

## 3.1    ORGANIC FARMING IN INDIA

### Context
- The Union Cooperation Minister highlighted the negative impacts of chemical fertilisers.

### Organic farming
- It is a production system that relies **on organic material (such as crop residues, animal residues, legumes, bio-pesticides)** for "maintaining soil productivity and fertility and **prohibits the use of synthetically produced agro-inputs (fertilisers and pesticides).** Instead, it

### Organic farming in India
- India's rank 2nd in terms of World's Organic Agricultural land and 1st in terms of total number of producers. (Source: FIBL & IFOAM Year Book, 2024).
- Organic farming is practised across almost all states in India , with **Sikkim formally declared a 100 percent organic state in 2016.**
- The top three states, accounting for **almost half of the area under organic cultivation, are Madhya Pradesh, Rajasthan, and Maharashtra. However these states** have only 4.9, 2.0, and 1.6 percent of their net sown area under organic farming, respectively.



Figure. State-wise organic coverage (proportion to the net sown area of the state)

- The total volume of export during 2023-24 was 2,61,029 MT. Valued at **INR 4007.91 Crore.**

### Major crops cultivated under organic farming in India
- **India is the world leader in organic cotton production which** contributed 51 percent (37,138 MT) of the global organic cotton production in 2018-19.
- In terms of commodities, **Fiber crops are the single largest category followed by Oil Seeds, Sugar crops, Cereals and Millets**, Medicinal/ Herbal plants, Spices & Condiments, Fresh Fruit Vegetables, Pulses, Tea & Coffee, etc.
- In terms of share of export value of processed organic foods, **soya meal takes the lead (45.87 percent); followed by oilseeds (13.25 percent); plantation crop products such as tea and coffee (9.61 percent); cereals and millers (8.19 percent); spices and condiments (5.20 percent); dry fruits (4.98 percent), and medicinal plants (3.84 percent).**

### Certification of organic farming
- **Either done through the Participatory Guarantee System (PGS) or third-party certification by the Agriculture Processed Food and Export Development Authority (APEDA) in the Ministry of Commerce.**

## Government schemes

### Paramparagat Krishi Vikas Yojana (PKVY)

- **Centrally sponsored scheme launched in 2015 under the National Mission of Sustainable Agriculture (NMSA).**
- It promotes organic farming across India through a cluster approach (500-100 ha).
- It helps **farmers obtain Participatory Guarantee System (PGS) certification.** Besides, organic inputs and capacity building are provided to registered farmers.

### Mission Organic Value Chain Development for North East Regions (MOVCD-NER):

- It is another centrally sponsored scheme launched in 2015.
- It is a sub-mission under the National Mission of Sustainable Agriculture (NMSA) for implementation in Arunachal Pradesh, Meghalaya, Mizoram, Nagaland, Sikkim, Tripura, and Meghalaya.

### Other schemes

- Rashtriya Krishi Vikas Yojana (RKVY),  The Mission for Integrated Development of Horticulture (MIDH), National Programme for Organic Production (NPOP) and  The All-India Network Programme on Organic Farming under the Indian Council of Agricultural Research (ICAR).

## 3.2 DIGITAL AGRICULTURE MISSION

### Context

- The Union Cabinet approved the Digital Agriculture Mission for the creation of Digital Public Infrastructure (DPI) in the farm sector.

### About

- It was designed as an **umbrella scheme to support various digital agriculture initiatives.**
- These include creating **Digital Public Infrastructure (DPI), implementing the Digital General Crop Estimation Survey (DGCES), and supporting IT initiatives by the Central Government, State Governments, and Academic and Research Institutions.**
- The mission also includes '*Soil Profile Mapping*'and aims to enable farmer-centric digital services to provide timely and reliable information for the agriculture sector.

### Pillars

- Agri Stack
- Krishi Decision Support System.

### AgriStack: Kisan ki Pehchaan

- AgriStack is designed as a  farmer-centric

Digital Public Infrastructure (DPI) to streamline services and scheme delivery to farmers. **It comprises three key components:**

1. **Farmers' Registry**: A digital identity, similar to Aadhaar, that links to a farmer's land, livestock, crops, demographics, family, and benefits
2. **Geo-referenced Village Maps**: Links geographic information on land records to their physical locations
3. **Crop Sown Registry**: Records details of crops planted by farmers through mobile-based ground surveys.

### Key targets include

- Creating digital identities for 11 crore farmers over three years (6 crore in FY 2024-25, 3 crore in FY 2025-26, and 2 crore in FY 2026-27)
- Launching the Digital Crop Survey nationwide within two years, covering 400 districts in FY 2024-25 and all districts in FY 2025-26.

### Krishi Decision Support System

- The Krishi Decision Support System (DSS) will

integrate remote sensing data on crops, soil, weather, and water resources into a comprehensive geospatial system.

### Soil Profile Mapping

- Detailed soil profile maps on a 1:10,000 scale for approximately 142 million hectares of agricultural land have been envisaged, with 29 million hectares of soil profile inventory already being mapped.

### Digital Public Infrastructure for Agriculture

- It was announced in the Union Budget 2024-25.
- **Government will, in partnerships with states, implement it for agriculture over the next three years.**
- A digital crop survey for Kharif is planned under it for 400 districts this year.
- The goal is to update registries with details of 6 crore farmers and their lands.
- The DPI will **integrate with state and central digital infrastructures to offer a range of farmer-centric services, including information on livestock, fisheries, soil health, etc.**

## 3.3    ANNUAL REPORT OF PLFS

### Context

- The Annual Report of the **Periodic Labour Force Survey (PLFS) covering July, 2023 – June, 2024** has been released.

### Periodic Labour Force Survey (PLFS)

- **It is a survey that estimates key employment and unemployment indicators for India.**
- **The National Sample Survey Office (NSSO) launched the Periodic Labour Force Survey (PLFS) in April 2017.**

### The objective of PLFS

- To estimate the **key employment and unemployment indicators (viz. Worker Population Ratio, Labour Force Participation Rate, Unemployment Rate) in the short time interval of three months** for the urban areas only in the 'Current Weekly Status' (CWS).
- **To estimate employment and unemployment indicators in both 'Usual Status' and CWS in both rural and urban areas annually.**

### Indicators of PLFS Survey

- It gives **estimates of Key employment and unemployment Indicators like, the Labour Force Participation Rates (LFPR), Worker Population Ratio (WPR), Unemployment Rate (UR), the 'Usual Status' and 'Current Weekly Status'**, etc.

### Reports

- **Seven Annual Reports covering both rural and urban areas** have been released so far.
- These seven Annual Reports are covered **July 2017- June 2018, July 2018-June 2019, July 2019-June 2020, July 2020 - June 2021, July 2021-June 2022, July 2022-June 2023 and July 2023-June 2024.**

### 7th Annual Report of the PLFS(July, 2023 – June, 2024)

- The seventh Annual Report is based on the survey conducted from July 2023 to June 2024.

### Key findings of the report

| Indicator | Overall | Male | Female |
| --- | --- | --- | --- |
| *1) Labour Force Participation Rate (LFPR) in usual status (ps+ss) for persons of age 15 years and above* | **It has increased from 57.9% during July 2022 – June 2023 to 60.1% during July 2023 – June 2024.** | Increased from 78.5% to 78.8% during the same period. | Increased from 37.0% during July 2022 – June 2023 to 41.7% during July 2023 – June 2024. |

| | | | |
|---|---|---|---|
| **2) Worker Population Ratio (WPR) in usual status (ps+ss) for persons of age 15 years and above** | Increased from 56.0% during July 2022 – June 2023 to 58.2% during July 2023 – June 2024. | Increased from 46.0% during July 2022 – June 2023 to 78.2% during July 2023 – June 2024. | **Increased from 35.9% during July 2022 – June 2023 to 40.3% during July 2023 – June 2024.** |
| **3) Unemployment Rate (UR) in usual status (ps+ss)** | **Declined from 3.2% to 2.9%** | Increased from 2.9% to 3.2% during the same time span. | Marginal decline from 3.3% during July 2022 – June 2023 to 3.2% during July 2023 – June 2024. |
| **4) Labour Force Participation Rate (LFPR) for persons of age 15 years and above** | In rural areas, **LFPR increased from 48.9% in 2017-18 to 58.9% in 2023-24 while for urban areas it increased from 47.1% to 50.8%.** | **Increased from 75.1% in 2017-18 to 77.5% in 2023-24.** | Increased from 21.1% to 35.6%. |
| **5) Worker Population Ratio (WPR) for persons of age 15 years and above** | In rural areas, WPR **increased from 44.8% in 2017-18 to 56.5% in 2023-24 while for urban areas it increased from 42.6% to 47.4%.** | Increased from 68.6% in 2017-18 to 73.8% in 2023-24. | Increased from 19.2% to 33.8%. |
| **6) Unemployment Rate (UR) for persons of age 15 years and above** | In rural areas, UR **decreased from 8.4% in 2017-18 to 4.2% in 2023-24 while for urban areas it decreased from 9.5% to 6.7%.** | Decreased from 8.7% in 2017-18 to 4.8% in 2023-24. | Decreased from 9.0% to 5.0%. |

## 3.4    WTO FISH TALKS

### Context

- India's position on fish negotiations at the World Trade Organization (WTO) received support by many developing countries.

### The WTO Agreement on Fisheries Subsidies

- Adopted at the **12th Ministerial Conference of WTO (MC12) on 17 June 2022,** the agreement marks a major step forward for ocean sustainability by prohibiting harmful fisheries subsidies, which are a key factor in the widespread depletion of the world's fish stocks.
- For the Agreement to become operational, **two-thirds of members have to deposit their "instruments of acceptance" with the WTO.**
- However, the **agreement is incomplete and has not yet reached the required number of ratifications to enter into force.**

## Need for agreement

- Approximately **37.7% of global fish stocks are overfished**, compared to just 10% in 1974.
- Governments **globally fund fisheries to the tune of $35 billion, with about $22 billion of that contributing to unsustainable fishing practices.**
- Major countries providing fish subsidies include China, the EU, the US, South Korea, and Japan.
- India's subsidies are relatively modest, **estimated at less than $15 per fisher family annually.**
- **All these issues are aimed to be addressed by the agreement.**

## Phase 2 of WTO Negotiation on Fisheries

- The WTO is working towards concluding the **second phase of the fisheries subsidies agreement,** which focuses on **addressing subsidies contributing to overcapacity and overfishing by the end of the year.**
- The second phase of the World Trade Organization's (WTO) Fisheries Subsidies Agreement (FSA) is a set of negotiations that aim to address issues left out of the original agreement, such as overcapacity and overfishing.
- These negotiations are also known as the "second wave", "Phase 2", or "Fish 2".
- **A draft proposal on Agreement on Fisheries Subsidies** was discussed recently.

## Issues in Draft Proposal

### Flaws in the Draft

- India has highlighted that the draft may perpetuate **unsustainable practices by industrial fishing fleets and could unfairly burden developing countries.**

### Alignment with Sustainability

- The draft needs to better align with sustainability goals without disproportionately affecting smaller, less industrialised fisheries.

### Overfishing Issues

- The draft does not sufficiently address overfishing caused by industrial operations and imposes stringent conditions on small-scale fishers.

## Concerns with Specific Clauses:

### Sustainability Exemption

- The exemption clause allows **advanced fishing nations to avoid cutting harmful subsidies** due to their superior monitoring and technological capabilities.

### Special and Differential Treatment

- Provisions for small-scale fishers for special treatment as provided in draft are deemed inadequate, as they do not effectively tackle the issues caused by industrial fishing.

### Advocacy for Stronger Measures

- There is a push for more effective measures to control industrial fishing subsidies and better support sustainable practices in small-scale fisheries.

## India's Position on Fisheries Subsidies

### Pro-small-scale fisheries

- India wants to ensure that **regulations on fisheries subsidies target large-scale industrial fishing fleets** involved in deep-sea fishing **without affecting the growth of small-scale fisheries.**

### Difference with advanced nations

- India asserts that it has low subsidies and a large fishing community dependent on sustainable practices, while **advanced nations such as the US and China offer bigger subsidies and engage in industrial fishing.**

### Polluters Pay

- India argues that **developed nations,** which have historically contributed to overfishing and resource depletion, **should take on more responsibility for reducing subsidies, adhering to the "polluter pays" principle.**

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# 3.5    10 YEARS OF MAKE IN INDIA

## Context

- The Make in India programme has been completed for 10 years.

## About Make in India

- It was **launched In September 2014 as part of a broader strategy to revitalise the nation's economy.**
- The initiative basically **promises the investors both domestic and overseas a conducive environment to turn 125 crore population** strong-India a manufacturing hub and something that will also create job opportunities.

## Targets

- To increase in **manufacturing sector growth to 12-14 % per annum over the medium term.**
- To increase the **share of manufacturing in the country's Gross Domestic Product from 16% to 25% by 2022.**

- To create **100 million additional jobs by 2022 in the manufacturing sector alone.**

## Pillars of Make in India

### The "Make in India" initiative is based on four pillars.

- **New Processes:** The 'Make in India' initiative emphasizes the importance of easing business operations to promote entrepreneurship through deregulation.
- **New Infrastructure:** The government aims to develop industrial corridors and smart cities with advanced technology and improved logistics.
- **New Sectors:** Twenty-five key sectors have been identified for growth, with resources available through a dedicated web portal and brochures.
- **New Mindset:** The government seeks to transform its relationship with industry, adopting a facilitator role in economic development rather than a regulatory one.

## Sectors in focus

- It has 25 focus areas to attract foreign investment and boost domestic manufacturing, emphasizing areas like automobiles, biotechnology, IT, and tourism.

## Major Initiatives Taken to Boost the Make in India

- **Production Linked Incentive (PLI) Scheme:** It was introduced to boost domestic manufacturing in sectors such as electronics, pharmaceuticals, and automobiles by providing financial incentives based on incremental production.
- **National Manufacturing Competitiveness Programme (NMCP):** It aims to enhance the competitiveness of manufacturing industries through various interventions such as technology upgradation, skill development, and access to finance.
- **Skill India Programme:** It focuses on enhancing the skillsets of the workforce to meet the evolving demands of the manufacturing sector and promote entrepreneurship.
- **Startup India:** It was designed to nurture and support startups, fostering innovation and entrepreneurship in various manufacturing-related fields.
- **Invest India:** It is a **national investment promotion and facilitation agency** that assists investors in setting up and doing business in India, providing information, guidance, and handholding support.
- **Digital India:** It aims to transform India into a digitally empowered society and knowledge economy, facilitating the adoption of digital technologies in manufacturing processes and operations.
- **Smart Cities Mission:** It seeks to develop 100 smart cities across India with modern infrastructure and amenities, fostering sustainable urban development and attracting investment in manufacturing and related industries.

## Achievements

- As of 2023, the initiative has **facilitated the approval of over 240,000 investment proposals, attracting over $75 billion in Foreign Direct Investment (FDI).**
- Various sectors have witnessed significant growth under the initiative, with the **automobile sector growing at an average annual rate of 7.9%, and the electronics sector at 27.3% from 2033–23.**
- The initiative has also led to a notable increase in the ease of doing business in India, with the country's ranking in the **World Bank's Ease of Doing Business Index improving from 142 in 2014 to 63 in 2020.**
- It has contributed to India's emergence as one of the world's fastest-growing economies, with GDP growth averaging around 7% annually in recent years.

## 3.6     CHINA SHOCK 2.0

## Context

- The **United States has imposed steep tariff hikes, including a 100 per cent duty on electric vehicles imported from China with the aim to counteract the influx of Chinese goods, referred to as "China Shock 2.0,"** impacting global trade dynamics.

## What is the China Shock?

- The "China Shock" refers to the significant economic impact on the global market and American jobs following China's entry into the World Trade Organisation(WTO).
- Bill Clinton, the **former US President, supported China's accession to the WTO based on the premise that economic integration would allow Beijing to pursue political reform and economic freedom.**

- It is characterised by **inexpensive Chinese goods, backed by abundant labour, and flooded global markets, resulting in manufacturing job losses internationally.**

## China Shock 2.0

- The "China Shock 2.0" refers to the significant economic impact of China's export-driven industrial policies, which led to an influx of inexpensive goods in global markets, resulting in job losses and industrial decline internationally.
- It is also characterised by inexpensive Chinese goods, backed by abundant labour, flooded global markets, resulting in manufacturing job losses internationally. However, it is more aggressive and higher in volume than China shock 1.0.

### Example of Chinese shock 2.0

- According to IMF calculations, **after the pandemic, China's share of global exports increased by 1.5 percentage points, compared to a minor contraction registered by the US and a decline of over 0.5percentage points recorded by Japan and the UK.**

## Impact of the China Shock on India

- **Disruption to Trade:** The China Shock negatively impacted Indian manufacturing and trade, with bilateral trade reaching $118.4 billion in FY24.
- **Shift in Trading Partners:** China replaced the US as India's top trading partner in FY22 and FY23.
- **Export Decline:** India's exports to China fell by 0.6% from FY19 to FY24, while imports surged by 44.7%.
- **High Import Figures:** Imports from China hit $101 billion in FY24, compared to exports of just $16.65 billion.
- **Increased Dependency:** Imports from China increased nearly 60% from $70 billion in FY19 to $101 billion in FY24, despite restrictions post-Galwan clash. (Source:

Global Trade Research Initiative (GTRI) report 2023)

### Steel Sector

- **Export Drop:** India's iron and steel exports fell by 19% in August 2024 and 29.4% from April to August 2024-25.
- **Record Imports:** Finished steel imports from China reached a six-year high at 3.7 million metric tons in early FY24-25.

### Electronics Sector Dependency

- About 43.9% of India's electronics sector relies on Chinese imports. India imported over $12 billion in electronic components from China and $6 billion from Hong Kong in FY24.

## Strategies adopted by India to tackle China Shock

### Imposing Anti-Dumping and Anti-Subsidy Duties

- **India is imposing anti-dumping and anti-subsidy duties on various imported goods from China with the aim to protect domestic industries from unfair pricing practices and excessive competition that threaten local manufacturers. In 2024 alone, India imposed over 30 anti-dumping investigations against China, the most against any country.**

### Implementing Quality Control Orders (QCO)

- **India is also implementing Quality Control Orders (QCO) to regulate the import of cheap goods from China.** These orders require that certain products meet specified quality standards before being allowed entry into the Indian market with the aim to safeguard consumer interests and encourage the purchase of higher-quality domestic alternatives.

### Collaborating with Western Countries

- **New Delhi is considering partnerships with Western nations to counter the dominance of Chinese high-tech products in the global market. For example, India has engaged in discussions with the U.S. on semiconductor**

manufacturing and technology transfer, aiming to establish a robust domestic semiconductor industry.

## Way ahead
### Diversification of imports
- Reduce reliance on Chinese imports by exploring alternative suppliers in other countries, particularly those with good political relations with India. **India should target achieving the 25% share in GDP through Industry 4.0 technologies.**

### Boosting domestic manufacturing
- Implement policies to encourage domestic production of goods currently imported from China, including through **Production-Linked Incentive (PLI) schemes.**

### Focus on high-value exports
- India should focus on exporting high-margin products like engineering goods, pharmaceuticals, and chemicals.

### Export-Oriented Manufacturing boost
- India should focus on the development of export-oriented manufacturing which could help Indian businesses tap into new markets such as Africa and increase their competitiveness.

### FTAs
- ndia may also consider negotiating an FTA with China prioritising the crucial sectors of India to increase exports and reduce the trade deficit.

## 3.7    NATIONAL SECURITY AND FDI

## Context
- **A large part of the debate over Chinese FDI in India seems to weigh potential economic gains against security risks associated with foreign investment.**

## What is Foreign direct investment (FDI)?
- The term FDI refers to an **ownership stake in a foreign company or project made by an investor, company, or government from another country.** FDI is generally used to describe a business decision to acquire a substantial stake in a foreign business or to buy it outright to expand operations to a new region.

## Foreign direct investment (FDI) as threats to national security
- **Strategic Asset Control:** FDI can enable foreign control over critical infrastructure, raising concerns about vulnerability to sabotage and espionage, as seen with Chinese investments in U.S. energy firms.

- **Intellectual Property Theft:** Foreign investments can lead to the inadvertent transfer of sensitive technologies, exemplified by Chinese firms accused of stealing U.S. technology secrets in aerospace and semiconductors.
- **Economic Dependence:** Relying heavily on foreign investments can create economic vulnerabilities, forcing nations to align with the political agendas of their investors and undermining sovereignty.
- **Influence Operations:** Foreign investments can be used to sway domestic policies or public opinion, with examples including investments in media that spread propaganda and misinformation, affecting democratic processes.

## Need for separate legislation for security reasons
- **Lack of legislation:** India does not have an explicit law framework that regulates FDI and international trade from the prism of national security.

- **Limitations of FEMA(Foreign Exchange Management Act):** There is no **explicit provision by FEMA regarding the scrutiny of FDI in relation to the national security consideration.** It thus leaves a lacuna of the law as the national security considerations cannot cohabit within foreign exchange control to seek recourse under FEMA.

## Use of economic laws for security purposes

- **Press Note 3 (PN3):** Issued in April 2020, **PN3 mandates government approval for investments from countries sharing land borders, primarily targeting Chinese FDI during the pandemic.**
- **Denouncement of MFN Status:** After the Pulwama attack in February 2019, India revoked the most favored nation status for Pakistan and **raised customs duties to 200%, using section 8A(1) of the Customs Tariff Act, which is typically for economic emergencies.**
- Section 8A(1) confers "emergency powers" on the government to increase tariff rates. It is typically meant for economic emergencies, not for issues arising from terrorist attacks.

## Comparison with other Countries:

- While other countries also curtailed Chinese FDI during the pandemic, they did this under existing legal frameworks meant specifically to address national security risks. For instance, **Canada's Investment Act explicitly gives governmental powers to screen and act against harmful foreign investments.**

## International Treaty Practices

- **Provisions in Treaties:** India's international investment treaties and free trade agreements include specific provisions for current and capital account transactions and national security.
- **2015 Model Bilateral Investment Treaty (BIT):**
  - Article 6 addresses foreign investment-related exchange control issues.

  - Article 33 allows the state to take measures for national security, even if they conflict with treaty provisions.
- **Trade Agreements:** International agreements like the General Agreement on Tariffs and Trade include provisions to manage trade restrictions related to foreign exchange difficulties and national security.
- **Limitations:** These treaty provisions apply only in the international context, necessitating reliance on existing economic laws for domestic national security issues.

## Way ahead

### Establish a Comprehensive Legal Framework

- India should **enact specific legislation to regulate FDI with a focus on national security**. This framework should incorporate best practices from other countries and provide clear guidelines for scrutiny and approval processes for foreign investments, particularly from nations posing security risks.

### Strengthen Screening Mechanisms

- Develop robust mechanisms to assess and screen foreign investments based on potential security implications. This could include a dedicated government body to evaluate transactions, ensuring that investments do not compromise critical infrastructure or sensitive technologies.

### Enhance Transparency and Reporting Requirements

- Implement mandatory disclosure requirements for foreign investors regarding their ownership structures and intentions. Transparency will help mitigate risks related to intellectual property theft and influence operations, enabling better oversight of foreign investments.

### Promote Domestic Industries

- Focus on boosting domestic manufacturing and technology sectors to reduce reliance on

foreign investments, particularly from China. Incentives for local businesses and investments in innovation can help strengthen India's economic sovereignty and resilience.

**Engage in Multilateral Cooperation**

- Collaborate with other nations facing similar challenges from Chinese FDI to share intelligence and best practices. Forming alliances or coalitions can enhance collective security measures and provide a united front in addressing potential threats posed by foreign investments.

## 3.8    SHORT ARTICLES

# AgriSURE - Agri Fund for Start-ups & Rural Enterprises

## Context

- Union Minister for Agriculture and Farmers' Welfare and Rural Development, launched the AgriSURE Scheme.

## About the scheme

- It is an innovative fund to focus on technology-driven, high-risk, high-impact ventures in the agriculture sector in India.
- It is designed to fuel growth and foster innovation in the agricultural and rural start-up ecosystem.

## Funding

- A **blended capital fund of ₹750 crore with SEBI Registered Category II, Alternative Investment Fund (AIF).**
- **750 Crore=Contributions from the Government of India (₹250 crore) + NABARD (₹250 crore) + Mobilised from banks, insurance companies, and private investors (₹250 crore).**
- NABVENTURES a fully owned subsidiary of NABARD will act as the fund manager.

## Focus areas

- Promoting innovative, technology-driven initiatives in agriculture, enhancing the farm produce value chain, creating new rural ecosystem linkages and infrastructure, generating employment and supporting Farmers Producer Organisations (FPOs).

## Alternative Investment Fund (AIF)

- They are **defined in Securities and Exchange Board of India (Alternative Investment Funds) Regulations, 2012.**
- It refers to **any privately pooled investment fund, (whether from Indian or foreign sources), in the form of a trust or a company or a body corporate or a Limited Liability Partnership (LLP).**

## Categories of Alternative Investment Funds (AIFs)

- **Category I:** Mainly **invests in start- ups, SME's or any other sector** which Govt. considers economically and socially viable.
- **Category II:** These include Alternative Investment Funds such as **private equity funds or debt funds** for which no specific incentives or concessions are given by the government or any other Regulator
- **Category III :** Alternative Investment Funds such as **hedge funds or funds which trade with a view to make short term returns or such other funds which are open ended and for which no specific incentives or concessions are given by the government or any other Regulator.**

# Vertical Fiscal Imbalance

## Context

- The financial relationship between the Union government and the States in India is asymmetrical, leading to Vertical Fiscal Imbalance.

## Fiscal Imbalance in India

- The term fiscal imbalance refers to a situation that occurs **when a government's future debt obligations don't balance with its future income streams.**

### Types of Fiscal Imbalances

### Horizontal Fiscal Imbalance:

- It is a <u>situation in which revenues do not match expenditures for different regions of the country.</u>
- It is used to justify payments to a state or province from the federal government to offset monetary imbalances between different parts of the country.
- For example special grants to scheduled areas under article 275(a) and to some north eastern states.

### Vertical Fiscal Imbalance:

- A vertical fiscal imbalance <u>describes a situation in which revenues do not match expenditures for different levels of government.</u>
- For example, As per the 15th Finance Commission, **States incur 61% of the revenue expenditure but collect only 38% of the revenue receipts, creating vertical fiscal imbalance.**
- VFI leads to **reduced fiscal capabilities in different levels and arms of government,**
- A vertical fiscal imbalance is a structural issue that can be resolved if revenue and expenditure responsibilities are reassigned.

### How to calculate VFI?

**VFI in India is calculated after the devolution of taxes to the States.**

- Calculating the Ratio = (ORR + Tax Devolution)/ORE.
- If the ratio is less than 1, subtract it from 1 to find the deficit: Deficit=1−Ratio
- The deficit obtained is used as a proxy for VFI after devolution.
- (Numerator: Sum of Own Revenue Receipts (ORR) and tax devolution from the Union government for all States, Denominator: Own Revenue Expenditure (ORE) for all States.)

# Invest India

### Context

- **Centre's Start-up India initiative will be moved out of the aegis of the official investment promotion and facilitation agency Invest India**, to a new non-profit company that could also house the National Start-up Advisory Council.

### Invest India

- Invest India, headquartered in New Delhi, is the **National Investment Promotion and Facilitation Agency of India,** set up as a **non-profit venture under the aegis of the Department of Industrial Policy & Promotion, Ministry of Commerce and Industry, Government of India.**
- It facilitates and empowers all investors under the 'Make in India' initiative to establish, operate and expand their businesses in India.
- **The Department for Internal Trade and Promotion of Industry conducts a regular review of the performance of the Invest India Programme.**

### How does India help investors?

- Invest India offers a **one-stop solution to global and domestic investors by handholding them throughout their journey from the day they start exploring India as an investment destination** to the time of deployment of their investments and even beyond.
- It provides **sector and specific state inputs and other support to investors** throughout the entire investment cycle.
- It provides **tailor-made incentive offers** and collates the information needed to optimise decision-making.
- It also **mediates between the government and businesses, and supports in their future expansion plans,**
- It helps investors in bringing them to market, or identifying, developing, and deploying technologies on the ground.

### Other Services Offered

- **Business Planning & Advisory:** Policy and

incentives advisory, Market entry strategy, Expansion advisory

- **Strategy & Implementation:** Market entry strategy, JV and strategic partner search, License and compliance advisory
- **Long-Term Partnership:** Expansion advisory, Policy impact analysis, Facilitation

# SPICED Scheme

## Context

- The Union Ministry of Commerce and Industry has approved the SPICED scheme.

## About

- SPICED stands for "**Sustainability in Spice Sector through Progressive, Innovative, and Collaborative Interventions for Export Development.**" This plan will be valid up to 2025-26.

## Aims

- To improve **the area of cultivation of both small and large cardamom and raising productivity, thereby increasing surplus for export through improvements in post-harvest processes.**
- T**o increase the percentage of value-added spices in the export basket, protect quality and safety standards for consignments designated for exports, and develop capacity and skills for stakeholders** in the spice sector.

## Components

- **Mission Value Addition, Mission Clean and Safe Spices, promotion of GI (Geographical Indication) spices, and support for entrepreneurship through Spice Incubation Centres.**

## Target groups

- **FPOs (Farmer Producer Organizations), farmer clusters identified under ODOP (One District One Product) and DEH (District Export Hub), as well as SC/ST communities, exporters from the NE region, and SMEs (Small and Medium Enterprises).**

## Benefits

- <u>**Enhancing Exportable Surplus:**</u> Targeted assistance is provided to enhance the creation of an exportable surplus of spices while ensuring compliance with food safety and quality standards.
- <u>**Cardamom Productivity Initiatives:**</u> Initiatives for cardamom focus on increasing productivity through replanting efforts, production of quality planting material, developing water sources, and implementing micro-irrigation systems.
- <u>**Weather-Based Insurance:**</u> Weather-based insurance programs are promoted to protect farmers' interests in cardamom production.
- <u>**Post-Harvest Quality Improvements:**</u> Post-harvest quality improvements for spices are addressed through the Mission Clean and Safe Spices initiative, which emphasises sustainable production and certification systems.
- <u>**Branding and Quality Assurance:**</u> The programs encourage branding and implementation of food safety and quality assurance mechanisms to improve India's global competitiveness in the spice sector.
- <u>**Supporting Innovation and Entrepreneurship:**</u> Financial assistance is available for Spice Incubation Centres to foster innovation and entrepreneurship, providing a platform for startups, SMEs, and entrepreneurs in the spice sector.
- <u>**Assistance for Exporters:**</u> Exporters with a valid Certificate of Registration as Exporter of Spices (CRES) are eligible for assistance under these programs, with a preference for first-time applicants and SMEs.

# International Treaty on Plant Genetic Resources for Food and Agriculture

## Context

- The **12th Meeting of the Ad Hoc Open-Ended Working Group on the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA)** was successfully held in Rome, Italy.

**About**

- It is an **agreement between countries to manage and share plant genetic resources for food and agriculture.**
- It was established in 2001 to facilitate the fair sharing of benefits arising from plant genetic resources.

**Members**

- As of September 2022, 149 countries and the European Union were contracting parties to the treaty, including India.

**Coverage**

- It covers 64 major crops, which account for about 80% of the world's plant-derived food.

**Objectives**

- **Access to genetic materials:** The treaty provides access to genetic materials for research, breeding, and training for food and agriculture.
- **Benefit sharing:** Recipients of genetic materials must share any benefits they derive from their use with the countries where the materials originated.
- **Conservation**: The treaty promotes the conservation and sustainable use of plant genetic resources.
- **Fairness**: The treaty ensures that the benefits of plant genetic resources are shared fairly and equitably.
- **Climate change adaptation:** The treaty helps address the challenges of climate change adaptation and crop diversity loss.

**12th Meeting of ITPGRFA**

**The delegates which included members of civil society, farmers' organisations, and representatives from the seed industry focused discussions on three main hotspots:**

- **Digital Sequence Information (DSI) and how to share plant genetic information responsibly** to ensure fair benefits for all involved.
- **Expanding Annex I, which is a list of 35 food crops and 29 forage crops considered important for food security.** The group discussed whether to add more important plant species to make sharing easier between countries.
- **Payment structures for benefit sharing:** Delegates considered how to set fair prices for sharing plant resources to ensure resource providers are fairly compensated.

**Outcome:**

- Delegates **introduced a new subscription mechanism designed to ensure communities benefit from providing access to genetic resources,** even in cases where products developed from these resources fail to reach commercialisation and **examined the connection between genetic resources under the Treaty and those governed by the UN Kunming-Montreal Global Biodiversity Framework.**

# Credit Default Swaps

**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 the corporate bond market.

**What Is a Credit Default Swap (CDS)?**

- It is a **financial derivative that allows an investor to swap or offset their credit risk with that of another investor.**
- It may involve bonds or forms of securitized debt—derivatives of loans sold to investors.

**How Credit Default Swaps (CDSs) Work**
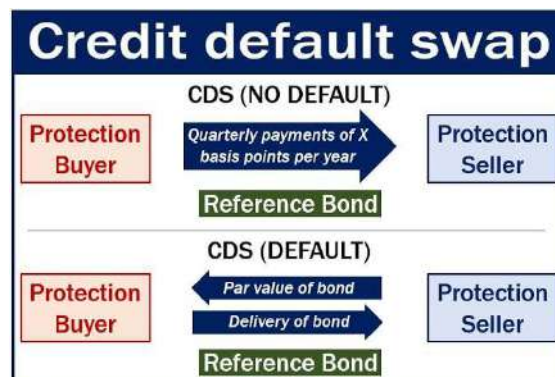
- A credit default swap is a derivative contract that **transfers the credit exposure of fixed-income products.**
- For example, suppose a company sells a bond with a $100 face value and a 10-year maturity to an investor. The company might agree to pay back the $100 at the end of the 10 years with regular interest payments throughout the bond's life.
- **The debt buyer can purchase a CDS to transfer the risk to another investor, who agrees to pay them in the event the debt issuer defaults on its obligation.**

Instances where CDS are used:

- As an insurance policy against a credit event on an underlying asset, credit default swaps are used in several ways.

| Speculation | Hedging | Arbitrage |
|---|---|---|
| **It is the act of buying an asset with the expectation that it will increase in value shortly. It can also refer to short selling, where the speculator hopes the value will decrease.** Because swaps are traded, they naturally have fluctuating market values that a CDS trader can profit from. Investors buy and sell CDSs from each other, attempting to profit from the difference in prices. | Hedging is a risk management strategy employed to offset losses in investments by taking an opposite position in a related asset. | Arbitrage **generally involves purchasing a security in one market and selling it in another.** |
| **Speculation can be risky, as speculators may focus on price movements rather than the fundamental value of the security.** | **A credit default swap by itself is a form of hedging. A bank might purchase a CDS to hedge against the risk of the borrower defaulting. Insurance companies, pension funds, and other securities holders can purchase CDSs to hedge credit risk.** | CDSs can be used in arbitrage—an investor can purchase a bond in one market, and then buy a CDS on the same reference entity on the CDS market. |

# Nutrient Based Subsidy (NBS) Scheme

## Context

- The Union Cabinet has approved the Nutrient Based Subsidy (NBS) rates for RABI Season 2024 on Phosphatic and Potassic (P&K) fertilisers.

## About

- Launched in 2010, the scheme aims to ensure that farmers have access to fertilisers at affordable prices. The **scheme provides subsidised fertilisers to farmers in India.**
- It is managed by the Department of Fertilisers under the Ministry of Chemicals & Fertilisers.

- **Cabinet continued funding for the NBS was approved until 2019-20** to ensure availability of P&K fertilisers at controlled prices. However it has been extended further till 2024-25.

## Objectives of NBS

- Ensure adequate availability of P&K fertilisers at controlled prices.
- Promote balanced fertilizer use and improve agricultural productivity.
- Support the growth of the domestic fertiliser industry. Alleviate the financial burden of subsidies on the government.

## Coverage

- It provides **subsidies on Phosphatic and Potassic (P&K) fertilisers but excludes Urea.**

## Financial allocation

- Initial allocation was Rs 71,000 crore for FY 21. In Budget 2021 an additional Rs 65,000 crore was allocated.

## Subsidy Structure

- A fixed subsidy amount is determined annually based on the nutrient content of each fertilizer grade.

## Price control

- **Urea remains the only fertiliser sold at a fixed price; the NBS allows flexibility for P&K fertilisers based on various economic factors.**
- The Maximum Retail Price (MRP) for P&K fertilisers is set by manufacturers, considering domestic and international costs, inventory levels, and currency exchange rates.

## Benefits

- **Availability of fertilisers to farmers at subsidised, affordable and reasonable prices will be ensured.**
- **Rationalisation of subsidy on P&K fertilisers in view of recent trends in the international prices of fertilisers and inputs.**

## Implementation Strategy and targets

- **The subsidy on P&K fertilisers will be provided based on approved rates for Rabi 2024 (applicable from 01.10.2024 to 31.03.2025) to ensure smooth availability of these fertilisers to the farmers at affordable prices.**

# PM AASHA

## Context

- The Union Cabinet has approved the continuation of schemes of Pradhan Mantri AnnadataAaySanraksHan Abhiyan (PM-AASHA).

## About

- Announced in the **Union Budget for 2018 it is an umbrella scheme to ensure remunerative prices to the farmers for their agricultural produce.**

## Financial outlay

- The total financial outgo for the schemes will be Rs. 35,000 crore during the 15th Finance Commission Cycle up to 2025-26.

## Objectives

- Provide remunerative prices to farmers.
- Control price volatility of essential commodities.
- Ensure availability of essential items at affordable prices for consumers.

## Components

### Price Support Scheme (PSS)

- Physical procurement of pulses, oilseeds, and copra will be conducted by Central Nodal Agencies with support from state governments.
- The Food Corporation of India (FCI) will participate in PSS operations alongside NAFED.
- The central government will cover procurement expenses and any incurred losses.

### Price Deficiency Payment Scheme (PDPS)

- The Price Deficiency Payment Scheme will include all oilseeds with a notified Minimum Support Price (MSP).
- Pre-registered farmers will receive direct payments for the difference between MSP and market selling prices.
- Payments will be transferred directly to farmers' registered bank accounts.
- The coverage under it has increased from 25% to 40% of state oilseed production, with an extended implementation period from 3 to 4 months.

### Private Procurement & Stockist Scheme (PPSS)

- A pilot scheme will test the role of private entities in procurement operations.
- States can roll out the scheme in specific districts or APMCs for oilseeds.
- Selected private agencies will procure crops at MSP when market prices are below MSP.

## Procurement strategy

- From the 2024-25 season, the procurement of notified pulses, oilseeds, and copra at Minimum Support Price (MSP) will be based

on 25% of the national production, ensuring better prices and preventing distress sales.
- For Tur, Urad, and Masur in the 2024-25 season, there will be 100% procurement to support farmers.
- The Department of Consumer Affairs (DoCA) will procure pulses at market prices to ensure availability when prices exceed MSP.

### Compensation
- The central government will compensate for the difference between MSP and sale/modal prices, limited to 15% of MSP.

## Nidhi companies

### Context
- The Registrar of Companies (RoC) under the corporate affairs ministry has penalised over two dozen Nidhi companies for alleged violations of Companies Act provisions.

### About
- Nidhi Company is a type of **Non-Banking Financial Company (NBFC).**
- It is formed to **borrow and lend money to its members.**
- It inculcates the habit of saving among its members and works on the principle of mutual benefit.
- Nidhi Company **isn't required to receive a licence from the Reserve Bank of India (RBI)**, hence it is easy to form.
- It is registered as a public company under section 406 of the Companies Act 2013. and should have "Nidhi Limited" as the last word of its name.

### Prohibited activities
- **Nidhi Company can't deal with chit funds, hire-purchase finance, leasing finance, insurance or securities business.**
- It is strictly prohibited from accepting deposits from or lending funds to, any other person except members.
- Also, it can't advertise itself to ask for any deposits.

### Number of Members
- A minimum of seven members is required to start a Nidhi Company out of which three members must be the directors of the company.

### Share capital
- A minimum of 5 lakh rupees, is required as the equity share capital to start a Nidhi Company.
- Nidhi Company can't issue preference shares.

### Conditions to be fulfilled for getting 'Nidhi' status
### Within one year of its registration
1. Nidhi Company should have a minimum of 200 members within one year from commencement.
2. Also, the net owned funds should be 10 lakh rupees or more.
3. Unencumbered term deposits must be 10% or higher of the outstanding deposits.
4. The ratio of net owned funds to deposits shouldn't be more than 1:20.

## Rice varieties in news: PUSA-2090 and PUSA 44

### Context
- A rice variety PUSA-2090 can address farm fires due to PUSA-44 in Punjab and Haryana.

### PUSA 44
- It is a variety of high yielding rice developed and introduced in 1993 in Punjab and Haryana region by the **Indian Agricultural Research Institute (IARI), which is based in New Delhi.**
- *Cropping in season:* **Transplanted in mid-June after nursery sowing a month before, can be harvested only towards the end of October.**
- *Growth duration:* Approximately 155 to 160 days from the time of sowing until harvesting.

*Yield potential:*
- It is known for its large yield and **produces between 35 and 36 quintals per acre.** In some cases, farmers have reported yields which are as high as 40 quintals.
- This yield is **notably higher than other varieties such as PR-126, which produces about 30 to 32 quintals but has a shorter**

**maturation period of 123 to 125 days.**

*Economic viability:*

- The increased yield offers significant financial benefits, amounting to approximately ₹9,280 to ₹11,600 per acre.

*Issues in the cultivation of this Rice*

- Due to their **long maturity period, farmers in Punjab and Haryana generally have a small window between harvesting PUSA-44 and sowing the next crop.** This leads to farmers resorting to **stubble burning to clear the farms.**

- **High water requirement makes it water intensive which results in groundwater depletion in Punjab and Haryana region** where water depletion has reached the critical levels.

### PUSA-2090

- It is the variety of rice **developed by IARI, Delhi amd its seen as an alternative to PUSA-44.**

- This variety aims to reduce stubble burning and improve water efficiency by requiring fewer irrigations.

- *Maturity and Yield potential:* It matures faster (120-125 days) while maintaining comparable yields as that of PUSA-44 (34-35 quintals per acre).

- *Development:*The rice variety created by crossing Pusa-44 with CB-501, an early maturing rice variety.

- *Introduction*: It has been tested at the All-India Coordinated Rice Improvement Project and is recommended for cultivation in areas like Delhi and Odisha. Farmers in these regions have reported encouraging yield outcomes with Pusa-2090.

- *Benefit over PUSA-44:* Pusa-2090 combines the high yield potential of Pusa-44 with the faster growth of CB-501, to make it a valuable option for farmers.

# Global Innovation Index (GII) 2024

## Context

- Global Innovation Index (GII) 2024 a report by the Geneva-based World Intellectual Property Organization has been released.
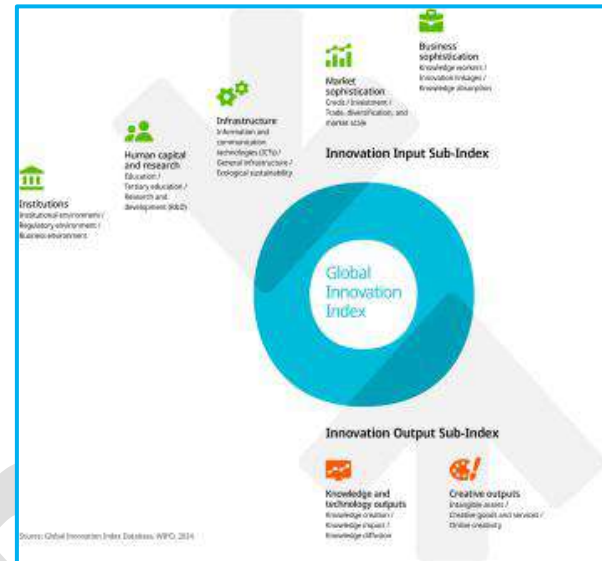


### Global Innovation Index (GII)

- It is a **yearly publication of World Intellectual Property Organization (WIPO), Cornell University, and INSEAD and it ranks the innovation performance of countries and economies around the world.**

- The GII ranks the innovation performance **countries based on criteria that include institutions, human capital and research, infrastructure, credit, investment, linkages; the creation, absorption and diffusion of knowledge; and creative outputs.**

- The GII **uses a dataset of over 80 indicators from public and private sources to measure innovation.**

- The GII has two sub-indices: the Innovation Input Sub-Index and the Innovation Output Sub-Index, and seven pillars, each consisting of three sub-pillars.

### The Global Innovation Index (GII) 2024

- It is a report that **ranks the innovation performance of 133 economies.**

**Global Innovation Index (GII) 2024 in the context of other countries**

- The GII 2024 highlights **Switzerland, Sweden, the United States, Singapore, and the United Kingdom as the world's most innovative economies.**
- **China, Turkiye, India, Vietnam, and the Philippines emerged as the fastest climbers over the past decade.**
- **China reached the 11th position and remains the only middle-income economy in the GII top 30.**

Global Innovation Index (GII) 2024 in the context of India

- **India has moved up to the 39th position among 133 economies in the Global Innovation Index (GII) 2024** from its standing of 81st in 2015.

India achieved these remarkable milestones:

- 1st among 10 economies in Central and Southern Asia,
- 1st among lower-middle-income economies, and
- 4th in WIPO Science & Technology (S&T) Cluster Ranking.
- **7th rank globally in intangible asset intensity,** which measures the strength of non-physical assets such as patents and trademarks that are essential for driving innovation.
- Major cities such as **Mumbai, Delhi, Bengaluru, and Chennai are ranked among the world's top 100 science and technology clusters**.

## 3.9 ADDITIONAL TOPICS FOR READING FROM IASGYAN WEBSITE

| TOPIC NAME | UPLOADED ON IAS GYAN WEBSITE ON |
|---|---|
| MSCI Investable Market Index | 7th September 2024 |
| Making India a Start-up Nation | 8th September 2024 |
| Financialisation | 9th September 2024 |
| Stick to Fiscal Deficit as the Norm for Fiscal Prudence | 13th September 2024 |
| Food Security Act has revamped the PDS | 17th September 2024 |
| Status of Infra Sector in India | 19th September 2024 |
| Edible oil in India | 21st September 2024 |
| Relative Economic Performance of Indian States | 22nd September 2024 |
| Is the spike in India's trade deficit a worry | 23rd September 2024 |
| Pitfalls of estimating GDP | 24th September 2024 |
| Transit Oriented Development (TOD) Policy | 25th September 2024 |
| Bilateral Investment Treaty (BIT) | 28th September 2024 |
| Central Silk Board | 30th September 2024 |

# 4. DEFENCE & SECURITY

## 4.1    PEACE ACCORD IN TRIPURA

### Context
- Centre and Tripura government sign peace accord with NLFT and ATTF.

### Insurgency in North Eastern Region
- **Definition:** An insurgency is a violent, armed rebellion by small, lightly armed bands who practice guerrilla warfare against a larger authority.
- **North Eastern Region:** The Insurgency in Northeast India involves multiple **separatist militant groups** operating in some of India's northeastern states.
- Tensions existed **between insurgents in these states and the central government** as well as **amongst their native indigenous** people and **migrants** from other parts of India and illegal immigrants.
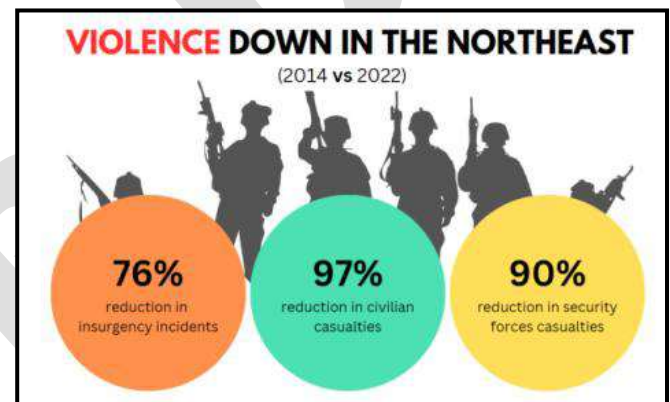
### Cause of Insurgency
- Their geographic and ethnic **'othering' from 'mainland' India.**
- The intra-regional **ethnolinguistic fractionalization**.
- Their unique history that **diverges from the "national canon"**, and **the post-colonial Indian government's insufficient attempts to mainstream North Eastern Region's distinct social and economic characteristics** in their **development strategies.**

### Major Insurgent Groups
- **Sengkrak (1967):** First insurgent group focused on tribal concerns. Though short-lived, it set the stage for future movements.
- **Tripura National Volunteers (TNV) (1978):** Opposed the Bengali influx and demanded tribal rights. Disbanded after a peace accord in 1988.

- **National Liberation Front of Tripura (NLFT) (1989):** Aimed for an independent Tripuri state, operated from Bangladesh.
- **All Tripura Tiger Force (ATTF) (1990):** Aimed to deport Bengali migrants and restore tribal rights, also operated from Bangladesh. Largely inactive by the late 2000s.

### Reduction in Insurgency



**VIOLENCE DOWN IN THE NORTHEAST** (2014 vs 2022)

**76%** reduction in insurgency incidents

**97%** reduction in civilian casualties

**90%** reduction in security forces casualties

### Reasons behind the Decline of Insurgency in North-East Region

**Agreements:**
- The 2019 **NLFT peace** accord.
- The agreement for **Bru migrants' permanent resettlement** in Tripura.
- The 2020 **Boro Accord** in Assam in 2020.
- The 2021 **Karbi Peace Accord** in Assam.
- The **Adivasi Accord.**
- The 2022 **Assam-Meghalaya interstate boundary agreement**.
- The **Assam-Arunachal Pradesh interstate boundary agreement**.
- The **Dimasa peace accord**,
- The **UNLF accord**.
- The 2023 **ULFA Accord.**

**Rehabilitation and Development Programs**
- Offered **financial grants**, **vocational training, and employment** to surrendered insurgents.

## Counter-Insurgency Operations

- Paramilitary forces **dismantled insurgent camps**.

## Improved Relations with Neighboring Country Bangladesh

- Cooperation between **India and Bangladesh** helped reduce insurgent activity from cross-border bases.

## Schemes

- Like **Janajati brothers.**

## Withdrawal of AFSPA

- **AFSPA from Tripura was lifted in 2015**

## Recent Development

### Tripura Agreement 2024

- The Central government, in collaboration with the Tripura state government, has signed a significant peace agreement with the **NLFT and ATTF.**
- Under the agreement signed recently, more than **328 armed cadres** will give up violence and join the mainstream of society.
- This agreement is the **12th peace pact** in the Northeast and the **third related to Tripura**, with over **10,000 insurgents having surrendered** and joined the mainstream under similar accords.
- Government of India has resolved to develop the entire Northeast including Tripura by combining the concepts of '**Ashtalakshmi' and 'Purvodaya'.**

## Way forward

### Negotiations

- Priority-based negotiations with insurgent groups willing to come to the table.

### Empowerment of Autonomous District Councils

- Grant more powers to the Autonomous District Councils to address local demands effectively.

### Improvement in Governance

- Reduce corruption and discrimination based on ethnic identity for better governance and inclusivity.

### Fulfilling Youth Aspiration

- Create employment opportunities for local youth to engage them in productive activities.

### Development Focus

- Integrate the North-East as a single economic unit without altering political boundaries.

### Relations with Bangladesh

- Improve relations with Bangladesh through foreign policy, cultural exchange, and social linkages to enhance economic impact on the North-East.

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## 4.2   SHORT ARTICLES

# Joint Commander's conference

### Context

- Two-Day Maiden Joint Commanders Conference to begin on September 4 in Lucknow.

### The conference

- Held in Headquarters Central Command, **Lucknow.**
- Theme: **'Sashakt aur Surakshit Bharat: Transforming the Armed Forces'.**

- **Key Participants:** Union Defense Minister, Chief of Defense Staff, Heads of the three defense forces.
- **JCC Purpose:** The JCC is envisioned as a vital forum for exchanging ideas, strategies, and best practices among India's top military leadership.

### Focus Areas

- Analyzing the impact of **regional and global geopolitical disruptions**, Preparing for **future**

**wars,** Enhancing **jointness and integration** among the armed services.

- **Technology absorption** under the Government's 'Atmanirbharta' initiative to achieve self-reliance in defense.

### Expected Outcomes

- **New JLNs:** Plans to establish four additional JLNs at Leh, Siliguri, Sulur, and Prayagraj.
- **Existing JLNs:** Currently located in Mumbai, Guwahati, and Port Blair.
- **Benefits:** Integrated logistics cover, manpower savings, resource optimization, and financial savings.
- **Management:** Each JLN is managed by the Service with a larger presence at that location.
- Establishment of **three theatre commands,** Two land commands for western and **northern borders**, One maritime command to oversee the **country's vast coastline.**

### Reform:

- The Joint Commanders' Conference will now be held biennially instead of annually, with the combined commanders' conference addressed by the Prime Minister taking place every two years.

# Grom-E1 Missile

### Context

- Russia attacks Kharkiv with Grom-E1 missile-bomb for first time.

### About the missile

- The **Kh-36 Grom-E1** is an **air-to-surface cruise missile** developed by **Russia.**
- The **"Grom"** system was developed in **2015 and officially unveiled for the first time in 2018.**
- These are guided missiles equipped with a **high-explosive modular**, featuring a contact detonator and powered by a **jet engine and also uses a combined guidance system.**
- The guidance system includes **inertial guidance** for basic navigation supplemented **by satellite-based trajectory correction, likely using the GLONASS system.**

- They can be launched up to a range of **120 kilometers** when dropped from a maximum altitude of **12 kilometers,** with the aircraft reaching speeds of up to 1,**600 kilometers per hour.**
- In terms of payload, the Kh-36 Grom-E1, capable of carrying a payload weight of around **300 to 350 kilograms.**
- It can be deployed by Russian aircraft such as the **MiG-35, Su-34, Su-35, Su-57.**

# New Defence Approvals

### Context

- The Defence Acquisition Council (DAC), under the chairmanship of Raksha Mantri Shri Rajnath Singh recently, accorded Acceptance of Necessity (AoN) for 10 capital acquisition proposals amounting to Rs 1,44,716 crore.

### Details

- A total of 10 capital acquisitions were approved by the DAC, in which 99 percent of the equipment will be bought from either the Buy (Indian) or Buy (Indian-Indigenously Designed, Developed, and Manufactured) categories.

### The approved equipments:

### Future Ready Combat Vehicles (FRCV)

- FRCV is a new generation future tank that will start induction into the army in the 2030s, replacing the decades-old **T-72 tanks.**
- Approximately **1,770 tanks** will be manufactured, featuring several advanced technologies to make them **future-proof.**

### Forward Repair Team for the Army

- A proposal has also been approved for the **Forward Repair Team (Tracked),** which has suitable cross-country mobility for carrying **out in-situ repairs** during mechanised operations.
- It is designed and developed by **Armoured Vehicles Nigam Limited (AVNL)** and will be used by both the Mechanised Infantry Battalion and Armoured Regiment.

## Air Defence Fire Control Radars

- **New generation air defence fire** control radars were also approved.
- They will **detect and track aerial targets** and provide **firing solutions** against intruding enemy fighter jets and helicopters.

## Ships and Maritime Patrol Aircraft for the Indian Coast Guard

- The procurement of **Dornier-228 aircraft, Next Generation Fast Patrol Vessels** with high operational capabilities in rough weather conditions, and Next Generation Offshore Patrol Vessels with advanced technology and enhanced long-range operations.
- These will enhance the ICG's capability to conduct surveillance, patrol the maritime zone, and carry out search & rescue and disaster relief operations.

## Project 17 Bravo (B):

- Seven more advanced stealth frigates under the **Project 17 Bravo (B)**, with each one of around 8000 tonnes of displacement.
- Project 17 B comes after Project 17 and Project 17B.
- Under **P 17 three Shivalik** Class Frigates were constructed by Mazgaon Dockyard Shipbuilders Limited followed by the **P17 Alpha (A) frigates (Nilgiri Class)** with improved stealth features, advanced weapons and sensors and platform management systems.

# Central Industrial Security Force (CISF)

## Context

- Centre moves Supreme Court over 'poor arrangement' for CISF personnel at RG Kar.

## Details

- CISF is an armed force of the Union established under an Act of Parliament, "**Central Industrial Security Force Act, 1968**".
- It was established after the recommendation of Justice **Mukherjee Commission**.

- According to the mandate, CISF provides security to the premises staff along with the security of property and establishments.
- CISF is providing security to the strategic establishment, including the Department of Space, the Department of Atomic **Energy, the Airports, the Delhi Metro, the ports, the historical monuments and the basic areas of Indian economy such as petroleum and natural gas, electricity, coal, steel and mining.**
- CISF is providing protection to some private sector units and important government buildings in Delhi.
- Presently, CISF is also providing security to the **protected persons classified as Z Plus, Z, X, Y.**
- CISF is the only force with a customized and **dedicated fire wing.**
- CISF is a **compensatory cost force.**

# Fath-360

## Context

- According to "The Times", a British national newspaper, Russia has received a shipment of more than 200 ballistic missiles from Iran.

## Details

- The Fath-360 is an Iranian **short-range ballistic missile**, which effectively is a smaller version of its **longer-range sibling Fateh-110**.
- A satellite-guided missile, the Fath-360 can fly at Mach 3 while cruising and speed up to **Mach 4 in the terminal phase of the flight.**
- It is armed with a **150-kilogram high-explosive warhead.**
- Fath-360 missiles have a relatively imprecise hit radius of around **30 meters and can travel as far as 120 kilometers.**
- **Truck-mounted Transporter Erector Launcher (TEL) is used** for mobility and quick launch.

# INS Malpe and INS Mulki

## Context

- In Kerala, two indigenously designed and constructed Anti-Submarine Warfare Shallow

Watercrafts built for the Indian Navy were launched at the Cochin Shipyard.

## Key Details about these Watercrafts

- This is the fourth and fifth anti-submarine warfare shallow watercraft being built for the Navy.
- They will be christened INS Malpe and INS Mulki once commissioned into the Indian Navy.
- The vessels are capable of conducting anti-submarine operations in coastal waters, low-intensity maritime and mine-laying operations, besides sub-surface surveillance and search and rescue operations.
- They are equipped with light-weight torpedoes, anti-submarine warfare rockets, a close-in weapon system, and remote-controlled guns.
- The vessel has a length of 78 m, a breadth of 11 m, and a full load displacement of 900 t. It can achieve a maximum speed of 25 knots

# Joint Doctrine for Amphibious Operations

## Context

- Chief of Defence Staff General Anil Chauhan released the Joint Doctrine for Amphibious Operations during the Chiefs of Staff Committee (COSC) meeting held recently, in New Delhi.

## What are Amphibious Operations?

- Amphibious warfare, military operations characterized by attacks launched from the sea by **naval and landing forces against hostile shores.**
- **Modern amphibious warfare integrates virtually all forms of land, sea, and air operations.**
- The main form of this warfare is the **amphibious assault.**

## Purpose

- **Continuing combat operations on land.**
- To seize a **site required as an advanced naval or air base.**

- To deny the use of the **site or area to the enemy.**
- **Drawing enemy attention** and forces away, which can create **opportunities for other combat operations.**

## Instances of this type of operation by India.

- During Kargil War: The Indian Navy's **Operation Talwar** was a naval operation that took place during **the 1999 Kargil War**.
- **Indian Peace Keeping Operations** in Sri Lanka between **1987 and 1990.**

## Some Amphibious assault ships under the Indian Navy

- INS **Jalashwa**, INS **Shardul**, INS **Kesari,** INS **Airavat,** INS **Gharial** (L23), INS **Kumbhir**, LCU **Mk4**.

## Significance of the recent Joint Doctrine for Amphibious Operations

- The Doctrine is a keystone publication which will provide guidance to the **Commanders for conduct of Amphibious Operations in today's complex military environment.**

# New initiatives on cybersecurity

## Context

- Central government has introduced a range of new initiatives to enable greater data sharing between law enforcement agencies and other stakeholders.

## Cyber Fraud Mitigation Centre (CFMC)

- CFMC has been established at Indian cybercrime Coordination Centre (14C) in New Delhi with representatives of **major banks, Financial Intermediaries, Payment Aggregators, Telecom Service Providers, IT Intermediaries and States/UTs Law Enforcement Agencies (LEAs).**
- They will work together for immediate action and seamless cooperation to tackle online financial crimes.
- The CFMC is also likely to work on identifying the **modus operandi (MO) of cyber criminals** using data and inputs from the representatives of these stakeholders

### The Samanvay platform (Joint Cyber Crime Investigation Facility System).

- The **Samanvaya Platform**, also known as the **Joint Cybercrime Investigation Facilitation** System, will be designed as a single repository of data pertaining to cyber crimes.
- This unified database is expected to aid in **cyber crime mapping, data sharing, data analytics, cooperation and coordination among law enforcement agencies across India**.

### The 'Cyber Commandos' program

- Under this program a special wing of trained **'Cyber Commandos'** will be established to counter threats of cyber security landscape in the country.
- These commandos will be stationed in **Central Police Organisations (CPOs) in all states and Union Territories.**
- The government plans to train and deploy **5,000 such Cyber Commandos** over the next five years.

### Central Suspect Registry

- The Central Suspect Registry will serve as a **central-level database** with consolidated data on **cybercrime suspects from across the country**.
- The **National Cybercrime Reporting Portal (NCRP)** has been tasked with establishing the Suspect Registry.
- Under the **Suspect Registry system**, the **Indian Cybercrime Coordination Centre (I4C)** will share a list of all the **repeat offenders** in their servers with police personnel of any state as well as bank officials.

## Al Najah V

### Context

- The Indian Army contingent departed today for the 5th edition of India-Oman Joint Military Exercise AL NAJAH.

### Details

- **It is a military exercise.**
- It has been held **biennially** since **2015.**

- The location of the exercise has been **alternating between India and Oman**.
- **2024 edition (5th edition) is being conducted at the Rabkoot Training Area in Salalah, Oman(4th edition was conducted at Mahajan in Rajasthan, India).**
- The central aim of the exercise is to **strengthen the ability of both nations to conduct counter-terrorism operations in a desert environment**.

### Essential tactical drills to be conducted

- Joint Planning, Cordon and Search Operation, Fighting in Built Up Area, Establishment of Mobile Vehicle Check Post, Counter Drone and Room Intervention, Counter-terrorism missions.

### Significance of the exercise for security

- This reflects the regional security needs of both India and Oman, where **desert warfare skills** are essential.
- As threats like terrorism evolve, both armies seek to be better prepared for **joint actions** that could **occur in such harsh terrains**.
- The exercise is focusing on counter-terrorism measures under the provisions of **Chapter VII of the United Nations Charter.**

## VL-SRSAM

### Context

- Recently, the Defence Research & Development Organisation (DRDO) and the Indian Navy successfully flight tested vertical launch short range surface-to-air missile from Chandipur, off Odisha coast.

### Details

- The **Vertical Launch – Short Range Surface to Air Missile (VL-SRSAM)** is a quick reaction **surface-to-air missile.**
- **Developed by**: The **Defence Research and Development Organisation (DRDO).**
- It is based on the design of the **Astra missile**, a beyond visual range air-to-air missile.
- **Length:** The missile is 3.93 metres long, **Fuel:** Solid propellant, **Speed:** A maximum speed of **Mach 4.5, Striking Range: 80 km, Altitude**

**Range:** The weapon system can reach an altitude of **16 km**.

- **Warhead: High-explosive warhead** filled with **pre-formed fragments**.
- The missile is equipped with a **radio frequency (RF) seeker** that helps it accurately lock onto its target.
- For navigation, it uses an inertial system with a **fiber-optic gyroscope to guide** it during the middle part of its flight.
- Initially designed for the **Indian Navy** but now it is being developed for use by the **Indian Air Force to protect its air bases.**
- The missile is designed to counter various **aerial threats including aircraft, helicopters, drones, and incoming missiles at short ranges.**
- It is capable of targeting **low-flying, sea-skimming threats**.
- The missile is designed to be installed on various types of **warships, including destroyers, frigates, corvettes, and aircraft carriers.**

# Road Connectivity Project for LWE affected areas (RCPLWE)

## Context

- The Centre has doubled the allocation of funds under the Road Connectivity Project for Left Wing Extremism Affected Areas (RCPLWEA) for financial year 2024-25.

## Details

- The Government approved this scheme in 2016 for further improving road connectivity in **Left Wing Extremist** affected States. The RCPLWEA, a separate vertical under the **Pradhan Mantri Gram Sadak Yojana (PMGSY).**
- Under the scheme 12162 km of roads and 705 bridges are sanctioned. **Ministry of Rural Development is the nodal Ministry for this project.**
- The roads included under the scheme have been **identified by the Ministry of Home Affairs in consultation with the State Governments** and the security agencies.
- It is aimed at providing all-weather road connectivity with culverts and cross-drainage structures in **44 worst-affected Left-Wing Extremism (LWE)** districts and adjoining districts in nine states - **Andhra Pradesh, Bihar, Chhattisgarh, Jharkhand, Madhya Pradesh, Maharashtra, Odisha, Telangana and Uttar Pradesh.** Under the scheme, the Centre and states share the expenditure in **60:40 ratio — same as under PMGSY.**

# Working of Armed Forces Special Power Act (AFSPA)

## Context

- The Supreme Court recently closed the criminal proceedings against 30 Army personnel accused of killing 13 civilians (tribals) in a 2021 botched-up military operation to ambush militants in Nagaland's Mon district.

## Details

- The Act in its original form was promulgated by the British in response to the Quit India movement in 1942. The Armed Forces (Special Powers) Bill was passed by both the Houses of Parliament and it was approved by the **President on September 11, 1958.**
- The AFSPA was first enforced in the **North East in 1958**; due to the extreme law and order situation, the central government classified the North East as a **"disturbed area."** After 1958, the AFSPA has been incrementally applied to cover the seven states in the North East. The law has also been in force in large parts of Jammu and Kashmir from the 1990s.
- The AFSPA grants the army **"special powers"** which have to be used with extreme care. The law gives the army powers to shoot to **kill, destroy property and temporarily detain suspects**. Army personnel acting under the AFSPA are immune from all actions taken under other laws of the Indian Penal Code,

the Criminal Procedure Code and civil suits, unless otherwise sanctioned by the central government.

# Pager attacks in Lebanon

## Context

- Blasts in multiple parts of the Middle Eastern country surprised the Iran-backed Hezbollah as two of its fighters and an 8-year-old girl were killed.

## Details

- Pagers, also known as beepers, are **wireless communication devices**. The basic functions of the devices are to receive and **display alphanumeric** or **voice messages** via **radio frequencies** from a base station or a central dispatch. The messages generally aim to **alert the users**.

## Why are pagers still being used to communicate?

- These devices are still in use by **emergency services** or **public safety personnel** as **modern pager system coverage provides reliable and quick service**. The **terrestrial-based cellular networks** can shut down in some cases, such as **during natural or man-made disasters, making them unreliable in certain circumstances**. It led **public safety professionals** to adopt pagers over cellular and other commercial services for critical messages.
- These devices are **simple to use and able to transmit basic messages without Internet** or cellular **networks, reducing risks.** Pagers are even good to work in areas where there is **poor mobile coverage, making them an ideal choice for Hezbollah's operational needs.**

# FATF Mutual Evaluation Report on India

## Context

- FATF praises India's Prevention of Money Laundering Act, terror financing; asks to improve prosecution.

## Financial Action Task Force (FATF)

- The Financial Action Task Force (FATF) is an inter-governmental body decision-making body.
- It was established in **1989 during the G7 Summit in Paris** to develop policies against money laundering.
- It is a **"policy-making body"** which works to generate the political will to bring about national legislative and regulatory reforms in money laundering. It has also started dealing with **virtual currencies.** The FATF Secretariat is located in **Paris.**

## Objective of FATF

- FATF sets standards and promotes effective implementation of: Legal, regulatory and operational measures for **combating money laundering**. The FATF works to identify **national-level vulnerabilities** with the aim of protecting the international financial system from misuse.

## Members of FATF

- There are currently **40 members of the FATF; 38 jurisdictions and 2 regional organisations** (the Gulf Cooperation Council and the European Commission).
- India became an Observer at **FATF in 2006**. Since then, it had been working towards full-fledged membership. On June 25, 2010 India was taken in as the **34th country member of FATF**.

## Recent FATF report on India and the significance of the observations

- The FATF had undertaken an evaluation for **India in June 2010.** India was then placed in the **"regular follow-up"** category.

## Improvement areas for India

- **Laundering in India originate from within :** According to the report the main sources of money laundering in India originate from within, and the country faces a "disparate range" of terrorism threats from regional insurgencies in the Northeast and North, and Left-Wing Extremist groups.
- **Terror threats:** The "most significant" terror threats seem to be related to the Islamic State

- or al-Qaeda linked groups active in and around Jammu and Kashmir.
- **Cyber-enabled fraud:** India's largest money laundering risks are related to fraud including cyber-enabled fraud, corruption and drug trafficking.

# Global Cybersecurity Index 2024

## Context

- India Achieves Tier 1 Status in Global Cybersecurity Index 2024.

## Details

### Performance of south and South east Asian countries

- The report places 46 countries in Tier 1, the highest of the five tiers, reserved for "role modelling" countries that demonstrate a strong commitment in all five cybersecurity pillars. Southeast Asia countries India, Singapore, Indonesia, Malaysia, Thailand, and Vietnam make it to the Tier 1 in this GCI 2024. The Philippines is part of the 29 countries in Tier 2 reserved for "advancing" countries.

## Key findings from the report:

- **Legal measures are the strongest cybersecurity pillar for most countries**: 177 countries have at least one regulation on either personal data protection, privacy protection, or breach notification in force or in progress.
- **Cyber awareness campaigns are widespread**: 152 countries have conducted cyber awareness initiatives targeting the general population, with some also targeting specific demographics such as vulnerable and underrepresented populations, to create a culture of cybersecurity and address potential risks.
- **Incentives for the cybersecurity industry continue evolving:** . Governments are promoting the cybersecurity industry through incentives, grants, and scholarships, aiming to enhance cybersecurity skills and foster research in the field.

- **Many countries cooperate on cybersecurity through existing treaties:** 92 percent of countries (166) reported being part of an international treaty or comparable cooperation mechanism for cybersecurity capacity development, or information sharing, or both. Putting cybersecurity agreements and frameworks into practical operation remains challenging.
- **Capacity development and technical pillars are relatively weak in most countries:** 123 countries reported having training for cybersecurity professionals, up from 105 in 2021. In addition, 110 countries had frameworks to implement nationally or internationally recognised cybersecurity standards, up from 103 in 2021.
- **More countries have a national cybersecurity strategy:** National cybersecurity strategies (NCSs) are becoming more prevalent, and are an increasingly common tool for governments to organise around cybersecurity.
- **Critical information infrastructure (CII) efforts often lack supporting legal measures:** With 54 percent of countries globally having an agency, ministry or other entity bearing responsibility for CII cybersecurity, only 49 percent of countries globally have such a framework in place, or being put in place, to implement cybersecurity standards in relation to CII.

## Suggestions

- **Capacity development initiatives need to be reinforced:** Developing a strong domestic cybersecurity industry is essential to sustain progress.
- **Countries need to focus on protecting children online:** 164 countries have legal measures in place for child online protection; only 94 countries reported associated strategies and initiatives, indicating a gap in implementation.
- **Privacy laws and regulations are increasing, and increasingly needed:** With 8 billion records being breached in 2023 across over

2,800 reported breaches, the average cost of a data breach has increased by 15 percent over the past three years.

- **Computer Incident Response Teams (CIRT) are crucial for national cybersecurity:** 139 countries have active CIRTs, with various levels of sophistication. Events like regional and international cyber drills can be important in this regard, as national CIRTs can interact with peers and establish informal and formal connections.

### India's achievements

- India has marked a significant milestone in its cybersecurity efforts by achieving top Tier i.e. **Tier 1 status** in this index, published by the International Telecommunication Union (ITU). With a remarkable score of **98.49 out of 100**, India joins the ranks of **'role-modelling'** countries, demonstrating a strong commitment to cybersecurity practices across the globe.

# Goa Maritime Symposium (GMS - 24)

### Context

- Indian Navy will be hosting the fifth edition of Goa Maritime Symposium (GMS -24) at Naval War College, Goa from 23 - 24 Sep 24 .

### Details

- Conceptualised and instituted by the Indian Navy in 2016, the GMS is a **forum for fostering collaborative thinking, cooperation and mutual understanding between India and key maritime nations of the Indian Ocean Region (IOR).**

### Theme:

- The theme for the event is **"Common Maritime Security Challenges in the Indian Ocean Region - Progressing Lines of Efforts to Mitigate Dynamic Threats such as Illegal, Unreported and Unregulated Fishing and other Illegal Maritime Activities"**.

### Participants

- Naval representatives from 14 Indian Ocean Littoral countries - **Bangladesh, Comoros,** **Indonesia, Kenya, Madagascar, Malaysia, Maldives, Mauritius, Myanmar, Seychelles, Singapore, Sri Lanka, Tanzania and Thailand.**

# India needs a 'National Security Strategy'

### Context

- The demand for a national security strategy is under public discussion.

### What is a National Security Strategy?

- A National Security Strategy document outlines the **country's security objectives**, and the **ways to be adopted to achieve these.** Updated periodically, it **defines traditional, non-traditional threats and opportunities while introducing accountability of agencies tasked with the implementation of such responsibilities**.

### India's need for a National Security Strategy

- **External Threat:** India's biggest threat is China, with its increasing territorial ambitions ranging from Ladakh to Arunachal Pradesh.
- **Changing global geopolitics and uncertainty:** The ongoing wars in Ukraine, Gaza and Lebanon are affecting global growth and supply chain stability which altimetry threaten India's ambitious plan to becoming a 4 trillion economy.
- **Threat from terrorism:** According to the South Asia Terrorism Portal, more than 15,000 civilians and around 7,000 security personnel have been killed by terrorists in J&K from 1988 to March 2024. So a comprehensive strategy is required to tackle the same.
- **Multi alignment strategy:** NSS required for India to strengthen its relationships in multi alignment institutions like QUAD, BRICS.
- **Cybersecurity threat:** Cyberattacks, like terrorism, can be launched from both inside and outside India. The highest number of state-sponsored cyberattacks in 2023 was against India at 13.7%, according to Singapore-based cybersecurity firm Cyfirma's 2023 India Threat Landscape Report.

Between 2021 and September 2023, cyberattacks increased by 278%, with IT services and BPO firms being the main targets. Cyberattacks against government agencies went up by 460%.

- **Era of technological war:** In this era of technological war India should capable of defend itself from this type of threat. Eg: Recent Lebanon Pagers explosion.

**What should be included in this strategy**

- The strategy should include the **entire range of newer challenges** and **modern threats facing India, including non-traditional ones such as financial and economic security, food and energy security, information warfare**, vulnerabilities in **India's critical information infrastructure**, as well as those associated with supply chains and environment.

# AH-64E Apache Attack helicopters
## Context

- Army to receive Apache attack helicopters in December.

## Details

- **Origin in USA,** Apache 64E is a **twin-engine, tandem-seat helicopter** designed to accomplish a variety of operations at **day or night, in a range of climactic conditions**.

## Capabilities:

- Primarily designed to find and destroy **air defence units, tanks and armoured vehicles**, it is armed with a **30mm automatic cannon**, wing-mounted **70mm Hydra rockets** and **Hellfire missiles**.
- It is capable of **Intelligence, Surveillance Target Acquisition and Reconnaissance (ISTAR),** escort/force protection and Command and Control. Using the distinctive Longbow radar above the main rotor blades, the **Apache 64E can detect and classify up to 256 potential targets**.

## Equipments

- It is also equipped with **optical and thermal imaging sights** that are used to identify potential targets and pilot the aircraft at night

and in low visibility conditions. **Range and endurance** can be increased using wing-mounted fuel tanks and have a **fully integrated Defensive Aid Suite** to protect the aircraft and two crew.

## IAF and Apache

- As part of a **$600 million deal** signed with the US **in 2020**, the Indian Army is set to receive **six Apache helicopters**. The Indian Air Force has **already inducted 22 Apache** helicopters as part of a separate order **signed in 2015**. The **Apache AH-64E attack helicopters** are intended to support the Army's crucial operations on the **Western front.**

# Conflict in East, South China seas
## Context

- Chinese Foreign Ministry spokesman accused the U.S. of pooling together countries to muster military and security cooperation under the pretext of maritime issues to contain China by peddling the China threat narrative.

## What is the ongoing issue and claims?

- **China's claim:** China's sweeping claims - which include sovereignty claims over land parcels and their adjacent waters have angered competing claimants like Vietnam, the Philippines, Taiwan, Malaysia and Brunei. China has constructed ports, military installations, and airstrips—particularly in the Paracel and Spratly Islands. China has militarized Woody Island by deploying fighter jets, cruise missiles, and a radar system.
- **USA's and China tussle:** China has backed its expansive claims with island-building and naval patrols. The US says it does not take sides in territorial disputes, but has sent military ships and planes near disputed islands in what it calls "freedom of navigation" operations.
- **Japan's involvement:** Japan, which has no direct stake in the South China Sea, also provides ships and military equipment to

claimants like Vietnam and the Philippines to deter Chinese aggression.

- **Philippine's claim:** The other major claimant to the area is the Philippines, which invokes its geographical proximity to the Spratly Islands as the main basis of its claim for part of the grouping. Both the Philippines and China also lay claim to the Scarborough Shoal (known as Huangyan Island in China) - a little more than 100 miles (160km) from the Philippines and 500 miles from China.

- **Malaysia and Brunei:** Malaysia and Brunei also lay claim to territory in the South China Sea that they say falls within their economic exclusion zones, as defined by the United Nations Convention on the Law of the Sea, or UNCLOS. Brunei does not claim any of the disputed islands, but Malaysia claims a small number of islands in the Spratlys.

**Why the presence in these seas is so significance?**

- **Important trade Route:** The South China Sea is a major shipping route. The United Nations Conference on Trade and Development estimates that over 21% of global trade, amounting to $3.37 trillion, transited through these waters in 2016.

- **Global digital economy:** Taiwan Strait is a critical maritime choke point. The region is home to undersea cables that are important for the global digital economy.

- **Livelihood:** It is also home to rich fishing grounds that provide for the livelihoods of millions of people across the region. More than half of the world's fishing vessels operate in this area.

- **Natural resources:** 10 billion barrels of petroleum and petroleum products and 6.7 trillion cubic feet of liquefied natural gas passed through the South China Sea. It is also home to vast reserves of untapped oil and natural gas.

**Tried negotiations**

- **Bilateral negotiations:** China prefers bilateral negotiations with the other parties. But many

of its neighbours argue that China's relative size and clout give it an unfair advantage.

- **Negotiation through ASEAN:** Some countries have argued that China should negotiate with Asean (the Association of South East Asian Nations), a 10-member regional grouping that consists of Thailand, Indonesia, Malaysia, the Philippines, Singapore, Brunei, Laos, Vietnam, Myanmar and Cambodia. However, China is opposed to this, while Asean is also divided over how to resolve the dispute.

- **International arbitration:** The Philippines has sought international arbitration instead. In July 2016, the tribunal backed the Philippines' case, saying China had violated the Philippines' sovereign rights. China had boycotted the proceedings and called the ruling "ill-founded". It says it will not be bound by it.

# Pinaka Rockets

## Context

- DRDO has started the development of Pinaka-MK3 guided rocket system. Soon the Indian Army will get this deadly weapon.

## Details

- **Developed by:** The Indian-made Pinaka weapon system, named after the bow of Hindu god Shiva, has been developed by the Defence Research and Development Organisation. Private sector companies involved in the project include Larsen & Toubro, Tata Defence and Economic Explosives Limited.

- **Range and capability:** The system has a maximum range of 40 km for Mark-I and 60 km for Mark-I enhanced version, and The best feature of Pinaka system is that one regiment can launch as many as 12 rockets in under a minute in multiple directions, and can be re-located within minutes.

**How it works**

- The complete Pinaka MBRL system is comprised of six launcher vehicles, each equipped with 12 rockets, six loader-

replenishment vehicles, two command post vehicles integrated with a fire control computer, and a DIGICORA MET radar.

- Each launcher can be operated independently. So, rockets can be fired individually or simultaneously in different directions. The launcher can operate in four modes – manual, remote, standalone, and autonomous.

- **Kargil war and Pinaka:** During the Kargil war in 1999, the Pinaka multi-barrel rocket launcher (MBRL) was effectively employed to eliminate enemy forces and their positions atop mountains.

- **Exported abroad:** The weapon system is one of the first few Indian military terms to have been exported to foreign countries, including Armenia.

# Thermobaric weapon

## Context

- Russia's use of the ODAB-1500 thermobaric bomb in Ukraine highlights a global trend in investing in this devastating warfare technology.

## What is a thermobaric weapon?

- A thermobaric weapon, also called an aerosol bomb, or a vacuum bomb, is a type of explosive munition that works by dispersing an aerosol **cloud of gas, liquid or powdered explosive**.

## Mechanism:

- A thermobaric bomb (also called a vacuum or aerosol bomb - or fuel air explosive) consists of a **fuel container with two separate explosive charges.**

- This can be launched as a rocket or dropped as a bomb from aircraft. When it hits its target, the first explosive charge opens the container and widely scatters fuel mixture as a cloud. This cloud can penetrate any building openings or defences that are not totally sealed.

- A **second charge then detonates the cloud**, resulting in a **huge fireball**, a massive blast wave and a vacuum which **sucks up all surrounding oxygen**. The weapon can destroy reinforced buildings, equipment and kill or injure people.

## Developments

- In 2003, the US tested a **9,800kg bomb, nicknamed the "Mother of all bombs"**. Four years later, Russia developed a similar device, the Father of all bombs".

- Soviet Union began developing thermobaric bombs and rocket systems in the late 20th century, with notable examples like the **TOS-1 multiple rocket** launcher system and **ODAB-series bombs**.

- **India and Brazil** are also among the countries that have developed thermobaric weapons. **South Korea and Serbia** have also reportedly developed thermobaric systems.

## What are the rules of war for thermobaric bombs?

- There are **no international laws** specifically banning their use, but if a country uses them to target civilian populations in built-up areas, schools or hospitals, then it could be convicted of a **war crime under the Hague Conventions of 1899 and 1907**.

- In 1980, an effort was made to **ban thermobaric weapons** under the **United Nations Convention** on Certain Conventional Weapons, but it failed to gain sufficient support.

- Critics argue that thermobaric bombs should be **classified as weapons of mass destruction**, especially when used in populated areas.

## Where have they been used before and Future of Thermobaric Weapons.

- Thermobaric munitions can be traced back to **World War II**, when they were initially used by the **German army**. They were not widely developed until the 1960s, when the US used them in Vietnam.

- The US also used them in Afghanistan. First, in 2001 to try to destroy al-Qaeda forces hiding in the caves of the Tora Bora

- mountains, and in 2017, against Islamic State forces.
- Russia used them in its war in **Chechnya in 1999** and was condemned by Human Rights Watch for doing so. Russian-made thermobaric weapons were reportedly used in the **Syrian civil war** by the regime of Bashar al-Assad.
- More recently, **Russia's ODAB-1500 bomb**, used in Ukraine, showcased the **continuing evolution of these weapons.**

## 4.4    ADDITIONAL TOPICS FOR READING FROM IASGYAN WEBSITE

| Topics | Details |
|---|---|
| **Samudra Pratap** | <ul><li>Goa Shipyard launches indigenous pollution control vessel 'Samudra Pratap'.</li><li>The Ship has been built by **Goa Shipyard Limited (GSL)** for **the Indian Coast Guard (ICG).**</li><li>This vessel, with an **indigenous content of 72%.**</li><li>**Purpose:** To help check oil spillage in the country's sea coast.</li><li>**Feature**: Side-sweeping arms to **contain oil spills while in motion**, Advanced **radar system for oil spill detection**, Facilities to recover and **store various types of oil.**</li><li>Other pollution vessels: Samudra Prahari, Samudra Paheredar, Samudra Pavak.</li></ul> |
| **Exercise Varuna** | <ul><li>The 2024 Indo-French bilateral naval Exercise Varuna, being held from September 2 to 4, 2024.</li><li>The Indian and French navies held their **22nd edition of bilateral naval exercise 'Varuna' 2024** in the Mediterranean Sea.</li><li>**'VARUNA' which began in 2001,** is the backbone of India-France relationship and has evolved significantly over the years.</li><li>Indian Navy was represented by the ship borne Helicopter; **LRMR Aircraft P8I and Navy's frontline stealth frigate, INS 'Tabar' whereas, French side was represented by FS Provence, Submarine Suffren, Aircraft F20; Atlantique2, fighters MB339 and Helicopters NH90; Dauphin.**</li><li>The conduct of 'VARUNA' in the Mediterranean **Sea marks a significant milestone** in the maritime domain between India and France.</li></ul> |

## 4.3    SNIPPETS

| TOPIC NAME | UPLOADED ON IAS GYAN WEBSITE ON |
|---|---|
| **Su 30 MK1** | 10th September, 2024 |
| **Military diplomacy** | 9th September 2024 |

# 5. ENVIRONMENT & ECOLOGY

## 5.1 GREAT NICOBAR ISLAND (GNI) INFRASTRUCTURE PROJECT

### Context

- **High-powered committee (HPC) formed by the National Green Tribunal has ruled that the** Great Nicobar Island (GNI) infrastructure project **falls outside the Island Coastal Regulation Zone-IA (ICRZ-IA), where ports are prohibited.**

### Great Nicobar Island (GNI) infrastructure project

- It is a **Rs 72,000 crore,** large-scale development project for the southernmost region of the Andaman and Nicobar Islands.
- **The project includes:** International Container Transhipment Terminal (ICTT), Greenfield international airport, Township, and 50 MVA gas and solar-based power plant.

### Implementing agency

- The **Andaman and Nicobar Islands Integrated Development Corporation Limited (ANIIDCO)** will implement the project in **three phases over the next 30 years.**

### Area covered

- 166 sq km along the island's south eastern and southern coasts.

### Impacts of the Project

#### Flora:

- Project will result in a loss of 12-20 hectares of mangrove cover to be offset by afforestation in Haryana's Aravallis.

#### Corals:

- Coral reefs would be impacted. Corals will be translocated to nearby reefs to mitigate loss.

#### Fauna:

- Rare species like Leatherback Sea Turtles and Nicobar macaques might be impacted but conservation sites at Little Nicobar, Menchal Island, and Meroe Island are proposed for protection.

#### Indigenous people:

- The project will increase the population to 350,000, potentially impacting 1,761 indigenous inhabitants (Shompen and Nicobarese).
- **It affects 10% of the tribal reserve designated under the Andaman and Nicobar Protection of Aboriginal Tribes Regulation, 1956, where only indigenous communities have rights.**
- The Shompen people are recognized as the sole authority over forest reserves per the Forest Rights Act, 2006.

### Great Nicobar

- Southernmost island of the Nicobar Islands Archipelago with a unique, threatened tropical evergreen forest ecosystem.
- Rich in biodiversity: 650 plant species and over 1800 animal species, many endemic which includes tropical wet evergreen forests, mountain ranges (up to 642 m), and coastal plains.
- Tribes: Inhabited by the Mongoloid Shompen Tribe (about 200) and the Nicobarese Tribe (about 300), both reliant on forest and marine resources.

### The Coastal Regulation Zone (CRZ)

- It is an area along India's coastline that is subject to specific regulations to protect the environment and ensure sustainable development.

#### It includes:

- **Coastal areas:** Up to 500 metres from the high tide line (HTL).
- **River banks:** Up to 100 metres along the banks of creeks, estuaries, backwaters, and rivers.

## Rules

- The CRZ was **first notified by the Government of India in 1991 under the Environment Protection Act, 1986.** The CRZ rules include restrictions on the development of industries and processing plants in the area.

## Implementation

- State governments are responsible for implementing the CRZ rules through their Coastal Zone Management Authorities.
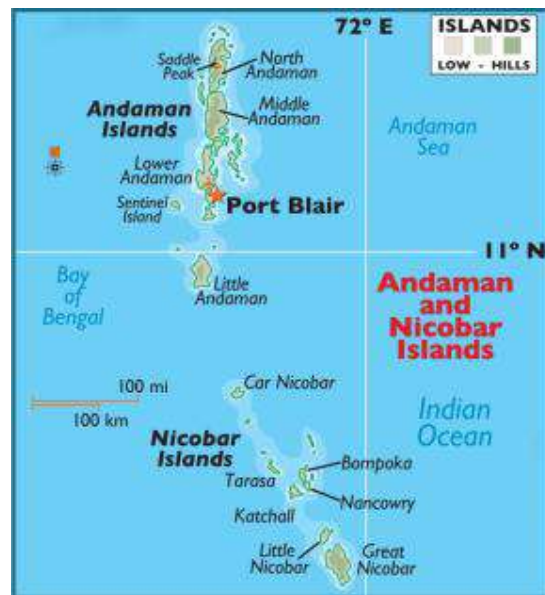
## ANIIDCO

- It is a central government agency which **implements and manages the infrastructure projects in the Andaman and Nicobar Islands.**
- It oversees development initiatives, including the Great Nicobar Island project.

## Conclusion

- The Great Nicobar Island Project presents significant economic and strategic opportunities but raises substantial environmental and social concerns. Balancing development with rigorous environmental safeguards and respect for indigenous rights will be crucial for its success.
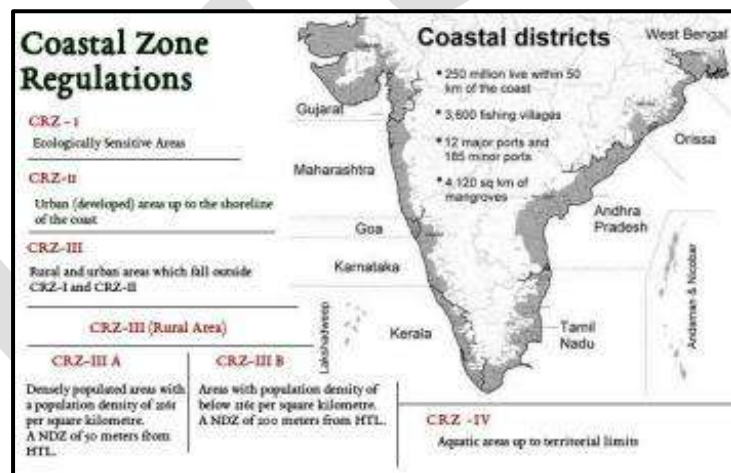
# 5.2    PLASTIC POLLUTION IN INDIA

## Context

- According to a new study published in the journal Nature, **India has secured the top spot as the biggest plastic polluter in the world, releasing 9.3 million tonnes (Mt) annually.**

## Findings of the study

- The study quantified emissions for 50,702 municipality-level administrations from five sources: Uncollected waste, Littering, collection systems, Uncontrolled disposal and Rejects from sorting and reprocessing.
- The littering was the **largest emission source in the Global North, uncollected waste was the dominant source across the Global South.**

**Official figures of government reports in India:**

- As per the **Central Pollution Control Board's reports, the waste generation rate is approximately 0.12 kilogrammes per capita per day and it is likely underestimated as per the study published in Journal Nature.**
- Additionally, as per the same study, waste collection is likely overestimated.
- **Reasons for mismatches in data could be because official statistics exclude:** Rural areas, The open burning of uncollected waste, or Waste is recycled by the informal sector.

### Global trend in Plastic waste and emissions

- Globally, **roughly 69 per cent of the world's plastic waste emissions come from 20 countries, of which four are low-income countries, nine are lower-middle-income countries and seven are upper-middle-income.**
- **High-income countries have higher plastic waste generation rates, but none are ranked in the top 90 polluters,** due to 100 per cent collection coverage and controlled disposal.

### Ranking of countries

- India topped the spot as the biggest plastic polluter in the world and **second and third spots were Nigeria, and Indonesia.**
- China, which was the highest polluter globally in the previous study, was placed in the fourth spot.
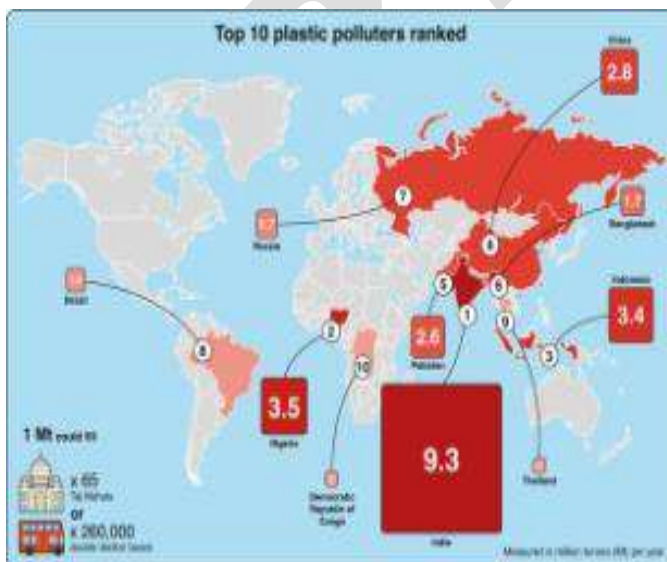
## Way ahead

### The 3R's + E Strategy

- **Reduce:** Cut down plastic usage through conscious consumer choices and reducing packaging, **Reuse:** Repurpose plastic items wherever possible before disposal, **Recycle:** Collect and process plastic waste to create new products, minimizing landfill contributions and **Educate:** Raise awareness and promote behavioural change regarding plastic usage and recycling.

### Circular economy

- Develop and implement regulations to combat plastic pollution and promote a circular economy.

### Policy Shifts

- Create incentives for businesses and consumers to adopt sustainable practices, enhance plastic design, and improve recycling processes.

### Taxation and Incentives

- Impose taxes on single-use plastics and provide subsidies or tax breaks for alternatives.

### Standards and Labelling

- Introduce product standards and labels to inform the public about environmental and health impacts.

### Extended Producer Responsibility (EPR)

- Mandate that manufacturers manage the lifecycle of their plastic products, from production to disposal.

## Conclusion

- The study reveals that waste emission data is often underestimated, with plastic pollution predominantly affecting low to middle-income countries. Addressing this issue requires a comprehensive strategy focusing on reduction, reuse, recycling, education, and effective policy measures.

## 5.3 INTEGRATED DEVELOPMENT OF WILDLIFE HABITATS' (IDWH)

### Context

- The Union Cabinet has **approved continuation of the Centrally Sponsored Scheme of Integrated Development of Wildlife Habitats for the 15th Finance Commission cycle for an overall outlay of Rs. 2602.98 crores.**

### About

- It is a **Centrally Sponsored Scheme which has been made operational by adding more components and activities to the erstwhile Centrally Sponsored Scheme - "Assistance for the Development of National Parks and Sanctuaries"** during the 11th Plan Period.
- Under IDWH, the **financial assistance is provided to State/UT Governments for protection and conservation of wildlife and its habitats in Protected Areas (PAs) as well as outside PAs** and also for the recovery programmes of the critically endangered species.

### Components

- Support to Protected Areas (National Parks, Wildlife Sanctuaries, Conservation Reserves and Community Reserves)
- Protection of Wildlife Outside Protected Areas
- Recovery programmes for saving critically endangered species and habitats

### Coverage

- India has a network of **998 Protected Areas including 106 National Parks, 567 Wildlife Sanctuaries, 105 Conservation Reserves and 220 Community Reserves** covering a total of

1,73,629.52 km$^2$ of geographical area of the country which is approximately 5.28%.

- **All of these will be covered under the scheme.**

## Sub components of IDWH

### Project Elephant (PE)

- Launched by the Government of India in the year **1991-92 as a Centrally Sponsored Scheme (CSS)**
- **F**unding pattern ratio for Central: **State share is 60:40 and 90:10 for North East and Himalayan states.**
- Presently the Project is being implemented in **22 States/UTs.**

### Project Tiger:

- It is a tiger conservation programme (a Centrally Sponsored Scheme of the MoEF&CC) launched in 1973 by the Government of India and administered by the National Tiger Conservation Authority (NTCA).
- The project aims at ensuring a viable population of Bengal tigers in their natural habitats, protecting them from extinction, and preserving areas of biological importance as a natural heritage.

- A total of 18 tiger range States, distributed in five landscapes of the country is covered under the Project Tiger scheme.
- The implementation of the schemes is to be done through the respective States in designated Tiger Reserves.
- The tiger population in India has grown significantly since the launch of Project Tiger. The first tiger census in 1972 counted 1,827 tigers, but by 2022 the population was estimated to be between 3,167 and 3,925.

### Recovery Programme for saving critically endangered species

- 100% financial assistance is provided to states for recovery of endangered species.
- So far, 22 species have been identified under the recovery programme.
- These are the **Snow Leopard, Bustard (including Floricans), Dolphin, Hangul, Nilgiri Tahr, Marine Turtles, Dugongs, Edible Nest Swiftlet, Asian Wild Buffalo, Nicobar Megapode,** Manipur Brow-antlered Deer, Vultures, Malabar Civet, Indian Rhinoceros, Asiatic Lion, Swamp Deer, Jerdon's Courser, the Northern River Terrapin, Clouded Leopard, Arabian Sea Humpback Whale, Red Panda and Caracal.

## 5.4    PRECISION FARMING IN INDIA

### Context

- Centre to invest Rs 6,000 crore in smart farming with AI, drones, and data to boost crop yields.

### What is precision farming?

- It is also known as **site-specific crop management.** It merges **data collection and remote sensing with Global Positioning Systems (GPS) and Geographic Information Systems (GIS)** to allow farmers to respond to in-field variability with their crop management.

- Farmers can get extremely precise in their crop management while not sacrificing crop yields.

### Advantages

### Reduced nutrient runoff:

- By making more precise decisions, farmers can manage their inputs and nutrients more carefully. This results in less wasted fertilizer and nutrient runoff.

### Reduced Herbicides and fungicides usage

- Using precision farming chemicals are applied only where they are needed rather than the

entire field, reducing the volume of herbicides and fungicides they use.

### Effective production management

- By collecting and attaching data to crop production, **starting at the seed production stage and following a crop until it reaches a consumer's table,** agribusinesses can create traceability and accountability that reveal further insights.

### Efficient resource utilisation

- M**aximises the use of resources like water, fertilisers and pesticides to increase production quality and quantity.**

### Increased profits

- Farmers can increase yields and thus profits with the same amount of inputs or achieve an equivalent yield with fewer inputs.

## Challenges in adopting precision farming in India

### High up-front acquisition costs

- Acquisition costs for the latest technologies can be prohibitive for farmers with limited resources or access to capital.

### Farm data sharing and ownership issues

- Concerns regarding farm data sharing and ownership can pose obstacles to the widespread use of AI in agriculture.

### Lack of standards

- An absence of uniform standards can hamper interoperability between different precision agriculture technologies.

### Lack of technical know-how

- Farmers generally are not trained to use precision tools, interpret data, and implement the findings in their agricultural practices.

### Digital Divide

- **Merely 23.4% of adult Indians living in rural areas lack even the most basic knowledge of** **digital literacy, according to a 2022 World Bank survey.** Farmers find it challenging to use digital tools efficiently, traverse online platforms, and obtain important information due to their lack of digital fluency.

## Government Initiatives to Promote Precision Farming

- The **Centre is planning to earmark Rs 6,000 crore to promote precision farming**.
- The Union Ministry of Agriculture is planning a Smart Precision Horticulture Programme under the existing **Mission for Integrated Development of Horticulture (MIDH) scheme.**
- **The Agriculture Infrastructure Fund (AIF),** launched during Covid-19, has provisions for financing infrastructure projects for smart and precision agriculture.
- Centre is collaborating with the **Netherlands and Israel, where tech-based modern farming solutions are being used, through Centres of Excellences (CoEs).** Under the Indo-Israel Agriculture Project, 32 CoEs have already been set up across 14 states.
- The Centre has also set up **22 Precision Farming Development Centres (PFDCs)** across the country to test new technologies and modify them according to local needs.
- **The National Mission on Sustainable Agriculture (NMSA), Pradhan Mantri Krishi Sinchayee Yojana (PMKSY),** etc focus on water-use efficiency and soil health monitoring.

## Way ahead

### Widespread Adoption of IoT and AI

- There should be integration of Internet of Things (IoT) devices and artificial intelligence in farming practices by involving private players and also training should be imparted to farmers.

### Government Support and Subsidies

- Increased governmental policies and subsidies for precision farming technologies could drive adoption. Programs like the **Pradhan Mantri Krishi Sinchai Yojana aim to promote efficient water use, and similar initiatives can expand to cover precision tools and training for farmers.**

### Enhanced Training and Education

- Training centres and online platforms for farmers to learn about precision farming techniques that can facilitate knowledge transfer should be established.

### Collaboration with Agritech Startups

- Partnerships between traditional agricultural sectors and agritech startups can enhance innovation. Initiatives that support startups in developing affordable precision farming solutions could lead to broader access and implementation.

### Sustainability and Climate Resilience

- Future precision farming practices will increasingly focus on sustainable methods to cope with climate change.

## 5.5    ARABIAN WOLF

### Context

- The Arabian wolf is rumoured to have been sighted in the Kutch region in India.

### The Arabian wolf

- It is a subspecies of the grey wolf which holds the distinction of being the smallest wolf in the world.
- This along with Indian wolf and the Mexican wolf form the southernmost subspecies of wolf.
- **Scientific name:** *Canis lupus arabs.*
- **Distribution:** Native to the Arabian Peninsula—**Bahrain, Oman, southern Saudi Arabia, Yemen, Israel's Negev Desert, Jordan, Palestine and the Sinai Peninsula, etc.**
- **Features:**
- **Following the Bergmann's rule**, which says that animals tend to be larger in colder climates and smaller in warmer climates, these wolves are smaller in size than other wolves and it is adapted to life in a hot, dry climate.
- Their ears are larger as compared to its body size, which is an adaptation developed to help disperse body heat in accordance with Allen's Rule.
- **Diet: Omnivorous and** consumes small to medium-sized prey, including insects, reptiles, and birds to rodents and small ungulates, etc.
- **Adaptation:** They live in a **wide variety of habitats which include high mountains like the Himalayas, plains like the Indo-Gangetic Plain of South Asia, the Deccan Plateau, the icy tundra of the Arctic and deserts like the Thar, in addition to the taiga.**
- **International Union for Conservation of Nature (IUCN) status:** Indian wolf, the Mexican wolf (*Canis lupus baileyi*) and Arabian wolf  are Endangered.

### Indian wolf, Mexican wolf (Canis lupus baileyi), and Arabian wolf comparison:

| Feature | Indian Wolf | Mexican Wolf | Arabian Wolf |
|---|---|---|---|
| Scientific Name | Canis lupus pallipes | Canis lupus baileyi | Canis lupus arabs |
| Range | Indian subcontinent | Southwestern United States, Mexico | Arabian Peninsula |
| Size | Medium; typically 25-40 kg (55-88 lbs) | Small to medium; 25-45 kg (55-99 lbs) | Small; 20-30 kg (44-66 lbs) |

| Habitat | Arid and semi-arid regions, forests | Mixed forests, grasslands, and deserts | Arid regions, deserts, and scrublands |
|---|---|---|---|
| Diet | Carnivorous, preys on small to medium animals | Carnivorous, preys on small mammals, deer | Carnivorous, preys on small mammals and occasionally larger prey |
| Social Structure | Often live in small packs or solitary | Live in packs, social structure similar to other wolves | Typically live in small packs or solitary |
| Conservation Status | Endangered | Endangered | Endangered |

## Conclusion

- As part of the endangered wolf subspecies along with the Indian and Mexican wolves, conservation efforts are crucial for its survival.

## 5.6    SHORT ARTICLES

# Whale Sharks

## Context

- Every year on August 30 international whale sharks day is celebrated.

## Whale sharks

- It is the **world's largest known fish species.** It is not a whale but a species of shark.
- **Scientific name:** Rhincodon typus
- **Conservation status:**
- **Wildlife Protection Act of India, 1972:** Schedule I, which renders the capture and killing of the fish a cognisable offence.
- **International Union for Conservation of Nature (IUCN) status:** endangered

- **Convention on International Trade in Endangered Species:** Appendix II
- **Threats:** Hunted for years for its fin and liver for commercial trade, and oil from the fish was used for water-proofing wooden boats.
- **Distributions:** Found in all the tropical oceans of the world.
- **Distinguishing features:** Their flattened head sports a **blunt snout above its mouth with short barbels protruding from its nostrils. Its back and sides are grey to brown with white spots** among pale vertical and horizontal stripes, and its belly is white.

| Whale Shark Vs Whales | | |
|---|---|---|
| | **Whale Shark** | **Whales** |
| *Species Type* | Fish (largest living fish) | Mammals |
| *Size* | Up to 40 feet (12 meters) | Varies widely; Blue Whales up to 100 feet (30 meters) |
| *Feeding Habits* | Filter feeder (plankton, small fish, krill) | Diverse; some are filter feeders (e.g., Blue Whale), others are predators (e.g., Orcas) |
| *Habitat* | Warm, tropical ocean waters | Wide range; from polar regions to tropical seas |
| *Reproduction* | Ovoviviparous (eggs hatch inside female) | Viviparous (live birth after internal fertilization) |
| *Conservation Status* | Endangered (threats include fishing, boat strikes, habitat loss) | Varies by species; many are protected but face threats from hunting, entanglement, and environmental changes |

# Tarantula

## Context

- Wildlife researcher Chris Ketola shared a video which shows a tarantula infected by zombie fungus.

## Tarantulas

- They are nocturnal spiders belonging to arthropods that rely on an exoskeleton for muscular support.
- **Scientific name:** Theraphosidae.
- **Size:** Adult- average five inches (13 centimetres) long. When spread out, their leg span is up to 11 inches (28 centimetres).
- **Distribution:** They are found all across the world except for Antarctica.
- There are over 900 sub species of the tarantulas.
- Their body is large and hairy and they have eight hairy legs.

## Zombie fungus

- **Scientific name:** Ophiocordyceps unilateralis.
- It **drains its host entirely of nutrients by infusing the host body with spores and the fungus to reproduce within the host.**
- It then seizes the host's mind and motor functions then eats away its body.
- The fungus is largely found in tropics and mostly infects carpenter ants.

## Arthropods

- They are <u>are invertebrates with jointed legs and an exoskeleton</u>
- They have several other characteristics, including:
- **Segmented bodies:** Arthropods have segmented bodies that are divided into a head, thorax, and abdomen.
- **Jointed appendages:** Arthropods have jointed appendages that help them move, feed, and sense their surroundings.
- **Chitin exoskeleton:** Arthropods have an exoskeleton made of chitin, a long-chained carbohydrate derived from glucose.
- **Open circulatory system**: Arthropods have an open circulatory system and a coelomic cavity filled with blood.

- **Malpighian tubules:** Terrestrial arthropods use Malpighian tubules to excrete, which helps them conserve water.
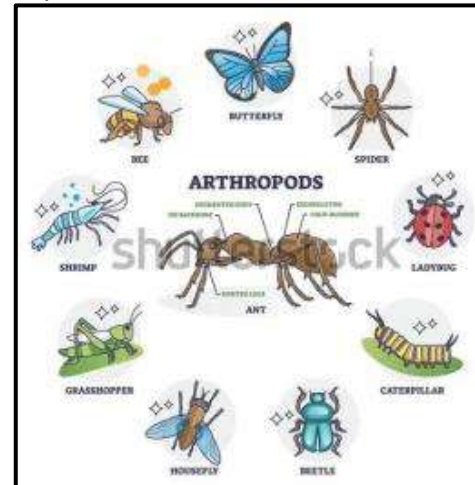


# Barak Bhuban Wildlife Sanctuary

## Context

- The National Green Tribunal's (NGT) eastern bench in Kolkata has ordered a stay-on-road construction work inside the Barak Bhuban wildlife sanctuary in Assam's Cachar district.

## About

- It is a wildlife sanctuary located in Assam's **Barak Valley**, which also includes the Borail Wildlife Sanctuary.

## Rivers

- **Barak and Sonai rivers flow through the river. The sanctuary has been named after the Barak River.**

## Fauna

- **Many primate species including slow loris, rhesus macaque, and hoolock gibbon** are found here.
- There is also an abundance of **king cobra in the sanctuary.**

## Flora

- T**ropical evergreen, semi-evergreen, tropical deciduous,** and there is availability of **rainforests** in the northern and southern eastern parts of the sanctuary.

## Barak River

## About

- The Barak is the second largest river in Northeast India after the Brahmaputra. Barak has a length of about 900 km of which 564 km falls in India.
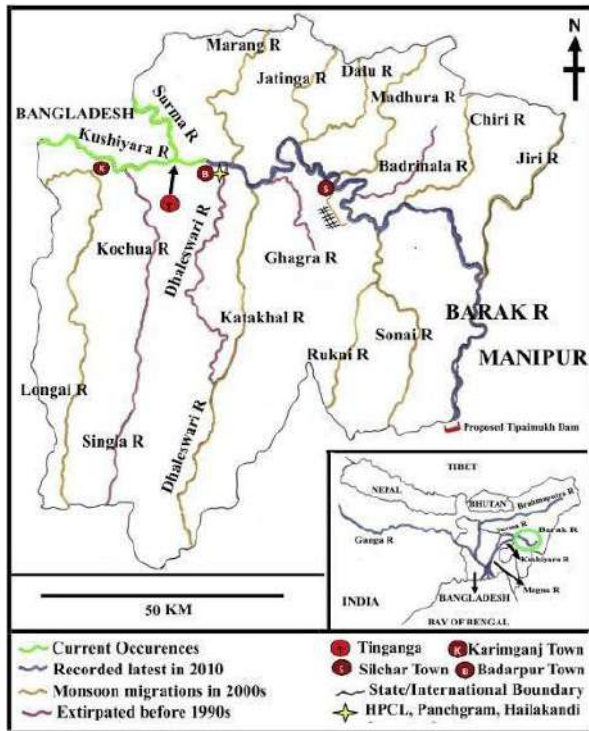


### Drainage

- Originates in **Manipur hills and enters the plains near Lakhipur, Assam.** Through the states of Manipur, Mizoram and Assam in India.
- It flows into Bangladesh where it **bifurcates into the Surma River and the Kushiyara River which converge again to become the Meghna River before forming the Ganges Delta.**

### Tributaries

- The Barak River's main tributaries include the Jiri, Dhaleswari, Singla, Longai, Sonai, and Katakhal.

# Climate Finance Action Fund

### Context

- Azerbaijan, the host of this year's climate change conference, COP29, proposed to **launch a new climate fund for developing countries.**

### About

- The fund proposed by Azerbaijan **will operate in parallel with all the other mechanisms that constitute the UN's financial system, among others, Global Environment Facility, Green Climate Fund, Special Climate Change Fund, and Adaptation Fund.**

### Headquarters

- The headquarters will be in Baku, Azerbaijan and the secretariat will also be based there.

### Financing

- **The fund** is to be **financed by oil and gas producing countries, and corporations, but in a voluntary manner.**

### Allocations

- The fund shall be accessible to all developing countries.
- **50% of contributions will be allocated to supporting the member states to achieve their Nationally determined contributions (NDCs) and pursue the 1.5°C limit.**
- **20% share of investment revenues will be used for a Rapid Response Funding Facility (2R2F) to assist the most vulnerable countries in responding to climate-related disasters.**

### Governance Structure

- **A Board of Directors** will consist of **representatives of donor countries.**
- **An independent audit committee** would be established and responsible for the submission of quarterly financial reports and also assessments of project implementations.

### Decision-Making

- **Shareholders will make decisions collectively**; management and financing structures will be prepared with experts from international working groups in finance.

### The 29th Conference of the Parties (COP29)

### About

- It is the 2024 United Nations Climate Change Conference, **which will be held in Baku, Azerbaijan from November 11–22, 2024.**

### Focus areas

- The conference **will focus on the goals of the United Nations Framework Convention on**

**Climate Change (UNFCCC) and the Paris Agreement, including:** Limiting global warming, Adapting to the impacts of climate change and Mobilising financing for these activities.

## Key meetings

**The conference will include several key meetings, including:**

- The 29th session of the Conference of the Parties (COP 29)
- The 19th meeting of the COP as the Meeting of the Parties to the Kyoto Protocol (CMP 19)
- The sixth meeting of the COP as the Meeting of the Parties to the Paris Agreement (CMA 6)

# Onitis bordati
## Context

- In a groundbreaking discovery, researchers have identified a previously unknown dung beetle species, Onitis bordati, in the Nongkhyllem Wildlife Sanctuary in Meghalaya.

## About Onitis bordati

- It is a species of Dung beetle belonging to the genus Onitis having long, slender, curved forelegs with teeth or spines.
- Similar species were **previously found in Vietnam and Thailand.**
- **Ecological Function:** Dung beetles play crucial ecological functions, such as **seed dispersal, nutrient cycling, pest control, and plant growth.**

## Nongkhyllem Wildlife Sanctuary

- It is located in **Meghalaya and falls under the Eastern Himalayan Global biodiversity hotspot.**
- Continuous erosion by the rivers **Umtrew, Umran, Umling, Umtasor, etc has rendered it rugged and eroded.**
- The **Umtrew**, the main river of the area marks the **western boundary of the Reserve Forest and the Sanctuary.**
- **Flora:** Tectona grandis, Terminalia myriocarpa, Shorea robusta, Gmelina arborea etc.

- **Fauna:** Clouded Leopard, majestic Elephants, and the powerful Himalayan Black Bear.
- It was found to be the **best-protected area (PA) in the North East, according to a management effectiveness evaluation (MEE) report of national parks and wildlife sanctuaries in 2021.**

## Management Effectiveness Evaluation (MEE)

- It is a way to assess **how well-protected areas are being managed.**
- It is used to evaluate the effectiveness of protected areas like national parks, wildlife sanctuaries, and tiger reserves in conserving the flora and fauna that live there.
- The **Ministry for Environment, Forest and Climate Change (MoEF&CC) releases the Management Effectiveness Evaluation (MEE) of national parks and wildlife sanctuaries (NP&WLS) in the country.**

# Emu
## Context

- Researchers have discovered a mechanism behind the reduction and asymmetry of emu wing bones.

## About

- The emu belongs to a **group of flightless running birds known as ratites**, the most primitive of the modern bird families.
- The ratite **family includes the kiwi, ostrich, cassowary, and rhea,** all birds found only in the Southern Hemisphere.

## Scientific Name

- *Dromaius novaehollandiae*

## Size

- They are tall and majestic. The emu is the **second-largest living bird in the world (the ostrich is the largest).** Adult female emus are larger and heavier than the males.

## Characteristic feature

- They **can travel long distances at a fast speed and can sprint at 30 miles (48 kilometres) per hour for quite a distance.**
- Their strong legs also allow the bird to jump 7 feet (2.1 metres) straight up.

- **With good eyesight and amazing agility, emus can escape almost any trouble.** In defence, emus can strike and rip with their heavy feet and nails.

### Distribution

- Emus are **common throughout most of mainland Australia.**
- In Western Australia, emus move northward in the summer and southward in the winter. The emu's **range also includes New Guinea, Indonesia, the Solomon Islands, and the Philippines.**

### Diet

- They are omnivores.

### Ecological role

- They are called the **seed dispersal specialist.** Seeds eaten whole come out whole; as the emu wanders about, it leaves fertilised seed-carrying deposits behind in its droppings.

### Lifespan

- Five to ten years

### Conservation Status

- **IUCN Red List:** Least Concern

# Spotted Deer

## Context

- The 'unique' ecosystem of Pench Tiger Reserve in Madhya Pradesh has led to a conflict between a particular animal species and its habitat.

## About

- It is also known as chital deer and axis deer and it is a deer species native to the Indian subcontinent.

### *Scientific Name: Axis axis*

### Sexual dimorphism

- It is **sexually dimorphic; males are larger than females, and antlers are present only in males.**

### Features

- The upper parts are golden to rufous, completely covered in white spots.
- The abdomen, rump, throat, insides of legs, ears, and tail are all white.
- The antlers, three-pronged, are nearly 1 m (3

ft 3 in) long.

### Habitat and distribution

- The chital **ranges over 8–30°N in India, Nepal, Bhutan, Bangladesh and Sri Lanka.**
- **Western limit:** eastern Rajasthan and Gujarat;
- **Northern limit: throughout the Terai and northern West Bengal, Sikkim to western Assam** and forested valleys in Bhutan below an elevation of 1,100 m (3,600 ft) and
- **Southern limits:** The Andaman and Nicobar Islands and Sri Lanka.
- Also occurs in the Sundarbans and some eco-parks around the Bay of Bengal but is **locally extinct in central and north-eastern Bangladesh.**

### Socialisation

- They are gregarious animals and **form matriarchal herds comprising an adult female and her offspring of the previous and the present year**, which may be associated with individuals of any age and sex, male herds, and herds of juveniles and mothers.

### Conservation Status

- Least Concern under IUCN Red List.

# Seaweeds

## Context

- The Department of Fisheries **has designated the ICAR-Central Marine Fisheries Research Institute (CMFRI)** as a centre of excellence for seaweed cultivation.

## About

- **Seaweed**, or **macroalgae**, refers to thousands of species of macroscopic, multicellular and marine algae, which also includes some **types of** *Rhodophyta* **(red),** *Phaeophyta* **(brown) and** *Chlorophyta* **(green) macroalgae.**

## Size

- **Their size varies from microscopic species to large underwater forests.**

## Environmental requirements

**Two environmental requirements dominate seaweed ecology.**

- Seawater (or at least brackish water) and light sufficient to support photosynthesis.

- An attachment point.
- Therefore **seaweed most commonly inhabits the littoral zone(nearshore waters) and within that zone, on rocky shores more than on sand or shingle.**

## Uses

- **Food:** Seaweed is edible and can be used in sushi, salads, and dried snacks. It's a good source of vitamins, minerals, proteins, lipids, and polysaccharides.
- **Fertiliser:** As a fertiliser to help improve water quality by reducing the amount of nitrogen and phosphorus that drains into rivers and oceans.
- **Medicine:** In traditional medicine to treat coughs, asthma, haemorrhoids, nosebleeds, boils, goitre, scrofula, stomach ailments, and urinary issues.
- **Wastewater treatment:** Seaweed can be used to reduce nitrogen and phosphorus compounds in wastewater.
- Apart from these Seaweed can also be used to make cosmetics, ethanol or biodiesel and feed for animals and fish.

## Significance

- Seaweed species such as kelps provide **essential nursery habitat for fisheries and other marine species and thus protect food sources; other species**, such as planktonic algae, play a vital role in capturing carbon and producing at least 50% of Earth's oxygen.

# Syntretus perlmani

## Context

- A new wasp species was discovered in the US bursts from living flies.

## Syntretus perlmani

- These are new species of wasp and have been **categorised as parasitoids rather than parasites as they always kill their hosts unlike the parasites, which generally leave hosts alive.**
- The Syntretus perlmani is the **first wasp found to infect adult fruit flies.**
- **Female S. perlmani use their needle-like ovipositor organ — the stinger in stinging wasps — to stab and deposit an egg within a fruit fly's abdomen.** The egg then hatches into a tiny wasp larva, which grows inside the fly for about 18 days before leaving its host for dead. Eventually, they burst out of the body of the hosts.

| Parasites Vs Parasitoids | |
|---|---|
| **Parasites** | **Parasitoids** |
| • These organisms **live on or in a host, and benefit from the host's resources,** like food and shelter. | • These organisms are usually insects that have a **life cycle that's a mix between a parasite and a predator.** |
| • Parasites **can harm or infect their hosts, but they usually don't kill them.** <br> • Examples of parasites include fleas and ticks. | • Parasitoid **larvae feed on and eventually kill their hosts,** which are usually other insects. <br> • Parasitoids often paralyze their hosts, or allow them to continue feeding or laying eggs before they die. <br> • Examples of parasitoids include wasps and flies. |

# Sea Robins or Triglidae

## Context

- Researchers have uncovered new insights into evolutionary adaptations by examining the unusual "walking" abilities of sea robins.

## Sea Robins or Triglidae

- *Triglidae*, commonly known as **gurnards** or **sea robins**, are a family of bottom-feeding **scorpaeniform ray-finned fish.**

## Distribution:

- The gurnards are distributed in **temperate and tropical seas worldwide.**

**Size:**

- Most species are **around 30 to 40 cm (12 to 16 in) in length** with the females typically being larger than the males.
- **Features:**
- It is **bottom-dwelling fish that use leg-like appendages to navigate the ocean floor.** These appendages function as bona fide sensory organs, capable of detecting both mechanical and chemical stimuli.
- **The sea robin "legs" are actually modified pectoral fins, with three on each side of the body.**
- Another distinctive feature is the presence of a "drumming muscle" that makes sounds by beating against the swim bladder.

**Feeding habit:**

- **Classified as carnivores, gurnards mainly feed on crustaceans.** Most species are opportunistic predators and will feed on prey such as teleost and mollusks as well.

**Conservation status:**

- According to the IUCN Red List, it is listed as **Least Concern (LC).**

# Garra zubzaensis and Psilorhynchus kosygini

### Context

- Researchers have recently discovered two new species of torrent minnows in the pristine rivers of Nagaland.

### Garra zubzaensis

- This new fish species belongs to the *Garra* genus within the **Cyprinidae family, commonly known as torrent minnows.**
- It was discovered in the **Zubza River, a tributary of the Brahmaputra River in Kohima district.**

**Habitat:**

- These fish are especially found to live in fast-flowing, rocky streams.

**Distribution:**

- It is found in various regions across Asia.

**Adaptation:**

- They use their **gular discs—sucker-like structures—to cling to surfaces and forage for food in flowing waters.**

**Characteristics:**

- Garra zubzaensis is **distinguished by a weakly developed proboscis, a rounded snout, and a characteristic black V-shaped band on the caudal fin.**
- It has 34 lateral-line scales and a streamlined body adapted for life in swift currents.

### Psilorhynchus kosygini

- This species belongs to the Psilorhynchidae family, commonly known as torrent minnows.
- It was discovered in the **Tepuiki River, a tributary of the Barak River in Nagaland's Peren district.**

**Habitat**

- This species is found in the fast-flowing, shaded waters, where it thrives in the river's gravel and rocky substrate.

**Adaptation**

- Like other torrent minnows, Psilorhynchus kosygini is **adapted to cling to surfaces in strong currents, allowing it to feed on small invertebrates and organic matter.**

**Distribution**

- It is found primarily across South Asia and Southeast Asia.

**Characteristics:**

- Psilorhynchus kosygini stands out due to its unique scale arrangement, with 3-4 mid-ventral scales between the pelvic fins and the anal opening.
- The species also has 41-42 lateral-line scales and a distinctive body shape suited for life in torrents.

### Torrent Minnow

- A torrent minnow is a **small freshwater fish belonging to the genus Psilorhynchus within the family Psilorhynchidae.**
- These fish are commonly found in fast-flowing streams, particularly in regions with strong currents such as rivers and mountain streams, which is why they are called "torrent" minnows.

# Casuarina Plant

## Context

- **Vedaranyam taluk, once known for its flourishing casuarina (savukku) plantations**, is seeing a revival.

## Casuarina Plant

- Casuarina, also known as she-oak or savukku, is a genus of flowering plants.
- It is also known as **kattadi and savukku**.

## Scientific Name:

- *Casuarina equisetifolia.*

## Characteristics:

- Casuarina plants are known for their long, slender branches that resemble ferns.
- They are hardy and can withstand drought, salt spray, and windy conditions.
- Casuarina trees can **grow in a wide range of soils and climates, including those with limited moisture and nutrients.**

## Adaptability:

- They can tolerate temperatures from 10°C to 33°C, and mean annual rainfall between 700 and 2000 mm.

## Distribution:

- They are native to Australia, India, Southeast Asia, and other regions.

## Benefits

- **Erosion control:** Casuarina plants' extensive root systems help stabilise coastal dunes and prevent erosion in coastal regions.
- **Reforestation:** Casuarina plants are used in reforestation projects.
- **Soil fertility:** Casuarina plants fix nitrogen from the air, which enhances soil fertility.
- **Wood:** Casuarina wood is used for making furniture, fence posts, and paper pulp.

# Night parrot

## Context

- The largest known population of one of Australia's rarest birds has been found living in Western Australia's Great Sandy desert.

## Night parrot

- It is a small parrot endemic to the continent of Australia.

- It has **also been known as a porcupine parrot, nocturnal ground parakeet, midnight cockatoo, solitaire, spinifex parrot and night parakeet.**

## Scientific Name:

- *Pezoporus occidentalis*

## Abundance:

- It is one of the most elusive and mysterious birds in the world, **with no confirmed sightings of the bird between 1912 and 1979, leading to speculation that it was extinct.** Sightings **since 1979 have been extremely rare.**

## Distribution:

- This nocturnal parrot is endemic to Australia.

## Features:

- A relatively **small and short-tailed parrot, the species' colour is predominantly a yellowish green, mottled with dark brown, blacks and yellows.** Both sexes have this colouration.

## Conservation Status:

- It is classified by the IUCN as a **critically endangered species.**

## The Great Sandy Desert

- It is an interim **Australian bioregion, located in the northeast of Western Australia straddling the Pilbara and southern Kimberley regions and extending east into the Northern Territory.**
- The **Gibson Desert Lies to the south, and the Tanami Desert Lies to the east of the Great Sandy Desert.**
- It is **Australia's second largest desert, after the Great Victoria Desert.**
- The Great Sandy Desert is a **hot desert, like all other deserts in Australia.**

## Climate:

- This is a **subtropical desert at relatively low elevation, and as such, the temperature remains warm or hot throughout the year.**
- **Average night time temperatures in the winter remain well above freezing and are typically in the 50s °F.**

## Topography:

- Deserts contain large ergs, often consisting of

longitudinal dunes. In the northeast of the desert, there is a meteorite impact crater, the Wolfe Creek crater.

# Monoclad Cobra

## Context

- Scientists have found the variability in lethality and pathophysiological presentation in Monoclad cobra toxin.

## Monoclad cobra

- The snake that is known as the "**Indian spitting cobra**" is the monocled cobra (Naja kaouthia), which has the ability to spit venom, hence the name.

## Scientific Name

- *Naja kaouthia*

## Habitats

- **They inhabit paddy fields, marshes, swamps, and mangroves.**

## Distribution

- They inhabit eastern and northeastern India, Nepal, Bangladesh, Myanmar, Thailand, Vietnam, Malaysia, and southern China.

## Harm to Human

- Neurotoxicity and regional tissue destruction are the **chief symptoms of *N. kaouthia* (NK) envenomation, which is a severe medical condition.**

## Ecological significance

- They help to maintain the balance of prey species and control agricultural pests such as rats and mice.

## IUCN Red List

- Least Concern (LC).

## 5.7    SNIPPETS

| Topic | Details |
|---|---|
| **Ghost Shark** | • Researchers have identified a new ghost shark species named **Australasian Narrow-nosed Spookfish or Ghost Sharks** in the Chatham Rise region near New Zealand.<br>• **Ghost SHarks are Chimaeras, which** are cartilaginous fish in the order **Chimaeriformes**. They are informally known **rat fish**, **spookfish**, or **rabbit fish**.<br>• At one time they **were a "diverse and abundant" group (based on the fossil record).**<br>• Their closest living relatives are **sharks and rays,** though their last common ancestor with them lived nearly 400 million years ago.<br>• **Threats:** Overfishing through bycatch and commercial exploitation.<br>• **Conservation status: No species** are listed as **Endangered according to the IUCN, but four are listed as Vulnerable, four more as Near Threatened, and many more as Data Deficient (too rare to evaluate).** |
| **Kleptoparasitism** | • Researchers suggest that **kleptoparasitism, or food theft, among seabirds leads to transmission of the H5N1 avian influenza virus, leading to its rapid global spread.**<br>• It is a type of parasitism **where one animal steals food or other resources from another animal.**<br>• It has been **observed in birds, mammals, insects, spiders, and even humans** with **gulls being identified as the most common kleptoparasitic bird.**<br>• **Example: Skua birds** chase other seabirds until they regurgitate food, while **spotted hyenas and lions** are examples of carnivorous mammals that engage in kleptoparasitism. |

| | |
|---|---|
| **RE-INVEST 2024** | • The **4th edition of Global Renewable Energy Investors Meet and Expo (RE-INVEST 2024) was held in Gandhinagar.**<br>• Global platform **organised by the Ministry of New and Renewable Energy (MNRE) in collaboration with the Confederation of Indian Industry (CII)** bringing together key players in the renewable energy sector.<br>• It **featured nearly multiple sessions, including a Chief Ministerial Plenary, a CEO Roundtable and technical sessions.**<br>• <u>Event Highlight:</u> India's multifaceted approach to renewable energy, focusing on solar, wind, pumped storage, green hydrogen, and decentralized renewable energy.<br>• <u>Agenda:</u> Discussed the future of energy, exploring trends, technologies, and policies which help in achieving **UN SDGs 7 and 13. (SDG 7: Affordable and Clean Energy, SDG 13: Climate Action. )** |
| **Palamau tiger reserve** | • Naxal insurgency or Left-wing extremism (LWE) has affected forestry operations in Palamau Tiger Reserve in Jharkhand.<br>• It is the only Tiger Reserve in Jharkhand state and forms part of Betla National Park and Palamau Wildlife Sanctuary.<br>• It was part of **India's first nine tiger reserves which were declared after the Union Government launched Project Tiger in 1973.**<br>• <u>Rivers:</u> **North Koyal, Auranga, and Burha** rivers pass through the Reserve.<br>• <u>Vegetation</u>: Primarily dominated by **Northern Tropical Dry Deciduous Sal (Shorea robusta) forest** and its associates. Smaller **patches of Northern tropical Moist Deciduous forests** exist too, apart from five subtypes, i.e., (i) Moist peninsular Sal (ii) Dry peninsular Sal) (iii) Northern Dry Mixed Deciduous (iv) Aegle and (v) Dry Bamboo Brake. |

## 5.8 ADDITIONAL TOPICS FOR READING FROM IASGYAN WEBSITE

| TOPIC NAME | UPLOADED ON IAS GYAN WEBSITE ON |
|---|---|
| Poba reserve forest in Assam | 2nd September 2024 |
| Arnoux's beaked whales | 6th September 2024 |
| FRAME Methodology | 7th September 2024 |
| Carrhotus piperus | 14th September 2024 |
| Loss and Damage Fund (LDF) | 23rd September 2024 |
| International Big Cat Alliance | 26th September 2024 |
| Rhino Poaching | 17th September 2024 |
| A Just World on a Safe Planet Report | 19th September 2024 |
| Gorillas | 20th September 2024 |
| Assam cascade frogs | 2nd September 2024 |
| Lion-Tailed Macaque | 6th September 2024 |

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# 6. SCIENCE & TECHNOLOGY AND HEALTH

## 6.1    NEW SPACE INITIATIVES

### Context

- The cabinet approved the expansion of the Chandrayaan mission, thus approving the fourth mission of the same.
- The Cabinet also gave its nod for other missions including sending an orbiter to Venus, the next phase of the Gaganyaan missions, the development of an Indian space station, and development of new generation of launch vehicles.

### The initiatives

#### Gaganyaan Programme

#### Features

- The Union Cabinet has approved the **expansion of the Gaganyaan programme** to include the **Bharatiya Antariksh Station**.
- This extension revises the original Gaganyaan Programme to now focus on:
  - **Development of BAS-1**: The first module of the space station.
  - **Missions for Technology Validation**: Demonstrating and validating technologies required for building and operating BAS.
  - **Precursor Missions**: Additional uncrewed missions and hardware for BAS development.

#### Timeline

- The human spaceflight programme is now designed to include a total of **eight missions** by **December 2028**, culminating in the launch of **BAS-1**.
- **Four Gaganyaan Missions** by 2026.
- **Four Missions for BAS Development**: By December 2028, these missions will demonstrate and validate technologies for BAS.
- **Operational Bharatiya Antariksh Station** by 2035.
- **Indian Crewed Lunar Mission** by 2040.

### Other aspects

- The total funding for the Gaganyaan Programme, with the revised scope to include the BAS, has been increased to **₹20193 Crore**.
- The expansion requires an **additional ₹11170 Crore** over the previously approved budget.
- The **Gaganyaan Programme** will be a **national effort** led by **ISRO**, with participation from **Industry**, **Academia**, **National Agencies**.
- The programme will be managed through ISRO's established **project management mechanism**.

#### Bharatiya Antariksh Station (BAS)

#### Features

- BAS will serve as a platform for **microgravity-based scientific research** and **technology development**, leading to **technological spin-offs** and innovations.
- **National Technological Capabilities**: The development of BAS will enhance India's capabilities in **human space missions to Low Earth Orbit (LEO)**.
- The programme will inspire young talent to pursue careers in space technology and scientific research.
- The **technological spin-offs** from space research will have broader applications that benefit society, including advancements in **healthcare**, **telecommunications**, and **materials science**.

#### Timeline

- India is set to **establish its own space station**, the **BAS**, with the launch of its first module planned for **2028**.

#### Other aspects

- The programme will encourage **industrial collaboration** in **niche high-technology areas**, boosting **employment** in the **space and allied sectors**.

## NGLV

### Features

- India is set to develop a **Next Generation Launch Vehicle (NGLV)**.
- It will focus on **high payload capacity**, **reusability**, and **cost-effectiveness**.
- The NGLV will be capable of carrying up to **30 tonnes to Low Earth Orbit (LEO)**, three times the payload of the existing **LVM3** launch vehicle.
- With **1.5 times the cost** of the LVM3, the NGLV will offer a more economical solution for launching larger payloads.
- The **reusable first stage** will lower costs by enabling multiple launches with the same vehicle.
- NGLV will incorporate **modular green propulsion systems**, contributing to environmentally sustainable space missions.

### Timeline

- The NGLV development is scheduled for completion within **96 months.**
- **Three Development Flights (D1, D2, D3)**: These will demonstrate the vehicle's capabilities and pave the way for full-scale operations.

### Other aspects

- **Total Approved Fund**: ₹8240 crore.

## Venus Orbiter Mission (VOM)

### Features

- The mission will be managed by the **Department of Space** and executed by **ISRO**.
- **Objectives**:
  - **Atmospheric Study**: To explore the thick Venusian atmosphere, which is crucial for understanding the planet's climatic evolution.
  - **Geological Research**: To study the planet's surface and subsurface features to gain insights into its geological history.
  - **Comparative Planetology**: To compare Venus with Earth and Mars, aiding in

understanding planetary evolution and climatic changes.

### Timeline

- The Venus Orbiter Mission is scheduled to be launched in **March 2028**.

### Other aspects

- **Total Funding**: ₹1236 Crore has been approved, with **₹824 Crore** allocated for spacecraft development.

## Chandrayaan-4 Mission

### Features

- The mission will be managed by **ISRO**, responsible for the spacecraft and launch vehicle development.
- **Objectives**:
  - **Technology Demonstration**: To develop and showcase technologies for:
    - **Docking/Undocking**: Techniques for lunar and Earth docking.
    - **Landing and Safe Return**: Achieving safe lunar landing and return to Earth.
    - **Sample Collection**: Collecting lunar samples and analyzing them on Earth.
  - **Foundational Technologies**: To establish capabilities necessary for a future Indian manned lunar mission, planned for 2040.

### Timeline

- The mission is expected to be completed within **36 months** of approval.

### Other aspects

- **Total Fund Requirement**: ₹2104.06 Crore, covering:
  - **Spacecraft Development**: Includes design and realization.
  - **Launch Vehicles**: Two LVM3 launch missions.
  - **External Support**: Deep space network support and special design validation tests.
  - Sample Return: Costs associated with landing on the Moon and safely returning with lunar samples.

## 6.2    DEEP TECH

### Context

- Backed by the ₹1-lakh crore corpus for promoting transformative potential research, announced in the interim Budget, DRDO is set to launch a first-of-its-kind initiative that will remodel its research programme towards DeepTech for military usage.

### About DeepTech

- Deep technology (deep tech) refers to innovations grounded in scientific research and technological breakthroughs that have a **transformative impact on society**.
- Deep Tech refers to startups or innovations based on substantial scientific advancements and high-tech engineering processes.
- Deep tech includes fields such as artificial intelligence (AI), robotics, quantum computing, biotechnology, advanced materials, and more.
- Developing deep tech products typically requires intensive research, substantial funding, and a long-term development cycle.

### National Deep Tech Startup Policy (NDTSP)

- **NDTSP** is a comprehensive initiative that aims to foster the growth and sustainability of deep tech startups in India.
- The vision of the NDTSP is clear: to **drive innovation, promote societal development**, and secure India's **financial future** by unleashing the potential of deep tech startups.
- This vision aligns with larger national objectives such as **Atmanirbhar Bharat** and aims to ensure India's **global competitiveness** in the high-tech sector.
- The policy is built upon **four key pillars**: **Economic Security**, **Knowledge Economy**, **Sovereignty** and **Ethical Innovation**.
- The NDTSP outlines **nine policy priorities** : R&D and Innovation, Intellectual Property, Funding, Infrastructure, Standards and Certifications, Diversity & Capacity Building, Adoption, Policy Interlinkages and Sustenance.

### Current State of India's Deep Tech Ecosystem

- The absence of a **standard definition of deep tech** is a fundamental issue that hampers the proper classification and growth of deep tech startups in India.
- As of May 2023, India boasts over **10,298 DPIIT-recognized startups** in various deep tech sub-sectors.
- A significant number of these startups operate on a **B2B model**, indicating that deep tech innovations are largely serving enterprise clients.
- India's startup ecosystem benefits from several policies and initiatives, such as the **Biotechnology Innovation Fund**, **Startup India Fund of Fund Scheme**, and **BIRAC SEED Fund**.
- These schemes, along with **public procurement relaxations** for startups, are crucial but need to be expanded to cater specifically to deep tech startups with their distinct challenges of long incubation and high R&D costs.

### Global Scenario

- Countries have established **dedicated startup campuses as collaborative hubs for deep tech innovation**.
- Countries have **launched comprehensive brand campaigns** to promote their deep tech ecosystem.
- For attracting global talent and experienced mentors, countries have implemented **international startup residence programs.**

- Governments also introduce **tax incentives and relevant exemptions to encourage deep tech investment.**
- **UK Catapult, Belgium's WSL (Wallonia Brussels Startup Launchpad), Germany's EXIST Program, and Canada's Innovation Superclusters Initiative** are some examples of deep tech ecosystems.

## Way Forward
- Establishing a standard definition and conducting a comprehensive **mapping of the deep tech ecosystem** are crucial steps to ensure that startups are appropriately classified and supported.
- Similar to the **Indian Space Policy 2023**, India should draft sector-specific policies for other

critical areas like **biotech**, **quantum technology**, and **AI**.
- Introducing **global startup residence programs** and **incentives for foreign venture capital** could dramatically enhance India's appeal as a deep tech hub.
- India should establish **deep tech specialization programs** in universities to nurture the next generation of talent.
- Collaborating with global academic institutions would help elevate India's **research and development capabilities**.

## 6.3   SHORT ARTICLES

# India Semiconductor Mission
## Context
- With the objective to develop a vibrant semiconductor ecosystem, the Union Cabinet approved the proposal of Kaynes Semicon Pvt. Ltd. to setup a semiconductor unit in Sanand, Gujarat.

## About ISM
- The ISM was launched in 2021 with a **financial commitment of Rs 76,000 crore.**
- It is designed to support the development of a robust semiconductor and display manufacturing ecosystem in India.
- The mission is a **specialized and independent Business Division within the Digital India Corporation**.

## Components of the India Semiconductor Mission
- Support under the scheme shall be provided for a period of six years.
- **Scheme for Setting Up Semiconductor Fabs in India:** The Scheme for setting up of Semiconductor Fabs in India shall extend fiscal support of up to 50% of project cost on pari-passu basis to the approved applicants.

- **Scheme for Setting Up Display Fabs in India:** The Scheme for setting up of Display Fabs in India shall extend fiscal support of up to 50% of project cost on pari-passu basis to the approved applicants.
- **Scheme for Setting Up Compound Semiconductors/Silicon Photonics/Sensors Fab and Semiconductor Assembly, Testing, Marking, and Packaging (ATMP)/ Outsourced semiconductor assembly and test (OSAT) Facilities in India:** The Scheme for setting up of Compound Semiconductors / Silicon Photonics / Sensors (including MEMS) Fabs / Discrete Semiconductors Fab and Semiconductor ATMP / OSAT facilities in India shall extend fiscal support of 50% of capital expenditure to Compound Semiconductors / Silicon Photonics / Sensors (including MEMS) Fabs and Semiconductor Packaging (ATMP / OSAT) units.
- **Design Linked Incentive (DLI) Scheme:** It supports the design and development of Integrated Circuits (ICs), Chipsets, System on Chips (SoCs), Systems & IP Cores, and

semiconductor-linked design, fostering innovation in the semiconductor sector.

# Narrow Spectrum Antibiotics

## Context

- Scientists found that FP 100 (Hygromycin A), a first-in-class, small molecule, narrow-spectrum antibiotic, successfully eradicates Fusobacterium nucleatum without harming the oral or gut microbiomes.

## Antibiotics

- An antibiotic is a **type of antimicrobial substance active against bacteria.**
- Antibiotics work against bacterial infections only.
- They do not work on viruses which includes most colds and 'flu'.
- **Viruses are surrounded by a protective protein coating; they don't have cell walls that can be attacked by antibiotics like bacteria does.**

### Broad spectrum

- Broad spectrum antibiotics are **used when the infective organism is unknown, but delays in the institution of treatment would result in worsening of the infection**.
- They act against Gram +ve and –ve bacteria.
- Common Drug names: Amoxicillin, Co-Amoxiclav, Ciprofloxacin, Doxycycline.

### Narrow spectrum

- Narrow-spectrum antibiotics are **effective only against a selected group of bacterial types**.
- They can act on either gram +ve or gram -ve, not both.
- If the causative organism is known, narrow spectrum antibiotics are administered for the specific infection.
- These will not kill as many of the normal micro-organisms in the body like the broad spectrum antibiotics.
- **Due to the fact that they are targeting very specific bacteria, they do not cause an increase in bacterial resistance and also avoid the spread of drug-resistant infections.**

- Common Drug names: Azithromycin, Clarithromycin, Erythromycin, Clindamycin.

# Lie Detector Tests

## Context

- CBI conducted polygraph tests on seven people, in connection with the rape and murder of a resident doctor at the R.G. Kar Medical College and Hospital in Kolkata.

## Deception Detection Tests (DDTs)

- **Polygraph Test:** it records physiological changes necessary for detecting whether a person is telling a lie.
- **Narco-Analysis:** involves administration of drugs such as sodium pentothal, which sedate the subject and, make him more candid.
- **Thiopental** is a short-acting barbiturate that is useful for rapid induction of anaesthesia when administered intravenously.
- **Brain Mapping:** Brain activity is measured when familiar stimuli are introduced, in hopes of detecting deception.

## About Lie Detector Tests or Polygraph Tests

- **Measures:** Heart rate, blood pressure, and skin conductivity.
- **Usage:** Used in investigations; controversial legality and ethics.
- **Principle:** Lies trigger physiological changes.
- **Response:** Increased heart rate, breathing, and sweating.

# New Treatment Regimen for Drug-Resistant TB in India

## Context

- Union Health Ministry has approved the introduction of new shorter and more efficacious treatment regimen for drug-resistant TB.

## About BPaLM regimen

- This new treatment approach, consisting of **Bedaquiline, Pretomanid, Linezolid, and Moxifloxacin**, is set to transform the treatment landscape for Multi-Drug-Resistant Tuberculosis (MDR-TB).

- The BPaLM regimen aligns with the government's vision, announced by Prime Minister Modi at the **Delhi End TB Summit** in 2018.
- The introduction of the BPaLM regimen is expected to significantly bolster India's TB elimination efforts, particularly for the estimated **75,000 drug-resistant TB patients**.

## Key Features

- **Shorter Duration**: The BPaLM regimen reduces the treatment time from the traditional 20-month period to just six months.
- **Higher Efficacy**: The regimen has a higher success rate in curing drug-resistant TB compared to previous treatments.
- **Cost-Effective**: By shortening the treatment duration and reducing the associated medical costs, this regimen is a more economical option.
- **Safer with Fewer Side Effects**: Patients experience fewer severe side effects compared to traditional MDR-TB treatments, improving overall compliance.

# National Health Accounts (NHA) Estimates 2020-21 and 2021-22

## Context

- The Union Health Ministry released the National Health Account (NHA) estimates for India 2020-21 and 2021-22. These estimates are the eighth and ninth in the series of reports released annually by the Union Ministry of Health & Family Welfare.

## Key Highlights

### Per Capita Health Expenditure

- India's **per capita health expenditure** increased by **82%** in the last decade, jumping from ₹3,638 in 2013-14 to ₹6,602 in 2021-22. This reflects a greater focus on health expenditure by both government and private sources.

### Total Health Expenditure (THE) as % of GDP

- The total health expenditure for India in 2021-22 was **₹9,04,461 crore**, which equated to **3.83% of the country's GDP**. This metric has remained relatively stable compared to earlier years.

### Out-of-Pocket Expenditure (OOPE)

- There has been a **39% reduction in OOPE** as a share of total health expenditure, decreasing from **62.6% in 2013-14 to 39.4% in 2021-22**. This reduction indicates improved financial protection for households, largely due to government initiatives like **Ayushman Bharat** and **PMJAY**.

### Government Health Expenditure (GHE)

- **Government Health Expenditure (GHE)** as a percentage of **GDP** rose from **1.13% in 2014-15** to **1.84% in 2021-22**, showing a significant increase in public investment in healthcare. In terms of **total health expenditure**, the government's share grew from **28.6% in 2013-14 to 48% in 2021-22**, indicating a growing role of government spending in the sector.

### Social Security Expenditure (SSE)

- The report also highlighted an increase in **Social Security Expenditure on healthcare** from **5.7% in 2014-15 to 8.7% in 2021-22**, which includes government-funded health insurance and social health programs.

### Impact of COVID-19

- Government spending on health saw a **37% increase between 2020-21 and 2021-22**, reflecting a robust response to the **COVID-19 pandemic**. The expenditure also tripled in per capita terms, from **₹1,108 in 2014-15 to ₹3,169 in 2021-22**.

### Private Health Insurance

- Expenditure on **private health insurance** increased significantly by **118%** from 2013-14 to 2021-22, with household and employer contributions reaching **₹66,975 crore**.

### State-Level Data

- States with the highest health expenditure include **Maharashtra, Uttar Pradesh** , and

**West Bengal**. **Uttar Pradesh**, **Kerala**, and **West Bengal** recorded the highest out-of-pocket expenditure relative to government spending.

# Pressurised Heavy Water Reactor

## Context

- India's third home-built 700 MWe nuclear power reactor has achieved criticality and is set to start commercial electricity generation soon.

## Overview

- The reactor in question is **part of the Rajasthan Atomic Power Project** located at Rawatbhata.
- **India currently operates 24 reactors with a total capacity of 8,180 MWe.**
- Eight additional units, of which RAPP-7 is one, are under construction, adding 6,800 MWe.
- Plans for 10 more reactors are in the pre-project phase to be progressively completed by 2031-32.

## About PHWR

- **Fuel**: Natural uranium is typically used, eliminating the need for enriched uranium.
- **Coolant/Moderator**: Heavy water serves dual functions, slowing neutrons and transferring heat.
- PHWRs **use pressure tubes**, which enable the reactor to operate at high pressures while keeping the coolant and moderator separated. This distinguishes it from Light Water Reactors.

# High Performance Computing

## Context

- PM inaugurated two advanced High-Performance Computing (HPC) systems, **'Arka'** and **'Arunika'**, dedicated to weather and climate research.
- These state-of-the-art systems were **developed by the Ministry of Earth Sciences.**

## Overview

- The systems, named to reflect their connection with **Surya**, the sun (the primary energy source for Earth), will significantly enhance India's ability to accurately forecast extreme weather events, a key challenge in mitigating the impact of climate variability.
- **Arka:** Located at the **Indian Institute of Tropical Meteorology (IITM)** in Pune, this system boasts a computational capacity of **11.77 Peta FLOPS** and storage of **33 petabytes**.
- **Arunika:** Housed at the **National Centre for Medium Range Weather Forecasting (NCMRWF)** in Noida, this system features **8.24 Peta FLOPS** of computing power and **24 petabytes** of storage.
- Additionally, the project includes a standalone system for **Artificial Intelligence (AI)** and **Machine Learning (ML)** applications with a capacity of **1.9 Peta FLOPS**.
- The installation of these new systems increases the Ministry's total computing power to **22 Peta FLOPS**, a substantial leap from the earlier capacity of **6.8 Peta FLOPS**.
- This ₹850 crore project is a testament to India's commitment to leveraging advanced technology for better climate preparedness.

# Drugs and Magic Remedies Objectionable Advertisement Act, 1954

## Context

- Advertisements promising miraculous cures often mislead the public and prompt legislative measures like the Drugs and Magic Remedies (Objectionable Advertisements) Act to curb these claims.
- Central Drugs Standard Control Organisation (CDSCO) suspended a pharmaceutical company's permission to manufacture and market eye drops for presbyopia.

## Drugs and Magic Remedies (Objectionable Advertisements) Act, 1954

- It was enacted by the Parliament to **control the advertising of drugs and remedies,**

particularly those claiming to have magical **properties**.
- Advertising such remedies is a cognizable offence under this law.
- **"Magic Remedy"** includes any **talisman, mantra, amulet, or object claimed to have miraculous powers to cure, prevent, or diagnose diseases.**
- This also extends to devices said to influence the structure or function of human or animal organs.
- **Drugs and Magic Remedies Objectionable Advertisement Rules,1955 were enacted to ensure effective implementation of the act.**

# Women in Space Leadership Programme
## Context
- A Women in Space Leadership Programme (WiSLP) was launched by Department of Science and Technology.
## About the Programme
- WiSLP has been **launched in collaboration with the British Council as part of the UK-India Education and Research Initiative (UKIERI).**
- The initiative **focuses on supporting institutions in strengthening gender-inclusive practices** to foster women's leadership in space sciences by developing a strategic leadership framework. **Coventry University is the delivery partner in this initiative.**
- **UK-India Education and Research Initiative (UKIERI):** Launched in 2006, UKIERI aims to enhance educational collaboration and research partnerships between the UK and India. It **focuses on higher education leadership, research collaboration, skill development, and student mobility programs.** The fourth phase of UKIERI was launched in 2023.
- **i-STEM (Indian Science, Technology, and Engineering Facilities Map)** is a national portal that provides access to publicly funded research facilities in India, fostering

collaboration among researchers, industries, and start-ups. It an **initiative of the Office of Principal Scientific Advisor.** It is developed with the **concept "One Nation One Portal" for the scientific community, aimed at "Linking Researchers and Resources".**

# Future Circular Collider
## Context
- As CERN celebrates its 70th anniversary in 2024, plans are underway for the construction of a new and much larger particle collider, the Future Circular Collider (FCC).
## About FCC
- With a **proposed length of 90 km**, this "Higgs factory" aims to advance our understanding of the universe's fundamental building blocks.
- The FCC aims to build on the discoveries made by the Large Hadron Collider (LHC), particularly focusing on the Higgs boson particle.
- The primary goal of the FCC is to produce Higgs boson particles for detailed research, shedding light on the origins of mass and fundamental forces in the universe.
- The estimated cost of the FCC is around $17.5 billion, sparking debate about whether such an investment is justified in a world where immediate issues like global health crises, climate change, and poverty demand resources.

# Sastra Ramanujan Prize 2024
## Context
- The 2024 SASTRA Ramanujan Prize will be **awarded to Alexander Dunn of the Georgia Institute of Technology, U.S.**
- This is being given to Mr. Dunn, who has achieved several breakthroughs in the study of modular forms, half-integral weight forms, metaplectic forms and their connections to prime numbers and integer partitions.
## About the award

- The SASTRA Ramanujan Prize was **established by the Shanmugha Arts, Science, Technology & Research Academy (SASTRA) in Kumbakonam, Tamil Nadu**, to recognize outstanding contributions in the field of mathematics.

**Eligibility**

- The award is **open to mathematicians worldwide under the age of 32,** symbolizing the age at which Ramanujan passed away.

**Prize Components**

- The prize includes a **citation and a cash award of USD 10,000, presented during an annual international conference at SASTRA University.**

**Criteria for Selection**

- Recipients are chosen based on their significant contributions to mathematics in fields influenced by Ramanujan's work, such as number theory, combinatorics, and analysis.

**Notable Recipients**

- Noteworthy recipients include Manjul Bhargava (Fields Medalist), Akshay Venkatesh, and the 2023 awardee Ruixiang Zhang, recognized for his work in analytic number theory, combinatorics, and harmonic analysis.

# Bio-Ride Scheme

**Context**

- The Union Cabinet has approved the continuation of two umbrella schemes under the Department of Biotechnology.
- These have been merged into a single scheme titled **Biotechnology Research Innovation and Entrepreneurship Development (Bio-RIDE)**, with a newly added component focusing on **Biomanufacturing** and **Biofoundry**.

**The scheme**

**About**

- The Bio-RIDE scheme **aligns with the DBT's vision of utilizing biotechnology as a precision tool for national development.**
- It is set to contribute to India's target of becoming a **US$300 billion bioeconomy by 2030**.
- It will play a crucial role in realizing the vision of a '**Viksit Bharat 2047**'.

**Components**

- **Biotechnology Research and Development (R&D)::** Focuses on fostering cutting-edge research and innovations in key areas such as healthcare, agriculture, bioenergy, and environmental sustainability.
- **Industrial & Entrepreneurship Development (I&ED):** Aims to promote industrial growth and support biotechnology-based startups by providing incubation, seed funding, and mentorship to bio-entrepreneurs.
- **Biomanufacturing and Biofoundry:** A newly introduced component that emphasizes sustainable and scalable manufacturing processes aligned with India's environmental and green goals, contributing to the **circular bioeconomy**.
  - This aligns with the **Lifestyle for the Environment (LiFE)** initiative, launched by the Prime Minister to mitigate global climate change through eco-friendly practices.

**Outlay and Duration**

- The scheme will be implemented with an outlay of **Rs. 9197 crore** during the 15th Finance Commission period from 2021-22 to 2025-26.

## 6.4    SNIPPETS

| Topics | Details |
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| **DISEASES IN NEWS** ||
| **Foot-And-Mouth** | • The Union government plans to develop foot-and-mouth disease (FMD)-free |

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| **Disease (FMD)** | zones in eight states: Karnataka, Tamil Nadu, Andhra Pradesh, Telangana, Uttarakhand, Punjab, Haryana, Maharashtra, and Gujarat; to enhance animal product exports and global market presence.<br><br>• Foot-and-mouth disease is **caused by an aphthovirus, a member of the Picornaviridae family**.<br>• It is a **highly infectious viral infection that affects animals with cloven feet**, including cattle, sheep, goats, and pigs.<br>  ○ Horses, dogs, and cats are not affected by this virus.<br>• It leads to **chronic ulcers in infected animals' mouths and feet**, resulting in **decreased milk production, weight loss, and, in some cases, death.**<br>• The disease reduces productivity due to sickness and requires the **killing of infected and even uninfected animals for safety reasons**. This can lead to significant financial losses for farmers.<br>• It is **rarely transmitted to humans.** |
| **Valley Fever** | • Valley fever, a fungal disease endemic to the western United States, is seeing a significant rise in cases across California.<br>• **Valley fever (coccidioidomycosis)** is a fungal infection.<br>• It **lives in the soil in the southwestern U.S., parts of Washington state, and Central and South America**.<br>• **Non-contagious**: It does not spread from person to person but is contracted by inhaling fungal spores from the environment.<br>• **Most cases are mild, with either no symptoms or flu-like symptoms that resolve on their own.** |
| **Kawasaki Disease** | • Kawasaki disease cases among children have increased in India after COVID-19 pandemic.<br>• Kawasaki disease, **also known as Kawasaki syndrome or mucocutaneous lymph node syndrome, is a rare disease that causes fever and inflammation of the blood vessels.**<br>• It primarily affects children under the age of 5.<br>• It **causes inflammation in blood vessels (vasculitis)**, including coronary arteries that supply blood to the heart.<br>• Without timely treatment, it **can lead to serious heart complications**. |
| **Presbyopia** | • Entod Pharmaceuticals has announced that the DGCI has approved its new eye drop, which can reduce dependency on reading glasses for individuals affected by presbyopia.<br>• It is an **age-related eye condition** (around 40) where the **eyes gradually lose the ability to focus on close objects**.<br>• It affects nearly everyone to some degree as they age.<br>• It is caused by the gradual hardening of the eye's lens.<br>• The lens changes shape to focus light on the retina. |
| **Dyslexia** | • Researchers based in Dresden, Germany say that dyslexia is linked to changes in the function and structure of a specific part of the human brain called the visual thalamus.<br>• Dyslexia is a **learning disability that makes reading and language-related tasks harder**. |

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| | • It **happens because of disruptions in how your brain processes writing so you can understand it**.<br>• Dyslexia falls under the umbrella of **"specific learning disorder."** That disorder has three main subtypes:<br>    ○ Reading (dyslexia).<br>    ○ Writing (dysgraphia).<br>    ○ Math (dyscalculia).<br>• Dyslexia occurs in about **5%-10% of people worldwide**, making it the most common learning disorder.<br>• **Boys are affected two to three times more often than girls.** |
| **Cellulitis** | • Cellulitis disease, which used to affect a few people during the rainy season, is now widespread in the erstwhile Karimnagar district, Telangana.<br>• Cellulitis is a **bacterial infection affecting the deeper layers of the skin and the subcutaneous tissues.**<br>• It is commonly caused by *Streptococcus* or *Staphylococcus* bacteria. |
| **Necrotising Fasciitis** | • British Man develops Necrotising fasciitis, a Flesh-Eating Disease, after being bitten by deadly spider.<br>• It is a **rare but severe bacterial infection** that destroys tissues under the skin, including muscles, fat, and fascia (connective tissues).<br>• It is often referred to as a **"flesh-eating disease."**<br>• It progresses rapidly and can lead to systemic sepsis, multi-organ failure, and death if not treated promptly.<br>• The mortality rate for necrotising fasciitis is high, ranging from **20% to 40%.** |
| **Schizophrenia** | • In September 2024, the U.S. Food and Drug Administration approved **Cobenfy**, a drug developed by Bristol Myers Squibb, marking the first new approach to schizophrenia treatment in decades.<br>• It is a **chronic mental health disorder that affects around 1% of the global population.**<br>• The disorder is **characterized by severe symptoms such as hallucinations, delusions, and disorganized thinking, often leading to social isolation and a diminished quality of life.** |
| **Chemicals/Materials/Compounds In News** | |
| **Fluoxetine** | • A recent study published in the Journal of Animal Ecology highlighted how Fluoxetine affects fish behaviour.<br>• **Fluoxetine is a medication used to treat people with various conditions** including depression, anxiety disorders, and Premenstrual Dysphoric Disorder (PMDD).<br>• It **belongs to the class of selective serotonin reuptake inhibitors (SSRIs)** that increase serotonin levels in the brain. |
| **Acetanilide** | • Five individuals were hospitalised in Visakhapatnam after inhaling acetanilide powder.<br>• Acetanilide is an **odourless chemical compound that appears as a colourless or white crystalline powder**.<br>• It is also known as N-phenylacetamide or acetanil, and it is chemically related to acetic acid. |

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| | • Acetanilide is **produced by a chemical reaction between aniline and acetic anhydride**. |
| **Folic Acid** | • According to Taiwan-based research organisation World Vegetable Centre, water spinach is a vital source of folic acid.<br>• **Folic acid (vitamin B9) is a B vitamin supplement that may be used to prevent and treat low blood levels of folate that can cause megaloblastic anemia**.<br>• **Folate is the natural form of vitamin B9** found in various foods.<br>• **Folic acid is the man-made form of vitamin B9** created in a laboratory that is added to fortified foods or used as a supplement.<br>• **Water Spinach** is known as kalmi saag in West Bengal, naari ka saag in Uttar Pradesh, nalichi-bhaji in Marathi and sarkaraivalli in Tamil.<br>• It is a **green leafy vegetable belonging to the family Convolvulaceae**, identifiable by its trumpet-shaped flowers. |
| **Tartrazine** | • Recently, the yellow food dye tartrazine has been used by a team of researchers to make the skin of living mice temporarily transparent.<br>• Tartrazine is **also referred to by the names E102, FD&C Yellow No. 5.**<br>• It is an **artificial lemon-yellow-colored azo dye.**<br>• Tartrazine dye is a component of a number of foods, drinks, cosmetics, and medications.<br>• Some people are prone to reactions after having tartrazine, and such **reactions include but are not limited to hives, itching, or asthma.** |
| **Silver Carbide** | • The Odisha Chief Minister graced the ceremony of India's first silicon carbide manufacturing facility to be set up in Odisha at an investment of Rs 620 crore. The project will be developed by RIR Power Electronics Limited.<br>• Silver acetylide is an **inorganic chemical compound** with the formula $Ag_2C_2$, a metal acetylide.<br>• The compound is **a silver salt of the weak acid, acetylene.**<br>• It belongs to the **group of metal carbides.**<br>• It is a **dark powder.**<br>• The compound is **thermally unstable**.<br>• Silver carbide, under specific conditions, shows **highly reactive behaviour, hence not being widely used industrially** .<br>• Silver carbide **rapidly decomposes in the presence of heat or mechanical stress.** |
| **Montelukast** | • While caution is being exercised everywhere, the sale of Montelukast in India is unregulated, largely irrational, and seems to be increasing exponentially.<br>• Montelukast, **sold under the brand name Singulair,** is a medication approved to be **prescribed daily for long-term use as a "preventer" or "controller" of asthma attacks in adults and children at least 2 years old.**<br>• Developed by Merck and Co., it was approved by the U.S. Food and Drug Administration (FDA) in 1998.<br>• It is generally less preferred for this use than inhaled corticosteroids.<br>• **Corticosteroids are a class of steroid hormones that are produced in the** |

| | adrenal cortex of vertebrates, as well as the synthetic analogues of these hormones. |
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| **Ammonium Nitrate** | • The sharp rise in the import of ammonium nitrate (AN) from Russia has raised concerns for India's domestic fertilizer industry.<br>• Ammonium Nitrate ($NH_4NO_3$) is the **nitrate salt of the ammonium ion**, consisting of ammonia and nitric acid.<br>• It is a **white crystalline solid highly soluble in water**.<br>• Ammonium nitrate can decompose at high temperatures, causing fires or explosions.<br>• It is an oxidizer, which can enhance combustion when exposed to fuels.<br>• Can lead to soil acidification and water contamination if overused as a fertilizer. |
| **Metformin** | • Metformin, an inexpensive diabetes drug, slows ageing in male monkeys, particularly in their brain, according to a new study.<br>• Metformin is a well-known drug for managing type 2 diabetes.<br>• It is **derived from the compound guanidine found in Goat's Rue**, and has been used to treat type 2 diabetes since the 1950s.<br>• It is an herbal medicine long used in Europe.<br>• **Type 1**: An autoimmune condition where the immune system attacks insulin-producing cells.<br>• **Type 2**: The body becomes resistant to insulin.<br>• **Gestational**: Occurs during pregnancy. |
| **Vancomycin** | • Vancomycin has been reliable for treating MRSA for decades as it is very rare that *S. aureus* becomes resistant to vancomycin. Now, researchers have found *S. aureus* can adapt to vancomycin.<br>• *Staphylococcus aureus* is a **Gram-positive bacterium commonly found in the human body**, particularly on the skin and in the nasal passages.<br>• While many people carry *S. aureus* without any harm, it can sometimes cause infections ranging from minor skin conditions to more serious systemic infections.<br>• Vancomycin is a **glycopeptide antibiotic used as a last resort to treat MRSA** and other severe bacterial infections. It works by inhibiting cell wall synthesis in bacteria. |
| **SPACE IN NEWS** ||
| **Saturn's Rings** | • In March 2025, Saturn's iconic rings will appear to "disappear" from Earth.<br>• The planet's rings are incredibly thin (just tens of meters in thickness).<br>• They align edge-on with Earth every 13-15 years.<br>• During this alignment, they reflect very little light, creating the illusion of disappearance.<br>• This event last occurred in 2009. |
| **Bepicolombo** | • BepiColombo made its closest approach to **Mercury**, capturing sharp black-and-white images of its surface.<br>• These images provide the **first clear view of Mercury's South Pole**, showing **cratered terrain** and **peak ringbasins** like **Vivaldi** and **Stoddart**.<br>• **BepiColombo** is a joint mission between the **European Space Agency** |

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| | **(ESA)** and the **Japan Aerospace Exploration Agency (JAXA)**, launched in **2018**. <br> • Its main goal is to study **Mercury**. <br> • The spacecraft is set to orbit Mercury by **2026**, following a series of flybys of **Earth, Venus,** and **Mercury** to gradually slow down its velocity. |
| **Red Spider Nebula** | • NASA posted image about the Red Spider Nebula, which is 3,000 light-years from Earth and can be found in the constellation of Sagittarius. <br> • A nebula is a **vast cloud of gas and dust in space.** <br> • It primarily c**onsists of hydrogen and helium,** along with **traces of heavier elements like carbon, oxygen, and nitrogen.** <br> • **It is considered the birthplace of stars.** <br> • Stars form inside nebulae when regions within the cloud collapse under gravity, eventually igniting nuclear fusion and shining as new stars. <br> • Sagittarius is an easily recognizable constellation **located in the southern sky and is affiliated with a mythological figure-a centaur, half-man-half-horse, with a bow and arrow.** <br> • Sagittarius **is in the direction of the center of the Milky Way galaxy.** <br> • The supermassive black hole lying at the center of the galaxy - **Sagittarius A\* - is within this constellation.** |
| **Soyuz Spacecraft** | • A Soyuz craft with 2 Russians and 1 American docks at the International Space Station. <br> • The **Soyuz** is a **Russian spacecraft** that carries people and supplies to and from the **International Space Station** (ISS). <br> • It can carry up to **three people**. <br> • It also delivers food and water to the crew on the space station. <br> • The Soyuz serves as a **lifeboat**—if there's an emergency on the space station, the crew can use the Soyuz to return to Earth. <br> • Soyuz, a series of spacecraft **in service since the 1960s,** has completed over 140 flights. <br> • The first unmanned mission, **Kosmos 133,** was launched in 1966. |
| **Trishna** | • TRISHNA, the Indo-French satellite is expected to be launched in 2026. <br> • **TRISHNA: Thermal InfraRed Imaging Satellite for High-resolution Natural Resource Assessment** mission was first announced during bilateral talks between India and France in July 2023. <br> • This mission follows the successful Indo-French collaborations on the **Megha-Tropiques and SARAL satellites**, marking another significant milestone in space cooperation between the two countries. <br> • Megha-Tropiques is an Indo-French Joint Satellite Mission for studying the water cycle and energy exchanges in the tropics. <br> • The Satellite with ARGOS and ALTIKA (SARAL) is a joint Indo-French satellite mission for oceanographic studies. |
| **Chamran-1** | • Iran has successfully launched its research satellite, Chamran-1, into space recently. <br> • It is an **Iranian research satellite.** <br> • It has been designed and manufactured by Iranian engineers at Iran |

| | |
|---|---|
| | Electronics Industries (SAIran), a defense ministry subsidiary, in collaboration with the Aerospace Research Institute and several private firms. <br> • This satellite was **launched using the Qaem-100 rocket. Developed by Iran's paramilitary Revolutionary Guard**, it is a three-stage rocket capable of carrying satellites into low Earth orbit (LEO). |
| **Mini Moon** | • According to a new study, the Earth's gravitational field will temporarily capture a small asteroid, called 2024 PT5.  The asteroid will stay for two months before flying off into space. <br> • These objects are **asteroids or parts of larger space bodies**. <br> • Mini moons are much rarer compared to Earth's permanent moon and often **very difficult to detect because they are small and orbit very fast.** <br> •  **Only four mini-moons** of Earth have ever been discovered, and none are still orbiting Earth. |
| **Project 200** | • Bengaluru-based space startup Bellatrix Aerospace recently unveiled Project 200 on the inaugural day of the Bengaluru Space Expo 2024. <br> • Bengaluru-based startup **Bellatrix Aerospace announced the development of Project 200**, a satellite to be placed in **Ultra-Low Earth Orbit (ULEO), between 180 km and 250 km altitude**. <br> • One of the primary challenges satellites at the ULEO face is the **atmospheric drag**, due to which satellites begin failing, becoming deorbited in a few days. <br> • With the pioneering propulsion system by Bellatrix Aerospace, satellites can stay in their position at around 200-km altitude for years. |
| **C/2023 A3 (Tsuchinshan–Atlas)** | • The comet passed perihelion at a distance of 0.39 AU on 27 September 2024. <br> • It is a long-period comet from the **Oort Cloud**, discovered independently by two observatories, the **Purple Mountain Observatory** on **9 January 2023** and the **ATLAS project** (Asteroid Terrestrial-impact Last Alert System) on **22 February 2023**. <br> • The **Purple Mountain Observatory**, also known as Zijinshan Astronomical Observatory is an astronomical observatory located on the Purple Mountain in the east of Nanjing. <br> • The **Asteroid Terrestrial-impact Last Alert System (ATLAS)** is a robotic astronomical survey and early warning system funded by NASA, and developed and operated by the University of Hawaii's Institute for Astronomy. <br> • The **Oort Cloud** lies far beyond Pluto and the most distant edges of the Kuiper Belt. <br> • It's like a big, thick bubble around our solar system, made of icy, comet-like objects. |
| **Active Galactic Nucleus** | • Researchers from the Indian Institute of Astrophysics (IIA) have **found evidence of an interaction between a radio jet emitted from a special kind of galaxy called Active Galactic Nuclei (AGN) and the surrounding interstellar medium**. <br> • A radio jet is **material that is spewed from the centre of some galaxies almost at the speed of light and sends out strong radio waves.** |

| | • IIA is an **autonomous research institute wholly funded by the Department of Science and Technology, Government of India.**<br>• AGN is an **extremely bright central region of a galaxy that is dominated by the light emitted by dust and gas as it falls into a black hole.** |
|---|---|
| **GOVERNMENT SCHEMES/INITIATIVES/POLICIES/ACTS IN NEWS** | |
| **Vishvasya-Blockchain Technology Stack** | • MeitY has launched the Vishwasaya-Blockchain Technology Stack.<br>• It is a comprehensive Blockchain-as-a-Service platform - with the objective of bringing more transparency, security, and efficiency in the delivery of e-Services provided by the Government.<br>• The Vishvasya stack provides a permissioned BaaS setup that is geo-distributed, hosted across **three critical data centers in Bhubaneswar, Pune, and Hyderabad**.<br>• The government also introduced the **NBFLite-Lightweight Blockchain Platform and Praamaanik, a blockchain-enabled solution for verifying the origin of mobile apps.** |
| **Tele-communications (Administration Of Digital Bharat Nidhi) Rules, 2024** | • The Department of Telecommunications (DoT) has introduced the 'Tele-communications (Administration of Digital Bharat Nidhi) Rules, 2024'.<br>• It is a key regulation **aimed at enhancing the management and implementation of the Digital Bharat Nidhi initiative.**<br>• The **Digital Bharat Nidhi (DBN) was established under Section 24(1) of the Telecommunications Act, 2023**.<br>• It represents a rebranding of the Universal Service Obligation Fund (USOF), which was initially created under the Indian Telegraph Act of 1885.<br>• The rules and the act are guided by the principles of inclusion (Samavesh), security (Suraksha), growth (Vriddhi), and responsiveness (Tvarit), all aimed at realizing the vision of a Viksit Bharat (Developed India). |
| **Ayushman Bharat Pm-Jay** | • The Union government has approved health coverage to everyone who is 70 and above under the national insurance scheme Ayushman Bharat (AB).<br>• **All senior citizens of the age 70 years** and above irrespective of their socio-economic status would be eligible to avail the benefits of AB Pradhan Mantri Jan Arogya Yojana (PM-JAY).<br>• The eligible senior citizens would be issued a new distinct card under AB PM-JAY.<br>• The **scheme will benefit 4.5 crore families with six crore senior citizens.**<br>• Senior citizens above 70 who are already getting benefits of other public health insurance schemes such as Central Government Health Scheme (CGHS), Ex-Servicemen Contributory Health Scheme (ECHS), and Ayushman Central Armed Police Force (CAPF) may either choose their existing scheme or opt for AB PMJAY.<br>• 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. |
| **ORGANISMS IN NEWS** | |
| **Trilobites** | • A new study finds that a trilobite species with exceptionally well-preserved fossils from upstate New York has an additional set of legs underneath its |

| | head. |
|---|---|
| | • Trilobites are extinct marine arthropods that lived during the Paleozoic Era. |
| | • They are one of the earliest-known groups of arthropods. |
| | • Trilobites are the **first animals known to have vision**. |
| | • Existed from the **Cambrian Period (~521 million years ago)** to the **end of the Permian Period (~252 million years ago)**. |

| SCIENTIFIC CONCEPTS IN NEWS | |
|---|---|
| **Drug Repurposing** | A 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. <br><br> • **Drug repurposing, also known as drug repositioning or drug reprofiling**, involves the **study of new therapeutic indications for drugs already approved or under investigation**. <br><br> • This approach is remarkably valued in the building of entirely new drugs in cases where the process is too costly or time-consuming or when rapid solutions are imperative during specific health emergencies, such as the COVID-19 pandemic. |
| **Photoelectric Effect** | • Researchers at institutions like SLAC National Accelerator Laboratory have discovered photoemission delays in X-ray regimes. <br><br> • It is a phenomenon where **electrons are ejected from a material** when it absorbs electromagnetic radiation, such as light. <br><br> • This effect played a pivotal role in establishing quantum theory. <br><br> • **The photoelectric effect helped prove that light has both particle and wave properties, leading to the concept of wave-particle duality.** <br><br> • The photoelectric effect was first observed by **Heinrich Hertz** in 1887. <br><br> • In 1905, Einstein provided a theoretical explanation for the photoelectric effect (**photons**). For this, he won the **Nobel Prize in Physics in 1921**. <br><br> **Laws of Photoelectric Emission** <br><br> • **Emission of electrons** only occurs when the frequency of the incident light is above the threshold frequency. <br><br> • **Number of electrons emitted** is directly proportional to the intensity of the incident light, provided the light's frequency is above the threshold frequency. <br><br> • **Energy of the emitted electrons** depends on the frequency of the light, not its intensity. <br><br> • The **emission of electrons** is immediate and has no time lag once the appropriate frequency light is applied. |
| **Cryptobiosis** | • Detailed 3D images of the first tardigrade fossils ever discovered help scientists predict when tardigrades evolved their near-indestructibility — a trait that might have helped them survive multiple mass extinctions. <br><br> • Use cryptobiosis, a state where they expel over 95% of their body water, retract their head and legs, and curl into a tun (dehydrated ball). <br><br> • In the tun state, they nearly stop their metabolism. <br><br> • Can remain in the tun state for decades, potentially even a century, until conditions improve. |

| | |
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| | • Produce proteins that form a glass-like structure around cells, protecting them during cryptobiosis. |
| **Mal: New Blood Group** | • A team of scientists has identified a new blood group system called **MAL**, ending a decades-long mystery around the **AnWj antigen** first discovered in 1972. This introduces the **47th blood group system**.<br>• There are eight blood groups and they are classified using two systems. (ABO System and Rhesus system)<br>• The ABO system divides blood into four main groups based on the presence or absence of **A** and **B antigens** on red blood cells and **anti-A** and **anti-B antibodies** in plasma.<br>• The second system is called the Rhesus System and is classified as Rhesus Positive (+) and Rhesus Negative (-).<br>• The two systems combine to define the following of eight different blood groups of O-, O+, A-, A+, B-, B+, AB- and AB+. |
| **Pheromones** | • A newly developed sustainable pheromone dispenser is aimed at reducing pest control costs and promoting sustainable farming practices.<br>• It has been **developed using a mesoporous silica matrix**.<br>• Current pheromone dispensers, **made from polymer membranes or polypropylene tubes**, release pheromones inconsistently.<br>• Pheromones are **chemicals secreted by an organism that causes a particular reaction in another member of the same species.**<br>• First scientifically identified in 1959, pheromones are usually secreted through fluids like sweat, urine, and other excretions.<br>• Such chemicals can stimulate a range of responses-from changes in hormone levels to specific behaviors-and are the silent language of the animal world. |
| **Siddha System Of Medicine** | • A combination of 'Siddha' drugs can reduce anaemia among adolescent girls, according to a recent study.<br>• It is one of the oldest indigenous medical systems in India.<br>• It evolved from the **Dravidian civilization**. Literary evidence from the Sangam Era dates its **origin to around 10,000 BC.**<br>• The word 'Siddha' is **derived from 'Siddhi', which means attainment of perfection**.<br>• The system **emphasizes holistic health**—physical, psychological, social, and spiritual well-being.<br>• Siddha medicine is said to have originated from the **Shiva cult**. |
| **Neuromorphic Computing** | • Scientists at the IISc, Bengaluru, are reporting a momentous breakthrough in neuromorphic, or brain-inspired, computing technology that could potentially allow India to play in the global AI race.<br>• Neuromorphic computing is also known as **neuromorphic engineering.**<br>• It is a branch of computing that **designs hardware and software to mimic the neural structures and functions of the human brain.**<br>• Emerged in the 1980s when Misha Mahowald and Carver Mead pioneered the development of silicon neurons, synapses, and retinas. |
| **Epigenetics** | • Epigenetics plays a critical role in human health by regulating gene expression without the direct modification of DNA sequence. |

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| | • **Epigenetics** refers to the **study of changes in gene expression that do not involve alterations to the underlying DNA sequence.** <br> • These changes are influenced by various environmental and lifestyle factors and can have significant implications for health, development, and evolution. <br> • **Unlike genetic mutations, which alter the DNA sequence, epigenetic modifications affect how genes are turned on or off and can be reversible.** |
| **Infrasound** | • In November, the Comprehensive Test Ban Treaty Organization (CTBTO), is holding a workshop for scientists on using 'infrasound'. <br> • The idea is "to create an international forum for presenting and discussing recent advancements in infrasound research and operational capabilities of global and regional networks." <br> • Infrasound refers to **sound waves withvery, very low frequencies.** <br> • It is a natural phenomenon that can be generated by a wide range of sources, including natural events like volcanic eruptions, earthquakes, and severe weather systems, as well as man-made activities such as explosions or industrial machinery. |
| **Zeta Scale Supercomputers** | • According to Japan's Ministry of Education, Culture, Sports, Science, and Technology (MEXT), development of a successor to the country's flagship supercomputer, Fugaku, will begin in 2025. **The supercomputer could reach speeds on a zetaFLOPS scale, which has never been achieved before.** <br> • **A supercomputer with a speed of 1 zetaFLOPS could make one sextillion (1 followed by 21 zeros) calculations per second.** <br> • **This is 1,000 times more powerful than today's exascale systems**, which operate at the level of exaFLOPS. Achieving zettascale computing is expected to occur around 2030. <br> • In May 2022, the global supercomputer rankings were shaken up by the launch of Frontier. Now the fastest supercomputer in the world, it can perform more than 1 quintillion ($10^{18}$) floating-point operations per second. That's a 1 followed by 18 zeros, also known as an exaflop. |
| **Nanozymes** | • The CSIR-Central Leather Research Institute (CSIR-CLRI) in Chennai has made significant advancements in the field of nanozymes, particularly their application in collagen-based biomaterials. <br> • Collagen is a **key structural protein that is crucial for medical applications such as wound healing and tissue engineering**. <br> • Nanozymes are **nanomaterials that mimic the function of natural enzymes and offer several benefits over traditional chemical processes**, such as enhanced specificity, efficiency, and biocompatibility. |

## 6.5 ADDITIONAL TOPICS FOR READING FROM IASGYAN WEBSITE

| TOPIC NAME | UPLOADED ON IAS GYAN WEBSITE ON |
|---|---|
| India TB Report 2024 | 29th March 2024 |
| Tuberculosis | 25th August 2022 |
| India's nuclear program | 4th March 2024 |

| | |
|---|---|
| HPC | 28th September 2024 |
| Women in Space Leadership Programme | 27th September 2024 |
| Semiconductor | 14th March 2022 |
| Semiconductor Plants In India | 4th March 2024 |
| India's Chip Manufacturing Plan | 24th June 2023 |
| Fusobacterium nucleatum | 7th May 2024 |
| Antimicrobial Resistance | 17th January 2023 |
| Diseases and its types | 12th March 2024 |
| Gold Nuggets in Quartz Veins | 5th September 2024 |
| Gap between Allocations for Health and Outcomes in States | 6th September 2024 |
| Global Guidance to tackle Antibiotic Pollution | 7th September 2024 |
| Technical Textiles | 9th September 2024 |
| Use of Military in AI | 10th September 2024 |
| Helium in Space Launch | 10th September 2024 |
| Pathogen Access and Benefit Sharing (PABS) System | 19th September 2024 |
| Oidar Services | 20th September 2024 |
| India's Data Centre Ambitions | 24th September 2024 |
| Scientific Retractions | 25th September 2024 |
| Sun's Chromosphere | 26th September 2024 |
| Fungal Infections | 26th September 2024 |

# 7. CULTURE & HISTORY

## 7.1    TRIBAL FREEDOM FIGHTERS

### Context

- The Ministry of Culture has released the third Comic book on stories of 20 Tribal Freedom Fighters at Tiranga Utsav celebration in New Delhi.

### Details

| Freedom Fighter | Tribe | Key Contribution |
|---|---|---|
| Tilka Majhi | Pahadia | • **First tribal leader** to take up arms against the British East India Company.<br>• **Mobilized his tribe** and raided British treasuries. Hanged in 1785. |
| ThalakkalChanthu | Kurichiyar | • A **key ally of Pazhassi Raja** in his fight against the British, played an important role in guerrilla warfare.<br>• **Hanged** for his resistance. |
| Budhu Bhagat | Oraon | • Led the **Larka rebellion in 1832**, a **guerrilla warfare expert** against the British.<br>• Died in battle along with family members. |
| Tirot Singh | Khasi | • A **Khasi chief**, waged war against British expansion.<br>• **Captured, tortured, and died in prison**. |
| RaghojiBhangre | Mahadeo Koli | • Revolted against the British despite personal losses, continued the fight after his mother was imprisoned.<br>• **Captured and hanged**. |
| Sidhu and KanhuMurmu | Santhal | • **Leaders of the 1855 Santhal Hul rebellion**, they revolted against British oppression and zamindari systems.<br>• Both were **betrayed and hanged**. |
| Rendo Manjhi & Chakra Bisoi | Khond | • Opposed British interference in tribal customs.<br>• Rendo was **hanged**, while Chakra **died in hiding**. |
| Nilambar & Pitamber | Bhogta (Kharwar) | • Inspired by the **Indian Uprising of 1857**, led their people in rebellion.<br>• **Captured and hanged** for their efforts. |
| Ramji Gond | Gond | • Opposed the **feudal system** backed by the British, fought for the rights of the oppressed, and was **hanged**. |
| Telanga Kharia | Kharia | • Rejected British tax system, **led raids on British treasuries** but was **betrayed and shot dead**. |
| Tantiya Bhil | Bhil | • Known as the **Robin Hood of Central India**, **robbed British trains** and distributed wealth to the poor.<br>• **Captured and hanged**. |
| Major PaonaBrajabasi | Manipuri | • Hero of the **Anglo-Manipur War**, fought valiantly but was **beheaded** after defeat. |
| Birsa Munda | Munda | • Legendary leader of the **Munda rebellion**, **challenged British policies** and became a folk hero. |

| | | |
|---|---|---|
| | | • **Died in prison at age 25**. |
| **MatmurJamoh** | Adi | • Rebelled against British officers and their arrogance.<br>• **Died in the Cellular Jail** after surrendering. |
| **Tana Bhagat** | Oraon | • Inspired by **divine visions** to resist British rule, preached against exploitation.<br>• **Severely tortured and died after release**. |
| **Malati Mem** | Tea-Garden Community | • Active in **Gandhi's satyagraha**, fought against British opium monopoly, **killed during an encounter** with the police. |
| **Laxman Naik** | Bhuyan | • Led tribes in the **freedom movement**, framed by the British and **hanged** in 1943. |
| **Helen Lepcha** | Lepcha | • **Helped Subhas Chandra Bose escape**, faced repeated imprisonment, and was awarded the **Tamra Patra** for her contributions. |
| **Pulimaya Devi Podar** | - | • Inspired by Gandhi's speeches, joined the freedom movement, **imprisoned for protests**. Continued serving people post-independence. |
| **ThalakkalChanthu** | Khasi | • Opposed British annexation, **imprisoned and died in captivity** after long battles for his people's freedom. |

## 7.2 NATIONAL FLORENCE NIGHTINGALE AWARDS 2024

### Context
• The President of India presented the National Florence Nightingale Awards for the year 2024.

### National Florence Nightingale Award
• It was **established in 1973** by the **Ministry of Health and Family Welfare**.
• The Award aims to recognize and reward outstanding nursing personnel for their exceptional contributions to society.
• **Eligibility**:
  o Nurses employed in **Central**, **State/UT governments**, and **Voluntary Organizations**.
  o Eligible candidates must be working in **hospitals**, **community settings**, or in **educational / administrative roles**.
• **Award Components**:
  o **Certificate of Merit**.
  o **Cash Award** of Rs.1,00,000/-.
  o **Medal**.

### Florence Nightingale

• Florence Nightingale was an **English social reformer and the founder of modern nursing**.
• Her groundbreaking work during the **Crimean War** transformed nursing from an untrained profession to a respected medical field.
• She drastically improved sanitary conditions in military hospitals, reducing mortality rates significantly.
• Post-war, she established the **Nightingale School of Nursing** in 1860.
• Known as "The Lady with the Lamp" for her nightly rounds of care in war hospitals.
• **International Nurses Day** is celebrated on her birthday (12 May).

### Crimean War (1853-1856)
• The Crimean War was a **conflict fought between the Russian Empire and an alliance of Britain, France, the Ottoman Empire, and Sardinia.**

### Background and Causes
It was product of several converging factors:
• **Decline of the Ottoman Empire**:

- o By the mid-19th century, the Ottoman Empire (**"Sick Man of Europe"**) had lost vast territories and was seen as a declining power.
- o Russia aimed to exploit this decline by expanding its influence in the Balkans and gaining control of access to the Mediterranean Sea via the Bosporus and Dardanelles straits.
- **Religious Tensions**:
  - o Disputes over the protection of Christian minorities in the Holy Land played a significant role.
  - o Russia sought to assert itself as the protector of Orthodox Christians under Ottoman rule, which brought it into conflict with France, which claimed similar rights for Catholic Christians.
- **Geopolitical Rivalries**:
  - o The broader European powers were concerned about the growing influence of Russia.
  - o Britain, in particular, feared that Russian expansion towards the Mediterranean would threaten its colonial interests, especially in India.
  - o France, under Napoleon III, sought to assert itself as a major European power.
- **Failure of Diplomacy**: The inability of the European powers to negotiate a peaceful settlement.

## Major Events

| Event | Date | Description |
|---|---|---|
| **Siege of Sevastopol** | October 1854 - September 1855 | • The Allied forces laid siege to the heavily fortified Russian naval base in Sevastopol.<br>• The defense of Sevastopol became symbolic of Russian resilience, but the city eventually fell after almost a year. |
| **Battle of Balaclava** | October 25, 1854 | • Known for the ill-fated **"Charge of the Light Brigade,"** where a British cavalry charge was disastrously mismanaged.<br>• Despite heroism, the battle ended in failure for the British. |
| **Battle of Inkerman** | November 5, 1854 | • A major battle fought during the Siege of Sevastopol.<br>• British and French forces repelled a large Russian attack, with heavy casualties on both sides. |

## Technological and Strategic Innovations

- T**he Crimean War was the first war to be extensively covered by war correspondents**.
- The dire conditions faced by soldiers, particularly the lack of proper medical care, **led to significant reforms in military healthcare**.
- **The use of the telegraph for communication and railways for troop movements** was significant.
- **The introduction of steam-powered warships and the use of rifled artillery**.

## Consequences

- The Crimean War **ended with the Treaty of Paris in March 1856**, which had far-reaching implications for European politics.
- One of the most significant outcomes of the Treaty was the **neutralization of the Black Sea**, forbidding Russia and the Ottoman Empire from maintaining naval forces or military arsenals in the region. This was intended to check Russian expansionism.
- **Russia's defeat weakened its influence in Europe for a time,** curtailing its ambitions in the Balkans and Mediterranean. However, it also sowed the seeds of future conflicts as

Russia sought to recover its prestige and territorial ambitions.

- The Crimean War **reshaped alliances within Europe.** The decline of Austria's influence, due to its neutrality, weakened its diplomatic standing, while France emerged as a more assertive power under Napoleon III.

## 7.3    SHORT ARTICLES

# Existence of Dockyard at Lothal

## Context

- A study by IIT-Gandhinagar confirms Lothal had a dockyard.
- The Sabarmati River once flowed next to Lothal, not 20 km away.
- Lothal was a key trade hub linking Ahmedabad, Nal Sarovar, the Little Rann of Kachchh, and Dholavira.

## About Lothal

- An ancient site of the Indus Valley Civilization in Saragwala Village, Ahmedabad District, Gujarat.
- 'Lothal' means 'place of the dead' in Gujarati.

## Site and Discovery

- **Discovered by S.R. Rao in 1952.**
- **India's first Harappan site**, smaller than Harappa and Mohenjo-daro.
- **Located on the eastern side of Sabarmati river with Gulf of Cambay access.**

## Urban Planning and Infrastructure

- **Flood-resistant design with terraced houses and a peripheral wall.**
- Includes an acropolis/citadel and a lower town with commercial centers and a dock.
- **Advanced drainage system.**

## Economic and Industrial Activities

- **Industrial hub for bronze tools, beads, and ornaments.**
- Imported copper and semi-precious stones.
- **Notable bead industry and trade network within Harappan civilization.**

## Religion and Burial Practices

- Evidence of **fire worship (like Kalibangan)** and animal worship on seals.
- Unique **joint burials of couples**, possibly due to family tragedies or accidents.

## Decline

- Like the Indus Valley Civilization, Lothal declined due to natural calamities, mainly floods, that swept the town. The economy of the town ground to a halt by 1900 BCE and was consequently abandoned.

# Thanjavur Veena

## Context

- Thanjavur, Tamil Nadu, is known as the **hub of making veena**, an ancient musical instrument.
- The Thanjavur veena is the **first musical instrument in the country to get the Geographical Indication (GI) tag**.

## About Veena

- The veena has been in existence for over 3,000 years, with **references in ancient Indian texts like the Rigveda and Natya Shastra**.

## Types of Veena

- There are **four popular types of veena.**
- While **Rudra veena and Vichitra veena are popular in Hindustani classical music, Saraswati veena and Chitra veena are used in Carnatic classical music.**

## Rudra Veena

- Also known as **Gotuvadyam.**
- Used in South India.
- **Common in Dhrupad music.**

## Saraswati Veena

- Named after Goddess Saraswati, **widely used in Carnatic music.**
- Features: Pear-shaped wooden body, large resonator at one end, tapering neck with frets.

## Vichitra Veena

- **Modern, fretless version.**
- Features: Flat, rectangular body, smooth, gliding notes, played with a slide.

### Chitra Veena

- **Played in South India.**
- Known for fast, intricate melodies.
- Features: Arched bridge, uniquely placed strings.

### Other types

- These include Been, Yaktaro, Harp veena.

# Pashmina Shawl

## Context

- The Prime Minister recently gifted a pashmina shawl to First Lady Jill Biden during his three-day US visit for the Quad Summit.

## Pashmina shawls

### About

- Pashmina shawls are **luxurious garments**, known for their softness, warmth, and craftsmanship.
- Originating from the Kashmir region, the word "Pashmina" is derived from the Persian word *pashm*, meaning soft wool (**Ladakhi Cashmere wool**).
- It has **earned G.I Tag** due to the unique traditional process used by local artisans in the Kashmir valley.

### Origin

- The history of Pashmina shawls dates back several centuries.
- **Emperors like Akbar popularized the shawls**, making them symbols of nobility and prestige.

### Raw Material

- Pashmina wool is **sourced from the Changthangi goat**, also known as the Pashmina goat, which is native to the high altitudes of the Himalayas in regions like Ladakh in India, Nepal, and Tibet.
- These goats grow a fine undercoat of hair to withstand the extreme cold, and it is this soft undercoat that is used to make Pashmina shawls.

### The Weaving Process

- The process begins by gently combing the Changthangi goat during the molting season to gather the soft wool.

- Once collected, the wool is cleaned to remove impurities before being spun.
- Traditionally, Pashmina wool is **hand-spun by skilled artisans**, usually women, who use wooden spindles.
- The fineness of the wool makes it difficult to spin, and the process is slow and labor-intensive.
- The hand-woven technique employed in Pashmina shawls is one of its most distinguishing features. Skilled artisans, using wooden handlooms, carefully weave the shawls, a **process that can take weeks to months**. **Each shawl is unique**.

# Jaipur's UNESCO Heritage Status

## Context

- The heritage conservation and development of Jaipur will be taken up with a budgetary expenditure of ₹100 crore.

## Details

- The Walled City of Jaipur was founded in 1727 by Sawai Jai Singh II.
- It was inscribed as a UNESCO World Heritage Site in 2019 under criteria (ii), (iv), and (vi) (human values, urban planning, and living traditions).
- It is also known as pink city.

### Outstanding Universal Value

### Criterion (ii): Exchange of Human Values

- Jaipur represents a mix of **Hindu, Mughal, and Western influences** in its town planning and architecture.
- The city's **grid-iron plan** is inspired by Western examples, but enhanced with **Vedic architecture**.

### Criterion (iv): Architectural and Urban Planning

- Its urban form contrasts with medieval cities due to its **broad streets** and **linear structure**, all designed to facilitate trade and commerce.
- The markets (11 main bazars) represent architectural styles spanning from the 18th to the 20th centuries, with a **singular color scheme** and **unified facades**.

- Many **havelis** and **temple complexes** are located along the main bazars and at the **chaupar.**
- The city's layout features **continuous colonnaded businesses**, intersecting streets, and large public squares called **chaupars** and sectors known as **chowkris**.
- Its markets, shops, residences, and temples along the main streets have **uniform facades**.

## Criterion (vi): Living Traditions

- Jaipur has historically been a hub for **crafts**.
- The city initially planned to house **36 industries** (**ChhatteesKarkhane**), many of which continue today.
- Crafts like **jewelry making, painting, carving**, and other traditional handicrafts are still practiced.

## Jaipur's Inscription Journey

- **The Jantar Mantar, Jaipur (Inscribed in 2010):**early 18th-century astronomical observation site.
- **Hill Forts of Rajasthan (Inscribed in 2013):**includes forts in **Amber Fort (Jaipur),Chittorgarh, Kumbhalgarh, Sawai Madhopur, Jhalawar,** and **Jaisalmer**.
- **Creative City of Crafts and Folk Art (Inscribed in 2015)**.

# Ramon Magsaysay Award 2024

## Context

- Japanese filmmaker Hayao Miyazaki, considered one of the greatest animators and directors, has won the 2024 Ramon Magsaysay Award.

## About the Award

- It is called the **"Nobel Prize of Asia."**
- It is an annual award in **memory of former President Ramon Magsaysay of the Philippines.**
- Magsaysay's administrative and military strategies played a key role in countering the perceived threat of communism.
- **Recognizes living individuals and organizations in Asia which best embody the meaning and essence of integrity in** governance, courageous service, **and pragmatic idealism within a democratic society.**
- Set up in April 1957 by the trustees of the Rockefeller Brothers Fund.

## Award Categories

- When the award was **first given there were six categories** for different types of public service and leadership: Government Service, Public Service, Community Leadership, Journalism, Literature, and Creative Communication Arts, Peace and International Understanding and Emergent Leadership (established in 2001).
- Since 2009- except for the Emergent Leadership category- **the award has no longer been given in fixed categories.**

## Awardees from India

- Vinoba Bhave (1958)
- Mother Teresa (1962)
- Kamaladevi Chattopadhyay (1966)
- Satyajit Ray (1967)
- Mahasweta Devi (1997)
- Arvind Kejriwal (2006)
- Anshu Gupta (2015)
- Bezwada Wilson (2016)
- Ravish Kumar (2019)

# Regional Arts from Kota and Vrindavan

## Context

- Recently an exhibition was organized in Mumbai on regional arts from Kota and Vrindavan.

## Details
## Kota
### Kota Doria Weaving

- Handwoven fabric combining cotton and silk.
- Recognized by its unique square patterns (*khat*).
- Kota Doria is used to make saris and dupattas.
- Awarded the Geographical Indication (GI) tag.

## Miniature Painting

- Emerged under the patronage of the Rajput rulers of the region.
- Vibrant colors, intricate details, often depicting royal life, hunting scenes, and Krishna themes.

### Stone Carving
- Traditional craft of carving religious and decorative motifs in sandstone, seen in monuments.

## Vrindavan
### Sanjhi Art
- Devotional art using paper stencils and colored powders, depicting scenes from Krishna's life.
- Spiritual practice, especially during festivals like Pitra Paksha.

### Pichwai Painting
- Intricate paintings showcasing Krishna's divine play, often used in temple backdrops.

### Krishna Sculptures
- Sculptures in stone or metal portraying Krishna, integral to temple worship and festivals.

# Sakthan Thampuran
## Context
- Minister of State for Tourism and Thrissur MP pledged to replace a statue of SakthanThampuran that was knocked over by a state transport bus.

## About SakthanThampuran
- Rama Varma Kunji Pillai Thampuran, or Rama Varma IX, better known today as SakthanThampuran, **ruled over the Cochin kingdom from 1790 to 1805.**
- He played a **key role in shaping the city of Thrissur** (Cultural Capital of Kerala).
- **His early political advice included urging the king to maintain diplomatic relations with both the Dutch and the British.**

## Key Events during his Reign
### Freeing Cochin from Mysore's dominance
- Played a critical role in liberating Cochin from Mysore after preventing its invasion attempt on Travancore

### Powney Treaty
- Signed the Powney Treaty with the British East India Company, ensuring independence from Mysore

### Reform of temple administration
- Abolished the power of Yogiatirippads and transferred temple management to the state government

### Land administration reforms
- Reorganized land ownership by taking over lands controlled by feudal chieftains

## Contributions to Thrissur
### Capital shift
- Moved the capital of Cochin from Thrippunithura to Thrissur

### Creation of Thekkinkadu Maidan
- Cleared 60 acres of teak forests around the Vadakkunnathan Temple to create the Thekkinkadu Maidan

### Swaraj Round
- Built the circular road known as Swaraj Round

### Thrissur Pooram
- Founded the famous Thrissur Pooram festival in 1797 as an alternative to the Arattupuzha Pooram

# Sanchi Stupa
## Context
- External Affairs Minister S Jaishankar stopped by the replica of the East Gate of Sanchi's Great Stupa standing in front of Humboldt Forum museum in Berlin.

## What is a Stupa?
- A stupa is a **Buddhist commemorative monument usually containing sacred relics of the Buddha or other venerable saints**.
- The archetypal stupa is a hemispherical structure, whose **origins can be traced to pre-Buddhist burial mounds found in India.**
- Eg: Chaitya Hall at Karle.

## About Great Stupa of Sanchi
- Sanchi, located in Madhya Pradesh, is one of India's most well-preserved and extensively studied Buddhist sites.

- The site is home to numerous stupas including the Great Stupa, built by Emperor Ashoka in the 3rd century BC.

## Construction and Expansion

### Ashokan Origins (3rd century BC)

- Commissioned by Ashoka to enshrine Buddha's relics; simple brick structure with a hemispherical dome (anda) symbolizing a burial mound

### Expansion During Shunga Period (2nd century BC)

- Brick structure expanded, sandstone slabs added, pradakshina path and stone railing (vedika) constructed; harmika and three-tiered chattravali installed, representing Buddhist symbols

### Additions During Satavahana Period (1st century BC - 2nd century AD)

- Four stone gateways (toranas) added in cardinal directions; intricately carved with scenes from Buddha's life and Jataka tales

### Gupta Period Additions (4th century AD)

- A Buddhist temple, lion pillar, and victory inscription of Chandragupta II added, marking Sanchi's continued importance during the Gupta era

## Restoration

### Rediscovery (1818)

- Sanchi was rediscovered by General Henry Taylor

### First Scientific Excavation (1851)

- Led by Major Alexander Cunningham and Lieutenant-Colonel F.C. Maisey; many relics taken to England

### Reclaiming of Relics (1920s)

- Bhopal Durbar initiated efforts to reclaim relics of Sariputra and Moggallana from the British Museum

### Post-WWII Agreement

- Agreement between the Maha Bodhi Society and the Bhopal Durbar to return the relics to Sanchi after World War II

# Battle of Saragarhi

## Context

- The Battle of Saragarhi, fought on 12 September 1897, is celebrated as one of the most valiant last stands in military history.
- It is portrayed in the movie *Kesari*, that shows the bravery of 21 Sikh soldiers of the 36th Sikh Battalion.
- These soldiers stood their ground against an estimated 10,000 Afghan tribesmen.

## Background

### Location

- Saragarhi post, between Fort Lockhart and Fort Gulistan in the North-Western Frontier Province (now Pakistan)

### Significance of the Post

- Critical for monitoring Afghan movements and controlling access to Punjab, then part of British India

### Inspiration

- Soldiers were motivated by the Sikh motto "Sawa lakh se ek ladawan" coined by Guru Gobind Singh Ji

## The 36th Sikh Battalion

### Established

- 1887.

### Leadership (1897)

- Led by Lt. Col. John Haughton.

### Task

- Controlling the volatile Samana Ridge area.

### Soldiers at Saragarhi

- Part of this elite regiment.

## The Afghan Threat

### Mulla of Hadda

- Called for a jihad against the British, inspiring 10,000 tribal fighters including Afridis, Pathans, and Pashtuns.

### Timeline

- Attacks on forts between August 28 and September 11, 1897; full assault on Saragarhi on September 12, 1897.

## The Battle of Saragarhi

### Communication

- Sepoy Gurmukh Singh sent a warning message to Lt. Col. Haughton at Fort Lockhart about the approaching Afghan force.

### Supply Cutoff

- Afghan forces isolated Saragarhi by cutting supply routes.

### Defense Strategy

- Lt. Col. Haughton instructed the soldiers to hold their position.

### Ammunition

- The 21 Sikh soldiers had limited ammunition but continued fighting valiantly.

### Casualties Inflicted

- Sikh soldiers inflicted heavy losses on the Afghan forces: around 180 attackers killed and 400 wounded.

### Outcome

- Delay in Afghan advance allowed British reinforcements to recapture Saragarhi within two days.
- Queen Victoria awarded the Indian Order of Merit posthumously to all 21 soldiers; they also received land and monetary rewards.

# Emmy Awards 2024

### Context

- The 76th Primetime Emmy Awards were handed out at the Peacock Theater in Los Angeles.

### About Emmy Awards

### Features

- The Emmy Awards are prestigious awards presented by various organizations to recognize excellence in the television industry.
- **Originated in the United States, the awards are considered one of the highest honors in television.**
- **Founded:** January 25, 1949
- The **term "Emmy" is derived from "Immy," a nickname for the image orthicon tube used in early television cameras.**

### Categories

- **Primetime Emmys:** Recognize achievements in American primetime television programming. **Television Academy** administers the Primetime Emmy Awards.
- **International Emmys, Sports Emmys, News & Documentary Emmys, Creative Arts Emmys, Daytime Emmys, Technology & Engineering Emmy, Regional Emmy Awards**.
- **National Academy of Television Arts & Sciences (NATAS)** oversees Daytime, Sports, News & Documentary Emmy Awards.
- **International Academy of Television Arts & Sciences** is responsible for the International Emmy Awards.

### Eligibility and Voting

- **Eligibility Period:** Awards are given for programming broadcast between June 1 and May 31 of the following year.
- **Voting Process:**
  o **Nominations:** Nominations are submitted by members of the Television Academy.
  o **Final Voting:** Winners are selected through a final round of voting by Academy members.

### Award Components

- **Trophy:** The Emmy trophy features a winged woman holding an atom, symbolizing the arts and sciences.
- **Ceremony:** The awards are presented during a televised ceremony, typically held annually in September.

# Periyar E.V. Ramasamy

### Context

- Rationalist social reformer Periyar EV Ramasamy was remembered on the occasion of his 146th birth anniversary in Chennai on September 17.

### Periyar Erode Venkatappa Ramasamy

### About

- Born in Erode, Tamil Nadu, into a Kannada-speaking Balija merchant family.
- **Initially drawn to Gandhian principles of non-cooperation, but later diverged due to fundamental ideological differences regarding caste and nationalism.**

- Periyar was a staunch critic of the caste system and promoted **rationalism**.
- Periyar critiqued Indian nationalism. **True freedom would only be achieved when the caste system and poverty were eradicated**.
- He was a **vocal atheist**.

**Key Movements**

- <u>Self-Respect Movement</u>: Founded in 1925, it **encouraged self-dignity, independence from oppressive religious customs, and the rejection of caste hierarchy**. A notable reform was the introduction of **"Self-Respect Marriages"** (eliminated Brahmin priests and religious rituals from marriage ceremonies).
- <u>Women's Rights</u>: He pushed for gender equality in areas like marriage, property inheritance, and **reproductive rights**. He argued for **contraceptive access** in the 1930s.

**Political Legacy**

- In 1944, Periyar transformed the **Justice Party** into the **DravidarKazhagam**.
- It focused on Dravidian identity and the rights of the **Adi-Dravida people**.
- The DK rejected Brahminical dominance and Hindi imposition.
- His ideologies heavily influenced the formation of the **Dravida MunnetraKazhagam (DMK)** and the **All India Anna Dravida Munnetra Kazhagam (AIADMK)**.

## Jivitputrika

### Context

- 46 persons drown during 'Jivitputrika' Festival In Bihar districts.

### About the festival

- The **Jivitputrika Festival**, also known as **JitiyaVrat**, is a **Hindu festival observed by mothers for the well-being, longevity, and prosperity of their children.**
- It is marked by a 24-hour period of fasting and prayer.
- The story behind Jivitputrika revolves around **King Jimutavahana**, who sacrificed himself to save a snake from Garuda, the king of birds. Moved by his selflessness, Garuda spared him and ended the practice of sacrificing snakes, thus ensuring their safety, which symbolizes protection.
- The festival is celebrated widely in **Bihar, Uttar Pradesh, Jharkhand**, and regions in **Nepal**, with small observances in other parts of northern India.

## Karma Festival

### Context

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

### About the festival

- The festival marks the **worship of the Karam tree.**
- The tree is **seen as a symbol of Karam Devta or Karamsani**, the god of strength, youth, and vitality.
- It is **primarily observed during the Kharif harvest season**.
- The festival is **popular especially among the Munda, Ho, Oraon, Baiga, Kharia, and Santhal peoples**.
- The **central ritual of the Karam festival involves planting a Karam sapling** or bringing branches from a nearby forest.
- They also **planted the stem of Chirchitti (chaff flower) and Sindwar (chaste tree) in their paddy fields**, which, according to Tirkey, acted as natural insecticides.
- The tree is **worshipped by women, who fast for the well-being of their brothers.**
- Towards the end of the Karam festival, branches from sal or bhelua trees are often planted in the fields.
- At the end of the day, the branches are taken to rivers or lakes for immersion.

## King Chilli

### Context

- The Seiyhama village in Nagaland recently celebrated its third Naga King Chilli Festival. This festival, which began in 2022, has grown

into a cornerstone of the village's cultural and agricultural identity.

## Naga King Chilli

### About

- Known locally as **raja mircha**, the Naga king chilli is among the hottest chillies in the world, reaching over 1 million Scoville Heat Units (SHU).
- It belongs to the genus Capsicum of the family **Solanaceae.**
- It received a Geographical Indication (GI) tag in 2008.
- This year's harvest is expected to be about 14,000 kg and thus be capable of earning Rs 70 lakh.
- Also referred to as **Ghost Pepper** (Bhut Jolokia), it is a **hybrid chilli pepper, grown in Assam, Nagaland, and Manipur.**
- **Capsaicin** is responsible for the ghost pepper's penetrating, pungent flavor.

### Cultivation

- The preparation for agriculture commences as early as December or January with the choice of the bamboo grove.
- **Transplantation of seedlings is done in May, while the harvest season goes on between August and September**.
- It is these traditional methods, along with the way the **entire village takes part in agriculture as a commune**, that sustains the agricultural economy of the village.

### Model for Sustainable Development

- It illustrates how community participation, cultural preservation, and agricultural promotion may coexist.

### Military and Security Uses

- In **2009**, the DRDO announced that they had developed **ghost pepper-based hand grenades** for riot control.

## 7.4    ADDITIONAL TOPICS FOR READING FROM IASGYAN WEBSITE

| TOPIC NAME | UPLOADED ON IAS GYAN WEBSITE ON |
|---|---|
| Thrissur Pooram | 26th April 2023 |
| Stupas | 28th February 2023 |

# 8. GEOGRAPHY & DISASTER MANAGEMENT

## 8.1    THE DISASTER MANAGEMENT (AMENDMENT) BILL

### Context
- Various critiques are arguing that the Disaster Management (Amendment) Bill isn't pursuing holistic goals, missing yet another opportunity which could have been helpful for similarly complex environmental legislations.

### Changes Proposed by the Amendment Bill

| Particulars | Current Provisions under the Disaster Management Act, 2005 | Proposed Changes under the Disaster Management (Amendment) Bill, 2024 |
|---|---|---|
| **Preparation of Disaster Management Plans** | National and State Executive Committees assist NDMA and SDMA in preparing national and state disaster management plans. | NDMA and SDMA **will directly prepare** disaster management plans. |
| **Functions of NDMA and SDMA** | 1. Review disaster management plans of government departments.<br>2. Set guidelines for preparation of plans for authorities below them.<br>3. Recommend provision of funds for disaster mitigation. | Adds new functions, including:<br>1. **Periodic stock** of disaster risks, including emerging risks.<br>2. **Provide technical assistance** to lower authorities.<br>3. **Recommend guidelines** for minimum standards of relief.<br>4. **Prepare national and state disaster databases.** |
| **Disaster Databases** | Not specified in the Act. | NDMA and SDMA will prepare databases on:<br>1. **Type and severity of disaster risks.**<br>2. **Fund allocation** and expenditure.<br>3. Disaster preparedness and **mitigation plans**. |
| **Additional Functions of NDMA** | Not specified in detail. | NDMA will assess disaster preparedness of **states and conduct post-disaster audits of preparedness and response.** |
| **Regulation-making Power** | Not explicitly provided. | NDMA will have the power to **make regulations** under the Act, with **prior central government approval**. |
| **Urban Disaster Management Authorities** | Not provided for in the Act. | State governments can **constitute an Urban Disaster Management Authority** for state **capitals and cities** with municipal corporations. The authority will prepare and implement disaster management plans for its area.<br>**Municipal Commissioner** as the **chairperson**, the District Collector as the vice |

| | | chairperson, and other members specified by the state government. |
|---|---|---|
| **State Disaster Response Force (SDRF)** | No provision for SDRF; only National Disaster Response Force (NDRF) is provided for. | State governments will be empowered to constitute a State **Disaster Response Force (SDRF).** The state government will define the SDRF's functions and terms of service. |
| **Statutory Status to Committees** | No statutory status for pre-existing bodies like the National Crisis Management Committee (NCMC) and High-Level Committee (HLC). | Statutory status given to the **NCMC and HLC.** **NCMC:** Nodal body for handling major disasters with national ramifications. **HLC**: Provides financial assistance to states and approves funding from the National Disaster Mitigation Fund. **The Cabinet Secretary will** serve as the chairperson of NCMC.  Minister of the department with administrative control over disaster management will serve as chairperson of the HLC. |
| **Appointments to NDMA** | Central government Provides officers, consultants, and employees to NDMA as necessary. | NDMA will have the power to specify the number and category of officers and employees, with previous approval of the central government. NDMA may also appoint experts and consultants as needed. |

## Criticism of the bill

- The Bill shows evidence of further centralisation of the already centralised Disaster Management Act, 2005.
- These **additions complicate** the **chain of action** to be followed during disasters, potentially leading to delayed responses.
- A delayed response was witnessed in the past when funds were denied to Tamil Nadu and disbursed late to Karnataka.
- The definition of disaster under the Act is not inclusive enough to cover climate-induced disasters like **heatwaves.**
- The government is not planning to classify **heatwaves** as a notified disaster under the Disaster Management Act, 2005.
- Key questions include whether the Bill can tackle power imbalances between the central and State governments as the **states remain largely dependent** on the central government for fund disbursal.

## 8.2    SHORT ARTICLES

# IndOBIS

### Context

- The Centre for Marine Living Resources and Ecology (CMLRE) conducted a national-level workshop on the Indian Ocean Biodiversity Information System (IndOBIS) on September 03, 2024, at its Kochi campus.

### Ocean Biodiversity Information System (OBIS)

- OBIS emanated from the Census of Marine Life (2000-2010) and was adopted as a

project under the International **Ocean Commission's (IOC)-UNESCO's** International Oceanographic Data and Information) program in 2009.

- It provides **detailed information on species distribution** across the world's oceans, including data on their **occurrence, habitats, and environmental parameters**.

- OBIS is supported by a network of nearly **30 regional nodes** contributing data while ensuring the data's quality and accessibility.

### Indian Ocean Biodiversity Information System (IndOBIS)

- IndOBIS is the regional OBIS node for the Indian Ocean, hosted by the Centre for **Marine Living Resources and Ecology (CMLRE), Kochi.**

- **IndOBIS has been collecting data of taxonomically resolved marine species** occurrence records from the **Indian Ocean** and contributing to the OBIS, as one of the **30 regional nodes of the Ocean Biodiversity Information System OBIS.**

- **IndOBIS workshop:** The IndOBIS workshop has been a valuable platform **for training and capacity building** in data acquisition, analysis, and management, especially for **marine biodiversity in the Indian Ocean**.

### Objective and Significance

- As the data accepted to IndOBIS is scientifically **quality-controlled and geotagged**, it can be used in innovative studies such as:
  - ✓ **Tracking species distribution**.
  - ✓ **Identifying biodiversity hotspots.**
  - ✓ **Accessing climate change impacts.**

- It also **directly aligns with the SDG-14**: life below water and impacts the success of several more SDGs.

- One of the components is **deep sea biodiversity exploration and conservation of** India's **Deep Ocean Mission, which is vital to the mission's overall success**.

# 85% of India's districts exposed to extreme climate events

### Context

- Pattern of extreme climate events across India changing: A new study by IPE Global and Esri India.

### Exposure to Extreme Climate Events in India

- 45 per cent of districts are witnessing a "**swapping**" trend, where areas once prone to floods are now facing droughts and vice versa.

- More than 60 per cent of **districts in Bihar, Andhra Pradesh, Odisha, Gujarat, Rajasthan, Uttarakhand, Himachal Pradesh, Maharashtra, Uttar Pradesh, and Assam** are witnessing more than one extreme climate event.

- **Flood:** More than **90 per cent of districts in Assam, 87 per cent in Bihar, 75 per cent in Odisha, and 93 per** cent in **Andhra Pradesh and Telangana** are exposed to extreme floods.

- **Drought:** Northern India, along with some districts in Karnataka and Tamil Nadu, faces **hydrological drought** marked by **low water levels in streams, lakes, and groundwater**.

- **Cyclones:** A fivefold increase in **cyclone events** in western districts over the last decade, with an overall **1.5-fold rise in such events.**

### Some Recent testaments that climate has changed.

- **Kerala landslides** triggered by incessant and erratic rainfall episodes.

- In the past two decades **more than 80% districts in Gujarat have witnessed an increased frequency and intensity of extreme floods.**

- **Disappearance of Om Parvat's snow cover**.

- The **cities getting paralysed** with sudden and abrupt downpour.

- **Weaker monsoon rainfall in June**, followed by prolonged, **heavy rainfall in September**.

- **Rising temperatures during monsoon months** and an **increase in the number of dry days over eastern India.**

## Future Risk Projections.

- By 2036, more than **1.47 billion people** will be at risk due to **extreme climate events.**

## Swapping Trend in Climate Events.

- The **geospatial** and **climatological analysis** found evidence of a swapping trend, where districts once prone to one type of extreme climate event are now facing the opposite.
- **For example,** Srikakulam, Cuttack, Guntur, and Paschim Champaran, which experienced flooding, are now witnessing a shift from floods to droughts.
- This swapping trend is more prevalent in plains than in hill or coastal districts.

## Factors Contributing to the Swapping Trend

- Changes in land use and land cover are driving or **triggering extreme events.**
- **Warming oceans**, which **absorb heat from land,** are affecting **meteorological and climatological processes.**

## Policy Implications of the Swapping Trend

- The swapping trend, **affecting 45 per cent of districts**, has significant implications for **policymakers and decision-makers at the district and block levels.**
- Areas that typically plan for floods must now also account for **droughts, and vice versa**.

# How changes in the level of Arctic sea ice can change monsoon patterns in India

## Context

- A study by India's National Centre for Polar and Ocean Research (NCPOR) and South Korea's Korea Polar Research Institute, published in Remote Sensing of Environment (June 2023), shows the seasonal changes in Arctic sea ice affecting the Indian monsoon.

## Indian Summer Monsoon Rainfall (ISMR)

- The Indian summer monsoon rainfall (ISMR) occurs from **July to September**, with most rains recorded in **July and August**.

- During summer, the **Central Asian and Indian landmass heats faster than surrounding oceans**, creating a low-pressure band at the Tropic of Cancer.
- Trade winds from the southeast, deflected by the Coriolis force, blow over the Arabian Sea and gather **moisture, bringing rain to India**.

## Influence of Global Factors on ISMR

- Climate models reveal that the surface temperatures of the **Indian, Atlantic, and Pacific Oceans, and the circum-global teleconnection (CGT)**, **significantly influence the ISMR.**

## Influence of Arctic Sea Ice on Indian Monsoon

- Less sea ice in the central **Arctic results in lower rainfall in western and peninsular India but higher rainfall in central and northern India**.

## Effects of Lower Sea Ice in High Latitudes

- Lower sea ice levels in the **Barents-Kara Sea region (**encompassing Hudson Bay, Gulf of St. Lawrence, and Sea of Okhotsk) **delay the monsoon's onset and make it more unpredictable**.
- Low sea ice levels in the Barents-Kara Sea region create high pressure over **southwest China**, correlating with a **positive Arctic Oscillation.**
- This causes high pressure **over the northern Atlantic and Pacific oceans, weakening the CGT**.
- As sea ice decreases, heat rises from the **Barents-Kara Sea, creating anticyclonic circulation** (clear skies) over northwest Europe, **disturbing the upper atmospheric region** over **subtropical Asia and India.**

## High Rainfall Over Northeastern India

- This instability, combined with high surface temperatures of the **Arabian Sea and moisture** from surrounding water bodies, promotes high **rainfall over northeastern India while central and northwest regions receive less rain.**

## Role of Climate Change

- Climate change accelerates the reduction of **Arctic sea ice**, exacerbating the **variability and unpredictability of the ISMR.**
- Reduced **Arctic sea ice can cause frequent and severe droughts** in some regions while leading to **excessive rainfall and flooding in others.**

### Need for Further Research

- The study highlights the **physical pathways through which Arctic sea ice affects** the Indian monsoon.
- It underscores the **urgent need for expanded research** on **climate dynamics** and the development of more **accurate monsoon forecasts due to increasing variability.**

# Uncommon cyclones in Arabian Sea

### Context

- A rare cyclone is forming over Saurashtra-Kutch. This will be the first August cyclone over the Arabian Sea since 1976.

### Why cyclone Asna is unusual?

- Firstly, Cyclone Asna, formed recently in the **month of August, which is not a cyclonic season in north Indian ocean.** This is the first **North Indian Ocean cyclone in August since 1981**.
- Secondly, the formation of depression was occurred over land and the **cyclone formation was happened over the sea.**

### Tropical Cyclone Season Peaks in the Northern Indian Ocean

- The northern Indian Ocean has **two peaks of tropical cyclone activity**.
- The **first peak** in the northern Indian Ocean **occurs from April through June and the second peak is from September into December.**

### Reason for this dual peak

- The reason for this dual peak in the **tropical cyclone season is the Asian Monsoon.**
- Typically, right before the monsoon kicks in **(April through June)** and just **after it fades** (September into December), there is a

**window where vertical wind shear relaxes enough for possible strong tropical cyclone development** in the **northern Indian Ocean.**

### Reason cited for this unusual phenomena

- Its formation was fueled by **prior rainfall and soil moisture, leading to extreme rainfall in western India**.
- The combination of **global warming, El Niño, and underwater volcanic eruptions possibly amplifies the Indian Ocean.**
- More heat is coming from the Pacific, and the Southern Ocean is also warming.

# Copper production in India

### Context

- Copper demand, a key barometer of economic growth, is poised to surge over the next decade across geographies .

### Copper Scenario in India

- **Reserve:** Largest reserves of copper ore to the tune of 868 million tonnes **(52.25%)** are in the State of Rajasthan followed by **Jharkhand** with 251 million tonnes **(15.14%)** and Madhya Pradesh with 387 million tonnes **(23.28%).**
- **Production: Madhya Pradesh** is the **leading producer** of copper accounting for about **60% of the production**, followed by Rajasthan with **39% and Jharkhand with 1 per cent**.
- **Malanjkhand Copper Project** (MCP), in Madhya Pradesh, is the largest copper ore producing mine with 2.0 million tonnes production capacity per year.
- **Import:** India import Copper ores and concentrates from **Indonesia (30%), Chile (20%),Australia (11.4%), Peru (10%).**
- **Export:** India export Copper ores and concentrates to China with a share of **99% , Bangladesh**.
- **Global Comparison:** India has limited copper ore reserves which constitute around **2% of the world copper reserves** and mining production is just **0.2% of the world's production.**

### Copper consumption in India and its reason for growth

- **Electrical/Electronic Industry** is by far the **largest consumer of copper.**
- Copper demand in electrical segment is growing due to demand in infra sector as a result of **affordable housing schemes, rural electrification**.
- Other factors of demand is due to increased thrust of Govt. of India towards **"make in India"** and **"Smart City" programme, Atmanirbhar Bharat in Defense, Renewable Energy Target**, PLI schemes for Consumer electronics industry, **Accelerated growth for Electric Vehicles**.
- The projected demand for copper due to **electric vehicles is expected to increase by 1.7 million tonnes by 2027.**

# Typhoon Yagi
## Context
- Millions of people in Southeast Asia continue to struggle with torrential rains, floods, and landslides triggered by Typhoon Yagi.

## Typhoon Yagi
- Typhoon Yagi started as a tropical storm in the western Philippine Sea, due to unusually warm waters in the South China Sea it became a **Category 5 typhoon** with peak maximum sustained winds **of 260 kmph.**
- Typhoon Yagi is one of four Category 5 storms recorded in the South China Sea, after **Pamela in 1954, Rammasun in 2014, and Rai in 2021.**

## Climate change making tropical cyclones worse
- With rising global temperatures, tropical cyclones are becoming more intense.
- Tropical cyclones in **Southeast Asia are now forming closer to coastlines**, intensifying more rapidly, and **lingering longer over land.**
- This could be happening primarily because of **warmer surface temperatures of the ocean** — global mean sea surface temperature has gone up by close to **0.9 degree Celsius since 1850** and around **0.6 degree Celsius over the last four decades**.

- Higher sea surface temperatures **cause marine heat waves**, an **extreme weather event**, which can also make storms like **hurricanes and tropical cyclones more intense.**
- Warmer temperatures escalate the rate of evaporation along with the **transfer of heat from the oceans to the air.**
- When storms travel **across hot oceans**, they gather more **water vapour and heat**.
- This results in **stronger winds, heavier rainfall and more flooding** when storms reach the land.

## Operation Sadbhav
- India launches **Operation Sadbhav** to assist Myanmar, Laos and Vietnam in dealing with the impact of typhoon yagi.

# Post-glacial ecosystems and climate change
## Context
- A study titled 'The Development of Terrestrial Ecosystems Emerging After Glacier Retreat', suggests that deglaciation may accelerate climate change by reducing surface reflectivity and releasing stored carbon but the post-glacial ecosystems could help slow it down.

## Details
### Glacial retreat
- Glacial retreat refers to the process of a glacier **shrinking or receding in size over time**.
- This occurs when the amount of ice **melting or sublimating** from the glacier exceeds the amount of new snow or ice accumulation.
- One primary cause is **rising global temperatures**, which are largely attributed to **human-caused greenhouse gas emissions.**

### Impact of glacial retreat
- **Availability of water:** This can lead to reduced water flow in rivers and streams, which can have negative effects on local ecosystems and the human communities that rely on them for drinking water and irrigation.

- **Ecosystem:** Glacial retreat can also alter local ecosystems, as the flora and fauna adapted to a colder, icier environment are displaced.
- **Rising sea level:** It contributes to rising sea levels. When glaciers melt, the water flows into the ocean and adds to the volume of water, causing sea levels to rise. This can have significant impacts on coastal communities and ecosystems around the world.
- **Natural disaster:** It can increase the risk of natural disasters such as floods and landslides, as the melting ice can create unstable conditions in the surrounding landscape.

## Key findings of the study

- The study involved collecting more than **1,200 soil samples from nearly fifty glaciers worldwide, spanning diverse climates from tropical to subpolar regions.**
- The study suggests that **deglaciation may accelerate climate change** by reducing **surface reflectivity and releasing stored carbon**, but the post-glacial ecosystems could help slow it down.
- Samples from the **Gangotri and Bara Shigri glaciers** in the Indian Himalayas analysed to understand soil evolution, biodiversity, species arrival sequence and ecosystem development.
- After glacier retreat, microorganisms such as **bacteria, protists and algae** are the first to colonise the barren landscape, making minerals available for other species, within a decade, **hardy plants like lichens, mosses and grass begin to establish, enriching the soil and paving the way for more complex plant life and larger animals.**
- This **Post-glacial ecosystems could help slow down climate change through carbon capture** and storage through growing biogeochemical processes and biomass.

# World Ozone Day

## Context

- World Ozone day 2024 celebrated on 16th September globally.

## Details:

- Ozone is a gas that occurs both in the Earth's upper atmosphere and at ground level.
- It is a special form of oxygen molecule that contains three oxygen atoms with **formula O3.**
- Most atmospheric ozone is concentrated (**about 90%)** in a layer in the **stratosphere, about 9 to 18 miles (15 to 30 km) above the Earth's surface.**
- The ozone layer in the stratosphere absorbs a portion of the radiation from the sun, preventing it from reaching the planet's surface.
- Most importantly, it absorbs the portion of **UV light called UVB**.

## Depletion of ozone layer

- This ozone is gradually being destroyed by man-made chemicals referred to as ozone-depleting substances (ODS), **including chlorofluorocarbons (CFCs), hydrochlorofluorocarbons (HCFCs), halons, methyl bromide, carbon tetrachloride, and methyl chloroform.**

## Impact

- **Human Health:** Ozone depletion can cause increased amounts of UV radiation to reach the Earth which can lead to more cases of skin cancer, cataracts, and impaired immune systems.
- **Crop damage:** UV can also damage sensitive crops and reduce crop yields.
- **Marine food chain:** Some scientists suggest that marine phytoplankton, which are the base of the ocean food chain, are already under stress from UV radiation.

## Steps taken

- **Vienna Convention for the Protection of the Ozone Layer:** This was formalized in the Vienna Convention for the Protection of the Ozone Layer, which was adopted and signed by 28 countries, on 22 March 1985.
- **The Montreal Protocol:** It was adopted on 16 September 1987 and entered into force in

1989. Under the Protocol, nations phased **out chlorofluorocarbons (CFCs).**

- **Kigali agreement:** A landmark agreement was reached October **15, 2016, at the 28th Meeting** of the Parties of the Montreal Protocol in Kigali, Rwanda, to phase down **hydrofluorocarbons (HFCs).** On January **1, 2019, the Kigali Amendment entered into force.** The Kigali Amendment sets out a **schedule of targets and timetables** for all developed and developing countries to phase down their use of HFCs (**Phase-out by 2030 in developed countries and 2040 in developing countries).**
- **The Multilateral Fund:** The Fund's objective is to provide financial and technical assistance to developing country parties to the Montreal Protocol whose annual per capita consumption and production of ODS is less than 0.3 kg to comply with the control measures of the Protocol.
- **Recover of Ozone hole:** Globally, the ozone layer is expected to return to **average 1980 levels by 2040**. The Antarctic ozone hole will **persist until 2066.** To date, the Parties to the Protocol have phased **out 98% of ODS globally compared to 1990 levels**.

### World Ozone Day 2024

- **16 September the International Day** for the **Preservation of the Ozone Layer,** commemorating the date of the signing, in 1987, of the Montreal Protocol. This year's theme is: **Montreal Protocol: Advancing Climate Action.**

# Amazon River

### Context

- The Amazon River basin is experiencing an unprecedented drought, with water levels plummeting to historic lows across the region.

### Details

- Coming a **close second after** the Nile as the world's longest river, the Amazon River sets the record in terms of the sheer volume of water that it carries – a mind-boggling

average **discharge of 219,000 m3/sec of water.**

- The Amazon River has its source high in the **Peruvian Andes**, at an elevation of 5,598 m. There, at a mere 192 km from the Pacific Ocean where it once flowed into, the Amazon River begins as a small tributary called the Carhuasanta.
- It is estimated that approximately **one-sixth of all fresh water** that drains into the world's oceans goes through the 320-km-wide delt of the Amazon, where it meets the Atlantic Ocean.
- During the dry season, the width of the Amazon River can be 4 km to 5 km in places – and in the wet season, this can increase to 50 km.

### Major roles of the Amazon River

- As the drainage system of the Amazon Basin, the Amazon River and its approximately 1,100 tributaries play major roles in the **ecology** of the basin. Before roads and airstrips started appearing in the basin, these waterways were the major **access routes** to the interior areas of Brazil and the northern half of South America.

# Congo Basin

### Context

- Despite its crucial ecological importance, the Congo Basin receives significantly less funding compared to the Amazon and the Borneo-Mekong basins in Southeast Asia.

### Details

- Congo basin, basin of the Congo River, lying astride the Equator in west-central Africa. It is the world's second largest river basin (next to that of the Amazon), comprising an area of more than 1.3 million square miles (3.4 million square km).

### Vital Importance to Climate, People and Nature

- The Central African forests are of vital importance in order to meet the goals of the **Paris Climate agreement**. Equally important are large amounts of **peatlands.** These

carbon-rich, thick layers of organic soil have accumulated over millions of years in the whole region. This peatland stores an estimated amount of **30 gigaton of CO2 – roughly** the same as the global energy sector emits yearly.

- The deforestation of this rainforest and the resulting **lack of rainfall** is a major concern on a continent with huge deserts like the Sahara and recurring droughts in the dry savannas of the Sahel. The potential consequences for **food production, social and political stability** and on migration can be dramatic.

# Forest fires in South America

## 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 (till September 11).

## Details

- 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.
- Since the beginning of 2024, fires have ravaged the Amazon rainforest, engulfing parts of **Brazil, Peru, Bolivia, Colombia**, and others. The worst hit is Brazil, **home to 60% of all the currently burning fires in the region**. Fires have burned more than **11 million hectares** of land between January and August 2024.
- Three of the six vast ecosystems — **the Amazon, the Cerrado (the world's most biodiverse savanna), and the Pantanal wetlands** — have been severely affected.

## Reason behind this forest fire

- **Shifting cultivation :** 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.
- **Drought trigger by climate change :** In Brazil, **about 59% of the country is facing drought conditions** and Amazon basin rivers are flowing at historic lows. These extreme dry conditions fueled by the **El Niño event** (it ended earlier this year) have **propelled fires** to spread across the region.
- **Deforestation and its cyclic effect:** High levels of deforestation, especially in the Amazon, have played a role in exacerbating wildfires — **clearing the land creates more opportunities for blazes to spread**. Evidence suggests that deforestation itself is **responsible for regional changes** in weather patterns that have **resulted in larger and more severe droughts** that make forests more susceptible to fire.

# Nazca Ridge

## Context
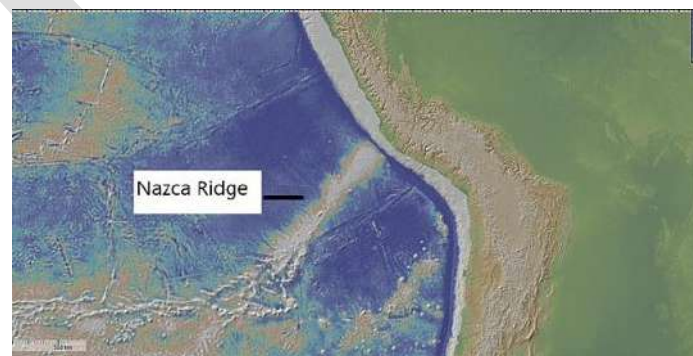


- A team of oceanographers led by Schmidt Ocean Institute have discovered and mapped a new seamount on the Nazca Ridge in international waters, 900 miles off the coast of Chile.

## Salas y Gómez and Nazca Ridges

- It is an underwater mountain chain, along with the adjoining Salas y Gómez Ridge.
- It is located on the Nazca Plate off the west coast of South America.
- The ridge is composed of abnormally thick basaltic ocean crust, averaging 18 km thick.

- Stretches across 1,600 km between the Nazca Ridge and Rapa Nui, also known as Easter Island.

- Collectively, the Salas y Gomez and Nazca ridges contain over 110 seamounts, which represent approximately 41% of seamounts found in the southeastern Pacific.

## 8.3    SNIPPETS

| Topics | Details |
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| **Saoras** | • Saoras become 5th particularly vulnerable tribal group to get habitat rights in the state of Odisha.<br>• The Saora Community, with **Lanjia Saora**, is considered the most primitive in Odisha.<br>• They are widely distributed from **Bundelkhand in the west to Odisha** in the east and the Eastern Ghats in Ganjam, Gajapati, and Koraput Districts of Odisha and Srikakulam District of Andhra Pradesh.<br>• They are categorized as Particularly Vulnerable Tribal Groups (PVTGs).<br>• Saoras have become the fifth tribal group in the state to get rights over their ancestral lands. |
| **Cocoa** | • Companies that are researching other ways to grow cocoa or develop cocoa substitutes as climate change is stressing rainforests where the highly sensitive cocoa bean grows.<br>• The cocoa bean, also known as cocoa or cacao, is the dried and fully fermented seed of *Theobroma cacao*, the cacao tree, from which cocoa solids and cocoa butter can be extracted.<br>• They are native to the upper Amazon basin region **(Brazil, Colombia, and Peru).**<br>• Cocoa beans typically grow within 20 degrees of the equator, in a region commonly referred to as the "cocoa belt."<br>• **Climate:** Hotter tropical climates (65-90°F) at lower elevations (<2,000ft) with ample rainfall, sufficient soil drainage, and an abundance of shade.<br>• **Côte d'Ivoire** is the world's largest producer of cocoa, accounting for over half of the world's cocoa beans.<br>• **Top importers** of Cocoa beans, whole or broken, raw or roasted are European Union, Netherlands, United States, Malaysia, Germany.<br>• Cocoa is a commercial plantation crop in India.<br>• Kerala, Karnataka, Andhra Pradesh and Tamil Nadu are the major cocoa producing states in the country |
| **Konyak community** | • The Konyak Union urged Chief Minister Neiphiu Rio to help remove discrepancies on Google Maps as two villages of Nagaland, established six decades ago, have been shown in Assam.<br>• They are mostly found in the **Mon district of Nagaland** as well as in **Arunachal Pradesh, Myanmar and Assam.**<br>• The Konyaks are of **Mongoloid in origin.**<br>• Linguistically, the Konyaks come under the **Naga-Kuki group** of the **Tibeto-Burman family** with each village having its own dialect.<br>• A unique feature of the Konyak tradition is the practice of the **Angh system.** |

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| | • The Konyak society is a patriarchal **society and is dominated by male chauvinism.** |
| **Bonda Tribe** | • Recently, a 19-year-old student cracked the National Eligibility-cum-Entrance Test (NEET), who is set to become the first member of the Bonda tribal community. <br>• The Bonda tribal people are currently live in the hills of **Odisha's Malkangiri district.** <br>• **Groups:** Lower **Bondas**: Live in the Malkangiri district in south Odisha and border Andhra Pradesh and Chhattisgarh. Upper **Bondas**: Live in the remote villages of the district's hilly terrain. <br>• This tribe is one of **India's Particularly Vulnerable Tribal Groups (PVTGs).** <br>• The Bonda tribes in Odisha still speak **Remo, an Austroasiatic language** that is part of the Mundari group. <br>• They are primarily farmers, but they also **hunt, gather forest products, and perform labor**. |
| **Krishna River** | • Boats Washed Away in Krishna River Floods Collide with Prakasam Barrage Gates. <br>• The Krishna River rises from the **Western Ghats** near Jor village of **Satara district of Maharashtra** and outfalls into the Bay of Bengal. <br>• The principal tributaries joining Krishna are the **Ghataprabha, the Malaprabha, the Bhima, the Tungabhadra and the Musi.** <br>• The Krishna Basin extends over **Andhra Pradesh, Maharashtra and Karnataka**, is nearly **8% of the total geographical area of the country.** <br>• It is the **3rd-longest river in India** (after Ganges and Godavari); **4th-largest in water inflows and river basin area** (after Ganges, Indus, and Godavari). |
| **Irula Tribes** | • Irula tribe supplies 80% of India's anti-snake venom but struggles to find a cure for poverty. <br>• Irula, also known as Iruliga, are a **Dravidian ethnic group** inhabiting the Indian states of Tamil Nadu, Kerala and Karnataka. A scheduled tribe, their population in this region is estimated at around 200,000 people. People of Irula ethnicity are **called Irular, and speak Irula**, which belongs to the Dravidian languages family. <br>• Traditionally, the main occupation of the Irulas has been snake and rat catching, and honey collection. <br>• They are snake catchers for the Irula **Snake Catchers Industrial Co-operative Society**. The community plays a crucial role in public health by supplying nearly **80% of the venom used for antidotes in India.** |
| **District Mineral Foundation (DMF)** | • Over 10 years, DMFs have transformed mining areas by funding projects that improve livelihoods and promote community welfare across India. <br>• DMF Fund of the District is an **extra-budgetary resource** to be utilized for the interest and benefits of the mining **affected people and areas**. As per the provisions of sub-section (1) of Section-9B of the Mines and Mineral (Development and Regulation) **(MMDR) Act, 1957** the State Government shall notify the establishment of District Mineral Foundation in every District in the |

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| | country affected by mining related operations. While an **Executive Committee** under the **Chairmanship of the Collector** has been made responsible for day to day operational activities of the DMF, a Board of Trustees has been constituted for each **DMF for overall control over the management**. |
| **Climate change and flooding** | • Severe flooding has forced tens of thousands to evacuate their homes as wide regions of Austria, the Czech Republic, Poland and Romania have been hit by days of heavy rainfall.<br>• Floods are made more likely by the more extreme weather patterns caused by long-term global climate change. Change in land cover—such as removal of vegetation—and climate change increase flood risk.<br>• Extreme floods can be triggered by **intense precipitation, longer duration, close repetition of precipitations or a combination of these**. With higher temperatures, we have more energy in the Earth's system. Higher **ocean water and air temperatures increase the possibility for evaporation and therefore cloud formation**. At higher temperatures, the air can hold more moisture content. This can lead to an increase in precipitation intensity, duration and/or frequency. The global average temperature is now 1.1oC higher than the beginning of last century. |
| **Integrated Ocean Energy Atlas** | • Indian National Centre for Ocean Information Services (INCOIS) has announced the development of an 'Integrated Ocean Energy Atlas' of the Indian EEZ (Exclusive Economic Zone).<br>• The atlas encompasses **marine meteorological energy sources like solar and wind, and hydrological energy forms such as waves, tides, currents, ocean thermal, and salinity gradients**. It identifies areas with **high energy generation potential**, serving as a vital resource for policymakers, industries, and researchers. The atlas **includes detailed annual, monthly, and daily estimates** of these ocean energy components, which can be accessed via a **WebGIS interface at a five-km grid resolution.**<br>• Energy estimates **for five sectors within the Indian EEZ** have been provided, with the total integrated ocean energy projected at approximately **9.2 lakh terawatt-hours (TWh) per annum.** |
| **Pradhan Mantri Janjatiya Unnat Gram Abhiyan** | • The Union Cabinet chaired by Prime Minister Shri Narendra Modi approved Pradhan Mantri Janjatiya Unnat Gram Abhiyan with total outlay of Rs.79,156 crore.<br>• It is a **centrally sponsored scheme**. This scheme will cover around 63,000 villages benefitting more than **5 crore tribal people**. It will cover 549 districts spread across all tribal majority villages across 30 States / UTs.<br>• **Aim:** The scheme envisions saturation of critical gaps in **social infrastructure, health, education, livelihood, through different schemes of Government of India by convergence and outreach**.<br>• The scheme has been planned based on learning and Success of **Pradhan Mantri Janjati Adivasi Nyaya Maha Abhiyan (PM-JANMAN).**<br>• The Mission comprises of **25 interventions** which will be implemented by **17-line ministries**.<br>• Each Ministry/Department would be **responsible for implementation** of scheme |

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| | related to it in a time bound manner in **next 5 years** to achieve targeted goals. |
| **Rapa Nui** | • Rapa Nui, also known as Easter Island, never experienced a ruinous population collapse, according to an analysis of ancient DNA from 15 former inhabitants of the remote island in the Pacific Ocean.<br>• Rapa Nui, also known as **Easter Island**, is one of the **world's most isolated inhabited islands**. It is a **special territory of Chile** in the southeastern **Pacific Ocean.** It is a volcanic high island, consisting mainly of three **extinct coalesced volcanoes: Terevaka (altitude 507 metres) forms the bulk of the island, while two other volcanoes, Poike and Rano Kau.**<br>• Nearly 1,000 inland-facing stone statues, or **"moai,"** that are found throughout the island. The moais were built in approximately **1400 - 1650 A.D. by the natives of this island.** The UNESCO World Heritage site referred to as Rapa Nui National Park makes up almost all of the small island. |
| **Falkland Islands** | • Researchers have found evidence that the treeless, rugged, grassland landscape of the Falkland Islands was home to a lush, diverse rainforest up to 30 million years ago.<br>• As a **British overseas territory**, the Falklands have internal **self-governance**, but the United Kingdom takes responsibility for their defence and foreign affairs. The capital and largest settlement is **Stanley** on East Falkland.<br>• Situated in the South Atlantic, some 500 km from mainland South America, the Falkland Islands are a **remote archipelago formed** from two larger islands (East and West Falkland) and over 700 smaller islands. The islands cover a total area of approximately **12,200 km2** and experience a **cool temperate oceanic climate** that is characterised by its lack of extremes. |
| **Pallikaranai marsh** | • Authority has collaborated with the National Centre for Coastal Research (NCCR) to investigate multiple locations within the marshland.<br>• Pallikaranai wetland is a freshwater marsh in the city of Chennai, Tamil Nadu. It has a geographical area of 1247.54 ha. The marshland is located along the Coromandel Coast south of the **Adyar Estuary**, serving as an aquatic buffer of the flood-prone Chennai and Chengalpattu districts.<br>• Pallikaranai Marsh is a part of the vast Bay of Bengal Large Marine Ecosystem. It is also a habitat for numerous fauna listed under **Schedule, I, II, III and IV of the Indian Wildlife Protection Act, 1972**. The heterogeneous ecosystem of the marshland support faunal groups such as birds, fishes, and reptiles are the most prominent.<br>• Inhabitants of seven villages depended on the **wetland for subsistence**. Their direct economic activities included gathering reed, fishing, grazing, and agriculture. |
| **Heat Dome** | • Due to the heatwave-like conditions, 20 women tea garden workers collapsed in a tea estate in Dibrugarh's Moran.<br>• A heat dome is a type of high-pressure system that forms **over a large area in the atmosphere**, and causes **extremely hot** and **dry weather conditions**. The system traps **hot air and prevents it from flowing to rise and cool**. This air then becomes **compressed and heats up**, leading to a dome-shaped area of hot air that can persist for several days or even weeks. |

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| | • **Climate change** has also been identified among the contributing factors to the increased frequency and intensity of heat domes.<br>• Climate change has led to warmer background temperatures, exacerbating the high-pressure system. Regions that have become **drier** due to the same, can also create conditions that are beneficial to the formation of heat domes. Additionally, as the **icebergs melt, the temperature and moisture patterns** in the surrounding regions are influenced. |
| **Greenland Fjord** | • A ship that sunk off Greenland's coast, diesel fuel spill leaked into the Nanortalik fjord.<br>• A fjord is a deep, narrow and elongated **sea or lake drain**, with **steep land on three sides**. The opening toward the sea is called the **mouth of the fjord,** and is often **shallow.** The fjord's **inner part is called the sea bottom.** If the geological formation is wider than it is long, it is not a fjord. Then it is a bay or cove.<br>• Some features of fjords include **coral reefs** (cold-water reefs ) **and rocky islands called skerries.** They are rich in black mud containing hydrogen sulfide.<br>• The longest fjord in the world is **Scoresby Sund in Greenland (350 km),** second and third longest are from Norway namely the **Sognefjord (203 km), and the Hardanger Fjord (179 km).**<br>• **Ilulissat Icefjord** in Greenland was given UNESCO World Heritage Site status in 2004. |
| **MAPCIS (Massive Australian Precambrian-Cambrian Impact Structure)** | • Geologists from Virginia Commonwealth University and elsewhere have found new evidence of bolide impact signatures within specimens from the Massive Australian Precambrian-Cambrian Impact Structure in the Northern Territory, Australia.<br>• The Massive **Australian Precambrian-Cambrian Impact Structure (MAPCIS)** is a non-concentric complex crater about 600 km (**370 miles**) in diameter. The impact occurred at the end of the Ediacaran period, approximately 545 million years ago.<br>• **Massive deposits of pseudotachylite breccia, or melt rocks were found near the crater center.** The distinctive characteristics of the pseudotachylite breccia, originally thought to be the result of seismic activity, have now been reinterpreted as products of an ancient impact.<br>• **Minerals including lonsdaleite, or shocked diamond, along with impact level amounts of iridium were also found in the deposits.** |
| **Nazca lines** | • A research team led by Masato Sakai from Yamagata University has discovered 300 new Nazca Lines in Peru using artificial intelligence.<br>• The Nazca Lines are a collection of giant geoglyphs located in the Peruvian coastal plain. There are three basic types of Nazca Lines: **straight lines, geometric designs and pictorial representations.**<br>• There are more than 800 straight lines on the coastal plain, some of which are 30 miles (48 km) long. There are over 300 geometric designs, which include basic shapes such as **triangles, rectangles, and trapezoids, as well as spirals, arrows, zig-zags and wavy lines.** |

| TOPIC NAME | UPLOADED ON IAS GYAN WEBSITE ON |
|---|---|
| Laos | 4th September, 2024 |
| Uri-I Hydropower Plant | 4th September, 2024 |
| Musi River | 4th September, 2024 |
| Vertical Growth of Cities | 4th September, 2024 |
| Mumbai's saltpans | 14th September, 2024 |
| Subarnarekha river | 14th September, 2024 |
| Tropical Forests | 14th September, 2024 |
| Typhoon Bebinca | 17th September, 2024 |
| Mali | 18th September, 2024 |
| Mankidia community | 25th September, 2024 |
| Global sea level | |
| Taiwan Strait | 27th September, 2024 |
| Cassowary | 26th September 2024 |
| Eastern Rajasthan Canal Project (ERCP) | 27th September 2024 |
| Mao Naga | 27th September 2024 |
| Sustainable solutions for air pollution | 28th September 2024 |
| Three gorges dam | 30th September 2024 |