

# Monthly IQ

A Comprehensive Current Affairs Magazine for  
UPSC CSE Exam

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## INDIAN POLITY

### COWIN DATA LEAK & DATA PROTECTION REGIME IN INDIA

#### CONTEXT

There was an **alleged breach of personal data** of beneficiaries who received COVID vaccination from the **CoWIN portal**, including Aadhaar, passport details, gender, date of birth, etc.

#### MORE ON THE NEWS

- The data was leaked through a **bot on Telegram**. The Telegram bot showed the name of the person, the government ID they used while getting the vaccination and where they got their vaccination.
- The Union Health Ministry said that the Indian **Computer Emergency Response Team (CERT-In)** had been asked to investigate the issue and submit a report.

#### ABOUT THE COWIN (COVID VACCINE INTELLIGENCE NETWORK) PORTAL

- CoWIN is the **Indian government's cloud-based IT solution** for planning, implementation, monitoring, and evaluation of Covid-19 vaccination in India.
- The platform is owned by the **Ministry of Health and Family Welfare** and was earlier the platform used for conducting Pulse Polio and other crucial immunization programmes across the country.
- CoWIN is essentially an extension of **eVIN (Electronic Vaccine Intelligence Network)**.

#### Biggest personal data breaches in India in the recent past

- Card Data Breach (October 2022):** Cybersecurity researchers discovered a threat actor advertising a database of 1.2 million cards, including State Bank of India (SBI) customers' data.
- Dominoes India (May 2021):** Cyberattack resulted in leakage of data from 180 million orders, including order details, email addresses, phone numbers, and credit card details.
- Air India (May 2021):** Cyberattack compromised personal details of approximately 4.5 million customers worldwide, including names, dates of birth, contact information, passport information, and credit card data.
- BigBasket (November 2020):** Online grocer suffered a data breach compromising personal details of over 20 million users, including email IDs, password hashes, PINs, phone numbers, addresses, dates of birth, and IP addresses.

#### ABOUT DATA AND DATA PROTECTION

- Data is a **collection of facts and figures** to be used for a specific purpose such as a survey or analysis. When such data is arranged in an organized form, it can be called **information**.
- Data protection is a set of strategies and processes to secure the **privacy, availability, and integrity of data**. Data protection regulations ensure the security of individuals' personal data and regulate the **collection, usage, transfer, and disclosure** of the said data.
- Key Elements of Data Protection:**
  - **Confidentiality:** The data is retrieved only by authorized operators with appropriate credentials.
  - **Integrity:** All the data stored within an organization is reliable, precise, and not subject to any unjustified changes.
  - **Availability:** The data stored is safely and readily available whenever needed.

#### NEED FOR DATA PROTECTION IN INDIA

- India as a data-driven economy:** As per a report by the Telecom Regulatory Authority of India (TRAI) in 2019, there were 665.31 million internet subscribers in India. This indicates that personal data is becoming available in the public domain due to high mobile internet usage.

## Personal Data

### SENSITIVE PERSONAL DATA

Financial data, biometric data, caste, religious or political beliefs, and any other category of data specified by the government are examples of sensitive personal data

### CRITICAL PERSONAL DATA

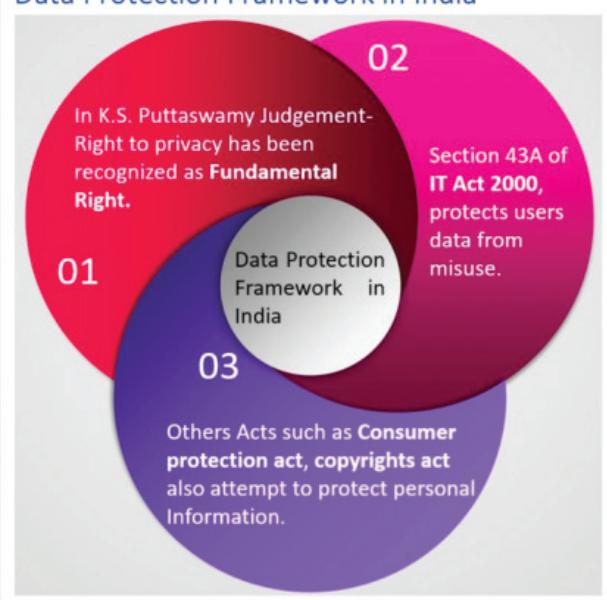
The government has designated certain personal data as critical personal data, which can only be processed in India.

- Younger Generation and Data:** Statistics show that 30.5% of Indians are below the age of 25 and extensively use mobile apps to access social media. Therefore, it becomes imperative for the government to protect the personal data of its citizens.
- Risks to Individual Data:** Loss of individual privacy, including the loss of individuals' control on usage of their personal data, is one of the most significant data risks at present.
- Financial Losses:** Data breaches have become a significant issue in India, resulting in financial losses to individuals. Hackers often target bank account details, credit card information, and other financial identifiers, leading to fraudulent activities and financial harm.
- Discrimination and Marginalization:** Profiling individuals or groups based on their personal data can lead to unfair exclusion, marginalization, or discrimination.

### DATA PROTECTION REGIME IN INDIA

- Right to Privacy:** In the Justice K.S. Puttaswamy Judgement, a nine-judge bench of the Supreme Court affirmed that **Right to Privacy is a fundamental Right** covered within the ambit of Right to life and personal liberty **under Article 21**.
- Statutory Provisions on Data Protection in India:**
  - **Information Technology Act, 2000 (IT Act):** The IT Act is the primary legislation governing **electronic transactions and cybersecurity** in India. It contains provisions related to the protection and security of electronic data, including sensitive personal data or information.
  - **IT (Amendment) Act, 2008:** This amendment to the IT Act introduced additional provisions related to data protection. It inserted **Section 43A**, which imposes liability on corporate bodies for negligence in protecting sensitive personal data, leading to wrongful loss or gain to individuals. It also introduced **Section 72A**, which deals with the punishment for the disclosure of information in breach of lawful contracts.
  - **IT (Sensitive Personal Data or Information) Rules, 2011:** These rules, issued under the IT Act, provide specific guidelines for the **collection, storage, and transfer of sensitive personal data** or information by body corporates. The rules apply to entities engaged in collecting and processing personal data electronically.
  - **Draft Digital Personal Data Protection Bill, 2022:** It aims to provide comprehensive data protection regulations in line with global standards. Highlights of the bill include:
    - ✓ The Bill will apply to the **processing of digital personal data within India** where such data is collected online, or collected offline and is digitised.
    - ✓ It will also apply to such **processing outside India**, if it is for offering goods or services or profiling individuals in India.
    - ✓ **Personal data may be processed only for a lawful purpose** for which an individual has given consent. Consent may be deemed in certain cases.
    - ✓ **Data fiduciaries** will be obligated to maintain the accuracy of data, keep data secure, and delete data once its purpose has been met.
    - ✓ The Bill grants **certain rights to individuals** including the right to obtain information, seek correction and erasure, and grievance redressal.
    - ✓ The central government may **exempt government agencies** from the application of provisions of the Bill in the interest of specified grounds such as security of the state, public order, and prevention of offences.
    - ✓ The central government will establish the **Data Protection Board of India** to adjudicate non-compliance with the provisions of the Bill.

### Data Protection Framework in India



## CHALLENGES TO DATA PROTECTION IN INDIA

- Lack of Transparency on Data Sharing and Broking:** Several organisations in India currently share individuals' personal data with other entities.
  - **Example:** Recently, Indian Railways Catering and Tourism Corporation (IRCTC) proposed a plan to monetize its bank of passenger data for doing business with government and private entities, without taking consent from its user. It could lead to potential misuse of personal information and privacy issues.
- Non-defined Use Case Driven Collection of Personal Data:** Given the high, perceived value of personal data, private enterprises often collect data without well-defined use cases.
  - When personal data collected is **used for another objective** than for what it is collected, it leads to violation of Use Case driven collection of personal data.
- Limited Monitoring of Data Practices of Vendors:** Several organisations currently do not track data privacy and security practices followed by their vendors.
- Data Localisation:** Data localisation simply refers to the restriction of data flow from one country to another. It means that a country's residents' personal data should be processed and stored in that country or any other country. Data Localization is a contentious issue for India. This is due to the perceived economic benefits of processing Indian consumer data, and the challenges of accessing personal data for national security and law enforcement purposes.
- Uncleared Standards of Data Governance:** Several organisations did not have clear guidelines or standards governing the ethical use of data or ethical design of algorithms.
- Weak Data Security Measures:** Organizations typically face challenges in finding bandwidth and resources to maintain adequate security measures (including access controls).
- Difficulty in Deactivation/ Deletion of User Accounts:** Many organisations currently do not provide an accessible option for users to deactivate their accounts.
- Right to be Forgotten:** Several organisations do not have a standard or accessible process for the periodic deletion of data and do not provide individuals the "Right to be Forgotten".

## WAY FORWARD

- Implement Strict Cybersecurity Framework:**
  - **Identify:** Understand and document the cybersecurity risks to your systems, people, assets, data and capabilities.
  - **Protect:** Implement appropriate security controls and other measures to protect your most critical assets against cyber threats.
  - **Detect:** Ensure you can quickly spot actions and events that could pose a risk to your data security.
  - **Respond:** Have tested procedures ready to enable prompt response to cybersecurity incidents.
  - **Recover:** Implement strategies for ensuring you can quickly restore data and services impacted by a security incident.
- Individuals as owners of personal data:** Individuals need to emerge as the clear, undisputed owners of their personal data. They need to have the right and ability to access, manage, share, modify, secure, and delete this data.
  - Individuals should also have the **right to share their personal data** with only trusted entities, for a duration of their choice and use cases they are comfortable with.
- Informed consent:** The consent of individuals is required when an enterprise collects, uses, or discloses personal data.
- Right To be Forgotten:** Individuals need to be able to withdraw consent at any time, subject to any legal or contractual restrictions and a reasonable notice.
- Accountability:** All stakeholder groups need to be held accountable for ensuring an individual's data privacy.
- Transparency:** Governments and regulators, and enterprises and executives need to play an active role in maintaining transparency standards pertaining to data collection, use, and handling practices followed by enterprises.
- A Robust data protection framework for India** must be based on the following seven principles given in the infographic here.

## DELIMITATION EXERCISE IN ASSAM

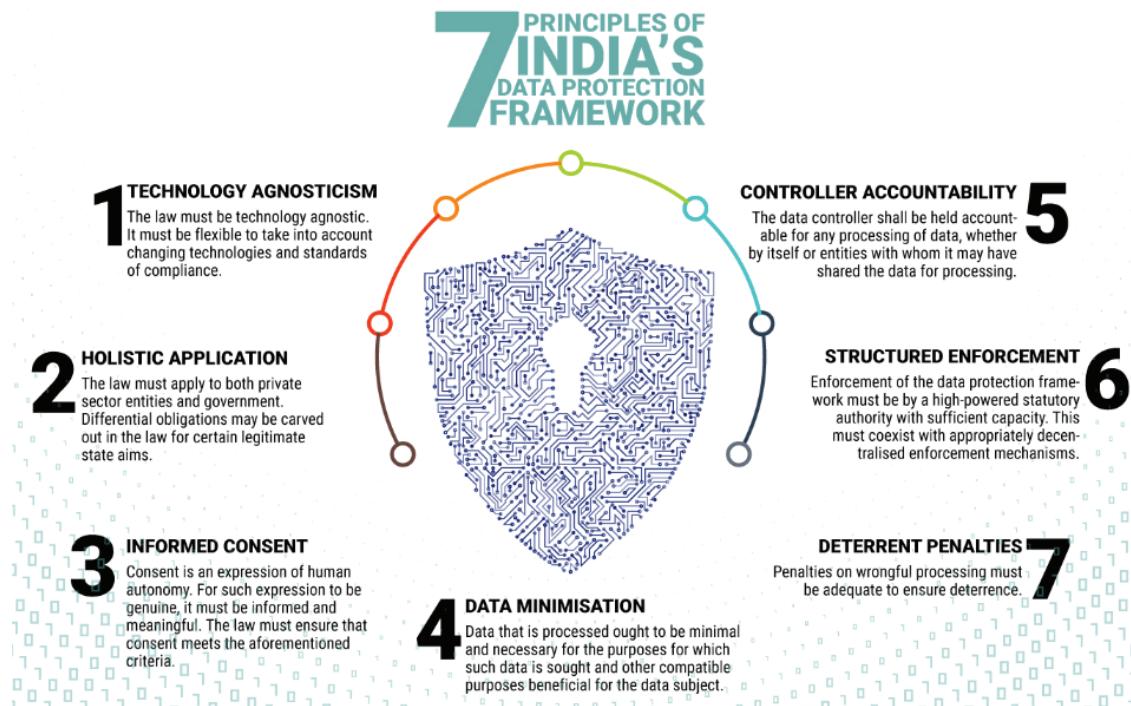
### CONTEXT

The Election Commission (EC) has released a **draft delimitation document for Assam**, proposing a change in boundaries of several Lok Sabha and Assembly constituencies of the state.

### ABOUT THE DELIMITATION EXERCISE IN ASSAM

#### Background:

- The delimitation process was conducted in **most parts of the country in 2008**. However, it was **deferred in Assam** and some other **Northeastern states** at that time due to security concerns.
- In **2020**, the Law Ministry issued a notification officially **reviving the delimitation exercise** in Assam. Subsequently, in December 2022, the Election Commission (EC) announced that it would initiate the delimitation exercise in Assam.



#### Highlights of the draft delimitation document:

- The delimitation process was carried out based on **data from 2001 Census**.
- While the **number of seats** (126 Assembly and 14 Lok Sabha) are **being retained**, the EC has proposed not just changes in **geographical boundaries**, but also an increase in the number of **reserved constituencies** for Scheduled Tribes (ST) and Scheduled Castes (SC).
- **Reserved seats increased**: SC assembly seats have increased from 8 to 9; ST assembly seats have increased from 16 to 19.
- **Districts with autonomous councils** (administered under the Sixth Schedule of the Constitution) **get more seats**: one assembly seat increased in West Karbi Anglong District; three assembly seats increased in the Bodo Territorial Region.
- **Change in nomenclature**: Kaliabor Lok Sabha constituency now named 'Kaziranga'.
- The Election Commission said suggestions and **objections to the draft proposal** were open till July 11. Following that, the commission would conduct a **public hearing in Assam**.

### WHAT IS DELIMITATION?

- Delimitation is the act of **redrawing boundaries of Lok Sabha and state Assembly seats** to represent changes in population.
- Objectives of Delimitation**:

- To provide **equal representation to equal segments of a population**.
- **Fair division of geographical areas** so that one political party doesn't have an advantage over others in an election.
- To follow the principle of "**One Vote One Value**".

**Constitutional provisions:**

- **Article 82:** This provides the Parliament with the authority to enact a Delimitation Act **after every Census**.
- **Article 170:** This provides for the States to get divided into **territorial constituencies** as per the Delimitation Act after every Census.

**Who carries out delimitation?** Delimitation is carried out by an **independent Delimitation Commission**, appointed by the Government of India under provisions of the **Delimitation Commission Act**.

**The process of delimitation:**

**About the Delimitation Commission**

- The Delimitation Commission in India is a **high-power body** whose orders have the **force of law**.
- Composition:** The Delimitation Commission is **appointed by the President of India** includes following members:
  - Retired Supreme Court judge
  - Chief Election Commissioner
  - Respective State Election Commissioners

**Functions:**

- To determine the number and boundaries of constituencies to **make population of all constituencies nearly equal**.
- To identify **seats reserved for Scheduled Castes and Scheduled Tribes**, wherever their population is relatively large.
- In case of difference of opinion among members of the Commission, the will of **majority prevails**.

**Powers:**

- The Constitution mandates that the Commission's orders are final and **cannot be questioned before any court** as it would hold up an election indefinitely.
- The copies of its orders are laid before the House of the People and the State Legislative Assembly concerned, but **no modifications are permissible** therein by them.
- After the delimitation commission determining the **number and boundaries of constituencies**, the draft proposals of the Commission are published for **public feedback**.
- The Commission also holds **public sittings**. After hearing the public, it considers objections and suggestions, and carries out changes, if any, in the draft proposal.
- The final order is **published in the Gazette of India** and the State Gazette concerned and comes into force on a date specified by the President.

**HISTORY OF DELIMITATIONS IN INDIA**

- In the history of the Indian republic, Delimitation Commissions have been set up **four times — 1952, 1963, 1973 and 2002** under the Acts of 1952, 1962, 1972 and 2002.
- The last delimitation** exercise that changed the **state-wise composition of the Lok Sabha** was completed **in 1976** and done on the basis of the 1971 census (more than half a century ago at this point).
- Reasons for not having more frequent delimitation processes:**
  - Several states feared that states that took **little interest in population control** could end up with a **greater number of seats in the Parliament** due to the population provision of delimitation.
  - The fear of losing meaningful political representation was especially great in **the southern states** which not only had had greater success in controlling populations but also economically developed.
- To allay these fears, the Constitution was amended during **Indira Gandhi's Emergency rule in 1976** to suspend delimitation **until 2001**.
- Another **amendment postponed this until 2026**. It was hoped that the country would achieve a **uniform population growth rate** by this time.

## LAW COMMISSION RECOMMENDATION ON SEDITION

### CONTEXT

The Law Commission of India released its **279th Report** which recommended retaining the provision of **Sedition under Section 124A** of the Indian Penal Code, 1860.

### MORE ON THE NEWS

- In May 2022, the Supreme court had suspended the **use of Section 124A**, stalling pending **criminal trials and court proceedings** under the section across the country.
  - **Section 124A** of IPC describes sedition as ‘attempts to excite disaffection against the Government established by law’.
  - The provision has been widely criticized for being a tool for curbing dissent.
- However, allegations were made by petitioners that **arrests and prosecutions** under Section 124A were continuing despite the freeze.
- The Union government responded regarding this conveying to the Supreme Court that it has initiated the process for **reexamining the sedition law** (Section 124A of IPC).
- Following this, **Law Commission of India in its 279th Report** recommended retaining the provision of Sedition under Section 124A.

### RECOMMENDATIONS OF THE LAW COMMISSION

- Incorporating the Kedar Nath Judgement:** The Law Commission report states that the essence of **Kedar Nath v State of Bihar (1962)** needs to be incorporated in Section 124A.
  - Kedar Nath **upheld the constitutionality of the Sedition Law** stating that it falls within the ‘reasonable restrictions’ on freedom of speech mentioned **under Article 19(2)** of the Constitution.
  - The Court ruled that the offence of sedition can be established when the words or actions tend to incite violence or lead to public disorder.
  - However, **the report states that** Section 124A, as it currently reads, **fails to clearly cull out the meaning of these actions**, resulting in its vague interpretation.
- Installing a New Procedural ‘Safeguard’:**
  - The Commission recommends a major **procedural amendment to the Code of Criminal Procedure, 1973 (CrPC)** to prevent the ‘alleged misuse’ of the law.
  - It suggests that a police officer, holding the rank of an **Inspector or higher**, **must conduct a preliminary inquiry** before the First Information Report (FIR) is filed.
  - Subsequently, based on the findings of the inquiry report, the Central Government may or may not grant permission to file an FIR.
  - This amendment is to be made to Section 154 of the CrPC.
  - The Law Commission highlights that this recommendation was made after taking into consideration the observations of the **Supreme Court in S.G. Vombatkere** regarding the potential misuse of the law.
- Increasing the term of punishment:**
  - The Commission recommends **enhancing the punishment to a period of seven years** or life imprisonment, along with a fine.
  - Currently, the punishment is a **period of imprisonment of either three years or life imprisonment**.
  - The report describes **this punishment as ‘odd’** as there is a discrepancy among other provisions found in Chapter VI of IPC, which lists the ‘Offences against the State’.
  - Section 124A is found here. The report aims to address this inconsistency by aligning the punishment of Section 124A with other provisions under Chapter VI.
- Inserting New Words in the Provision:**
  - The Report recommends the insertion of the words ‘tendency to incite violence or cause public disorder’ in the provision.
  - It defines ‘**tendency**’ as an ‘inclination to incite violence or public disorder rather than proof of actual violence or imminent threat to violence’.

- Thus, the consequence of an action **won't be considered if 'inclination'** is established.
- The Report highlights that Kedar Nath established that proof of violence is not necessary to establish the offence of sedition.
- Instead, **the Judgement primarily relies on the tendency of the words or actions** to incite violence or disturb public order.

## **REASONS FOR RETAINING**

The Report justifies retaining Section 124A on five aspects:

1. It is necessary to protect national security from the threat of radical, anti-national, and secessionist elements. They reasoned that the growth of social media has played a role in propagating radical thoughts against India, often instigated and facilitated by 'adversarial foreign powers'.
2. It is a 'reasonable restriction' to the fundamental right of speech and expression found under Article 19(1)(a) of the Indian Constitution. They reasoned that the restrictions of 'public order', and 'incitement to an offence' fall within the ambit of Sedition law.
3. It is the 'traditional penal mechanism' to address the issue of terrorism. It argues that the mere presence of other counter-terrorism and security laws, such as the **Unlawful Activities Prevention Act, 1967**, and the **National Security Act, 1980**, is not a sufficient reason to abolish the sedition law. The report states that without the sedition law, individuals involved in seditious activities could potentially be prosecuted under these special laws, which often carry more stringent provisions.
4. The Report states that 'colonial legacy' is not a strong enough basis for striking down the law in India's modern democratic context. It points out that other colonial legacies like the **Police Forces and All India Civil Services** are still retained without opposition on this ground.
5. The report highlights that in countries where sedition laws have been struck down, other laws addressing seditious activities have been incorporated within their treason and counter-terrorism laws.

## **WHAT IS SEDITION?**

- Sedition under IPC 124A is defined as an attempt to bring in **hatred or contempt** or excites or attempts to **excite disaffection** towards the **government** established according to the **law**.
  - The expression "**disaffection**" includes **disloyalty** and all **feelings of enmity**.
  - Comments expressing **disapprobation of Government measures** with a view to obtain their alteration by lawful means, **without exciting hatred, contempt or disaffection**, will not constitute an offence under this section;
  - Comments expressing **disapprobation of the administrative or Government action** without exciting **hatred, contempt or disaffection**, will not constitute an offence under this section.
- Sedition was included as an offence in **1890** under **section 124A IPC** through the Special Act XVII.
- Punishment:**
  - It is a **non-bailable law** that is punishable with imprisonment from three years up to life, along with a fine.
  - Individuals charged under the law will be **barred from a government job** and their **passport** is **seized** by the government.
- Origin of sedition law:**
  - Sedition comes under **Section 124A Indian Penal Code (IPC)**. The law was drafted by British historian-politician Thomas Babington Macaulay in 1837.
  - The British colonial government used the law to primarily suppress the **writings and speeches** of prominent **Indian freedom fighters**.

## **"Evolution of Sedition law"**

- Sedition law was introduced by the British in 1870, & almost dropped from the Constitution in 1948
- The word "sedition" disappeared from the Constitution on November 26, 1949 & Article 19 (1)(a) gave absolute freedom of speech & expression. However, Section 124A continued to stay in IPC.
- In 1951, Jawaharlal Nehru brought in the first amendment of the Constitution to limit the freedom under Article 19(1)(a) & enacted Article 19(2) to empower the state to put curbs in the form of "reasonable restrictions" on right to free speech.



- ✓ **Mahatma Gandhi, Lokmanya Tilak, and Jogendra Chandra Bose** were some of the leaders who were charged under the law, for questioning colonial administration.
- During process of constitution framing, the sedition law was **opposed by members** of Constitutional Assembly, such as **K.M. Munshi**, who argued that such a draconian law is a **threat to democracy** in India.
- The word **sedition** was **omitted from the Constitution** due to the persistent efforts of **Bhupinder Singh Mann**.

**Stats IQ: Sedition cases in India**

- NCRB data shows that **sedition cases have risen** from 47 in 2014 to 93 in 2019, a massive growth of 163 percent.
- Conviction rate:** The conversion rate from cases to conviction is a mere 3 percent.
- Highest cases:** Assam (76), Haryana (42 cases), Jharkhand (40), Karnataka (38), Andhra Pradesh (32) and Jammu and Kashmir (29).
  - These states accounted for more than half the number of total sedition cases recorded in the country.
- Substantial cases:** Manipur (28), Uttar Pradesh (27), Bihar (25), Kerala (25), Nagaland (17), Delhi (13), Himachal Pradesh (12), Rajasthan (12) and West Bengal (12) registered cases in double digits.
- Zero cases:** Meghalaya, Mizoram, Andaman and Nicobar Islands, Chandigarh, Dadra and Nagar Haveli and Daman and Diu, and Puducherry did not register any sedition cases.

**JUDICIAL OPINION ON SEDITION LAW**

- The Supreme Court in **Romes Thapar vs. State of Madras (1950)** held that criticism of the government exciting **disaffection or bad feelings** towards it cannot be regarded as a **justifying ground** for restricting the **freedom of expression** and of the press.
- In **Gopi Chand vs. The State (1951)**, and **Ram Nandan vs. State of Uttar Pradesh (1959)**, courts declared that **Section 124A** of the IPC was **unconstitutional**.
- The Supreme Court in **Kedar Nath Singh vs State of Bihar (1962)** gave **constitutional validity** to sedition law.
  - The court however said that unless **accompanied** by an **incitement or call for violence, criticism of the government** should not be called sedition.
- In **Balwant Singh vs. State of Punjab (1995)**, the Supreme Court said that the **real intent** of the speech must be taken into account before labeling it **seditious**.
- In **Rajat Sharma vs. the Union of India Case, 2021**, the court ruled that **disagreeing** with the views and policies of the government will not be considered sedition.
- In the **Disha Ravi case**, the Delhi High Court ruled that the government **cannot imprison citizens** because of **disagreeing** with the state policies.
- In the **Farooq Abdullah case**, the judiciary observed that **expression of views of dissent**, which is different from the opinion of the government, cannot be termed **sedition**.

**CRITICISM OF SEDITION LAW**

- Violation of freedom of speech:** Fundamental Right of freedom of speech is violated by the sedition law. This is considered a threat to democracy.
- Poorly defined:** Assessing the exact nature of speech that can be considered sedition is very difficult due to the poor definition of the law. Distinguishing genuine expression of speech from seditious speech will be challenging.
- Misuse:** There have been numerous instances where governments have misused the sedition law to curb dissent. Political opponents, journalists, social activists etc have been victims of the sedition law.
- Colonial legacy:** Sedition law is a colonial legacy, which was used mainly to overcome popular movement. It is thus appropriate to give up this colonial burden.
- Regular invoking:** Sedition law was supposed to be an extraordinary instrument that was to be used only when security and sovereignty of the country is threatened. However, it is invoked quite regularly, even on flimsy grounds.
- Low conviction:** The conviction rate of sedition law is about 3%. This shows that the law is mainly used to create fear and silence any criticisms or dissent.

## SUPPORT FOR SEDITION LAW

- Territorial integrity:** The law will help in tackling anti-national, secessionist and terrorist elements that threaten territorial integrity of the nation.
- Reasonable restriction:** The Constitution allows reasonable restriction on freedom of speech and expression. This does not violate the fundamental rights.
- Stabilizing state:** The sedition law protects the elected government from attempts to overthrow it using violence and illegal means.

## WAY FORWARD

- Democracy requires **active participation of citizens** in the decision making process, including **constructive criticisms** of government policies.
- Sedition law has empowered the executive to use this **ambiguous provision** as an instrument to **regulate public opinion** and indiscriminately wield power.
- The need of the hour is to **review this draconian law**. Even if the law is **not completely abolished**, there has to be checks and balances imposed so as to **reduce the misuse**.

## PRIMARY HEALTHCARE IN INDIA

### CONTEXT

The West Bengal Chief Minister has proposed a **Shorter Medical Course** for medical practitioners who would serve in **primary health centers (PHCs)** in rural areas.

### UNDERSTANDING THE PROPOSED SHORTER MEDICAL COURSE

- The proposed shorter medical course for rural areas in India is a **three-year diploma course** specifically designed for **medical practitioners who would serve in primary health centers (PHCs)** located in rural regions.
- It **differs from the regular MBBS** (Bachelor of Medicine, Bachelor of Surgery) course in terms of duration, curriculum focus, and level of specialization.

### OBJECTIVES

- The **objective** of the shorter medical course is to **equip healthcare providers with the necessary skills** to deliver primary-level care in rural areas.
- It aims to **address the shortage of doctors** by providing a targeted and expedited training program.
- While the regular **MBBS course covers a comprehensive range of medical subjects** and prepares doctors for various medical scenarios, the shorter medical course emphasizes **first-level care and basic medical practices** required in rural settings.
- It aims to increase the availability of medical professionals in rural areas, ensuring a more rapid response to healthcare needs and emergencies.

### BENEFITS OF THE PROPOSED SHORTER MEDICAL COURSE INCLUDE

- Increased availability of medical professionals in rural areas, alleviating the doctor shortage.
- Prompt and **efficient healthcare response** to the specific needs of rural communities.
- Cost-effectiveness**, as the shorter course can be a viable solution for resource-constrained regions.
- Enhanced **primary healthcare** services in rural communities, leading to improved overall health outcomes.

### DRAWBACKS

- Limited specialization** in complex medical fields, as the focus is primarily on providing basic care.
- Insufficient exposure to the diverse range of healthcare conditions** prevalent in rural areas.
- Concerns about **potential dilution of medical education standards** compared to the comprehensive MBBS course.
- The **potential for discrimination**, as there may be concerns about less qualified healthcare providers being assigned to rural populations while urban areas receive more highly qualified practitioners.

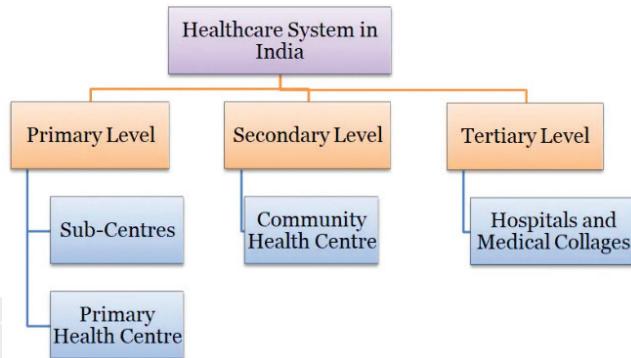
- The proposed shorter medical course does not directly address underlying structural issues contributing to the shortage of doctors in rural areas.

### ABOUT PRIMARY HEALTH CARE

- Primary health care is the **basic level of health care** which includes programs focused on the elevation of health, the initial diagnosis of disease or ill health, and deterrence of illness.
- It involves the **key healthcare structure** which delivers the first level of interaction between the healthcare providers and the population. E.g., Sub Centres (SCs) and Primary Health Centres (PHCs).

### WHY IS PRIMARY HEALTH CARE IMPORTANT?

- Primary health interventions **help detect diseases early**, well before complications set in.
- It reduces the need for expensive secondary and tertiary healthcare.
- Of the total current expenditure on health classified by healthcare functions, **preventive care accounts for 6.7 per cent**, while spending on curing people accounts for 51% of the total expenditure on health.
- Developed nations such as the **UK, Australia, Canada, Netherlands and Sweden** spend a large share of their federal healthcare budgets on primary care.
- India has been spending huge **amounts in curing non-communicable diseases**, which can only be won through a **primary health system** that ensures that chronic diseases are not only detected early, but also that preventive action is taken to ensure improved lifestyles.
- Unavailability of PHC from government leads to heavy burden of out of pocket expenses on consultations and drugs.



#### Rural Health Statistics report for 2021-22

According to the Rural Health Statistics report for 2021-22, there is an acute shortage of specialist doctors in rural areas of India, particularly at Community Health Centers (CHCs).

##### Key highlights:

- Shortage of Specialists:** The report reveals that nearly 80% of the required specialist doctors are unavailable at CHCs. The specific specialties experiencing a shortfall include surgeons (83.2%), obstetricians and gynaecologists (74.2%), physicians (79.1%), and paediatricians (81.6%).
- Increase in Specialist Doctors:** While the number of specialist doctors at CHCs has increased by 25% over the years, from 3,550 in 2005 to 4,485 in 2022, this growth has not been sufficient to meet the rising demand for specialists in rural areas.
- Lack of Female Health Workers:** In addition to the shortage of specialist doctors, there is also a dearth of female health workers and auxiliary nursing midwives in primary health centers (PHCs) and sub-centers, with up to 14.4% of these positions remaining vacant.
- Challenges:** The status of doctors in rural India, as per the report, indicates significant challenges in addressing the shortage of doctors in rural areas. These challenges include **inadequate infrastructure and resources**, limited access to specialized care, an aversion to rural practice among doctors, **unequal distribution of medical colleges**, **difficulties in retaining rural doctors**, socioeconomic factors, and educational disparities.

### PROBLEMS OF PHC IN INDIA

- Limited services:** Although Primary Health Care system exists in India but its scope is limited to pregnancy care, limited childcare and certain services related to national health programmes.
- Training and manpower problems:** PHCs are suffering from poor management skills, lack of appropriate training and supportive supervision for health workers.
- Conversion in Health and Wellness centres:** Government announced conversion of 150,000 sub centres into HWCs in 2017 budget and also in National Health policy 2017, only few thousand such centres have been sanctioned.
- Urban neglect:** Primary Health care for growing urban population has not been conceptualized. Its focus is still limited to the rural population of India.

- Funding:** Funding for overall health care is very low, leaving insufficient amount that requires to be spent on Primary Health Care.
- Staff shortage:** PHCs are also suffering from inadequate skilled and trained manpower. There is a shortfall of about 9,000 doctors in about 25,000 PHCs in the country.
- Poor facilities:** Primary level facilities need complete building reconstruction, as they operate out of rented apartments and thatched accommodations, and lack basic facilities such as toilets, drinking water and electricity.
- Overburdened PHCs:** India has a large network of primary health centres (PHCs), each supposed to serve a population of 25,000. But in states such as Madhya Pradesh, Bihar and Jharkhand, however, a PHC covers as many as 45,000, 49,000 and 76,000 people.

### **GOVERNMENT MEASURES**

- The National Health Policy (NHP) 2017 advocated allocating resources of up to two thirds of total health budget to Primary Health care.
- Last year, an outlay of ₹1,200 crore was proposed to transform 1.5 lakh sub-health centres into health and wellness centres (HWC) by 2022, which would provide a wider range of primary care services than existing sub and primary health centres (PHC).
- Each HWC is to be operated by a well-trained, mid-level health provider (nurse practitioner or community health officer) who will be supported by a team of front line health workers to provide an expanded package of services.

### **BEST NATIONAL AND INTERNATIONAL PRACTICES**

- Cuba** has one of the most effective primary healthcare systems in the world, the system provides community-based polyclinic, each polyclinic serves a catchment area hosting between 30,000 and 60,000 people.
  - **Polyclinic facility** is further extended by neighbourhood-based family doctor-and-nurse offices closer to the communities, one such office for 1,000-2,000 people. Prevention is the cornerstone of these services, complemented by community analysis and treatment.
  - In a cross-country analysis of governance systems and health outcomes, countries with higher **fiscal decentralisation (Citizens participation)** were found to have consistently lower infant mortality rates than those with more centralised forms.
- In **West Bengal and Kerala in India** – states in which primary healthcare is co-managed by panchayats – health outcomes are better than in most other states at similar levels of economic development.

### **WAY FORWARD**

- Right now we need to shift focus from the **hospital centred model to strengthened primary health care system** in India.
- For this, medical practisers should provide **training and encourage working** in primary care.
- Adequate infrastructure** must be built with high tech equipment so that complete diagnoses can be provided at the Primary Healthcare itself.
- Also, we have to improve the representation of primary health care providers in decision making bodies like **MCI (Medical Council of India)**.

## **TUSSLE BETWEEN GOVERNORS AND STATE GOVERNMENTS**

### **CONTEXT**

A fresh dispute between the **governor and the state government** has arisen in **Tamil Nadu** following the governor's controversial dismissal of a minister.

### **MORE ON THE NEWS**

- Recently, the **Enforcement Directorate (ED)** has arrested a minister from Tamil Nadu in connection with a money laundering case.
- Following the arrest, the Governor of the state has **dismissed the minister from the Council of Ministers**, without consulting the Chief Minister of the state.

- Later, the Governor **suspended his decision** and announced that he would seek advice from the Attorney General of India regarding the matter.

### DISMISSAL OF A MINISTER OR COUNCIL OF MINISTERS

**Constitutional provisions:**

- Article 164(1) provides that the chief Minister shall be appointed by the Governor and the other Ministers shall be appointed by the Governor on the **advice of the Chief Minister**, and the Ministers shall hold office during the **pleasure of the Governor**.
- Though Ministers hold office during the pleasure of governor, but governor is **bound to exercise his pleasure in accordance with the Chief Minister's advice**. Thus, it is a power of the Chief Minister against his colleagues.

**Judicial pronouncements in this regard:**

- **Shamsher Singh & Anr vs State of Punjab (1974)**: A seven-judge Constitution Bench of the Supreme Court held that the **President and the Governor** should exercise their formal constitutional powers only upon and in **accordance with the advice of their Ministers** save in a few well-known **exceptional situations**.
- **Nabam Rebia and Etc. vs Deputy Speaker and Ors (2016)**: The Supreme Court cited the **observations of Dr. B R Ambedkar**: "The Governor under the Constitution has no function which he can discharge **by himself; no functions at all**. While he has no functions, he has certain duties to perform, and I think the House will do well to bear in mind this distinction."

**So, what does the “pleasure” of the Governor mean?**

- The Governor can have his pleasure as long as the **government enjoys majority in the House**.
- The Governor can withdraw his pleasure only when the government loses majority but **refuses to quit. Then he withdraws the pleasure and dismisses it**.

### ABOUT THE OFFICE OF GOVERNOR

<b>About Governor</b>	<input type="checkbox"/> Governor is a <b>nominal executive head</b> of the state. <input type="checkbox"/> He forms an important part of the <b>state executive</b> where he acts as the <b>chief executive head</b> .
<b>Envisaged role of governor</b>	<input type="checkbox"/> <b>Vital link</b> : Between the center and the states. <input type="checkbox"/> <b>Maintenance of national interests</b> , integrity and internal security advocates central supervision for which the governor is required. <input type="checkbox"/> <b>Responsible government</b> : For increasing responsible government in the states. <input type="checkbox"/> <b>Smooth functioning</b> : Crucial in smooth functioning of democracy. <input type="checkbox"/> <b>Check arbitrariness</b> : Governor is to check arbitrariness of the state government.
<b>Appointment of governor</b>	<input type="checkbox"/> The Governor is <b>neither directly</b> elected by the people <b>nor indirectly elected</b> by a specially constituted electoral college as is the case with the President. <input type="checkbox"/> He/she is <b>appointed by the President of India</b> by warrant under his hand and seal ( <b>Article 155</b> ). <input type="checkbox"/> While drafting the Constitution, the <b>Canadian model of Governor</b> ' appointment by the Centre was accepted in the Constituent Assembly.
<b>Qualifications</b>	<input type="checkbox"/> <b>The Constitution</b> lays down only <b>two qualifications</b> for the appointment of a person as a governor. <ul style="list-style-type: none"> <li>- He/she should be a <b>citizen of India</b>.</li> <li>- He/she should have completed the <b>age of 35 years</b>.</li> </ul> <input type="checkbox"/> <b>Additionally, two conventions</b> have also developed in this regard over the years. <ul style="list-style-type: none"> <li>- He/she should be an <b>outsider</b>, meaning not belonging to the State of appointment so as to remain free from the local politics.</li> <li>- While appointing the Governor, the President is required to <b>consult the Chief Minister of the State concerned</b>, so that the smooth functioning of the constitutional machinery is ensured.</li> </ul>

<b>Tenure/Removal of Governor</b>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Article 156 states that:                     <ul style="list-style-type: none"> <li>– The governor holds for a <b>term of 5 years</b> from the date on which he joins his office and he/she continues to hold his office until his successor joins the office, <b>even after his expiration of his term</b>.</li> <li>– The governor is supposed to hold office during the <b>pleasure of the President</b>. If this pleasure is withdrawn before completion of the five-year term, the Governor has to step down.</li> <li>– The governor can <b>resign to his office by writing to the President of India</b>.</li> </ul> </li> <li><input type="checkbox"/> However, the <b>Constitution does not specify any reasons</b> for the President to remove a governor.</li> <li><input type="checkbox"/> As the President works on the aid and advice of the <b>Prime Minister and the council of ministers</b>, in effect, the Governor can be appointed and removed by the central government.</li> <li><input type="checkbox"/> Since the Governor holds office "<b>on the pleasure of the President</b>", questions have been raised time and again on whether the Governor has any security of tenure, and if the President is obligated to show reasons for recalling a Governor.</li> </ul>
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### CONCERN RELATED TO THE OFFICE OF GOVERNOR

- Appointment/removal process:** Governors hold office till the pleasure of the president as no grounds for removal is mentioned in the constitution.
  - This leads to **favoritism in the appointment process** and well-suited candidates are ignored in favor of the less competent individuals.
- Acting as an agent of a political party at the centre:** Due to favoritism in the appointment and lack of any security of tenure in the constitution, the office of governor often works as a puppet/agent of the union government instead of acting as a **bridge between state and centre government**.
- Misuse of discretionary powers:**
  - **Hung assemblies:** It is a situational discretion where s/he is free to invite a party/alliance to form the government in case **no single party/pre-poll alliance** has won the majority of the seats in the state assembly elections.
  - **Reserving a bill for the president's consideration:** It is his constitutional discretion to reserve certain state bills for the consideration of the president.
- Misuse of the emergency powers:** Governors have often found to be recommending imposition of the president's rule in the state on frivolous grounds, especially when the **ruling party at centre is different from that of the concerned state**.
- Bypassing the elected government:** There have been instances when governors found to give **orders to state officials directly or visit public offices** without informing the state governments. This is against his/her constitutional mandate as he is only a **nominal head** and expected to act on the advice of the COM in the state.

### RECOMMENDATIONS BY VARIOUS COMMITTEES

- The Sarkaria Commission, 1983:** It proposed that the **Vice President of India and Speaker of Lok Sabha** should be consulted by the Prime Minister in the selection of Governors.
- The National Commission to Review the Working of the Constitution, 2000:** The Commission suggested that the "Governor of a State should be appointed by the President, after consultation with the **Chief Minister of that State**".
- The Justice Madan Mohan Punchhi Committee, 2007:**
  - It recommended that a committee comprising the **Prime Minister, Home Minister, Vice President, Speaker, and the concerned Chief Minister** should choose the Governor.
  - The Punchhi Committee recommended **deleting the "Doctrine of Pleasure"** from the Constitution, but backed the right of the Governor to sanction the prosecution of ministers against the advice of the state government.
  - It also argued for a provision for **impeachment of the Governor** by the state legislature.

### WAY FORWARD

- For the smooth Functioning of a **democratic government**, it is equally important that the governor **must act judiciously, impartially and efficiently** while exercising his discretion and personal judgment.
- In order to enable the Governor to Successfully discharge his functions under the constitution, an agreed '**Code of Conduct**' approved by the state governments, the central government, the parliament, and the state legislatures should be evolved.

- The 'procedure for appointment of governors should be clearly laid down' and conditions of appointment must also be laid down and must assure a fixed tenure for the governor so that the Governor is not under the constant threat of removal by the central government.
- It is necessary to invest the office of the Governor with the requisite independence of action and to rid them of the bane of 'instructions' from the Central Government.
- It is suggested that the exercise of 'discretionary powers' by the Governors should be 'guided by the healthy and democratic conventions.

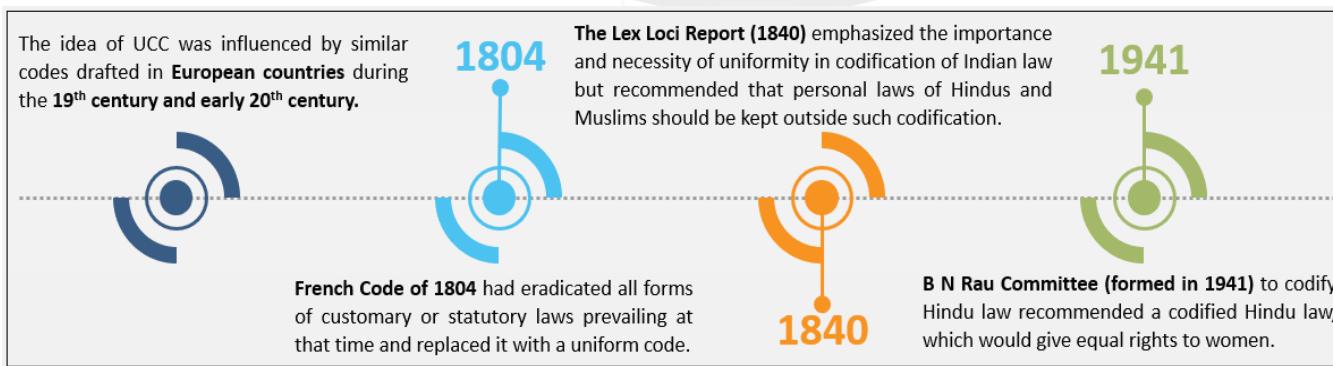
## UNIFORM CIVIL CODE

### CONTEXT

The 22nd Law Commission of India sought the views of religious organisations and the public on the issue of a **Uniform Civil Code (UCC)**.

### WHAT IS UNIFORM CIVIL CODE (UCC)?

- The UCC is a proposed legal framework that aims to provide a **common set of laws governing personal matters** such as marriage, divorce, inheritance, and adoption for all citizens, regardless of their religion.
- The UCC is intended to **replace the existing personal laws** that are based on religious customs and traditions.
- Historical background of UCC:**



- Constitutional provision on UCC:**
  - The Uniform civil code is mentioned in article 44 of the Indian constitution of 1950 as a **directive principle of state policy (DPSP)**.
  - **Article 44 states that** "The State shall endeavour to secure the citizens a Uniform Civil Code (UCC) throughout the territory of India."
- Current state of UCC in India:**
  - At present, **Goa is the only state in India** with a uniform civil code.
  - The **Portuguese Civil Code of 1867**, is applicable to all the people having their domicile in Goa. There is no uniform civil code in the rest of the country.
  - Apart from the above the government has brought several legislations in line with the UCC such as the **amendments to Hindu code bills** (They provide uniformity in legal provisions to all religions who are not Muslim, Parsi, Jews, and Christians) and the **Special Marriage Act, 1954** (It provides a form of civil marriage to any citizen irrespective of religion).

### NEED FOR UCC IN INDIA

- Different religious communities in India are currently governed by **different personal laws**.
  - For example, **Hindu personal law** is codified in "**four Hindu code bills**": the Hindu Marriage Act, Hindu Succession Act, Hindu Minority and Guardianship Act, and Hindu Adoptions and Maintenance Act. The term '**Hindu**' also includes Sikhs, Jains and Buddhists for the purpose of these laws.

- Certain aspects of Muslim personal law are expressly recognised in India in acts such as the **Shariat Application Act** and **Dissolution of Muslim Marriages Act**.
- **Christian marriages** and divorces are governed by the **Indian Christian Marriages Act** and the **Indian Divorce Act**, while **Zoroastrians** are subject to the **Parsi Marriage and Divorce Act**.
- This has led to the emergence of **several social evils** in the society, especially those adversely impacting the dignity of women.
- The **women have fewer rights** than the men under these laws. Also, the religious personal laws give birth to many taboos; for instance, patriarchy, early marriage, dowry, domestic violence etc.
- Thus, a uniform personal law will **bring about uniformity** and undo all the evils that have crept inside our existing personal laws.

### **ARGUMENTS IN FAVOUR OF UCC**

- Equal status to all Citizens:** A Uniform Civil Code would help towards providing equal status to all citizens irrespective of the community they belong to. It is believed that a **secular democratic republic**, in order to provide equal status to its citizens, must have a common civil and personal law irrespective of their religion, class, caste, gender, etc.
- Promote Gender Parity and Justice:** It is generally observed that in almost all religions, men are granted top preferential status in matters of **succession and inheritance** which results in discrimination towards women. Thus, a Uniform civil code will do away with practices which undermine a woman's right to equality.
  - **Under the Hindu law**, the Mitakshara branch of law denied to a Hindu daughter a right by birth in the joint family estate.
  - **Islamic law** prescribes that generally a man's share of the inheritance is double that of a woman in the same degree of relationship to the deceased.
  - **Christian women** could not obtain divorce on the grounds of adultery committed by the husband, it had to be coupled with cruelty, bestiality, and sodomy. On the other hand, Christian husbands could simply declare their wives as adulteresses and divorce them.
- End contentious provisions of Personal laws:** The existing personal laws of all religions are based upon the upper-class patriarchal notions of the society. Thus, the codification and implementation of the Uniform Civil Code will **destroy the sanctity of the patriarchal orthodox people** or will oppose it profusely.
- Promote national integration:** During **constituent assembly debates**, **Shri Alladi Krishnaswamy Ayyar** had talked about the problems of having excessive cultural relativity. He believed that having separate personal laws would limit the scope of reform and breeds communalism. Single secular law on various personal matters would raise a sense of oneness and the national spirit.
- Accommodate the aspirations of the young population:** The social attitude and aspiration of the young population is shaped by universal and **global principles of equality, humanity and modernity**. Thus, the enactment of Uniform Civil Code will help in utilizing their full potential towards nation building.
- Simplification of laws:** The UCC will **simplify the complex laws** around marriage ceremonies, inheritance, succession, adoptions making them one for all. This will also help in **reducing the burden on the Judiciary**.
- Sign of a modern Progressive Nation:** Personal laws were formulated in specific **spatio-temporal context** and should not stand still in a changed time and context. Having UCC will help the society move forward based on the **modern constitutional value system** of liberty, equality and justice.

### **ARGUMENTS AGAINST UCC**

- Practical difficulties due to diversity:** India has a diverse culture which is spread across different religions, sects, caste, states etc. Thus, this diversity makes it difficult to implement a uniform set of laws on personal issues like marriage, divorce, inheritance and maintenance.
- Perception among minorities:** A belief persists among minorities that Uniform Civil Code will neglect their traditions and impose rules which will be mainly influenced by the majority religious communities.
  - **For example, AIMPLB** calls Uniform Civil Code unconstitutional, anti-minorities and has said it will oppose any attempt towards establishing Uniform civil code in India.
- Violation of Fundamental rights:** A UCC is seen, by many, as a contradiction to the fundamental rights guaranteed under **Article 25** (individual's fundamental right to religion), **Article 26(b)** (right of each religious denomination to "manage its own affairs in matters of religion"), and **Article 29** (right to conserve distinctive culture).

- Issues with drafting of UCC:** The implementation of Uniform Civil Code is a very demanding task as it will bring many changes like adopting expansive interpretations on marriage, maintenance, adoption and succession. The task is very demanding and the government would need to be sensitive and unbiased while dealing with the minority and majority communities, otherwise it would **turn out to be more disastrous** and can lead to riots and **communal violence**.
- Not supported by Law commission:** In **2018, the 21st Law Commission** in a consultation paper held that UCC is neither necessary **nor desirable at this stage**. Rather it suggested the codification of all personal laws so that prejudices and stereotypes in every one of them would come to light and could be tested on the anvil of fundamental rights of the Constitution.
- No uniformity even in civil laws relating to non-religious matters:** Indian laws do follow a uniform code in most civil matters – **Indian Contract Act, Civil Procedure Code, Sale of Goods Act, Transfer of Property Act, Partnership Act, Evidence Act etc.** States, however, have made hundreds of amendments and therefore in certain matters, there is diversity even under these civil laws.

#### The Judiciary on Uniform Civil Code (UCC)

- Shah Bano Case (1985):** The Supreme Court held that Parliament should outline the contours of a common civil code as it is an instrument that facilitates national harmony and equality before law.
- Jordan Diengdeh case (1985):** The court opined and observed for the reformation of law of marriages by having a uniform law applicable to all people irrespective of religion and caste.
- Sarla Mudgal Case (1995):** The Supreme Court of India directed the Ministry of Law and Justice to reflect the steps taken and efforts made, by the Government of India, towards securing a “uniform civil code” for the citizens of India.
- John Vallamattom case (2003):** The Supreme Court held “It is regrettable that Article 44 of the Constitution has not entered into force. A common civil code will help the cause of national integration by removing contradictions based on ideologies”.

#### WAY FORWARD

- A Uniform Civil Code can only emerge through an **evolutionary process**, which preserves India’s rich cultural heritage. The government will have to work hard to **build trust among all the sections of the society**. After bringing consensus among different sections the government could try and bring separate aspects such as **marriage, adoption, succession and maintenance** into Uniform civil code in stages.
- Dr. B.R. Ambedkar’s Council** had propounded a **middle path** which stated that it is perfectly possible that the future Parliament may make a provision by way of making a **beginning that the Code** shall apply only to those who make a declaration that they are prepared to be bound by it, so that in the initial stage the application of the Code may be **purely voluntary**.
- The law commission of India** had opined that given India’s diversity in religion and culture **we do not require uniformity of laws**. What is required is reforms in all the personal laws to make them free of gender bias. It suggested that if each existing law governing different communities is made **progressive and gender just**, there won’t be any requirement for a uniform civil code.

## INTERNATIONAL RELATIONS

### AI AND NATIONAL SECURITY

#### CONTEXT

China's ruling Communist Party has warned of the risks posed by advances in artificial intelligence while calling for heightened national security measures.

#### WHAT IS ARTIFICIAL INTELLIGENCE (AI)?

- AI is the branch of computer science concerned with **developing machines** that can complete tasks that typically require **human intelligence**.
- The goals of artificial intelligence include computer-**enhanced learning, reasoning, and perception**.
- Artificial intelligence is based on the principle that human intelligence can be defined in a way that a machine can easily **mimic** it and execute tasks, from the most simple to those that are even more complex.

#### SOME APPLICATIONS OF AI

- Healthcare:** It aims to **improve patient outcomes** and reduce costs. Companies are applying machine learning to make better and **faster medical diagnoses** than humans.
  - One of the best-known healthcare technologies is **IBM Watson** which understands natural language and can respond to questions asked from it.
  - Other AI applications include using online **virtual health assistants** and **chatbots** to help patients and healthcare customers find medical information, schedule appointments etc.
- Business:** Machine learning algorithms are being integrated into analytics and **customer relationship management (CRM)** platforms to uncover information on how to better serve customers.
  - Chatbots have been incorporated into websites to provide immediate service to customers.
- Education:** In classrooms and training centers, AI-powered **adaptive learning** tailors educational content to each student's needs, while plagiarism detection ensures academic integrity.
  - Teachers and trainers can even leverage data analytics to **predict student performance** so they can intervene early if they spot problems.
  - AI has also played a significant role in democratizing access to education, especially for those in remote or **underprivileged areas**.
- Agriculture:** Farmers and scientists are using AI to **monitor crops, predict yields and check pests**. AI-enabled precision farming helps farmers make data-driven decisions so they can optimize irrigation, **improve fertilization** and reduce waste.
- Security:** Law enforcement agencies and **cybersecurity** firms can use AI for **facial recognition, surveillance and threat detection**. These technologies enhance public safety and combat cybercrime by identifying and neutralizing potential threats in real time.
- Space Exploration:** Scientists are already using AI for **spacecraft navigation, satellite imaging**, mission planning and identifying new astronomical phenomena.

#### ADVANTAGES AND DISADVANTAGES OF AI

Advantages	Disadvantages
It defines a more useful and more powerful computer	The cost of implementation of AI is very high.
It introduces an improved and modern interface for human interaction.	The challenges with software development for the implementation of AI are that the development of software is expensive and slow.
It offers a new technique to resolve unique problems.	An Artificial intelligence robot is one of the implementations of firms substituting jobs and commence to serve unemployment.
It manages the information properly than humans.	Machines can easily commence to destruction if the implementation of machines settle in the wrong hands the consequences are dangerous for human beings.

## SIGNIFICANCE OF ARTIFICIAL INTELLIGENCE IN NATIONAL SECURITY

- Target Recognition:** Artificial intelligence can aid in making **target recognition** more accurate in combat environments. AI can improve the ability for systems like this to **identify the position** of their targets.
  - AI can also allow defense forces to acquire a detailed understanding of an **operation area** by examining reports, documents, news, and other forms of information, aggregating and analyzing these sources much more quickly than humans would be able to do so.
- Threat Monitoring:** Threat monitoring, as well as situation awareness uses operations that gain and analyze information to aid in many different **military activities**.
  - There are **unmanned systems** that can be remotely controlled or sent on a pre-calculated route.
  - These systems use AI in order to aid defense personnel in **monitoring threats**, and thus leveraging their situational awareness.
  - **Drones** with AI can also be used in these situations.
- Cybersecurity:** Even highly secure military systems can be vulnerable to **cyber attacks**, which is where AI can be of great help.
  - AI has the ability to **protect programs, data, networks**, and computers from persons not authorized to access them.
  - AI also has the skills to study **patterns of cyber attacks** and form protective strategies in order to fight against them.
  - These systems can recognize the smallest behaviors of **malware attacks** far before they enter a network.
- Transportation :** AI can **lower transportation costs** and reduce the need for human input by, for example, plotting the most efficient route to travel under current conditions. It can also **pre-identify problems for military fleets** in order to increase efficiency of their performance.

## CHALLENGES OF AI IN NATIONAL SECURITY

- Data and Privacy:** There could be trade-offs between privacy and prosperity when it comes to **protecting personal data** in the AI environment.
- Ethical Risks:** Ethical risks are imperative from a humanitarian standpoint. As AI advances, the ethical considerations and **governance** issues may be redefining regulations and governance in ways that address fairness, safety, reliability, privacy, inclusivity, transparency, and accountability.
- Strategic Risks:** It includes the possibility that AI will increase the **likelihood of war**, escalate ongoing conflicts, and proliferate to malicious actors.
- Destruction:** AI systems can be **purposefully programmed** to cause death or destruction, either by the users themselves or through an attack on the system by an adversary.
  - **Unintended harm** can also result from inevitable margins of error which can exist or occur even after rigorous testing and proofing of the AI system according to applicable guidelines.
- Hacking:** AI can perpetuate biases either unintentionally or intentionally and can be **vulnerable to attack or hacking**.
  - Since these systems are often trained on large datasets, they tend to replicate the same biases that were present in the original datasets.
  - Similarly, personal biases of developers of algorithms may further add to this problem.

## NEED TO REGULATE ARTIFICIAL INTELLIGENCE

- Artificial intelligence technologies are capable of performing a wide variety of tasks including voice assistance, recommending music, driving cars, detecting cancer, etc.
- But many of these AI tools are essentially **black boxes** meaning even those who designed them cannot explain **what goes on inside** them to generate a particular output.
  - For instance, complex and unexplainable AI tools have already manifested in wrongful arrests due to **AI-enabled facial recognition**; discrimination and societal biases seeping into AI outputs. Most recently chatbots like **ChatGPT** are generating versatile, human-competitive and genuine-looking content which may be **inaccurate** or copyrighted material.
- Artificial Intelligence is in the sights of regulators around the world, with major and diverse new legislation on AI rules being brought forward in the EU, USA, and China, amongst others.

## GLOBAL REGULATIONS FOR AI

- European Union:** The European Union (EU) is considering a new legal framework that aims to significantly bolster regulations on the development and use of artificial intelligence.
  - The proposed legislation, **the Artificial Intelligence (AI) Act**, focuses primarily on strengthening rules around data quality, **transparency**, human oversight and accountability.
  - It also aims to address ethical questions and implementation challenges in various sectors ranging from **healthcare and education** to finance and energy.
- India:** NITI Aayog has issued some guiding documents on AI Issues such as the **National Strategy for Artificial Intelligence** and the **Responsible AI** for All report.
  - Emphasis is on social and economic inclusion, innovation, and trustworthiness.
- United Kingdom:** It has outlined a **light-touch approach**, asking regulators in different sectors to apply existing regulations to AI.
  - Published a white paper outlining **five principles** companies should follow:
    - Safety
    - Security and robustness
    - Transparency
    - Fairness
    - Accountability and governance; and contestability and redress.
- United States:** The US has come out with a **Blueprint for an AI Bill of Rights (AIBoR)**, outlining the harms of AI to economic and **civil rights** and lays down five principles for mitigating these harms.
  - The Blueprint endorses a sectorally specific approach to AI governance, with policy interventions for individual sectors such as health, labour, and education, leaving it to sectoral federal agencies to come out with their plans.
- China:** In 2022, China came out with some of the **world's first nationally binding regulations** targeting specific types of algorithms and AI.
  - It enacted a law to regulate recommendation algorithms with a focus on how they disseminate information.

## WAY FORWARD

- Mitigating the risk of extinction from AI should be a **global priority** alongside other societal-scale risks such as pandemics and nuclear war.
- AI technologies must be developed and **deployed responsibly** to address various concerns.
  - This includes ensuring that data is collected and processed **transparently** and **securely** and that individuals have control over it.
  - It also means ensuring that AI systems are designed and **tested** to identify and **mitigate biases** and are subject to ongoing **monitoring** and oversight.
- There needs to be **clear guidelines** around how AI can be used and shared.
- Incorporating safeguards** to prevent the misuse of AI technologies, such as developing mechanisms for individuals to control how their data is collected and used is necessary.
- It is vital to promote the responsible development of AI to ensure that its potential benefits are realized while **minimizing the risks** to individual privacy and **civil liberties**.
- Policymakers, industry leaders, and civil society must **collaborate** to develop policies and practices that support the responsible use of AI technologies.

## INDIA-AFRICA RELATIONS

### CONTEXT

India's External Affairs Minister, during his address at the 18th CII-EXIM Bank Conclave on India-Africa Growth Partnership in Delhi, stated that the rise of Africa is crucial for global rebalancing, and that India is committed to long-term engagement with Africa to promote capabilities and create capacities.

## MORE ON THE NEWS

- In the meeting, India **reaffirmed its commitment to Africa** and highlighted the importance of the rise of Africa in global rebalancing.
- India's focus on promoting capabilities and creating capacities in Africa, emphasizing the need for a development partnership based on the needs and priorities of African countries was highlighted.
- India's significant financial assistance to Africa**, including concessional loans amounting to over \$12.37 billion, the completion of 197 projects in various sectors, such as drinking water, irrigation, rural solar electrification, and transmission lines were also discussed.
- These projects have not only generated local employment but also improved the lives of many people in Africa.
- Added to this, India's assistance and partnership with Africa during the COVID-19 pandemic, India's support in encouraging pharmaceutical and vaccine manufacturers to explore joint manufacturing facilities in African countries is also noteworthy.
- The discussions also focussed on the future of India-Africa partnership that will be centred around digital, green, health, food, and water sectors, which are considered pressing priorities for Africa.

## INDIA-AFRICA TIES

### Evolution of Ties

- Historical Ties:** India and Africa have a long history of interaction, primarily through trade routes connecting the Indian Ocean region and the East African coast. This historical connection forms the basis of cultural and people-to-people ties that continue to influence contemporary relations.
- Decolonization and South-South Cooperation:** Following the wave of decolonization in Africa during the mid-20th century, India played a significant role in supporting African nations' struggles for independence. India's own experience of colonial rule resonated with African nations, leading to the establishment of strong diplomatic and political ties. India's leaders, such as **Mahatma Gandhi and Jawaharlal Nehru**, played a crucial role in fostering solidarity and cooperation between India and Africa.
- Non-Aligned Movement (NAM):** Both India and many African countries were founding members of the Non-Aligned Movement, which emerged during the Cold War era. NAM aimed to provide a platform for countries to maintain neutrality and pursue their own development agendas, free from the influence of major power blocs. This common alignment fostered cooperation and diplomatic engagements between India and Africa.

### Areas of Cooperation

Cooperation between India and Africa spans across various areas, driven by shared interests, historical ties, and the recognition of mutual benefits.

- Economic Cooperation:**
  - a. **Trade and Investment:** India has been one of the major investors in Africa, with investments in sectors such as telecommunications, energy, infrastructure, agriculture, and manufacturing. Both sides aim to enhance bilateral trade and diversify their economic ties.
  - b. **Energy Security:** India seeks to secure its energy supplies by partnering with African countries in the oil and gas sector. This includes long-term contracts for oil and gas imports and collaboration in renewable energy projects.
  - c. **Agriculture and Food Security:** India looks to leverage Africa's ample agricultural land to address its own food security concerns. There is potential for cooperation in areas such as agricultural research, technology transfer, and capacity building.
  - d. **Mining and Mineral Resources:** African countries, rich in mineral resources, have historic ties with India in this sector. India's industries rely on African resources like iron, copper, aluminium, and zinc.
- Development Cooperation:**
  - a. **Capacity Building and Human Resource Development:** India offers scholarships, training programs, and technical assistance to African countries to enhance their human resource capabilities in sectors such as healthcare, education, information technology, and agriculture.
  - b. **Infrastructure Development:** India supports infrastructure projects in Africa through aid and concessional loans. These projects focus on areas such as transportation, power generation, telecommunications, and water management.
  - c. **Health and Pharmaceuticals:** India provides medical expertise, pharmaceuticals, and affordable healthcare solutions to African countries. This includes partnerships in research and development, manufacturing, and supply of essential medicines.

**Political and Diplomatic Cooperation:**

- a. **UN and International Forums:** India and African countries collaborate and support each other on various international platforms, including the United Nations, to address common challenges and promote shared interests.
- b. **Peacekeeping and Security:** India has been actively involved in UN peacekeeping operations in African countries, contributing troops and sharing its expertise in capacity building, training, and conflict resolution.
- c. **Climate Change and Sustainable Development:** India and Africa cooperate in addressing climate change, promoting sustainable development, and implementing global agreements such as **the Paris Agreement**. They advocate for the concerns of developing and least developed countries in international climate conferences.

**Cultural and People-to-People Exchanges:**

- a. **Soft Power and Cultural Exchange:** India's soft power, including its diverse culture, traditional medicine, and yoga, plays a significant role in building bridges and strengthening ties with African countries.
- b. **Indian Diaspora:** The presence of the Indian diaspora in several African countries acts as a bridge between the two regions, facilitating cultural understanding, economic collaboration, and people-to-people connections.

**Regional Groupings and Forums for India-Africa Relations**

- India-Africa Forum Summit (IAFS):** The IAFS is a major platform for India-Africa cooperation. It is a summit-level meeting held periodically to enhance and strengthen the partnership between India and African countries. The first IAFS was held in 2008 in New Delhi, and subsequent summits have been held in Africa.
- BRICS (Brazil, Russia, India, China, South Africa):** India and Africa engage through the BRICS platform, which is a grouping of five major emerging economies. BRICS provides opportunities for economic cooperation, trade, and investment between India and African countries.
- Asia-Africa Growth Corridor (AAGC):** The AAGC is an economic cooperation agreement between India and Japan aimed at promoting socio-economic development in Asia and Africa. It focuses on infrastructure development, digital connectivity, and capacity building in African countries.
- International Solar Alliance (ISA):** The ISA is an initiative launched by India and France to promote solar energy deployment globally. It provides a platform for collaboration and technology transfer in the field of solar energy, including for African countries.
- India-Africa Science and Technology Initiative (IASTI):** The IASTI is an initiative that promotes cooperation between India and African countries in the field of science and technology. It includes various programs and activities to support research and capacity building in science and technology.
- Regional Economic Communities (RECs):** Africa has several RECs, such as the Economic Community of West African States (ECOWAS), Southern African Development Community (SADC), East African Community (EAC), and others. India engages with these regional groupings to promote trade, investment, and cooperation in various sectors.

**CHALLENGES IN INDIA-AFRICA RELATIONS**

- Competition with China:** China has established a significant presence in Africa, particularly in sectors like infrastructure, mining, and energy. India faces competition from China in terms of investment, trade, and influence in Africa.
- Limited Resources:** India's resources for providing financial assistance and infrastructure development in Africa are comparatively limited. India cannot match China's vast financial capabilities, which can result in challenges in competing for major projects and trade opportunities.
- Investment Concerns:** Indian firms may be hesitant to invest in Africa due to concerns about slower economic growth, high levels of debt, and uncertainties in some African countries' business environments. These factors can limit India's ability to expand its economic footprint in the continent.
- Lack of Connectivity:** Adequate city-to-city connectivity between India and Africa is lacking, hindering people-to-people contact and impeding the growth of mutual understanding and cooperation.
- Perception and Image:** India needs to address concerns among African citizens who view Indian investments as **neo-colonialism or exploitative**. Incidents of racial attacks on African nationals in India have damaged India's image and could potentially strain relations.
- Implementation Challenges:** India faces challenges in terms of slow delivery and low disbursement rates of commitments made to African countries. The reliance on multilateral agencies for project implementation sometimes leads to India not receiving proper credit for its contributions.

- Different Priorities:** India's focus on Africa is not its primary foreign policy priority, as it also engages with other major powers like the United States, the European Union, and neighboring countries. Balancing multiple priorities can pose challenges in effectively pursuing India-Africa relations.

## INDIA-UAE RELATIONS

### CONTEXT

India and the UAE have set a target to increase the non-oil trade from USD 48 billion to USD 100 billion by 2030.

### MORE ON THE NEWS

- In the first meeting of the **Joint Committee of the India-UAE Comprehensive Economic Partnership Agreement (CEPA)** that took place recently, the target of achieving USD 100 billion in bilateral trade by 2030 was set.
  - The CEPA which **was implemented on May 1 2022**, aims to **promote economic cooperation and enhance trade relations** between India and the UAE.
  - It focuses **on expanding non-oil sectors of trade**, indicating that the target of USD 100 billion will not include oil trade.
- To facilitate the implementation of the agreement and address various trade-related issues, several sub-committees and councils will be established.
- One such sub-committee will **specifically handle matters pertaining to services trade**.
- Additionally, **an India-UAE CEPA council** will be set up to further streamline and support the implementation of the agreement.

#### India-UAE Comprehensive Economic Partnership Agreement (CEPA) Trade Deal

The India-UAE Comprehensive Economic Partnership Agreement (CEPA) trade deal aims to strengthen economic ties between the two countries by enhancing bilateral trade, promoting investment, and expanding cooperation in various sectors.

##### Objectives of the Trade Deal:

- Enhanced Market Access: The CEPA trade deal seeks to provide significant benefits to businesses in both India and the UAE, including improved market access and reduced tariffs. It aims to facilitate increased trade in goods and services between the two countries.
- Digital Trade Cooperation: The agreement includes a digital trade element, which is a first of its kind for both nations. It aims to foster cooperation on digital trade, covering areas such as paperless trading, digital payments, online consumer protection, intellectual property rights, and challenges faced by small and medium enterprises.
- Strengthening Economic Cooperation: The CEPA is expected to create new jobs, raise living standards, and provide wider social and economic opportunities in both nations. It also envisions advancing the collective interests of India, Israel, the UAE, and the United States by opening new routes for regional trade and connectivity.

##### Significance of the India-UAE CEPA Trade Deal:

- Bilateral Trade Expansion: The objective is to increase trade in goods to \$100 billion and trade in services to \$15 billion within five years of signing the agreement, contributing to the growth of both economies.
- Access to West Asian and African Markets: Deepening the relationship with the UAE is anticipated to benefit Indian exporters by providing access to other West Asian countries, Africa, and parts of Europe. Indian goods can flow to other Gulf Cooperation Council (GCC) countries as the UAE has no customs barriers.
- Energy Cooperation: The UAE is a major supplier of crude oil, LPG, and LNG to India. The CEPA trade deal is expected to further strengthen bilateral energy ties and explore opportunities for cooperation in renewable energy.
- Job Creation: The trade deal has the potential to create new employment opportunities, improve living standards, and generate broader social and economic benefits for both countries.

##### Challenges of the India-UAE CEPA Trade Deal:

- Lack of Negotiations: Negotiations for a free trade agreement with the Gulf Cooperation Council (GCC) countries, including the UAE, were initiated in 2007 but got stuck after a few rounds. This lack of progress poses a challenge in realizing the full potential of trade agreements and deeper economic integration.
- Capacity of Indian Businesses: Indian businesses, despite being part of a \$2.5 trillion economy, are relatively small in size compared to global conglomerates. The capacity, infrastructure, and experience required to handle substantial investments may be lacking, hindering the realization of the full benefits of the trade deal.
- Procedural and Bureaucratic Challenges: Challenges such as lack of planning, incomplete information, and bureaucratic bottlenecks continue to pose hurdles for foreign investors, despite government efforts to improve the ease of doing business.
- Legal Issues: Past legal problems have dampened foreign investments in India, leading to concerns for potential investors. While regulations and checks are necessary, better streamlining of procedures and processes can help avoid such issues.

## INDIA-UAE TIES

India and United Arab Emirates (UAE) enjoy strong bonds of friendship based on age-old cultural, religious and economic ties between the two nations. The relationship flourished after the accession of H.H. Sheikh Zayed Bin Sultan Al Nahyan as the Ruler of Abu Dhabi in 1966 and subsequently with the **creation of the UAE Federation in 1971**. Since then, both sides have made sincere efforts to improve relations in all fields.

The UAE holds significant importance for India in its “Look East” and “Look West” policies in the following aspects:

1. **Look East Policy:** As the UAE looks eastward to expand its economic growth, it finds India as a **natural partner due to its rapidly growing economy**, large consumer market, and skilled workforce.
2. **Look West Policy:** The UAE is equally important for India in its Look West Policy, which aims to **deepen ties with countries in West Asia**. India's political and diplomatic engagements with the UAE have significantly increased in recent times, and the two countries have established a strategic partnership. The UAE serves as a willing partner for India in its efforts to enhance **economic engagement and security cooperation in the Gulf region**. With the UAE's “Look East” approach aligning with India's Look West Policy, the two countries find mutual benefits in expanding trade, investment, and security collaboration. The UAE's geographic location, stability, and status as a major economic and financial hub in the region make it a key player in **India's West Asia policy**.

## AREAS OF COOPERATION

India and the UAE have cooperated in various areas to strengthen their bilateral relations.

- Political and Diplomatic Relations:** India and the UAE have established a comprehensive strategic partnership, leading to high-level visits and engagements. This includes the **historic visit of the Indian Prime Minister to the UAE in 2015**, which marked the beginning of a new strategic partnership. The UAE's Crown Prince also visited India in 2017. The two countries have institutionalized their political and diplomatic engagements through mechanisms like the UAE-India Strategic Dialogue.
- Trade and Investment:** The UAE is **India's third-largest trade partner and second-largest export destination**. Bilateral trade reached approximately USD 72 billion in the fiscal year 2021-22. The UAE has made substantial **investments in India**, with sectors such as construction development, power, air transport, tourism, and metallurgical industries receiving significant investment.
- Energy Cooperation:** Indian oil companies have been granted a 10 percent participating interest in the Lower Zakum offshore oil field. Additionally, the UAE has participated in operationalizing India's strategic oil reserve in Mangalore. These initiatives have transformed the traditional buyer-seller relationship into a **long-term investor relationship**.
- Security and Counterterrorism:** India and the UAE have enhanced cooperation in countering terrorism, combating radicalization, and preventing terror financing. Both countries view each other as important partners in maintaining peace and stability in their respective regions. **Intelligence sharing, joint exercises, and naval cooperation** have been undertaken to strengthen security ties.
  - **Desert Eagle II**, a ten day air combat exercise, was held between the air forces of India and UAE.
  - The maiden bilateral naval exercise '**Gulf Star 1**' took place in March 2018.
- Culture and Diaspora:** The cultural agreement signed in 1975 has facilitated cultural exchanges between India and the UAE. The UAE hosts a significant Indian diaspora, with approximately **3.4 million Indian expatriates residing there**. The two countries have collaborated to develop efficient grievance-redressal mechanisms for Indian workers in the UAE.
- Technology Partnerships:** India and the UAE have signed agreements and partnerships in digital innovation and technology. Collaborations between the **Indian Space Research Organisation (ISRO)** and the UAE Space Agency (UAESA) have been established. The UAE has offered residency permits to experts in high-end technology fields, further promoting technology cooperation.

## CHALLENGES IN INDIA-UAE RELATIONS

- Slow implementation of investments:** The establishment of a \$75 billion investment fund by the UAE for infrastructure projects in India, announced in 2015, has faced delays in finalizing the modalities and governance structure. This slow implementation hampers the realization of investment commitments.
- Lack of clarity and transparency:** Indian companies operating in the UAE often face challenges due to a lack of clarity in commercial regulations and labor laws. Additionally, a lack of transparency on the part of Emirati businesses adds to the difficulties faced by Indian companies.

- **Issues concerning the Indian diaspora:** Indian migrants in the UAE face cumbersome and strict regulations, particularly in relation to Emirati employers. Problems such as favouritism towards workers of other nationalities and a slight drop in remittances inflow from the UAE to India have been observed.
- **Influence of the Pakistan factor:** Historical and civilizational ties between India and the Gulf region are strained due to the influence of the Pakistan factor. Political relations are affected by tensions between India and Pakistan, which impact India's relations with countries in the region.
- **Balancing geopolitics:** India's relations with Iran and the UAE's relations with China create a dynamic where geopolitical considerations can sometimes challenge the bilateral relationship between India and the UAE.
- **Energy pricing disagreements:** As an OPEC country, the UAE has a different perspective on energy pricing compared to India, a major oil consumer. Disagreements over energy pricing, including India's call for a cap on prices, have led to heated exchanges between oil ministers in the past.
- **Air services agreement:** India and the UAE have yet to renegotiate their air services agreement. The UAE seeks to increase the number of flights and destinations to India, while India maintains certain caps to protect its domestic airlines. This issue has been a source of contention between the two countries.

Addressing these challenges through dialogue, negotiation, and mutual understanding will be essential to further strengthen and deepen the India-UAE relationship.

## INDIA-VIETNAM RELATIONS

### CONTEXT

India gifted the **indigenously built in-service missile corvette** INS Kirpan to Vietnam to enhance its naval capabilities.

### MORE ON THE NEWS

- INS Kirpan, a **Khukri-class missile corvette** with a displacement of 1,350 tonnes, was commissioned into the Indian Navy on January 12, 1991.
- It has a **length of 91 meters, a beam of 11 meters, and a speed capability of over 25 knots.**
- The corvette is equipped with a medium-range gun, 30mm close-range guns, chaff launchers, and surface-to-surface missiles.
- This development **builds upon the India-Vietnam defence partnership**, which includes previous agreements such as a Memorandum of Understanding (MoU) on mutual logistics support and a Joint Vision Statement on **India-Vietnam defence partnership towards 2030**.
- Furthermore, India has previously extended a **\$100 million Line of Credit (LoC)** to Vietnam, resulting in the procurement of 12 high-speed patrol boats for the Vietnamese border guard force.

### INDIA VIETNAM RELATIONS

#### Evolution

- India and Vietnam, with **historical roots in the common struggle for liberation from colonial rule** and the national struggle for independence, share traditionally close and cordial bilateral relations. **Mahatma Gandhi and Ho Chi Minh, regarded as the Father of Nation in India and Vietnam respectively, led people in their heroic struggle against colonialism** in the two countries.
- **Jawaharlal Nehru was one of the first visitors to Vietnam** after its victory against the French at Dien Bien Phu in 1954. President **Ho Chi Minh visited India in February 1958**. President **Rajendra Prasad visited Vietnam in 1959**. Vietnam is an important regional partner in South East Asia.
- India and Vietnam has been closely cooperating in various regional forums such as **ASEAN, East Asia Summit, Mekong Ganga Cooperation, Asia Europe Meeting (ASEM) besides UN and WTO**.
- India was the Chairman of the International Commission for Supervision and Control (ICSC), which was formed pursuant to the Geneva Accord of 1954 to facilitate the **peace process in Vietnam**.
- India initially maintained Consulate-level relations with the then North and South Vietnams and later established **full diplomatic relations with unified Vietnam on 7 January 1972**.

- India granted the “Most favoured nation” status to Vietnam in 1975 and both nations signed a bilateral trade agreement in 1978 and the Bilateral Investment Promotion and Protection Agreement (BIPPA) on 8 March 1997.
- The relationship was further strengthened when India, in the early 1990s, initiated its “Look East Policy” with the specific objective of economic integration and political cooperation with Southeast Asia and East Asia.
- Relations between the two countries were elevated to the level of ‘Strategic Partnership’ during the visit of Vietnam’s Prime Minister Nguyen Tan Dung to India in July 2007. In 2016, during Prime Minister Modi’s visit to Vietnam, bilateral relations were further elevated to a “Comprehensive Strategic Partnership”.
- India-Vietnam adopted a historic “Joint Vision for Peace, Prosperity and People” to guide the future development of bilateral relations in 2020.
- India and Vietnam are members of the Mekong-Ganga Cooperation, created to develop to enhance close ties between India and nations of Southeast Asia.
- Vietnam has supported India’s bid to become a permanent member of the United Nations Security Council and join the Indo-Pacific Economic Cooperation (APEC).



#### Areas of Cooperation

India and Vietnam have cooperation in various areas, which encompass strategic, economic, defence, science and technology, assistance and capacity building, cultural, and people-to-people domains.

- Strategic Partnership:** Both countries aim to strengthen their strategic partnership based on India’s Indo-Pacific Oceans Initiative (IPOI) and ASEAN’s Outlook on Indo-Pacific, with a focus on shared security, prosperity, and growth in the region.
- Institutionalized Mechanisms:** The Joint Commission Meeting at the Foreign Ministers’ level and **Foreign Office Consultations (FOCs)** provide a framework for bilateral cooperation. There are also mechanisms like Security Dialogue at the Defense Secretary Level, Joint Committee on Science and Technology, Joint Working Group on Educational Exchange, and Joint Sub-Commission on Trade.
- Economic Cooperation:** Trade and economic relations have significantly improved, particularly after the signing of the ASEAN-India Free Trade Agreement. Key sectors of cooperation include garments and textiles, pharmaceuticals, agrocommodities, leather and footwear, and engineering.
  - According to Indian data for the financial year April 2021-March 2022, bilateral trade posted a growth of 27% and reached US\$ 14.14 billion.
  - **Indian exports to Vietnam amounted to US\$ 6.70 billion** (an increase of 34%) while Indian imports from Vietnam amounted to US\$ 7.44 billion (an increase of 21%).
- Defence Cooperation:** Defence cooperation has emerged as a significant pillar of the strategic partnership. It includes capacity building, joint naval exercises, friendly port calls, training, cooperation in defence research and development, and the exchange of defence personnel. Both countries signed the ‘**Joint Vision Statement on India-Vietnam Defense Partnership towards 2030**’ and a Memorandum of Understanding (MoU) on Mutual Logistics Support.
- Science and Technology:** Cooperation in science and technology is emphasized, as reflected in MoUs on exploration and use of outer space, IT cooperation, cyber security, and atomic energy for peaceful purposes. Agreements have been exchanged on agricultural research, and an **Advanced Resource Centre in Information and Communications Technology (ARCICT)** was inaugurated in Hanoi.
- Assistance and Capacity Building:** India has provided Lines of Credit (LoCs) to Vietnam on concessional terms and conditions for development projects. Scholarships under the Indian Technical and Economic Cooperation (ITEC) program are offered to Vietnamese students. Assistance includes projects such as the establishment of an Indira Gandhi Hi-Tech Crime Laboratory.

- Cultural Relations:** Cultural ties are fostered through events and festivals, such as the “Buddhist Festival - Days of India” organized in Vietnam. The Indian community in Vietnam contributes to the promotion of trade and business interactions.
- People-to-People Contacts:** Both countries have facilitated a simplified visa regime to promote bilateral tourism. Special initiatives, like the Jaipur artificial limb fitment camps under the “India for Humanity” initiative, have been organized to benefit the Vietnamese people.

## INDIA-EGYPT RELATIONS

### CONTEXT

The Indian Prime Minister paid a two-day visit to Egypt, the first bilateral trip by an Indian PM in 26 years.

### KEY HIGHLIGHTS OF THE VISIT

- Strategic Partnership:** The two countries signed a landmark agreement on a strategic partnership, which is considered a significant development in their bilateral relationship.
- Order of the Nile:** Prime Minister Narendra Modi was honored with the Order of the Nile, the highest state honor of Egypt. This gesture symbolizes the warm relations between India and Egypt.
- Memoranda of Understanding (MoUs):** Three MoUs were signed between India and Egypt in the fields of **agriculture, archaeology and antiquities, and competition law.** These agreements aim to enhance cooperation in these respective areas.
- Green and Renewable Collaboration:** Both sides emphasized the importance of collaboration in the field of green and renewable energy. Clean energy was highlighted as a crucial aspect of their future partnership.
- Multilateral Cooperation:** The discussions covered multilateral cooperation, including cooperation within the G-20 framework. The two countries also exchanged views on food security, energy security, and climate change.
- India Unit in Egyptian Cabinet:** The newly formed “India Unit” within the Egyptian Cabinet was acknowledged as a useful mechanism for steering bilateral collaborations.
  - This unit is expected to facilitate and strengthen cooperation between India and Egypt.
- Cultural and People-to-People Exchanges:** Prime Minister Modi visited the Heliopolis Commonwealth War Grave Cemetery to pay homage to Indian soldiers who died in Egypt during World War I.
  - Additionally, he visited the **11th-century Al-Hakim Mosque.**
  - The mosque was meticulously restored with the **help of the Dawoodi Bohra community**, emphasising the spirit of collaboration and cultural exchange.

### INDIA- EGYPT TIES

#### Evolution of Relations

The evolution of ties between India and Egypt has a deep historical foundation, dating back to ancient times.

- Ancient Civilizational Links:** The oldest civilizational link between India and Egypt, dates back to 2750 BCE when the Pharaoh Sahure sent ships to the “Land of Punt,” identified with peninsular India. Additionally, Egyptian mummies were wrapped in Indian muslin dyed with indigo during the second millennium BCE.
- Diplomatic Relations:** Mahatma Gandhi and Egyptian revolutionary Saad Zaghloul shared a common goal of independence from British colonial rule. India and Egypt announced the establishment of **diplomatic relations at the ambassadorial level** just three days after India gained independence.
- Friendship Treaty:** In 1955, a **Friendship Treaty** was signed between Indian Prime Minister Jawaharlal Nehru and Egyptian President Gamal Abdel Nasser. This period coincided with the emergence of the **Non-Aligned Movement**, which both countries actively participated in.



- Recent Intensification:** Since 2014, there has been an increased focus on political cooperation between India and Egypt. The heads of both sides met on the side-lines of the UNGA in 2015, discussing **counter-terrorism, economic engagement, and regional issues.**
- Strategic Partnership:** The relationship between India and Egypt has witnessed an upswing in recent years. President el-Sisi was the chief guest at India's 74th Republic Day parade in 2023, and during the meeting, both countries agreed to elevate their bilateral relationship to a "**strategic partnership.**"
- Bilateral Agreements:** India and Egypt have signed various agreements to enhance cooperation in different sectors. For example, they signed a Memorandum of Understanding (MoU) between **Prasar Bharati and the National Media Authority of Egypt** to facilitate content exchange and co-productions.

#### Areas of Cooperation

- Political Relations:**
  - The establishment of diplomatic relations between India and Egypt at the Ambassadorial **level was announced jointly in 1947.**
  - The two countries have maintained close cooperation in multilateral fora and were among the founding members of the **Non-Aligned Movement.**
  - During the COVID-19 pandemic, Egypt demonstrated solidarity with India by dispatching three planes carrying medical supplies in 2021.
  - Additionally, the Embassy of India signed an agreement to procure 300,000 doses of **REMDESEVIR from M/s EVA Pharma**, an Egyptian pharmaceutical company.
  - The year 2022 holds particular significance as it commemorates the 75th anniversary of diplomatic relations between India and Egypt, highlighting the longstanding ties between the two countries.
  - **Operation Sankalp** serves as an example of India's expanded role in the region. It involved the Indian Navy escorting oil tankers **through the Strait of Hormuz** during escalating tensions between Saudi Arabia and Iran, showcasing India's commitment to protecting national assets and interests.
- Economic Relations:**
  - Since March 1978, the **India-Egypt Bilateral Trade Agreement** has been in effect, operating under the Most Favoured Nation clause.
  - In the fiscal year 2018-19, the bilateral trade reached a value of US\$ 4.55 billion.
  - Despite the challenges posed by the pandemic, the volume of trade only experienced a slight decline to US\$ 4.5 billion in 2019-20 and further decreased to US\$ 4.15 billion in 2020-21.
  - Notably, the bilateral trade between India and Egypt reached a record high of US\$ 7.26 billion in the fiscal year 2021-22.
  - The trade relationship between the two countries has been characterized by a fairly balanced trade flow, **with Indian exports to Egypt amounting to US\$ 3.74 billion**, while imports from Egypt to India totalled US\$ 3.52 billion.
- Development Assistance:**
  - The grants-in-aid projects include: **Pan Africa Tele-medicine and Tele-education project** in Alexandria University, Solar electrification project in Agaween village and Vocational Training Centre for textile technology in Shoubra, Cairo, which have been completed.
  - Technical cooperation and assistance have been a major part of our bilateral relationship. Since 2000, over 1250 Egyptian officials have benefited from ITEC and other programs like ICCR and IAFS scholarships.
  - In the field of **scientific cooperation**, **ICAR and the Agricultural Research Centre** of Egypt are working in the field of agricultural research.
- Science and Technology:**
  - 'Science & Technology' cooperation is implemented through **biennial Executive Programmes and Scientific Cooperation Programme between CSIR (India) and NRC (Egypt).**
  - The 2nd ISRO-NARSS JWG was held in Cairo in 2017.
  - The **India-Egypt Workshops on Agriculture-Biotechnology** and Nanotechnology were held in Shillong in 2018 and in Mumbai in 2019 respectively.
  - An IT Centre in Al Azhar University, CEIT, is also operational from February 2019.

**Defence Relations:**

- During the 1960s, there was a significant level of cooperation between the Air Forces of India and Egypt, including joint efforts to develop a fighter aircraft. Egyptian pilots received training from Indian Air Force (IAF) pilots during this period, with the training continuing until 1984.
- **The Joint Defence Committee (JDC)** plays a crucial role in shaping the current defence cooperation between India and Egypt.
- The 8th JDC took place in New Delhi in 2018, followed by the 9th JDC held in Cairo in 2019.
- Egypt actively participated in the **Multinational Training Exercise held in Pune, India, in 2019**, which involved friendly African countries. Furthermore, in 2021, the first-ever joint tactical air exercise named "**Desert Warrior**" took place between the Indian Air Force (IAF) and the Egyptian Air Force (EAF).
- In January 2023, a groundbreaking joint **exercise called "Exercise Cyclone-I"** commenced at Jaisalmer in Rajasthan, involving the special forces of both the Indian Army and the Egyptian Army.

**Cultural Relations:** The Maulana Azad Centre for Indian Culture (MACIC) in Egypt promotes cultural cooperation through activities such as language classes, seminars, film shows, exhibitions, and participation in local cultural events. The "**Sawt-ul-Hind**" magazine highlights the strong bond and vibrant cultural exchanges between the two countries.

**Indian Community:** The Indian community in Egypt, numbering around 3,200, plays a significant role in cultural and people-to-people exchanges. Concentrated mainly in Cairo, the community contributes to fostering closer ties between India and Egypt.

## OPPORTUNITIES AND CHALLENGES

### Opportunities for India-Egypt Relations

- Economic Potential:** Egypt's large population and economy present opportunities for India to supply key imports such as refined petroleum, wheat, cars, corn, and pharmaceuticals. India has the potential to meet Egypt's demand in these areas.
- Infrastructure Development:** The Egyptian government has an ambitious infrastructure development agenda, with 49 mega projects including the construction of a **New Cairo** (\$58 billion), a **\$25 billion nuclear power plant and a \$23 billion high-speed rail network**. These provide opportunities for India to participate in the projects and contribute its expertise.
- Arms and Defence Cooperation:** Egypt's status as the **world's third-largest arms importer** during 2015-19 creates opportunities for India to enhance defence cooperation and engage in arms trade with Egypt.

### Challenges for India-Egypt Relations

- Economic Crisis:** The Egyptian economy is facing significant challenges, including a static economy, pandemic-related impacts, global slowdown, and the Ukraine conflict. These factors have led to a **drop in tourism, increased import costs, high inflation (surpassed 30%), and a depreciating currency** (more than 50% since February 2022). India would need to navigate these economic challenges to strengthen bilateral trade and investment.
- Financial Constraints:** Egypt's huge financial commitments, coupled with a substantial foreign debt and negative net foreign assets, have led to foreign exchange scarcity. This situation has resulted in deferred payments for essential imports like wheat.
  - **Although a \$3 billion bailout package** was recently secured from the **International Monetary Fund**, its implementation is contingent upon challenging economic reforms.
  - However, the progress of these reforms has been hindered by entrenched interests and the **prevalence of crony capitalism**.
- Reluctance of Gulf Arab States:** The affluent Gulf Arab states initially supported the Egyptian economy with nearly \$30 billion, but have been lately reluctant citing various governance issues in Egypt.
  - **Egypt's foreign debt is over \$163 billion** (43% of the GDP) and its net foreign assets are minus \$24.1 billion.
  - The acute forex situation compelled the government to issue in January 2023 an order for the **postponement of projects with a large foreign currency component** and cuts to non-essential spending.
- Geopolitical challenges:** China's **bilateral trade with Egypt** is currently at \$15 billion, double that of India's \$7.26 billion in 2021-22.

## WAY FORWARD

- As India and Egypt navigate the complexities of the present-day geopolitical landscape, their **strengthened alliance not only holds immense potential** for economic growth but also contributes to the pursuit of autonomous foreign policies.

- Moving forward, India and Egypt should continue to foster their strategic partnership, focusing on expanding **economic cooperation, addressing regional challenges, and promoting people-to-people exchanges** for a mutually beneficial relationship.

## INDIA-PHILIPPINES RELATIONS

### CONTEXT

The Fifth meeting of the **Joint Commission on Bilateral Cooperation (JCBC)** between India and Philippines concluded recently.

### KEY OUTCOMES OF JOINT COMMISSION ON BILATERAL COOPERATION (JCBC)

- India's position on China-Philippines Maritime Dispute:** India revised its position on the 2016 South China Sea Arbitration that supports Manila's territorial claims over China.
- Defence Cooperation:** Both sides expressed keen interest in the opening of the resident **Defence Attaché office in Manila**, India's offer for a concessional Line of Credit to meet the Philippines' defense requirements, acquisition of naval assets, and expansion of training and joint exercises on maritime security and disaster response.
- ASEAN and Indo-Pacific Cooperation:** The meeting mentioned the convergence of **India's Indo-Pacific Strategy with the ASEAN Outlook** on the Indo-Pacific, particularly in their mutual goal of maintaining a free, open, and inclusive region, maritime and development cooperation, and adherence to international law.
- Commemoration of Diplomatic Relations:** Both countries will be commemorating the 75th year of their diplomatic relations in 2024, indicating the long-standing ties between India and the Philippines.

### INDIA-PHILIPPINES TIES

#### Evolution

- Establishment of Diplomatic Relations (1949):**
  - India and the Philippines **formally established diplomatic relations in 1949**, shortly after both countries gained independence.
  - The **shared values of anticolonialism and South-South cooperation** laid the foundation for the relationship.
- Early Years of Bilateral Engagement:**
  - During the initial years, India and the Philippines focused on **establishing diplomatic channels** and fostering mutual understanding.
  - The historical commonalities, such as the fight against colonialism, contributed to a sense of solidarity between the two nations.
- Look East Policy and Intensified Relations (1992):**
  - India's Look East Policy, launched in 1992, aimed to enhance engagement with **Southeast Asian nations**, including the Philippines.
  - This policy resulted in **intensified bilateral relations**, both politically and economically.
- Act East Policy and Diversification of Relations (2014 onwards):**
  - In **2014**, India unveiled the **Act East Policy**, which sought to deepen its engagement with **East and Southeast Asia**.
  - Under this policy, the relationship between India and the Philippines **diversified into various sectors**, including political-security cooperation, trade, and industry.

#### Areas of Cooperation

- Political:**
  - **High-Level Visits and Interactions:** The then Prime Minister Dr. Manmohan Singh visited the Philippines in 2007 for the **ASEAN-India and the East Asia Summit**, demonstrating the importance of bilateral and regional cooperation. Cabinet ministers and other high-level political dignitaries have also visited each other's countries, fostering bilateral engagement and dialogue.
  - **Joint Commission on Bilateral Cooperation:** Two rounds of the Joint Commission on Bilateral Cooperation have been held between India and the Philippines at the level of Foreign Ministers. These meetings serve as a platform for discussions on foreign policy, security, defence, trade, and other areas of mutual interest.

- **Collaboration in Multilateral Fora:** The Philippines has supported India's candidature for the non-permanent membership of the UN Security Council.

**Trade and Economic Relations:**

- Both Nations have promising **economic trajectories**.
- India is projected **to become the world's third-largest economy by 2027**, while the Philippines aims to achieve upper-middle-income status and become a trillion-dollar economy by 2033.
- India maintains a **positive trade balance with the Philippines**, with more exports from India compared to imports from the Philippines.
- While the impact of the **India-ASEAN FTA in Goods** is already being strongly felt with current ASEAN-India trade at **\$80 billion** and growing, the **IndiaPhilippines trade** has, so far, been muted in comparison at **around \$1.6 billion**.
- The Philippines accounts for around **20% of total Indian pharma exports** to the ASEAN region.

**Science and Technology:**

- Collaboration between the **Philippine Space Agency** and the Indian Space Research Organisation (**ISRO**) is expected as the Philippines works towards becoming a **spacefaring country by 2030**.

**Defence:**

- The defence and security establishments of both countries have been increasing collaboration.
- Indian navy and coast guard ships make regular visits to the Philippines, engaging in consultations with their counterparts.
- **National Defense College (NDC) delegations** from India and the Philippines have exchanged visits, promoting mutual understanding and cooperation.
- A Joint Defence Cooperation Committee was constituted between India and the Philippines, highlighting the importance of defence cooperation.
- There is also significant Defence and security cooperation, including the signing of a significant **contract for the procurement of India's BrahMos Shore-based Anti-Ship Missile System** by the Philippines' defence forces.

**Disaster Relief Assistance:**

- In response to natural disasters in the Philippines, such as **super typhoon 'Haiyan'** in 2013 and **typhoon Pablo/Bopha in 2012**, the Government of India provided disaster relief assistance.
- The assistance, including relief material and financial support, was appreciated by the Philippines government, showcasing solidarity and cooperation in times of crisis.

**Growing Indian Community in the Philippines:**

- The Indian community in the Philippines has become an integral part of the local population.
- Over the years, the Indian diaspora has contributed to various sectors, including business, education, and culture, strengthening people-to-people ties.

**Emergence of the Philippines as a Destination for Indian Students:**

- Recently, the Philippines has started to attract Indian students seeking higher education opportunities.
- The **emerging education sector** in the Philippines has drawn Indian students, further fostering people-to-people exchanges and cultural ties.

**Multilateral Groupings and Cooperation:**

- India and Philippines are part of several multilateral groupings such as the **East Asia Summit (EAS)**, **Asia-Pacific Economic Cooperation (APEC)**, **World Trade Organization (WTO)**.
- **Association of Southeast Asian Nations (ASEAN):** The Philippines is a member of ASEAN, while India is a dialogue partner.
- **Indian Ocean Rim Association (IORA):** India is a member of IORA, an intergovernmental organization comprising coastal states bordering the Indian Ocean. The Philippines is not a member of IORA but has engaged with the organization as a dialogue partner.

**WAY FORWARD**

Greater regional collaboration is crucial for harnessing the full **economic potential of the Indo-Pacific**. To bolster the region's position as a global economic powerhouse, enhanced **economic integration**, improved connectivity, and **heightened innovation** are imperative. The **Philippines and India**, renowned proponents of **inclusive multilateralism** and the **rule of law**, assume pivotal roles in driving this agenda forward.

## INDIA-CHINA RELATIONS

### CONTEXT

The People's Republic of China adopted a **new Law on Foreign Relations** that is said to tighten President Xi Jinping's control over foreign policy **indicating a trend of increasing centralization**.

### IMPLICATION OF THE NEW FOREIGN POLICY ON INDIA

- Border Dispute and Centralization of Chinese Foreign Policy:** The emphasis on security, sovereignty, and territorial integrity in the new Law coincides with the border dispute between India and China becoming a central issue in their bilateral relations. The new law further strengthens President Xi Jinping's centralized control over foreign policy, similar to the **Border Law adopted in 2021**.
- Formalization of China's Actions and Narrowing Scope for Resolution:** The Border Law is seen as an attempt to **formalize China's moves along the Line of Actual Control (LAC)**. The framing of territorial disputes by Beijing as matters of national sovereignty rather than negotiable issues may **narrow the scope for resolution**.
- Responsibility to Safeguard China's Interests:** Article 6 of the new law outlines the responsibility and obligation of various entities, including state institutions, armed forces, political parties, organizations, enterprises, and citizens, to safeguard China's sovereignty, during international exchanges and cooperation that may impact how China approaches its interactions with India.
- Implications for Agreements and Treaties:** Article 31 raises concerns regarding the signing of agreements to resolve disputes, as it stipulates that the implementation and application of treaties and agreements should not undermine China's sovereignty, which may have implications for the negotiation and acceptance of agreements between India and China.
- Focus on Socialism with Chinese Characteristics:** Article 17 of the law emphasizes that the main aim of China's conduct of foreign relations is to uphold its system of socialism with Chinese characteristics. This suggests that China's **foreign policy will prioritize its domestic political ideology and economic goals**, potentially influencing its approach towards India and other countries.
- Accountability and Measures:** Article 33 grants the Chinese government the right to take measures to counter or restrict acts that endanger its sovereignty, national security, and development interests, potentially affecting India-China relations and international engagements in the region.

### INDO-CHINA TIES

The evolution of India-China relations has been complex and has gone through various phases since their independence.

- Early Years (1950s-1960s):**
  - After India's independence in 1947, the **leaders of both India and China, Jawaharlal Nehru and Mao Zedong**, envisioned a close friendship based on shared historical and anti-colonial sentiments.
  - In 1950, **India recognized the People's Republic of China** and established diplomatic relations.
  - The two countries signed the **Panchsheel Agreement in 1954**, emphasizing peaceful coexistence and non-interference in each other's internal affairs.
  - However, border disputes over the region of Tibet escalated tensions, leading to the **Sino-Indian War in 1962**, which China won decisively.
- Strategic Distance (1970s-1980s):**
  - After the war, India and China had minimal diplomatic and trade relations, and mistrust prevailed.
  - India's growing proximity with the Soviet Union and China's rivalry with the USSR further strained the relationship.
  - In 1978, Deng Xiaoping's economic reforms in China initiated a period of economic growth and openness, paving the way for improved relations.
- Efforts for Normalization (1980s):**
  - In the 1980s, **both countries sought to normalize relations** through diplomatic engagement and confidence-building measures.
  - In 1988, Indian Prime Minister Rajiv Gandhi visited China, marking a significant step in improving ties.

- The two sides signed agreements to maintain peace and tranquillity along the disputed border, leading to the establishment of the **Working Mechanism for Consultation and Coordination (WMCC) in 2012.**
- Post-Cold War Era (1990s onwards):**
  - With the end of the Cold War, **both India and China** aimed to develop a more cooperative relationship.
  - Economic engagement became a central pillar of their engagement, with trade and investment increasing significantly.
  - In 2003, the two countries agreed on the formation of the Special Representatives mechanism to address the boundary question.
  - However, border disputes, **particularly over the regions of Aksai Chin and Arunachal Pradesh**, persisted and occasionally led to military standoffs.
- Recent Developments:** In recent years, India-China relations have faced significant challenges.
  - The **Doklam standoff in 2017**, where Indian and Chinese troops faced off in the disputed Doklam plateau, strained ties.
  - The **deadliest clash in decades occurred in June 2020 in the Galwan Valley**, resulting in casualties on both sides.

### COMPARING AND CONTRASTING THE PATHS OF DEVELOPMENT OF INDIA AND CHINA

Sector	India	China
Political system	Largest multi-party parliamentary democracy.	One-party authoritarian rule.
Development Strategy in the Initial Years	Policy of closed trade and import substitution strategy.	Great Leap Forward (GLF) strategy for high-scale industrialization.
Economic Reforms	Reforms started in 1991, focused on liberalization, privatization, and globalization.	Reforms started in 1978, creating a pseudo-free-market command economy.
External Relations	Emphasis on soft power and economic diplomacy.	Economic diplomacy approach, gaining prominence in Asia, Africa, and central Asia.

### AREAS OF COOPERATION

There are several areas of cooperation between India and China.

- Political Cooperation:**
  - **Establishment of Diplomatic Relations:** India became the first non-socialist bloc country to establish diplomatic relations with the People's Republic of China in 1950.
  - **High-Level Visits:** Exchange of visits by top leaders, such as Prime Minister Rajiv Gandhi's visit in 1988 and Prime Minister Narendra Modi's visits in 2014, 2015, and 2018, have contributed to improving bilateral relations.
  - **Dialogue Mechanisms:** Both countries have established various dialogue mechanisms at different levels to discuss political, economic, consular, and regional issues.
- Economic Cooperation:**
  - **Bilateral Trade:** Bilateral trade between India and China has grown significantly, reaching US\$100 billion by 2022. Both countries have expanded economic ties, with India becoming one of the largest markets for "project exports" from China.
  - **Investments:** Chinese investments in India and Indian investments in China have been increasing, particularly in sectors like IT, pharmaceuticals, and automobiles.
  - **Economic Potential:** With a combined market of over 2.7 billion people and a GDP representing 20% of the world's total, there is immense potential for further economic cooperation between India and China.
- Science and Technology Cooperation:**
  - **Joint Research Workshops:** Both countries have organized joint research workshops to foster collaboration and innovation in the field of science and technology.
  - **IT Corridors:** Indian companies have established IT corridors in China, promoting cooperation in information technology and high-tech sectors.
- Cultural and People-to-People Exchanges:**
  - **Cultural Exchanges:** India and China have a long history of cultural exchanges dating back centuries. Cultural events, performances, and agreements to establish institutions like the **Yoga College in China** reflect the cultural cooperation between the two countries.

- **Educational Cooperation:** The education sector has witnessed cooperation, with an increasing number of Indian students studying in Chinese universities and Chinese students studying in Indian educational institutions.
- **People-to-People Exchanges:** Mechanisms like the China-India High-Level People-to-People and Cultural Exchanges Mechanism facilitate exchanges and cooperation in various fields, including art, media, sports, tourism, traditional medicine, and think tanks.
- **Defence Cooperation:** While defence cooperation remains relatively low, joint military exercises like 'Hand in Hand' have been conducted to enhance mutual understanding and counterterrorism capabilities.

#### Multilateral Cooperation

- BRICS (Brazil, Russia, India, China, South Africa):** India and China are both members of BRICS, a formal grouping of emerging economies. BRICS provides a platform for engagement between the two countries and other member states to discuss bilateral and global issues. **The New Development Bank (NDB) and the Contingency Reserve Arrangement (CRA)** are initiatives under BRICS that aim to provide alternative lending and financial mechanisms.
- Shanghai Cooperation Organisation (SCO):** Both India and China became members of the SCO in 2017. The SCO focuses on security, geopolitics, and economic cooperation among its member states. India and China's membership in the SCO allows for engagement and collaboration on regional and international affairs.
- Russia-India-China Trilateral (RIC):** The RIC platform brings together Russia, India, and China to facilitate common positions on global challenges, discuss radical ideas, counter terrorism threats, and address issues related to Afghanistan and West Asia. It provides an opportunity for India and China to cooperate and coordinate on various global issues.
- Asian Infrastructure Investment Bank (AIIB):** Both India and China are founding members of the AIIB, a multilateral development bank that aims to address infrastructure needs in Asia. The AIIB provides financing and support for infrastructure projects across the region, including in India and China.
- World Trade Organisation (WTO):** India and China have collaborated within the WTO framework on various issues related to trade and agriculture. They have jointly submitted proposals, such as calling for the elimination of trade-distorting farm subsidies by developed countries, to promote fair trade practices.
- BASIC (Brazil, South Africa, India, China):** The BASIC countries, including India and China, have come together to address environmental issues, particularly in the context of climate change. They have emphasized the principle of climate justice for developing countries and advocated for a more equitable approach to climate action.

#### CHALLENGES

- Border Disputes:**
  - **Western Sector:** The Aksai Chin region is a territorial dispute where both countries claim it as part of their own territory.
  - **Middle Sector:** China stakes claim over an area in Uttarakhand, creating a border dispute.
  - **Eastern Sector:** The McMahon Line, the boundary between India and Tibet, is disputed by China.
  - **Johnson Line vs. McDonald Line:** India and China hold different positions on the demarcation of the border.
- String of Pearls:** China's strategic presence and infrastructure development in various countries surrounding India, such as Sri Lanka, Pakistan, the Maldives, Bangladesh, and Myanmar, raise concerns about encirclement.
- Water Dispute:** China's construction of dams in the upper reaches of the Brahmaputra River (Tsangpo) without a formal water-sharing treaty poses a threat to India, leading to concerns over water availability and flooding.
- Dalai Lama and Tibet:** China accuses India of fomenting trouble in Tibet due to the presence of the Dalai Lama and protests staged by Tibetans against China in India and other countries.
- Arunachal Pradesh and Stapled Visa:** China issuing stapled visas to residents of Arunachal Pradesh questions India's sovereignty and territorial integrity.
- Bhutan and Nepal:** China criticizes India's role and relationship with Bhutan and Nepal, attempting to influence their ties and play the "China card" against India.
- Belt and Road Initiative:** India opposes China's Belt and Road Initiative (BRI), particularly the China-Pakistan Economic Corridor (CPEC), which passes through Indian territory claimed by Pakistan.
- China-Pakistan Nexus:** China's support to Pakistan in military, nuclear, and missile capabilities, along with blocking India's efforts at the UN, creates concerns for India's security.
- Indian Ocean Region:** China's increasing presence, including military outposts, port acquisitions, and economic influence in countries like Sri Lanka, Bangladesh, and Myanmar, raises concerns for India's traditional influence in the region.

- South China Sea:** China's territorial claims in the South China Sea, contested by neighboring countries, pose concerns for freedom of navigation and stability in the region, which affects India's strategic interests.
- Doklam Standoff:** The Doklam/Doka La region dispute between China and Bhutan, with India's military and diplomatic support to Bhutan, has led to tensions in the area.
- Galwan Valley Standoff:** The deadly clash between Indian and Chinese troops in the Galwan Valley, resulting in casualties, highlights the ongoing border tensions and the need for de-escalation efforts.

### WAY FORWARD

- It is essential for both India and China to demonstrate **sincerity, restraint, and a willingness** to find common ground in order to **rebuild trust** and chart a **positive path forward** in their bilateral relations.
- Tension or conflict between the two countries takes away from the **prospects of the Asian century** that their leaders speak of. A regular pattern of more informal summits between the leaders of the two countries is needed.

## INDIA-NEPAL RELATIONS

### CONTEXT

Nepalese Prime Minister Pushpa Kamal Dahal was on an official visit to India, seeking to enhance cooperation in power, transport and tourism.

### KEY HIGHLIGHTS OF THE VISIT

- Export of hydropower:** India-Nepal have signed a series of agreements, including export of Nepal's hydropower to Bangladesh through Indian Territory.
  - **A long-term Power Trade Agreement** has been signed, aiming to set a target of importing 10,000 MW of electricity from Nepal in the coming years.
- Infrastructure assistance:** NHPC and VUCL (Vidyut Utpadan Company Ltd.) of Nepal have signed agreement for the development of Phukot Karnali Hydroelectric Project and Lower Arun Hydroelectric Project.
- Access to inland waterways:** Both the sides have signed the revised Treaty of Transit under which Nepal will get access to India's inland waterways.
- Railway connectivity:** Both sides jointly inaugurated a cargo train from Bathnaha in India to Nepal Customs Yard. The rail link was built with an Indian grant.
- Upgradation of petroleum pipeline:** Foundation was laid for development of Phase-II facilities as part of the Motihari-Amlekhgunj Petroleum Pipeline.
- Religious tourism:** The projects related to the Ramayana Circuit will be expedited.

### INDIA-NEPAL TIES

#### What is the significance of Nepal for India?

- Economic significance:**
  - Trade: Nepal shares border with 5 Indian states. Hence an important point of trade and economic exchange.
  - Energy security: India and Nepal share many transboundary Himalayan rivers with huge hydropower potential.
  - Nepali exports: India has a good demand for Nepali exports like Pashmina textiles.
- Strategic significance:**
  - Buffer state: Nepal acts as buffer states against any possible aggression from China.
  - Internal security: Curbing cross border infiltrations and drug trade with help of Nepal.
- Cultural significance:**
  - Pilgrimage sites: Many Hindu and Buddhist religious sites are in Nepal making it an important pilgrim site for a large number of Indians.

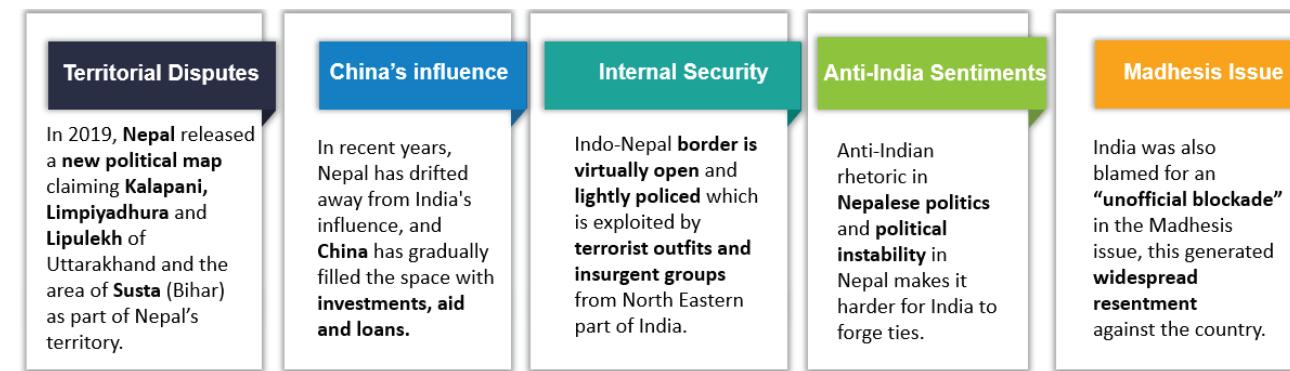


- Common religion: 80 percent Hindu population in both countries integrate the people.
- Diaspora: Nepali diaspora in India and Indian workforce in Nepal.

## **AREAS OF COOPERATION BETWEEN INDIA AND NEPAL**

Trade and Economy	<ul style="list-style-type: none"> <li><input type="checkbox"/> Bilateral trade: India is the largest trading partner of Nepal.                     <ul style="list-style-type: none"> <li>- In FY 2021-22, Nepal constituted 2.34% of India's exports. And exports from India constitute almost 22% of Nepal's GDP.</li> </ul> </li> <li><input type="checkbox"/> FDI: India is the largest source of FDI in Nepal.</li> <li><input type="checkbox"/> Indian firms engaged in manufacturing, services (banking, insurance, dry port), power sector and tourism industries etc.</li> </ul>
Connectivity	<ul style="list-style-type: none"> <li><input type="checkbox"/> Transit: Nepal being a land-locked country, it needs freedom of transit. India provides transit for almost the entire third country trade of Nepal.</li> <li><input type="checkbox"/> Recent developments:                     <ul style="list-style-type: none"> <li>- A 35-km cross-border railway line linking Jaynagar in Bihar to Kurtha in Nepal flagged off.</li> <li>- India has also handed over the Solu Corridor, a 90-km, 132 kV power transmission line which will help bring electricity to several remote districts in northeastern Nepal.</li> <li>- Nepal has signed an MoU with India for Kathmandu-Raxaul railway link.</li> <li>- Sagarmatha to Sagar: India is looking to develop the inland waterways to Nepal and providing sea access for Nepal.</li> </ul> </li> </ul>
Defence cooperation	<ul style="list-style-type: none"> <li><input type="checkbox"/> Defence modernization: India provides assistance to the Nepalese Army in its modernization through the provision of equipment and training.                     <ul style="list-style-type: none"> <li>- The Gorkha Regiments of the Indian Army are raised partly by recruitment from hill districts of Nepal.</li> </ul> </li> <li><input type="checkbox"/> Joint military exercise: Surya Kiran</li> </ul>
Cultural cooperation	<ul style="list-style-type: none"> <li><input type="checkbox"/> There have been initiatives to promote people-to-people contacts in the area of art &amp; culture, academics and media with different local bodies of Nepal.</li> <li><input type="checkbox"/> Recent developments:                     <ul style="list-style-type: none"> <li>- Sister cities: India has signed three sister-city agreements for Kathmandu-Varanasi, Lumbini-Bodhgaya, and Janakpur-Ayodhya.</li> <li>- Recently PM Modi laid the foundation for construction of the India International Centre for Buddhist Culture and Heritage in the Lumbini Monastic Zone, Lumbini, Nepal.</li> <li>- The Ramayana Circuit train: It includes major pilgrimage sites from India and Nepal that are related to the Ramayana.</li> </ul> </li> </ul>
Energy cooperation	<ul style="list-style-type: none"> <li><input type="checkbox"/> Hydroelectric projects: Arun 3 Project, Pancheshwar Multipurpose Project.</li> <li><input type="checkbox"/> Motihari-Amlekhgunj Pipeline: Pipeline carries petroleum products from Motihari in India to Amlekhgunj in Nepal.</li> <li><input type="checkbox"/> India and Nepal have a Power Exchange Agreement since 1971 for meeting the power requirements in the border areas.</li> <li><input type="checkbox"/> Nepal also invited Indian companies to invest in the West Seti hydropower project in Nepal.</li> </ul>
Assistance	<ul style="list-style-type: none"> <li><input type="checkbox"/> Developmental assistance: The Government of India provides development assistance to Nepal in the areas of infrastructure, health, water resources, and education and rural &amp; community development.</li> <li><input type="checkbox"/> Humanitarian assistance: Nepal remains the biggest recipient of India's humanitarian assistance due to its ecological fragility.</li> <li><input type="checkbox"/> Vaccine diplomacy: India has extended vaccines and COVID related aid to Nepal.</li> </ul>
Multilateral Partnership	India and Nepal share multiple multilateral forums such as <b>BBIN, BIMSTEC, Non-Aligned Movement, and SAARC</b> etc.

## MAJOR CHALLENGES IN INDIA NEPAL RELATIONS



## WAY FORWARD

India-Nepal relations require formal mechanisms to resolve boundary issues, drawing from successful resolutions in other regions. People-to-people interactions and updated discourse are crucial, considering Nepal's federated governance and changing demographics.

## SOUTH CHINA SEA DISPUTE

### CONTEXT

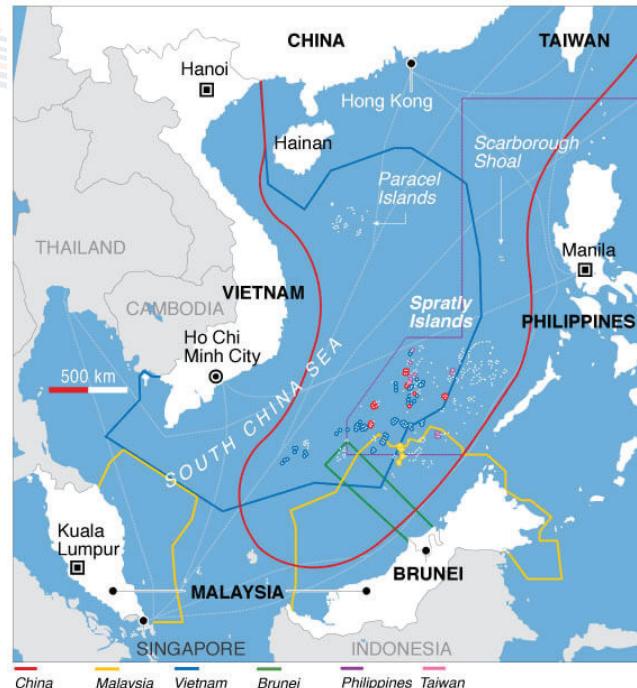
China is seen to have been increasing its assertiveness in the South China Sea, leading to conflicts and disputes more often with the Philippines.

### MORE ON THE NEWS

- Following the conflict, several rounds of negotiations have been conducted time and again.
- The ongoing negotiations between China and the ASEAN bloc (Association of Southeast Asian Nations) for a code of conduct in the South China Sea involve 11 countries and are described as a "complex exercise."
- The negotiations aim to establish guidelines and rules to ensure peaceful settlement of disputes and adherence to international law, particularly UNCLOS.
- However, the challenges in reaching a consensus are due to differing views and interests among the ASEAN member nations.

### ABOUT THE SOUTH CHINA SEA

- **Location:** The South China Sea is a marginal sea of the Western Pacific Ocean.
  - A marginal sea is a type of sea that is partially enclosed by land and connected to a larger ocean or sea.
  - The South China Sea is connected by Taiwan Strait with the East China Sea and by Luzon Strait with the Philippine Sea.
- **Bordering states & territories (clockwise from north):** the People's Republic of China, the Republic of China (Taiwan), the Philippines, Malaysia, Brunei, Indonesia, Singapore and Vietnam.
- **The Gulf of Thailand** and the **Gulf of Tonkin** are also part of the South China Sea.



## SIGNIFICANCE OF THE SOUTH CHINA SEA

- Strategic Location:** It is strategically located at the crossroads of major maritime trade routes, connecting the Pacific Ocean to the Indian Ocean. It serves as a crucial transit point for international shipping, and global trade.
  - According to the United Nations Conference on Trade And Development (UNCTAD) one-third of the global shipping passes through it, carrying trillions of trade which makes it a significant geopolitical water body.
- Natural Resources:** The sea is believed to have abundant natural resources, including fisheries and potential oil and gas reserves.
  - More than half of the world's fishing vessels are in the South China Sea, and millions of people depend on these waters for their food and livelihoods.

## EVOLUTION OF CONFLICT

- The evolution of the South China Sea conflict can be traced back to the mid-20th century when China laid its claim to the region.
- In 1947, China marked its territorial claims with a U-shaped line consisting of eleven dashes, covering a significant portion of the South China Sea.
- Over time, the discovery of oil and natural gas reserves in the region heightened territorial disputes among claimant countries.
- The United Nations Convention on the Law of the Sea (UNCLOS) came into force in 1994, providing a legal framework for balancing the interests of coastal states and seafaring nations.
  - While most coastal countries in the South China Sea signed and ratified UNCLOS, each country interpreted the convention to legitimize their own claims, leading to ongoing tensions.
- In 2002, the Association of Southeast Asian Nations (ASEAN) and China signed the Declaration on the Code of Conduct of Parties in the South China Sea in an attempt to manage and resolve disputes.
- The Philippines and China had conflicting claims over the Scarborough Shoal, located approximately 100 miles from the Philippines and 500 miles from China.
  - Both countries depended on fishing in the South China Sea, including the Scarborough Shoal, for economic development.
  - A standoff in 2012 resulted in China gaining de facto control over the region.
  - In 2013, the Philippines brought the dispute with China to the Permanent Court of Arbitration (PCA), asserting that China's claims violated its sovereignty under UNCLOS.
- PCA Ruling:
  - The PCA ruled in 2016 that China's claims over 90 percent of the South China Sea were illegitimate.
  - It also concluded that China was infringing on the Philippines' sovereign waters by including the Scarborough Shoal within its nine-dash line, which extended into the Philippines' Exclusive Economic Zone (EEZ).
  - However, China rejected the PCA ruling, asserting that it has historical rights to the South China Sea and prefers bilateral negotiations with other parties involved.
  - However, the dispute remains unresolved, and tensions continue to exist in the region.
- Since then, tensions between China and the Philippines, as well as other countries in the region, have escalated.
- China has been increasing its assertiveness in the South China Sea, leading to conflicts and disputes over maritime boundaries, fishing rights, resource exploration, and freedom of navigation.



**The Claims of other countries and China over the South China Sea**

- China:** China claims nearly the entire South China Sea based on its historical “nine-dash line” claim, which encompasses the **Paracel Islands, Spratly Islands, Scarborough Shoal**, and other features within the region.
- Taiwan:** Taiwan, officially known as the Republic of China (ROC), asserts the same territorial claims as China over the South China Sea, including the **Paracel Islands, Spratly Islands, and Scarborough Shoal**.
- Vietnam:** Vietnam claims sovereignty over the Paracel Islands and the Spratly Islands in the South China Sea. It also contests China's claims and activities in the disputed waters.
- Philippines:** The Philippines asserts its claims over the Spratly Islands, including Scarborough Shoal, which is located within its Exclusive Economic Zone (EEZ).
- Malaysia:** Malaysia claims several features in the **Spratly Islands, including the Layang-Layang Reef, Swallow Reef, and the Investigator Shoal**.
- Brunei:** Brunei claims a portion of the Spratly Islands, but its claim is relatively small compared to other claimant countries.

**DIPLOMATIC TENSIONS**

- ASEAN and South China Sea:**
  - One of the core principles of ASEAN is the peaceful resolution of regional disputes.
  - However, over time, **ASEAN's stance and actions regarding the South China Sea disputes have diminished** its reputation and standing on the international stage.
  - The failure to effectively address and resolve the ongoing conflicts in the South China Sea raises concerns about ASEAN's credibility as a capable regional organisation.
- The US and the South China Sea:**
  - The U.S. has no claim in the South China Sea, but has been highly critical of China's assertiveness and insisted on free navigation of commercial vessels in the South China Sea is vital for regional and international trade.
  - It conducted joint military patrols with the Philippines and Japan, Australia, and Indonesia.
  - The US also **increased the financial support for enhancing the military capabilities** of ASEAN and East Asian countries as well as strengthened bilateral defence collaboration with these countries.
- India and South China Sea:**
  - India **has maintained that it is not a party** to the **South China Sea** dispute and its presence in the region is not to contain China but to secure its own economic interests, especially that of its energy security needs.
  - However, China's increasing ability to decide and expand its role in the South China Sea has compelled India to reevaluate its approach on the issue.
  - As a key element of the **Act East Policy**, India has started internationalising disputes in the Indo-Pacific region to oppose China's threatening tactics in the region.
  - Further, India is using its **Buddhist legacy** to make a strong bond with the Southeast Asian region.
  - India has also deployed its navy with Vietnam in the South China Sea for protection of **sea lanes of communication (SLOC)**, denying China any space for assertion.
  - Also, India is part of the **Quad initiative (India, US, Japan, Australia)** which is viewed as a containment strategy by China.

**OTHER CHALLENGES**

- Undefined geographic scope:** There is disagreement among the claimant countries and other stakeholders over the exact geographic boundaries and scope of the South China Sea, which further complicates the dispute.
- Disagreement over dispute settlement mechanisms:** There is a lack of consensus on how to settle disputes in the South China Sea. Different countries have varying preferences regarding the mechanisms and forums for resolving conflicts.
- Legal status of the Code of Conduct (COC):** Negotiations for a Code of Conduct between ASEAN and China are ongoing, but the legal status and enforceability of the COC remain undefined.
- Historical complexities:** The diverse histories and competing territorial claims of distant, largely uninhabited archipelagos in the South China Sea contribute to the complexity and multifaceted nature of the dispute.

## WAY FORWARD

It is crucial to **uphold and advance peace, stability, and development in the South China Sea region**, ensuring that all parties respect and contribute to regional stability. Additionally, it is important for larger countries in the region to consider and respect the perspectives of their smaller neighbouring nations, taking on a mediating role to seek peaceful resolutions. Furthermore, it is recommended that other countries act as facilitators, **encouraging ASEAN member countries to engage in negotiations with China and Taiwan**, who are not part of ASEAN. The involvement of facilitators can help foster dialogue and create a conducive environment for productive discussions.

## UNSC REFORMS

### CONTEXT

External Affairs Minister urged the BRICS nations to exhibit their genuine commitment to overhauling international organizations, including that of the UN Security Council.

### ABOUT THE UNITED NATIONS SECURITY COUNCIL (UNSC)

- The UNSC, established in 1945, is one of the United Nations' five principal organs**, responsible for maintaining international peace and security.
- Composition:** UNSC is composed of 15 member states, including **five permanent members (P5)** with **veto power** and **ten non-permanent members**.
  - **The 5 permanent members** are: United States, Russian Federation, France, China and the United Kingdom.
  - **The 10 non-permanent members** are elected for **two-year terms** by the **UNGA** (United Nations General Assembly).
  - These 10 seats are **distributed among the regions of the world**: five seats for African and Asian countries; one for Eastern European countries; two for Latin American and Caribbean countries; and two for Western European and Other Countries.
- Powers and Functions of UNSC:**
  - The UN Security Council's primary function is to maintain **international peace and security**. It takes the lead in determining whether a threat to peace or an act of aggression exists.
  - Aside from maintaining peace, the Security Council has the authority to send **UN peacekeeping missions and impose sanctions on states**.
  - If necessary, the UN Security Council can also **sever diplomatic relations**, impose **financial restrictions** and penalties, blockades, and even **collective military action**.



### ABOUT THE VETO POWER OF P5 MEMBERS

- The 5 permanent members** have the power of veto.
- Under Article 27 of the UN Charter**, Security Council decisions on all substantive matters require the affirmative votes of three-fifths (i.e., 9) of the members.
- A **negative vote** or a "veto" by a permanent member **prevents adoption of a proposal**, even if it has received the required votes.
- Abstention is not regarded as a veto** in most cases, though **all five permanent members must vote** for adopting any amendment of the UN Charter or any recommendation of the admission of a new UN member state.
- The decisions of the UNSC** (known as resolutions) are **binding on all members of the UN**.

## NEED FOR REFORMS IN UNSC

- Not Reflecting Present Realities:** The current structure of UNSC no longer reflects the geopolitical realities of the 21st century. The emergence of new economic and military powers necessitates updating the Council's composition for better representation of the current global order.
- Lack of Adequate and Equitable Representation:** The current structure of the Council lacks representation from many countries, particularly those from Africa, Latin America, and Asia though the countries from these regions face numerous security challenges. Adequate representation would ensure a broader range of perspectives and better decision-making.
- Democratic Reforms:** The current structure of the Security Council has been criticized for being undemocratic and not reflecting the interests of the majority of the world's population. Decision-making power is concentrated in the hands of the five permanent members with veto power, limiting the participation of other nations and stifling inclusive decision-making.
- Geopolitical Rivalry within the P5:** The geopolitical rivalry among the permanent members has sometimes hindered the Council from effectively addressing global issues.
- Misuse of Veto Power:** The veto power held by the five P5 members has been criticized for being undemocratic and often resulting in gridlock. The ability of a single member to block resolutions, even when there is broad international consensus is hindering the council's effectiveness.
- Threat to State Sovereignty:** The decisions of the Security Council are binding on all member countries of the UN, which can encroach upon their sovereignty. The Council's power to impose sanctions and take military actions raises concerns about the potential infringement on the sovereignty of states.

## PROPOSED UNSC REFORMS

- Expansion of Membership:** The current membership of the UNSC shall be expanded to make it more representative of the world's regions, cultures, and people.
- Removal of Veto Power:** The veto power has to be reformed to prevent its misuse by the permanent members.
- Regional Representation:** Currently, non-permanent members are elected on a regional basis, but this does not guarantee regional representation. Creation of permanent seats for regions such as Africa, Latin America, and the Middle East will ensure that the voices are heard in the decision-making process.
- Transparency and Accountability:** There have been calls to make the UNSC more transparent and accountable by ensuring that it consults more widely with other UN organs and civil society groups before making decisions.
- Democratic and Inclusive Process:** Proposals include the establishment of a working group that includes civil society representatives and the creation of a more representative and accountable UN General Assembly.

## INDIA AND UNSC

- India has been trying to make its way into the **list of permanent members** of the UNSC but has not been successful.
- India is one among the G4 countries (India, Germany, Japan, Brazil), which gives it an edge at becoming one of the permanent members of the UNSC.
- India has served eight times in the UNSC as a non-permanent member** (1950-1951, 1967-1968, 1972-1973, 1977-1978, 1984-1985, 1991-1992, 2011-2012, and 2021-2022).

### Arguments in favor of Permanent Membership of India

- Huge population:** India is home to ~18% of the world's population with 1.4 billion people. Such a large population needs permanent representation at the world stage.
- Economic significance:** India recently became the 5th largest economy in terms of GDP (Nominal). India is already the 3rd largest economy in terms of GDP (PPP).
- Military capabilities:** India is also a rising military power. India has been ranked 4th in the Global Firepower Index, behind the US, Russia and China, and ahead of the P5 nations, the UK and France. India's capabilities are rapidly expanding in multiple fields like space exploration.
- Contributions to peacekeeping missions:** India has consistently been one of the largest contributors to UN peacekeeping missions. Despite the recent decline in troop numbers, India has a long-standing tradition of actively participating in peacekeeping efforts around the world.

- Commitment to international principles:** India has a long history of advocating for principles such as mutual respect for sovereignty, non-aggression, non-interference, equality, and peaceful coexistence. India's leadership in the Non-Aligned Movement and its championing of disarmament and the elimination of weapons of mass destruction, including nuclear weapons, demonstrate its commitment to promoting global peace and security.

#### Roadblocks for India in Getting a Permanent Seat at UNSC

- Resistance from China:** China has been blocking India's push for a permanent seat at the Council. China believes that granting India a permanent seat at the UNSC will lead to Indian interests being of paramount importance in the geopolitics of the subcontinent, a sentiment echoed by its ally, Pakistan.
- Complex Decision-Making Process:** Any decision regarding UNSC reform requires the support of a two-thirds majority in the UN General Assembly, including the agreement of all five current permanent members.
- In addition to these, **India is also seen as a proliferating nuclear power.** Analysts believe that this is the single most factor that is being a roadblock for India's UNSC dreams



## ECONOMICS

### CO-OPERATIVE BANKING IN INDIA

#### CONTEXT

The Governor of Reserve Bank of India has said that cooperative lenders will soon be able to do technical write-offs and execute compromise settlements with defaulting borrowers.

#### BACKGROUND

- It has been noted that the cooperative lending sector suffers from **lack of governance** practices and conflicts of interest in India.
- RBI has decided to widen the scope of the **framework for resolution** of stressed assets.
  - Under it, all the regulated entities including cooperative lenders will now be able to execute **compromise settlements** and **technical write-offs** to resolve non-performing assets.
    - ✓ Technical write-off is made when the bank **removes an account from the NPA category** even as it continues to make efforts to recover the amount involved.
    - ✓ The NPA meaning in banking is any asset that **fails to perform** and cannot generate revenue for the bank.

#### WHAT ARE COOPERATIVE BANKS?

- Definition:** A co-operative Bank is a financial entity which is formed by persons belonging to the **same local or professional community** or sharing a common interest.
  - Co-operative banks generally provide a wide range of banking and financial services to their members.
  - People who come together to jointly serve their common interest often form a cooperative society under the **Co-operative Societies Act**.
  - When a co-operative society engages itself in banking business it is called a Co-operative Bank.
  - The society has to obtain a **license** from the **Reserve Bank of India** before starting banking business.
- Regulation:** The Co-operative Banks are registered under the **States Cooperative Societies** or Multi-State Co-operative Societies Act (MSCS) of 2002 Act.
  - The Co-operative Banks also come under the regulatory ambit of the **Reserve Bank of India (RBI)** under two laws:
    - **Banking Regulations Act, 1949**, and
    - **Banking Laws (Co-operative Societies) Act, 1955**.
- History:** The problem of **rural credit** was the major reason behind the advent of the co-operative movement in India.
  - The passage of the **Co-operative Societies Act in 1904** aimed to institutionalize agricultural credit. It enabled promotion of cooperatives in an organized form in India.
  - The next addition was the **Co-operative Societies Act, 1912**, focused on the need for **regulation** of such societies.
    - ✓ The objective of this Act was also to establish cooperative credit societies to **encourage thrift, self-help** and cooperation among agriculturists, artisans and persons of limited means.
  - This led to the establishment of appropriate bodies to oversee their functioning.

#### FEATURES OF COOPERATIVE BANKS

- Mutual Help:** The co-operative structure is designed on the principles of cooperation, mutual help, democratic decision making and open membership.
- Democratic Control:** It follows the principle of '**one shareholder, one vote**' and '**no profit, no loss**'.
- Customer Owned Entities:** Co-operative bank members are both customer and owner of the bank.

#### GOALS OF COOPERATIVE BANKING

- It aims to provide **rural financing** and micro-financing.

- It aims to remove the **dominance of money lenders** and middlemen.
- It shall provide **credit services** to agriculturalists and weaker sections of the society at **comparatively lower rates**.
- It aims to provide **financial support** and personal financial services to small scale industries, housing financial assistance, etc.

### **STRUCTURE OF COOPERATIVE BANKS**

- Credit co-operatives (or co-operative banks) are broadly classified into **urban or rural** co-operative banks based on their region of operation.
- Rural cooperative credit institutions could either be -
- Short-term:** State Co-operative Banks, District Central Co-operative Banks, Primary Agricultural Credit Societies.
  - **State Co-operative Banks:** These are the **apex (highest level)** cooperative banks in all the states of the country.
    - ✓ They mobilise funds and help in its proper **channelization** among various sectors.
    - ✓ The money reaches the individual borrowers from the state co-operative banks through the central co-operative banks and the primary credit societies.
  - **Central Co-operative Banks:** These banks operate at the **district level** having some of the primary credit societies belonging to the same district as their members.
    - ✓ These banks provide loans to their members (i.e., primary credit societies) and function as a **link** between the primary credit societies and state co-operative banks.
  - **Primary Credit Societies:** These are formed at the **village or town level** with borrower and non-borrower members residing in one locality.
    - ✓ The operations of each society are restricted to a **small area** so that the members know each other and are able to watch over the activities of all members to prevent frauds.
- Long-term:** State Cooperative Agriculture and Rural Development Banks (SCARDBs) or Primary Cooperative Agriculture and Rural Development Banks (PCARDBs)) in nature.
- Urban Co-operative Banks (UCBs)** are either **scheduled or non-scheduled**.
  - Scheduled and non-scheduled UCBs are again of two kinds - multi-state and those operating in single state.

### **IMPORTANCE OF COOPERATIVE BANKS**

- Easy Formation:** Registration and legal requirements are comparatively easy compared to traditional banks.
  - A group of 10 adults can form a cooperative bank and needs a base capital of 25 lakhs only as compared to 100 crores of Small Finance Banks.
- Alternative Credit Source:** These banks act as an effective alternative to traditional money lending systems.
- Cheap Source of Credit:** They provide a **high-interest rate to members** for their investments and low lending interest rate.
- Encouragement of Savings:** These banks have encouraged the habit of **thrift** among the masses (masses tend to invest and save their money).
- Advancement in Farming:** Cooperative societies provide **credit to agriculturalists** at cheaper rates to buy inputs, warehousing facilities, marketing assistance, etc.

### **CHALLENGES IN COOPERATIVE BANKING**

- Less Capital Base:** Cooperative banks can begin with a capital base of 25 lakhs, making it difficult to account for a portion of that capital as working capital and raising working capital.
- Political Interference:** Politicians use cooperative banks to boost their **vote bank** and usually get their representatives elected to the board of directors in order to gain unfair advantages (such as loan approval that is later written off).
  - These institutions become instruments in the hands of politicians to **dispense privilege or to park black money**.
- Weak Supervision of RBI:** The supervision of RBI is not as strict on cooperative banks as compared to commercial banks.
  - RBI inspects the books of these banks only **once a year** and as a result, the Punjab and Maharashtra Cooperative Banks (PMC Bank) have recently virtually collapsed.
  - The PMC Bank had violated RBI norms by lending heavily (73% of its assets) to one client-real-estate firm (HDIL), which itself is facing bankruptcy proceedings.

- Dual Control:** Cooperative banks are controlled by RBI and by their respective State government which poses a problem in **coordination and management**.
- Lack of Management and Technological Advancement:** Cooperative banks are often reluctant to adopt new technologies (like computerised data management) and professional management in the banks is often missing due to **lack of training of personnel** because of lack of funds.
- Dependence of Finance:** These banks depend heavily on RBI, NABARD and the government for refinancing facilities.
- Overdue Loans:** Overdue loans of cooperative banks are increasing yearly, **restricting the recycling of funds** which in turn affects the lending and borrowing capacity of the bank.
- Unfair Audit:** Audits are done entirely by department officials that are **neither regular nor comprehensive**. Delays in the conduct of audits and submission of reports are widespread.
- Less Coverage:** The size of cooperative societies has been very **small** and most of these societies are **confined to a few members** and their operations extended to only one or two villages.
  - Consequently, their **resources remain limited**, which makes it impossible for them to expand their means and extend their area of operations.
- Money Laundering and Corruption:** Cooperatives have also become avenues for regulatory arbitrage, circumventing lending and anti-money laundering regulations.
  - Investigations into the case of Punjab and Maharashtra Cooperative (PMC) Bank scam have shown gross **financial mismanagement** and a complete breakdown of internal control mechanisms.
- Crisis of the non-performing assets (NPAs):** Many of the cooperative banks have higher Non Performing Assets (NPA) than commercial banks.
  - This is because unlike public and private sector banks, cooperative institutions have the **leeway to extend credit to local consumers**, often on the basis of trust or compassion or due to pressure from local social or political groups.
  - NPA of Co-operative banks in Kerala crossed 38% whereas commercial banks reported NPAs of just 3.99% of their total advances as of December 2021.

#### **WHAT IS RBI'S RECENT MOVE?**

- To facilitate the digital lending ecosystem and enhance **credit penetration** in the economy, the RBI has decided to introduce **default loss guarantee arrangements** in digital lending.
- RBI has decided to **rationalise and simplify** the licensing framework for authorized persons under **Foreign Exchange Management Act (FEMA), 1999**.
  - It aims to improve the efficiency in the delivery of foreign exchange facilities to various segments of users including common persons, tourists and businesses,
- To further encourage greater participation, RBI has proposed to **streamline the process flow of transactions** and membership criteria for operating units.
- For providing greater flexibility for managing liquidity, **scheduled commercial banks** excluding Small Finance Banks can **set their own limits** for borrowing in Call and Notice Money Markets within the prescribed prudential limits for inter-bank liabilities.

#### **WAY FORWARD**

- The establishment of a dedicated **Ministry of Cooperation** shall be a crucial moment for the history of the cooperative movement.
- Digitisation** in governance, banking and businesses can ensure a transparent, accountable, and efficient system.
- Democratic spirit** is the core value of cooperatives which is needed to reduce the political influence and enhance inclusivity of the cooperatives.
- There is a need to **undertake institutional reforms** like transparency in recruitment and implementation of a robust accounting system, which are necessary for their growth.
- There is a need to bring in **new people, young people** and professionals in managerial roles, who will take cooperative forward.

## CRITICAL ANALYSIS OF MSP

### CONTEXT

The Central Government has announced the Minimum Support Price (MSP) for kharif crops for 2023-24 season, hiking prices between 5-10% from last season.

### BACKGROUND

- The Union Government has announced the MSP for **17 'kharif' crops**, like paddy, pulses (moong, arhar, urad), oilseeds like groundnut and soyabean and cotton, for the marketing season of 2023-24 to ensure remunerative prices for the growers for their produce and to encourage crop diversification.
- However, the **farmers are unhappy** with the 'meagre' hike in the MSP.

### WHAT IS MINIMUM SUPPORT PRICE (MSP)?

- **Definition:** MSP for a crop is the price at which the **government is supposed to procure/buy** that crop from farmers if the market price falls below it.
- **Current MSP Crops:** During each cropping season, the government announces minimum support prices for **23 crops**. Crops covered are:
  - 7 types of cereals (paddy, wheat, maize, bajra, jowar, ragi and barley),
  - 5 types of pulses (chana, arhar/tur, urad, moong and masur),
  - 7 oilseeds (rapeseed-mustard, groundnut, soyabean, sunflower, sesamum, safflower, nigerseed),
  - 4 commercial crops (cotton, sugarcane, copra, raw jute)
- **Authority:** The MSPs are announced by the Union government but the government largely bases its decision on the recommendations of the **Commission for Agricultural Costs and Prices (CACP)**.
- **Significance:**
  - MSPs provide **minimum remuneration**.
    - ✓ MSPs provide a floor for market prices, and ensure that farmers receive a certain "minimum" remuneration so that their **costs of cultivation** (and some profit) can be **recovered**.
  - MSPs provide a **safety net for farmers**.
    - ✓ As a farmer, one is worried each season because one does not know what one's harvest will fetch.
    - ✓ Given the acute **lack of warehousing and cold storage** in India, a farmer has little bargaining power in the market.
    - ✓ If the market prices are below the farmer's cost of production, they and their families can be ruined.
  - MSPs protect the **consumers against inflation**:
    - ✓ If one particular crop, say cotton, led to the ruin of many farmers, then farmers will avoid growing cotton next season.
    - ✓ This, in turn, will **reduce supply and push up prices**.
    - ✓ Higher prices will then show up across the different products for consumers.
  - Increase **production pattern**:
    - ✓ Using MSPs, the government also **incentivises the production of certain crops**, thus ensuring that India does not run out of staple food grains.
  - **Maintain balance**:
    - ✓ The MSP attempts to **strike a balance** between the interest of growers and consumers.
    - ✓ MSP aims to provide a **fair return to farmers** while keeping in view the **interest of consumers** in a way that prices of food and other agricultural commodities are kept at a reasonable level.

**Types of Crops**

On the basis of seasons, crops have been classified as:

- Kharif**: Rice, barley, cotton, groundnut, sugarbeet, 'urad', 'moong', 'lobia', 'millets', 'til', 'andi', 'jute', 'vemp', 'arhar', 'sugarcane', soyabean and lady finger.
- Rabi**: Wheat, millets grains mustard peas 'barseem', 'masoor', potatoes, tobacco, 'lahi'and 'jai'.
- Zaid**: Pumpkin, water-melon, red-melon, gourd, 'torai', cucumber, green chillis, tomatoes and sunflower.

**WHAT IS THE GOVERNMENT'S STAND ON MSP HIKE?**

- The government announced that MSPs for the Kharif season will go up by an **average of 7%**; the actual range varies between 5% to 10.5% depending on the crop.
- According to the government, the increase in MSP is in line with the Union Budget 2018-19 announcement of **fixing the MSP at a level of at least 1.5 times** the all-India weighted average cost of production.
- The farmers will benefit from the increase in the MSP at a time when the **retail inflation is declining**.
- The expected margin to farmers over their cost of production are estimated to be **highest in case of bajra (82%)** followed by tur (58%), soybean (52%) and urad (51%).
  - For rest of the crops, **the margin** to farmers over their cost of production is estimated to be **at least 50%**.
- This is the **highest MSP increase in the last 5 years** and the second highest in the last decade.

**WHY ARE FARMERS UNHAPPY WITH MSP HIKE?**

- Faulty Estimates by the Government**: According to the farmers, the cost of production estimates given by the government are extremely faulty as the increase in **irrigation costs and fertilizer** have not been considered.
- Insufficient to Cover Losses**: Latest MSP hikes will prove to be insufficient to cover huge losses.
  - **Rising input costs** coupled with unfair MSP will push large sections of farmers, especially the small, marginal, and middle-level farmers, as well as tenants into **indebtedness**.
- Inadequate Cost Consideration**: According to the farmers, the cost of production used by the CACP to calculate the MSP (**A2+FL costs**) does not include all the expenses incurred by the farmers such as **rent of land, interest on loans**.
  - The farmers are demanding MSP to be fixed as per the recommendation of the **Swaminathan Commission**.
  - This commission had advised fixing the MSP for farm produce based on a comprehensive measure of **cultivation costs** that includes the imputed **cost of capital and the rent on the land** (called 'C2') to give **farmers 50% returns**.
- Ineffective Implementation of MSP**: The **Shanta Kumar Committee**, in its report in 2015, stated that only **6% of the MSP could be received** by the farmers, which directly means that 94% of the farmers in the country are deprived from the benefit of the MSP.
- Procurement at Less Price**: It has also been noted that only three to four crops **mainly wheat, paddy and cotton and at times some pulses** were being procured at MSP by the Government while the **remaining crops** were being procured at much **below the MSP**.
- Limited Procurement**: According to a CRISIL research report, only **few Kharif crops benefit** from government procurement.
  - While around 45% of the paddy produced is procured at MSP, it is about 25% in case of cotton and only 1-3% in case of pulses.
  - Also, the procurement is **concentrated in only a few states** in Punjab, Haryana, western Uttar Pradesh, Chhattisgarh, and Telangana for paddy, in Telangana and Maharashtra for cotton, and in Maharashtra and Karnataka for pulses.
- Farmers Demand MSP as Legal Right**: Non-implementation of MSP and below-MSP-procurement creates **hurdles in 'crop diversification'** which is vital for Indian agriculture and in saving the environment. This necessitates giving 'legal status' to MSP as it is the floor or reference price.
  - This move would certainly bind the **private players to procure** those crops at least at the MSP.
  - While facilitating crop-diversification, it would **raise farmers' income**.
- Food Inflation**: The prices of cereals went up by almost **14% in April 2023**. From this perspective, the MSP hike is modest.

## WHAT WILL BE IMPACT OF THIS HIKE?

- Foodgrain Stock:** For 2022-23, total foodgrain production in India is estimated at record **330.5 million tonnes** which is higher by 14.9 million tonnes as compared to the previous year 2021-22. This is the highest increase in the last 5 years.
- On Food Inflation:** It is unlikely that this hike per se would spike inflation. However, it is noteworthy that food inflation may still spike if the normal monsoon is affected by **El Nino**.
- On Govt Finances:** Higher MSPs and more procurement as well as the storage and disbursal of subsidised foodgrains are all expenditures that weigh down government's financial health.
- On rural Consumption:** The 7% MSP increase might **just be enough to cover the increase in cost of production**.

## WAY FORWARD

- Farming over the years for small and marginal farmers has **not turned out to be remunerative**.
- To alleviate farmers' financial distress, the government should set up an **effective system** to provide **assured purchase and returns** to farmers for all major crops at the MSP, as is done in the case of wheat and rice or extend subsidies on input costs.
- Promoting crop diversification** by encouraging farmers to cultivate high-value and **climate-resilient crops** can reduce their dependence on MSP for traditional crops.
- Facilitating partnerships between the government, private sector, and farmer organisations** can create market linkages, enhance value addition, and improve farmers' bargaining power.
- Developing mobile applications and platforms** that provide real-time market information, weather updates, and best practices to farmers, enabling them to make informed decisions about crop selection and pricing.

## CRITICAL MINERALS

### CONTEXT

An expert committee set up by the Centre has identified 30 minerals as critical to India, which are largely used in the manufacturing of batteries.

### MORE ON THE NEWS

- The panel has identified **several critical minerals** including **Antimony, Beryllium, Cadmium, Cobalt, Copper, Indium, Nickel, Platinum, Palladium, Silicon, and Strontium**. These minerals are essential for various sectors such as energy, defence, agriculture, pharmaceuticals, and telecommunications.
- The panel recommends the establishment of a **national institute** or a **Center of Excellence for Critical Minerals (CECM)**, similar to Australia's CSIRO.
  - The CECM would focus on discovering new deposits of critical minerals using geological knowledge, data analytics, modeling, and machine learning capabilities.
  - It would also support the development of research and analytical infrastructure to meet India's demand for critical minerals.
  - It would work in coordination with the **Ministry of Commerce and Industries** and the **Ministry of External Affairs** to monitor export management of critical minerals.
  - This step ensures that India optimizes its use of critical minerals while maintaining an appropriate **balance between domestic demand and exports**.
  - India aims to **reduce its dependence on imports for critical minerals**, as a significant portion of the supply currently comes from China. By decreasing import reliance, India seeks to secure a **stable and sustainable supply of these minerals**.
- The Ministry of Mines will also revisit and update the list of critical minerals periodically.

### WHAT ARE CRITICAL MINERALS?

- Critical minerals are mineral resources, **both primary and processed**, that are essential inputs in modern technologies, economies, and national security.
- They are characterized by the risk of supply chain disruption due to non-availability and price volatility.

- These minerals play a crucial role in various industries and sectors and have limited substitutes, making them of strategic importance.

**Elements included:**

- It includes metallic and non-metallic element such as **Antimony, Beryllium, Cobalt, Germanium, Graphite, Indium, Lithium, Niobium, 17 Rare earths** (heavy and light), Rhenium, Tantalum, Silicon, Strontium, Vanadium, Zirconium etc.

**Significance:**

- They are critical as their associated impact on the economy is relatively higher than the other raw materials and they have limited substitutes.

1. Antimony	15. Nickel	iv. Neodymium	20. Rhenium
2. Beryllium	16. PGE	v. Promethium	21. Selenium
3. Bismuth	i. Platinum	vi. Samarium	22. Silicon
4. Cadmium	ii. Palladium	vii. Europium	23. Strontium
5. Cobalt	iii. Rhodium	viii. Gadolinium	24. Tantalum
6. Copper	iv. Ruthenium	ix. Terbium	25. Tellurium
7. Gallium	v. Iridium	x. Dysprosium	26. Tin
8. Germanium	vi. Osmium	xi. Holmium	27. Titanium
9. Graphite	17. Phosphorous	xii. Erbium	28. Tungsten
10. Hafnium	18. Potash	xiii. Thulium	29. Vanadium
11. Indium	19. REE	xiv. Ytterbium	30. Zirconium
12. Lithium	i. Lanthanum	xv. Lutetium	
13. Molybdenum	ii. Cerium	xvi. Scandium	
14. Niobium	iii. Praseodymium	xvii. Yttrium	

### CHALLENGES THAT INDIA FACES WRT CRITICAL MINERALS

- Reliance on China:** China is a dominant player in the global supply chains of critical minerals. India heavily relies on imports of these minerals from China, making its supply chain vulnerable to disruptions, such as those caused by the Covid-19 pandemic and associated lockdowns.
- Geopolitical Conflicts:** The ongoing war between Russia and Ukraine has implications for critical mineral supply chains. Russia is a significant producer of minerals like nickel, palladium, titanium, and rare earth elements, while Ukraine has reserves of minerals like lithium, cobalt, graphite, and rare earth elements. Geopolitical conflicts in these regions can impact the availability and stability of critical mineral supplies.
- Strategic Partnerships:** The strategic partnership between China and Russia in critical mineral supply chains can affect the balance of power and have implications for other countries, including India. This can potentially impact the availability and accessibility of critical minerals for India's domestic needs.
- Growing Demand for Renewable Energy and Electric Vehicles:** The transition to renewable energy technologies and electric vehicles requires increasing quantities of critical minerals like copper, lithium, cobalt, rare earth elements, and others. India may face challenges in meeting its domestic demand for these minerals, as it either lacks sufficient reserves or its requirements exceed the available supply.
- Global Initiatives:** Developed countries have formed partnerships and alliances, such as the Minerals Security Partnership and G7's Sustainable Critical Minerals Alliance, to address critical mineral supply chain challenges. However, India not finding a place in the US-led Minerals Security Partnership (MSP) is a major concern which may pose challenges for ensuring a resilient supply chain.

#### About Minerals Security Partnership (MSP)

- It is an ambitious US-led partnership of 11 countries to secure and strengthen supply chains of critical minerals such as Cobalt, Nickel, Lithium, and other rare earth minerals.
- Members** include the US, Australia, Canada, Finland, France, Germany, Japan, Republic of Korea, Sweden, United Kingdom, and the European Commission.
- The alliance is aimed at catalysing investment from governments and the private sector to ensure that countries realise the full economic development benefit of their geological endowments.
- It comes in the backdrop of recorded demand for critical minerals and dominance of China in the supply chain of these minerals, particularly the processing stage of production.
  - The Democratic Republic of the Congo (DRC) and People's Republic of China (China) were responsible for approximately 70% and 60% of global production of cobalt and rare earth elements respectively in 2019.

### EXCLUSION FROM MSP AND INDIA'S CONCERN

The exclusion of India from the Minerals Security Partnership (MSP) is a cause for concern due to the following reasons:

- Self-reliance and Domestic Manufacturing:**
  - India's goal of achieving self-reliance (AtmaNirbhar Bharat) in multiple sectors, such as semiconductors, batteries, and advanced technologies, requires a robust domestic manufacturing capacity.

- Being excluded from MSP can hinder access to critical minerals needed for domestic production, potentially impeding India's progress towards self-reliance.

**Energy Efficiency and Transition to Low-Emission Technologies:**

- Critical minerals play a vital role in promoting energy efficiency through advanced electricity networks, energy-efficient lighting, and battery storage systems.
- Additionally, for the faster adoption of hybrid and electric vehicles and the decarbonization of the energy system through clean energy technologies, India requires significant quantities of critical minerals. Exclusion from MSP may limit access to these minerals, hindering the transition to low-emission technologies.

**Digital Economy Transition:**

- Critical minerals are essential for India's digital economy transition.
- Semiconductors, batteries, and other advanced technologies crucial for this transition heavily rely on these minerals.
- Exclusion from MSP may result in limited availability or increased prices of critical minerals, posing challenges to India's digital economy plans.

**Global Collaboration and Partnerships:**

- MSP serves as a platform for global collaboration and strategic partnerships in addressing critical mineral supply chain challenges.
- Exclusion from MSP means India may miss out on important opportunities to engage with other countries, share knowledge, and collectively work towards ensuring a resilient and sustainable supply of critical minerals.

### **WAY FORWARD**

- Comprehensive strategy:** India requires a critical minerals strategy comprising measures aimed at making the country Aatmanirbhar (self-reliant) in critical minerals needed for sustainable economic growth and green technologies for climate action, national defence, and affirmative action for protecting the interests of the affected communities and regions.
- Partnerships:** India must actively engage in bilateral and plurilateral arrangements for building assured and resilient critical mineral supply chains.
- Regular Updation of List:** The assessment of critical minerals for India needs to be updated every three years to keep pace with changing domestic and global scenarios.

## **INDIA'S LITHIUM INDUSTRY**

### **CONTEXT**

India has discovered 5.9 million tonnes of lithium-inferred resources in the Salal-Haimana area of Reasi district of Jammu and Kashmir.

### **BACKGROUND: OWNERSHIP OF MINERALS IN INDIA**

- In July 2013, a three-judge bench of the **Supreme Court of India** ruled that the **owner of the land** has rights to everything beneath, "**down to the centre of the earth**".
  - Yet, large areas of land, including forests which make up more than **22% of India's landmass** hills, mountains, and revenue wasteland are **publicly owned**.
- The Supreme Court also recalled that the Union government could always **ban private actors from mining sensitive minerals**, as is already the case with **uranium** under the Atomic Energy Act 1962.
- It must be noted that **Lithium** is a "**Prescribed substance**" under the Atomic Energy Act, 1962 which permits Atomic Minerals Directorate for Exploration and Research (AMD) for exploration of Lithium in various geological domains of the country.

### **WHAT IS LITHIUM?**

- Lithium is a **soft, shiny grey** metal found in the earth's crust. It is **lightest** of the solid elements, highly reactive and **alkaline** metal.
  - Due to its utility in diverse applications, it also referred to as '**White Gold**'.

- Uses:** Lithium-ion batteries are used in **wind turbines, solar panels**, and electric vehicles, all of which are crucial in a **green economy**.
- Lithium is used in **batteries** to power smartphones, laptops and other gadgets.
  - Lithium is an essential component in the rechargeable batteries that run **electric vehicles (EVs)** and in storage batteries for energy from **renewable** sources.
  - Lithium is a key element for new technologies and finds its use in **ceramics, glass, telecommunication and aerospace industries**.
  - Lithium is used in Lithium-ion batteries, lubricating grease, high energy additive to **rocket propellants**, optical modulators for mobile phones and as convertor to tritium used as a raw material for **thermonuclear reactions** i.e. fusion.
  - It is also used to make **alloys** with **aluminium and magnesium**, improving their strength and making them lighter e.g., Magnesium-lithium alloy for armour plating, Aluminium-lithium alloys – in aircraft, bicycle frames and high-speed trains.

### **GLOBAL LITHIUM RESERVES**

- South America** is a particularly rich supply of the metal, the three nations of **Bolivia, Chile, and Argentina** are collectively referred to as the '**Lithium Triangle**'.
- China** currently controls 77% of the global lithium-ion battery manufacturing capacity and is home to **six** of the world's 10 manufacturing companies.

### **MANAGEMENT OF LITHIUM RESERVES IN OTHER COUNTRIES**

- Chile:** The government has designated lithium as a **strategic resource** and its development has been made the exclusive **prerogative of the state**.
- In April 2023, Chile's president announced a new "**National Lithium Strategy**" that calls for **public-private partnerships** for future lithium projects which will allow the state to **regulate**:
    - ✓ The environmental impact of **lithium-mining**
    - ✓ Distribute the **revenue** from lithium production more fairly among **local communities**
    - ✓ Promote **domestic research** into lithium-based **green technologies**.
- Bolivia:** Its new constitution gave the **state the control** and direction over the **exploration, exploitation, industrialisation, transport, and commercialisation** of natural resources.
- The administration **nationalised lithium** and adopted a **hard line against private and foreign participation** which is believed to be one of the factors for the country's failure to produce any lithium at a commercial scale.
  - However, Bolivia's current president seeks to change this scenario by joining hands with other **Latin American countries** to design a '**lithium policy**' that would benefit all their economies.
- Mexico: Lithium was nationalized** in Mexico in 2023.
- The countries in **Latin and South America** are thinking ways and means to pursue a **multi-pronged strategy**.
- While the national governments of these countries exercise a **significant degree of control**, the nature of private sector participation varies between these countries.
  - The actions of these governments are also a response to the **mobilisation of Indigenous Peoples** in the region who want to hold corporations as well as governments to account.

### **INDIA'S LITHIUM RESERVES**

- The Union Ministry of Mines has announced that lithium reserves had been found in Jammu and Kashmir, a first in the country.
- The Geological Survey of India established 5.9 million tonnes of inferred lithium resources in the **Salal-Haimana area of Reasi District** in Jammu and Kashmir.
- The term '**inferred**' refers to the '**preliminary exploration stage**'.
- Preliminary surveys on surface and limited subsurface by Atomic Minerals Directorate for Exploration and Research (AMD) have shown presence of lithium resources of 1,600 tonnes in the pegmatites of **Marlagalla-Allapatna area**, Mandya district in Karnataka.

## WHY IS LITHIUM IMPORTANT FOR INDIA?

- India currently **imports** all of its Lithium from **Australia and Argentina** and 70% of its Li-ion cell requirement from China and Hong Kong.
  - In 2021-22, India's lithium imports were \$22.15 million. Hong Kong, China and the US were the top three sources.
  - The finding of lithium reserves in India will **reduce dependence on imports**.
- If this discovered Lithium reserve can be extracted, these deposits will give a big push towards the implementation of **electric vehicle plans** in India and lead India in a very strong position via becoming self-reliant in developing technology around it.
  - India's electric-vehicle (EV) market was valued at \$383.5 million in 2021, and is expected to expand to **\$152.21 billion in 2030**.
- The lithium reserves in J&K could boost the **domestic battery-manufacturing industry**.
- It will help India move towards **clean energy technologies** to meet its **Paris Agreement climate pledges**.
  - The transition to **electric vehicles** is imperative as vehicular pollution accounts for a significant proportion of **carbon emissions**.
- The J&K reserves will also help advance the Indian government's ambitious plan of **30% EV penetration in private cars**, 70% for commercial vehicles, and **80% for two and three-wheelers by 2030** for the automobile industry.
  - They will strengthen India's **National Mission on Transformative Mobility and Battery Storage** as well.
- The discovery of these reserves could also bring significant **economic benefits** to Jammu and Kashmir.
  - The development of a lithium mining industry in the region could create **jobs**, stimulate economic growth and **uplift the local economy**.
- The majority of the global reserve is located in regions with **severe water stress**, which makes this discovery even more important. India is a **potential replacement** because the mineral requires a large amount of **water for extraction** and the majority of the reserves are in nations with water shortages.
- The ongoing global transition to **low-carbon economies**, the rapid expansion of artificial intelligence (AI), and 5G networks will greatly reshape **global and regional geopolitics**.
  - The access to and control over **rare minerals**, such as **lithium** and cobalt, will play a crucial role in these changes.
- As per one estimate, **Chile** at 9.2 million tonnes led the world in lithium reserves, followed by **Australia** (6.2 million tonnes). So, India's recent find of 5.9 million tonnes of lithium could catapult it into the **top three countries in the world** with the highest lithium reserves.

## WHAT ARE THE CHALLENGES IN EXTRACTION OF LITHIUM?

- Extracting Li from hard rock mines entails **open-pit-mining** followed by **roasting the ore** using **fossil fuels**. This process consumes **170 cubic metres of water** and releases 15 tonnes of CO<sub>2</sub> for every tonne of Li extracted.
- Open-pit-mining, refining, and waste disposal from these processes substantially **degrades the environment**, including depletes and **contaminates waterways** and groundwater, diminishes **biodiversity**, and releases considerable **air pollution**.
- India **does not** have the **expertise** or any company in the lithium mining space. As there aren't any existing lithium mines in the country, **mining firms in India don't have any experience** in that.
- As per a study, there has **not been enough research** conducted over the past four decades to address the **sustainability** challenges due to **lithium mining** and processing, especially the issue of its **impacts on local communities**.
- Concerns have been raised over the impact that lithium extraction will have on the **ecology of the Himalayan region**.
  - As per a report, proven technologies for lithium extraction require vast amounts of land and can result in the **removal of native vegetation**.
  - Also, Himalaya is the **youngest mountain range** in the world and is much more unstable. Incidents of **land sinking** have been reported from a village in Doda district in Chenab valley, which extends to some parts of Reasi.
- Developing the **necessary infrastructure** for extraction of lithium is a challenge for India, as it requires significant investment in **time, money, and resources**.
- Direct Lithium Extraction technology (**DLE**) requires **expensive materials** and sophisticated **equipment**, making it challenging to achieve cost-effectiveness.

- Much of India's mineral wealth is mined from regions with very high levels of poverty, environmental degradation, and lax regulation.

### **STEPS TAKEN BY THE GOVERNMENT TO EXPLORE LITHIUM RESERVES IN INDIA**

- The Atomic Energy Act, 1962 permits the Atomic Minerals Directorate (a constituent unit of Department of Atomic Energy) for **exploration of Lithium** in various geological domains of the country.
  - For the first time, the **National Mineral Exploration Policy** of 2016 recognised the need to explore these minerals.
- Every year, as per approved annual Field Season Programme (FSP), the **Geological Survey of India (GSI)**, an attached office of Ministry of Mines) takes up different stages of **mineral exploration** viz.
  - Reconnaissance surveys (G4),
  - Preliminary exploration (G3),
  - General exploration (G2).
- GSI follows the guidelines of **United Nations Framework Classification (UNFC)** and Mineral Evidence and Mineral Content Rules (MEMC-2015) for augmenting mineral resource for various mineral commodities including **lithium**.

### **WAY FORWARD**

- India should invest in **research and development** to develop and produce the necessary components and materials for the DLE technology system.
- India can follow **Chile's** footsteps that has designated lithium as a **strategic resource** and its development has been made the **exclusive prerogative of the state**.
- The **Confederation of Indian Industry (CII)** has urged the government to encourage **private mining** in the sector and diversify supply sources to **reduce India's dependence** on Chinese imports of rare earth minerals.
- Effective and careful management of this sector** should be paramount if India's rare minerals development is to meet its multiple goals of **social wellbeing, environmental safety, and national energy security**.

## **INSOLVENCY AND BANKRUPTCY CODE**

### **CONTEXT**

The Narendra Modi government has been criticised for the low debt recovery under the Insolvency and Bankruptcy Code (IBC).

### **BACKGROUND**

- The present Government is being censured for the low debt recovery under the Insolvency and Bankruptcy Code (IBC).
- It is being said that the total recovery of debt under IBC was **at only 17.6% of the admitted claims** by the end of FY 2023, resulting in a **loss of 82.4%** for financial creditors of their credits or loans.
- It has also been alleged that the **Adani Group** had **used the IBC to acquire stressed assets** and consolidate its position in power and ports.
  - Adani Ports and Special Economic Zone Ltd (APSEZ) completed the acquisition of **Karaikal Port Private Limited (KPPL)** and as per the resolution plan, Adani Ports paid **₹1,583 crore** for the Karaikal port while the **admitted claims for KPPL were ₹2,997 crore**.
- In case of **Essar Power**, the approved resolution plan provides for **payment of ₹2,500 crore** as against the **admitted claim of financial and operational creditors** to the tune of **₹12,000 crore**.

### **WHAT IS INSOLVENCY AND BANKRUPTCY CODE (IBC)?**

- Need:** In 2016, India's **Non-Performing Assets** and debt defaults were piling up, and older loan recovery mechanisms such as the Securitisation and Reconstruction of Financial Assets and Enforcement of Security Interest Act (**SARFAESI**), Lok Adalats, and Debt Recovery Tribunals were **performing badly**.
- Enactment:** Consequently, the **IBC** was enacted in 2016 and **replaced all the existing laws** with a uniform procedure to resolve insolvency and bankruptcy disputes.
  - It provides for **insolvency resolution** of corporate persons, partnership firms and individuals and aligns Indian law at par with the best practices being followed internationally.

- The IBC sets out three classes of persons who can trigger the Corporate Insolvency Resolution Process (**CIRP**) – **financial creditors, operational creditors and corporate debtors**.
- New Framework:** The Code established a new institutional framework to facilitate a **formal and time bound insolvency resolution** process and liquidation. The framework includes:
  - **Insolvency Professionals:** They administer the resolution process, manage the assets of the debtor, and provide information for creditors to assist them in decision making.
  - **Insolvency Professional Agencies:** The insolvency professionals are registered with insolvency professional agencies.
    - ✓ The agencies conduct examinations to certify the insolvency professionals and enforce a code of conduct for their performance.
  - **Information Utilities:** They keep a record of debts given by creditors along with details of repayments/ dishonour of debt.
  - **Adjudicating Authorities:** They grant approval to initiate the resolution process, appoint the insolvency professional, and approve the final decision of creditors.
    - ✓ **Adjudicating authority** for companies is **National Company Law Tribunal(NCLT)** while individuals have to approach debt recovery tribunal.
  - **Insolvency and Bankruptcy Board:** The Board regulates insolvency professionals, insolvency professional agencies and information utilities set up under the Code.
- Outcomes:** When insolvency is triggered under the IBC, there can be two outcomes:
  - **Resolution:** All attempts are made to resolve the insolvency by either coming up with a restructuring or new ownership plan.
  - **Liquidation:** If resolution attempts fail, the company's assets are liquidated.
- Time Period:** The companies have to complete the entire insolvency exercise within **180 days** under the IBC.

### **HOW HAS IBC PERFORMED?**

- IBC seeks to **tackle** the non-performing asset (**NPA**) problem in two ways:
  - Firstly, **behavioural change** on part of the debtors to ensure sound business decision-making and prevent business failures is encouraged.
  - Secondly, it envisages a process through which financially ailing corporate entities are put through a **rehabilitation** process and brought back up on their feet.
- IBC has been successful in **combating** the growing **threat of NPAs**. As per reports, a total of ₹2.5-lakh crore has been **introduced back** into the banking system from 2016 upon resolution of insolvencies under IBC.
- Under the IBC, the Indian insolvency regime shifted from 'debtor-in-possession' to '**creditor-in-control**'.
  - The creditor-in-control model hands control of the debtor to its creditors and relies upon the **managerial skills** of a newly appointed management to take over an ailing company and **ensure business continuance**.
  - This way, IBC ensures **revival** and continuation of the corporate debtor.
- The IBC has contributed to the development of **disciplined borrowing** amongst companies.
  - Promoters are fearful of losing control of their enterprises in the event of a default.
  - **18,629 applications** seeking more than ₹5,29,000 crore are noted to have been **resolved** even prior to being admitted.
- Post the implementation of IBC, as per the World Bank's report, **India's rank** in resolving insolvency went from 136 in 2017 to **52 in 2020**.
- The most important aspect under the IBC is the **timeliness** of insolvency resolution. IBC has reduced the **average time** to settle a bankruptcy case **from 5.8 years to 1.6 years**.
- The IBC has initiated a **cultural shift** in the dynamics between lender and borrower, promoter and creditor.
  - Before enactment of the IBC, the **recovery mechanisms** available to lenders were through Lok Adalat, Debt Recovery Tribunal and SARFAESI Act.
  - While the earlier mechanisms resulted in a low average recovery of 23%, the recoveries have risen to **43% under the IBC regime**.

## WHAT ARE SHORTCOMINGS IN IBC?

- There is huge **pendency** of insolvency matters. Around **71%** of the cases are pending for **more than 180 days** which is a marked deviation from the intent of resolving insolvency.
- One of the reasons for the delays is that there are **few NCLT benches** and there is not adequate **manpower** to handle the cases.
  - In September 2021, the NCLTs were functioning **without a President** and were short of 34 members out of a total sanctioned strength of 62 members.
- There is **lack of digitisation** of the IBC ecosystem which has made the insolvency process stymied with long delays much beyond the statutory limits.
- Globally, a mechanism like the **IBC's Corporate Insolvency Resolution Process (CIRP)** has been a last-resort measure; i.e., once all other alternatives like **mediation, settlement and arbitration** have been exhausted. However in India, there are **no specific provisions for mediation** under the IBC.
- Longer delays result in **larger haircuts** as the **value of sick companies tends to diminish** at an increasing pace over time.
  - A haircut is the **debt foregone** by the lender as a share of the outstanding claim.
  - The Parliamentary Standing Committee on Finance pointed out in 2021, that in the five years of the IBC, **creditors** on an average had to bear an **80% haircut** in more than 70% of the cases.
- The IBC at present has **no standard instrument** to restructure firms involving **cross-border jurisdictions**.
  - As the world has become more financially interconnected, the need for a comprehensive provision for crossborder matters has become imperative.
- The Code has been **more successful in liquidation** than restructuring and resolution. Since 2018, a **majority** of the cases ended in liquidation in most of the quarters while approved cases ranged between 15% and 25%.

## PROPOSED CHANGES IN IBC BY THE GOVERNMENT

- The Union Government has proposed a **slew of changes** to the insolvency law, including fast-tracking the process and expanding the scope of pre-packaged framework.
- The **pre-packaged insolvency resolution** process that was introduced for micro, small and medium enterprises now be **extended to other firms** as well.
- A **distinction** will be made between a particular **real estate project** and the **larger corporate entity** which will allow the corporate entity to continue on other projects, while the **stressed project** can be tackled separately.
- Creditors** will receive proceeds up to the **liquidation value** in line with the priority as prescribed under section 53 of the Code, and any **surplus** over such liquidation value will be **rateably distributed** between all creditors in the ratio of their unsatisfied claims.
- These changes aim to **reduce the time** for admitting cases and **streamline the process** by pushing for greater reliance on data with Information Utilities.

## WAY FORWARD

- There is a need to develop a **state-of-the-art electronic platform** that can handle several processes under the Code with minimum human interface.
- In order to address the delays, the **Parliamentary Standing Committee** suggested that the **NCLT** should **not take more than 30 days after filing**, to admit the insolvency application and transfer control of the company to a resolution process.
- To speed up resolution of bankruptcies, the **number of NCLT benches** and sanctioned strength of **judges** should be **increased**.
- The government needs to cater appropriate **budgetary allocations** for upskilling insolvency professionals, improvement of tribunal infrastructure and **digitisation** of the insolvency resolution process.
  - A Special Parliamentary Committee in its report opined that the NCLTs and the National Company Law Appellate Tribunal (NCLATs) should be digitised.
  - There should be provision for **virtual hearings** to deal with the pending cases swiftly.
- There needs to be **new yardsticks to measure haircuts**. Haircuts not be looked at as the difference between the creditor's claims and the actual amount realised but as the difference between what the company brings along when it enters IBC and the value realised.

- The volume of litigation should be reduced. The solution thus lies in promoting mediation for out-of-court proceedings, with legislative recognition for speedier dispute resolution.
  - Mediation as an alternative mechanism for this could prove to be a cost-effective option.
- To foster a cross-border insolvency framework, India can adopt the United Nations Commission on International Trade Law (UNCITRAL) with certain modifications to make it suitable to the Indian context.
- Another issue is to put in place features in IBC so that the process puts more emphasis on resolution rather than liquidation.

## MSME SECTOR IN INDIA

### CONTEXT

June 27 was celebrated as “Micro, Small, and Medium-sized Enterprises Day” to raise awareness of the tremendous contributions of MSMEs to the achievement of the UNSDGs.

### MORE ON THE NEWS

- MSME day was designated by the United Nations General Assembly in 2017.
- The theme of MSME Day 2023 in India is “Future-ready MSMEs for India@100.”
  - This theme highlights the focus on preparing micro, small, and medium enterprises (MSMEs) for the future and positioning them to contribute significantly to India’s growth and development as the country progresses towards its centenary year in 2047.
  - The significance of this theme lies in recognizing the crucial role played by MSMEs in the Indian economy.

### WHAT ARE MSMES?

MSME stands for Micro, Small, and Medium Enterprises. In accordance with the Micro, Small, and Medium Enterprises Development (MSMED) Act in 2006, the enterprises are classified into two divisions.

Manufacturing Enterprises and Enterprises rendering Services	Micro	Small	Medium
Investment in Plant and Machinery or Equipment	Not exceeding 1 crore	Not exceeding 10 crore	Not exceeding 50 crore
	Not exceeding 5 crore	Not exceeding 50 crore	Not exceeding 250 crore

1. Manufacturing enterprises – engaged in the manufacturing or production of goods in any industry.
2. Service enterprises – engaged in providing or rendering services

#### Stats IQ: The Indian MSME Sector

- It is estimated that there are 633.9 lakh MSMEs in India.
- The Micro sector includes 630.5 lakh enterprises, accounting for over 99% of the country’s total number of MSMEs.
- The Small sector includes 3.3 lakh enterprises (0.5% of total MSMEs), while the Medium sector includes 0.05 lakh enterprises (0.01% of total MSMEs).
- Around 324.9 lakh enterprises (52.3% of total MSMEs) are in rural areas, while 309 lakh enterprises (48.8%) are in urban areas.

### BENEFITS OF THE MSME SECTOR TO THE INDIAN ECONOMY

- MSME Sector’s Contribution to Indian Economy:** As per the Ministry of Statistics & Programme Implementation, the contribution of the MSME sector to the Gross Value Added (GVA) in the country’s GDP in FY 20 was 30%. The share has been around 30% over the past few years. The sector’s contribution to manufacturing in all India manufacturing gross value output in FY 20 stood at 36.9%, the same as that in FY 19.

- MSME Contribution to Export in India:** The MSME sector is among the country's major exporters. Specified MSME-related product exports accounted for 49.5% of India's total exports in FY 21, compared to 49.8% in FY 20. Textiles, garments, different types of shoes, rice and castor oil are among the major products exported by the Indian MSME sector.
- Employment Generation:** The MSME sector is one of the country's major employers. The sector has been instrumental in generating employment opportunities in rural and remote areas of the country. As per the data from the Udyam Portal of the Ministry of MSMEs, 93,94,957 people were employed by MSMEs registered on the portal in FY 22.
- Connecting Remote Areas to Rest of the Country:** By preparing key raw materials and finished goods with global demand, MSMEs in remote and backward areas help connect these areas with the rest of the country and the world. Several MSMEs operate in rural areas while providing ancillary goods to large multinational companies across the globe.
- Improving Standard of Living:** By creating employment opportunities and connecting backward areas, the MSME industry in India plays a key role in lifting people out of poverty and improving their standard of living. Thus, the sector helps reduce regional imbalances across the country and increase equality among citizens.

## CHALLENGES FACED BY MSMES IN INDIA

- Finance**
  - **Delayed payment:** Four years after MSME SAMADHAAN portal was set up to help enable faster payments and improved cash flows to India's MSMEs, the number of applications filed for relief on the portal are piling up closer to one lakh.
  - **Credit gap:** MSMEs still find access to formal credit a challenge. Roughly 40 percent of MSME lending is done through the informal sector (in 2018), where interest rates are at least twice as high as in the formal market. The reason for the enormous credit gap is two-fold:
    - ✓ **Lack of assets** among MSMEs such as land and building etc. to secure asset-based financing or secured loans.
    - ✓ **Credit risk assessment** challenges faced by financial institutions owing to lack of financial data and credit history among small businesses.
- Infrastructural bottlenecks:**
  - **Land:** Due to high cost of land, the circle rate of Industrial area is usually high making it unaffordable for the MSME entrepreneur.
  - **Power & water:** Delay in getting access to power and water connection. Lack of adequate power supply in few parts of the country.
  - **Logistics:** Lack of a cost effective and efficient logistics/supply chain infrastructure as well as lack of dedicated infrastructure i.e. ready to move-in, built-in factories with plug and play facilities.
  - **Poor infra for capacity building:** Lack of access to R&D Centres, Product and Prototype Development Centres, Testing Laboratories, etc.
  - **Poor marketing strategy:** MSMEs because of their size are unable to achieve economies of scale or hire a marketing specialist who can guide them to have robust marketing strategy. Also, they do not have adequate foot print on digital marketing platforms.
- Access to Technology:** Though India has a vast pool of technical talent with well-developed intellectual capability, the country still scores low in terms of developing, commercializing and adopting new and innovative technologies.
- Women specific issues:** The number of women-led MSMEs in India has jumped from 2.15 lakh to 1.23 crore in just a decade. However, they face a finance gap of \$158 billion and largely rely on informal sources. About 90 per cent of SMEs owned by women in the country still rely on informal ways of securing capital or loans. Besides, social attitude, and socioeconomic constraints also hold women back from becoming entrepreneurs.

## GOVERNMENT INITIATIVES

The celebration of MSME Day in India, known as "**Udyami Bharat-MSME Day**," signifies the government's commitment to creating a conducive business environment for MSMEs.

- It showcases the government's efforts to support MSME growth through initiatives like the **CHAMPIONS 2.0 Portal**, which provides a platform for grievance redressal and handholding support, and the **Geo-tagging of Cluster Projects and Technology Centers** through a mobile app.

- Additionally, the announcement and launch of the **MSME Idea Hackathon initiatives** underscore the government's focus on promoting entrepreneurship, encouraging innovation, and empowering women entrepreneurs in the MSME sector.
- RAMP Scheme:** The scheme was launched under the **Ministry of Micro, Small and Medium Enterprises (MoMSME)** for supporting various COVID-19 Resilience and Recovery Interventions.
  - It was formulated and proposed for strengthening MSMEs in line with the recommendations made by U K Sinha Committee, KV Kamath Committee and Economic Advisory Council to the Prime Minister (PMEAC).
  - **Aim:**
    - ✓ Improving access to market and credit, strengthening institutions and governance at the Centre and State.
    - ✓ Improving Centre-State linkages and partnerships.
    - ✓ Addressing issues of delayed payments and greening of MSMEs.
  - **Outlay:** The total outlay for the scheme is Rs.6,062.45 crore out of which Rs.3750 crore would be a loan from the World Bank and the remaining Rs.2312.45 crore Million would be funded by the Government of India (GoI).
- Prime Minister Employment Generation Programme (PMEGP):** It aims at providing financial assistance to self-employment ventures, in order to generate employment opportunities for unemployed youth and traditional artisans.
- Credit Guarantee Trust Fund for Micro & Small Enterprises (CGT SME):** Collateral free loan up to a limit of ₹ 100 lakh is available for individual MSE on payment of guarantee fee to bank by the MSE.
- ZED Certification scheme:** It aims at enabling MSMEs towards manufacturing quality products by inculcating Zero Defect & Zero Effect practices, to safeguard the continuous improvement thereby supporting the Make in India initiative.
- Online Portal "Champions":** This covers many aspects of e governance including grievance redressal and handholding of MSMEs.
- Micro & Small Enterprises - Cluster Development Programme (MSE-CDP):** The scheme aims at the growth of MSEs by addressing advancements in sustainable & green manufacturing technology, market access, skills & quality, etc. Creating infrastructural facilities in existing Clusters of MSEs and Industrial Areas.

### WAY FORWARD

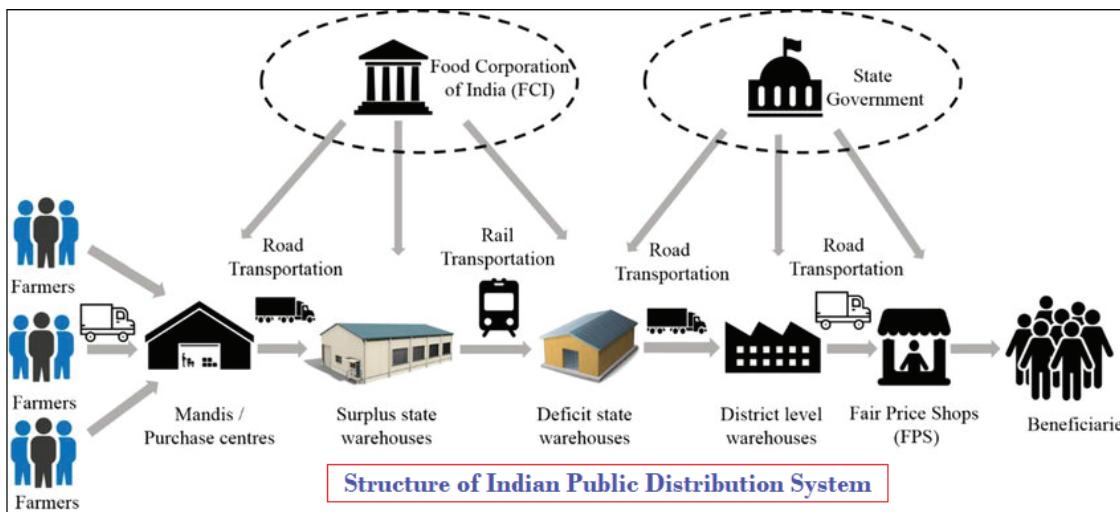
- Assessing the impact of Pandemic and other unforeseen incidents on informal sector MSMEs through a comprehensive survey to understand the gravity of the problems faced by these businesses.
- Reorienting the SAMADHAAN portal** to prevent delays in payment by providing standardized contract templates for various business deals and transactions, thereby acting as a proactive problem-solving mechanism.
- Encouraging cash flow-based lending by financial institutions**, allowing MSMEs to access working capital loans based on their cash flow and operational needs, even without significant assets to mortgage.
- Promoting cluster development** to overcome infrastructure bottlenecks, where MSMEs within a cluster collaborate and share resources for marketing, technology, and other business processes.
- Providing marketing support to MSMEs by facilitating their **entry into B2B and B2C e-commerce marketplaces**, utilizing technology tools like SMS, digital newsletters, and electronic direct mail to target specific customer segments. Additionally, assisting MSMEs in procuring affordable and complete ICT solutions.
- Strengthening government policies** based on recommendations such as extending the loan repayment period under the **Emergency Credit Line Guarantee Scheme (ECLG) for MSMEs**, setting up a Central Market Intelligence Centre to promote domestic manufacturing, easing certification processes through existing Technology Centers and global testing partnerships, and formulating separate policies for medium enterprises based on their unique needs.
- Resolving issues **related to women entrepreneurs by fostering women's education**, encouraging funding institutions to grant loans to women entrepreneurs, and promoting collaboration among government agencies, NGOs, and civil society.

## PUBLIC DISTRIBUTION SYSTEM

### CONTEXT

Lieutenant Governor of Delhi has raised the issue of Delhi government's "10-year delay" in framing rules for conducting a social audit into the functioning of the public distribution system (PDS).

## THE PUBLIC DISTRIBUTION SYSTEM (PDS) IN INDIA



- The Public distribution system (PDS) is a **food security system** established under the **Ministry of Consumer Affairs, Food, and Public Distribution**.
- It comprises a chain of approximately **5.35 lakh fair price shops** entrusted with the work of distributing basic food and non-food commodities to the **economically disadvantaged sections of society**.
- Objectives of the PDS:**
  - To provide essential consumer goods at **cheap and subsidized prices** to the consumers.
  - To insulate them from the **impact of rising prices** of these commodities.
  - To maintain the minimum **nutritional status of our population**.
  - To put an **indirect check on the open market** prices of various items.
- The responsibility of operating PDS** is jointly shared by the Central and the State Governments.
  - **The Central Government**, through Food Corporation of India (FCI), undertakes **procurement, storage, transportation and bulk allocation** of food grains to the State Governments.
  - **Operational responsibilities** like allocation within the State, identification of eligible families, issue of Ration Cards and supervision of the functioning of Fair Price Shops (FPSs) etc., lies with the **State Governments**.
- Under the PDS, presently the commodities namely **wheat, rice, sugar and kerosene** are being allocated to the States/UTs for distribution.
  - **Some States/UTs** also distribute additional **items of mass consumption** through the PDS outlets such as pulses, edible oils, iodized salt, spices, etc.
- However, the PDS is **supplemental in nature** and is not intended to make available the **entire requirement of any of the commodities** distributed under it to a household or a section of the society.

## HISTORY AND EVOLUTION OF THE PDS IN INDIA

- World War II and the Bengal Famine:** During World War II, India faced severe food shortages, and the Bengal Famine of 1943 resulted in the loss of millions of lives due to starvation. In response to this, the British government in India created a Department of Food to coordinate procurement of food grains from surplus areas and organize distribution in food deficit areas.
- Public Distribution System in the 1960s:** In 1960s, PDS with the focus on distributing food grains in urban scarcity areas emerged from the critical food shortages of the 1960s. The PDS played a crucial role in containing the rise in food grain prices and ensuring access to food for urban consumers.
- Revamped Public Distribution System (RPDS) in 1992:** It aimed to improve the reach of the PDS in far-flung, hilly, remote, and inaccessible areas where a substantial section of the poor population lived. The RPDS covered specific areas such as Drought Prone Areas, Integrated Tribal Development Projects, and Designated Hill Areas. It provided additional commodities and issued food grains to states at a subsidized price.

- Targeted Public Distribution System (TPDS) in 1997:** It was launched with a focus on providing food grains to the poor. The TPDS required states to identify the poor and deliver food grains in a transparent and accountable manner at the Fair Price Shop (FPS) level. The scheme aimed to benefit around 6 crore poor families.
- Antyodaya Anna Yojana (AYY) in 2000:** It was launched to further target the poorest of the poor under the TPDS. It aimed to reduce hunger among the most vulnerable segments of the below poverty line (BPL) population. AAY provided highly subsidized food grains to one crore BPL families at a fixed price.
- NFSA, 2103:** In 2013, National Food Security Act (NFSA) was enacted. It introduced individual entitlement of 5 kg per person per month food grains to around 82 crore of population.

### **ISSUES RELATED TO PDS IN INDIA**

- Identification of beneficiaries:** Targeting mechanisms like the Targeted Public Distribution System (TPDS) are prone to inclusion and exclusion errors. Many entitled beneficiaries do not receive food grains, while ineligible individuals receive undeserved benefits.
  - Studies have estimated that PDS suffers from a **high error rate of exclusion (61%)** and inclusion (25%).
- Leakage of food grains:** Significant leakages occur during transportation of food grains from ration shops to the open market. This includes transportation leakages and black marketing by Fair Price Shop (FPS) owners.
  - Evaluation of TPDS has shown a **36% leakage of PDS rice and wheat at the all-India level.**
- Issue with procurement:** Open-ended procurement, where all incoming grains are accepted regardless of buffer stock levels, can lead to shortages in the open market.
- Issues with storage:** There is a shortfall in the government's storage capacity, leading to incidents of rotting food grains.
- Disincentive for crop diversification:** The provision of minimum support price (MSP) encourages farmers to focus on rice and wheat cultivation at the expense of coarse grains, which are consumed by the poor. This discourages crop diversification and can have negative implications for agricultural sustainability.
- Environmental concerns:** The emphasis on achieving self-sufficiency and surplus in water-intensive food grains, such as rice and wheat, is environmentally unsustainable.
  - States like Punjab and Haryana, known for high procurement, face environmental stress with rapid groundwater depletion, deteriorating soil and water conditions due to excessive fertilizer use.
- Lack of transparency and accountability:** The PDS system faces challenges in ensuring transparency and accountability in its operations, including issues related to corruption, mismanagement, and lack of monitoring mechanisms.

### **RECENT REFORMS IN THE INDIAN PDS**

- Technology-based reforms of TPDS implemented by states:** Wadhwa Committee, appointed by the Supreme court, found that certain states had implemented computerization and other technology-based reforms to TPDS.
  - Tamil Nadu implements a **universal PDS**, such that every household is entitled to subsidized food grains.
  - Several states have also installed **ePOS (electronic point of sale) devices** at the fair price shops to track the sale of food grains to actual cardholders on a real time basis.
  - States like Chhattisgarh and Tamil Nadu use **GPS technology** to track movement of trucks carrying food grains from state depots to FPS. This checks leakages to a great extent.
  - States of Andhra Pradesh, Gujarat, Tamil Nadu, Madhya Pradesh etc. have undertaken the exercise of **digitization of ration cards**, which allows for online entry and verification of beneficiary data.
- Role of Aadhar:** Integrating Aadhar with TPDS will help in better identification of beneficiaries and address the problem of inclusion and exclusion errors.
  - According to a study by the Unique Identification Authority of India, using Aadhaar with TPDS would help **eliminate duplicate and ghost (fake) beneficiaries**, and make identification of beneficiaries more accurate.
- One Nation, One Ration Card:** As part of the Economic relief package amid **COVID 19 outbreak**, the Central government has announced the national rollout of a 'One Nation, One Ration Card' system.
  - Under this 'One Nation, One Ration Card' system, beneficiary will be able to buy subsidized food grains from any FPS **across the country using their existing/same ration card** that is Aadhaar linked.
  - **Benefits of ONORC:**

- ✓ Provide intra-state as well as **inter-state portability of ration cards** benefitting inter/intra state migrants to avail benefits.
- ✓ Inter-state portability at **IMPDS portal**
- ✓ **Annavitran Portal** has been implemented to display electronic transactions made through ePoS devices for distribution of subsidized food grains to beneficiaries. This portal also shows all India picture of Aadhaar authentication of beneficiaries besides allocated and distributed quantity of food grains up to district level.
- ✓ Helps to remove **bogus ration card holders** through an integrated online system.
- ✓ It can **control rising food subsidy bill** by preventing leakages etc.

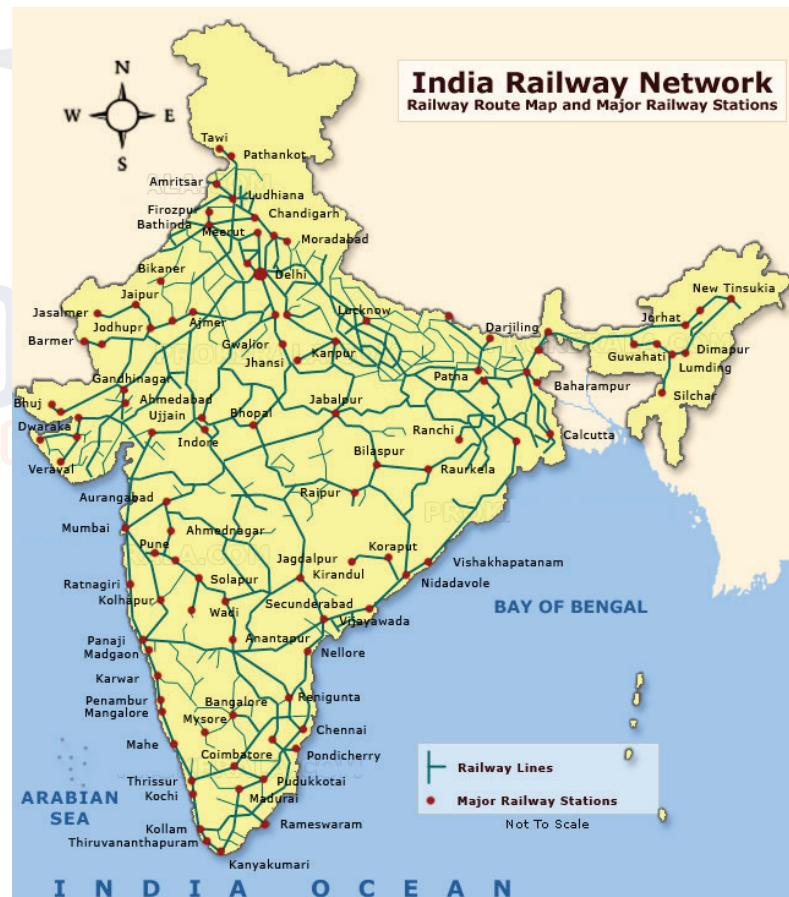
## RAILWAY SAFETY IN INDIA

### CONTEXT

The recent tragic train collision accident in Balasore has brought **the issue of railway safety** under scrutiny, raising concerns about the **lapses in safety measures** within the Indian railway system.

### ABOUT INDIAN RAILWAYS

- Indian Railways is the **largest rail network in Asia** and the world's second largest railway system under a single management.
- History: The first railway line in India, between Mumbai and Thane, was opened to the **public on April 16, 1853**. Subsequently, various railway lines were constructed, connecting important cities across the country.
- **Key Features:**
  - **Network:** Indian Railways has an extensive network spanning over 67,000 km and operating across more than 7,000 stations.
  - **Passengers:** Every day, Indian Railways carries an **astounding number of over 23 million** passengers, which is equivalent to the population of Australia.
  - **Freight:** Indian Railways handles an impressive amount of freight, moving over 3 million tonnes each day, equivalent to relocating the entire population of Mumbai daily.
  - **Revenue:** Indian Railways serves as a major revenue generator for the Indian government. In the fiscal year 2019-20, it generated revenue exceeding INR 1.9 trillion (USD 25 billion).
  - **Heritage:** Indian Railways boasts a rich heritage, with some of its trains and stations dating back over a century. Notably, the **Darjeeling Himalayan Railway** and the **Nilgiri Mountain Railway** have been recognized as **UNESCO World Heritage Sites**.
- **Significance of Indian Railways:**
  - **Passenger transport:** Passenger Railways provide the most affordable and convenient mode of transport for both long-distance and suburban travel.



- **Driving Industrial Growth:** The establishment of railway networks in areas such as Mumbai for the textile industry, Kolkata for the jute industry, and Jharkhand for the coal industry has contributed to their expansion.
- **Regional integration:** They play a vital role in connecting different parts of the country, promoting cultural exchange, and fostering overall development.
- **Employment generation:** Indian Railways as the largest employer in India, with over 10 lakh employees working across operational and commercial sections of the railways.
- **Boosting Tourism:** Indian Railways significantly contributes to the tourism industry, offering various heritage and luxury train experiences.
- **Defence and internal security:** They ensure the swift movement of troops, defence equipment, and essential supplies to remote locations, bolstering the country's defence capabilities.

### WHY THE SAFETY OF INDIAN RAILWAYS IS PARAMOUNT?

- High volume of passengers:** With a massive population and millions of people relying on the railways for their daily commute, ensuring the safety of Indian Railways becomes crucial.
- Economic impact:** Indian Railways is a crucial component of the country's transportation infrastructure and plays a vital role in the economy. Any disruption or safety-related issues can lead to economic setbacks, affecting industries, businesses, and overall development.
- Lifeline for economic migrants:** Trains are the lifeline for a bulk of India's poorer economic migrants. Their ability to move and improve their economic prospects has a positive impact on their home states through remittances.
- Reputation and public trust:** The safety of Indian Railways is essential to maintain the public's trust and confidence in the system.
- International comparison:** Safety standards in Indian Railways are often compared with those of developed countries. Countries like Japan, China, and several European nations have demonstrated that high safety standards are achievable.

### RAIL ACCIDENTS IN INDIA – NCRB DATA

- According to the National Crime Records Bureau, **an average 23,000 people died every year** between **2010 and 2021** in railway accidents.
- The NCRB classifies **railway accident deaths into five categories:** derailments, collisions, explosions/fires, people falling from trains or trains colliding with people on tracks, and 'other causes.'
- Trends in Railway Accident Deaths:**
  - In 2011, India witnessed around 25,872 railway accident deaths, which increased to 27,000 in 2012 and 27,765 in 2013. The number then fell to around 25,000 in 2014.
  - From 2017 onwards, the number of deaths gradually decreased. In 2019, it was around 24,619.
  - Due to the COVID-19 pandemic's impact on passenger train services, there was a significant decrease in 2020, with railway accident deaths dropping to about 11,968.
  - However, in 2021, the number increased by 27% to 16,431, although it was still lower than pre-pandemic levels.
- Causes of Death:**
  - Majority of railway accident deaths **were caused by people falling off trains** or being run over by them.
  - **Over the past five years (2017-2021),** more than 71,000 people died from falling off trains or being run over, while significantly fewer deaths occurred due to derailments and collisions.

#### CAG's 2022 Report on Safety in Indian Railways

The CAG report highlighted several shortcomings in the safety of India's railways that include:

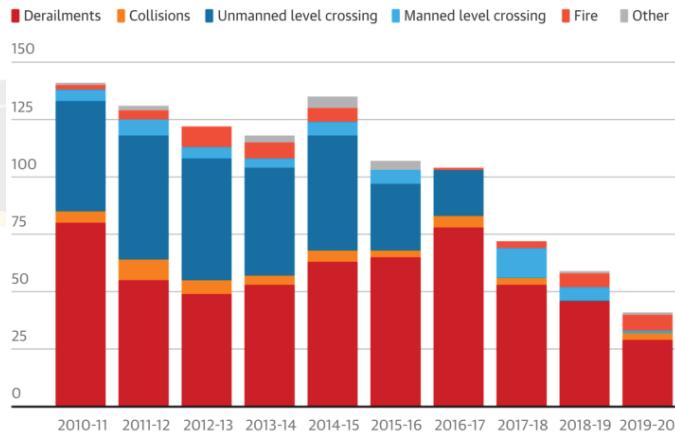
- Shortfalls in inspections:** The report found that there were significant deficiencies in inspections conducted by Track Recording Cars, which are responsible for assessing the geometrical and structural conditions of railway tracks. The inspections were found to have shortfalls ranging from 30% to 100%.
- Failures to submit or accept inquiry reports:** The report pointed out that there were failures to submit or accept inquiry reports after accidents. This hampers the process of learning from past mistakes and preventing recurrences of incidents.
- Inadequate use of dedicated railway fund:** The report found that the dedicated railway fund, which is meant for priority tasks, was not effectively utilized. It highlighted failures to use the fund for essential safety-related activities.

- Decline in funding track renewal: The CAG report revealed a decline in funding for track renewal, which is crucial for maintaining the safety and integrity of railway tracks. Insufficient funding in this area can lead to track deterioration and increase the risk of derailments.
- Inadequate staffing in safety operations: The report identified inadequate staffing in safety operations as a serious concern. Insufficient manpower can affect the timely execution of safety-related tasks and compromise the overall safety of the railway system.
- Costs of derailments: The report estimated the costs of derailments to be around Rs 32.96 crore. This includes the financial impact of accidents across 16 railway zones and the associated damages and losses.
- Non-operational Track Management System (TMS): The TMS, a web-based application for online monitoring of track maintenance activities, was found to be non-operational. The in-built monitoring mechanism of the TMS portal was not functioning, and information related to closure of inspection notes was not filled in the portal.
- Link between derailments and track renewals: The report stated that out of the 1,127 derailments that occurred during 2017-2021, around 289 derailments (26%) were linked to track renewals. This highlights the importance of adequate investment in track maintenance and renewal to prevent accidents.

## GOVERNMENT INITIATIVES TO ADDRESS THE INDIAN RAILWAY SAFETY CONCERNS

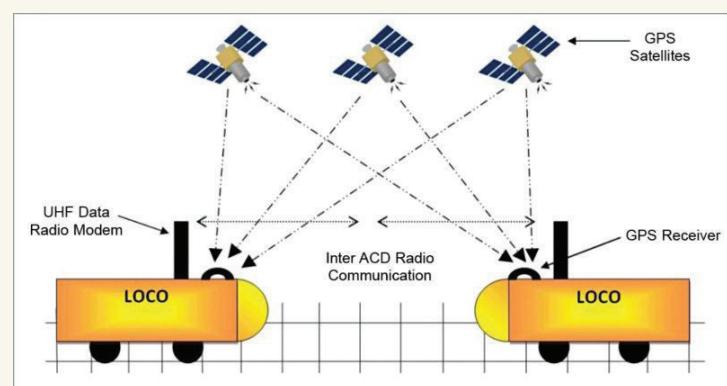
- **Kavach system:** KAVACH is an indigenously developed Automatic Train Protection (ATP) System for Indian Railways.
- **Project Mission Raftar:** It is introduced in the Railway Budget of 2016-17. The goal is to double the average speed of freight trains and increase passenger train speed by 50%. While the focus is on improving speed, it indirectly contributes to safety by reducing travel time and potentially minimizing the risks associated with prolonged journeys.
- **Rashtriya Rail Sanraksha Kosh (RRSK):** The government initiated the RRSK in 2017-18, a dedicated fund aimed at carrying out safety-related work in a systematic manner.
- **Upgradation of infrastructure:** The government has been investing significant funds in the modernization and upgradation of railway infrastructure. This includes the electrification of railway lines, the expansion of rail networks, and the introduction of high-speed and ultra-high-speed lines, such as the Vande Bharat Express.
- **Elimination of manned level crossings:** The government has been working towards the elimination of manned level crossings, which are prone to accidents. Efforts are being made to replace them with underpasses, overpasses, and other safety measures to enhance railway safety.

### Train accidents across India are broadly in decline



### About the KAVACH System

- ‘Kavach’ literally means armour, is an indigenously developed Automatic Train Protection (ATP) system by Research Design and Standards Organisation (RDSO) in collaboration with Indian industry.
- It is a set of electronic devices and Radio Frequency Identification devices (RFID) installed in locomotives, in the signalling system as well the tracks, that talk to each other using ultra high radio frequencies to control the brakes of trains and also alert drivers, all based on the logic programmed into them.
- It is meant to provide protection by preventing trains from passing the signal at Danger (Red) and avoiding collision.
- It activates the train braking system automatically if the driver fails to control the train as per the speed restrictions.
- In addition, it prevents collisions between two Locomotives equipped with a functional KAVACH system.
- It is one of the cheapest, Safety Integrity Level 4 (SIL-4) certified technologies with the probability of error is 1 in 10,000 years.



## WAY FORWARD

- **Prioritising safety as a culture:** Fostering a safety culture across the Indian railways by emphasizing the importance of safety at all levels is the need of the hour.
- **Strengthening maintenance practices:** Prioritize track maintenance, inspections, and infrastructure upgrades to prevent derailments and ensure safe operations. Implement mechanized methods of track maintenance and leverage improved technologies to enhance the efficiency and effectiveness of maintenance activities.
- **Advanced technologies:** Embrace advanced technologies, to enhance safety monitoring, early detection of faults, and real-time decision-making.
- **Implementing a real-time information flow:** There should be a system for the flow of information regarding unsafe practices or situations in real-time. Adopting a system similar to the Confidential Incident Reporting and Analysis System (CIRAS) used in British Railways is necessary.
- **Staffing and training:** Address staffing shortages in safety-related positions and provide comprehensive training programs for staff members involved in train operations. Focus on improving skills, knowledge, and adherence to safety protocols to minimize human errors.
- **Sufficient funding:** Ensure adequate funding for safety-related works, including track renewal, signalling systems, and infrastructure upgrades. Proper utilization of funds from initiatives like the Rashtriya Rail Sanraksha Kosh (RRSK) should be ensured to address safety priorities effectively.

## TEXTILE SECTOR IN INDIA

### CONTEXT

Textiles and apparel exports registered a **12.2% decline** in May as the industry continued to face **low demand** in its key **overseas markets** including the U.S.

### MORE ON THE NEWS

- The main reason behind the declining exports is the **sluggish demand in major importing countries** including the U.S., Germany, and the U.K. on account of **inflation** and also **piled up inventory**, experts observed.
- However, reports suggest that there are **positive signs in the trade sector** as exporters are gradually receiving orders for merchandise, indicating an improving situation.
  - **The reopening of China following the COVID-19 pandemic** is expected to create favorable business prospects, particularly for yarn and fabrics.
  - Additionally, the **domestic prices of cotton** are becoming more balanced, raising hopes for increased sales starting from July/August.

### AN OVERVIEW OF TEXTILE SECTOR IN INDIA

- India's textiles sector is **one of the oldest industries** in the Indian economy, dating back to several centuries.
- The Indian textile industry uses a **wide variety of fibres** ranging from **natural fibres** like cotton, jute, silk and wool to **manmade fibres** like polyester, viscose, acrylic and multiple blends of such fibres and filament yarn.



- Economic contribution:** Our economy is largely dependent on the textile manufacturing and trade in addition to other major industries.
  - The textiles and clothing sector contributes about **14% to the industrial production** and **3% to the gross domestic product** of the country.
  - About **27% of the foreign exchange earnings** are on account of export of textiles and clothing alone.
  - Around **8% of the total excise revenue** collection is contributed by the textile industry.
  - It accounts for as large as **21% of the total employment** generated in the economy. Around 35 million people are **directly employed** in the textile manufacturing activities. **Indirect employment** including the manpower engaged in agricultural based raw-material production like cotton and related trade and handling could be stated to be around another 60 million.
- India's global position:**
  - India is the **largest producer of cotton & jute** in the world, the **second largest producer of silk** in the world the **6th largest producer of Technical Textiles**.
  - India stands as the **3rd largest exporter** of Textiles & Apparel in the world.
  - **95% of the world's hand-woven fabric** comes from India.
- Locational factors for the textile industry:** Six geo-economic factors on which the localization of textile industry depends are as follows: Climate, Power, Raw Material, Labour, Transport, and Markets.

### CHALLENGES FACED BY THE TEXTILE SECTOR IN INDIA

- High fragmentation:** The textile industry in India is characterized by high fragmentation, with the unorganized sector and small and medium enterprises dominating the sector.
- Infrastructure bottlenecks:** Inadequate infrastructure, such as poor transportation facilities and power shortages, increases the cost of production and reduces the competitiveness of the Indian textile industry.
- Technology Obsolescence:** Many textile units in India still use outdated technology, making them less competitive than their counterparts in other countries.
- Highly competitive export market:** In the global market tariff and non-tariff barriers coupled with lack of free/preferential trade agreements are posing a major challenge to the Indian textile Industry.
  - There is fierce competition from China, Bangladesh and Sri Lanka in the low-price garment market.
- Impact of Goods and Services Tax (GST):** GST has created distortions in the Textile and Apparel sector in India, impeding its competitiveness.
  - For instance, **man-made fibres (MMF)** are taxed at 18 per cent for fibre, 12 per cent for yarn and 5 per cent for fabric. **This inverted tax structure** makes MMF textiles costly.
- Environmental issues:** Textile processing, which heavily relies on non-biodegradable chemicals and consumes vast amounts of water, poses significant environmental challenges.

### PM MEGA INTEGRATED TEXTILE REGION AND APPAREL (PM MITRA) SCHEME

- Launch:** The scheme was first announced in the **union budget speech of 2021-22**, under which **seven mega textile parks** are proposed to be set up to make **Indian textile sector globally competitive**.
  - **Mega Textile Parks** are designed to **integrate the entire textile value chain**, from spinning, weaving, processing/dyeing and printing to garment manufacturing, all within a **single location**.
- Objective:** To create an ecosystem that promotes **competitiveness, productivity, and innovation in the textile industry**.
- Outlay:** The total outlay for the project is **₹4,445 crore**, though the initial allocation in the 2023-24 Budget is only **₹200 crore**.
- Key features of the scheme:**
  - **5F Vision:** The PM MITRA scheme is Inspired by the 5F vision - **Farm to Fibre to Factory to Fashion to Foreign**.

#### All-in-one parks

The PM Mega Integrated Textile Regions and Apparel (PM MITRA) scheme was announced in October 2021

■ The parks will come up by 2026-27

■ The total outlay for the project is ₹4,445 crore, though the initial allocation in the 2023-24 Budget is only ₹200 crore

■ States have offered to provide at least 1,000 acres, says Minister Goyal



■ Spinning, weaving, processing/ dyeing, printing and garment manufacturing will be done at one location

■ Effort is to reduce logistics cost of textile industry and make it globally competitive

- PM MITRA park will be developed by a **Special Purpose Vehicle** which will be owned by the Central and State Government and in a **Public Private Partnership (PPP) Mode**.
- The Ministry of Textiles will provide financial support through development **capital support up to Rs. 500 crores** per park to the Park SPV.
- A **competitive incentive Support (CIS)** of up to **Rs 300 crore** per park to the units in PM MITRA Park shall also be provided to incentivise speedy implementation.
- Each MITRA Park will have an **incubation centre**, a common processing house, a common **effluent treatment plant**, and other textile-related facilities such as **design centres and testing centres**.
- Sites for PM MITRA Parks will be selected by a **Challenge Method** based on objective criteria.

### **OTHER INITIATIVES BY THE GOVERNMENT FOR GROWTH OF TEXTILE INDUSTRY**

Technology Upgradation	<input type="checkbox"/> Amended Technology Fund Upgradation Scheme (ATUFS) to upgrade technology/machineries of textile industry.
Sector Specific Missions	<input type="checkbox"/> National Handloom Development Programme providing basic inputs, looms and accessories, design and development, infrastructure development, marketing of handloom products, etc. <input type="checkbox"/> National Technical Textiles Mission has been approved for creation at a total outlay of Rs.1480 Crore with a four-year implementation period from FY 2020-21 to 2023-24.
Capacity Building and Social Security	<input type="checkbox"/> SAMARTH (Scheme for Capacity Building in Textile Sector) for skill development in the entire value chain of textiles, excluding Spinning & Weaving in the organized Sector. <input type="checkbox"/> Scheme for Incubation in Apparel Manufacturing (SIAM) to promote new entrepreneurs in apparel manufacturing. <input type="checkbox"/> Scheme for Textile Industry Workers' Accommodation (STIWA) to provide safe, adequate and conveniently located accommodation for textile and apparel industry workers in the proximity of areas of high concentration of textile and apparel industries.
Other measures	<input type="checkbox"/> Scheme for Remission of Duties and Taxes on Exported Products (RoDTEP): It will take under its ambit refund of GST taxes and import/customs duties for inputs along with VAT on fuel used in transportation, mandi tax, duty on electricity used during manufacturing. <input type="checkbox"/> 100% FDI (automatic route) in the textile and apparel sector in India. <input type="checkbox"/> Removal of anti-dumping duty on PTA (Purified Terephthalic Acid), a key raw material for the manufacture of MMF fibre and yarn to boost exports in MMF sector.

## SECURITY

### INTEGRATED THEATRE COMMANDS

#### CONTEXT

In a significant move towards the **creation of integrated theatre commands**, the Indian Armed Forces have decided to introduce a common format for the **annual confidential report (ACR)** for senior officers.

#### MORE ON THE NEWS

- This new rule shall apply to **Major Generals, Lieutenant Generals and the equivalent ranks** in the Indian Air Force and Navy. It will be implemented **within the next three months**.
- At present**, the three forces have different and **distinct parameters** for recording the ACR.
  - The ACR stands for an **objective and impartial assessment** of the character, conduct, capabilities and performance of an **Official** throughout the year.
- This decision signals the progress of the forces towards the **creation of theatre commands**.

#### BACKGROUND

##### Indian Armed Forces

- The Indian Armed Forces are the **military forces of the Republic of India**.
- With strength of over **1.4 million active personnel**, India has the **world's second-largest military force** and has the world's largest volunteer army.
- The President of India** is the Supreme Commander of the Indian Armed Force, but they work under the management of the **Ministry of Defence** of the Government of India.
- The 'Global Firepower Index 2022' report ranks Indian Armed Forces as the **fourth most-powerful military** in the world, after the U.S.A, Russia and China.
- Three branches of Indian armed forces:**
  - **Indian Army:** It is the land-based branch and is the largest among the three branches. It is responsible for land-based military operations, including ground warfare and counter-terrorism.
  - **Indian Navy:** It is the naval branch and is responsible for safeguarding India's maritime borders.
  - **Indian Air Force:** It is the aerial branch and is responsible for aerial warfare and the defense of Indian airspace.



#### CURRENT COMMAND STRUCTURE OF INDIAN ARMED FORCES

- Each branch of the Indian Armed Forces consists of various commands, each responsible for a specific geographical region or functional area.
- Indian Army Commands:**
  - The Indian Army is organized into **7 commands** with 6 operational commands and one training command.
  - These are Western Command, Eastern Command, Northern Command, Southern Command, South Western Command, Training Command, Central Command.

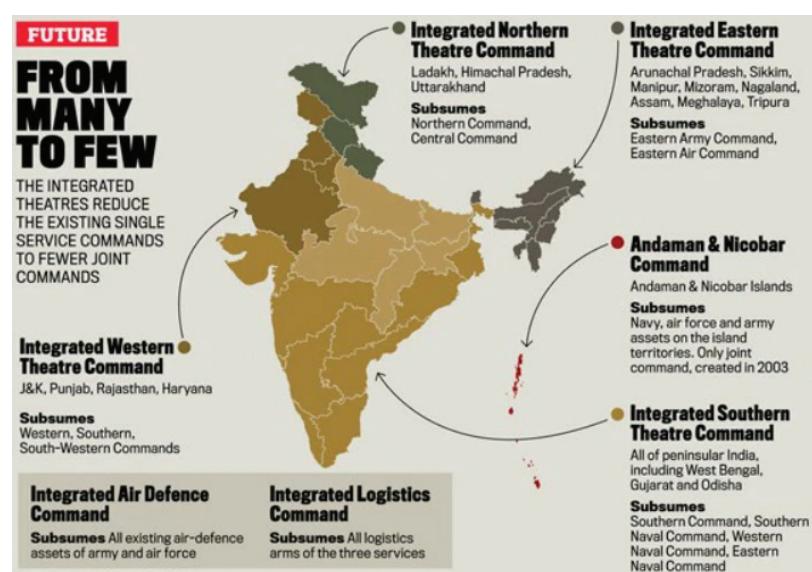
- Each command is headed by a general officer **commanding-in-chief (GOC-in-C)**, known as the army commander. Each command directly reports to the army **headquarter at New Delhi**.
- Indian Navy Commands:**
- The Navy has the following **three Commands**, each under the control of a Flag Officer Commanding-in-Chief.
  - These are Western Naval Command, Eastern Naval Command, and Southern Naval Command.
  - The Western and the Eastern Naval Commands are '**Operational Commands**', and exercise control over operations in the Arabian Sea and the Bay of Bengal respectively. The Southern Command is the **Training Command**.
- Indian Air Force Commands:**
- The IAF currently has **five operational commands**, each of which is headed by an AOC-in-C (Air Officer Commander-in-Chief) with the rank of Air Marshal.
  - These are Western Air Command, Central Air Command, South Western Air Command, Eastern Air Command, and Southern Air Command.
  - The IAF also has **two additional commands** – Training Command and Maintenance Command – to maintain a uniform standard in training and maintenance.
- Joint service commands:** At present, there are two joint services commands in India, the first one is **Andaman and Nicobar Command (ANC)** and the second, being **Strategic Forces Command (SFC)**.
- ANC is the only **tri-service theater command** of the Indian Armed Forces, based at Port Blair. It was created in 2001 to safeguard India's strategic interests in Southeast Asia and the Strait of Malacca by increasing rapid deployment of military assets in the region.
  - The Strategic Forces Command (SFC), sometimes called **Strategic Nuclear Command**, forms part of **India's Nuclear Command Authority (NCA)**. It is responsible for the management and administration of the country's tactical and strategic nuclear weapons stockpile.

## WHAT ARE INTEGRATED THEATRE COMMANDS?

- Combining the resources of all three services (the Army, Navy, and Air Force) under a single commander to secure a particular geographic area is known as integrated theatre commands.
- There are theatre commands in several countries, including **China and the United States**.
- The reports of the **military reforms commission headed by Lt. General (ret.) DB Shekatkar** made the concept of Theatre Command a suggestion.
  - It suggested setting up **three integrated theatre commands**: one in the north for the China border; one in the west for the Pakistan border; and one in the south for the sea role.

## NEED OF INTEGRATED THEATRE COMMANDS IN INDIA

- There are some challenges and limitations associated with the current command structure of the Indian Armed Forces, which include:
  - **Lack of Centralized Decision-Making:** The existing command structure involves multiple independent commands for each service (Army, Navy, Air Force). This decentralized decision-making process can sometimes lead to **delays, inefficiencies, and coordination challenges**, particularly during joint operations.
  - **Limited Interoperability:** The current command structure, with separate service-specific commands, can result in limited interoperability and **coordination between the different branches** of the armed forces.



- **Duplication of Efforts and Resources:** With separate commands for each service, there can be duplication of **efforts, resources, and infrastructure**. This duplication can lead to inefficiencies, unnecessary costs, and suboptimal resource allocation.

### ADVANTAGES OF INTEGRATED THEATRE COMMANDS

- Achieving jointness:** It will boost overall fighting capabilities and will also create capacities along with seamless command centres to meet future challenges.
- Better synergy:** Military assets will be fused into one single command under one operational head who will be responsible for directing and controlling their activities.
- To meet hybrid warfare requirements:** As a potential conflict with a major military power like China will extend beyond the typical theatres into the domains of cyber, space, nuclear and covert capabilities.
- Greater efficiency:** Major military powers like the US and China, operate via theatre commands as it is seen to be a better means of pooling resources, providing coordinated logistics planning and improving efficiency.
- Systematic planning in acquisition of resources:** Integrated approach towards procurement will end piecemeal approach to purchase done by individual services and the requirements of the military as a whole would be formulated.
- Reducing redundancies:** By integrating manpower within theatre commands has the potential of redirecting a sizeable portion towards maintenance and modernization of equipment and capabilities.

### CHALLENGES WITH THE CREATION OF INTEGRATED THEATRE COMMANDS

- Command Structure and Reporting:** One of the primary challenges is determining the command structure and the reporting relationships within the integrated theatre commands. The transition requires careful planning and coordination.
- Inter-Service Competition:** The intense focus of each service on its own assets and the desire for a larger portion of the defense budget and influence can hinder the creation of synergy among the services.
- Perception of Army Dominance:** There are concerns that integrating the commands may perpetuate the perceived dominance of the army and provide it with greater operational control.
- Limited Experience:** India has limited experience with integrated theatre commands. The implementation of such commands may require mid-course corrections and adjustments as challenges and issues are identified and addressed.
- Infrastructure and Logistics:** Coordinating and synchronizing the infrastructure and logistics requirements across different services can be a complex and resource-intensive task.

### WAY FORWARD

In conclusion, while the establishment of integrated theatre commands is a **necessary step**, addressing **operational and conceptual challenges** is crucial for these reforms to **realize their full potential** and effectively **transform the Indian military** into a modern, integrated fighting force.

## PRIVATE MILITARY COMPANIES

### CONTEXT

The **Wagner Group** has called off its **rebellion against Moscow** and agreed to leave Russia, under the terms of a **peace deal brokered by Belarus**.

### MORE ON THE NEWS

- Yevgeny Prigozhin, head of the Wagner Group, attempted an **uprising in Russia**. He ordered his mercenary forces to march on Moscow from Rostov-on-Don.
- However, a **peace deal was brokered by Belarusian President Aleksandr Lukashenko** between Russian President Vladimir Putin and Prigozhin to prevent an armed conflict.

### WHAT IS THE WAGNER GROUP?

- The Wagner Group, officially called PMC Wagner, is a **Russian paramilitary organization** that operates beyond the law in Russia.

- It is basically a **private military company** and a **network of mercenaries**. The group was first identified in **2014** while backing **pro-Russian separatist forces** in eastern **Ukraine**.
- It is said that the Wagner Group was involved in **Russia's capture of Bakhmut city** which is situated in eastern Ukraine.
- Western countries and UN experts** have **accused** Wagner mercenaries of **human rights abuses** throughout Africa, including in Central African Republic, Libya, and Mali.

### **WHAT ARE PRIVATE MILITARY COMPANIES (PMCS)?**

- PMCs are **businesses that offer specialized services related to war and conflict**, including combat operations, strategic planning, intelligence collection, operational and logistical support, training, procurement and maintenance.
- They are distinguished by the **following features**:
  - **Organisational structure**: PMCs are registered businesses with corporate structures.
  - **Motivation**: PMCs provide their services, primarily for profit rather than for political reasons.
- PMCs vary enormously in size, ranging from small consulting firms to huge **transnational corporations**.
- Today **more than 150 companies** offer their services in over 50 countries.

### **HISTORY OF PMCS**

- Cold War**: Modern PMCs trace their origins back to **1965** when Sir David Stirling founded **WatchGuard International** as a private company that could be contracted out for security and military purposes.
- UN Mercenary Convention, 1989**: It banned the use of mercenaries. However, the treaty's **definition of mercenary is obscure** and **few states have ratified it**.
  - **Mercenaries** are individuals who are primarily motivated by financial gain and are hired to participate in armed conflicts.
- Post-Cold War**: Dramatic growth in the number and size of PMCs occurred at the end of the Cold War. The **exodus of over 6 million military personnel from Western militaries** in the 1990s expanded the recruiting pool for PMCs.
- Seaborne PMCs**: Since the late 2000s, PMCs have become increasingly involved in **anti-piracy measures** in Somalia and other regions. Later they were extended to **aviation support too**.
- Montreux Document**: In 2008, the International Committee of the **Red Cross**, the **Swiss government**, and contributors from **private security companies** and the civil society/NGO sector developed and proposed the Montreux Document on Private Military and Security Companies.
  - The document details **international legal obligations** and lists specific recommendations related to PMCs and their hiring during armed conflicts.
  - As of December 2018, **54 states had signed** the Montreux Document.

#### **Some Notable Instances of PMC deployment**

- Blackwater in Iraq**: Blackwater (now known as Academi) gained significant attention for its role in Iraq. The company was contracted by the United States government to provide security services during the Iraq War in 2007.
- Executive Outcomes in Angola and Sierra Leone**: Executive Outcomes, a South African PMC, operated in Angola in the 1990s during the civil war. They were hired by the Angolan government to combat rebel groups.
- Sandline International in Papua New Guinea**: Sandline International, a British PMC, was involved in Papua New Guinea in the late 1990s. The company was contracted by the government to provide military assistance in the Bougainville conflict.

### **WHY IS THERE A MARKET FOR PMCS?**

- Lack of National Capacity**: Some states may lack the necessary military capabilities or resources to address specific security challenges.
- Cost-Effectiveness**: Hiring a PMC can sometimes be more cost-effective than building and maintaining a standing military force.
- Political Considerations**: In certain situations, the use of PMCs may provide a more politically palatable option compared to deploying national troops or involving international organizations.
- Flexibility and Rapid Deployment**: PMCs can offer flexibility and quick deployment, making them attractive for states and organizations that require immediate assistance or face time-sensitive security threats.

- Specialized Services:** PMCs can provide specialized services that go beyond traditional military operations. This includes intelligence gathering, security consulting, training, logistics support, and other non-combat roles.
- Unconventional Needs:** In some cases, individuals or groups may seek out PMCs for unconventional or illicit purposes, such as overthrowing governments or protecting illegal activities.

### **ARE PMCS AS EFFECTIVE AS THE REGULAR MILITARY?**

- Arguments for:** Some analysts argue that PMCs offer operational advantages over regular military forces, such as:
  - being **rapidly deployable**;
  - **lessening public concerns** about the use of force; and
  - acting as a **counterweight to the local military** in states with weak political institutions.
- Arguments against:** Most analysts hold that PMCs have a number of operational disadvantages relative to regular military forces:
  - motivated by **profit rather than duty**, their commitment is in general considered to be more limited than that of regular military personnel;
  - their employees are **outside of the military chain of command**;
  - their contracts **cannot cover every possible contingency** in advance, thus reducing their combat flexibility and possibly compromising their ability to deal with the unexpected;
  - their **non-combat personnel** lack the cross-training that can augment military capacity in times of need;
  - some analysts believe that **pressure to cut costs** in these companies can lead to decisions that risk the lives of their personnel — **for instance**, after four Blackwater contractors were killed in **Iraq in 2004**, allegations emerged that a fifth soldier to serve as a rear guard was kept from joining the group because of financial constraints; and
  - when PMCs fail for any reason, it **impairs the ability of regular soldiers** to perform their duties.

### **WAY FORWARD**

- There is a need for a **comprehensive international treaty** specifically dedicated to regulating PMCs.
- Role of civil society:** Scrutiny by the media and civil society watchdog groups has been one of the most effective ways to **control PMC behaviour**. This has made many PMCs more image conscious and less prone to committing flagrant violations, but the tendency is by no means universal.
- Voluntary Codes of Conduct:** There is a need for the development of voluntary codes of conduct and standards that PMCs can adhere to.
  - **For example**, the **International Code of Conduct for Private Security Service Providers (ICoC)** was established in 2010. It sets out principles and standards for responsible private security operations and encourages companies to adopt and implement them voluntarily.
- Licensing and Registration Systems:** Some proposals suggest the implementation of licensing and registration systems for PMCs. This would involve requiring PMCs to obtain licenses, specifying the services they provide, and registering their personnel.
- Minimum Standards:** Suggestions have been made to establish minimum standards for PMCs in areas such as recruitment and employment practices, training, use of force, respect for human rights and international humanitarian law, and corporate governance.

## **INTERNET SHUTDOWNS IN INDIA**

### **CONTEXT**

According to the **data from global tracker Top10VPN**, the **total value of internet shutdowns in India** has touched **\$255.2 million in 2023**.

### **BACKGROUND**

- The rise of internet from ‘luxury’ to ‘need’:** The 21st century is the age of technology. We have significant technological advancements, with the internet being one of them. Initially, it was just a ‘luxury’ but now it has become a ‘need’. One cannot imagine an ‘internetless’ life.

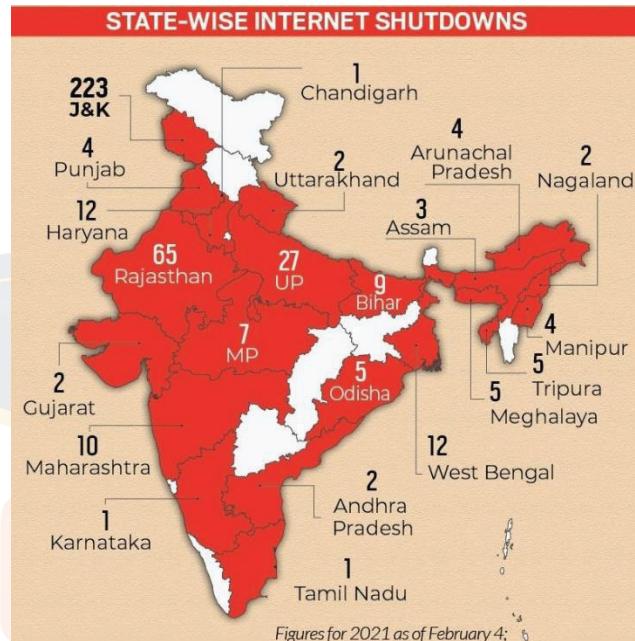
- India becoming the capital of internet shutdowns:** Internet shutdowns have become common in India nowadays. When Article 370 of the Indian Constitution was abrogated, it was the internet that was first shut down. The fear of violence and upheavals was in the backdrop of the government's mind when the internet was shut down in Jammu and Kashmir.

### WHAT IS INTERNET SHUTDOWN?

- Internet shutdown is defined as an **intentional disruption of the internet services** in a particular area.
- It can be implemented in different ways, including blocking access to **specific websites or platforms**, throttling or **slowing down internet speeds**, or **completely cutting off** internet connectivity.
- It can be temporary, lasting for a **few hours or days**, or they can be prolonged, **lasting for weeks or even months**.

### KEY TRENDS ON 'INTERNET SHUTDOWNS IN INDIA'

- According to a report by Access Now and the KeepItOn coalition, India enforced as many as **84 internet shutdowns in 2022** and was on top of the list for the fifth year in a row.
- Jammu and Kashmir** accounted for the highest number of internet shutdowns followed by **Rajasthan and West Bengal**.
- According to the Access Now report, India witnessed **109 internet shutdowns in the year 2020** against the 155 lockdowns all over the world.
- Instances of major internet shutdowns in India**
  - Jammu and Kashmir** witnessed the longest internet shutdown which started in 2019 with the abrogation of Article 370 was finally lifted after a long gap of 18 months in February 2021.
  - The Manipur government** banned internet to maintain law and order after ethnic violence broke out in the state. It has been more than 40 days since the internet was shut down in the state.



### LEGALITY OF INTERNET SHUTDOWNS IN INDIA

- Section 144 of CrPC:** Till the year **2017**, internet shutdowns were imposed largely under Section 144 of the Code of Criminal Procedure (CrPC).
  - Section 144 of CrPC gave the **police and the District Magistrate** the powers in order to prevent unlawful gathering of people and also to direct any person to abstain from a certain activity.
- However, in 2017**, the Government promulgated the **Temporary Suspension of Telecom Services (Public Emergency or Public Safety) Rules 2017**.
  - 2017 Rules provide for a temporary shutdown of telecom services in a region on **grounds of public emergency (up to 15 days at once)**.
  - Such directions can be issued by **Secretary to the Government of India** in the Ministry of Home Affairs in the case of Government of India or by the **Secretary to the State Government** in-charge of the Home Department in the case of a State Government.

### REASONS BEHIND INTERNET SHUTDOWNS

- National security concerns:** Governments may justify that shutting down the internet or specific communication channels is necessary to prevent the coordination of illegal activities, terrorist threats, or to maintain public safety during sensitive periods.
- Political control and suppression:** During periods of political unrest, or protests, authorities may restrict access to prevent the spread of information, curb organization efforts, or silence dissent.
- Curbing the spread of misinformation:** Governments may enforce internet shutdowns to control the flow of information and combat the dissemination of false or misleading content.

- Preserving national unity or stability:** Internet shutdowns may be employed in regions with secessionist movements or conflicts to maintain national unity or stability.
- Preventing exam cheating:** Some countries have implemented internet shutdowns during national examinations to prevent cheating and ensure the integrity of the testing process.

### VARIOUS TECHNIQUES USED TO SHUT DOWN THE INTERNET

- DNS Tampering:** By tampering with Domain Name System (DNS), authorities can redirect or block access to specific websites or services. This can be achieved by altering DNS records, redirecting DNS queries to different IP addresses, or blocking access to certain DNS servers altogether.
- IP blocking:** IP blocking is a technique where specific IP addresses are targeted for blocking. Authorities can maintain a blacklist of IP addresses associated with particular websites, platforms, or services, and instruct network infrastructure to deny access to those addresses.
- URL filtering:** It involves selectively blocking or allowing access to specific URLs (web addresses). Authorities can employ filtering systems or firewalls that examine the requested URLs and decide whether to allow or block access based on predefined criteria.
- Content filtering and keyword blocking:** Governments can employ advanced filtering systems to monitor and block specific keywords, phrases, or content that they deem sensitive or threatening.
- Throttling or slowing down internet speeds:** It involves deliberately slowing down internet speeds to the extent that it becomes impractical or impossible to access certain websites or services.

### IMPACTS OF INTERNET SHUTDOWNS

- Economic impact:** Data from global tracker Top10VPN shows that India suffered a loss of \$ 255.2 million due to internet shutdowns, while in 2022, the country suffered a loss of \$ 184.3 million.
- Disruption of communication:** Internet shutdowns disrupt communication channels, making it difficult for individuals to connect with their loved ones, and access emergency services.
- Limitations on education and research:** Internet shutdowns hinder access to online educational resources, e-learning platforms, and research materials.
- Impediment to healthcare services:** The internet plays a crucial role in healthcare delivery, including telemedicine, remote consultations, and the access to medical information.
- Impact on fundamental rights:** The fundamental rights to speech, conduct business, access to healthcare, express dissent, and movement of people in a state, are compromised.
- Impact on journalism:** An internet shutdown can hamper the reach of the on-ground-reporting and cause underreporting of local issues.
- Risk to privacy:** For example, when people turn to untrustworthy VPNs in order to route around restrictions, their personal data is at risk.
- Disrupts political transparency:** Internet shutdowns undermine or eliminate access to digital tools that are critical for campaigning, promoting public discussion, conducting voting, and overseeing the electoral process.

### WAY FORWARD

**UN Principles:** The UN Human Rights Office provides that six principles should be followed by imposing internet shutdown.

- Clearly grounded** in unambiguous, publicly available law.
- Necessary to achieve a **legitimate aim**.
- Proportional to the legitimate aim and the **least intrusive means** to achieving that end.
- Subject to **prior authorization** by a court or another **independent adjudicatory body**.
- Communicated in advance to the **public and telecommunications** or Internet service providers.
- Subject to **meaningful redress mechanisms** accessible to those whose rights have been affected by the shutdowns.

- Parliamentary panel recommendations on internet shutdowns:** The Standing Committee on Communications and Information Technology report on “**Suspension of Telecom Services and Internet and its impact**” has recommended-

- Asked the DoT to lay down a **clear-cut principle of proportionality** and procedure for **lifting of shutdown** in coordination with the home ministry.
  - Rejected the logic of the DoT and MHA for **not maintaining the record of the shutdown**, saying it cannot simply take the plea that **police and public order** are essentially state subjects.
  - **A centralized database of all internet shutdowns** can be maintained either by DoT or MHA.
  - DoT should **expand the review committees** under the Telecom Suspension Rules, 2017.
  - A study should be commissioned by the government to assess the **impact of the internet shutdown on the economy**.
- Improving digital literacy:** Efforts to enhance digital media literacy should be expanded, and international partners should invest in providing access to basic digital security skills.
- Selective banning:** Certain apps or websites, such as WhatsApp, known for facilitating the widespread circulation of rumors, could be prohibited, while other Internet services remain accessible.
- Role of internet companies:** Internet companies should collaborate with government and civil society to prevent disruptions caused by shutdowns.
- Defining terms like 'public emergency':** Clear definitions should be established for terms like 'public emergency' to prevent their misuse without valid justification.



## ENVIRONMENT

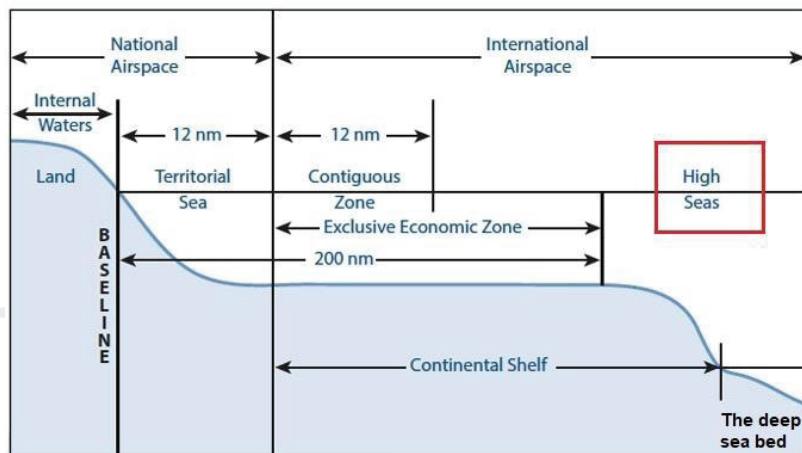
### UN HIGH SEAS TREATY

#### CONTEXT

The members of the United Nations adopted the **first-ever treaty** to protect marine life in the high seas with the U.N. 's chief hailing the historic agreement as giving the ocean "a fighting chance."

#### WHAT ARE HIGH SEAS?

- According to the **1958 Geneva Convention** on the High Seas, parts of the sea that are not included in the territorial waters or the internal waters of a country are known as the high seas.
- High seas are areas of oceans that lie **beyond** a country's **Exclusive Economic Zone** (that extends up to **200 nautical miles (370 km)** from the coastline).
- The high seas are also known as **international waters or the open ocean**.
- No country is responsible** for the management and protection of resources on the high seas.
- The high seas comprise **64 percent** of the **ocean surface**, and about **43 per cent of the Earth**.



#### SIGNIFICANCE OF HIGH SEAS

- Biodiversity Hub:** The high seas are home to approximately **2.7 lakh known species**, and there is still much to discover. They support a diverse array of marine life, including numerous iconic and endangered species. Preserving this biodiversity is crucial for ecological balance and the health of the planet.
- Climate Regulation:** The high seas play a vital role in regulating the Earth's climate. They absorb carbon dioxide, a greenhouse gas, helping to mitigate the impacts of climate change. Additionally, they **store solar radiation and distribute heat globally**, contributing to the stabilization of the planet's temperature and weather patterns.
- Resources and Services:** The oceans, including the high seas, provide essential resources and services. These include seafood and raw materials for industries, genetic and medicinal resources, **air purification through carbon absorption**, **climate regulation** through heat distribution, and aesthetic, scientific, and cultural services that contribute to human well-being.

#### THREATS

- Climate Change:** The high seas are affected by climate change, resulting in rising sea temperatures, **ocean acidification**, and **extreme weather events like El Niño**. These changes pose significant risks to marine flora and fauna, impacting their survival, distribution, and ecological balance.
- Habitat Destruction:** Anthropogenic activities such as seabed mining, overfishing, and the disposal of untreated waste contribute to **habitat destruction in the high seas**. This leads to the loss of critical ecosystems and affects the overall health and resilience of marine life.
- Pollution:** The high seas face various forms of pollution, including oil spills, chemical pollution, noise pollution from **industrial activities, and coastal pollution**. These pollutants can have severe and long-lasting effects on marine ecosystems, including harming marine life, damaging habitats, and disrupting ecological processes.
- Lack of Protection:** Despite their significance, the high seas are one of the least-protected areas on the planet, **with only about 1% currently under protection**. This lack of safeguards allows unsustainable practices to continue, exacerbating the threats to biodiversity and ecosystem health.

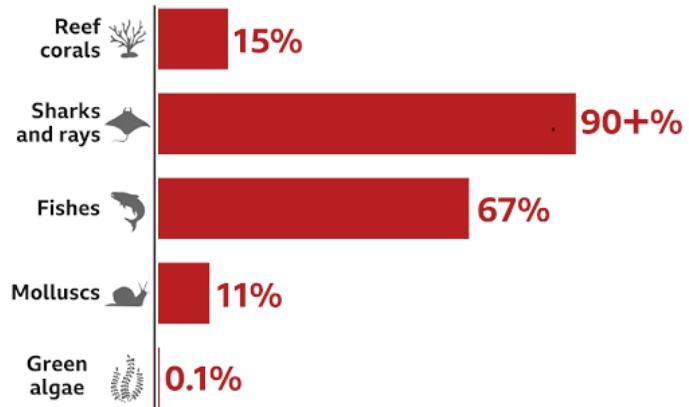
## WHY IS THERE A NEED FOR A HIGH SEAS TREATY?

- Protection of biodiversity:** High seas are home to **about 2.2 million marine species** and up to a trillion different kinds of microorganisms.
  - According to the **Red List of Threatened Species** by **IUCN**, nearly **10 percent** of underwater plants and animals assessed so far are threatened with extinction.
- Regulation of Human Activities:** Human activities in the high seas, such as fishing, shipping, and mining, are largely unregulated. This has led to **overfishing, habitat destruction, and pollution**.
- Addressing Climate Change:** The world's oceans play a critical role in regulating the global climate, storing about **one-quarter** of the planet-heating **carbon dioxide** generated by human activities.
  - According to NASA, **90% of global warming is occurring in the ocean**. The effects of ocean warming include sea level rise, coral bleaching, and intensified hurricanes etc.
- Lack of sufficient protection:** Only **1.2% of international waters** or high seas are protected, and only **0.8%** are identified as "highly protected." Currently, there is no treaty for conserving the health of vast swathes of the earth's oceans.
- Equitable Sharing of Benefits:** The high seas are a **common heritage of humankind**, and the benefits derived from their resources should be shared equitably. However, currently, there are **no mechanisms in place to ensure** that the benefits are shared fairly.

## ABOUT THE UN HIGH SEAS TREATY

- The High Seas Treaty is a **legally binding international agreement** being developed within the framework of the **United Nations Convention on the Law of the Sea (UNCLOS)**.
  - The treaty will work as an implementation agreement **under the UNCLOS**, much like the **Paris Agreement works under the UNFCCC**.
- Aim of the treaty:** It aims to provide a **comprehensive legal framework to protect oceans and marine life**, particularly in the **high seas**, which were previously not covered by any such framework.
- BBNJ:** The treaty is also known as the agreement on "**biodiversity beyond national jurisdictions**", or BBNJ, as the high seas are open ocean areas that are outside the jurisdiction of any country.
- Timeline of the treaty:** Although the process of creating the treaty was initiated in 2015, it was postponed due to the **Covid-19 outbreak**.
  - In order to speed up the finalization of the treaty, the **European Union** established the **High Ambition Coalition on BBNJ in 2022**.
- Significance:** The treaty is significant in achieving the **30x30 target** set at **UN CBD (Convention on Biological Diversity) COP15** under which the countries agreed to protect 30% of oceans by 2030.
- Key features of the treaty:**
  - **Demarcation of Marine Protected Areas (MPAs):**
    - ✓ The treaty will establish a mechanism for demarcation of MPAs to **conserve and protect marine environment and biodiversity**.
    - ✓ MPAs are where ocean systems, including biodiversity, are **under stress**, either due to human activities or climate change.
    - ✓ These can be called the **national parks or wildlife reserves** of the oceans.

### Global species assessed for extinction threat



\*Assessed species include lobsters, freshwater crabs, freshwater crayfishes and freshwater shrimps

Source: IUCN Red List

- **Access and Benefit-sharing Committee:**
  - ✓ The committee will frame guidelines for the access and sharing of benefits derived from **marine genetic resources beyond national jurisdiction**.
- **Clearing-House Mechanism (CHM):**
  - ✓ The treaty establishes a CHM that will facilitate the **sharing of information among member states** on the access and benefit-sharing of marine genetic resources beyond national jurisdiction.
- **Environmental Impact Assessments:**
  - ✓ Signatories will have to conduct environmental impact assessments before the exploitation of **marine resources beyond national jurisdiction**.
- **Consent from Indigenous Community:**
  - ✓ The treaty mandates that the marine resources in areas outside national jurisdiction, which belong to **indigenous individuals and local communities**, can only be accessed with their free, informed consent and or approval and involvement".
  - ✓ By doing so, the treaty **recognizes the important role** of indigenous communities in the sustainable management of marine resources.
- **Special fund for developing countries:**
  - ✓ A special fund will be established as part of the pact, which will be fixed by the **conference of parties (COP)**.
  - ✓ The COP will also **oversee the functioning** of the treaty.
  - ✓ The fund will provide **financial support for developing countries** to participate in the implementation of the treaty.

### CHALLENGES ASSOCIATED WITH THE UN HIGH SEAS TREATY

- Implementation:** Even once the treaty is ratified, implementing its provisions will require significant resources and cooperation among states.
- Lack of dispute resolution:** The treaty does not provide a clear mechanism for resolving disputes between states operating in the high seas. This could lead to **disagreements** and potentially **undermine the effectiveness** of the treaty.
- Enforcement:** The treaty lacks a clear enforcement mechanism, and it is unclear how **violations of its provisions** will be punished. This could make it **difficult to ensure compliance** with the treaty's provisions.

#### About the United Nations Convention on the Law of the Sea (UNCLOS)

- UNCLOS is an **international treaty** that governs the use and management of the **world's oceans and seas**.
- The treaty was **adopted in 1982** and entered into force in 1994 and has been **ratified by 168 countries (including India)**.
- Key features of UNCLOS:**
  - UNCLOS establishes the **legal framework** for activities in the **oceans and seas**, including fishing, shipping, and exploration and **exploitation of natural resources**.
  - The treaty recognizes the **rights of coastal states** over their **territorial waters** and **exclusive economic zones** and sets out rules for the **delimitation of maritime boundaries** between adjacent states.
  - The treaty also establishes the **International Tribunal for the Law of the Sea (ITLOS)**, to hear disputes related to the interpretation and application of UNCLOS.

#### What are the Other Conventions related to Seas?

- Convention on Continental Shelf 1964:** It defines and delimits the rights of States to explore and exploit the natural resources of the continental shelf.
- Convention on Fishing and Conservation of Living Resources of the High Seas 1966:** It was designed to solve the problems involved in the conservation of living resources of the high seas.
- London convention 1972:** Its objective is to promote the effective control of all sources of marine pollution and to take all practicable steps to prevent pollution of the sea by dumping of wastes and other matters.
- MARPOL Convention (1973):** It covers pollution of the marine environment by ships from operational or accidental causes. It lists various forms of marine pollution caused by oil, noxious liquid substances, harmful substances in packaged form, sewage and garbage from ships, etc.

## WAY FORWARD

- The next step is for national governments to officially adopt and ratify the agreement, thereby enabling the treaty to take effect.
- It is crucial for the global community to unite across all sectors and work together to celebrate, implement, and monitor the effectiveness of the new High Seas Treaty.
  - This **collective action** is not only essential for the well-being of ocean life but also for our own benefit.
- By safeguarding the high seas and implementing careful management of marine resources, we can mitigate the cumulative impact of activities that pose a significant threat, such as shipping and industrial fishing.
  - This approach will contribute to a **sustainable blue economy** that benefits both people and nature, creating a positive and mutually beneficial cycle.

## CARBON CAPTURE, UTILIZATION, AND STORAGE (CCUS)

### CONTEXT

The appointment of Sultan al-Jaber, the CEO of Abu Dhabi National Oil Company (ADNOC) and the UAE's Minister of Industry and Advanced Technology, as the President of COP28, has faced criticism for several reasons.

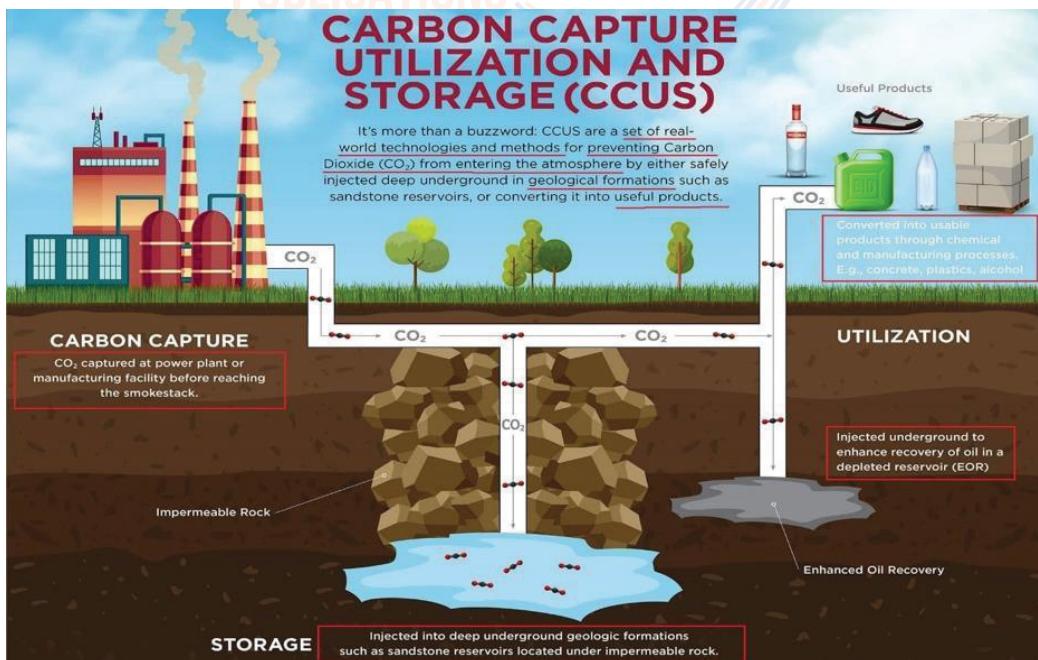
### MORE ON THE NEWS

His appointment has faced criticism due to the following reasons:

- Firstly, there is concern over the conflict of interest inherent in appointing an oil executive to lead climate negotiations. Critics argue that an oil executive may not prioritize the necessary reduction of fossil fuel production and consumption, which is crucial for meeting the goals of the Paris Agreement.
- Secondly, experts and other nations oppose al-Jaber's advocacy of carbon capture, utilization, and storage (CCUS) technologies as a solution to climate change. They argue that such technologies have not been tested at scale and may divert attention and resources from more effective alternatives, such as renewable energy. Some stakeholders believe that CCUS should only be employed in sectors where emission reduction is extremely challenging.

### WHAT IS CARBON CAPTURE UTILIZATION AND STORAGE (CCUS)?

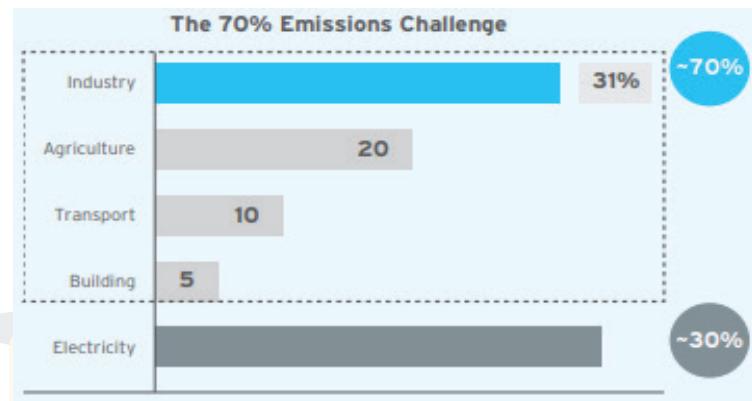
- Carbon Capture, Utilization, and Storage (CCUS) encompasses methods and technologies to remove CO<sub>2</sub> from the flue gas and from the atmosphere, followed by recycling the CO<sub>2</sub> for utilization and determining safe and permanent storage options.



- CO<sub>2</sub> captured using CCUS technologies is converted into fuel (methane and methanol), refrigerants and building materials.
- The captured gas is used directly in fire extinguishers, pharma, food and beverage industries as well as the agricultural sector.
- CCUS technologies can play an important role in meeting net zero targets, including as one of few solutions to tackle emissions from heavy industry and to remove carbon from the atmosphere.
- CCUS is considered an important tool to help countries halve their emissions by 2030 and reach net-zero by 2050.
  - These goals are crucial to meet the Paris Agreement targets for restricting global warming to 2 degrees Celsius (°C), and preferable to 1.5°C, over pre-industrial levels.

### WHY IS THERE A NEED FOR CCUS IN INDIA?

- Achieving Net-Zero:** India has committed to reducing CO<sub>2</sub> emissions by 50% by 2050 and reaching net zero by 2070. Though we are making great strides in decarbonizing the power sector, it only contributes to about 1/3rd of the total emissions. CCUS has a crucial role to play for the decarbonization of the industrial sector which contributes another one third.
- Hard-to-abate sectors:** CCUS offers the only known technology for the decarbonization of hard-to-electrify CO<sub>2</sub> intensive sectors such as steel, cement, oil & gas, petrochemicals & chemicals, and fertilizers.
- Economic opportunities:** Adoption of CCUS offers numerous economic benefits such as:
  - **Enabling sunrise sectors:** CCUS is expected to play a major role in enabling sunrise sectors such as coal gasification and nascent hydrogen economy in India.
  - **Employment generation:** The report estimates that about 750 mtpa carbon capture by 2050 can create employment opportunities of 8-10 million full time equivalent (FTE) basis.
  - **Circular economy:** Carbon utilization technologies can provide a wide variety of opportunities to convert the captured CO<sub>2</sub> to value-added products with a ready market in India, thus contributing to the circular economy.



Green urea	Green urea can be produced from the captured CO <sub>2</sub> and green hydrogen, from renewable energy based electrolysis of water.
F&B applications	Captured CO <sub>2</sub> is utilized in F&B applications such as carbonated drinks, dry ice, and modified atmosphere packaging.
Building materials	Captured CO <sub>2</sub> can be utilized for producing building materials through concrete curing and aggregate formation.
Chemicals	Conversion of CO <sub>2</sub> to methanol and ethanol from CO <sub>2</sub> is proven at a commercial scale in different parts of the world.
Polymers	Conversion of CO <sub>2</sub> to various polymers (including bio-plastics) has been attempted globally at different scales, and presents another possible CO <sub>2</sub> utilization route.
Enhanced Oil Recovery (EOR)	CO <sub>2</sub> based EOR has been successfully operating for decades for producing low-carbon oil from maturing oil fields in North America and other geographies

### VARIOUS CARBON CAPTURE TECHNOLOGIES FOR DIFFERENT APPLICATIONS

- There are different types of commercial-scale carbon capture technologies based on the typical CO<sub>2</sub> gas stream composition.
- Chemical solvent-based CO<sub>2</sub> capture technologies:** Preferred when dealing with gas streams that are lean in CO<sub>2</sub> and have relatively lower pressures such as flue gas streams from power plants.
  - Physical solvent-based CO<sub>2</sub> capture technologies:** These work well on gas streams with relatively higher CO<sub>2</sub> concentration and pressure, such as gasification projects.

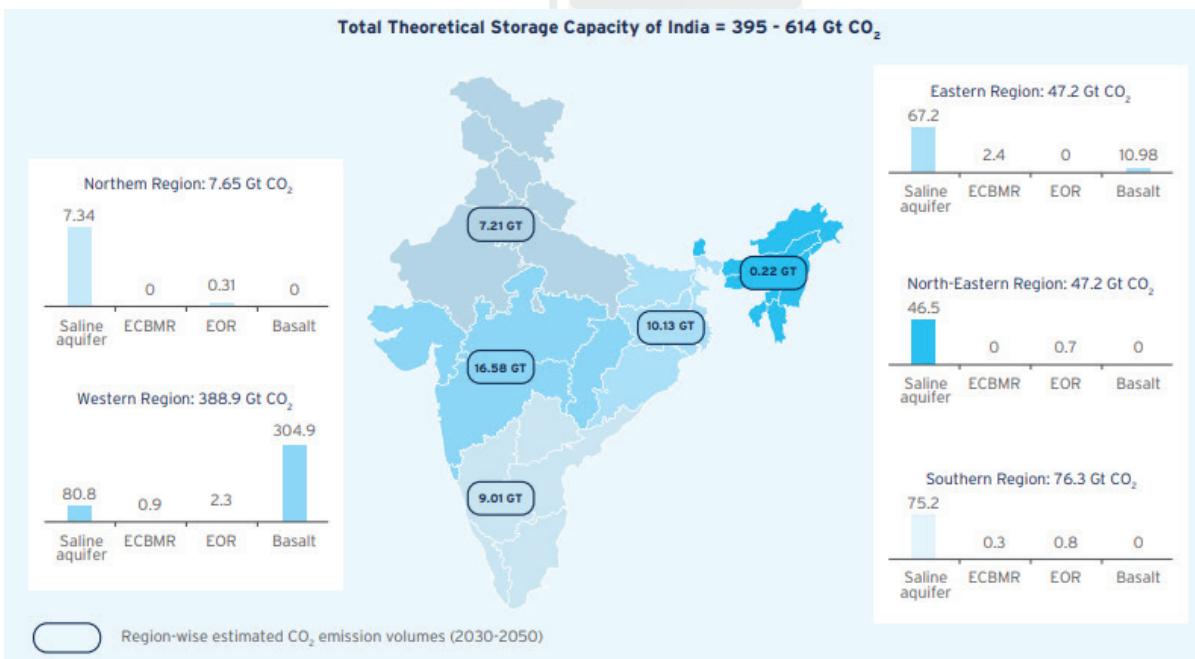
- Adsorption-based CO<sub>2</sub> capture technologies:** Suitable for gas streams with moderate to high pressure and moderate CO<sub>2</sub> concentration such as SMR flue gas or BF gas (Blast furnace gas).
- Cryogenic CO<sub>2</sub> capture technologies:** Preferred in cases where the cost of power is low. This technology can be applied for carbon capture from the PSA tail gas of Steam Methane Reforming Units.

### CURRENT LANDSCAPE OF CCUS TECHNOLOGIES

Global	India
<ul style="list-style-type: none"> <li><input type="checkbox"/> Globally there are about <b>21 CCUS facilities</b>, with a capacity of capturing only <b>0.1%</b> of the 40 gtpa <b>global annual GHG emissions</b>.</li> <li><input type="checkbox"/> The first CCUS projects started in the <b>1970s and 1980s in Texas</b> for capturing CO<sub>2</sub> from natural gas processing plants. Since then, CCUS has <b>spread to other countries, viz.</b> Norway, Canada, Australia, Brazil, Canada, China, Saudi Arabia and the United Arab Emirates.</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Presently carbon capture in India is <b>confined to certain industries</b> where the carbon capture is <b>part of the process</b>, viz., the manufacture of urea.</li> <li><input type="checkbox"/> CO<sub>2</sub> is also captured as part of the gas conditioning process in the gasifiers, but the captured CO<sub>2</sub> is largely released to the atmosphere and <b>not utilized or stored</b>.</li> <li><input type="checkbox"/> However, there are <b>no commercial-scale dedicated CCUS projects</b> in India.</li> </ul>

### POTENTIAL FOR CO<sub>2</sub> STORAGE IN INDIA

- For effective CCUS adoption at scale, apart from the conversion of CO<sub>2</sub> to useful value-added products, there needs to be a **clear strategy for permanent geological storage of CO<sub>2</sub>**.
- The options for the geological storage of CO<sub>2</sub> include EOR (**Enhanced Oil Recovery**), ECBMR (**Enhanced Coal Bed Methane Recovery**) and permanent storage options like **saline aquifers** and **basalt storage**.



### KEY ELEMENTS OF THE RECOMMENDED CCUS POLICY FRAMEWORK FOR INDIA: NITI AAYOG

- Policy path:** CCUS policy in India should be **carbon credits or incentives based** and provide early stage financing and funding mechanisms for CCUS projects.
- Hub & cluster business model:** The policy framework should promote the creation of **regional hub & cluster models** to drive **economies of scale** across the CCUS value chain, with defined roles for emitters, aggregators, hub operators, disposers and conversion agents.
- Low carbon products:** Low carbon or carbon-abated products need to be supported through **preferential procurement** in Government tenders and **Production Linked Incentive (PLI) schemes**.

- Environmental and social justice:** CCUS policy should protect communities most affected by environmental and climate change by ensuring the **distribution of the economic value** created by CCUS.
- Regulatory framework:** To incentivize carbon capture in different sectors, there is a need to establish a **baseline of regulated emission levels** and allowances for different sectors.
- Risk mitigation:** There is a need to **de-risk CCUS projects by limiting the liability and ownership of CO2 across the CCUS value chain** and monitoring risk through appropriate Monitoring, Verification and Accounting (MVA) frameworks.

### **CHALLENGES ASSOCIATED WITH CCUS**

- High cost:** The use of this technology requires significant investments into its equipment, R&D, transport and storage infrastructure for captured CO2 etc.
- License to ramp up emissions:** CCUS can be perceived in a wrong direction and be used by emission heavy industries to push for the regular use of CCUS while maintaining polluting projects, thus defeating the true purpose of CCUS.
- Environmental concerns:** Leakage of CO2 from storage facilities can contaminate the soil and groundwater and there is potential for seismic activity caused by underground injection of CO2.
- Price of Green Products:** The issue of "inadequate prices" for low carbon or green products is a major risk factor for industries to adopt for CO2 utilization technologies.

### **WAY FORWARD**

- Technology transfer:** While the development of indigenous technologies is certainly desirable, the immediate focus should be on the **transfer, assimilation and adoption of proven technologies** in the CCUS domain.
- Promoting R&D in novel CO2 utilization technologies:** The Government of India should promote an **ecosystem to foster R&D and innovation in CO2 utilization** technologies as they are relatively less developed, compared to capture technologies.
- Private sector participation:** Private sector participation is **essential to promote** the transfer and commercialization of **existing CCUS technologies** and push for the development of **new and emerging technologies**.

## **CARBON OFFSETTING**

### **CONTEXT**

A lawsuit was filed against **Delta Air Lines**, a major American airline, for making misleading claims about its **carbon offsetting policies**.

### **WHAT IS CARBON OFFSETTING?**

- Carbon offsetting is a practice used by companies to **compensate for their CO2 emissions** by funding projects that reduce or **remove an equivalent amount of CO2** from the atmosphere.
- The basic idea behind carbon offsetting is to **balance out the emissions produced in one area** by **investing** in activities that offset or counteract those emissions in **another area**.

### **VARIOUS MEASURES OF CARBON OFFSETTING**

- Renewable Energy Projects:** Investing in renewable energy sources such as wind farms, solar power plants, or hydroelectric dams to replace or reduce the use of fossil fuels, thereby avoiding CO2 emissions.
- Energy Efficiency Initiatives:** Funding programs that improve energy efficiency in buildings, transportation, or industrial processes, leading to reduced energy consumption and lower emissions.
- Reforestation and Afforestation:** Supporting projects that involve planting new trees (afforestation) or restoring existing forests (reforestation) to absorb CO2 through photosynthesis and store it in the biomass.
- Methane Capture:** Backing initiatives that capture and utilize methane emissions from sources like landfills, agriculture, or coal mines, as methane is a potent greenhouse gas.
- Carbon Capture and Storage (CCS):** Investing in technologies that capture CO2 emissions from industrial processes or power plants and store them underground to prevent their release into the atmosphere.

## HOW DOES CARBON OFFSETTING WORK?

- Calculation of Emissions:** The organization calculates its greenhouse gas emissions by assessing various activities such as energy consumption, transportation, waste generation, or manufacturing processes. Emissions are typically measured in metric tons of carbon dioxide equivalent (CO<sub>2</sub>e).
- Purchase of Carbon Credits:** Once the emissions are calculated, the entity purchases carbon credits or offsets from a broker, retailer, or project developer. Each carbon credit represents one metric ton of CO<sub>2</sub>e that has been reduced or removed from the atmosphere.
  - **Carbon credits, also known as carbon offsets,** are permits that allow the owner to emit a certain amount of carbon dioxide or other greenhouse gases.
- Investment in Offset Projects:** The funds from purchasing carbon credits are directed towards projects or activities that have a measurable impact on reducing or removing greenhouse gas emissions.
- Verification and Certification:** To ensure the credibility of the offset projects, they often undergo verification and certification processes. These processes are conducted by recognized standards and third-party organizations that assess the project's adherence to additionality, permanence, and other quality criteria.
- Carbon Neutrality and Compliance:** By purchasing and retiring carbon credits equivalent to their emissions, individuals or organizations can claim carbon neutrality.

## CONCERNs ASSOCIATED WITH CARBON OFFSETTING

- Additionality and Permanence:** Additionality refers to ensuring that the offset projects result in emissions reductions or removals that would not have happened otherwise. There have been cases where offset projects were implemented in areas where emissions reductions would have occurred naturally or were only temporary, leading to questions about the integrity of the offsets.
- Lack of Standards and Regulation:** The carbon offset market lacks standardized and widely accepted guidelines, leading to variations in quality and credibility of offset projects.
- Greenwashing:** There have been instances of greenwashing, where the offsetting is used as a marketing tool to create a positive image without meaningful emission reductions. Greenwashing undermines the credibility of carbon offsetting and can hinder genuine efforts to address climate change.
- Rebound Effect:** Carbon offsetting can create a moral hazard, where individuals or organizations feel that by purchasing offsets, they have offset their emissions and no longer need to actively reduce their own carbon footprint.
- Complex and Uncertain:** Accurately calculating emissions and determining the appropriate amount of offsets required to neutralize those emissions can be complex and uncertain.
- Limited Impact on Structural Change:** Carbon offsetting alone is insufficient to address the urgent need for global emission reductions. It is crucial to prioritize and implement strategies that directly reduce emissions at their source.

## WAY FORWARD

- Robust Standards and Regulation:** Developing widely accepted and robust standards and regulations for carbon offset projects is crucial. This will ensure transparency, credibility, and consistency in the market, reducing the risk of low-quality offsets and greenwashing.
- Innovation and Technological Advancements:** Continued research and investment in areas such as carbon capture and storage, nature-based solutions, and sustainable energy alternatives will provide more diverse and impactful options for carbon offsetting.
- Beyond Emissions Reduction:** While offsetting focuses on emissions reduction and removal, it is crucial to go beyond offsetting and prioritize strategies that directly reduce emissions at their source. This includes transitioning to renewable energy, improving energy efficiency, adopting sustainable practices in industries, and promoting circular economy approaches.

## EL NIÑO AND ITS IMPACT ON MONSOON

### CONTEXT

India Meteorological Department (IMD) indicated a higher likelihood of the **El-Nino effect** occurring this year, potentially impacting rainfall patterns during the **Monsoon season**.

## WHAT IS EL NIÑO?

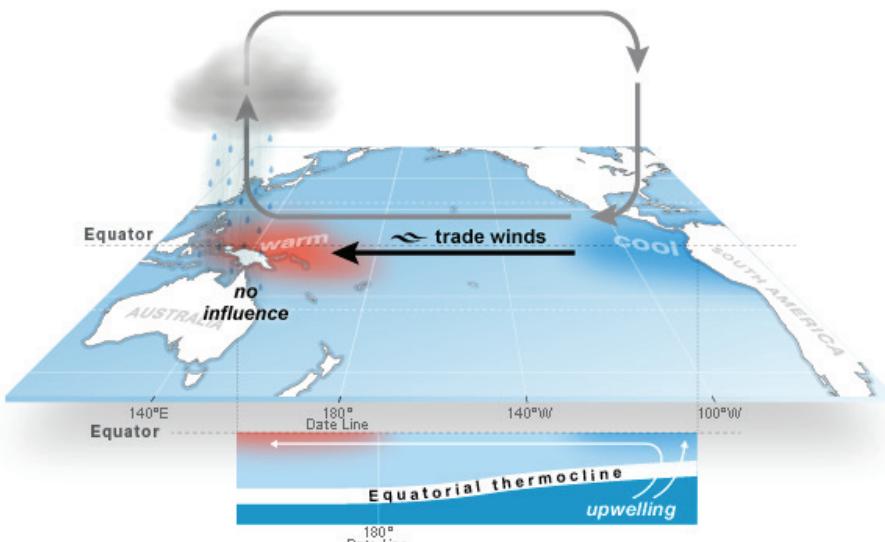
- The term **El Niño** (Spanish for ‘the Christ Child’) refers to a **warming of the ocean surface**, or above-average sea surface temperatures, in the **central and eastern tropical Pacific Ocean**.
- It is part of a larger climate pattern known as the **El Niño Southern Oscillation (ENSO)**.

## ABOUT EL NIÑO–SOUTHERN OSCILLATION (ENSO)

- The ENSO is a **recurring climate pattern** involving changes in the **temperature of waters** in the **central and eastern tropical Pacific Ocean**.
- On periods ranging from about **three to seven years**, the surface waters across a large swath of the tropical Pacific Ocean warm or cool by anywhere from **1°C to 3°C**, compared to normal.
- This **oscillating warming and cooling pattern**, referred to as the ENSO cycle, directly affects rainfall distribution in the tropics and can have a **strong influence on weather across the world**.
- ENSO has three phases:** El Niño, La Niña, and neutral, which are associated with **different temperature and atmospheric conditions**.
  - **El Niño** occurs when the surface water temperature in the **eastern Pacific Ocean** becomes **warmer than usual**, and this warming can last for several months to a few years.
  - **La Niña** occurs when the surface water temperature in the **eastern Pacific Ocean** becomes **cooler than usual**, and this cooling can also last for several months to a few years.
  - **Neutral conditions** occur when the sea surface temperatures in the eastern Pacific Ocean are close to average, with **no significant warming or cooling**.
- Why it happens?** The exact causes of ENSO are complex and not fully understood, but scientists believe that **changes in ocean and atmospheric circulation patterns**, as well as variations in solar radiation and other factors, play a role in triggering and modulating ENSO events.
- Impact of climate change on ENSO:**
  - Climate change could lead to **more frequent and more intense El Niño and La Niña events**, which could have a significant impact on global climate patterns.
  - Another potential impact is that **warmer sea surface temperatures** could alter the **location and intensity of the Pacific Ocean’s subtropical gyres**, which could influence the **onset and strength of ENSO events**.

## THE MECHANISM OF EL NIÑO

- During an El Niño event, there is a **weakening or even a reversal of the trade winds** along the equator, which disrupts the normal pattern.
  - Normally, **strong trade winds blow westward** across the tropical Pacific, the region of the Pacific Ocean located between the Tropic of Cancer and the Tropic of Capricorn.
  - These winds push warm surface water **toward the western Pacific**, where it borders Asia and Australia.
  - The **westward movement of warmer waters** causes cooler waters to rise up toward the surface on the coasts of Ecuador, Peru, and Chile. This process is known as **upwelling**.



El Niño–Southern Oscillation (ENSO): Neutral

- This weakening of the trade winds allows **warm surface waters to move eastward**, accumulating in the central and eastern Pacific.
- As a result, **the thermocline** (the boundary between warm surface waters and cooler waters below) **becomes sloped**, with the **warm water layer becoming deeper** in the eastern Pacific.
  - During an El Niño event, the thermocline can dip **as far as 152 meters (500 feet)**.
- The warm ocean temperatures in the eastern Pacific have **profound effects on the atmosphere above**.
- The warm water **heats the overlying air**, causing it to rise and create an area of low atmospheric pressure, disrupting the normal **atmospheric circulation patterns**.

### **IMPACT OF EL NIÑO**

- Changes in Precipitation Patterns:** El Niño can disrupt normal rainfall patterns, leading to droughts and reduced precipitation in some regions and increased rainfall in others.
  - For example, during El Niño events, there is **often reduced rainfall in parts of Southeast Asia**, Australia, and parts of Africa, while **increased rainfall occurs in the central and eastern Pacific**, including coastal areas of South America.
  - Due to El Niño, rainfall increases drastically in **Ecuador and northern Peru**, contributing to coastal **flooding and erosion**.
  - At the same time, El Niño brings **droughts to Indonesia and Australia**.
- Fisheries and Marine Ecosystems:** El Niño disrupts marine ecosystems, particularly in the eastern Pacific. The **absence of cold, nutrient-rich upwelling waters** during El Niño reduces the availability of food for marine organisms, leading to declines in fish populations and impacts on fishing industries.
- Global Climate Patterns:** Stronger El Niño events also disrupt global atmospheric circulation.
  - The eastward movement of oceanic and atmospheric heat sources cause **unusually severe winter** weather at the higher latitudes of **North and South America**.
  - Regions as far north as the U.S. states of California and Washington may experience **longer, colder winters because of El Niño**.
- Tropical Cyclone Activity:** El Niño can influence the frequency and intensity of tropical cyclones (hurricanes, typhoons) in different parts of the world.
  - For example, the **Atlantic hurricane season** tends to be less active during El Niño due to increased wind shear, which can **inhibit cyclone development**.
  - In the **Western Pacific basins** there is a **change in location of tropical cyclones** without a total change in frequency during a El Niño event.

### **IMPACT OF EL NIÑO ON INDIAN MONSOON**

- Weakening of Monsoon Winds:** During El Niño years, the **trade winds across the Pacific weaken**, reducing their ability to push **moisture-laden air** towards the Indian subcontinent. As a result, the monsoon winds over the Indian Ocean and the Arabian Sea weaken, leading to a **decrease in the overall strength of the monsoon**.
- Shift in Rainfall Patterns:** The regions that typically receive abundant rainfall during the monsoon season may experience **below-average rainfall**, while regions that usually receive less rainfall may **receive more**. This spatial redistribution of rainfall can have significant implications for **agriculture, water resources, and ecosystems**.
- Delayed Onset and Early Withdrawal:** El Niño events can **delay the onset of the monsoon season** in India. Similarly, El Niño can lead to an early withdrawal of the monsoon, **shortening the overall duration of the rainy season**.

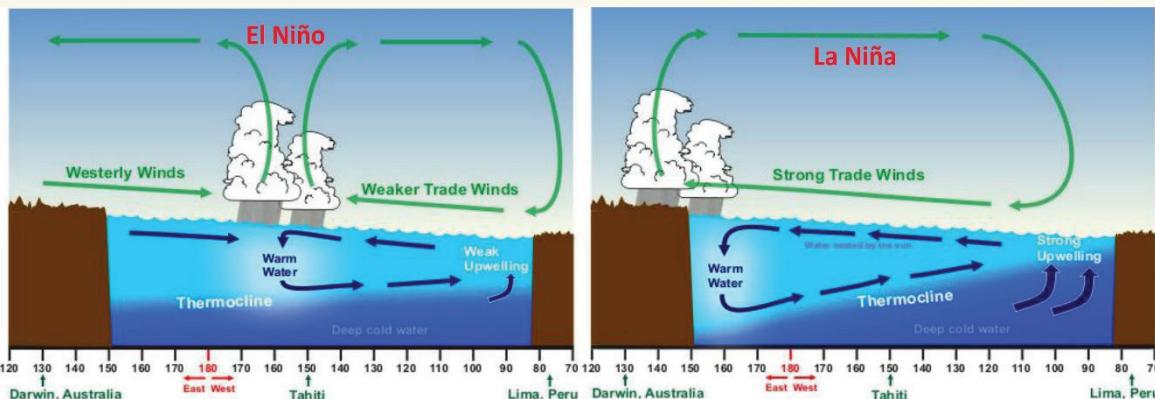
### **'FLAVORS' OF EL NIÑO**

- Variations of El Niño** are referred to as "flavors."
- Trans Niño:** The transition period of an El Niño event, for instance, is called a "Trans Niño." Trans Niño events occur at the **onset and closing of an El Niño event**.
  - Trans Niño events often include **increased tornado activity in the American Midwest**.
- El Niño Modoki:** Another "flavor" of El Niño is the El Niño Modoki, or Modoki Niño.
  - Modoki is a Japanese word meaning "**similar, but different**."

- Modoki Niño, also called the **Central Pacific Niño**, is characterized by changes in sea-surface temperatures in the central, not eastern, Pacific.
- Some Modoki Niño events are distinct from traditional El Niño events, such as **increased hurricane activity in the Atlantic and Gulf of Mexico**.

### **DIFFERENCE BETWEEN EL NIÑO AND LA NIÑA**

#### **El Niño v/s La Niña**



Basis of comparison	El Niño	La Niña
<b>Meaning</b>	El Niño means Little Boy, or Christ Child in Spanish.	La Niña means Little Girl in Spanish.
<b>Sea surface temperature</b>	It represents the <b>above-average sea-surface temperatures</b> that periodically develop across the east-central equatorial Pacific.	It represents the <b>periodic cooling</b> of sea-surface temperatures across the east-central equatorial Pacific.
<b>Pressure</b>	It is laden with high air surface pressure in the <b>western Pacific</b> .	It contains low air surface pressure in the <b>eastern Pacific</b>
<b>Mechanism</b>	During El Niño, <b>trade winds weaken</b> . Warm water is pushed back east, toward the west coast of the Americas, resulting in a weaker Walker cell.	During La Niña events, <b>trade winds are even stronger than usual</b> , pushing more warm water toward Asia, resulting in a stronger Walker cell.
<b>Period of occurrence</b>	Typically occurs every 3-5 years and lasts 9-12 months.	Typically occurs every 3-5 years and lasts 1-3 years.
<b>Impacts</b>	<input type="checkbox"/> Droughts in eastern Australia <input type="checkbox"/> Flooding in western South America <input type="checkbox"/> Weak upwelling over the west coast of South America.	<input type="checkbox"/> Excessive rainfall in the eastern Australia <input type="checkbox"/> Drought conditions prevail in the South America <input type="checkbox"/> Strong upwelling over the west coast of South America.
<b>Impact on Indian Monsoon</b>	The monsoon is affected so heavily that <b>70% reduction of the rainfall</b> is expected. The winds doesn't carry the moisture towards Indian landmass during El Niño causing deficiency in rainfall.	La Niña causes high temperatures over the Indian Ocean, off the Somalian coast and a comparatively <b>better monsoon rains in India</b> .

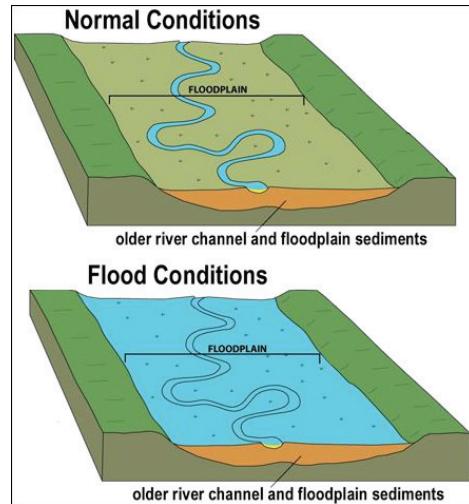
## FLOOD DISASTER IN INDIA

### CONTEXT

Assam experienced **severe floods**, impacting several districts and affecting approximately **30,000 people** due to the heavy rainfall.

### WHAT IS FLOOD?

- Flood is a **state of high-water level** along a **river channel** or on the **coast** that leads to inundation of land.
- Floods are commonly associated with a **stream or river**. A stream floods when its discharge is greater than the **capacity of its river channel**.
- Excess water flows over the river banks and **submerges the adjacent land** which is usually dry. When it happens, the channel and the flood plain together allow passage of water.



### CAUSES OF FLOODS

#### Natural Causes

- Heavy rainfall:** Heavy rain in the catchment area of a river causes water to over flow its banks, which results in the flooding of nearby areas.
  - The **ongoing Assam floods** are due to heavy rainfall in a short period of time.
- Snow melt:** Snowmelt and glacial melt are gradual processes and usually does not cause major floods. But sometimes glaciers hold large quantity of bounded water, which may be suddenly released with melting of ice block resulting into Glacial Lake Outburst Floods (GLOFs).
  - In June 2013, **flashfloods in Uttarakhand** that wiped out settlements and decimated lives are attributed to a GLOF in the Chorabari glacier.
- Sediment deposition:** River beds become shallow due to sedimentation. The water carrying capacity of such river is reduced. As a result, the heavy rainwater over flow the river banks.
  - Frequent floods were observed in 2003, 2008, 2011, and 2013 near the **deltaic region of the Mahanadi river** due to the excessive sediment deposition.
- Tropical cyclones and hurricanes:** These powerful weather systems often bring heavy rainfall and storm surges, resulting in widespread flooding in coastal and low-lying areas.
  - In 2019, **Cyclone Fani** hit the eastern coast of India, resulting in heavy rainfall and storm surges.
- Change in the course of the river:** Meanders, erosion of river beds and banks, and obstruction of flow due to landslides also lead to changes in river courses.
  - The **2008 Kosi River flood** resulted from heavy rainfall and a subsequent course change, leading to catastrophic flooding, displacement of thousands, and widespread damage in Bihar, India.
- Tsunami:** Large coastal areas are flooded by rising sea water, when a tsunami strikes the coast.
- Lack of Lakes:** Lakes can store the excess water and regulate the flow of water. When lakes become smaller, their ability to regulate the flow become less and hence flooding.

#### Anthropogenic causes

- Deforestation:** The removal of trees and vegetation reduces the natural absorption of rainfall, leading to increased surface runoff and a higher likelihood of flooding.
  - The **devastating floods** that hit the state of **Kerala in 2018** were partially attributed to deforestation, as the loss of forest cover reduced the natural water-holding capacity of the region.
- Urbanization:** Construction of buildings, roads, and other infrastructure reduces natural permeable surfaces, which can exacerbate surface runoff and overwhelm drainage systems.
  - **Chennai** experienced severe **flooding in 2015** due to heavy rainfall combined with unplanned urbanization. The city's drainage systems were overwhelmed, resulting in widespread inundation and disruption.

- Land use changes:** Alterations in land use, such as converting natural wetlands into agricultural or urban areas, can disrupt natural water retention and drainage patterns, increasing the risk of flooding.
- Dam failures:** Structural failures or breaches in dams and reservoirs can release large volumes of water downstream, causing severe flooding.
  - In 2019, the collapse of the Tiware Dam in Maharashtra caused flash floods in downstream villages.
- Interference in drainage system:** Drainage congestion caused by badly planned construction of bridges, roads, railway tracks, canals etc. hampers the flow of water and results in floods.

## FLOOD VULNERABILITY IN INDIA

- As per the Geological Survey of India (GSI), over 40 million hectares which is nearly **12 % of the total land area of India** is prone to floods.
- India receives an annual rainfall of 1200 mm, **85% of which is concentrated in 3-4 months** i.e., June to September. Due to the **intense and periodic rain**, most of the rivers are fed with huge quantity of water, much **beyond their carrying capacity** leading to mild to severe flood situations in the region.
- The major flood areas in India are in the **Ganges – Brahmaputra – Meghna Basin** which accounts for nearly 60% of the total river flow of the country.

## DISTRIBUTION OF FLOOD PRONE AREAS IN INDIA

The flood prone areas of India are **distributed across four major regions**. They are:

<b>The Brahmaputra River Region</b>	<ul style="list-style-type: none"> <li><input type="checkbox"/> This region consists of the rivers Brahmaputra and Barak and their tributaries, and covers the states of <b>Assam, Arunachal Pradesh, Meghalaya, Mizoram, Manipur, Tripura, Nagaland, Sikkim</b> and the northern parts of West Bengal.</li> <li><input type="checkbox"/> The catchments of these rivers receive heavy rainfall <b>during monsoons</b>.</li> <li><input type="checkbox"/> These rivers originate in <b>fragile hills susceptible to erosion</b> leading to high silt discharge.</li> <li><input type="checkbox"/> The region is subject to severe and <b>frequent earthquakes</b>, which cause numerous landslides and <b>upset river regime</b>.</li> <li><input type="checkbox"/> <b>Cloud bursts followed by flash floods</b> and heavy soil erosion are also prevalent.</li> </ul>
<b>The Ganga River Region</b>	<ul style="list-style-type: none"> <li><input type="checkbox"/> The river <b>Ganga has many tributaries</b>, the important ones being Yamuna, Sone, Ghaghra, Rapti, Gandak, Burhi Gandak, Bagmati, Kamla Balan, Adhwara group of rivers, Kosi and the Mahananda.</li> <li><input type="checkbox"/> It <b>covers the states</b> of Uttarakhand, Uttar Pradesh, Jharkhand, Bihar, south and central parts of West Bengal, Punjab, parts of Haryana, Himachal Pradesh, Rajasthan, Madhya Pradesh and Delhi.</li> <li><input type="checkbox"/> The flood problem is mostly confined to the areas on the <b>northern bank of the river Ganga</b> as most of the damage is caused by the northern tributaries of the Ganga.</li> <li><input type="checkbox"/> In general, the flood problem increases from the <b>west to the east</b> and from south to north.</li> <li><input type="checkbox"/> Large-scale <b>encroachment of flood plains</b> of the rivers for habitation and various developmental activities is one of the main causes in this region.</li> </ul>
<b>The North-West River Region</b>	<ul style="list-style-type: none"> <li><input type="checkbox"/> The main rivers in this region are the <b>Indus, Sutlej, Beas, Ravi, Chenab and Jhelum</b>. This <b>region covers</b> the states of Jammu and Kashmir, Punjab and parts of Himachal Pradesh, Haryana and Rajasthan.</li> <li><input type="checkbox"/> Compared to the Ganga and the Brahmaputra river regions, the flood problem is <b>relatively less in this region</b>.</li> <li><input type="checkbox"/> The major problem is that of <b>inadequate surface drainage</b> which causes inundation and water-logging over vast areas.</li> <li><input type="checkbox"/> <b>Indiscriminate use of water</b> for irrigation and development of low-lying areas and depressions has created problem of drainage congestion and water logging.</li> <li><input type="checkbox"/> These <b>rivers change their courses frequently</b> and leave behind vast tracts of sandy waste.</li> </ul>
<b>The Central and Deccan India</b>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Important rivers in this region are the <b>Narmada, Tapi, Mahanadi, Godavari, Krishna and Cauvery</b>.</li> <li><input type="checkbox"/> These rivers have mostly <b>well-defined and stable courses</b>.</li> <li><input type="checkbox"/> They have <b>adequate capacities</b> within the natural banks to carry the flood discharge except in the delta area.</li> <li><input type="checkbox"/> The region does not have serious flood problem except that some of the rivers in Orissa State namely <b>Mahanadi, Brahmini, Baitarni, and Subarnarekha</b> are prone to floods every year.</li> <li><input type="checkbox"/> The <b>delta and coastal areas</b> of the states on the east coast periodically face flood and drainage problems in the wake of monsoon depression and cyclonic storms.</li> </ul>

## CONSEQUENCES OF FLOODS

- Loss of life and injuries:** Floods can result in the loss of human lives and cause injuries, especially when people are caught unaware or unable to evacuate in time.
- Damage to infrastructure:** Floodwaters can cause severe damage to roads, bridges, buildings, and other infrastructure. This damage can disrupt transportation networks, communication systems, and essential services, making rescue and relief operations challenging.
- Displacement and homelessness:** Floods often force people to evacuate their homes and seek shelter in temporary accommodations or relief camps.
- Impact on agriculture and food security:** Floods can devastate agricultural lands and crops, destroy livestock leading to significant losses in the agricultural sector.
- Water contamination and health risks:** Spread of diseases like cholera, gastro-enteritis, hepatitis and other water-borne diseases spread in the flood-affected areas.
- Environmental damage:** Floods can cause erosion, sedimentation, and the destruction of natural habitats.
- Soil fertility:** Floods also make a few positive contributions. Every year, flood deposit fertile silt over agricultural fields which restores fertility of the soil.

## FLOOD PREVENTION AND MITIGATION

### Structural Measures

- Dams and Reservoirs:** Construction of dams and reservoirs to store excess water during heavy rainfall and release it in a controlled manner, reducing downstream flood risk.
- Levees and Floodwalls:** Building embankments, levees, and floodwalls along rivers and coastlines to contain floodwaters and protect adjacent areas from inundation.
- Flood Diversion Channels:** Creation of diversion channels or canals to redirect excess water away from vulnerable areas, reducing flood impact.
- Flood Control Basins:** Designing flood control basins or detention ponds to temporarily store and regulate floodwaters, preventing their rapid downstream flow.
- Channelization:** Modifying and straightening river channels to improve their flow capacity and efficiency, reducing the risk of overflow and flooding.
- Floodplain Restoration:** Restoring natural floodplains by removing obstructions, reconnecting floodplain habitats, and creating additional space for water storage during floods.

### Non-Structural Measures

- Floodplain Zoning and Land Use Planning:** Implementing zoning regulations that restrict construction in high-risk floodplain areas, ensuring that development is appropriately located and mitigating potential flood damage.
- Early Warning Systems:** Establishing robust early warning systems that use technology and community engagement to provide timely alerts and evacuation guidance to vulnerable populations.
- Flood Insurance and Financial Mechanisms:** Promoting the availability of flood insurance to incentivize risk reduction measures and provide financial protection to individuals and businesses affected by floods.
- Public Awareness and Education:** Conducting public awareness campaigns to educate communities about flood risks, safety measures, and preparedness strategies, fostering a culture of resilience.
- Urban Drainage Systems:** Developing and maintaining efficient stormwater drainage systems in urban areas to manage excess rainfall and prevent waterlogging and urban flooding.
- Ecosystem-Based Approaches:** Preserving and restoring natural ecosystems, such as wetlands and mangroves, which act as natural buffers and absorb floodwaters, reducing flood impacts.
- Integrated Water Resources Management:** Adopting an integrated approach to water resources management that considers the entire watershed, balancing water allocation, flood control, and environmental sustainability.

## HEAT WAVES

### CONTEXT

A sweltering **heatwave** has claimed the lives of several people in **Uttar Pradesh and Bihar**.

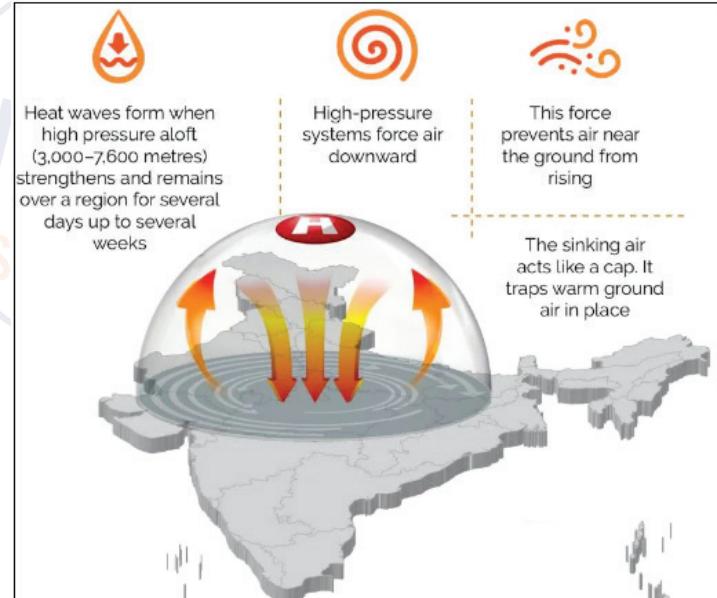
### WHAT ARE HEATWAVES?

- Heat waves are extreme events in which **hot temperature in summer months** persist for a **relatively long period of time**.
- In India, heatwaves typically occur between **March and June**, and in some rare cases **even extend till July**.
- Criterion for declaring a heatwave in India (as per IMD):**

<b>Based on Departure from Normal</b>	<b>Based on Actual Maximum Temperature</b>
<ul style="list-style-type: none"> <li>- <b>Heatwave:</b> If departure from normal is 4.5°C to 6.4°C</li> <li>- <b>Severe heatwave:</b> If departure from normal is &gt;6.4°C</li> </ul>	<ul style="list-style-type: none"> <li>- <b>Heatwave:</b> When actual maximum temperature <math>\geq 45^{\circ}\text{C}</math></li> <li>- <b>Severe heatwave:</b> When actual maximum temperature <math>\geq 47^{\circ}\text{C}</math></li> </ul>
<b>Note:</b> If above criteria met at least in 2 stations in a Meteorological sub-division for at least two consecutive days, then the heatwave will be declared on the second day.	
<b>Criterion for describing a heatwave in coastal stations:</b> When maximum temperature departure is 4.50C or more from normal, Heat Wave may be described provided actual maximum temperature is 370C or more.	

### CAUSES OF HEATWAVES

- High-pressure systems:** Heatwaves often occur when a high-pressure system becomes **stationary over a region**. High-pressure systems promote **sinking air**, which inhibits cloud formation and prevents the release of heat through convection. As a result, the air near the surface becomes **trapped and warms up**, leading to prolonged periods of high temperatures.
- Drought and lack of precipitation:** When the soil is dry, more of the sun's energy goes into **heating the air** rather than **evaporating moisture** from the ground. This leads to **increased temperatures** and further exacerbates the **heatwave conditions**.
- Role of global warming:** The global warming is poised to make heat waves longer, more intense, and more frequent.
  - The **IPCC's 6th Assessment Report** projects that, for  $1.5^{\circ}\text{C}$  of global warming, there will be increasing heat waves, longer warm seasons and shorter cold seasons.
  - The report also predicted that India will suffer more **frequent and intense heat waves** as well as increased precipitation in the **remaining decades of the 21st century**.
  - Heatwaves have increased in frequency in recent decades **due to global warming**. 2022 was the fifth warmest for India since 1901.
- Urbanization:** Rapid urbanization and the growth of concrete jungles in cities can lead to the phenomenon known as the "**urban heat island effect**".
- Urban areas with high population density, **buildings, and concrete surfaces** absorb and retain more heat, leading to higher temperatures, particularly during heatwaves.



- El Nino Effect:** During an El Nino event, the warming of the eastern Pacific Ocean can affect global weather patterns, causing changes in temperature, rainfall, and wind patterns around the world.
  - **The summer of the year 2023** is predicted to be excessively hot because of the earlier-than-expected occurrence of El Nino event.

## **IMPACT OF HEATWAVES**

- Agriculture and food production:** Prolonged high temperatures can damage crops, reduce yields, and even lead to crop failures. Heat stress can also affect livestock, resulting in reduced productivity and increased mortality rates.
  - **In 2022, a heatwave in March** curtailed **India's wheat production** to 100 million tonnes against local consumption of 103.6 million tonnes.
- Human health:** Heat-related illnesses like heatstroke, dehydration, and heat exhaustion can occur, and in severe cases, they can be fatal. The combination of high temperatures, increased air pollution, and heat-related illnesses can put a strain on healthcare systems.
  - India saw a **55% increase in deaths** due to **extreme heat** between **2000-2004 and 2017-2021**, found the Lancet research.
- Natural ecosystems:** Increased temperatures can lead to the degradation of habitats, changes in species distribution and behavior, and increased vulnerability to pests and diseases. Heatwaves can also contribute to the bleaching and death of coral reefs and affect marine ecosystems.
  - During the **summer of 2015-2016**, a prolonged and intense heatwave in the **Great Barrier Reef**, off the coast of Australia, resulted in **widespread coral mass bleaching**.
- Infrastructure strain:** Increased demand for air conditioning and cooling systems can overload power systems, leading to blackouts or **power outages**. Heat can also cause the **expansion of materials**, leading to road and pavement damage.
- Water resources:** Higher temperatures increase evaporation rates, leading to the **drying up of rivers, lakes, and reservoirs**. This can have consequences for drinking water supplies, irrigation for agriculture, and aquatic ecosystems.
- Economic losses:** The International Labour Organization (ILO) projects that economic losses related to heat stress will rise from **US\$280 billion** in **1995** to **\$2.4 trillion** in **2030**, with **lower-income countries** seeing the biggest losses.

## **HEATWAVE MITIGATION AND ADAPTATION STRATEGIES**

- Climate change mitigation:** The most effective way to avoid the negative impacts of heatwaves is to mitigate the climate change by reducing GHG emissions and minimize the rise in global mean temperatures.
  - **For example**, shifts towards **cleaner energies** like solar energy, wind energy etc. will not only reduce GHG emissions, but will also reduce localized air pollution and heat island effects within the cities.
- Need to build resilience:** A set of strategies to build resilience to extreme heat, "Resilience Strategies for Extreme Heat." Some strategies include:
  - Creating heat **preparedness plans**, identifying vulnerable populations, and opening cooling centers during extreme heat.
  - Installing cool and **green roofs** and cool pavement to reduce the urban heat island effect.
  - **Planting trees** to provide shade and to cool the air through evapotranspiration.
  - Pursuing **energy efficiency** to reduce demand on the electricity grid, especially during heat waves.
- Technological adaptations:** Strengthening heat resilience and early-warning capabilities may yield disproportionate economic benefits.
- Contingent and temporary adaptations:** Such as converting public spaces into cooling centers, deploying public evaporative cooling systems, and expanding emergency service availability.
- Urban greening:** It was identified as key adaptation strategy with **co-benefits** that include emissions reductions, energy savings, better health outcomes, reduced urban heat island effect, and water savings.
- Community engagement and education:** Engaging communities and promoting public education and awareness about heatwaves can encourage individuals to take preventive measures and adapt to changing climate conditions.

## **CRITICAL ASSESSMENT OF INDIA'S HEAT ACTION PLANS**

### **What are Heat Action Plans (HAPs)?**

- HAPs are **India's primary policy response** to economically damaging and life-threatening heatwaves.

- They prescribe a variety of **preparatory activities, disaster responses, and post-heatwave response** measures across state, and districts to decrease the impact of heatwaves.
- For example: Ahmedabad's Heat Action Plan**
  - In the backdrop of 2010's devastating heatwave, Ahmedabad had launched **India's first heat action plan in the year 2013**.
  - The heat action plan builds **resilience to extreme heat** events through **public awareness** and community outreach, **early warning systems**, capacity building among **healthcare** professionals, and promoting **adaptive measures** to reduce heat exposure.
  - An important component of the heat action plan includes '**cool roofs**' — coatings or materials that reflect sunlight and absorb less heat.

#### CPR's Report on India's Heat Action Plans (HAPs)

- The **Centre for Policy Research** has released a report titled '**How Is India Adapting to Heatwaves? An Assessment of Heat Action Plans with Insights for Transformative Climate Action**'.
  - The Centre for Policy Research is a Delhi based **non-profit public policy think tank**.
- The report assessed **37 heat action plans across 18 states** in order to understand how well-prepared India is to deal with heat waves.
- Key findings of the report include:**
  - **Not built for local context:** The report said that most heat action plans are not built for local context and have an **oversimplified view of hazards**. **Only ten out of 37 HAPs** reviewed seem to establish locally-defined temperature thresholds to declare heatwaves.
  - **Inadequate targeting of vulnerable groups:** Only two of 37 HAPs explicitly carry out and present **vulnerability assessments**. This leaves the implementer with little data on where to direct their scarce resources and could **lead to poor targeting**.
  - **Underfunded:** Only 11 of 37 HAPs discuss funding sources. Of these, eight asked implementing departments to self-allocate resources, indicating a **serious funding constraint**.
  - **Weak legal foundations:** The report noted a lack of legal authority in heat action plans, leading to **reduced bureaucratic compliance** with plan instructions.
  - **Insufficiently transparent:** The report said that there is **no national repository of heat action plans**, very few plans are listed online, and it is unclear whether the plans are being updated periodically.
- Recommendations of the report include:**
  - Inclusion of **climate projections**, and **localisation of the heat hazard** definition.
  - Incorporating **vulnerability assessments** and shift to **more holistic risk assessments**.
  - **Integrating heat action plans with existing schemes** and linking them to national climate funding mechanisms, while also exploring the inclusion of heat waves as a **notified disaster** to obtain funds for disaster preparedness.
  - Linking the heat action plans with **the legal structure** to ensure **better disaster management** and governance of the environment.
  - Creation of a **national repository of heat action plans** housed in the **National Disaster Management Authority (NDMA)** and conducting publicly accessible external evaluations of the plans' performance.

## INDIAN OCEAN DIPOLE

### CONTEXT

According to the **India Meteorological Department (IMD)**, there is an **80% chance** of a **positive Indian Ocean Dipole (IOD)** event in the upcoming months, which could potentially **counterbalance** the effects of the **ongoing El Niño**.

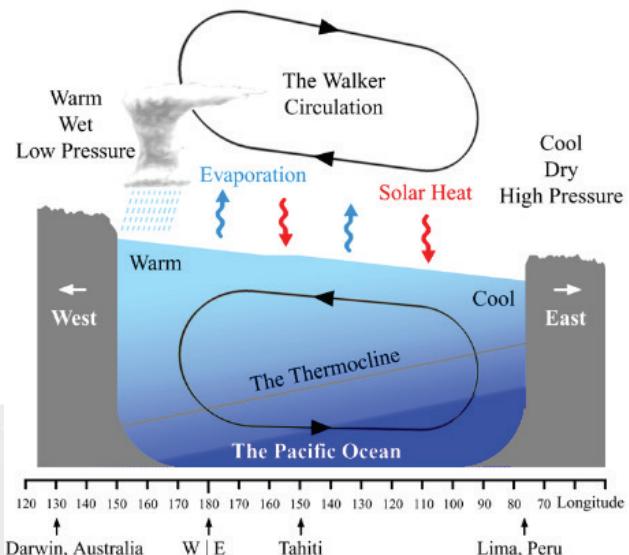
### WHAT IS INDIAN OCEAN DIPOLE (IOD)?

- The Indian Ocean Dipole (IOD) is an **ocean-atmosphere phenomenon** that occurs in **the Indian Ocean**.
- It is characterized by the **fluctuation of sea surface temperatures and atmospheric pressure patterns** between the **eastern (Bay of Bengal)** and the **western Indian Ocean (Arabian Sea)**.

- The IOD can significantly impact weather patterns and climate in the surrounding regions, including **parts of Africa, Southeast Asia, and Australia**.
- The IOD is defined by the **Dipole Mode Index (DMI)**, which is a measure of the anomalous sea surface temperature (SST) gradient between the western equatorial Indian Ocean and the southeastern equatorial Indian Ocean.

### LINK BETWEEN IOD AND ENSO

- The Indian Ocean Dipole can be thought of as the **Indian Ocean basin branch of the Walker Cell**, which in turn, is associated with the **El Niño Southern Oscillation (ENSO)**.
  - ENSO is an **irregular periodic variation** in winds and sea surface temperatures over the **tropical eastern Pacific Ocean**, affecting the climate of much of the tropics and subtropics.
  - The **longitudinal (east-west) circulation** across the equatorial Pacific is known as the Walker cell or **Walker circulation**.
- Changes in ocean temperatures **western Indian Ocean and eastern Indian Ocean (i.e., the dipole)** drive convection and alter the **Walker Cell circulation**.
- The link between IOD and ENSO is often **exhibited in the following ways**:
  - It is observed that, **positive IOD events** are often associated with **El Niño** and **negative events with La Niña**.
  - **When the IOD and ENSO are in phase** the impacts of El Niño and La Niña events are often most extreme over Australia, while when they are out of phase the impacts of El Niño and La Niña events can be diminished.



### MECHANISM OF IOD

- The IOD has three phases such as Neutral, Positive and Negative IOD.

<b>Neutral Phase</b>	<ul style="list-style-type: none"> <li><input type="checkbox"/> The neutral phase of the Indian Ocean Dipole (IOD) refers to a condition when there is <b>no significant difference in sea surface temperatures (SSTs)</b> between the western and eastern parts of the Indian Ocean.</li> <li><input type="checkbox"/> In a normal year, driven by the <b>Walker Cell</b>, the <b>warmer waters in the western Pacific</b> near Indonesia cross over into the Indian Ocean and make that part of the Indian Ocean <b>slightly warmer</b>. That causes the air to raise above this area and falls over the <b>western half of the Indian Ocean basin</b>.</li> </ul>

Negative IOD	<ul style="list-style-type: none"> <li><input type="checkbox"/> The negative phase of the IOD is driven by <b>cooler than normal SSTs off the coast of Africa and warmer than normal SSTs to the west of Indonesia.</b></li> <li><input type="checkbox"/> This configuration of surface sea temperatures <b>gives the normal circulation a boost</b>, strengthening the Walker cell. Hence, negative IOD is often associated with La Niña.</li> <li><input type="checkbox"/> <b>Impacts of negative IOD:</b> <ul style="list-style-type: none"> <li>- The stronger circulation brings more consistent westerly winds over the ocean, <b>stronger convection over Indonesia</b>, and often <b>drought conditions for the Horn of Africa</b>.</li> </ul> </li> </ul> <div style="border: 1px solid black; padding: 10px;"> <p style="text-align: center;"><b>INDIAN OCEAN DIPOLE</b> Negative phase</p> <p>The diagram illustrates the negative phase of the Indian Ocean Dipole. It shows a clockwise circulation pattern. In the southern Indian Ocean, there is a region of cooler than normal SSTs off the coast of Africa. To the west, over Indonesia, there is increased convection with higher rainfall. The equator is marked at 180°E longitude. The diagram is labeled "NOAA Climate.gov".</p> </div>
Positive IOD	<ul style="list-style-type: none"> <li><input type="checkbox"/> The positive phase of the IOD is driven by <b>warmer than normal SSTs off the coast of Africa and cooler than normal SSTs to the west of Indonesia.</b></li> <li><input type="checkbox"/> This configuration of surface sea temperatures <b>reverses the normal circulation</b> with easterly winds setting up across the equatorial Pacific, weakening the Walker cell. Hence, positive IOD is often <b>associated with El Niño</b>.</li> <li><input type="checkbox"/> <b>Impacts of positive IOD:</b> <ul style="list-style-type: none"> <li>- The reversed circulation suppresses convection over <b>Indonesia</b>, and leads to <b>predominately dry weather</b> and potential for drought.</li> <li>- <b>Over the Horn of Africa, convection is enhanced</b> and rainfall is much more abundant than usual.</li> </ul> </li> </ul> <div style="border: 1px solid black; padding: 10px;"> <p style="text-align: center;"><b>INDIAN OCEAN DIPOLE</b> Positive phase</p> <p>The diagram illustrates the positive phase of the Indian Ocean Dipole. It shows an easterly circulation pattern. In the southern Indian Ocean, there is a region of warmer than normal SSTs off the coast of Africa. To the west, over Indonesia, there is increased convection with higher rainfall. The equator is marked at 180°E longitude. The diagram is labeled "NOAA Climate.gov".</p> </div>

### IMPACT OF IOD ON SOUTH WEST MONSSON

- Increased rainfall due to positive IOD:** There is no established correlation between Indian summer monsoon rainfall and IOD. But studies have shown that a positive IOD year sees more than normal rainfall over central India. It was demonstrated that a positive IOD index often negated the effect of El Niño, resulting in increased Monsoon rains.

- Droughts Due to negative IOD:** A negative IOD, on the other hand, complements El Niño leading to severe droughts.
- Cyclones:** At the same time, positive IOD results in more cyclones than usual in Arabian Sea. Negative IOD results in stronger than usual cyclogenesis (Formation of Tropical Cyclones) in the Bay of Bengal. Cyclogenesis in Arabian Sea is suppressed during this time.

## LIGHT POLLUTION

### CONTEXT

In a study published in the ‘**Science Journal**’, researchers have documented the **impacts of light pollution** on economy, ecosystems, human health etc.

### WHAT IS LIGHT POLLUTION?

- Light pollution refers to the **excessive or misdirected artificial lighting** that causes **adverse effects** on the environment, human health, and our ability to observe the night sky.
- It occurs when artificial light is used inappropriately or inefficiently, leading to the **excessive illumination** of the nighttime environment.
- It’s a side effect of **industrial civilization and urbanization**.
- Its **sources include** building exterior and interior lighting, advertising, outdoor area lighting (such as car parks), offices, factories, street lights and illuminated sporting venues.

### TYPES OF LIGHT POLLUTION

**01**

**Sky Glow:** It is the **bright halo** that appears over urban areas at night, a product of light being scattered by water droplets or particles in the air. It is the **most prevalent form** of light pollution.

**02**

**Glare:** It is the **excessive brightness** that can cause visual discomfort (for example, while driving).

**03**

**Light Trespass:** It is when light extends into an area where it is **not wanted or needed** (like a street light illuminating a nearby bedroom window).

**04**

**Clutter:** It is bright, confusing and **excessive groupings of light sources** (for example, Times Square in New York City).

#### Stats IQ: Light pollution across the globe and India

- According to the **World Atlas on Night Sky Brightness**:
  - More than **80% of the world's population** lives under **light-polluted skies**, meaning that the night sky is obscured by artificial light.
  - Nearly **one-third of the global population** cannot see the Milky Way due to light pollution.
  - Moreover, **23% of the world's land surfaces** between **75°N and 60°S**, **88% of Europe**, and almost half of the **United States** experience **light-polluted nights**.
- According to a study “**Artificial night sky brightness** and its impact on human health and environment in India” **published in 2019**, the brightness of India’s night skies has increased by around **20% over the past decade**.
- The above study also found that around **70% of India's population** lives under **light-polluted skies**, and the problem is particularly acute in major cities like **Mumbai, New Delhi, and Kolkata**.

### IMPACT OF LIGHT POLLUTION

- Human health:** An increased amount of light at night lowers melatonin production, which results in sleep deprivation, fatigue, headaches, stress, anxiety, and other health problems.
- Environmental impacts:**
  - **Impact on nocturnal wildlife:** Light pollution radically alters the night time environment by turning night into day, which will have negative impact on physiology, breeding patterns and mating behaviors of nocturnal animals.
  - **Disrupting ecosystems:** Artificial light can disrupt the natural rhythms of wildlife, such as birds, insects, and sea turtles. This can make it difficult for them to navigate, feed, and reproduce, which can have a ripple effect on entire ecosystems.

- **Disturbing migratory patterns:** Birds, butterflies, and other animals rely on the stars and moonlight to navigate during migration. Artificial light can disorient and confuse these animals, making it difficult for them to reach their destination.
  - **Insect biodiversity loss:** Artificial light alters the patterns of insect movement, foraging, reproduction and predation of insects resulting in the decline of insect population.
  - **Greenhouse Gas Emissions:** The energy consumed for lighting contributes to greenhouse gas emissions. It is estimated that light pollution produces around 12 million metric tons of carbon dioxide (CO<sub>2</sub>) emissions annually.
- Economic impacts:** Light pollution can have a significant impact on the economy by reducing visibility, hindering astronomical research, and diminishing the value of dark skies for tourism and recreation.
- Impacts on astronomical observations:** Light pollution is one of the main factors that affect astronomical observations, which makes it difficult to see celestial objects from the ground.
- Energy consumption:** Light pollution contributes to energy waste as much of the light is directed upwards and not towards the intended targets.

### **GLOBAL INITIATIVES TO CURB LIGHT POLLUTION**

- The International Dark-Sky Association (IDA):** The IDA is a non-profit organization that works to protect the night skies for present and future generations by advocating for responsible outdoor lighting and promoting dark sky places.
- The Globe at Night program:** This program is an international citizen-science campaign to raise public awareness of the impact of light pollution.
- The World Atlas of Artificial Night Sky Brightness:** This project, led by researchers, compiles and maps global data on artificial sky brightness. It helps researchers, policymakers, and the public understand the extent and distribution of light pollution.
- The International Year of Light and Light-based Technologies (IYL 2015):** It was by the United Nations to raise awareness of the importance of light and optical technologies in our daily lives, and to encourage the responsible use of artificial light to reduce light pollution.

### **WAY FORWARD**

- Efficient Lighting Technology:** Promoting the use of energy-efficient lighting technologies such as light-emitting diodes (LEDs) and ensuring that they are properly designed and shielded to minimize light pollution.
- Smart Lighting Systems:** Utilizing smart lighting systems that can be programmed to adjust brightness levels based on occupancy and time of day. These systems can reduce light pollution by providing the right amount of light when and where it is needed, avoiding over-illumination.
- Outdoor Lighting Regulations:** Implementing regulations to control the intensity, direction, and color temperature of outdoor lighting. This can help reduce light spillage and unnecessary upward light, focusing illumination where it is needed while minimizing light trespass and skylight.
- Education and Awareness:** Increasing the public awareness about the impacts of light pollution on the environment, human health, and astronomy is the need of the hour.
- Individual Actions:** There is a need to encourage individuals to take personal responsibility by using lighting judiciously. This includes turning off unnecessary outdoor lights, using motion sensor lights or timers, and choosing energy-efficient lighting options such as LED bulbs.
- International Cooperation:** Foster international cooperation and exchange of best practices to address light pollution on a global scale. Encourage countries to adopt lighting standards and regulations that prioritize dark skies and minimize light pollution.

## SCIENCE AND TECHNOLOGY

### TRANSGENIC CROPS IN INDIA

#### CONTEXT

Three states (Gujarat, Maharashtra, Telangana) have deferred a proposal by the **Genetic Engineering Appraisal Committee (GEAC)** to conduct field trials of a transgenic cotton seed that contains a gene, Cry2Ai which makes cotton resistant to pink bollworm.

#### WHAT ARE TRANSGENIC CROPS?

- Transgenic crops, also known as **genetically modified (GM)** crops are plants that have been modified through the **introduction of genetic material** from a different organism.
- The process of creating transgenic crops involves **isolating a desirable gene** from one organism and inserting it into the genetic material of the **target crop plant**.
- This gene is selected because it imparts a **specific desirable trait**, such as resistance to pests, tolerance to herbicides, improved nutritional content, or enhanced productivity.

#### VARIOUS TECHNOLOGIES USED IN THE CREATION OF TRANSGENIC CROPS

- **Recombinant DNA technology:** Recombinant It involves isolating and cutting the desired gene from one organism and inserting it into the genetic material (DNA) of the target plant.
- **Agrobacterium-mediated transformation:** Agrobacterium tumefaciens is a soil bacterium that naturally transfers DNA into plant cells. Scientists exploit this ability by using modified versions of Agrobacterium to introduce desired genes into plants.
- **Biolistics (Gene gun):** Biolistics involves using a gene gun to deliver DNA-coated microscopic particles into plant cells. The DNA particles are accelerated at high speeds and shot into the plant tissues.
- **CRISPR-Cas9 genome editing:** CRISPR-Cas9 is a powerful genome editing tool that enables precise modifications in the DNA sequence of an organism. This allows for the introduction, removal, or alteration of specific genes in the plant genome.
- **RNA interference (RNAi):** RNA interference is a mechanism that regulates gene expression. The use of RNAi enables the silencing of target genes in plants or plant-dwelling organisms, through the production of double stranded RNA (dsRNA) resulting in altered plant characteristics.

#### BENEFITS OF TRANSGENIC CROPS (OR GM CROPS)

- **Increased crop yield and productivity:** GM crops are often engineered to possess traits that enhance their yield potential. This includes traits like improved resistance to pests, diseases, and environmental stresses, as well as increased tolerance to herbicides.
- **Nutritional security:** Genetic engineering can be used to improve the nutritional composition of crops. For example, biofortified GM crops can be developed to have higher levels of essential vitamins, minerals, and other nutrients.
- **Economic benefits:** GM crops can provide economic benefits to farmers, such as increased yields, reduced input costs (e.g., pesticides, herbicides), and improved marketability of their produce.

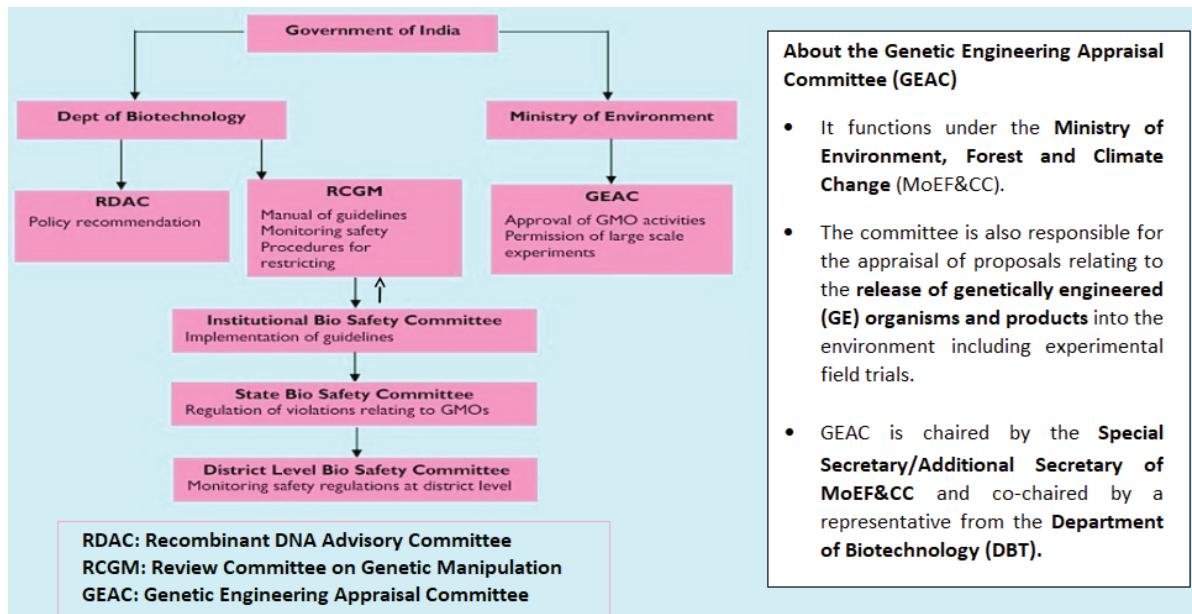
#### CONCERN WITH TRANSGENIC CROPS

- **Environmental impact:** There is a possibility of gene flow from GM crops to wild relatives, leading to unintended effects on biodiversity and ecosystem balance.
- **Development of superweeds:** There is a risk that genes from GM crops could transfer to related weed species, leading to the development of herbicide-resistant “superweeds.”
- **Emergence of insect resistance:** The continuous cultivation of GM crops expressing insecticidal traits, such as Bt crops, can lead to the evolution of insect populations that are resistant to the specific toxins produced by the GM crops.
- **Human health concerns:** Health risks associated with GM foods are concerned with toxins, allergens, or genetic hazards.
- **Socio-economic impacts:** The adoption of GM crops can have differential impacts on wealthier and poorer farmers, with wealthier farmers more likely to benefit due to their greater financial resources, access to information, and market connections.

## TRANSGENIC CROPS (OR GM CROPS) IN INDIA

- Bt cotton:**
  - Bt cotton, the only GM crop that is allowed in India, has two alien genes from the **soil bacterium Bacillus thuringiensis (Bt)** that allows the crop to develop a protein toxic to the common pest pink bollworm.
  - On the other hand, Bt cotton is derived with the insertion of an additional gene, from another soil bacterium, which allows the plant to resist the **common herbicide glyphosate**.
- Bt Brinjal:**
  - In Bt brinjal, a gene permits the plant to resist attacks of fruit and shoot borers.
  - In **2009**, **GEAC cleared** transgenic **Bt brinjal** for evaluation. But that **effort stalled** due to stiff opposition from anti-GMO activists and NGOs.
- DMH 11 Mustard:** In October 2022, GEAC has recommended the “environmental release” of the transgenic hybrid **mustard DMH-11** for seed production.
- GM soybean:** In April 2022, India has allowed **imports of an extra 550,000 tonnes** of GM soybean, to help the poultry industry reeling from a surge in local prices of the important animal feed.

## REGULATORY FRAMEWORK FOR TRANSGENIC CROPS (OR GM CROPS) IN INDIA



## PROCESS FOR THE CLEARANCE OF TRANSGENIC CROPS IN INDIA

- Development and laboratory testing:** Scientists develop GM crops by inserting transgenic genes into plants to confer specific traits and extensive laboratory testing is conducted.
- Confined field trials:** Once the GM crops show promise in laboratory tests, confined field trials are conducted. These trials are carried out in controlled environments, such as agricultural universities or plots managed by the Indian Council for Agricultural Research (ICAR).
- Assessment by regulatory bodies:** The Genetic Engineering Appraisal Committee (GEAC), under the Union Environment Ministry, is the apex regulatory body responsible for evaluating proposals for testing GM seeds. The GEAC reviews the data from confined field trials, assesses the potential environmental and health risks, and makes decisions on the approval of open field trials.
- Open field trials:** If approved by the GEAC, open field trials are conducted to assess the performance of GM crops under real-world conditions across different states and geographical regions. These trials evaluate factors such as crop yield, agronomic characteristics, and potential impacts on the environment and neighboring species.

- **Commercial clearance:** After successful open field trials and meeting specific criteria, GM crops can apply for commercial clearance. They need to demonstrate superiority over non-GM variants in terms of the claimed traits without posing harm to the environment or other cultivated species.

### WAY FORWARD

- India's reluctance to embrace genetic engineering technology may hinder its global competitiveness, as other countries leverage gene editing tools to enhance crop yields, disease resistance, and shelf life.
- Implementing transparent, science-based, and efficient biosafety regulations will not only attract industry investment but also foster the development of pest-resistant and disease-tolerant plant varieties in India.
- Approvals for technology should be made more efficient, relying on scientific evaluations.
- Strict monitoring is necessary to ensure adherence to safety protocols, with strong enforcement measures to prevent the proliferation of illegal genetically modified (GM) crops.

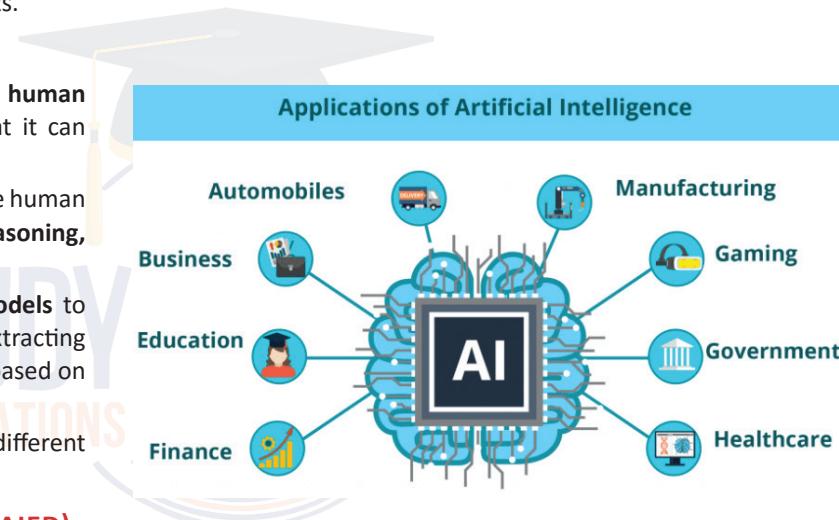
## ARTIFICIAL INTELLIGENCE IN EDUCATION

### CONTEXT

A meeting of the education ministers of G20 countries held in Pune agreed to equitable and inclusive use of 'Artificial Intelligence' in education and skilling that respects human rights.

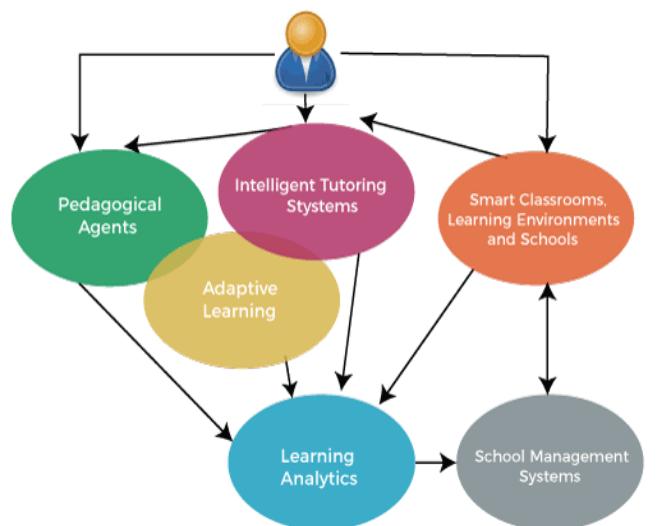
### ABOUT ARTIFICIAL INTELLIGENCE

- Artificial Intelligence (AI) is a simulation of human intelligence into a computer machine so that it can think and act like a human.
- AI systems are designed to simulate or replicate human cognitive abilities, such as perception, reasoning, learning, and problem-solving.
- AI rely on algorithms and computational models to process and analyze large amounts of data, extracting patterns and making predictions or decisions based on that information.
- AI has various uses and applications in different sectors, including education.



### ARTIFICIAL INTELLIGENCE IN EDUCATION (AIED)

- AIED refers to the application of AI technologies and techniques in the field of education.
- In the 1970s, AIED has occurred as a specialist area to cover new technology to teaching & learning, specifically for higher education.
- The main aim of AIED is to facilitate the learners with flexible, personalized, and engaging learning along with the basic automated task.
- Some popular trends in AIED include Intelligent tutor systems, smart classroom technologies, adaptive learning, and pedagogical agents.



### VARIOUS APPLICATIONS OF AI IN EDUCATION

- **Intelligent Tutoring Systems:** These systems analyze learner data, adapt the curriculum to individual needs, and offer interactive and engaging learning experiences.

- Adaptive Learning:** AI algorithms analyze student performance data to create personalized learning paths. It can identify knowledge gaps, suggest appropriate learning materials, and adjust the difficulty level of content to optimize the learning process for each student.
- Automated Grading and Feedback:** AI can automate the grading process for objective assessments, such as multiple-choice questions. It can also provide instant feedback to students, allowing them to identify areas for improvement and adjust their learning strategies accordingly.
- Natural Language Processing (NLP):** NLP can be used in language learning applications, automated essay grading, and intelligent chatbots that provide answers to student queries.
- Intelligent Content Creation:** AI can generate educational content, such as quizzes, exercises, and instructional materials.
- Virtual Reality (VR) and Augmented Reality (AR):** AI technologies, combined with VR and AR, can create immersive learning environments. These technologies provide interactive simulations, virtual field trips, and 3D visualizations, enhancing understanding and engagement in various subjects.
- Data Analytics and Predictive Modeling:** AI can analyze large volumes of educational data, such as student performance, attendance, and behavior, to identify patterns and trends. Predictive models can help educators identify students at risk of falling behind and provide timely interventions.
- Intelligent Learning Management Systems (LMS):** These systems can automate administrative tasks, such as scheduling and grading, allowing teachers to focus more on instruction.

### RISKS AND CHALLENGES WITH AI IN EDUCATION

- Overreliance on AI:** Overreliance on AI systems may neglect the importance of human guidance, mentorship, and the social aspects of education. AI should be seen as a complementary tool rather than a substitute for human teachers.
- Ethical Use and Transparency:** Transparency in how AI algorithms make decisions and provide recommendations is crucial to build trust among students, educators, and stakeholders.
- Lack of Universal Access and Equity:** Disparities in access to technology, reliable internet, and training can create a digital divide, leaving some students behind.
- Data Privacy and Security:** AI systems in education collect and analyze substantial amounts of student data. Robust data protection measures and compliance with privacy regulations are crucial.
- Algorithmic Bias and Fairness:** AI systems can inadvertently perpetuate biases present in the data they are trained on. If these biases are not addressed, it can lead to unfair treatment and discrimination in educational outcomes.

### CHALLENGES IN THE IMPLEMENTATION OF AI IN EDUCATION IN INDIA

A report by the UNESCO titled “Status of Education Report 2022 for India” ‘Artificial Intelligence (AI) in Education’ has highlighted the following challenges:

- There is a **lack of policies** on the role of AI in education and a **lack of resources and infrastructure** affects the spread of AI in education.
- There is a **dearth of training data** for AI in education systems in India.
- Barriers to digital learning in India**
  - **Inadequate technology infrastructure:** Only around 41.3% of schools had access to computers and 24.5% to the internet in 2020-2021.
  - **Inability of teachers:** In addition to technology infrastructure, the inability of most teachers to use technology effectively to assist their students' learning is a significant barrier.
  - **Digital divide:**
    - ✓ **Rural –urban divide:** Only 68% of adolescents in urban areas were found to use technology-enabled learning tools, and only 47% in rural areas.
    - ✓ **Gender divide:** 67 percent of the male population are using internet in India, while it is only 33 percent for female population.
    - ✓ **Children with disabilities,** from **migrant** families, living in **remote areas**, from **scheduled tribes and scheduled castes**, and **girls** in particular experience these inequalities most acutely.

## **EFFORTS BY THE GOVERNMENT OF INDIA TOWARDS AI IN EDUCATION**

- NEP 2020:** The National Education Policy, introduced in 2020, has recommended introducing contemporary subjects like **Artificial Intelligence in the curriculum.**
  - In accordance with the NEP, 2020, the NCERT has started the process of developing a **new National Curriculum Framework for School Education**, during which the potential for adding an introductory course on artificial intelligence (AI) at the secondary level.
- National Strategy for AI:** NITI Aayog has published the National Strategy for Artificial Intelligence wherein it has identified five core areas for the application of AI that includes Education, Healthcare, Agriculture, Smart Cities and Infrastructure, and Smart Mobility and Transportation.
- Education 4.0 India initiative:** The initiative was jointly launched in May 2020 by the World Economic Forum (**WEF**), the United Nations Children's Fund (**UNICEF**) and **YuWaah** (Generation Unlimited India).
  - It focuses on how **digital technologies** can enhance learning and reduce inequalities in access to education among children in India, with the overreaching aim of making **Indian students ready for 21st century jobs**, and India ready to benefit from the **fourth industrial revolution**.
  - It serves as a call to action for **all stakeholders** in the **ed-tech space** to come together to transform the sector.
- National Programme on Responsible Use of AI for Youth:** With the objective to empower the youth to become AI ready and help reduce the skill gap, government along with Industry partner has started this initiative to promote AI awareness among Government school going children.
- National Digital Education Architecture (NDEAR):** Union Budget 2021-22 has announced setting up of NDEAR within the context of a **Digital First Mindset**.
  - It is meant to enable a **common set of principles** and approaches to be followed in building, using and re-using technology for education.
  - NDEAR is under the aegis of **the Ministry of Education in collaboration with Ministry of Electronics and IT (MeitY)**.

## **WAY FORWARD**

- Recommendations by the UNESCO report:** The report has suggested the following for effective implementation of AI in Indian educational system:
  - **AI ethics in education** should be given top priority. All students and teachers should be ensured access to the latest technology.
  - Providing a comprehensive **regulatory framework** for AI in education should be accelerated.
  - Effective **public-private partnership** should be created.
  - Efforts should be made to **remove the biases** associated with algorithms and the discrimination arising out of it.
  - Necessary reforms are necessary to increase **public confidence in AI**.
  - **The private sector** can be consulted to better utilize the knowledge of students and academics in developing AI products.
- Beijing Consensus: UNESCO** has published the Beijing Consensus on Artificial Intelligence (AI) and Education, the first ever document to offer guidance and recommendations on how best to harness AI technologies for achieving the **Education 2030 Agenda**.
  - The Education 2030 Agenda aims to ensure inclusive and equitable quality education and promote lifelong learning opportunities for all by the year 2030, **forms a part of UN SDG 4**.
  - **The Beijing Consensus recommends the UNESCO's Member States to:**
    - ✓ **Plan AI in education policies** in response to the opportunities and challenges AI technologies bring, from a whole-government, multi-stakeholder, and inter-sectoral approach, that also allow for setting up local strategic priorities to achieve SDG 4 targets.
    - ✓ Support the development of **new models enabled by AI technologies** for delivering education and training where the benefits clearly outweigh the risks, and use AI tools to offer lifelong learning systems which enable personalized learning anytime, anywhere, for anyone.
    - ✓ Consider the use of relevant data where appropriate to drive the **development of evidence-based policy planning**.

- ✓ Ensure AI technologies are used to **empower teachers rather than replace them**, and develop appropriate capacity-building programmes for teachers to work alongside AI systems.
- ✓ Prepare the next generation of existing workforce with the values and **skills for life and work** most relevant in the AI era.
- ✓ Promote equitable and **inclusive use of AI** irrespective of disability, social or economic status, ethnic or cultural background or geographical location, with a strong emphasis on gender equality, as well as ensure ethical, transparent and auditable uses of educational data.

## HIGGS BOSON & LARGE HADRON COLLIDER (LHC) EXPERIMENT

### CONTEXT

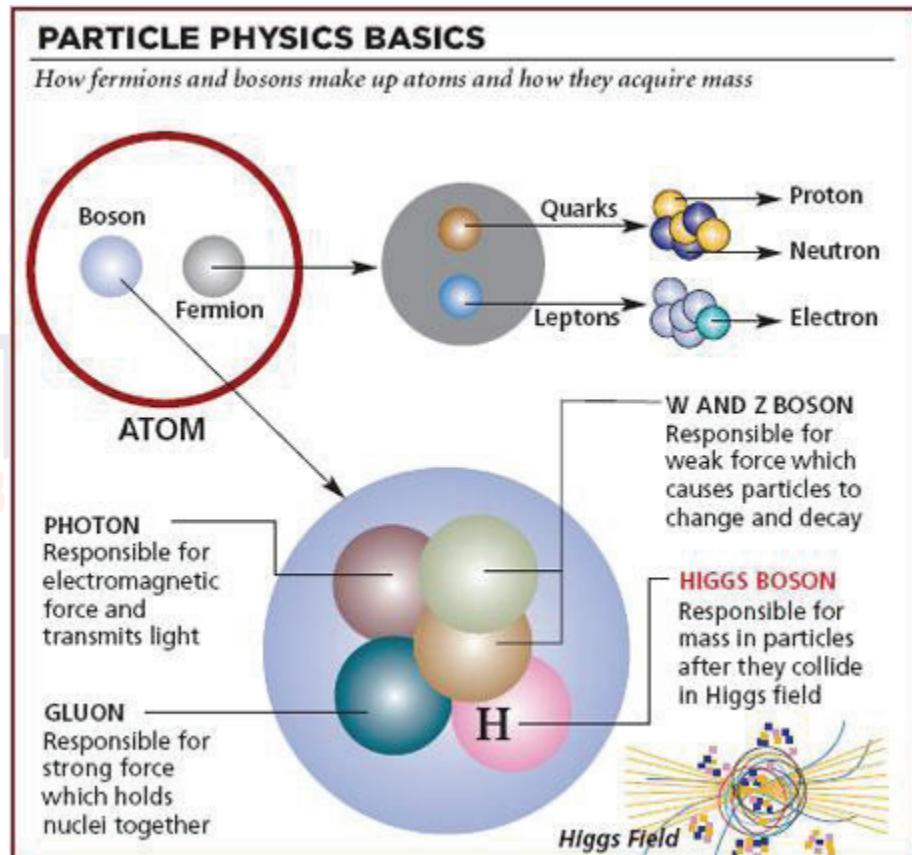
Physicists working with the Large Hadron Collider (LHC) particle-smasher at CERN have detected a Higgs boson decaying into a Z boson particle and a photon.

### BACKGROUND

- The **discovery of the Higgs boson** at CERN's Large Hadron Collider (LHC) in 2012 marked a significant milestone in particle physics. (Refer Image)
- Since then, the ATLAS and CMS collaborations have been investigating the **properties of the Higgs boson** and searching to establish the different ways in which it is **produced** and **decays** into other particles.
- **CERN, the European Organization for Nuclear Research**, is one of the world's largest and most respected centres for scientific research.
- **ATLAS and CMS** are the two '**general-purpose detectors**' at the LHC. They're looking for any new particles or unknown physics which the LHC's record-breaking high energies might allow to observe for the first time.

### WHAT IS HIGGS BOSON?

- **Definition:** Higgs Boson is the **fundamental force-carrying** subatomic particle associated with the **Higgs field**, a field that **gives mass** to other fundamental particles such as electrons.
  - For example, when an electron interacts with the Higgs field, the effects it experiences are said to be due to its interaction with Higgs bosons.
  - Higgs boson plays such a cardinal role in **subatomic physics** that it is sometimes referred to as the "**God particle**."
  - It is one of the **17 elementary particles** that make up the Standard Model of particle physics.
  - It was proposed in **1964** by **Peter Higgs, François Englert**, and four other theorists to explain **why certain particles have mass**.
  - The particle was finally discovered on July 4, 2012, by researchers at the **Large Hadron Collider (LHC)**.



- Implication:** The stronger a particle's interaction with the Higgs boson, the more mass it has.
- This is why electrons have a certain mass, protons have more of it, and neutrons have just a little bit more than protons.
  - **Photons**, the particles of light, have no mass because they don't interact with Higgs bosons.
  - A Higgs boson can also interact with another Higgs boson and this is how it is known that its mass is greater than that of protons or neutrons.

#### The Indian Touch

- The sub-atomic particle "boson" is named after Bengali physicist **Satyendra Nath Bose**.
- His pioneering work in the field in the early 1920s changed the way particle physics has been studied.
- The work done by **Bose and Albert Einstein** laid the foundation for the discovery of the God particle.
- Bose specialised in mathematical physics and was a fellow of the Royal Society, he was awarded the **Padma Vibhushan in 1954**.

#### WHAT IS LARGE HADRON COLLIDER (LHC)?

- It is the world's largest and most powerful particle accelerator.
- It is located near Geneva, Switzerland; across the border of France and Switzerland.
- The LHC, built by CERN, is on the energy frontier of physics research, conducting experiments with highly energised particles.
- The LHC can reproduce the conditions that existed within a billionth of a second of the Big Bang.
- The colossal accelerator allows scientists to collide high-energy subatomic particles in a controlled environment and observe the interactions.
- One of the most significant LHC breakthroughs came in 2012 with the discovery of the Higgs Boson.

#### WHAT IS STANDARD MODEL OF PARTICLE PHYSICS?

- Best Theory:** It is scientists' current best theory to describe the most basic building blocks of the universe.
  - It explains how particles called **quarks** (which make up protons and neutrons) and **leptons** (which include electrons) make up all known matter.
  - It also explains how force carrying particles, which belong to a broader group of **bosons**, influence the quarks and leptons.
- The Standard Model explains 3 of the 4 fundamental forces that govern the universe:
  - **Electromagnetism:** Electromagnetism is carried by photons and involves the interaction of electric fields and magnetic fields.
  - **Strong Force:** The strong force, which is carried by gluons, binds together atomic nuclei to make them stable.
  - **Weak Force:** The weak force, carried by **W and Z bosons**, causes nuclear reactions that have powered the Sun and other stars for billions of years.
  - **Gravity:** The fourth fundamental force is gravity, which is not adequately explained by the Standard Model.
- Limitation of Standard Model:** The Higgs boson gives mass to quarks, charged leptons and the W and Z bosons.
  - However, Standard Model can't explain whether the **Higgs boson** also gives mass to **neutrinos**.
    - ✓ Neutrinos are ghostly particles that interact very rarely with other matter in the universe.
  - This theory also can't explain what dark matter is.
- Testing Predictions is Required:** Testing the predictions of standard model will enable the physicists to find whether there are any cracks in the Model through which they can validate new theories of physics.

#### HIGGS BOSON-LHC EXPERIMENT AND ITS SIGNIFICANCE

- This time, the ATLAS and CMS teams have combined their data, collected between 2015 and 2018, to find the first evidence of the rare process in which the **Higgs boson decays into a Z boson and a photon**.
  - Z boson is the **electrically neutral** carrier of the weak force.
  - Photon is the **carrier of the electromagnetic force**.
- The Process:** The decay of the Higgs boson into a Z boson and a photon is similar to that of a decay into two photons.

- In these processes, the Higgs boson **does not decay directly** into these pairs of particles.
  - Instead, the decays proceed via an intermediate “loop” of “virtual” particles that pop in and out of existence and **cannot be directly detected**.
  - These virtual particles could include new, as yet **undiscovered particles** that interact with the Higgs boson.
  - The LHC creates a Higgs boson by accelerating billions of **highly energetic protons** into a head-on collision, releasing a tremendous **amount of energy** that condenses into different **particles**.
  - When a Higgs boson is created in this hot soup, it has a fleeting **interaction with virtual particles that creates a Z boson and a photon**.
- Importance:** This Higgs boson decay could provide **indirect evidence** of the **existence of particles** beyond those predicted by the Standard Model of particle physics.

### IS THE NEW FINDING RELEVANT?

- As the Higgs boson is heavy, it is an **unstable particle** that decays into lighter particles. It **cannot be predicted** which combination of particles it will decay into.
- However, the theory that describes the properties of fundamental particles has clearly predicted the **probability** that it will take a **given path**.
- The new finding of Higgs Boson decay has significantly increased the **statistical precision** and reach of searches at CERN.
- However, this significance is **even now not high enough** for the teams to claim a Higgs boson **decayed to a Z boson and a photon** with 100% certainty, reflecting the rarity of the decay pathway.

## LAB GROWN DIAMONDS

### CONTEXT

Prime Minister Narendra Modi presented an exquisite gift to US First Lady Jill Biden - a lab-grown 7.5-carat green diamond – on his state visit to the United States.

### WHAT ARE LAB-GROWN DIAMONDS (LGDS)?

- LGDs, also known as **synthetic** diamonds or **cultured diamonds**, are diamonds that are created in a **laboratory environment** rather than being formed naturally deep within the Earth's crust.
- The **world's first-ever LGD** was created in **1954** by scientists working at a **General Electric** research laboratory in New York.
- These diamonds have the **same chemical composition**, crystal structure, and physical properties as natural diamonds.
- However, LDGs are **different from diamond simulants**, which are materials that resemble the appearance of diamonds but have different chemical compositions and physical properties.
  - Unlike lab-grown diamonds, simulants **do not contain** carbon atoms arranged in a **crystal lattice** structure like natural or synthetic diamonds.
  - **Examples of diamond stimulants** include Moissanite, Cubic Zirconia (CZ), White Sapphire, YAG, etc.

### HOW LDGS ARE PRODUCED?

Lab-grown diamonds are produced by **two primary methods**:

- High-Pressure High-Temperature (HPHT):**
  - This method involves placing a small diamond seed in a chamber and applying high pressure and temperature **to simulate the natural conditions** under which diamonds form in the Earth's mantle.
    - ✓ **Diamond seeds** are small pieces of natural or synthetic diamond material that serve as the foundation for the growth of larger diamonds in a laboratory setting.
    - ✓ Usually, **graphite is used as the “diamond seed”** and when subjected to these extreme conditions.
  - Carbon atoms from a carbon-rich source are then dissolved and crystallize around the seed, gradually growing into a larger diamond.
- Chemical Vapor Deposition (CVD):**
  - In this method, a diamond seed is placed in a chamber filled with **carbon-rich gases**.

- These gases are then **ionized**, breaking down the **molecular bonds** and causing carbon atoms to separate and deposit onto the diamond seed, layer by layer.
- Over time, the **layers build up**, resulting in the growth of a complete diamond.

## CHARACTERISTICS AND APPLICATIONS OF LDGS

- LDGs have basic properties **similar to natural diamonds**, including their **optical dispersion**, which provides them with the signature diamond sheen.
- However, since they are created in **controlled environments**, many of their properties can be enhanced for various purposes.
- LDGs are most often used for **industrial purposes**, in machines and tools.
  - Their **hardness and extra strength** make them ideal for use as cutters.
  - Pure synthetic diamonds have **high thermal conductivity**, but negligible electrical conductivity.
  - This combination is **invaluable for electronics** where such diamonds can be used as a heat spreader for high-power laser diodes, laser arrays and high-power transistors.

## ADVANTAGES OF LDGS

- Declining natural reserves:** As the Earth's reserves of natural diamonds are getting depleted, LDGs are slowly replacing the prized gemstone in the jewellery industry.
- Low environmental footprint:** The environmental footprint of a diamond grown in a laboratory is much lesser than that of a naturally-occurring diamond.
- Lower energy consumption:** It takes ten times more energy to extract a natural diamond (by open pit mining) from the earth than it takes in creating one above the ground.
- Similar features:** Just like natural diamonds, since LDGs also undergo similar processes of polishing and cutting, they have a similar lustre. Furthermore, lab-grown diamonds are indistinguishable from natural diamonds to the naked eye and even to many gemological tests.

## UNION BUDGET 2023-24'S PUSH FOR LDGS

- Reducing custom duties:** The 2023 Union Budget promises to reduce the basic customs duty on seeds used in the manufacture of lab-grown diamonds in a bid to popularize their production in India—the duty on seeds for rough LDGs will be reduced from 5% to nil.
- Research grant:** A five-year research grant will also be provided to one of the Indian Institute of Technologies (IITs) for research and development in the field of LDGs.
- New tariff lines:** A proposal for the creation of new tariff lines to help in better identification of a number of products, including synthetic diamonds has also been made.

## LAB GROWN MEAT

### CONTEXT

Two California-based companies **were cleared to make and sell cell-cultivated chicken** for human consumption.

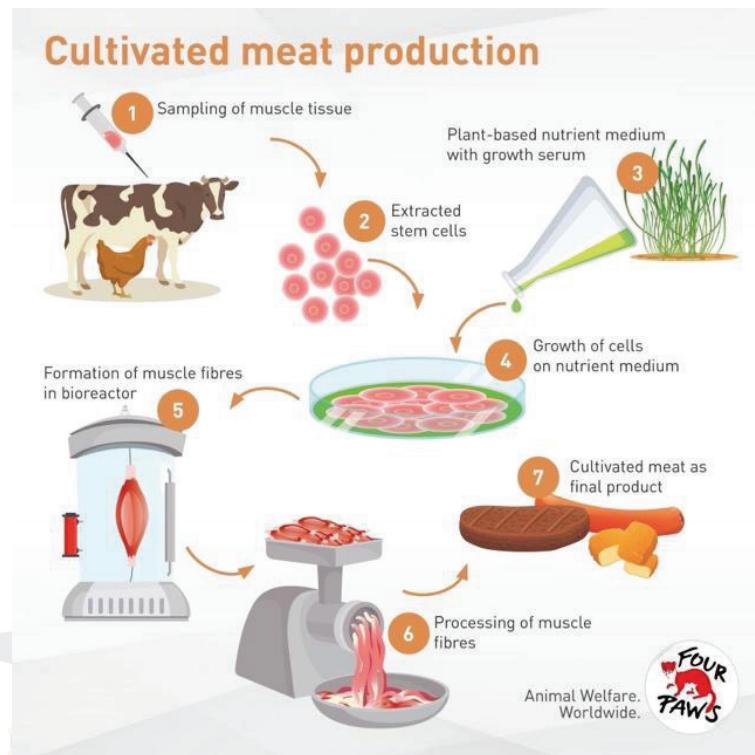
### WHAT IS CELL CULTIVATED/LAB GROWN MEAT?

- Cell-cultivated chicken refers to **meat that is produced through** a process called **cell culture or cell cultivation**.
- Instead of **raising and slaughtering live animals**, the meat is grown from animal cells in a laboratory setting.
- The process involves **isolating cells from the chicken, such as muscle cells**, and providing them with the necessary nutrients, growth factors, and environmental conditions to replicate and grow.
- These **cells multiply and develop into muscle tissue**, which is the main component of chicken meat.
- Over time, the cell-cultivated meat accumulates and forms a mass of minced meat that can be **further processed and transformed into various chicken products**.
- Additives may be used to enhance the texture and taste of the final product.
- The **goal** of cell-cultivated chicken is to **provide an alternative method of meat production** that reduces reliance on traditional animal agriculture and offers a more **sustainable and environmentally-friendly approach**.

## EXISTING FORMS OF CELL CULTIVATED MEAT

Currently, the field of cell-cultivated meat is still in its early stages of development, and the commercial availability of different types of cell-cultivated meat is limited.

- Chicken** is the second most widely consumed meat in the world, according to the UN Food and Agriculture Organization (FAO).
- However, in the U.S. it has been the highest consumed meat since 2010. Good Meat and Upside have focused on chicken, and plan to expand their offerings to include other meats in the future.
- Reports note that “**beef, with its higher fat content and more complex flavour**, is harder to replicate.”
- Researchers are also developing cell-cultivated versions of **sea bass, tuna, and shrimp**.
- A 2021 report estimated that there were 107 companies in 24 countries working on developing similar alternatives to meat (two companies were from India).



## NEED FOR CELL-CULTIVATED MEAT

Cell-cultivated meat was created to address several key issues and challenges associated with traditional animal agriculture.

- Climate Mitigation:**
  - One of the primary motivations behind cell-cultivated meat is to reduce the environmental impact of livestock production.
  - Traditional animal agriculture, particularly the production of beef, contributes significantly to greenhouse gas emissions.
  - By producing meat through cell culture, it is expected to reduce emissions associated with livestock farming and contribute to climate change mitigation.
- Land Use Efficiency:**
  - Cell-cultivated meat has the potential to utilize land more efficiently compared to traditional livestock farming.
  - Livestock farming requires vast amounts of land for animal grazing, feed production, and infrastructure.
  - Cell-cultivated meat production, on the other hand, could require significantly less land, potentially helping to conserve natural habitats and reduce deforestation.
- Animal Welfare:**
  - Concerns about animal welfare and the ethical treatment of animals in traditional farming practices have led to the development of cell-cultivated meat.
  - By producing meat directly from animal cells, it eliminates the need for raising and slaughtering animals, thus reducing animal suffering and cruelty associated with industrial farming practices.
- Food Security:**
  - With the global population projected to increase in the coming decades, there are concerns about meeting the growing demand for food.
  - Cell-cultivated meat is seen as a potential solution to enhance food security by providing a sustainable and resource-efficient method of meat production.
  - It offers the possibility of producing meat at scale, reducing reliance on traditional livestock farming and its limitations.
- Less contamination:** Proponents of cultured meat claim that it has a significantly lower risk of contracting the **E. coli** bacteria, which is found in animal faeces, and other contaminants that one could encounter at a meat processing facility.
  - A group of bacteria called **Salmonella** is the most typical source of foodborne illness in the US.

- **Salmonella** can be found on unwashed fruit and vegetables, raw beef, raw eggs, and raw poultry that can be prevented in Cell Cultivated Meat.
- Less use of antibiotics:** In the past, animals were frequently treated with antibiotics to keep them healthy. Antibiotic resistance is a condition where the medications no longer effectively treat infections.

## CONCERNS

The challenges of cell-cultivated meat can be broadly categorized into four areas:

- Consumer Acceptance:** One of the key challenges is achieving widespread consumer acceptance of cell-cultivated meat. It needs to closely match the taste, texture, and appearance of traditional animal meat to gain market traction.
- Cost:** The cost of cell-cultivated meat production remains a significant challenge. Currently, the production process is expensive, and it is expected to remain so in the near future. The cost of obtaining high-quality cells, the development and maintenance of suitable growth media, and the implementation of quality control measures can contribute to the high costs.
- Resources and Cultivation:** Cell-cultivated meat production requires a range of resources. Obtaining high-quality cells for cultivation, developing suitable growth media, and ensuring optimal conditions for cell culture are crucial. Scaling up production while maintaining quality and efficiency presents a complex challenge. Efficient utilization of resources and optimizing the cultivation process are areas of focus for researchers and companies.
- Environmental Impact and Uncertainties:** There are uncertainties regarding the environmental impact of cell-cultivated meat production. While it is expected to have a lower environmental footprint compared to traditional animal agriculture, there are concerns related to the sourcing of growth media and the overall energy-intensive nature of the process. The environmental impact can vary based on the specific production methods and resources used.

## WAY FORWARD

- Enhance consumer awareness and acceptance** by engaging in transparent communication regarding the advantages and safety of lab-grown meat.
- Allocate resources for research and development** to enhance production processes, improve taste, texture, and cost efficiency of lab-grown meat.
- Prioritize technological advancements and optimize production facilities** to drive down costs and meet the growing demand for lab-grown meat.
- Foster international collaboration, promote regulatory harmonization, and facilitate trade to expand the global market for lab-grown meat.
- Given the nascent nature of cultivated meat, it is crucial to establish a **comprehensive regulatory framework**.
- Governments and regulatory bodies **must determine appropriate classifications** and regulations to ensure the safety, quality, and consumer confidence in cultivated meat products.

## ANTI-MICROBIAL RESISTANCE

### CONTEXT

The scientific community has expressed its concerns **about the potential removal of measures addressing antimicrobial resistance (AMR)** in the upcoming draft “pandemic treaty”, which is being developed by the World Health Organization (WHO) to protect nations and communities from future pandemic emergencies.

### MORE ON THE NEWS

- The draft Pandemic Instrument is a **global treaty being developed** to protect nations and communities from future pandemic emergencies.
- It **aims to prevent pandemics, save lives, reduce disease burden** and protect livelihoods, through strengthening the world's capacities for preventing, preparing for and responding to, and recovery of health systems from pandemics.
- It **fosters an all-of-government and all-of-society approach** and lays out aspects on pandemic prevention, preparedness, and response.

## **UNDERSTANDING ANTI-MICROBIAL RESISTANCE**

- AMR is the ability of microorganisms to persist or grow in the presence of drugs designed to inhibit or kill them.
- It is one of the major threats to global health, food security and development as it threatens the effective prevention and treatment of infections caused by bacteria, parasites, viruses and fungi.
- Antimicrobial resistant organisms are found in people, animals, food, plants and the environment (in water, soil and air).

## **REASONS FOR THE SPREAD OF ANTIMICROBIAL RESISTANCE (AMR)**

- Antibiotic consumption in humans:** Excessive and inappropriate use of antibiotics in human healthcare can contribute to the emergence of bacterial strains resistant to multiple antibiotics. This includes the unnecessary use of antibiotic fixed dose combinations.
- Social factors:** Practices such as self-medication and easy access to antibiotics without prescription can contribute to the misuse and overuse of antibiotics. Lack of knowledge about when to use antibiotics appropriately also plays a role.



- Cultural activities:** Certain cultural practices, such as mass bathing in rivers during religious mass gatherings, can contribute to the spread of AMR by facilitating the exchange of antibiotic-resistant organisms.
- Antibiotic consumption in food animals:** The use of antibiotics, especially those crucial to human health, as growth promoters in food animals, such as poultry, can contribute to the development of AMR. Antibiotic residues can enter the food chain and contribute to the spread of resistance.
- Pharmaceutical industry pollution:** Wastewater effluents from antibiotic manufacturing units often contain significant amounts of antibiotics. When these effluents are not properly treated, they can contaminate water bodies, leading to the presence of antibiotic residues and antibiotic-resistant organisms.
- Environmental sanitation:** Inadequate disposal of sewage and improper treatment of wastewater can contribute to the contamination of rivers and other water bodies with antibiotic residues and antibiotic-resistant bacteria.
- Infection control practices in healthcare settings:** Poor adherence to infection control practices, such as hand hygiene, in healthcare facilities can facilitate the transmission of antibiotic-resistant bacteria among patients.

## **SCALE OF ANTIMICROBIAL RESISTANCE (AMR)**

- Global:** In 2019 alone, drug-resistant superbugs killed about 1.27 million people globally — a toll more than HIV/AIDS or malaria — and according to the UN estimates, that number could reach 10 million by 2050.
- India:** India has been referred to as ‘the AMR capital of the world’ & we are the largest consumer of antimicrobials globally. The country is projected to have 1.6 million multi-drug resistant infectious cases in 2040, which is significantly higher than any country.

## **IMPACTS OF ANTIMICROBIAL RESISTANCE**

- Economic impacts:** A report by the World Bank Group entitled “Drug Resistant Infections: A Threat to Our Economic Future”, highlighted that, drug-resistant infections have the potential to cause a level of economic damage similar to—and likely worse than—that caused by the 2008 financial crisis.
  - Annual global GDP could decrease by approximately 1% and there would be a 5–7% loss in developing countries by 2050.
- Social impacts:** AMR leads to higher medical costs, prolonged hospital stays, and increased mortality and morbidity, and decreased productivity.

- Environmental impacts:** As the natural environment is an important reservoir of AMR, the release of antimicrobial compounds into the environment leads to contamination of soil and water, and gene pollution and alteration in the wildlife.

### **GLOBAL MEASURES TO TACKLE ANTIMICROBIAL RESISTANCE**

- Global Action Plan on Antimicrobial Resistance (GAP):** Countries have adopted it during the 2015 World Health Assembly and committed to the development and implementation of multisectoral national action plans.
- The Global Antimicrobial Resistance and Use Surveillance System (GLASS):** WHO launched the Global Antimicrobial Resistance and Use Surveillance System (GLASS) in 2015 to continue filling knowledge gaps and to inform strategies at all levels.
- STI-led BRICS Innovation Cooperation Action Plan (2021-24):** With one of the thematic areas being the AMR.
- World Antimicrobial Awareness Week (WAAW):** Held annually since 2015, WAAW is a global campaign that aims to raise awareness of antimicrobial resistance worldwide and encourage best practices among the general public, health workers and policy makers to slow the development and spread of drug-resistant infections.

### **MEASURES TAKEN TO ADDRESS AMR IN INDIA**

- National Programme on AMR containment:** Launched in 2012. Under this programme, AMR Surveillance Network has been strengthened by establishing labs in State Medical College.
- National Action Plan on AMR:** It focuses on One Health approach and was launched in April 2017 with the aim of involving various stakeholder ministries/departments.
- AMR Surveillance and Research Network (AMRSN):** It was launched in 2013, to generate evidence and capture trends and patterns of drug resistant infections in the country.
- AMR Research & International Collaboration:** Indian Council of Medical Research (ICMR) has taken initiatives to develop new drugs /medicines through international collaborations to strengthen medical research in AMR.

### **WAY FORWARD**

- The global challenge to address AMR goes **beyond the production of new antibiotics** and therapies.
- Reducing demand for new antibiotics through **public awareness, infection prevention and control, prudent and rational use of antibiotics**, as well as **effective diagnosis and surveillance** of antibiotic-resistant infections and antibiotic use, with a **One Health perspective** are crucial when dealing with this problem globally.

## SOCIAL ISSUES

### WORLD'S LARGEST FOOD STORAGE SCHEME

#### CONTEXT

The Union Cabinet of India has approved the Constitution and Empowerment of an Inter-Ministerial Committee (IMC) for Facilitation of "World's Largest Grain Storage Plan in Cooperative Sector".

#### BACKGROUND

- The Union Government shall bring a policy for **world's biggest food grain storage scheme** under the cooperative societies sector.

#### WHY DOES INDIA NEED A GRAIN STORAGE SCHEME?

- India currently produces about **3,100 lakh tonne** of foodgrains a year while the country's current godown facilities can **store only up to 47 % of the produce**.
  - Additionally, agricultural production is currently being increasingly supported by the minimum support price (MSP) and procurement regime.
  - This has created the **problem of plenty** as India faces challenges in managing this surplus.
  - This also leads to **post-harvest losses** and hampers the efforts to maintain an optimal buffer stock.
- About 10 mt of foodgrains are stored in **open warehouses** making them highly prone to loss of quantity and quality.
- Lack of agricultural storage capacity leads to **wastage of food grains** and farmers are forced to **sell their crops at low prices**.
- Also, inefficient storage structures that are **unsuitable for long-term grain storage**, lead to spoilage.
- There is **lack of regular cleaning**, pest control measures, and repairs in warehouses leading to structural weaknesses and **pest infestations**.
- There is **lack of advanced technologies** for storage, such as moisture control systems and temperature regulation, which are essential for maintaining grain quality.
- **Limited financial resources** are allocated for the construction, maintenance, and modernization of storage infrastructure.
- The Central Government aims to set up modern foodgrain storage in the form of **steel silos** as they are more resistant to grain loss, and thus, cost-effective.
  - However, Silos are an efficient mode of storage only if they are **near to railroads**.
  - The silo developers require a **long stretch of land** for building better connectivity to the railroads adding to the **cost of silo construction**.

#### KEY POINTS OF GRAIN STORAGE SCHEME

- **Objective:** The new scheme aims to **bridge the production and storage gap** by significantly increasing storage capacity and reducing wastage.
  - The scheme aims to **expand foodgrain storage** facilities in the country that will boost the cooperative sector.
  - With the current grain storage capacity at approximately 1,450 lakh tonnes, this scheme **seeks to add 700 lakh tonnes of storage** over the next 5 years, eventually reaching a total capacity of 2,150 lakh tonnes.
- **Allocation:** The government will make an allocation of approximately **Rs 1 lakh crore** for the scheme.
- **Methodology:** There shall be establishment of **godowns** with a capacity of **2000 tonnes** at the level of Primary Agricultural Credit Societies (**PACS**) in every block.

#### 8 SCHEMES IDENTIFIED FOR CONVERGENCE

##### Ministry of Agriculture and Farmers' Welfare

- Agriculture Infrastructure Fund (AIF)
- Agricultural Marketing Infrastructure Scheme (AMI)
- Mission for Integrated Development of Horticulture (MIDH)
- Sub-Mission on Agricultural Mechanization (SMAM)

##### Ministry of Food Processing Industries

- Pradhan Mantri Formalization of Micro Food Processing Enterprises Scheme
  - Pradhan Mantri Kisan Sampada Yojana (PMKSY)
- ##### Ministry of Consumer Affairs, Food and Public Distribution
- Allocation of food grains under the Food Security Act
  - Procurement ops at MSP

- The programme will **converge existing infrastructure schemes** for which funds have been already allocated, such as the Agriculture Infrastructure Fund, Pradhan Mantri Formalisation of Micro Food Processing Enterprises Scheme and the Pradhan Mantri Kisan Sampada Yojana etc.
  - ✓ These schemes are meant to create **farm and food processing** infrastructure in the country.
- An **Inter-Ministerial Committee (IMC)** will be constituted under the Chairmanship of Minister of Cooperation for **modifying guidelines** of existing schemes of respective Ministries.

**Implementation Strategy:** Ministry of Cooperation will implement a pilot project in at least **10 selected districts**.

**What are PACS?**

- PACS are **village level cooperative credit societies** that serve as the **last link** in a three-tier cooperative credit structure.
- PACS are involved in **short term lending** (crop loan).
- PACS at the **grass root level** play an imperative role in transforming the agricultural and rural landscape of Indian economy.
- For farmers, **timely access to capital** is necessary at the start of their agricultural activities. PACS have the capacity to extend credit with minimal paperwork within a short time.

### SIGNIFICANCE OF GRAIN STORAGE SCHEME

- The creation of **decentralized storage capacity** at the local level of PACS would reduce food grain wastage and **strengthen food security** of the country.
- Through '**whole-of-Government**' approach, **PACS** will be able to **diversify their business** activities thus enhancing the **incomes of the farmers**:
  - Farmers will get **modern grain storage** facilities in their blocks through PACS.
  - Farmers **can store their crops** in the warehouses managed by PACS and get **finance** for the next crop cycle and sell their crops at the time of their choice.
  - Farmers can also **sell their entire crop to PACS** at a minimum support price.
- The scheme would prevent **distress sale of crops**, thus enabling the farmers to realise **better prices** for their produce.
  - When lack of agricultural marketing infrastructure forces the farmers to sell their produce at low prices, it is called as distress sale.
- It would hugely **reduce the cost incurred in transportation** of food grains to procurement centres and again transporting the stocks back from warehouses.
- This scheme will also **reduce India's import dependence** and create **employment opportunities** in rural India.

### WAY FORWARD

- Being an **agriculture-centric nation**, it becomes crucial that India has optimum grain storage facilities.
- This grain storage scheme shall prove to be efficient in reducing wastages and cost of handling, besides embedding storage as a part of the agricultural commodity logistics chain.

## PERSONS WITH DISABILITIES

### CONTEXT

Recent studies have observed that technology can help India's urban centres become disabled friendly thereby boosting the country's progress towards an equitable urban future.

### MORE ON THE NEWS

Technology is seen improving the lives of persons with disabilities in the context of inclusive urban development.

- Enabling an inclusive built environment:** Technology and ICT (Information and Communication Technology) play a crucial role in creating an enabling environment for persons with disabilities. This includes accessible infrastructure, assistive technology, and innovative solutions that allow them to participate fully in urban life.
- Empowering individuals:** Manasi Joshi, a para-badminton player, whose determination was complemented by an accessible built environment and assistive technology. These resources not only helped her overcome daily obstacles but also enabled her to pursue her dream of playing professional badminton at the highest international level.

- **Rapid urbanization and increasing population:** There is an urgency of inclusive cities due to the rapid urbanization in India. The urban population is projected to grow significantly, and a considerable number of persons with disabilities already live in cities. Technology can help address the challenges faced by this population in urban areas.
- **Addressing disaster and climate risks:** The number of persons with disabilities is projected to increase due to disaster and climate risks. Technology can assist in mitigating these risks and supporting individuals with disabilities in adapting to and recovering from such situations.
- **Innovative technology and ICT:** Innovative technology and ICT solutions are crucial for inclusive urban transformation and improving the quality of life for all citizens. **India's digital governance system and dynamic tech sector** are highlighted as drivers for delivering inclusive prosperity and resilience.
- **Inclusive innovation ecosystem:** The state's role is emphasized in promoting an ecosystem for transformative technologies, even when their profitability may be difficult to measure. For instance, **Smart Solutions Challenge and Inclusive Cities Awards**, are platforms for crowd-sourcing tech-based solutions and innovations for addressing accessibility and inclusion challenges in cities.
- **Examples of inclusive technology solutions:** Several **examples of inclusive technology solutions include those** deployed in smart cities like Bhubaneswar, including Fifth Sense, IncluMaps, AxcessAble, and myUDAAN. These solutions utilize frontier technologies like AI and machine learning to support independent living and enhance accessibility for persons with disabilities.
- **Global platforms and initiatives:** The Government of India has initiated various platforms and initiatives to promote technological innovations and entrepreneurship, **including the Start-up 20 Engagement Group and the G20 Digital Innovation Alliance**. These platforms aim to showcase innovative solutions, create alliances, and discuss how technology and data can be effectively utilized for inclusive city management.

## PERSONS WITH DISABILITIES

- The **United Nations Convention on the Rights of Persons with Disabilities** (UN CRPD) defines "Persons with disabilities" include those who have long term physical, mental, intellectual or sensory impairments which in interaction with various barriers may hinder their full and effective participation in society on an equal basis with others".
- **Rights of Persons with Disabilities Act, 2016**, further defines "Person with Benchmark Disability" as "A person **with not less than 40% of a specified disability**".
  - The 2016 Act **had expanded the types of disabilities from 7** (under the Person with Disabilities (Equal Opportunities, Protection of Rights and Full Participation) Act, 1995) to 21. Further, the Union Government will have the power to add more types of disabilities.

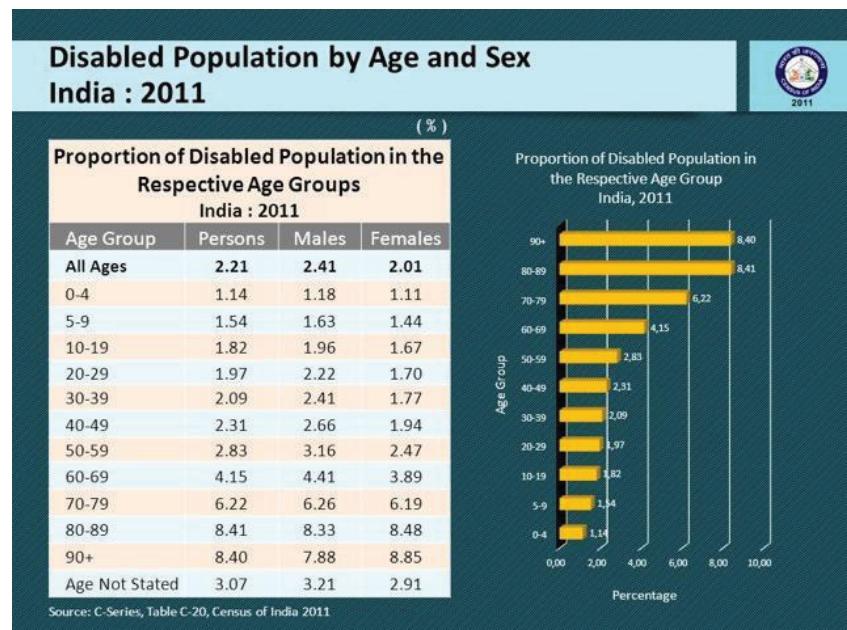
## CHALLENGES FACED BY PERSONS WITH DISABILITIES

Persons with disabilities (PWDs) face a range of challenges:

- **Discrimination and Inequality:** PWDs experience various forms of discrimination, including reluctance by employers to hire them, leading to limited employment opportunities. This discrimination hampers their social and economic integration, contributing to inequality.
- **Loss of Social Status:** Limited opportunities for education and employment can result in PWDs experiencing a loss of social status. The lack of financial independence and inadequate access to **resources especially health** and support networks further exacerbate this issue.
- **Inhuman Treatment:** PWDs, especially those with mental illness or mental retardation, often face social exclusion and inhumane treatment. Stigma and misunderstanding surrounding mental health contribute to their marginalization within society.
- **Access to Education:** PWDs encounter barriers in accessing education. Students with visual impairments may lack appropriate educational materials, while children with learning disabilities may face exclusion and rejection from schools. Insufficient special schools and a lack of trained teachers for specific disabilities further impede educational opportunities.
- **Unemployment:** PWDs experience lower employment rates, primarily due to stereotypes, stigma, and a lack of inclusive hiring practices. The reluctance of the private sector to hire PWDs restricts their ability to be financially independent and self-sufficient.

## CURRENT STATUS OF PWDS IN INDIA

- Population:** According to the 2011 Census, there were approximately 26.8 million PwDs in India, which constituted about 2.21% of the country's total population. Out of this, there were 14.9 million men (2.41% of men) and 11.9 million women (2.01% of women) with disabilities.
- Rural and Urban Distribution:** Around 69% (18 million) of PwDs in India reside in rural areas, while the remaining 31% are in urban areas.
- Types of Disabilities:** The distribution of disabilities among PwDs in India is as follows: 20% have a disability in movement, 19% have visual impairment, 19% have a hearing impairment, and 8% have multiple disabilities.
- Age Group:** The age group with the highest prevalence of disabilities is 10-19 years, comprising approximately 4.62 million individuals.
- Employment:** Out of the total PwDs, **about 36% are employed**, with a higher percentage of employed males (47%) compared to females (23%).
  - The proportion of employed PwDs is highest in states like Nagaland (~52%), Sikkim (49%), and Arunachal Pradesh (~45%).
- Underreporting:** Disability rights activists and academicians working on disability issues argue that the census figures represent only a small percentage of the actual number of PwDs in India. According to **World Bank data**, the total number of persons with disabilities in India could range between 40 and 80 million.



## CONSTITUTIONAL PROVISIONS FOR DISABLED PERSONS IN INDIA

- Preamble:** The Preamble seeks to secure social (as also economic and political) justice to all citizens along with equality of status and of opportunity.
- Article 14:** Right to Equality for every citizen including disabled persons.
- Article 15:** Prohibition of discrimination against any citizen including PwDs.
- Article 21:** This article ensures right to life & liberty that includes and applies to disabled persons as well.
- Article 23:** Protects disabled persons against trafficking.
- Article 32:** Guarantees every citizen, including persons with disabilities to move to **Supreme Court** for enforcement of Fundamental Rights.
- Article 41:** State shall make effective provision for securing right to work, education and public assistance in cases of unemployment, old age, sickness and disablement, within limits of its economic capacity and development.
- Article 226:** Every person including disabled persons can move to the **High court** for enforcement of Fundamental Rights.
- Article 243 G:** Social Welfare, including disabled and Mentally disabled persons.
- Seventh Schedule:** The subject of "relief of the disabled and unemployed" is specified in the State List.
- Welfare of the Disabled and mentally retarded** is listed as item 26 in the **Eleventh Schedule** and item 09 in the **Twelfth Schedule**.

## NATIONAL LEGISLATIONS

To address the needs and rights of PwDs, there are **four major national legislations in India** that include:

1. **The Rehabilitation Council of India Act, 1992:** It provided statutory status to the Rehabilitation Council of India (RCI, established

in 1986). The mandate given to RCI is to **regulate and monitor services given to persons with disability**, to standardise syllabi and to maintain a Central Rehabilitation Register of all qualified professionals and personnel working in the field of Rehabilitation and Special Education.

2. **The National Trust for the Welfare of Persons with Autism, Cerebral Palsy, Mental Retardation, and Multiple Disabilities Act, 1999:** The Trust strives to enable persons with disability to live independently by: **(a)** Promoting measures for their protection in case of death of their parents; **(b)** Evolving procedures for appointment of their guardians and trustees; **(c)** Facilitating equal opportunities in society.
3. **The Rights of Persons with Disabilities Act, 2016:** It replaced the Persons with Disabilities (Equal Opportunities, Protection of Rights and Full Participation) Act, 1995. It fulfils the obligations to the United National Convention on the Rights of Persons with Disabilities (UNCRPD). The Act has several provisions for benefit of persons with disabilities like it has **increased the magnitude of reservation** for Persons with Disabilities from 3% to 4% in government jobs and from 3% to 5% in higher education institutes. It stresses to **ensure accessibility** in public buildings in a prescribed time frame.
4. **The Mental Healthcare Act, 2017:** which is implemented by the Ministry of Health and Family Welfare. It replaced the Mental Health Act, 1987. It has been passed with the objective to provide for mental healthcare and related services for persons with mental illness and to protect, promote and fulfill their rights.

### **OTHER INITIATIVES**

- Accessible India Campaign (Sugamya Bharat Abhiyan):** Launched in 2015, this campaign aims to make public spaces, transportation, and information and communication technologies (ICT) accessible to PwDs. It focuses on retrofitting existing infrastructure, promoting accessibility standards, and raising awareness about disability rights.
- National Action Plan for Skill Development of Persons with Disabilities (NAP-SDP):** This initiative focuses on enhancing the employability and skills of PwDs through vocational training, skill development programs, and creating inclusive employment opportunities.
- Deendayal Disabled Rehabilitation Scheme (DDRS):** The scheme provides financial assistance for various rehabilitation services, including education, skill training, healthcare, and assistive devices, to economically disadvantaged PwDs.
- Scholarship Schemes:** The government offers various scholarship schemes for PwDs to support their education and skill development. These include the National Scholarship Scheme for Persons with Disabilities and the Pre-Matric and Post-Matric Scholarship schemes.
- Accessible Education:** The government has taken steps to promote inclusive education for PwDs, such as the **Sarva Shiksha Abhiyan (SSA)** and the **Inclusive Education for Disabled at Secondary Stage (IEDSS)** programs. These initiatives aim to ensure equal access to education for children with disabilities and provide necessary support services and accommodations.
- Reservation in Government Jobs:** PwDs are entitled to reservation in government jobs and public sector undertakings as per the provisions of the Rights of Persons with Disabilities Act. This reservation quota varies depending on the type and severity of disability.

### **WAY FORWARD**

There is a need for behavioural changes, capacity building, investments in accessible infrastructure, and inclusive and accessible innovations to create an equitable urban future. These efforts will empower individuals with disabilities and benefit society as a whole by harnessing the full potential of talent.

## **NON-COMMUNICABLE DISEASES**

### **CONTEXT**

A new study for diabetes and other **non-communicable diseases (NCD)** shows that **31 million more Indians** became **diabetic in four years** (2019-2021).

### **KEY HIGHLIGHTS OF THE STUDY**

- The study was funded by the **Indian Council of Medical Research (ICMR)** and Department of Health Research, **Ministry of Health and Family Welfare** and co-ordinated by the Madras Diabetes Research Foundation.
- The **decade-long nationwide study** is the first comprehensive epidemiological research paper which includes participants from **31 States and some Union Territories**.

**Key findings:**

- In 2021, India has 101 million people with **diabetes** and 136 million people with **prediabetes**.
- Additionally, 315 million people had **high blood pressure**; 254 million had **generalised obesity**, and 351 million had **abdominal obesity**.
- 213 million people had **hypercholesterolaemia** (wherein fat collects in arteries and puts individuals at greater risk of heart attack and strokes) and 185 million had high **low-density lipoprotein (LDL) cholesterol**.

**Two big trend indicators in the study:**

- Diabetes and other metabolic non-communicable diseases, such as hypertension, obesity and dyslipidemia are **much more common than estimated previously** in India.
- While currently urban regions had higher rates of all metabolic NCDs than rural areas, with the exception of prediabetes, **rural India will see a diabetes explosion** in the next five years if left unregulated.

**Inter-regional variations:**

- The **highest diabetes prevalence** was found in Goa, Puducherry and Kerala.
- While **prediabetes** was prevalent in Sikkim, hypertension was highest in Punjab.
- **Generalised obesity** and **abdominal obesity** were highest in Puducherry, while Kerala had high hypercholesterolemia and high **LDL cholesterol**.
- The **lowest prevalence of NCDs** was found in U.P., Mizoram, Meghalaya and Jharkhand.

### **WHAT ARE NON-COMMUNICABLE DISEASES (NCDs)?**

- Noncommunicable diseases are **chronic diseases that tend to be of long duration** and are **the result of a combination of genetic, physiological, environmental, and behavioural factors**.
- These diseases are **not contagious** and cannot be spread from person to person.
- NCDs have been one of the **major concerns of the Health Ministry**. It has identified the **four major NCDs —Cardiovascular diseases** (such as heart attacks and stroke), **Cancers, Chronic respiratory diseases** (such as chronic obstructive pulmonary disease and asthma), and **Diabetes**.

### **CAUSES OF NON-COMMUNICABLE DISEASES (NCDs)**

- NCDs have **multiple causes, including genetic, physiological, environmental, and behavioural factors**.
- However, the rise of NCDs in recent years has been largely driven by certain risk factors, such as **tobacco use, harmful use of alcohol, unhealthy diet, physical inactivity, overweight/obesity, raised blood pressure, raised blood sugar, and raised cholesterol**.
- These risk **factors are often linked to lifestyle choices** and environmental factors.
  - For example, **tobacco use and harmful use of alcohol** are behavioural risk factors that are closely linked to addiction and social factors.
  - Unhealthy diet, physical inactivity, and overweight/obesity are also **behavioural risk factors** that can be influenced by availability of healthy food options.

### **CONSEQUENCES OF NON-COMMUNICABLE DISEASES (NCDs)**

- NCDs can lead to **disability, reduced quality of life**, and premature death.
- The socioeconomic costs associated with NCDs are also substantial and include **direct costs related to healthcare**, as well as indirect costs related to lost productivity and reduced economic growth.
- The **disease kills 7 out of 10 people globally** from risk factors like tobacco, alcohol, unhealthy diet, physical inactivity and air pollution.
- Apart from deaths, NCDs take a **heavy toll on economies**, cutting down people in their most productive years.

### **GLOBAL PREVALENCE OF NCDs**

- Recently, the **World Health Organisation (WHO)** released its report **"Invisible Numbers—The True Extent of Non-communicable Diseases and What to Do About Them"**.
- Key highlights of the report include:

- The report stated that every two seconds, **one person under the age of 70 dies of a NCD** with 86% of those deaths occurring in low- and middle-income countries.
- NCDs are **collectively responsible for almost 70% of all deaths worldwide**, with almost three-quarters of all NCD deaths and 82% of premature deaths occurring in low- and middle-income countries.
- Globally, one in three deaths – 17.9 million a year – are due to **cardiovascular diseases (CVDs)**.
- Two-thirds of the people with **hypertension** live in low- and middle-income countries, but almost half of the people with hypertension are **not even aware** they have it, it currently affects around 1.3 billion adults aged between 30 and 79.

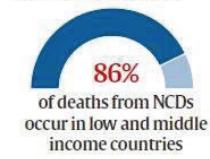
#### Prevalence of NCDs in India

A report titled “**India: Health of the Nation’s States**” by the **Indian Council of Medical Research (ICMR)** observed that:

- The proportion of deaths due to NCDs has increased from 37.9% in 1990 to 61.8% in 2016.
- The leading **causes of death due to NCDs** in India are cardiovascular diseases, chronic respiratory diseases, cancer, and diabetes.
- NCDs are responsible for 55% of the total disability-adjusted life years (DALYs)** in India, which is a measure of the overall disease burden.
- The burden of NCDs is **higher in the more developed states of India** compared to the less developed ones.
- Unhealthy lifestyle **choices such as tobacco and alcohol use**, unhealthy diets, and physical inactivity are the major risk factors for NCDs in India.
- The study highlights the need for preventive measures such as promoting healthy lifestyle choices and improving access to healthcare services.

#### THE NCD DEATH TOLL

Every yr, noncommunicable diseases (NCDs) claim 17 mn lives under the age of 70. Many of these deaths are in low and middle income countries, including India. Some numbers:  
WHO report; Figures from 2019



#### DEATHS CAUSED BY NCDs IN INDIA



### INITIATIVES TO DEAL WITH NCDs

#### Global Initiatives

Some of the global initiatives to deal with NCDs include:

- The Sustainable Development Goals (SDGs):** The SDGs include a target to reduce premature mortality from NCDs by one-third by 2030 (SDG 3.4).
- WHO Global Action Plan for the Prevention and Control of NCDs 2013–2020:** This action plan aims to reduce premature mortality from NCDs by 25% by 2025 and includes a set of nine global targets.
- WHO Framework Convention on Tobacco Control:** This international treaty aims to reduce tobacco consumption and the related harm to health.
- United Nations High-Level Meeting on NCDs:** This meeting, held in 2018, focused on accelerating progress on the prevention and control of NCDs and called for increased political commitment and action.
- The NCD Alliance:** This is a global network of civil society organizations working to prevent and control NCDs. It advocates for policy change and increased investment in NCD prevention and management.

#### India's Initiatives

- National Programme for Prevention and Control of Cancer, Diabetes, Cardiovascular Diseases and Stroke (NPCDCS)** is being implemented under the National Health Mission.
  - The programme focuses on strengthening **infrastructure, human resource** development, health promotion & **awareness** generation for prevention, **early diagnosis**, management and referral to an appropriate level of healthcare facility for **treatment of the NCDs**.
  - **Recently, the government has renamed this programme as National Programme for Prevention & Control of Non-Communicable Diseases (NP-NCD).**
- The Central Government is implementing the Strengthening of Tertiary Care Cancer facilities scheme to support the setting up of **State Cancer Institutes (SCI)** and **Tertiary Care Centres (TCCC)** in different parts of the country.

- Fit India movement** is being implemented by the Ministry of Youth Affairs and Sports, and various Yoga related activities are carried out by the **Ministry of AYUSH**.
- Preventive aspect of NCDs** is strengthened under Comprehensive Primary Health Care through **Ayushman Bharat Health Wellness Centre** scheme, by promotion of wellness activities and targeted communication at the community level.
- Affordable Medicines and Reliable Implants for Treatment (AMRIT)** Deendayal outlets have been opened at 159 Institutions/Hospitals with an objective to **make available Cancer and Cardiovascular Diseases drugs and implants at discounted prices to the patients**.
- Jan Aushadhi stores** are set up by the Department of Pharmaceuticals to provide generic medicines at affordable prices.

### **WAY FORWARD**

- Promoting Health Awareness:** Increasing the public awareness about the importance of a healthy lifestyle, including regular exercise and a balanced diet is the need of the hour.
- Strengthen Primary Healthcare:** The capacity and resources of primary healthcare centers (PHCs) to provide comprehensive NCD prevention, early detection, and management services must be enhanced.
- Enhance Health Infrastructure:** Invest in improving healthcare infrastructure, including the establishment of specialized NCD clinics and facilities. This will enable efficient diagnosis, treatment, and management of NCDs, reducing the burden on tertiary care hospitals.
- Integrated Approach:** Integrate NCD prevention and control into the broader healthcare framework, including Universal Health Coverage. Ensure that NCD services are accessible, affordable, and of high quality for all segments of the population.
- Research and Innovation:** Research and innovation in the field of NCDs to develop new strategies, technologies, and interventions should be promoted.
- Role of states:** State-specific policies allow tailored interventions to address the specific challenges and risk factors of each region, maximizing the effectiveness of efforts to combat NCDs.
- Implementing the above measures will be crucial to reach the SDG target (**SDG Target 3.4— Reduce by one third premature mortality from NCDs by 2030** through prevention and treatment and promote mental health and well-being) and achieving the WHO's 9 global voluntary NCD targets by 2025.

## **NIRF RANKINGS AND HIGHER EDUCATION IN INDIA**

### **CONTEXT**

Experts have raised concerns regarding the **methodology employed** in the recently published **National Institutional Ranking Framework (NIRF)** Rankings.

### **ABOUT THE NATIONAL INSTITUTIONAL RANKING FRAMEWORK (NIRF)**

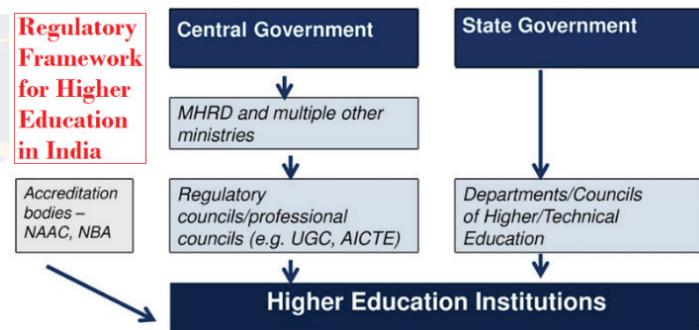
- It was launched by the Ministry for Human Resource Development (MHRD) [now Ministry of Education (MoE)] in **September 2015** to rank higher educational institutions (HEIs) in the country.
- Before NIRF's launch, HEIs were usually ranked by **private entities, especially news magazines**.
- Participation in NIRF was made **compulsory** for all government-run educational institutions in **2018**.
- Methodology:** The framework ranks HEIs based on the following **five parameters**:
  - Teaching, Learning & Resources (30% weightage);
  - Research and Professional Practice (30%);
  - Graduation Outcomes (20%);
  - Outreach and Inclusivity (10%); and
  - Perception (10%).
- Categories of ranking:** Best institutions across 11 categories are listed out - overall national ranking, universities, engineering, college, medical, management, pharmacy, law, architecture, dental and research.

## CONCERNs ASSOCIATED WITH THE NIRF

- Overemphasis on bibliometrics:** Experts have argued that bibliometric indicators don't fully capture the intricacies of scientific performance.
  - **Bibliometrics refers to** the measurable aspects of research, such as the number of papers published, the number of times they are cited, and the impact factors of journals.
- Lack of transparency:** While the NIRF does publicly share its methodology, it is criticized for not providing a detailed view of the data collection process and sources.
- Insufficient quality parameters:** Critics argue that the indicators used by the NIRF may not be sufficient to capture the overall quality of an institution. Factors such as the skills imparted to students, financial health, and institutional size may also be important considerations in assessing quality.
- Manipulation and competition:** Over-reliance on rankings can create a competitive environment where institutions may prioritize meeting ranking criteria over actual excellence.
- One-size-fits-all approach:** Critics argue that the NIRF's ranking approach lacks consideration for the diverse nature of the Indian education system, leading to a one-size-fits-all approach that overlooks the unique contexts and goals of different institutions.

## HIGHER EDUCATION IN INDIA

- The term 'higher education' with respect to India denotes the **tertiary level education that is imparted after 12 years of schooling** (10 years of primary education and 2 years of secondary education).
- India's higher education system is the **third largest in the world**, next to the United States and China.
- India's Higher Education sector has witnessed a **tremendous increase** in the number of Universities/ University level Institutions & Colleges since independence.
  - As per the All-India Survey of Higher Education (AISHE), there are **1,043 universities, 42,343 colleges and 11,779 standalone institutions**.
  - Out of these, almost **78.6% are in the private sector**- aided or unaided colleges and only about **21% are in the Government sector**.
- Key findings of All India Survey on Higher Education (AISHE) 2020-2021:**



Specification	2020-21	Trend w.r.t 2014-15
<b>Total student enrollment:</b> UP, Maharashtra, TN, MP, Karnataka and Rajasthan are top 6 States in terms of number of students enrolled	4.14 crore	21% rise
Female enrolment	2.01 crore	28% rise
Percentage of female enrolment to total enrolment	49%	4% rise
<b>Gross Enrolment Ratio (GER):</b> Percentage of students belonging to eligible age group (18-23 years) enrolled in Higher Education	27.3	3-point rise
<b>Gender Parity Index (GPI):</b> Ratio of female GER to male GER	Increased from 1 in 2017-18 to 1.05	--
Institutes of National Importance (INIs)	149	Almost doubled (75)
Enrolment in INIs	61%	Increased
Female per 100 male faculty	75	Increased (63)

## ISSUES PLAGUING INDIA'S HIGHER EDUCATION

- Shortage of Faculty:** Colleges and universities need a sufficient number of teachers and researchers to create and disseminate knowledge. The paucity of a sufficient number of faculty members undermines the growth of India's knowledge sector.
  - There is no standing mechanism to collect the information **shortage of faculties**.
  - Sometimes positions of faculties also remain vacant due to **caste-based discrimination**.
- Diversity of teachers:** In central universities (CUs), 75.2% of the sanctioned SC posts, 87.3% of the ST positions and 84.7% of the OBC posts for the position of professor are lying vacant, while in the associate professor category it is 64.7%, 76.8% and 76.6% respectively.
- Shortage of PhD scholars:** As per data of Lok Sabha, in 9 IITs, the acceptance rate for SC/ST/OBC PhD candidates is at or below 8%, despite all of these universities receiving hundreds of applications. The dropout trends from these premium educational institutions have been from SC/ST/OBC categories.
- Low GER:** In India, currently, the gross enrolment ratio for Higher Education is less than 30%.
- Overburdening faculty:** As a result of faculty shortage, professors are being overburdened. Their working hours have increased.
- Lack of Financial Resources:** Public spending on education has been relatively low in India since its inception. Most states spend 2.5 to 3.2% of their GDP on education.
- Poor Quality of Education:** Many private universities whose primary purpose is profit-seeking hire less qualified people in poorly paid part-time positions as faculties instead of better qualified, regular faculty members, to keep costs down.
- Commercialization:** The withdrawal of public sector has left the space open for private institutions that have turned education into a flourishing business.
- Curriculum Disparity:** There is a wide gap between industry requirements and curriculum taught at colleges. This also renders graduates unemployable lacking in specific skill-sets.
- Poor Research infrastructure:** India's spending on research and development (R&D) is among the lowest in the world.
  - Only 2.7% Colleges run Ph.D. programme and 35.04% Colleges run Post-Graduate Level programmes in India
- Under-representation of Women:** India's best educational institutions rank quite poorly in women diversity. The scores have been dismal in India's top 10 engineering institutes.
- Lack of Autonomy:** The over-regulation by regulators such as UGC, MCI, which decide on aspects of standards, appointments, fee structure and curriculum has further deterred new institutions from opening campuses.

## GOVERNMENT INITIATIVES FOR IMPROVING HIGHER EDUCATION

- National Education Policy (NEP) 2020:** It proposes various reforms in India's higher education including technical education. (see image)
  - NEP aims to increase the gross enrollment ratio (**GER**) in higher education to 50% by 2035.
- The Institute of Eminence (IoE):** It is a recognition scheme under **University Grants Commission (UGC)** that helps empower higher educational institutions. The HRD Ministry of India grants the Institution of Eminence status to multiple universities.
  - Academic institutions that can impart **highest quality education, generate cutting edge research**, and attract the best and the brightest from across the globe can have multiplier beneficial effects for the country.
- National Research Foundation (NRF):** Recently, the Union Cabinet approved the introduction of the **NRF Bill, 2023** in the Parliament.
  - NRF is a **new central entity** aimed at funding, promoting, and mentoring **scientific research in higher educational institutions** across the country.

### NATIONAL EDUCATION POLICY 2020

Higher Education curriculum to have <b>Flexibility of Subjects</b> <b>Multiple Entry/Exit</b> to be allowed with appropriate certification			
Academic Bank of credits to be established to <b>facilitate transfer of credits</b>	<b>National Research Foundation</b> to be established to foster a strong research culture	<b>Affiliation System</b> to be phased out in <b>15 years</b> with <b>graded autonomy</b> to colleges	
NEP 2020 advocates increased <b>use of technology with equity</b> ; National Educational Technology Forum to be created	NEP 2020 emphasizes setting up of <b>Gender Inclusion Fund</b> and <b>Special Education Zones</b> for <b>disadvantaged regions and groups</b>	National Institute for Pali, Persian and Prakrit, Indian Institute of Translation and Interpretation to be set up	

- The NRF's primary objective is to **bridge the gap between research and higher education** in India, a dichotomy that has limited the development of the nation's scientific capabilities.
- Rashtriya Uchchatar Shiksha Abhiyan (RUSA):** It is a Centrally Sponsored Scheme (CSS) that aims at providing strategic funding to eligible state higher educational institutions.
- Education Quality Upgradation and Inclusion Programme (EQUIP):** This is a five-year vision plan to improve the quality and accessibility of higher education over the next five years (2019-2024).
  - **Double the Gross Enrolment Ratio (GER)** in higher education and resolve the geographically and socially skewed access to higher education institutions in India.
  - **Position at least 50 Indian institutions** among the top-1000 global universities.
- Global Initiative for Academics Network (GIAN):** The programme seeks to invite distinguished academicians, entrepreneurs, scientists, experts from premier institutions from across the world, to teach in the higher educational institutions in India.
- All India Survey on Higher Education (AISHE):** The main objectives of the survey are to identify and capture all the institutions of higher learning in the country; and collect the data from all the higher education institutions on various aspects of higher education.

### FOREIGN HIGHER EDUCATIONAL INSTITUTIONS (FHEIs) IN INDIA

- In January 2023, the **UGC announced the draft regulations** for 'Setting up and Operation of Campuses of Foreign Higher Educational Institutions in India'.
- Arguments for and against the entry of FHEIs in India:**

Arguments for	Arguments against
<ul style="list-style-type: none"> <li><input type="checkbox"/> <b>Beneficial for Students:</b> 11.3 lakh Indian students were studying abroad. With this move, foreign universities could provide the same quality of education without students relocating.</li> <li><input type="checkbox"/> <b>Reduced FOREX outflow:</b> International branch campuses help in reducing the foreign exchange outflow.</li> <li><input type="checkbox"/> <b>Address the issue of Gross Enrollment Ratio:</b> foreign universities in India may increase the enrollment ratio by providing more diverse options for higher education.</li> <li><input type="checkbox"/> <b>Cultural Exchange:</b> Having foreign universities in India can foster cultural exchange and understanding between India and other countries.</li> <li><input type="checkbox"/> <b>Increased Competitiveness:</b> By having foreign universities in India, the country can become more competitive globally in terms of education and research.</li> <li><input type="checkbox"/> <b>Boost Research:</b> It can be expected that campuses of reputed foreign institutions will improve enrolments in research courses and help improve the research ecosystem in India.</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> <b>Regulatory challenges:</b> Different regulations for domestic and foreign campuses may create confusion and inconsistency.</li> <li><input type="checkbox"/> <b>Accessibility:</b> The fees charged by foreign institution are often much higher than those charged by Indian institutions, which could make higher education less accessible to students from lower-income families.</li> <li><input type="checkbox"/> <b>Lack of Interest:</b> Many reputed foreign higher educational institutions operate on a not-for-profit basis and have no materialistic motives to go offshore.</li> <li><input type="checkbox"/> <b>Cultural Impact:</b> The influx of foreign institutions and students could lead to a loss of Indian culture and values, as well as a lack of integration between Indian and foreign students.</li> <li><input type="checkbox"/> <b>Unequal Playing Field:</b> For-profit nature of foreign institutions and repatriation of surplus funds may create an uneven playing field with Indian HEIs.</li> <li><input type="checkbox"/> <b>National Security Concerns:</b> The foreign institutions may be used for espionage and other illegal activities.</li> </ul>

### WAY FORWARD

- Spending on education:** Increase public spending on education gradually to reach 6% of GDP as mandated by the NEP, 2020. Donations by individuals, alumni, and institutions should be 100% tax deductible.
- Regulatory reforms:** Political interference in Universities must be checked. UGC regulations may be relaxed to grant greater academic autonomy to Universities.
- Industry-academia collaboration:** Promote industry-academia collaboration to secure funding from the corporate sector and provide students with internship programs to enhance their skills.

- **Pedagogy:** Establish a permanent mechanism to review and update the curriculum regularly. Explore the use of satellite technologies for uninterrupted education in a hybrid format like Phygital (Physical+Digital).
- **Accreditation:** Encourage institutions to seek accreditation to ensure standardization and minimum benchmarks. Offer incentives to bring more institutions under the accreditation system.
- **Improving the faculty:** Enhance the quality of faculties through academic planning, recruitment methodologies, staff development, training, counselling, and establishing Teaching Learning Centers.
- **Distance and online education:** Broaden the scope of Massive Open Online Course (MOOCs) and Open and Distance Learning (ODL) to provide access to quality education beyond geographical boundaries.

## MANUAL SCAVENGING

### CONTEXT

The Union Ministry of Social Justice and Empowerment has observed in its recent report that only **508 of the 766 districts** in the country have been declared free of manual scavenging.

### MORE ON THE NEWS

- The Ministry previously had maintained that manual scavenging had been eliminated in the country, and that any deaths were attributed to the hazardous cleaning of sewers and septic tanks.
- The Ministry differentiated between manual scavenging and the hazardous cleaning of sewers and acknowledges that manual scavenging still persists in many districts.
- The report also mentions the scheme for the rehabilitation of manual scavengers, which provided a one-time cash payout of ₹40,000 each to the identified sewer workers, along with skills training and support for starting their own businesses.
- However, this scheme has now been merged with the **NAMASTE scheme**, which focuses on mechanizing sewer work.
  - The **NAMASTE scheme** aims to mechanize sewer work and improve the working conditions of sewer workers.
  - It involves collaboration with other ministries and requires urban local bodies to identify and profile septic tank/sewer workers, provide them with training, safety equipment, and health insurance, among other interventions.
  - The scheme also provides capital subsidies to incentivize workers to mechanize their work.

### UNDERSTANDING MANUAL SCAVENGING

#### What is it?

- Manual scavenging is a dehumanizing practice that involves the manual cleaning and handling of human excreta from dry latrines, sewers, septic tanks, railway lines, and other such places, typically using basic tools like brooms.
- It is predominantly a caste-based and forced occupation in India.
- Currently, there are approximately **58,098 individuals** identified as “eligible manual scavengers” across the country.
- The eradication of manual scavenging is of utmost importance for achieving various Sustainable Development Goals (SDGs).
- This practice not only violates various international conventions but also contradicts India’s legislative and constitutional mandates.



### FACTORS CONTRIBUTING TO THE PERSISTENCE OF MANUAL SCAVENGING

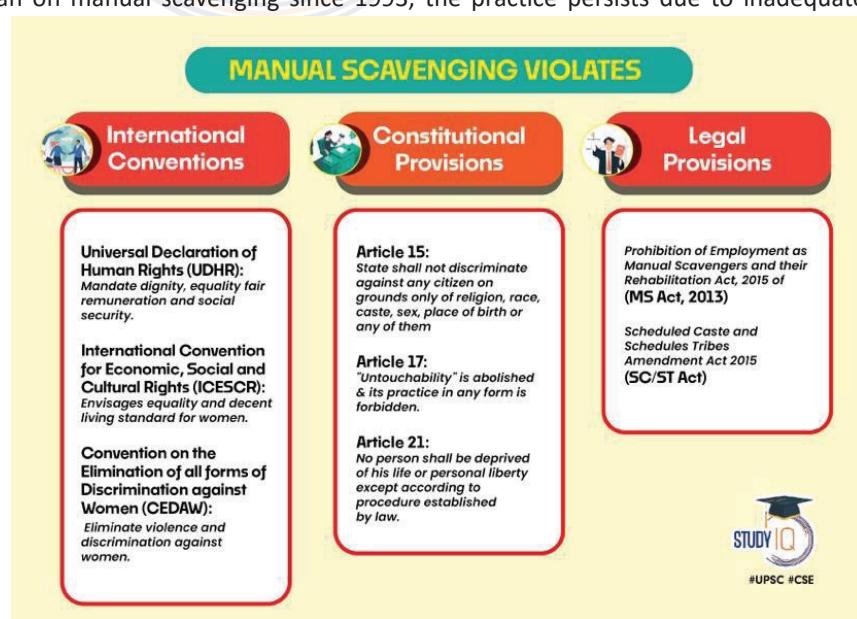
- **Informal Economy and Lack of Recognition:** The practice of manual scavenging often occurs within the informal economy, making it challenging to identify and provide associated rights and protections to those involved.

- Weak Legal Framework:** The **Manual Scavenging (Prohibition) Act of 2013** does not consider the cleaning of human excreta with protective gear as manual scavenging, creating loopholes in the law and failing to address the issue comprehensively.

#### Prohibition of Employment as Manual Scavengers and Rehabilitation Act 2013

##### Provisions:

- 'Manual scavenger':**
  - Any person who has been employed to handle undecomposed human waste from an insanitary latrine, open drain or pit or railway track is a manual scavenger under this law.
  - The person could have been employed by anyone - say, someone from their village or by an agency or contractor.
  - It does not matter if she was given regular employment or engaged on contract basis, she is covered under this law.
  - **Exception** - Any person who has been employed to clean human waste and does so with the help of the appropriate protective gear and equipment will not be considered a manual scavenger under this law.
  - Another group of **people called 'safai karamcharis'** are also sometimes considered as manual scavengers - however, they usually refer to people working as sweepers or cleaning workers in the municipalities, government or private organisations.
- Preventing Manual Scavenging:**
  - Under this law, the **first step to preventing manual scavenging** is demolishing 'insanitary latrines'.
  - It imposed **certain time bound commitments** by the local authorities (municipal bodies, cantonment boards and railway authorities).
  - The **local authorities are responsible** for the building and maintenance of the community sanitary latrines and must make sure that they are functional and hygienic.
- Offence:** Under the Act, it is an offence to
  - Employ people as manual scavengers to clean insanitary latrines.
  - Employ people to clean sewers and septic tanks without protective gear.
  - Construct insanitary latrines.
  - Not demolish or convert insanitary latrines within a certain period of this Act coming into force
- Rehabilitation of manual scavengers:**
  - It lays **down the rules and procedure for the rehabilitation of manual scavengers** through training in alternate employment, financial help and help with purchasing property.
- Responsibility for identifying manual scavengers:**
  - Every local authority (municipality or panchayat), cantonment board or railway authority is responsible for surveying its area to identify manual scavengers.
- Violation:** Violation of the Act is punishable with imprisonment upto 2 years or with the fine upto Rs 1 lakh or both.
- Ineffective Implementation:** Despite the ban on manual scavenging since 1993, the practice persists due to inadequate enforcement and implementation of the laws and regulations.
- Water Scarcity and Sanitation Issues:** In certain rural areas of India, inadequate access to proper water supply results in the manual removal of excreta from toilets, as alternative sanitation facilities are lacking.
- Challenges in Restoration and Rehabilitation:** The complex procedures for procuring loans through different schemes, such as the **National Safai Karamcharis Finance and Development Corporation (NSKFDC)**, create barriers for manual scavengers to access funds for restoration and rehabilitation.
- Lack of Organized Representation:** Manual scavengers often lack organized



representation, such as trade unions or advocacy groups, which could amplify their voices and protect their rights. They belong to **highly marginalized sections of society**, perpetuating their exploitation.

- Absence of Mechanization:** The design of septic tanks often requires manual cleaning, as they are not equipped with mechanisms for safe and automated disposal of waste, further perpetuating the need for manual scavenging.

### **INITIATIVES TAKEN TO PREVENT MANUAL SCAVENGING**

The Government of India has undertaken several initiatives to address the issue of manual scavenging and improve the lives of those involved.

- The Prohibition of Employment as Manual Scavengers and their Rehabilitation Act, 2013:** This Act supersedes the 1993 Act and prohibits all forms of manual excrement cleaning of insanitary latrines, open drains, or pits. It also focuses on the rehabilitation of manual scavengers and provides measures for their welfare.
- The Prohibition of Employment as Manual Scavengers and their Rehabilitation (Amendment) Bill, 2020:** This proposed amendment aims to mechanize sewer cleaning, introduce on-site protection for workers, and provide compensation to manual scavengers in case of sewer-related deaths. However, it is still awaiting cabinet approval.
- The Building and Maintenance of Insanitary Latrines Act, 2013:** This Act prohibits the construction or maintenance of unsanitary toilets and the hiring of individuals for manual scavenging. It also places a constitutional responsibility on the government to provide alternative jobs and assistance to manual scavenging communities as reparation for historical injustice and indignity.
- Prevention of Atrocities Act:** This Act, established in 1989, plays a crucial role in safeguarding the rights of sanitation workers, with a particular focus on Scheduled Castes who constitute a significant proportion of manual scavengers. It helps to protect them from atrocities and promotes their emancipation from designated traditional occupations.
- Safaimitra Suraksha Challenge:** Launched by the **Ministry of Housing and Urban Affairs** on World Toilet Day in 2020, this challenge aims to make sewer cleaning completely mechanized by providing proper gear and oxygen tanks to workers in case of unavoidable emergencies. The goal is to minimize the need for human entry into sewer lines.
- 'Swachhta Abhiyan App':** Developed to identify and geotag insanitary latrines and manual scavengers, this app helps in replacing insanitary latrines with sanitary latrines and facilitating the rehabilitation of manual scavengers, thereby promoting a life of dignity for them.
- Supreme Court Judgment:** In 2014, a Supreme Court order mandated the government to identify individuals who died in sewage work since 1993 and provide compensation of Rs. 10 lakh to their families. This judgment emphasizes the need for accountability and compensation in cases of sewer-related deaths.

### **WAY FORWARD**

- Eliminating the demand:**
- Promoting scientific waste disposal and raising awareness to prevent the clogging of sewer lines.
  - Replicating **successful models like the Kerala model**, which employs technology-driven solutions for manhole cleaning.
  - Encouraging behavioural change through information, education, and communication campaigns, along with effective implementation of laws.
  - Ensuring access to Water, Sanitation, and Hygiene (WASH) facilities to facilitate behavioural changes.
- Eliminating the supply:**
- Ensuring proper identification of manual scavengers through accurate data collection and surveys.
  - Recognizing and prioritizing the needs of women engaged in manual scavenging and empowering them.
  - Facilitating easy access to rehabilitation measures, including loans and skill development programs, and providing legal support in case of violations of the law.
  - Mobilizing manual scavengers into trade unions, self-help groups, cooperatives, and pressure groups to protect their interests and give them a voice.
  - Inclusive policy-making by actively involving manual scavengers as stakeholders to identify loopholes in the system and shape effective policies.

## ETHICS

Q.1 You are heading the rescue operations in an area affected by severe natural calamity. Thousands of people are rendered homeless and deprived of food, drinking water and other basic amenities. Rescue work has been disrupted by heavy rainfall and damage to supply routes. The local people are seething with anger against the delayed limited rescue operations.

When your team reaches the affected area, the people there heckle and even assault some of the team members. One of your team members is even severely injured. Faced with this crisis, some team members plead with you to call off the operations fearing threats to their life.

In such trying circumstances, what will be your response? Examine the qualities of a public servant which will be required to manage the situation. (250 words) 20

### Context

As per NDMP 2019, Indian landmass is vulnerable to various natural and man-made disasters due to its unique geo-climatic and socio-economic conditions. It is highly vulnerable to natural disasters like- floods (12% of the land prone to), droughts (68% of cultivable area in India), cyclones ( 5700km length coastal area) earthquakes (58% of the land area) and other disasters like landslides, avalanches, and forest fires.

So Disaster management approach is critical for reducing the vulnerability of disasters, especially during the disaster “rescue operations” are critical for reducing the loss of human lives and property.

### INTRODUCTION

In such natural calamities, prompt response of the civil servants is critical for reducing the casualties. Here in this case, human anger was misplaced due to negative perception on the civil servants. So civil servants need to work up on to reduce that communication gap, and then people can cooperate with civil servants in rescue operations.

### MY RESPONSE TO SUCH SITUATION

**Priortisation of tasks:** India being a signatory to Sendai framework and constitutionally guaranteed welfarism approach, Safety of the public and team members is important. So calling of the rescue operations is out of the question. So considering injury of public servants, he/she will be sent back for the treatment.

- Persuasion and social influence tool:** Use of persuasion technique with necessary truthful information to the community leaders and youth committees in the local areas. This will reduce the information asymmetry between the rescue team and affected community. This can convince the locals to cooperate with rescue team. There is an option of community radio to persuade and socially influence the community.
- Start of the operation:** Once the community members are convinced and the team of officials is safe, then the operation can be continued. And I will start with basic operation which requires urgent implementation, starting with- simultaneously prepare disaster rehabilitation homes for immediate occupation, and transferring the affected to that safe place and providing them with basic amenities like food, water, medicine, clothes, etc.
- Special care for children, women and aged persons:** Team members will be sensitized to give prompt care to these vulnerable sections. Privacy of women will be ensured with necessary temporary logistics and infrastructure support.
- Support of State machinery:** In case I need the help of special forces like NDRF and SDRF battalion I will inform them for the prompt backup and necessary logistics support. Till the weather improves, I along with the officials will stay with the community for taking care of the needs as well as a symbolic gesture of support.

### QUALITIES REQUIRED FOR A CIVIL SERVANT TO EFFECTIVELY MANAGE SUCH SITUATION

- Spirit of service:** It is essential for sustenance of rescue operations even after attacks on the team members. Only some higher noble spirit with attributes like dignity of humans and human rights protection etc. can help an officer in composed and coordinated rescue work.
- Able Leadership:** In such emergency circumstances, the finality of any decision lies completely on the wisdom of the leader. He/She also needs to lead the team from the front; displaying personal courage and conviction.
- Empathy and Emotional Intelligence:** An officer needs to have empathy for vulnerable sections and emotional intelligence for understanding the behavior of disgruntled local people otherwise one may abort the relief mission or resort to using of force-which will only heighten their anger and worsens the situation of community.

- Persuasion and social influence:** People seething with anger are reactive and short-sighted, making them agree for something requires the power of persuasion. Involving the community leaders and youth committees require social influence to convince them.
- Patience and Presence of mind:** A Public Servant can not afford to make spontaneous decisions in such situations. Any further course of action should be guided by considerate assessment and swift thinking.
- Rationality in decision making:** Objectively analyzing the natural hazards causative factors with relevant data is crucial for evidence based decision making and effective rehabilitation measures.

### **WAY FORWARD**

Managing such a crisis situation requires great collaboration and team work. So a civil servant with above qualities is critical for ensuring effective rehabilitation measures and upholding the spirit of democratic institutions.

