



**Sleepy Classes IAS**  
Awakening Toppers

# Monthly

# CURRENT AFFAIRS

## April 2025



SCAN HERE TO KNOW MORE



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## Ethics

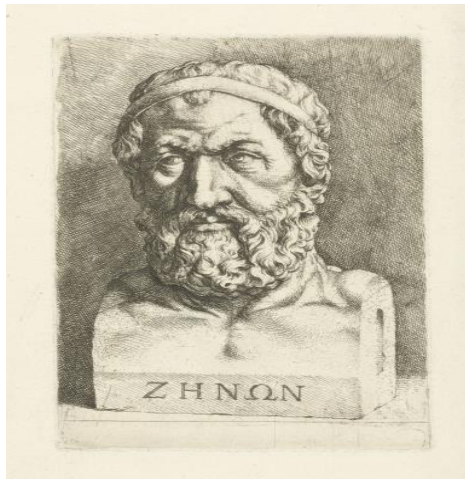
### Contributions of Moral Thinkers and Philosophers from India and World

#### Stoicism and Its Relevance to Ethics



#### What is Stoicism?

- Founded by Zeno of Citium in 3rd Century BCE Athens.
- Developed further by Seneca, Epictetus, and Marcus Aurelius.
- Teaches how to achieve virtue, resilience, and inner peace through rational living and moral self-discipline.



#### Core Principles of Stoicism

##### 1. Dichotomy of Control

- Some things (our thoughts, actions) are within our control; external events (fate, opinions, outcomes) are not.
- Ethical living means focusing energy only on what we can control and accepting the rest with equanimity.

##### 2. Virtue as the Highest Good

- Four cardinal virtues:
  - **Wisdom:** Sound judgment and practical reasoning.
  - **Courage:** Facing hardships without fear.
  - **Justice:** Acting fairly and respecting others' rights.
  - **Temperance:** Exercising self-control and moderation.
- True happiness (eudaimonia) comes not from wealth, power, or pleasure, but from cultivating these virtues consistently.

##### 3. Living According to Nature and Reason

- Stoics believe that to live ethically is to live in harmony with the rational structure of the universe.
- Humans, being rational beings, must align actions with reason and moral duty, not with fleeting emotions or selfish desires.

##### 4. Negative Visualisation (Pre-meditatio Malorum)

- Regularly contemplating potential setbacks or hardships builds psychological strength.
- It prepares individuals emotionally, reduces fear of loss, and promotes gratitude for the present.

##### 5. Memento Mori (Remember You Will Die)

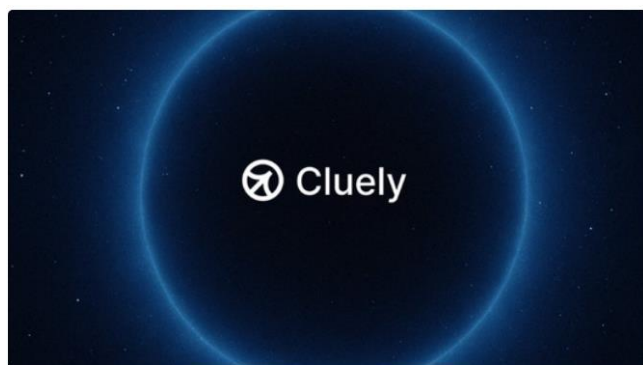
- Acknowledging mortality helps individuals prioritise what truly matters.
- Encourages living a meaningful life without wasting time on trivial pursuits.

## Where to Use in Ethics Answers

- **Emotional Intelligence:** Explain emotional resilience during crises using the dichotomy of control.
- **Integrity and Moral Courage:** Show how Stoic virtues guide ethical decision-making in public life.
- **Leadership Ethics:** Quote Marcus Aurelius on wise and just governance.
  - E.g. - "The fruit of this life is good character and acts for the common good." – *Meditations*

## Civil Service Values and Ethics in Public Administration

### AI Startup That Lets Users Cheat in Exams and Interviews Raises \$5.3 Million



In its online manifesto, the startup argues that tools like Cluely represent the next logical step in human-computer collaboration. (Cluely)

## Context

- Cluely, an AI tool, helps users cheat secretly during exams, job interviews, and sales calls through a hidden browser window.
- Raised \$5.3 million funding despite strong ethical concerns.

## Ethical Issues

- **Unfair Advantage:** Violates fairness and meritocracy.
- **Trust Erosion:** Destroys trust between candidates and recruiters, students and institutions.

- **Handling Ethical Dilemmas:** Use Stoic ideas when discussing how civil servants should manage uncertainty and pressure ethically.
- **Minimalism and Ethical Living:** In answers about consumerism, link to Stoic simplicity.

## Conclusion

- Stoicism remains a practical ethical framework for navigating challenges with wisdom, rationality, and moral strength, highly applicable even today.

- **Normalization of Dishonesty:** Wrongly compares cheating tools to harmless tech like calculators.
- **Accountability Gap:** Shows lack of ethical responsibility among AI developers.

## Where to Use This Example in Ethics

## Answers

- **Integrity:** To show how new technologies can challenge personal integrity.
- **Ethics of Emerging Technologies:** How AI can be misused to promote unethical behaviour.
- **Fairness and Justice:** How cheating disrupts equal opportunity.
- **Professional Ethics:** In answers related to honesty in exams, recruitment, or workplace ethics.
- **Governance of Technology:** In questions on regulating AI ethically.

## Conclusion

- Cluely's example highlights the urgent need to embed **ethics by design** in technology development.



## Probity in Governance

### SC Judges to Publicly Declare Assets



Chief Justice of India (CJI) Sanjiv Khanna and Supreme Court Judges. | Photo Credit: ANI

#### Context

- On April 1, 2025, the Supreme Court decided that all judges, including the Chief Justice of India, will publicly declare their assets.
- This step was taken after a controversy involving recovery of cash from a sitting judge's residence.
- It aims to promote greater transparency and strengthen judicial accountability.

#### What was the Earlier Practice?

- Judges used to submit details of their assets confidentially to the Chief Justice of India.
- There was no rule or obligation to make this information public.
- Some judges voluntarily disclosed their assets after 2009, but it was inconsistent.

#### What is the New Decision?

- All judges will now publicly disclose their personal assets on the Supreme Court website.
- It is a voluntary decision, not enforced by any law.
- It reflects an institutional agreement rather than individual discretion.

#### Link to the 1997 Code of Ethics

- The *Restatement of Values of Judicial Life* (1997) had already laid down ethical principles for judges.
- It asked judges to:
  - Declare their assets to the Chief Justice when they take office.
  - Avoid trading, speculation, or accepting gifts.
  - Maintain distance from litigants and avoid political comments.
  - Always behave in a way that maintains public trust in the judiciary.

#### Why is This Step Important?

- It increases transparency and brings judges in line with politicians and civil servants who also declare assets.
- It shows the judiciary can regulate itself without needing government intervention.
- It helps build public confidence in the judiciary.
- Although some fear that public scrutiny could affect judicial independence, many believe transparency will strengthen trust if done carefully.

#### Conclusion

- The Supreme Court's decision to publicly declare assets is a historic move.
- It shows commitment to ethics, transparency, and public accountability.
- It balances judicial independence with the evolving expectations of society.

## CBI Arrests IRS Officer for Sabotaging the Faceless Assessment Scheme



*The official and others conspired to collect bribes and reveal identities of assessors of income tax returns.*

### Context

- The Central Bureau of Investigation (CBI) arrested a Deputy Commissioner of Income Tax (IRS officer, 2015 batch) Vijayendra and a private individual in February 2025.
- They were accused of undermining the Faceless Income Tax Assessment Scheme, a key government reform aimed at reducing corruption and enhancing transparency.

### Nature of the Offense

- The accused leaked confidential information such as:
  - Identity of assessing officers
  - Details of scrutiny issues
- This information was allegedly sold to taxpayers with high-value pending cases in exchange for bribes.
- The scheme's purpose—to remove human discretion and improve objectivity—was compromised by insider misconduct.

### Investigation Highlights

- CBI conducted raids across Delhi, Mumbai, Thane, Bengaluru, and Kerala, recovering incriminating documents and digital evidence.
- A formal case was registered based on a complaint by the Income Tax Department.
- Along with the IRS officer, inspectors, chartered accountants, and other intermediaries were also named in the investigation.

### Ethical Issues Involved

- **Breach of Public Trust:** Officials entrusted with upholding the system misused their position for personal gain.
- **Violation of Transparency Goals:** The faceless system was designed to eliminate bias and corruption; sabotaging it defeats its ethical foundation.
- **Abuse of Official Position:** The misuse of privileged information undermines the credibility of the tax administration.
- **Integrity in Public Service:** The case highlights the need for strong internal controls and ethical vigilance among public servants.

### Conclusion

- The arrests mark an important step in upholding transparency and combating corruption in public institutions.
- It reinforces that ethical governance requires not just good systems, but also the moral integrity of individuals operating within them.

## Former IAS Officer Pradeep Sharma Sentenced for Abuse of Power



The case against the accused is of criminal breach of trust, criminal conspiracy and abusing power as public servants by disobeying legal directives for personal gain in 2003-04. (File photo)

### Context

- Former IAS officer Pradeep Sharma and three other officials were sentenced to five years of rigorous imprisonment by a Bhuj court.
- The case relates to abuse of power in the illegal allotment of government land to a private company (Saw Pipes Pvt. Ltd) at undervalued prices during 2003-04.
- Sharma was District Collector of Kutch at the time.

### Key Findings by the Court

- The officials exceeded their powers, approving land allotments at ₹6 per square meter, much below government-approved rates.
- No approvals were taken from the state government, and orders were kept hidden.
- Accused officials could not prove that they were not responsible for the irregularities.
- Sharma's sentence will run after completion of his earlier conviction under the Prevention of Money Laundering Act (PMLA).

### Ethical Issues Involved

- **Breach of Public Trust:** Officials misused their authority for private gain.
- **Violation of Procedural Integrity:** Ignoring legal processes for allotment reflects a breakdown of rule-based governance.
- **Corruption and Abuse of Office:** Public office was used to confer benefits on private parties unfairly.
- **Lack of Accountability:** Failure to report actions to the state government shows deliberate concealment.

### Where to Use This Example in Ethics

#### Answers

- **Integrity and Accountability in Public Service:** Example of breach of ethical conduct by senior bureaucrats.
- **Corruption and Abuse of Discretion:** In questions on why rules and oversight mechanisms are necessary in governance.
- **Ethical Governance:** Importance of transparency, legal compliance, and acting in public interest.
- **Consequences of Unethical Behavior:** To show how abuse of power leads to legal, professional, and social consequences.

### Conclusion

- The case highlights that ethical governance requires personal integrity, adherence to legal procedures, and respect for public trust — essential qualities for public servants.

## Conflict of Interest & Conflict in Administration

### SEBI Forms Committee to Strengthen Conflict of Interest Rules



#### Context

- On April 9, 2025, the Securities and Exchange Board of India (SEBI) announced the formation of a new committee to review and strengthen rules related to conflict of interest among its members and officials.
- The step is aimed at promoting transparency, accountability, and ethical conduct within the regulator.

#### Background

- The committee was approved during SEBI's first meeting under its new chairman, Tuhin Kanta Pandey.
- The move follows controversy during the tenure of previous SEBI chief Madhabi Puri Buch, who faced allegations (later denied) of conflict of interest related to investigations into the Adani Group.

#### Composition of the Committee

- **Chairman:** Pratyush Sinha, retired bureaucrat.
- **Vice-Chairman:** Injeti Srinivas, former Secretary, Ministry of Corporate Affairs.
- Other members include:
  - Uday Kotak, founder of Kotak Mahindra Bank.
  - G. Mahalingam, former RBI Executive Director and SEBI Whole-Time Member.

#### Ethical Importance

- **Preventing Conflict of Interest:** Ensures decisions are made impartially without personal or financial bias.
- **Enhancing Public Trust:** Strengthening internal rules protects the integrity of regulatory processes.
- **Promoting Accountability:** Regular review of ethical standards is key for responsible governance in regulatory bodies.

#### Conclusion

- SEBI's move reflects a commitment to institutional ethics and self-regulation, showing that maintaining ethical credibility is essential for public institutions dealing with financial markets.



## Polity

### Union and State Executive

#### SC Judgement in TN Governor Case

- The Supreme Court held that the action of the Tamil Nadu Governor Dr RN Ravi withholding assent for 10 bills, the oldest of them pending since January 2020, and reserving them to the President after they were re-enacted by the State Legislature is "illegal and erroneous" in law and liable to be set aside.
- Any consequential steps which might have been taken by the President on the said ten bills were also declared non-est in law.
- The Court declared that the ten Bills would be deemed to have received the assent of the Governor when they were presented in the second round after they were passed again by the State Assembly.
- A bench of Justices JB Pardiwala and R Mahadevan held that the Governor did not act with bona fides, as the bills were sent to the President, after the Governor himself sat over them over a long time, and were reserved for the President soon after the Supreme Court's judgment in the Punjab Governor' case, which held that the Governors cannot veto the bills by sitting over them.

#### No Pocket Veto :

- The judgment authored by Justice Pardiwala held that there is no concept of "absolute veto" or "pocket veto" under the Constitutional scheme.
- As per Article 200 of the Constitution, the Governor is expected to take one of the three courses of action on bills - grant assent to bills, withhold assent to bills or reserve the bills for the President.
- The Court held that the Bill can be reserved for the President only at the first instance.

*"As a general rule, it is not open for the Governor to reserve a Bill for the President after the bills have been re-presented by the Government after being passed again by the Assembly. The only exception is when the bill presented in the second round is different from the first version," Justice Pardiwala read out from the judgment.*

#### Proviso to Article 200

- The Court also held that the option under first proviso to Article 200 is not an independent option, and that this must be exercised in conjunction with the power in the substantive clause of Article 200.
- This means that once the Governor declares that he was withholding assent to the bills, then he must send back the bills to the assembly for reconsideration.
- In this case, the Attorney General had argued that when the Governor declared that he was withholding assent, he did not send them to the Assembly, and hence it was not open for the Assembly to re-enact them.
- This argument was rejected.



**MOST IMMEDIATE**Ministry of Home Affairs  
Judicial Division

\*\*\*\*\*

**Subject: Processing of the pending State Legislations for Presidential assent – reg.**

The undersigned is directed to refer to this Ministry's UO No.23/18/2015-Judl. & PP dated 07.12.2015 and to submit the following updates on the mentioned subject:

i). Consequent upon the decision taken at the meeting chaired by the Principal Secretary to the Prime Minister on 09.01.2016, this Ministry prepared supplementary guidelines for compliance by the Central Ministries including MHA and State Governments. These guidelines, inter alia, provide for a time limit of maximum three months for finalization of the State Bills. A timeline of one month has been fixed for Central Ministries/Departments to communicate their views. Modalities of examining these Bills have also been indicated. For the State Governments, a timeline of one month has been suggested for giving clarifications on the views of the Central Ministries/Departments. The State Governments have also been advised to check that the Bill is free from drafting errors. These guidelines have also been brought to the notice of Chief Secretaries of the States and Secretaries of Central Ministries/Departments demi officially from Additional Secretary (Foreigners) with the request to instruct all concerned.

**Timelines :****Following timelines prescribed :**

- In case of withholding assent or reservation of the Bill for consideration of the President upon aid and advice of the State's Council of Ministers, the Governor is expected to take such actions forthwith subject to a maximum period of **1 month.**
- In case of withholding assent contrary to the advice of the State's Council of Ministers, the Governor must return the Bill together with a message within a maximum period of **3 months.**
- In case of reservation of Bills for consideration of the President, contrary to advice of the State Council of Ministers, the Governor shall make such reservation within a maximum period of **3 months**

- In case of reservation of Bills after reconsideration in accordance with the first proviso, the Governor must grant assent forthwith subject to a maximum period of 1 month (This means that bills re-enacted by the Assembly after they were sent back by the Governor, must be assented by the Governor in the second round within one month).

**Role of President :**

- The Supreme Court has, for the first time, prescribed that the President should take a decision on the Bills reserved for consideration by the Governor within a period of three months from the date on which such reference is received.
- Calling for a decision within three months is significant because under Article 201 of the Constitution no timeframe has been set for a Presidential decision

- “where the Governor reserves a Bill for the consideration of the President and the President in turn withholds assent thereto then, it shall be open to the State Government to assail such an action before this Court”.

## **Referral to Commissions and MHA**

### **office memoranda :**

- Court said the Sarkaria Commission had pointed to this and “recommended that definite timelines must be adopted for facilitating the efficient disposal of references under Article 201” and that “the reading of a timeline in Article 201 was also suggested by the Punchhi Commission”.
- “while the language of Article 201 does not provide for any timelines within which the President is required to act, the absence of a time-limit cannot be construed as indicating that the discharge of functions by the President under the said Article can be done without due deference to the important nature of the role they occupy as regards the legislative machinery of the State.
- Any Bill(s) reserved for the consideration of the President cannot become an Act unless it receives the assent as is mentioned in Article 201, and thus, long and undue delays in the disposal of references by the President would have the effect of keeping the Bill(s), which are an expression of the popular will embodied by the State legislature, in an indefinite and uncertain state of abeyance”.
- “delay on part of the President in deciding a reference under Article 201, without any justification or necessity, would fall foul of the basic constitutional principle that the exercise of a power must not be arbitrary and capricious
- Court also referred to two office memorandums issued by MHA in 2016
- They contained provisions regarding expeditious disposal of state bills reserved for the assent of President.
- Court said upon reading the OM, makes it clear that a timeline of three months has been prescribed for the decision on Bills reserved for the President.
- A time limit of three weeks has been prescribed for the disposal of ordinances of an urgent nature.”
- Court deems it appropriate to adopt the timeline prescribed by the Ministry of Home Affairs in the aforesaid guidelines, and prescribe that the President is required to take a decision on the Bills reserved for his consideration by the Governor within a period of three months from the date on which such reference is received.
- In case of any delay beyond this period, appropriate reasons would have to be recorded and conveyed to the concerned State.
- The States are also required to be collaborative and extend co-operation by furnishing answers to the queries which may be raised and consider the suggestions made by the Central government expeditiously.”

## Governance and Social Justice

### UN Report on Maternal Mortality

#### Context :

- The Union Health Ministry of India recently responded to the **MMEIG 2023 Report** on maternal mortality, which noted that India, despite remarkable improvements, accounted for **7.2% of global maternal deaths** in 2023.
- The Ministry objected to comparisons with Nigeria, citing India's much larger population base.
- The report was prepared by the **Maternal Mortality Estimation Inter-Agency Group (MMEIG)** comprising **WHO, UNICEF, UNFPA, World Bank, and UNDESA**.

#### Background :

- The Maternal Mortality Ratio (MMR) is a critical indicator of maternal health, defined by the WHO as the death of a woman while pregnant or within 42 days of termination of pregnancy, from causes related to the pregnancy or its management.
- The Sustainable Development Goal (SDG) 3.1 aims to reduce MMR to less than 70 deaths per 100,000 live births by 2030.
- The MMEIG report provides estimates of maternal mortality trends from 2000 to 2023, highlighting both progress and stagnation in different regions.

#### Details :

- **Global Numbers**
- In 2023, over **700 women died daily** due to pregnancy-related causes, roughly **one death every two minutes**.

- Total maternal deaths worldwide remained high due to **preventable causes** such as haemorrhage, pre-eclampsia, and malaria.

#### **India's Performance**

- India reduced its MMR from **103 to 80 per 100,000 live births**.
- Maternal deaths declined from **24,000 in 2020 to 19,000 in 2023**, a **21% reduction**.
- India's MMR has declined by **86% since 1990**, compared to the **global average reduction of 48%**.
- Despite this, India accounted for **7.2% of global maternal deaths**, second only to **Nigeria (28.7%)**.
- The Health Ministry stated that comparing India with Nigeria is unfair, given India's population of 145 crore compared to Nigeria's 23.26 crore.
- It highlighted India's substantial reduction in MMR and maternal deaths as a sign of systemic progress in healthcare.

#### **Concerns highlighted by report**

- Slowing Progress Globally
- The rate of improvement in reducing MMR has stagnated.
- Despite known, cost-effective interventions, preventable deaths continue.

#### **Humanitarian Funding Cuts**

- The report warned of the **impact of reduced funding** on essential maternal healthcare services.
- Consequences include:
  - Closure of healthcare facilities
  - Shortage of trained health personnel

- Interrupted supply chains for essential medicines

### Disparities in Access

- Many maternal deaths continue to occur in **low- and middle-income countries**, showing **healthcare inequity**.
- Fragile healthcare systems are unable to respond effectively without international support.

### Lack of Skilled Birth Attendants

- A large proportion of maternal deaths could be prevented with **skilled care before, during, and after childbirth**.

### Way Forward :

- Focus on SDG 3.1 targets
- Invest in Healthcare Infrastructure
- Address Regional Disparities
- Global Advocacy against Funding Cuts
- Data Driven Policy making
- Health Education Awareness

## Status of Policing in India

### Context :

- *Common Cause*, in collaboration with the Lokniti Programme of the Centre for the Study of Developing Societies (CSDS), released a comprehensive report on police torture and accountability in India.
- Based on interactions with over 8,200 police personnel across 17 states and union territories, the report sheds light on systemic flaws in policing, societal perceptions, and gaps in legal safeguards.

### Background:

- The report is situated in the broader context of India being a **signatory but not a ratifier** of the **United Nations Convention Against Torture (UNCAT), 1984**.
- Despite multiple recommendations, including by the **Law Commission** and the **Malimath Committee**, India still lacks a **specific domestic legislation prohibiting torture**.
- Torture is defined in the UNCAT as **intentional infliction of severe pain or suffering** by or with the consent of a public official for interrogation, punishment, coercion, or discrimination.

### Details :

#### Support for Tough Policing

- **55% of police personnel** believe it is important to use “**tough methods**” to instill fear in the public (20% “very important”; 35% “somewhat important”).
- While the term “torture” was not directly used by respondents, the endorsement of “tough methods” reflects a worrying mindset.

#### Justification for Mob Violence and Encounters

- **1 in 4 police personnel** justify **mob violence** in cases like **child lifting and sexual harassment**.
- **22%** believe **killing dangerous criminals** is preferable to legal trials, though **74%** support **adherence to legal procedures**.

### Third-Degree Methods

- 30% of police personnel justified third-degree methods for **serious crimes**, and 9% even for **petty offences**.
- Marginalised communities – **Dalits, Adivasis, Muslims**, slum dwellers, and the illiterate – are disproportionately targeted.

### Arrest Procedure Compliance

- 41% police said arrest procedures are “always” followed, while 24% admitted they are “rarely or never” followed.
- **Kerala** topped in compliance, with 94% reporting adherence to legal arrest procedures.

### Custodial Deaths & Lack of Convictions

- Data discrepancies exist:
- **NCRB (2020)**: 76 deaths
- **NHRC**: 70 deaths
- **NCAT**: 111 deaths

**Zero convictions** for custodial deaths reported during **2018–2022**.

### Positive Findings

- 79% of police personnel support **human rights training**.
- 71% want measures to **prevent torture**.
- 79% advocate for **evidence-based interrogation** over coercion.

### Systemic and Structural Gaps

- Magistrates often act as **passive spectators**, not actively engaging with arrested persons.
- Doctors conducting medical examinations are often **non-specialists**, undermining the detection of torture injuries.

### Role of NHRC and Legal Framework

- NHRC criticised for **not defining torture** and having a “coloured attitude” towards victims.

- Existing legal protections under **Indian Evidence Act** do **not admit police confessions**, but there is a debate:
  - Malimath Committee and Law Commission (69th Report) suggested allowing confessions before senior police officers, with safeguards.

### Colonial Legacy and Societal Acceptance

- The **colonial police structure**, lack of accountability, political interference, pressure for results, and public apathy enable torture.
- Public impatience with the slow judicial process often leads to **tacit support for extra-legal measures**.

### Additional info :

#### SC guidelines in Prakash Singh Case 2006:

- **Fixing the tenure and selection of the DGP:** This is to avoid the situations where officers about to retire in a few months are given the post.
- **No political interference:** In order to ensure this, a minimum tenure was sought for the Inspector General of Police so that they are not transferred mid-term by politicians.
- **Constitute Police Establishment Boards (PEB):** Comprising police officers and senior bureaucrats to insulate powers of postings and transfers from political leaders.
- **Set up the State Police Complaints Authority (SPCA):** This is to give a platform where common people aggrieved by police action could approach.
- Separation of investigation and law and order functions of police.



- **Set up State Security Commissions (SSC) and a National Security Commission:** They will advise the government (State/National as the case may be) on broad policy guidelines for better policing, organisational goals to initiate preventive measures, etc.

### **Way Forward:**

- Comprehensive Anti-Torture Law
- Police reforms and training
- Judicial and Medical Reforms
- Improve Data Collection and Transparency
- Institutional Accountability and Strengthening

## Registration of Birth and Death in India

### **Context :**

- The Registrar General of India (RGI) issued a circular warning **private and government hospitals** against non-compliance with the mandatory **21-day reporting timeline** for **birth and death registrations**.
- This comes amid concerns that nearly **10% of such events go unregistered**, despite legal mandates under the **Registration of Births and Deaths (RBD) Act, 1969, amended in 2023**.

### **Background :**

- The **Registration of Birth and Deaths Act, 1969** makes it compulsory to register all births and deaths in India.
- In **2023**, the Act was amended to:
  - Digitise all records
  - Empower the Registrar General of India (RGI) to maintain a national database

- Make digital birth certificates the sole legal document for key services
- These digital records will feed into databases such as the National Population Register (NPR), ration cards, property records, and electoral rolls.

### **Current Data:**

#### **Current Status of Registration**

- **Birth registration:** ~90%
- **Death registration:** ~90%
- **2011 figures:** Births (82.4%), Deaths (66.4%)

### **Shortcomings Identified by RGI**

- **10% of events go unregistered**
- Some **hospitals wait for relatives** to initiate registration
- **Private hospitals** often fail to notify **local registrars**
- **Registrars** lack citizen-friendly systems; certificates often **delayed beyond 7 days**

### **Digital Birth Certificate System**

#### **(Effective Oct 1, 2023)**

- **Digital birth certificate** is now the **only valid document** to prove date of birth for:
  - School admissions
  - Government jobs
  - Voter registration
  - Marriage registration
- **All registrations** must now occur via the **Civil Registration System (CRS) portal**.

### **Data Publication Lags**

- The **Vital Statistics report** has not been published **nationally since 2020**
- Many **States/UTs** (e.g., Himachal Pradesh, Karnataka, Delhi, Mizoram) have published up to **2022**, but others have lagged

- **Mizoram** is the **only State** to have published its **2023 report**
- These reports are critical for:
  - Public health policy
  - Socio-economic planning
  - Program evaluation

Provision	Details
<b>RBD Act, 1969 (Amended 2023)</b>	Mandatory registration within 21 days; centralised digital database mandated
<b>Section 23(2)</b>	<b>Negligence by Registrar</b> punishable by <b>fine up to ₹1,000</b>
<b>RGI's role</b>	Coordinates registration through Chief Registrars in States
<b>State Departments Involved</b>	Vary by state: Health (Punjab, Haryana, etc.), Panchayats (Kerala), Economics & Statistics (Bihar)

## India Justice Report 2025

### Context :

- On **April 15, 2025**, the **India Justice Report (IJR) 2025**, India's only data-driven ranking on the delivery of justice, was released.
- Initiated by **Tata Trusts** and supported by several civil society organisations and data partners, the report evaluates the performance of States and Union Territories across **four key pillars**: Police, Judiciary, Prisons, and Legal Aid.

- The IJR uses official government data to rank States and UTs based on their performance in **justice delivery mechanisms**.
- The **report's significance** lies in its emphasis on **budgetary allocations, human resources, infrastructure, diversity, and access to justice**.
- The 2025 edition draws on the latest available data from **2022-23 and 2023-24**.

### Key Findings :

#### Women in Policing:

- **Less than 1,000 women** occupy senior positions out of the **20.3 lakh total police personnel**.
- **No State or UT** has fulfilled its own **women's reservation quota in police forces**.
- **Bihar** leads in the **share of women in the State police**.
- Only **8%** of officer posts held by women
- **Less than 1,000 women in senior IPS roles** (out of 4,940)
- **90% of women** serve at **constabulary level**
- **78% of police stations** now have **Women Help Desks**
- Key Findings :

#### CTV and Women Help Desks in Police Stations:

- **17%** of police stations do **not have a single CCTV camera**.
- **30%** of police stations lack **women help desks**, impacting support for gender-based crime victims.

#### Understaffing in Judiciary:

- **Gujarat** reported the **highest vacancies in High Court judges and judicial staff**.

- **Uttar Pradesh** has over 50% of High Court judges' posts vacant.
- **Bihar:** 71% of pending cases in trial and district courts are older than 3 years.
- **No State spends more than 1%** of its total budget on the Judiciary.
- **28% shortfall** in officer positions
- Only **120 police personnel per lakh**, well below global norm of 222
- One police officer per 831 people

### Prisons

- **Tamil Nadu** ranked 1st in prison management:
  - 100% budget utilisation
  - Lowest staff vacancy rates
  - Best officer workload: 22 inmates per officer
- **Uttar Pradesh** has the most overcrowded prisons in India.
- **Delhi:** 91% of prison inmates are undertrials.
- **Andhra Pradesh:** Highest per prisoner spending at ₹2,67,673 annually.
- **National average per prisoner spend:**
  - 2021-22: ₹38,028
  - 2022-23: ₹44,110

### Legal Aid

- **India's per capita annual spend** on legal aid is just ₹6.
- **Tamil Nadu** dropped from 12th to 16th position in legal aid rankings due to:
  - Low legal aid budget
  - Insufficient paralegal volunteers

## Way Forward

### Increase Judicial and Police Strength

- Fill vacancies urgently
- Raise judge-to-population ratio to Law Commission norms

### Invest in Legal Aid Infrastructure

- Increase budget allocations
- Rebuild paralegal volunteer network

### Reduce Undertrial Numbers and Overcrowding

- Fast-track bail hearings
- Improve case disposal rates

### Improve Gender Diversity

- Enforce women's reservation in police and judiciary
- Promote women to senior positions

### Enhance Rehabilitation in Prisons

- Expand education and vocational training programs
- End caste-based segregation practices

### Boost Per Capita Spending Across Pillars

- Ensure that every State spends at least 1% of its total budget on the judiciary and legal aid



## Constitutional Framework

### Telangana implements SC sub-Classification

#### Context :

- On April 14, 2025, the Telangana government issued a Gazette Notification implementing the Scheduled Castes (Rationalisation of Reservations) Act, 2025, thereby becoming the first state in India to implement sub-categorisation of Scheduled Castes (SCs) – a policy often described as “reservation within reservation.”
- The notification marks a historic attempt to ensure equitable distribution of reservation benefits among SC communities with varying levels of socio-economic backwardness.
- Although.....

News / Cities / Chandigarh / Haryana introduces new SC reservation categories for govt jobs

AI Premium

#### Haryana introduces new SC reservation categories for govt jobs

Saini made this announcement on the first day of Vidhan Sabha winter session

Written by Yashvir Bhatia  
Chandigarh | November 14, 2024 09:05 IST

NewsGuard

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EXPRESS Shorts

Group	No. of Sub-Castes	% of SC Population	Reservation (%)	Category Description
Group I	15	3.288%	1%	Most disadvantaged socio-economically and educationally
Group II	18	62.748%	9%	Moderately benefitted SC communities
Group III	26	33.963%	5%	Significantly benefitted SC communities

- Total SC reservation in the state remains **15%**, based on the **2011 Census**.
- With SC population now **17.5%**, the state may increase reservations further **after the 2026 Census**.

#### Background:

- The move comes after a seven-judge Constitution Bench ruling in 2024 (State of Punjab v. Davinder Singh), which allowed sub-classification within SCs/STs based on empirical data.
- The decision coincided with the birth anniversary of Dr B.R. Ambedkar, and was celebrated by the state government as a tribute to his vision of social justice.
- The Shamim Akhtar Commission examined over 8,600 representations to propose categorisation based on indicators like literacy, employment, education, political participation, and access to welfare.

#### Details:

- The Scheduled Castes (Rationalisation of Reservations) Act, 2025 divides SCs in Telangana into three categories, allocating them reservation within the existing 15% SC quota in education and government employment.

Aspect	Arguments For	Arguments Against
<b>Targeted Support</b>	Prevents better-off sub-castes from <b>monopolising</b> benefits; focuses on the truly disadvantaged.	All SCs face <b>untouchability and stigma</b> – dividing them could undermine solidarity.
<b>Addressing Inequality</b>	Recognises <b>internal hierarchy</b> within SCs (e.g., Mahars, Meenas dominate in some states).	Could fragment already <b>marginalised communities</b> and weaken collective bargaining.
<b>Constitutional Validity</b>	Supported by the <b>2024 Supreme Court ruling</b> and Articles 15 & 16.	Risks becoming a <b>political tool</b> rather than genuine reform.
<b>Data-Based Policy</b>	Based on <b>extensive data</b> (e.g., Shamim Akhtar Commission).	Critics argue lack of <b>recent, transparent national caste data</b> post-2011.

## Way Forward

### Ensure Data Transparency

- Future sub-categorisation must be based on **transparent, updated data** post-2026 Census.

### Guard Against Political Misuse

- The process must be insulated from vote-bank politics and driven purely by empirical need.

### Prevent Fragmentation

- Focus on **inclusive narratives** to avoid creating **new hierarchies** within SC communities.
- Strengthen Implementation Mechanisms
- Ensure **effective monitoring**, grievance redressal, and awareness about revised quotas.
- Integrate with Broader Social Justice Goals
- Sub-categorisation should **complement** efforts to **dismantle caste-based discrimination**, not replace them.

## SC Judgement on Prayagraj demolitions

### Context:

- On **April 16, 2025**, the **Supreme Court of India** strongly condemned the **illegal demolition of houses in Prayagraj (Uttar Pradesh)** carried out in March 2021, terming the action by the **Prayagraj Development Authority** as "**inhuman, high-handed and a violation of Article 21**" of the Constitution.
- The court directed a **compensation of ₹10 lakh** each to the affected individuals.

### Background of the Case

- The case involved demolition of structures on **Nazul Plot No. 19, Lukerganj (Prayagraj)**.
- The plot was originally **leased in 1906** for 30 years and extended for a total of 90 years.
- After the lease expired in **1996**, applications for freehold rights were rejected in **2015 and 2019**.



- State authorities claimed the land was **public property** and the structures were **unauthorised**.

### **Nazul Land :**

- Owned by government but not directly administered as state property
- Generally allotted on lease for any period between 15 years and 99 years.
- Government is free to extend the lease or cancel
- Reason of emergence is said to be rooted in British era, which basically implied lands which were vacated by British at time of independence.
- These were the lands British used to take away from kings who were defeated in battle.
- Post independence they were marked as Nazul land : to be owned by respective state governments

### **Land Encroachment :**

- **Unauthorised use or occupation of someone else's property which can occur on abandoned or unused spaces if the legal owner is not actively involved.**
- Land encroachment, as defined by Section 441 of the Indian Penal Code (IPC), 1860, is the act of unlawfully entering someone else's property without permission to commit an offence, threaten possession of the property, or stay on the land uninvited.

### **Judgement and observations :**

#### **Violation of Article 21 – Right to Shelter:**

- The SC said that **right to shelter** is integral to **Article 21 (Right to Life)**.

- It criticised the authorities for demolishing homes without giving **reasonable opportunity** to the occupants.

#### **Improper Service of Notice:**

- Notices were **affixed** to the houses instead of making genuine attempts at **personal service**.
- The court held that **affixation is permissible only after repeated personal service attempts fail**.
- Justice Oka remarked: "This affixing business must be stopped. They have lost their houses because of this."

#### **Showcause Notice Timeline:**

- The showcause notice under **Section 27 of the UP Urban Planning and Development Act, 1973** was dated **December 18, 2020**, with the hearing set for the **same day**.
- A demolition order was issued on **January 8, 2021**, but was neither **personally served** nor sent by **registered post**.

#### **Demolition Timeline:**

- The actual demolition was executed on **March 7, 2021**, without proper service of notice or time for appeal.
- The court noted "**clear overwriting**" in the notice dates.

#### **Supreme Court Directions:**

- Set aside the High Court order (dated March 8, 2021) which dismissed petitions against the demolition.
- Directed **₹10 lakh compensation** to each of the five petitioners within **six weeks**.
- Reiterated the need for **strict adherence to due process** in future demolitions.

## Remarks from the Bench

- Justice A.S. Oka and Ujjal Bhuyan condemned the **insensitive and hurried demolition**.
- Noted a viral video from Ambedkar Nagar showing a **girl running with books** as a bulldozer razes her hut.
- "This has shocked everyone," Justice Bhuyan remarked.
- The court stressed that the "**statutory development authority must remember that the right to shelter is a fundamental right.**"

## SC flags delay in Anti Defection decisions

### Context :

- On April 17, 2025, the Supreme Court of India strongly observed that **constitutional courts are not powerless** if a **Speaker deliberately delays action** on disqualification petitions under the **Tenth Schedule** (anti-defection law) of the Constitution.

- The remarks came while hearing a petition by **Bharat Rashtra Samithi (BRS)** leaders regarding the pending disqualification of **10 defected MLAs in Telangana**.

### Context & Background

- Petitioners:** BRS leaders including **K.T. Rama Rao** and **Padi Kaushik Reddy**.
- Respondents:** Telangana Government, Speaker of Telangana Assembly, Secretary of the Assembly, and the Election Commission of India.
- Main Allegation:** Speaker has not acted on disqualification petitions filed in **March-April 2024** against MLAs who defected to the **Congress**, despite issuing a notice only in **January 2025**.
- Core Constitutional Question:** Can courts direct a Speaker, who acts as a quasi-judicial authority under the Tenth Schedule, to decide disqualification petitions within a fixed timeframe?

Observation	Details
Delay defeats purpose	Justice Gavai stated that the <b>objective of the Tenth Schedule (anti-defection law)</b> cannot be frustrated by a Speaker's indecision.
Judicial Review permissible	Though courts cannot dictate the <i>manner</i> of decision, they <b>can direct</b> that a decision be made within a <b>reasonable time</b> .
Extraordinary Powers under Article 142	Justice Gavai emphasized that <b>Article 142</b> empowers the Supreme Court to <b>ensure complete justice</b> , including actions against inaction by constitutional authorities.
Not a mere 'request'	The Court clarified that when it "requests" a Speaker to act, it is not a casual request but carries <b>constitutional weight</b> .
Past precedence	The Court noted that it had previously urged Speakers to act on long-pending disqualification cases.

<b>Impartiality of Speakers questioned</b>	Petitioners argued that <b>Speakers often act with political bias</b> , which undermines the rule of law and the <b>quasi-judicial nature</b> of their role.
--	--

- **Petitioners (Senior Advocate C.A. Sundaram):**
  - Delay in disqualification helps defectors continue to enjoy office.
  - Speakers **must act within a reasonable time** even if no specific timeframe is provided in the law.
  - Since Speakers act as tribunals, **judicial review is permissible**.
- **Respondents (Senior Advocates Mukul Rohatgi & A.M. Singhvi):**
  - Courts cannot impose a deadline on the Speaker.
  - Speakers are not subordinate to the judiciary; courts can only “request” for expeditious decisions.
  - Judicial review should apply only after a decision is made.

- **NE States and Maharashtra Cases (2019–2023):**

- SC had previously nudged Speakers to **avoid inordinate delay** in disqualification matters.
- In **Manipur and Maharashtra**, delays exceeding months/years were flagged as detrimental to democratic integrity.

### **Keisham Meghachandra Singh versus Speaker Manipur Legislative Assembly 2020**

- a time-bound framework (e.g., **90 days**) should be introduced for Speakers to decide on disqualification petitions to prevent indefinite delays.

### **Precedents and Comparisons**

- **Kihoto Hollohan v. Zachillhu (1992):**
  - Supreme Court held that **Speakers’ decisions are subject to judicial review**, but not the *legislative process itself*.

## **Centre State Relations**

### **TN forms committee to review Centre State Relations**

#### **Context :**

- On **April 15, 2025**, Tamil Nadu Chief Minister **M.K. Stalin** announced the formation of a **three-member high-level committee** to review Centre-State relations, focusing on strengthening **State autonomy** and **cooperative federalism**.

- The move is rooted in Tamil Nadu’s historical demand for greater decentralisation and follows increasing friction between the State and Union government over education, finance, representation, and federal governance norms.

#### **Background :**

- The committee is chaired by **former Supreme Court judge Justice Kurian Joseph**.

### Other members:

- **K. Ashok Vardhan Shetty**, retired IAS officer and former Vice-Chancellor, Indian Maritime University
- **M. Naganathan**, former Vice-Chairman, State Planning Commission
- The committee will submit an **interim report by January 2026** and a **final report within two years**.
- This initiative revives Tamil Nadu's historical commitment to federalism, tracing back to **Justice P.V. Rajamannar Committee (1969)** formed by **M. Karunanidhi**, whose key recommendations were adopted by the State Assembly in 1974.

### Mandate of the High-Level Committee

- Review constitutional provisions on Centre-State relations.
- Recommend restoring **subjects shifted from the State List** to the Concurrent List.
- Suggest administrative reforms to **enhance State capacity** and autonomy.
- Propose measures to **uphold federal principles** without compromising **national integrity**.
- Revisit the recommendations of:
  - Rajamannar Committee (1969)
  - Sarkaria Commission (1983)
  - Punchhi Commission (2007) in light of current political, social, and economic realities.

### Issues – Legacy and Recent :

#### Erosion of Legislative Powers

- Subjects like **education, health, law, and forestry** have been shifted from the **State List to the Concurrent List**, especially after the **42nd Constitutional Amendment (1976)**, diluting states' control.
- Tamil Nadu contends that **policies like NEET** override the State's educational framework, **harming marginalised students** and promoting private coaching over equity.

#### Subjects shifted from State list to concurrent list

#### 42<sup>nd</sup> Constitutional Amendment Act 1976 :

- Education
- Forests
- Weights and Measures
- Protection of Wild Animals and Birds
- Administration of Justice , constitution and organization of all courts except Supreme Court and High Court

#### Rajmanner Committee Recommendations :

- Established in 1969 by then CM , CN Anadurai.
- Established under Chairmanship of former chief justice of Madras High Court.
- The committee recommended that Article 356—the provision that allows the Centre to impose President's Rule in a state—be repealed entirely, and that a strong Inter-State Council be set up under Article 263 to resolve differences in a spirit of dialogue.

- The committee also criticised institutions that emerged outside the Constitution—chief among them, the Planning Commission, created by an executive order of the Centre.

## **Issues – Legacy and Recent :**

### **Imposition of National Policies**

- The **National Education Policy (NEP) 2020** pushes a **three-language formula**, which Tamil Nadu rejects as an **indirect imposition of Hindi**, threatening its **linguistic identity**.
- Withholding of **₹2,500 crore under Samagra Shiksha Abhiyan** due to non-compliance has drawn criticism even from a **Parliamentary Standing Committee**.

### **Fiscal Disparities**

- Under GST, Tamil Nadu claims loss of fiscal autonomy and unfair tax devolution.
  - For every ₹1 contributed to the Union, the State receives only ₹0.29, despite being a major economic contributor.
- The Finance Commission's formula has not accounted for the state's manufacturing-driven economy.

### **Reduced Political Representation**

- Tamil Nadu, due to its successful **population control measures**, may face **reduced Lok Sabha seats** in the upcoming **2026 delimitation** exercise, penalising its governance efforts.

### **Exclusion from Key Decisions**

- Decisions like **demonetisation (2016)** and **central legislation affecting state subjects** have been taken **without adequate consultation** with State governments.

## **Way Forward**

### **Constitutional Reforms**

- Revisit provisions that allow **central override on State matters**, particularly Articles 356, 257, and 256.
- Restore **State primacy** in areas like education, law, and public health.

## **Way Forward**

### **Strengthen Institutional Mechanisms**

- Make **Inter-State Council (ISC)** an active, consultative, and permanent body for resolving federal disputes.

### **Ensure Fiscal Federalism**

- Rework the **Finance Commission formula** to better reflect states' contributions and needs.
- Empower states with **greater tax autonomy** and share in centrally collected revenues.

### **Respect Legislative Autonomy**

- Governors should act swiftly and fairly on **state legislations**, avoiding unnecessary delays or political motives.

### **Promote Participatory Governance**

- Involve States in national policymaking — especially in areas impacting **language, culture, and education**.



## Constitutional and Non Constitutional Bodies

### Annual Reports Delayed

#### Context :

- As of 2025, over a dozen annual reports of the National Commissions for Scheduled Castes (NCSC), Scheduled Tribes (NCST), and Other Backward Classes (NCBC) have **not been made public**, with some pending for **up to seven years**.

- These constitutional bodies are mandated to submit **annual reports to the President**, which are then required to be **tabled in Parliament** with **action-taken reports**.

Commission	Constitutional Provision	Primary Role
NCSC	Article 338	Monitor safeguards for Scheduled Castes
NCST	Article 338A	Safeguard the interests of Scheduled Tribes
NCBC	Article 338B (inserted by 102nd Amendment Act, 2018)	Safeguard the rights and welfare of OBCs

Commission	Latest Reports Submitted	Reports Pending in Parliament
NCSC	2022-23 (submitted Feb 2024)	Not yet tabled
NCST	2018-19 to 2022-23	All submitted to President but <b>not tabled</b>
NCBC	Behind by <b>three years</b>	None tabled since 2021-22

#### Implications :

- Policy Irrelevance:**
  - Delayed tabling renders key **recommendations obsolete**
  - Weakens the **influence of constitutional bodies** on timely policymaking
- Reduced Oversight and Accountability:**
  - Parliament and public are denied access to data on **implementation of welfare schemes** for SCs, STs, and OBCs

- **Action Taken Reports (ATRs)** delayed or diluted
- **Administrative and Capacity Constraints:**
  - Officials cite **resource shortages, lack of prioritisation by nodal Ministries, and delays in printing and inter-departmental consultations.**
- **Erosion of Constitutional Mandate:**
  - Undermines Articles **338, 338A, and 338B**, which guarantee institutional **autonomy and reporting authority**

### Way Forward :

- **Institutional Strengthening:**
  - Provide commissions with dedicated teams, data analysts, and policy experts
  - Ensure **independent budgetary control** to avoid administrative delays

- **Statutory Timelines for Tabling Reports:**
  - Introduce **time-bound mechanisms** for tabling reports and submitting ATRs in Parliament
- **Digitisation and Transparency:**
  - Upload executive summaries and recommendation highlights online pending tabling
  - Allow **public access** to non-sensitive findings for transparency
- **Parliamentary Oversight:**
  - Empower **Standing Committees** to call for pending reports
  - Annual reviews during Budget Sessions to monitor implementation of commission recommendations

## Panchayat and local Bodies

### National Panchayati Raj Day Awards

- The **National Panchayati Raj Day (NPRD)** was observed on **24th April 2025** at **Lohna Uttar Gram Panchayat, Madhubani, Bihar.**
- This year's event marked a **historic shift** with the introduction of **Special Category National Panchayat Awards**, aimed at **climate action, self-reliance, and capacity building.**
- Observed annually on **24th April** to commemorate the enactment of the **73rd Constitutional Amendment Act, 1992**, which came into force in **1993**, giving constitutional status to **Panchayati Raj Institutions (PRIs).**

- Celebrates **decentralized governance** and empowers **local self-government** in rural India.
- For the **first time**, the Ministry of Panchayati Raj instituted **dedicated awards** to incentivize Gram Panchayats aligning with **key national priorities** such as **Climate Action** and **Atmanirbharta (Self-Reliance).**

#### 1. Climate Action Special Panchayat Award (CASPA)

Encourages Panchayats to integrate **climate-resilient governance.**

- **Rank 1:** Dawwa S Gram Panchayat, Gondia, Maharashtra
- **Rank 2:** Biradahalli Gram Panchayat, Hassan, Karnataka

- **Rank 3:** Motipur Gram Panchayat, Samastipur, Bihar

## 2. Atma Nirbhar Panchayat Special Award (ANPSA)

Recognizes Panchayats augmenting Own Source Revenue (OSR) to ensure financial autonomy.

- **Rank 1:** Mall Gram Panchayat, Rangareddi, Telangana
- **Rank 2:** Hatbadra Gram Panchayat, Mayurbhanj, Odisha
- **Rank 3:** Gollapudi Gram Panchayat, Krishna, Andhra Pradesh

## Panchayat Kshamta Nirman Sarvottam Sansthan Puraskar (PKNSSP)

To acknowledge institutions excelling in training & capacity building of PRI representatives:

- **Rank 1:** Kerala Institute of Local Administration (KILA), Kerala
- **Rank 2:** State Institute for Rural Development and Panchayati Raj, Odisha
- **Rank 3:** State Institute of Panchayat and Rural Development, Assam

### Incentives:

- Rank 1: ₹1 crore
- Rank 2: ₹75 lakh
- Rank 3: ₹50 lakh
- Trophies and certificates also awarded.

- **Notable Fact:** Three winning Panchayats (from Bihar, Maharashtra, and Odisha) are led by women Sarpanches.

## About the Rashtriya Gram Swaraj Abhiyaan (RGSA)

- **Launched:** 2018
- **Aim:** To develop and strengthen the capacities of Panchayati Raj Institutions (PRIs) for participatory local governance.
- **Scope:** Supports Gram Panchayats to plan, implement and monitor development programs aligned with SDGs.
- **Funding Pattern:** 60:40 (Centre:States), 90:10 for NE/hilly states, 100% for UT

## 9 SDG-Aligned Village Goals

The Ministry of Panchayati Raj has localised the Sustainable Development Goals into 9 themes:

- Poverty-free and enhanced livelihoods village
- Healthy village
- Child-friendly village
- Water-sufficient village
- Clean and green village
- Self-sufficient infrastructure village
- Socially secured village
- Village with good governance
- Women-friendly village

## Social Issues

### Woman Related Issues

#### UK Supreme Court Ruling on Definition of Woman and Its Implications



#### Context:

- On April 16, 2025, the UK Supreme Court ruled that under the Equality Act 2010, the term “woman” legally refers to biological sex, not gender identity.
- This arose from a case filed against Scottish government guidance that included trans women (with gender recognition certificates) in public-sector gender quotas.

#### Key Takeaway from the Judgment:

The Court clarified that:

- Legal protection for single-sex spaces (e.g., hospitals, sports clubs, and shelters) can exclude trans women.
- The ruling applies to biological definitions only but maintains that trans individuals still enjoy protection under broader anti-discrimination provisions of the Equality Act.

#### Implications for Society and Law:

- **Legal clarity:** Removes ambiguity for institutions on managing single-sex provisions.

- **Social debate:** Reflects ongoing global tensions between biological feminism and gender identity politics.
- **Institutional impact:** Hospitals, prisons, and public boards now face clearer, but potentially controversial, operational guidelines.

#### Reactions and Stakeholder Views:

- **Supporters:** Women’s rights groups and gender-critical feminists (e.g., J.K. Rowling) welcomed the ruling as safeguarding female-only spaces.
- **Critics:** LGBT+ organisations, including Stonewall, and trans activists condemned it as regressive and potentially discriminatory.
- **Legal Experts:** Warned it may require legislative updates to better accommodate both women’s rights and transgender protections.

#### Broader Sociological Relevance:

- Highlights the tension between identity rights and legal categories, a challenge India also faces with increasing debates on same-sex marriage and gender identity recognition.
- Useful for discussing intersectionality, rights-based frameworks, and how laws shape inclusion/exclusion in society.
- Sparks comparative analysis of biological essentialism vs. gender self-identification.

## Poverty and Developmental Issues

### World Social Report 2025



#### Context:

- The UN in its World Social Report 2025 emphasizes the need for a new global social contract to address rising inequality, insecurity, and eroding trust in institutions, especially post-pandemic and amidst geopolitical and climate crises.

#### Key Issues Identified in the World Social Report 2025

- **Widespread Economic Insecurity**
  - 60% of the global population lives with economic insecurity.
  - 690 million people remain in extreme poverty.
- **Deepening Inequality**
  - Income inequality widened in two-thirds of countries.
  - Top 1% own more wealth than 95% of the global population.

- **Precarious Livelihoods**
  - Informal work dominates in regions like South Asia and Africa.
  - Majority of workers fear job loss due to economic volatility.
- **Declining Trust in Institutions**
  - Over 50% of global citizens report distrust in government.
  - Causes include governance failures and digital misinformation.
- **Impact of Climate and Conflict**
  - 1 in 5 faced climate-related shocks;
  - 1 in 7 endured conflicts in 2024, reversing social progress.

#### Positive Developments

- **Poverty Reduction:** Over 1 billion people lifted from extreme poverty since 1995.
- **Social Development:** Gains in literacy, health, and basic services.
- **Social Inclusion:** Some success in reducing gaps across ethnic, regional, and socio-economic lines.

#### Structural Challenges

- Weak Social Protection
- Unfair Tax Systems
- Underfunded Public Goods
- Digital Polarisation & Youth Disengagement

#### Way Forward (Policy Recommendations)

- **Rebuild Social Contract:** Invest in health, education, decent work, and social protection.
- **Ensure Fair Taxation:** Progressive tax policies to tackle wealth concentration.



- **Revive Institutional Trust:** Promote inclusive governance and citizen participation.
- **Boost Climate Resilience:** Target support towards vulnerable and marginalized groups.
- **Strengthen Multilateralism:** Leverage platforms like the Second World Summit for Social Development.

## World Bank Spring 2025 Poverty & Equity Brief



### Context

- The World Bank Spring 2025 Poverty & Equity Brief records a dramatic fall in extreme-poverty in India from 16.2 % in 2011-12 to just 2.3 % in 2022-23, meaning about 171 million people now live above the US \$ 2.15 line.
- At the lower-middle-income line (US \$ 3.65) poverty fell from 61.8 % to 28.1 %, lifting another 378 million people. These are among the fastest reductions ever observed for a large country.

### Why did poverty fall so steeply?

- **Pro-poor growth:** A decade of 6–7 % average real GDP growth expanded low-wage employment in construction, services, and MSMEs, raising real consumption especially in the bottom quintiles.

- **Rights-based welfare architecture:** The National Food Security Act, Direct Benefit Transfers via Aadhaar-Jan-Dhan, PM-KISAN, and PM-Awas have sharply reduced out-of-pocket food and housing expenditure for the rural poor.
- **Rural safety nets:** MGNREGS provided counter-cyclical employment (3.3 billion person-days in FY 23-24), while PM-Garib Kalyan Anna Yojana supplied free cereals during Covid-19, preventing a slide-back into destitution.
- **Infrastructure push:** Village electrification, rural roads (PM-GSY), and Swachh Bharat toilets cut time-poverty and health-related income loss, amplifying the impact of cash transfers on real welfare.

### Spatial & demographic spread

- **Rural India:** Extreme-poverty dropped from 18.4 % (in 2011-12) to 2.8 % (in 2022-23). The rural-urban gap narrowed from 7.7 points to 1.7 points, signalling convergence.
- **State heterogeneity:** Five populous states—UP, Maharashtra, Bihar, West Bengal, MP—accounted for two-thirds of the national decline; each now shows extreme-poverty under 5 %.

### Employment & gender angle

- Since 2021-22 the number of jobs has grown faster than the working-age population.
- Urban unemployment touched a seven-year low of 6.6 % (Q1 FY 24-25).

- Notably, female labour-force participation rebounded, helped by self-employment and digital gig work – useful for discussing women’s economic empowerment within social-change frameworks.

### **Beyond income: inequality & multidimensional poverty**

- **Gini coefficient:** Improved from 28.8 in 2011-12 to 25.5 in 2022-23, meaning consumption inequality fell, contrary to many perceptions.

- **MPI:** Non-monetary deprivation (health, education, living conditions) declined from 53.8 % (2005-06) to 16.4 % (2019-21). The World Bank’s own multidimensional measure stands at 15.5 % for 2022-23.

## **Poverty and Developmental Issues**

### **Trump’s tariffs shake the foundation of globalisation**



#### **Context**

- The imposition of a 104% tariff by US President Donald Trump on Chinese imports has renewed global discussions about the vulnerabilities of globalisation.

#### **Understanding Globalisation**

- Globalisation refers to the process of increasing interconnectedness and interdependence among countries, economies, societies, and cultures.

- Core features include economic integration, movement of people and goods, cultural homogenization, and a reduced direct role of the state in economic affairs.
- While a simple breakdown of the term suggests "becoming global," scholars emphasize aspects like speed, scale, and structural impact as key to understanding globalisation today.

#### **Evolution and Origins of Globalisation**

There is no single agreed-upon origin of globalisation.

- **Marxist Perspective:** Thinkers like Immanuel Wallerstein and Fernand Braudel trace globalisation to the 16th-century commercial revolution, viewing it as a historical stage in capitalism’s expansion to every corner of the world.
- **Connectedness View:** Others suggest that ancient trade routes, such as the Silk Road, also embodied early forms of globalisation.

- **Modern Acceleration:** Post-World War II, with capitalism triumphing over socialism after the Cold War, globalisation accelerated significantly. The fall of the Berlin Wall (1989) and the dissolution of the USSR (1991) symbolized the ideological dominance of the market economy.
- **First Academic Usage:** The term 'globalisation' entered serious discourse in the 1930s but gained economic significance after Theodore Levitt's 1983 article "The Globalization of Markets" highlighting standardized global consumption patterns.

### **Drivers of Globalisation**

- Technological advancements in communication and transportation compressed time and space, making cross-border economic and social exchanges faster.
- Policy shifts promoting free trade, deregulation, and open markets by governments worldwide created conditions for global economic integration.
- Rising aspirations of a new middle class, particularly in developing nations, also pushed the demand for global products and services.

### **Advantages of Globalisation**

- Globalisation has created unprecedented opportunities for developing countries, integrating them into global value chains and markets.
- It has promoted international cooperation on challenges like terrorism and climate change, increased access to diverse cultures, and heightened awareness of marginalized regions.

- Increased competition has lowered consumer prices and improved product quality, while enhanced media coverage has spotlighted distant humanitarian issues.

### **Disadvantages of Globalisation**

- However, globalisation has also deepened inequalities. Rich nations have grown richer, while many poorer nations and communities have been further marginalized.
- Within countries, the gap between the rich and poor has widened.
- Cultural diversity has suffered due to homogenization — a phenomenon sociologist George Ritzer describes as the "McDonaldization of Society."
- Environmental degradation has accelerated as global firms scaled up operations.
- Importantly, globalisation's benefits are largely concentrated among the middle and upper classes, while the poorest sections often face economic and cultural dislocation.

### **Rise of Protectionism**

- The resurgence of protectionism, seen in Trump's tariff policies, marks a backlash against globalisation.
- Protectionism aims to shield domestic industries from foreign competition through high tariffs and restrictive policies.
- While developed nations fear job losses due to foreign workers, developing countries resist the domination of multinational corporations that harm local economies.

- In India, the decline of traditional industries and crafts highlights globalisation's adverse effects.
- The "Make in India" and "Make for India" campaigns are responses aimed at strengthening domestic production and consumption.
- Going forward, a critical engagement with globalisation – ensuring it becomes more equitable, sustainable, and sensitive to local economies – is necessary to prevent destabilizing nationalist and protectionist reactions.

### **Conclusion**

- Globalisation remains central to contemporary society but is increasingly contested. Protectionist trends reflect real discontents over inequality, cultural erosion, and loss of economic sovereignty.

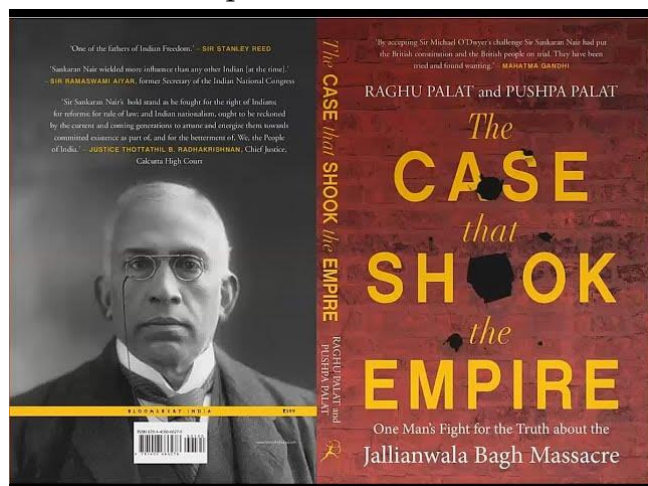
## History

### Modern Indian History

#### C. Sankaran Nair:

##### Context:

- Recently C. Sankaran Nair's role was recognized by Prime Minister Narendra Modi on the anniversary of the Jallianwala Bagh massacre, emphasizing his significant role in opposing British atrocities.
- C. Sankaran Nair's life and contributions are the subject of the film "Kesari Chapter 2," based on the book "The Case That Shook the Empire" by his great-grandson Raghu Palat and his wife Pushpa Palat.



**Born in** 1857 in Mankara village, Palakkad district, Kerala. Education: Graduated from Presidency College, Madras, also obtained a degree in law.

- Became the **youngest president of the Indian National Congress in 1897.**
- In a masterly address he referred to the **highhandedness of foreign administration**, called for reforms and asked for **self-government for India with Dominion Status.**

- In 1900 he was a **Member of the Madras Legislative Council.**
- In the meantime, in 1902, the Viceroy **Lord Curzon appointed him Secretary to the Raleigh University Commission.**
- Till 1908, he was the **Advocate - General to the Government and an Acting Judge** from time to time.
- In 1908 he became a **permanent Judge in the High Court of Madras** and held the post till 1915.

In recognition of his services, he was awarded **the title 'Commander of the Indian Empire' by the King - Emperor in 1904 and was knighted in 1912.**

- Known for landmark judgments promoting social reforms, including: **Budasna v Fatima (1914):** Ruled that converts to Hinduism could not be treated as outcastes. Supported **inter-caste and inter-religious marriages.**
- He became a member of the Viceroy's Council in 1915 with charge of the Education portfolio.
- As member, he wrote in 1919 two famous Minutes of Dissent in the Despatches on Indian Constitutional Reforms, pointing out the various defects of British rule in India and suggesting reforms. Political Activism Advocated for **India's right to self-governance** and played a role in the **Montagu-Chelmsford reforms of 1919.**



- **Resigned from the Viceroy's Council** in protest after the Jallianwala Bagh massacre, April 13, 1919. The massacre galvanized Indian nationalism and led to widespread protests against British rule.

### Defamation Case Against Michael O'Dwyer

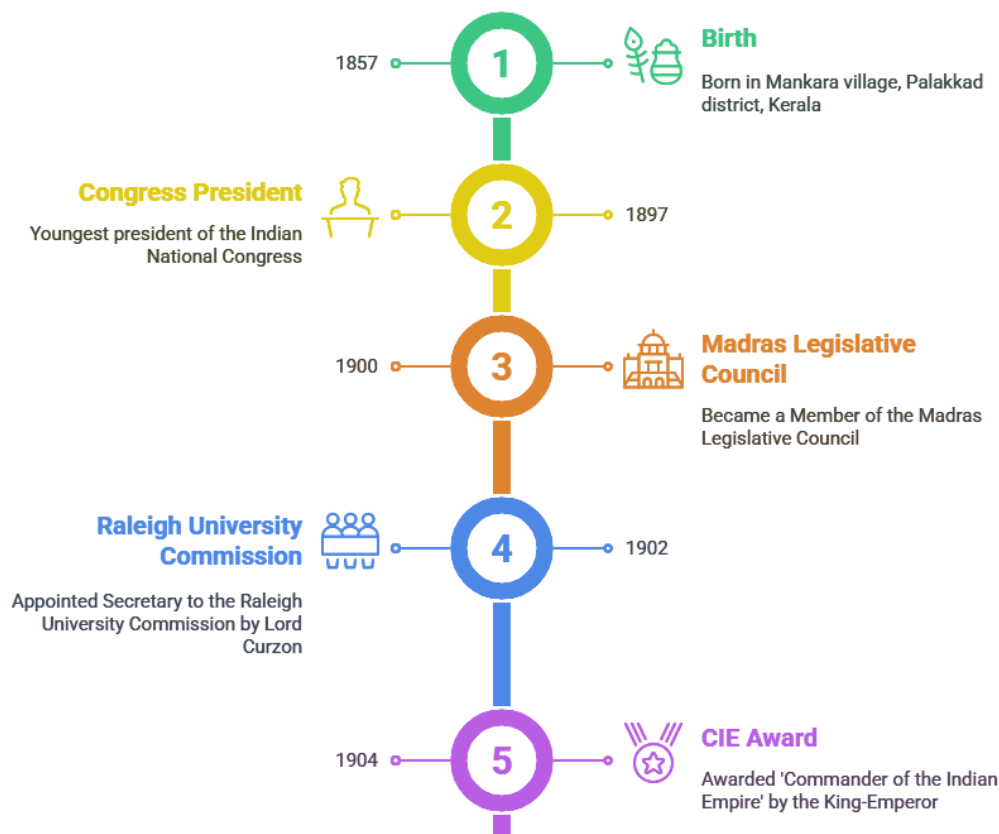
- Published "Gandhi and Anarchy" in 1922, criticizing Gandhi's methods and accusing O'Dwyer of policies leading to the massacre.
- O'Dwyer sued Nair for defamation in England, leading to a high-profile trial that lasted five and a half weeks.
- The jury, biased in favour of O'Dwyer, ruled against Nair, who refused to apologize despite being ordered to pay £500 in damages.

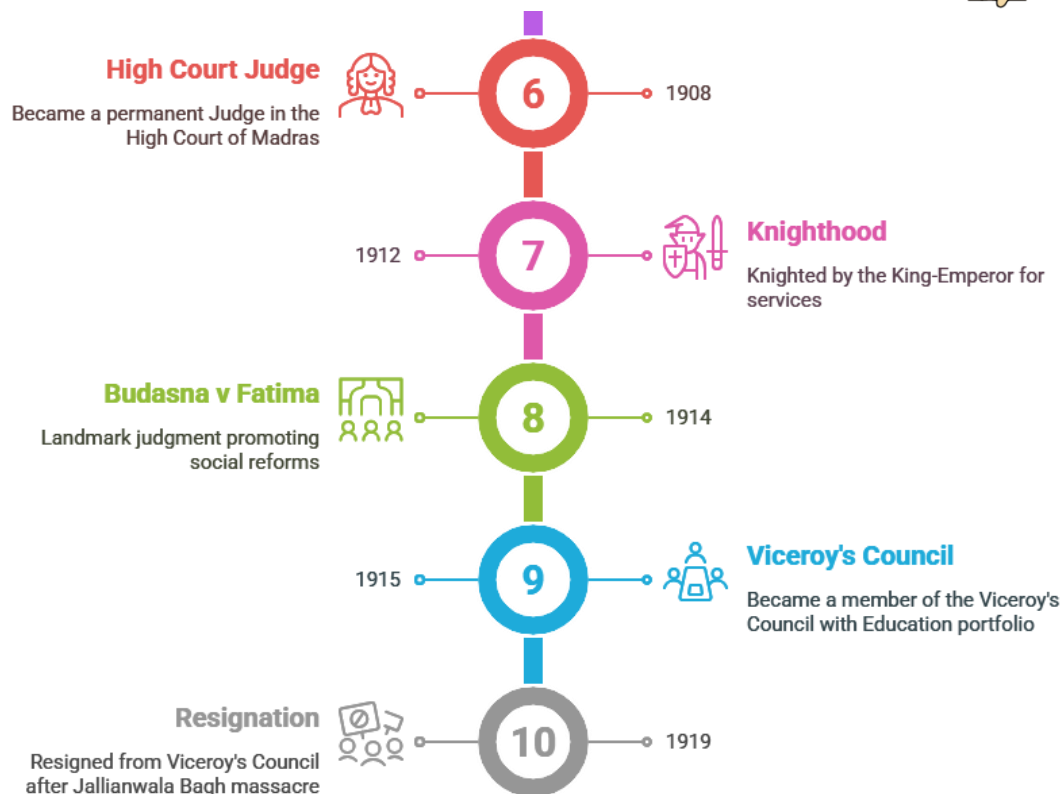
- Nair's trial highlighted the **British bias against Indians and the injustices of colonial rule.**

In 1928 he was the **President of the Indian Central Committee to co - operate with the Simon Commission.** The Committee prepared a well-argued report asking for **Dominion Status for India.**

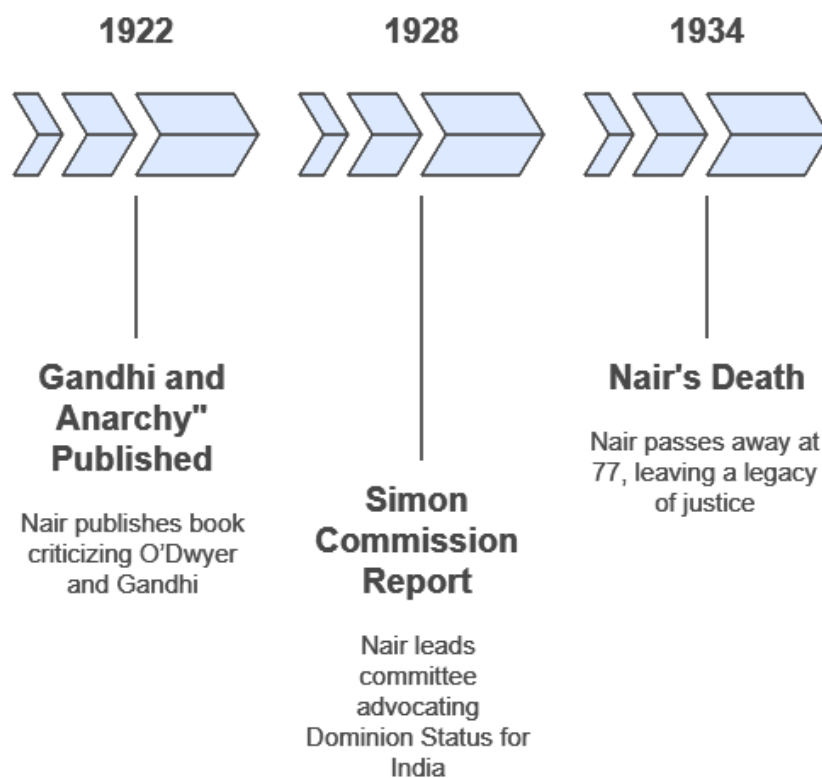
- When the Viceregal announcement came granting Dominion Status as the ultimate goal for India, Nair retired from active politics.
- Passed away in 1934 at the age of 77, leaving behind a legacy of courage and commitment to justice.

Key Milestones in the Life of Chettur Sankaran Nair

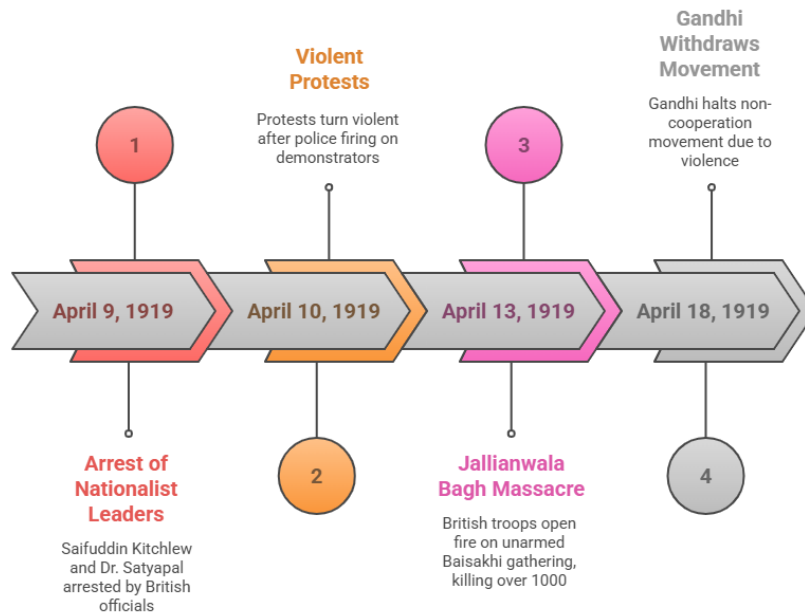




## Defamation Case and Political Career of Sir C. Sankaran Nair

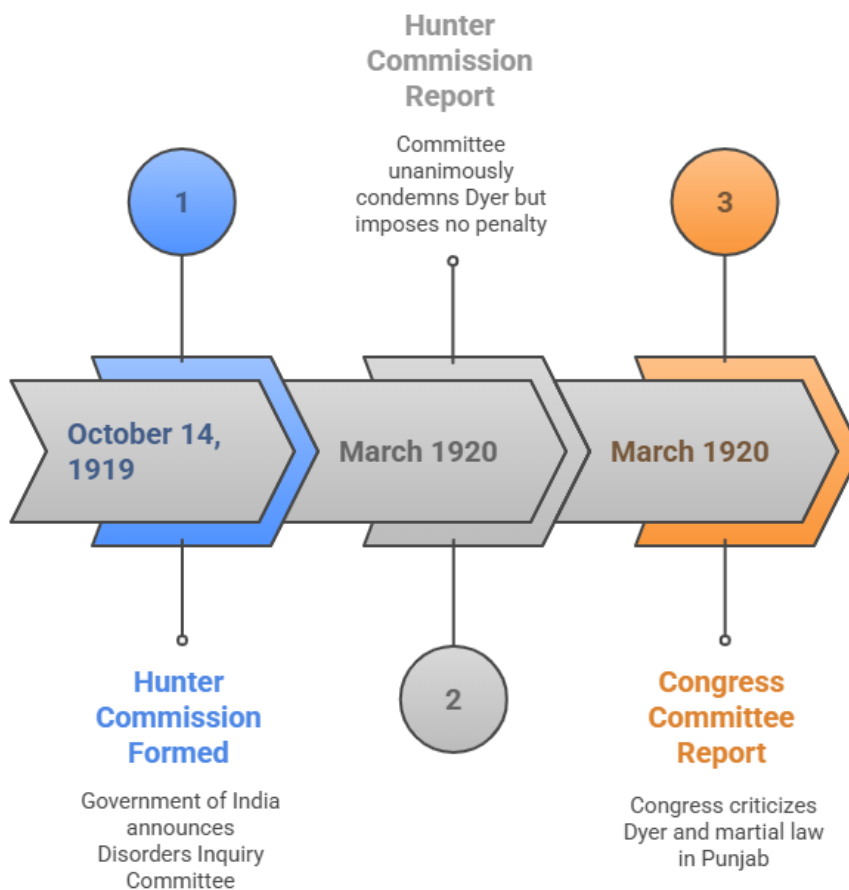


### Key Events of the Jallianwala Bagh Massacre



- Rabindranath Tagore renounced his knighthood in protest.
- Mahatma Gandhi gave up the title of **Kaiser-i-Hind**, bestowed by the British for his work during the Boer War.

### Hunter Commission and Congress Response to Jallianwala Bagh Massacre



- Motilal Nehru, C.R. Das, Abbas Tyabji, M.R. Jayakar, and Gandhi.

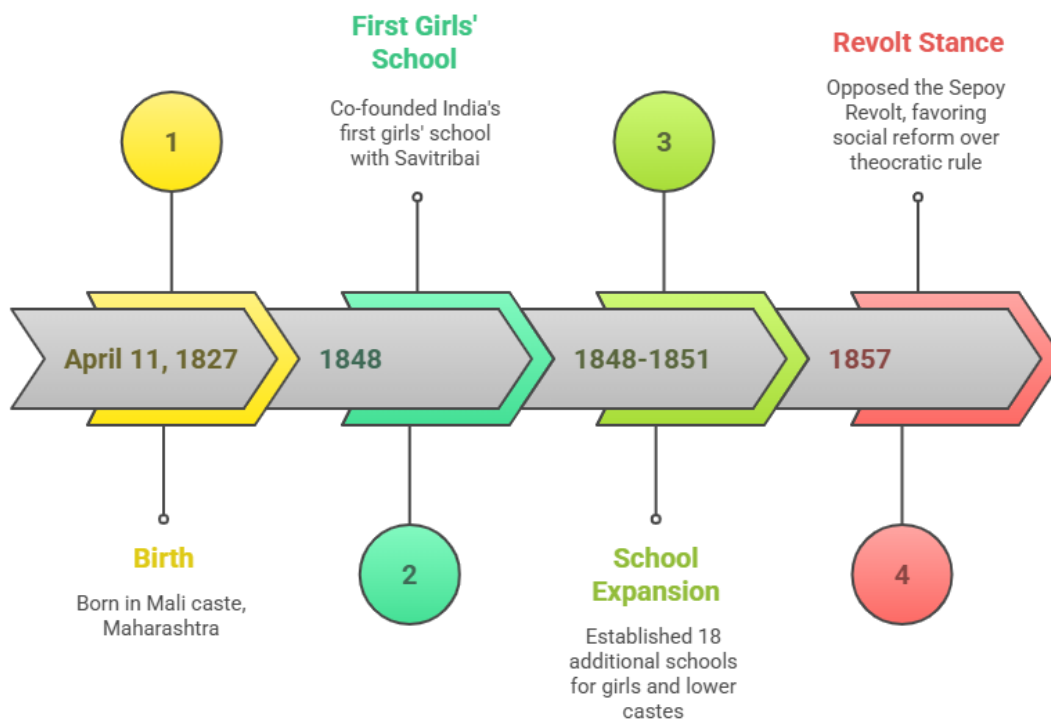
## Jyotiba Phule:

### Context:

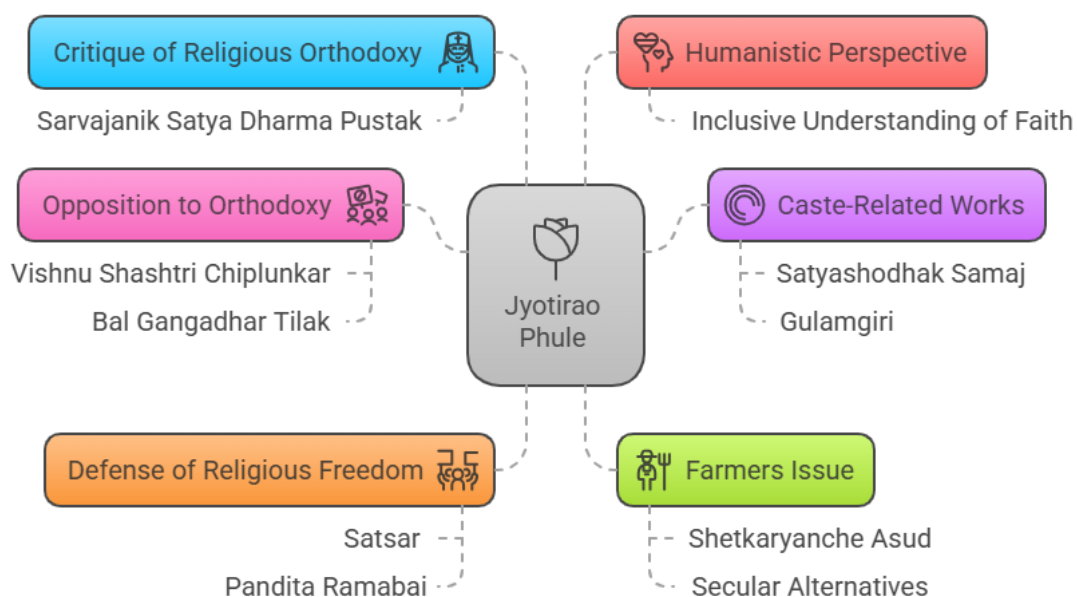
- Jyotiba Phule's life and contributions are the subject of the film "Phule".



Key Milestones in the Life of Jyotirao Phule



### Jyotirao Phule's Reform Movements and Ideas

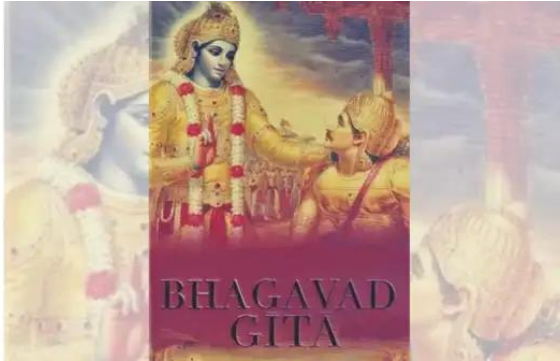


## Art and Culture

### UNESCO MoW Register

#### Context :

- On April 18, 2025, UNESCO added **Bhagavad Gita and Natyashastra** to the **Memory of the World Register**.
- India now has **14 entries** in this prestigious list, with **2 joint entries**.



#### UNESCO's Memory of the World Programme

- Established: **1992**
- Objectives:**
  - Preserve documentary heritage (manuscripts, oral traditions, audio-visual materials, and library and archive holdings)
  - Ensure universal access
  - Raise global awareness
- Components:**
  - International Register
  - Regional Registers
  - National Committees



#### Natyashastra

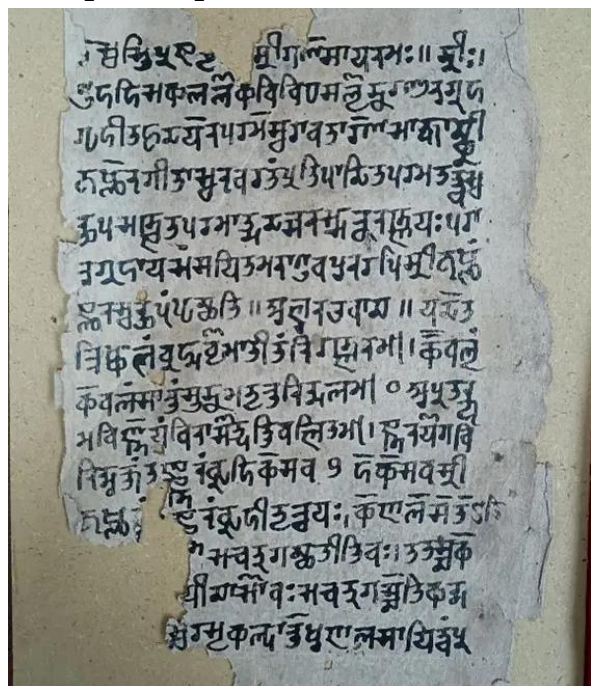
- Preserved at the Bhandarkar Oriental Research Institute and codified around the **2nd century B.C.**, the **Nāṭyaśāstra of Bharatamuni** is an epitome of the **Nāṭyaveda**, an oral body of knowledge of performing art **containing 36,000 verses** known as the Gāndharvaveda.
- The Nāṭyaśāstra embodies a comprehensive set of rules that define **nāṭya (drama)**, **abhinaya (performance)**, **rasa (aesthetic experience)**, **bhāva (emotion)**, **saṅgīta (music)**, among others, thus articulating the character of Indian theatre, poetics, aesthetics, dance and music.
- Bharatamuni makes a groundbreaking statement in Nāṭyaśāstra, asserting that **'no meaning can blossom forth without rasa'**, a profound contribution to world literature.
- UNESCO Recognition:** Celebrated for its **foundational role in shaping Indian performing arts**.

#### Bhagavad Gita

- The Bhagavadgītā, traditionally attributed to the **sage Vyasa**, is a **Sanskrit scripture** comprising **700 verses** that are organised in **18 chapters**, embedded in the sixth book (**Bhishma Parva**) of the epic poem *Mahabharata*.



- It takes the form of a **dialogue between Kṛiṣṇa and Arjuna**.
- Core ideas: **Dharma (duty), Karma, Moksha**
- UNESCO: Recognized for **spiritual and philosophical influence**.



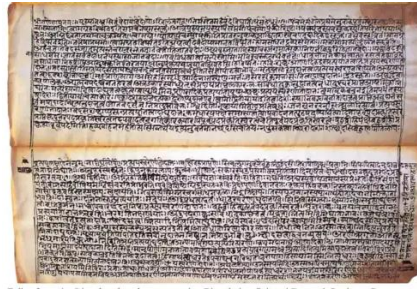
- This collection comprises 564 palm-leaf manuscripts written in Tamil, primarily originating from South India. These texts encompass traditional medical knowledge from both the **Siddha** and **Ayurvedic** systems, detailing methods for obtaining medicines from herbs, roots, leaves, and flowers, along with specific preparation processes.
- The manuscripts are preserved at the **Institute of Asian Studies (IAS)** in Chennai, Tamil Nadu.
- Their inclusion in the Memory of the World Register underscores the global significance of **India's traditional medical heritage** and the importance of preserving such invaluable documentary heritage.



### **I.A.S. Tamil Medical Manuscript Collection**

- India's first entry into UNESCO's Memory of the World Register was the **I.A.S. Tamil Medical Manuscript Collection**, inscribed in 1997.

Year	Entry	Key Features
1997	IAS Tamil Medical Manuscript Collection	Palm-leaf manuscripts from Tamil Nadu on Siddha and Ayurvedic medical systems, 564 texts in Tamil detailing traditional remedies.
2005	Saiva Manuscripts (Pondicherry)	Texts on Shaivism
2007	Rigveda Manuscripts	Oldest among four Vedas; 10,552 mantras across 10 mandalas, forming the foundation of Indian literary and religious tradition.
2011	Tarikh-e-Khandan-e-Timuriyah	1577-78 Mughal manuscript on Timurids; richly illustrated, highlighting advancements in science, art, and literature under Akbar.

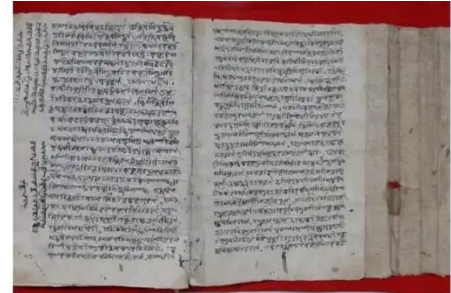


Year	Entry	Key Features
2011	Laghukalachakra-tantrarajatika/ Vimalaprabha	11th-century Buddhist text; commentary on Kalachakra Tantra with themes in Tantra, astrology, Indian philosophy. Preserved during medieval upheavals.
2013	Shantinatha Charitra	Sanskrit Jain text (1396 CE) in Devanagari script; illustrated life of 16th Tirthankara, notable for its miniature paintings and Jain art.
2017	Gilgit Manuscripts	Oldest surviving Indian manuscripts (5th–6th c. CE); Buddhist texts in Sanskrit on birch bark using Gupta and Post-Gupta Brahmi script.
2017	Maitreya-vyakarana	Palm-leaf manuscript in Kutila and Ranjana scripts from Pala era; foretells coming of Maitreya Buddha. Preserved in Kolkata.



Year	Entry	Key Features
2023	Abhinavagupta Manuscripts	248 manuscripts by Abhinavagupta of Kashmir (10th c.); spans aesthetics, yoga, tantra, music, theatre; crucial to Indic knowledge systems.
2024	Ramcharit-manas	Awadhi epic by Tulsidas (16th c.); devotional retelling of Ramayana, influential in SE Asia and Bhakti literature.

2024	Panchatantra	Sanskrit prose and verse fables; moral animal tales dating to ~300 CE; used for political and ethical teaching.
2024	Sahrdayāloka-Locana	Two poetics texts by Anandavardhana and Abhinavagupta; introduces 'dhvani' and its commentary; crucial to Sanskrit literary theory.



Year	Entry	Key Features
2025	Shrimad Bhagavad Gita	700-verse dialogue in Mahabharata between Krishna and Arjuna; explores dharma, action, devotion, and philosophical ideas across traditions.
2025	Bharat Muni's Natyashastra	Ancient text on Indian theatre, dance, and music by Bharata Muni; outlines rasa theory; foundational to classical performance arts.

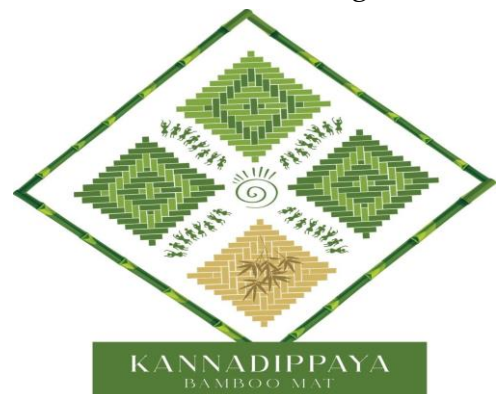
- Archives of the first summit meeting of the Non-Aligned Movement in Belgrade in 1961 (added in 2023) and the Archives of the Dutch East India Company (added in 2003), were joint submissions, which India made with Algeria, Egypt, India, Indonesia and Serbia, and Indonesia, Netherlands, South Africa and Sri Lanka, respectively.

### Significance for India

- Cultural recognition on a global platform
- Promotes preservation of heritage manuscripts
- Educational value for scholars and institutions
- Encourages cultural tourism

### Kannadippaya:

- Context:** Kannadippaya, a unique tribal handicraft from Kerala, recently received the Geographical Indication (GI) tag.
- The recognition makes kannadippaya the first tribal handicraft product from Kerala to receive a GI tag.

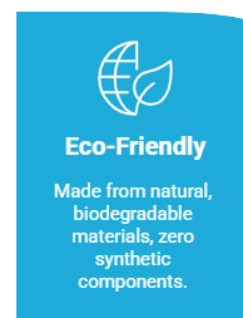
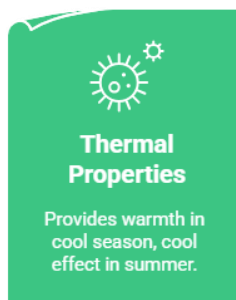
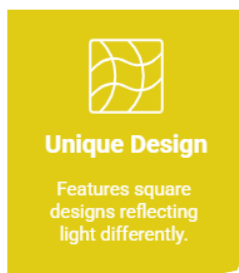






- The beautifully woven traditional bamboo mat of tribal communities of Kerala - **Kannadippaya (bamboo mirror mat)** - with unique 'kannadi' design, the **square designs** woven uniquely on this mat, **reflects light differently due to unique arrangements of warps and wefts, creating different designs when viewed from different angles.**

Kannadippaya characteristics



## Jaya Sri Maha Bodhi Tree

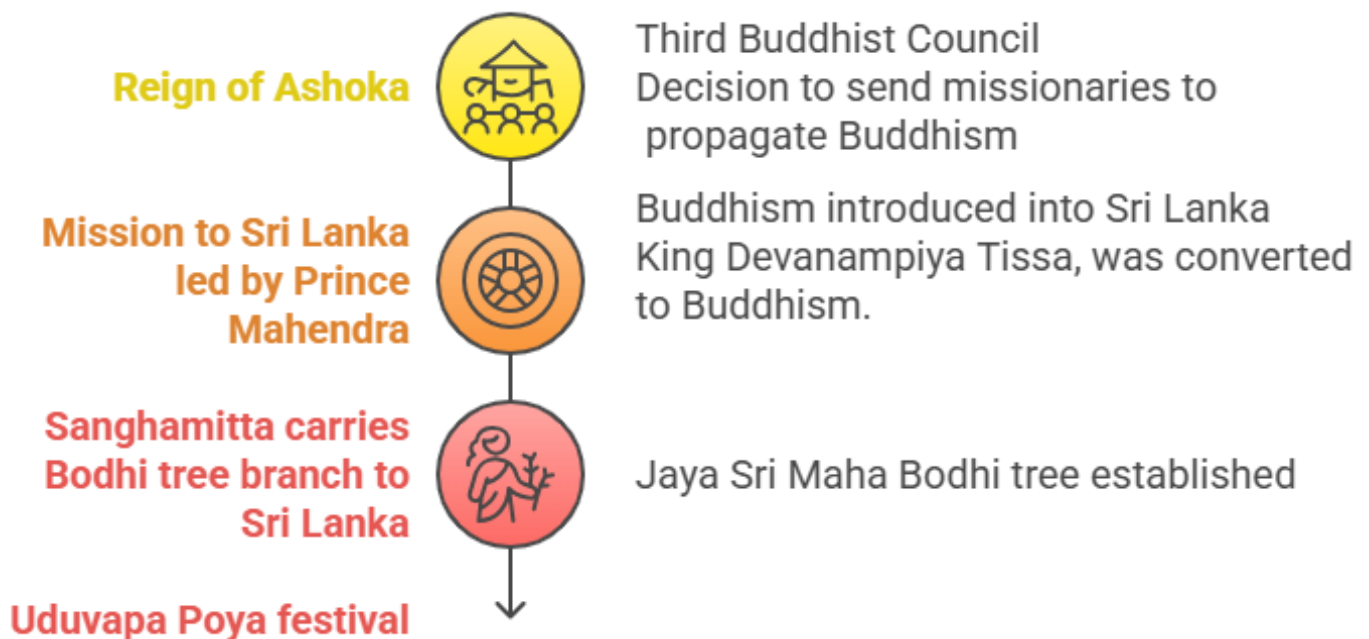
- Context : Prime Minister Narendra Modi recently visited the Jaya Sri Maha Bodhi temple at the historic city of Anuradhapura during his trip to Sri Lanka.



- The Jaya Sri Maha Bodhi tree is considered the oldest living cultivated plant in the world.
- This Bo (*Ficus religiosa*, Pipal in Hindi) tree is believed to have grown from a branch of the tree in Bodhgaya (in present-day Bihar) under which Gautam Buddha attained enlightenment. The branch was carried to Sri Lanka by Sanghamitta (or Sanghamitra), the Mauryan king Ashoka's daughter and Buddhist nun.

- During the reign of Ashoka, the Third Buddhist Council is believed to have met, where it was decided to send missionaries to different regions to propagate Buddhism. Missions left for Gandhara, Kashmir, south India, some Greek kingdoms, and Sri Lanka.
- The very successful mission to Sri Lanka was led by prince Mahendra, or Mahinda, Ashoka's son.
- Mahinda met King Devanampiya Tissa, whose capital was Anuradhapura, and converted him to Buddhism.
- After a number of royal ladies also wished to join the Buddhist monastic order, Mahinda sent for his sister, Sanghamitta, to come and initiate them. Her arrival in Sri Lanka with the tree is still celebrated as Uduvapa Poya, an annual festival observed on a full moon night in December.
- Both Mahinda and Sanghamitta lived in Anuradhapura for the rest of their lives.
- Anuradhapura is now a UNESCO World Heritage Site. Anuradhapura, was a political and religious capita of Ceylonl that flourished for 1,300 years, and was abandoned after an invasion in 993 CE. The invasion in 993 CE was by the Chola empire of south India.

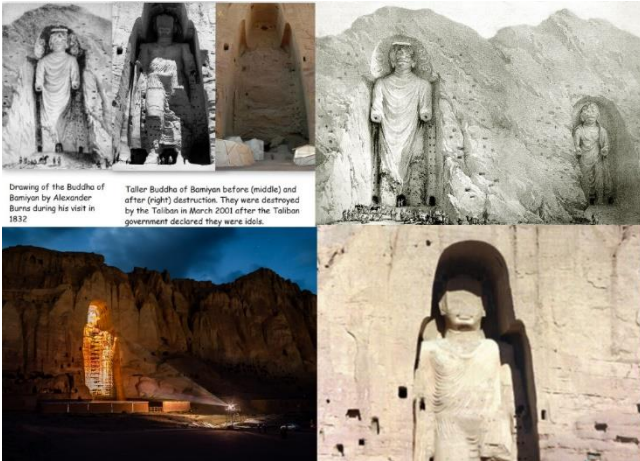
### The Spread of Buddhism from India to Sri Lanka





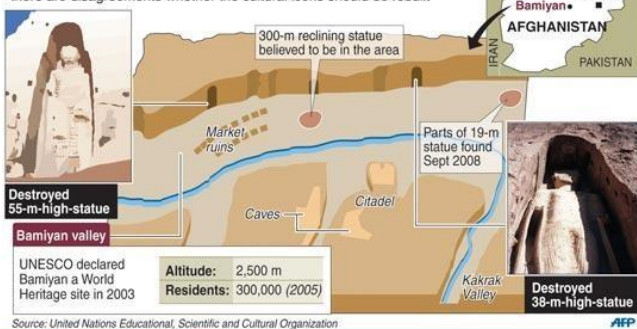
## Bamiyan Buddha

- Context : Following their return to power **Taliban claim to protect ancient heritage sites in Afghanistan** as archaeological discoveries including Brahmi inscriptions resurface in provinces like Laghman reflecting deep civilizational links with India



### Bamiyan Buddhas

Ten years after the Taliban dynamited two 1,500-year-old statues, there are disagreements whether the cultural icons should be rebuilt



- The Bamiyan valley, in the Hindu Kush mountains and along the river Bamiyan, in the central highlands of Afghanistan was a key node of the early Silk Routes, emerging as a hub of both commercial and cultural exchange.
- The Bamiyan Buddha statues, hewn from sandstone cliffs, are said to have dated back to the 5th century AD, and were once the tallest standing Buddhas in the world.

- In their Roman draperies and with two different mudras, the statues were great examples of a confluence of Gupta, Sassanian and Hellenistic artistic styles.
- Called Salsal and Shamama by the locals**, they rose to heights of 55 and 38 metres respectively. Salsal means "light shines through the universe", while Shamama is "Queen Mother".
- The larger of the two statues, represented the **Buddha Vairochana**. The smaller of the two statues, depicted the **Buddha Shakyamuni**.
- In **2001**, the Bamiyan statues were systematically destroyed by **Taliban** using explosives.
- In 2003, the Bamiyan Valley was declared a World Heritage Site by UNESCO.
- To mark 20 years of their destruction, on March 9, 2021, the statue of Salsal was "recreated" – a 3D projection was beamed at the alcove where it had stood.

## Kokborok Language

Context: The Kokborok Sahitya Parishad has appealed for the inclusion of Kokborok in the Eighth Schedule of the Indian Constitution.

- The word "Kokborok" comes from "Kok," meaning "verbal," and "Borok," meaning "people" or "human."
- It is the mother tongue of communities namely Debbarma (Tripuri), Reang, Jamatia, Noatia, Kalai, Rupini, Murasing, Uchoi etc.
- Part of the **Sino-Tibetan language family**.

- Kokborok has been recognized as the **second state language of Tripura**, alongside **Bengali**, since **January 19, 1979**.
- On **January 19**, the Indian state of Tripura observes **Kokborok Day**, also known as **Tripuri Language Day**, dedicated to **nurturing the Kokborok language**.
- Originally written in its own script, **Koloma**, which became obsolete after the 14th century.
- By the 19th century, the **Bengali script** was adopted for **Kokborok** in the Kingdom of **Twipra**.
- Movements advocating for the **Roman script** began in **2004**, but the government has not addressed the demands despite repeated memoranda and protests.
- Currently a section of tribal students are allowed to write their answer scripts in Roman script in their **Madhyamik** and **HS (+2)** exams.
- Listed as "*Vulnerable*" in the **UNESCO Atlas of the World's Languages in Danger**.

## UNESCO Atlas of the World's Languages in Danger

UNESCO's Atlas of the World's Languages in Danger is intended to raise awareness about language endangerment and the need to safeguard the world's linguistic diversity among policy-makers, speaker communities and the general public, and to be a tool to monitor the status of endangered languages and the trends in linguistic diversity at the global level.



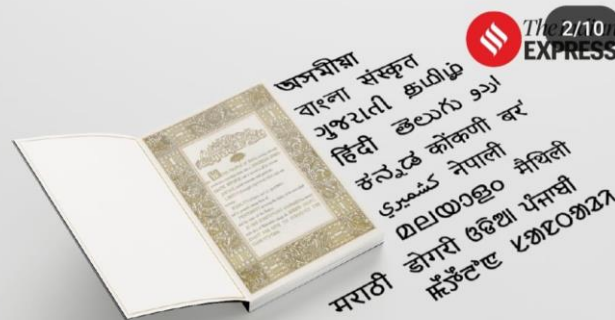
© Gérard Kedrebéogo  
A Sillanka language class

- First launched in **1996**, updated online regularly.
- Developed by UNESCO's Endangered Languages Programme.
- Provides data on **language vitality**, geographical distribution, and degree of endangerment.

# Degrees of endangerment

The document entitled "Language Vitality and Endangerment" (UNESCO, 2003) establishes six degrees of endangerment that 'may be distinguished with regard to intergenerational transmission'.

	Degree of endangerment	Intergenerational Language Transmission
	Safe	language is spoken by all generations; intergenerational transmission is uninterrupted
💡	Vulnerable	Most children speak the language, but it may be restricted to certain domains (e.g., home)
💡	Definitely endangered	Children no longer learn the language as mother tongue in the home
💡	Severely endangered	Language is spoken by grandparents and older generations; while the parent generation may understand it, they do not speak it to children or among themselves
📍	Critically endangered	The youngest speakers are grandparents and older, and they speak the language partially and infrequently
📍	Extinct	There are no speakers left >> included in the Atlas if presumably extinct since the 1950s



## What is the Eighth Schedule?

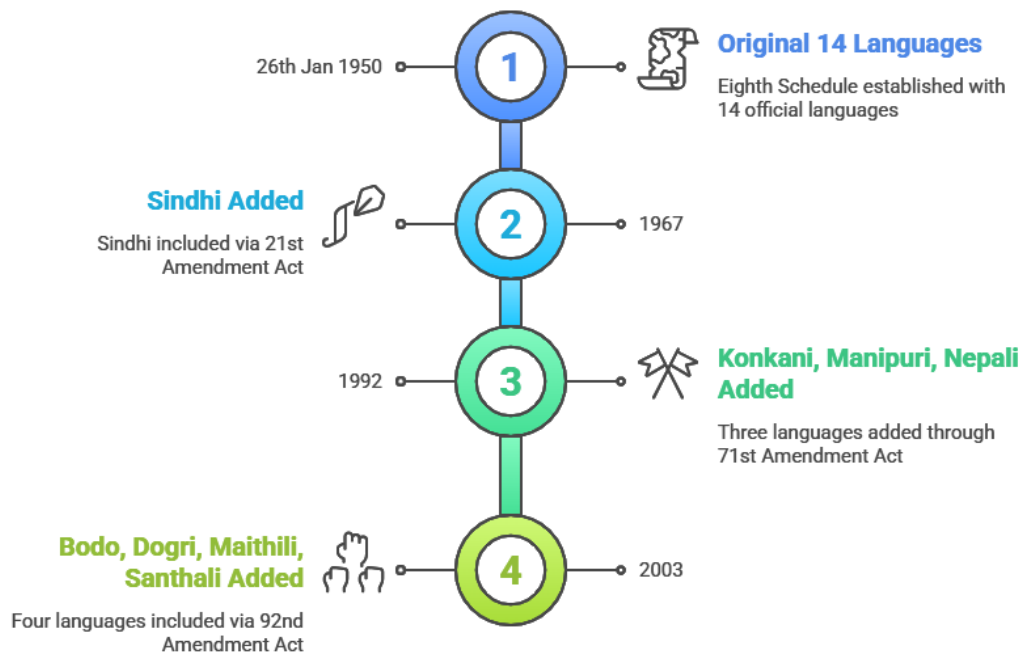
It lists **22 languages** officially recognised by the Indian Constitution.

These include:

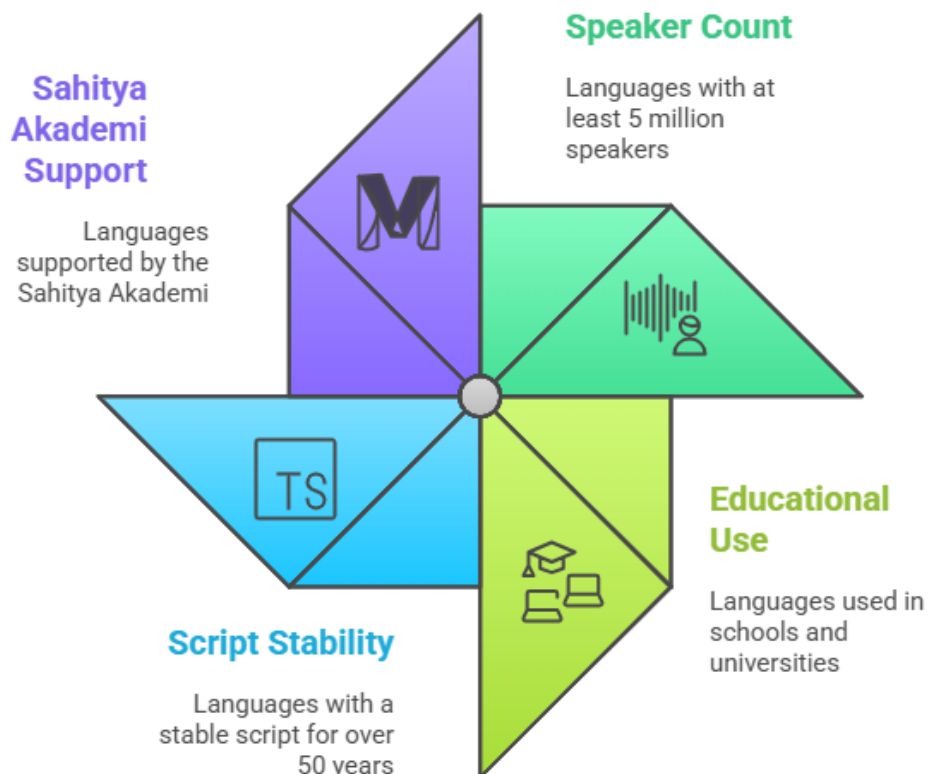
**Assamese, Bengali, Bodo, Dogri, Gujarati, Hindi, Kannada, Kashmiri, Konkani, Maithili, Malayalam, Manipuri, Marathi, Nepali, Odia, Punjabi, Sanskrit, Santhali, Sindhi, Tamil, Telugu, Urdu.**

Being listed brings **state support, symbolic prestige, UPSC eligibility, and visibility in Parliament and media.**

## Expansion of India's Eighth Schedule Languages



## Factors Influencing Language Inclusion in 8th Schedule of Indian Constitution



But none of these are officially enforced.



## Science & Tech

### Electronics

#### 3D-printed train station

##### Context

- Japan's West Japan Railway Company (JR West) has constructed a train station using 3D printing technology – reportedly the first project of its kind anywhere in the world.
- Located in Arida, a small city in Wakayama Prefecture, the new building at Hatsushima Station was assembled in under six hours, setting a new benchmark for speed, efficiency and cost-effectiveness in public infrastructure projects.
- Pre-printed parts were assembled overnight between the last train out and first train in, a world-first feat.

#### 3D printing or additive manufacturing

- It uses computer-aided designing to make prototypes or working models of objects by laying down successive layers of materials such as plastic, resin, thermoplastic, metal, fibre or ceramic.
- The **model to be printed is first developed by the computer**, which then gives instructions to the 3D printer.

#### 4D printing

- It is the process through which a **3D printed object transforms itself into another structure** over the influence of external energy input as **temperature, light or other environmental stimuli**.

### Defence

#### Glide bomb

- Defence Research and Development Organisation (DRDO) successfully conducted the Release Trials of Long-Range Glide Bomb (LRGB) 'Gaurav'

##### About

- LRGB 'Gaurav' is a 1,000 kg class glide bomb, designed and developed indigenously by DRDO
- It is a long-range, air-launched glide bomb with a diameter of 0.6 metres, a length of four metres, and a wingspan of 3.4 metres.
- It can glide over 100 kilometres when released from altitudes exceeding 40,000 feet.

- It features a dual guidance system, integrating an Inertial Navigation System (INS) with satellite-based GPS for enhanced targeting accuracy.

#### Glide bomb

- A **glide bomb** is a type of **precision-guided aerial munition** that is released from an aircraft and is capable of **gliding over long distances** to strike a designated target, without the need for onboard propulsion.
- This extended range is achieved through **aerodynamic surfaces** like wings or fins, allowing it to hit targets at a distance without the aircraft entering enemy airspace.



## Alternative energy fuel

### V2G Technology

- **Context-**The Kerala State Electricity Board (KSEB) and the Indian Institute of Technology Bombay (IIT Bombay) have initiated a pilot project to explore the implementation of Vehicle-to-Grid (V2G) technology

#### V2G technology

- V2G refers to technologies that enable EV batteries to send power back to the grid. When an EV is not in use, it can act as a decentralised battery energy storage device. An idle EV, when connected to a bi-directional charger, can provide support to the distribution grid.
- Technologies for integrating an EV to the grid will need to consider both the charging and discharging of EV batteries.
- In the first case, there is a transfer of power from the grid to the vehicle (G2V) to charge the vehicle. In this case, an EV battery functions as a load and the focus is on managing the charging load with minimal impact on the grid by potentially using strategies like Time of Use (ToU) electricity rates and smart charging technologies.
- ToU rates are electricity tariffs that vary depending on the time of day – typically higher during peak demand periods and lower during times of low demand or high RE generation.

- In the second case, an EV functions as a distributed energy source where it can provide power based on the requirement of the grid. Overall, the ability of EV batteries to transfer power encompasses many possibilities such as V2G, Vehicle to Home (V2H), Vehicle to Vehicle (V2V) etc. Among these, V2G is the most popular use case.

#### V2G in other countries

- V2G technologies have gained significant traction in mature EV markets such as Europe and the U.S.
- In the U.K. and The Netherlands, EV owners are compensated for supplying excess energy back to the grid during peak hours. In places like California, with high RE adoption, EV users are actively encouraged to participate in the ancillary services segment of the electricity market, helping improve grid stability and reliability.
- With increasing climate-linked disasters, V2G must be encouraged.

#### Indian scenario

- In India, V2G integration is currently in a nascent stage. The response to growing EV sales largely focuses on planning of the distribution grid with integration of EV charging infrastructure.
- A few DISCOMs have planned pilot projects for smart charging and V2G integration.
- The Central Electricity Authority (CEA) has set up a committee to frame guidelines for reverse charging, that is, from batteries to the grid. This committee highlighted smart charging as a key enabler to ensure EV growth with minimal impact on the grid.

- However, the electricity market structure in India is not the same as in the U.S. or Europe, and the current structure is not suited for decentralised solutions like EVs to send power back to grid.
- This is due to challenges that arise from the variable nature of RE and mismatches between electricity supply and demand. To mainstream V2G, supportive regulatory changes are needed.

### **Significance**

- One of the common objectives is to discourage EV charging when the electricity demand is high. With V2G technologies, it is also possible for EVs to supply electricity to the grid during times of high demand.

- Another upcoming application, relevant in the Indian context, is charging EVs during the day when there is a higher share of solar energy generation. To accomplish true decarbonisation through EVs, the electricity to charge EVs should be derived from RE.
- It is possible to encourage charging during high solar generation through well-designed electricity rates. In addition, using V2G, it is possible to use EVs as a storage source for excess solar generation, which can be used at night.
- With V2G, it is also possible to modulate power in an EV battery to reduce the impact of variable RE on the grid and improve grid stability.

## **Space**

### **Biosignatures in faraway exoplanet**

- Context-The discovery of signals indicating the presence of sulphur-containing gases in a far-away planet has sparked fresh excitement over the possibility of extraterrestrial life

### **Key Highlights**

- A team of researchers from the University of Cambridge that has been studying data from the planet K2-18b, some 120 light years away from Earth, has reported strong signals of dimethyl sulphide (DMS) and dimethyl disulphide (DMDS), the first time these gases have been detected outside the solar system.

- On Earth, these are a products of metabolic processes and the decay of small plant-like organisms in the oceans. This has led to scientists hypothesising on the possibility of a warm ocean on K2-18b, an environment similar to the one that gave rise to life on Earth about 3.5 to 4 billion years ago.
- Notably, K2-18b lies in the so-called “habitable zone”: the region around a star where water can remain in liquid form.
- In 2019, data from the Hubble Telescope had detected signals of the presence of water vapour in K2-18b’s atmosphere.

- Two years ago, the same team that reported the latest findings based on data collected by the James Webb Space Telescope, presented evidence for the presence of methane and carbon dioxide, also signs of possible life on the planet.

## Middleweight black holes

**Context-** Recently astronomers have found an intermedia black hole (IMBH) located in a faint galaxy about 4.3 million light-years away using India's largest optical telescope

- It is discovered by scientists from Aryabhata Research Institute of Observational Sciences (ARIES), an autonomous institute of the Department of Science and Technology (DST) with the help of Devasthal Optical Telescope (DOT)

### Key Points

- IMBHs, are thought to be the seeds that grow into supermassive black holes. However, their faint nature and location in small galaxies make them extremely difficult to observe. Unlike their larger counterparts, they don't generate bright emissions unless they're actively pulling in matter, making advanced observational techniques essential.
- The Intermediate-Mass Black Holes (IMBHs). Bridging the gap between smaller stellar black holes (having a few dozen times the Sun's mass) and massive supermassive black holes (having millions to billions of solar masses)

## Black hole

- A **black hole** is a region in space where gravity is so intense that **nothing – not even light – can escape from it.**

Black holes are typically classified into **four main types** based on their mass and formation:

### Stellar-Mass Black Holes

- About 5 to 100 times the mass of the Sun
- Formed when massive stars (typically >20 solar masses) collapse under their own gravity after exhausting nuclear fuel.

### Supermassive Black Holes

- Millions to billions of times the mass of the Sun
- Found at the centers of most galaxies, including the Milky Way
- Exact origin is uncertain; possibly formed from merging smaller black holes or direct collapse of gas clouds

### Intermediate-Mass Black Holes

- Between 100 to 100,000 solar masses
- Hard to detect; evidence is growing but still limited

### Primordial Black Holes

- Could be as small as an asteroid or as massive as a planet
- Hypothesized to have formed soon after the Big Bang due to extreme densities

## Fram2 mission

**Context-** Recently SpaceX launched a crew of four private astronauts on a mission to orbit Earth from pole to pole, a novel trajectory in which no humans have travelled before.

- It is aimed to study how spaceflight and microgravity affect the human body.

## Polar vs equatorial orbit

- A polar orbit takes the satellite over the Earth's poles, allowing it to pass over different parts of the Earth with each rotation. In contrast, an equatorial orbit follows the Earth's equator, staying over the same latitude throughout its journey.
  - Polar orbits have a high inclination—close to  $90^\circ$  to the equator—enabling them to cover almost every point on Earth over time. Equatorial orbits have zero inclination, meaning the satellite moves in alignment with the equator.
  - Satellites in polar orbit can eventually cover the entire Earth's surface due to the planet's rotation beneath the satellite. Equatorial orbit satellites, however, can only cover areas near the equator and are not suited for global coverage.
- Most polar orbit satellites are placed in low Earth orbit (LEO) at altitudes ranging from 200 km to 1,000 km. Equatorial satellites, especially those used for communications, are usually placed in geostationary orbit at about 35,786 km above Earth.
  - Astronauts in polar orbits are more exposed to cosmic radiation and solar particles, especially when the satellite passes through the Van Allen radiation belts near the poles. These regions have weaker magnetic shielding, increasing health risks. Whereas in equatorial orbits, astronauts are less exposed to such high levels of radiation because the Earth's magnetic field is stronger near the equator and offers better protection.
  - Launching into a polar orbit requires the rocket to travel north-south, often against the Earth's rotation, meaning it does not get a speed boost from Earth's spin. In contrast, equatorial launches (eastward) benefit from Earth's rotation, reducing fuel needed.

## Computers

### Gravity gradiometer

**Context-Recently** NASA scientists proposed a novel idea that an advanced quantum gravity gradiometer (QGG) could be placed onboard a satellite and launched into low-earth orbit.

- From that lofty perch, the instrument could study small changes in the earth's distribution of water, ice, and rocks to inform studies of climate change as well as help countries improve national security.

### Gravity gradiometer

- It is a scientific instrument used to measure the **variations (gradients) in the gravitational field** over a given area.
- Unlike a basic gravimeter that measures gravitational acceleration at a point, a gradiometer measures **how gravity changes from one point to another nearby**, which provides more detailed spatial information.

For example, an oil company can find out where a hydrocarbon deposit is located and how it's distributed underground by using a

gravity gradiometer to understand the density of the ground at various depths. Since hydrocarbons are less dense than rocks, a gravity gradiometer will reveal that the ball accelerates less when dropped above the location of the deposit.

- A Quantum Gravity Gradiometer (QGG) uses quantum technology to achieve much higher precision than traditional gravity gradiometers.
- In a Quantum Gravity Gradiometer (QGG), atoms of a particular element are cooled to temperatures close to absolute zero within a vacuum, causing them to behave like waves. These wave-like atoms are then precisely manipulated using lasers, and their phase shifts reveal the influence of the gravitational force acting on them.

### QpiAI-Indus

- **Context- Recently** QpiAI, one of the 8 startups selected under the National Quantum Mission launched the quantum computer QpiAI-Indus

#### QpiAI-Indus

- It is the first full-stack quantum computing system in the country and combines advanced quantum hardware, scalable control, and optimized software for transformative hybrid computing.
- It integrates advanced quantum processors, next-generation Quantum-HPC software platforms, and AI-enhanced quantum solutions.

- With this milestone, QpiAI is driving deep-science and deep-tech innovation across life sciences, drug discovery, materials sciences, mobility, logistics, sustainability, and climate action.

#### National Quantum Mission (NQM)

- The Union Cabinet, approved the National Quantum Mission (NQM) on 19<sup>th</sup> April 2023
- The Mission objectives include developing intermediate-scale quantum computers with 50-1000 physical qubits in 8 years in various platforms like superconducting and photonic technology.
- Satellite-based secure quantum communications between ground stations over a range of 2000 kilometers within India, long-distance secure quantum communications with other countries, inter-city quantum key distribution over 2000 km as well as multi-node Quantum networks with quantum memories are also some of the deliverables of the Mission.

Mission Implementation includes setting up of four Thematic Hubs (T-Hubs) in top academic and National R&D institutes in the domains:

- Quantum Computing
- Quantum Communication
- Quantum Sensing & Metrology
- Quantum Materials & Devices



## Health

### Zero Measles-Rubella Elimination Campaign

**Context-** Recently Union Health ministry launched the National Zero Measles-Rubella Elimination campaign 2025-26 on the first day of the World Immunization Week

- Government highlighted that 332 districts in the country have reported zero measles cases and 487 districts have reported zero rubella cases during January- March 2025 which underscores the progress achieved in the goal of M-R elimination.

#### Measles and Rubella

- Measles and Rubella are highly infectious viral diseases that can lead to serious illnesses, lifelong complications, and even death. Due to their high infection rate, India has set a goal to eliminate these diseases by 2026.
- Under the Universal Immunization Programme (UIP), two doses of the Measles-Rubella (MR) vaccine are provided free of cost to all eligible children, at 9-12 months and 16-24 months of age, respectively.
- Currently, India's MR vaccination coverage stands at 93.7% for the first dose (2024-25 HMIS data) and 92.2% for the second dose.
- In 2024, India has recorded a remarkable decline of 73% in Measles cases and a 17% reduction in Rubella cases in comparison with 2023.

- India aim to achieve and maintain high population immunity with  $\geq 95\%$  vaccination coverage with 2 doses of measles and rubella containing vaccines in each district of the country.

#### Universal Immunization Programme (UIP)

- Under the Universal Immunization Programme (UIP), India runs world's largest vaccination programme for pregnant women and children – reaching out to 2.9 crore pregnant women and 2.6 crore newborns annually.
- This provides protection against 12 vaccine preventable diseases (VPDs) such as Polio, Measles, Rubella, Diphtheria, Tetanus, Rotavirus diarrhoea, Hepatitis B among others.
- U-WIN digital platform for vaccination is being utilized extensively to record vaccination events, generate vaccination certificate and book appointment for vaccination across the country.
- India's Universal Immunization Programme, has been instrumental in reducing mortality rates and controlling infectious diseases among children under five years of age.
- From 2014 to 2020, under-5 mortality rates dropped from 45 to 32 per 1,000 live births (Sample Registration System - 2020). Since 2014, under UIP, over 6 new vaccines have been introduced including MR vaccine.

## RNA-based antiviral agent against plant virus

**Context-** Recently German researchers developed an RNA-based antiviral agent that confers strong protection against cucumber mosaic virus (CMV), a widespread and destructive plant virus.

### About

- The researchers used RNA silencing, a natural defence mechanism found in plants. When a virus infects a plant, it introduces double-stranded RNA (dsRNA), which is a red flag for the plant's immune system.
- The plant responds by activating Dicer-like enzymes (DCLs), which slice the dsRNA into small fragments called small interfering RNAs (siRNAs).
- These siRNAs then guide the plant's defence system to recognise and destroy the viral RNA, preventing the infection from spreading.
- But this process is far from perfect. Not all siRNA generated by the plant are effective and the virus often mutates rapidly, evading the plant's natural defences.
- To strengthen plant immunity, researchers are exploring RNA-based crop protection techniques such as host-induced gene silencing (HIGS) and spray-induced gene silencing (SIGS).

### HIGS and SIGS

- HIGS works by genetically modifying plants to produce virus-fighting dsRNA in their own cells. This provides continuous protection throughout the plant's life. But regulations, high production costs, and the potential for viral resistance limit its widespread use.

- SIGS is a more flexible alternative. Plants are treated with RNA sprays instead of being genetically modified. Leaves absorb the RNA, triggering the plant's natural immune response without altering its DNA.
- While SIGS doesn't require genetic modification and is cost-effective and environmentally friendly, its effectiveness is limited: traditional dsRNA formulations produce a random mix of siRNAs, many of which fail to silence the virus efficiently.

### What researchers have done now ?

- To overcome the limitations of existing RNA-based approaches, the researchers developed a new approach that enhanced the effectiveness of RNA silencing against CMV.
- Instead of using randomly generated dsRNA, they designed "effective dsRNA" – genetically engineered dsRNA enriched with highly functional siRNA. These specially selected siRNA bind to the virus's genetic material to trigger a stronger antiviral response.

### Plant viruses

- Unlike bacteria or fungi, which can be controlled with pesticides or fungicides, there is no straightforward way to cure crops of viral infections.
- According to the U.N. Food and Agriculture Organisation (FAO), plant pests and diseases destroy nearly 40% of the world's annual crop, costing the world more than \$220 billion. Of that, plant viruses alone contribute to over \$30 billion in losses each year.

- Cucumber mosaic virus CMV infects more than 1,200 plant species, including critical food crops like cucumbers, squash, and cereals, and medicinal plants.
- It spreads through small sap-sucking insects called aphids. With nearly 90 aphid species capable of transmitting CMV, outbreaks are often difficult to contain.

- In India, CMV is responsible for 25-30% yield losses in banana plantations. In pumpkins, cucumbers, and melons, infection rates can soar up to 70%. Affected plants develop a mosaic discoloration, stunted growth, and commercially unviable fruits.

## Biotech

### Transgenic research

- **Context- Recently term 'Transgenic mice' seen in news**

#### Transgenic

- The root word trans means from 'one to another', and genetic is used in relation to genes.
- Transgenic refers to an organism or cell whose genome has been altered by the introduction of one or more foreign DNA sequences from another species by artificial means.
- Transgenic organisms are generated in the laboratory for research purposes

#### Significance

- Transgenic animals actually include a variety of species such as fish, poultry, rabbits, pigs, sheep, goats, cattle, apart from mice. Transgenic mice have been used in genetic studies for a long time now.

- Linear fragments of DNA can be integrated into the genome in a random fashion. If the gene-modified chromosome enters the germline cells, it can be passed onto the progeny, which thereby contain permanently-altered genomes.
- Transgenic mice, in which the gene is depleted or silenced to cause a loss of gene function, are called knockout mice. These mice provide valuable clues about the biological function of a normal gene
- In fact, transgenic mice were used to demonstrate that DNA is the molecule that carries the genetic code and that oncogenes can cause cancer.
- Transgenic animals have been generated to understand normal physiological processes such as metabolism and blood cell production. Transgenic animals have been used to model human diseases and to develop new treatments.
- Transgenic crops have been produced that are resistant to infectious diseases and grow faster

- The mouse has become an important animal model to study reproduction and other processes due to its physiological, anatomical, and genomic similarities with humans

- The use of existing mouse models in cancer research is of utmost importance as they explore the casual link between candidate cancer genes and carcinogenesis, and to provide models to develop and test new therapies.

## Nuclear technology

### Uranium enrichment

- **Context-** The enrichment centrifuge is a device used to extract uranium-235 isotope from a sample of natural uranium.

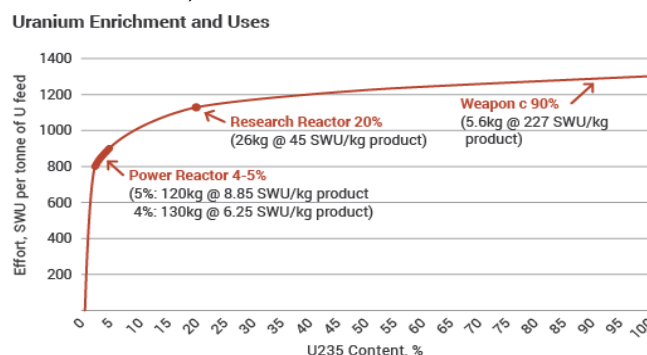
#### About

- Natural uranium consists of 99.3% U-238 and 0.7% U-235. Nuclear power reactors need the uranium fuel to contain 3-20% U-235, depending on the reactor design. Nuclear weapons need U-235 to be enriched to around 90%.

#### Uranium enrichment

- The first step for both technologies is to enrich uranium in a centrifuge. This device is named for the centrifugal force: it contains a chamber attached to a rotor.
- When the rotor spins the chamber very fast, the centrifugal force acts on objects inside such that the denser ones are moved more outwards. The amount of this force is equal to the mass of the molecule multiplied by its distance from the centrifuge's centre and the square of the angular velocity
- Uranium is converted to compound form (usually uranium hexafluoride,  $UF_6$ ), then to gas, and flowed into centrifuges. U-238 is slightly more dense than U-235, so as the centrifuges spin at 50,000 revolutions per minute, more U-235 collects towards the centre.

- This mass is then diverted to more centrifuges to further separate U-238 out. Over multiple stages, the sample becomes more enriched in U-235.
- The spinning part is made of some light yet strong material that doesn't disintegrate during such extreme motion, like carbon fibre.



### Alternative to Fast Breeder Reactors

- **Context-** Amid delays in plans for large-scale deployment of Fast Breeder Reactors (FBR), one of the country's top nuclear scientists has said that a solution could lie in the country's policy makers looking at fuel cycle options instead of reactor options.

#### About

- A quick solution to tide over this problem could lie in irradiating thorium along with a fuel variant called high assay, low enriched uranium (HALEU) in the country's pressurised heavy-water reactors (PHWRs) at scale

- The used fuel from these PHWRs – the mainstay of India's nuclear power programme – can then be recycled to set up additional power generation capacity, including through the new-age molten salt reactors (MSRs) as part of the third stage of India's three-stage nuclear power development programme.

### HALEU

- HALEU is defined as uranium enriched to greater than 5 per cent and less than 20 per cent of the uranium-235 (U-235) isotope, which is different from the uranium fuel enriched up to 5 per cent U-235 that is typically used in the current fleet of light water reactors deployed by most western countries.

### 3-STAGE ATOMIC ENERGY PROGRAMME

**STAGE 1:** PHWRs use natural uranium-based fuels to generate electricity, while producing fissile plutonium (Pu239), which can be extracted by reprocessing the spent fuel.

**STAGE 2:** FBRs of the kind at Kalpakkam, using Plutonium-based fuels, can enhance nuclear power capacity, and convert fertile thorium into fissile uranium (U233). Reprocessing of the spent fuel is vital for efficient utilisation of the plutonium inventory.

**STAGE 3:** U233 produced in the second stage can be used for the third stage of the power programme, which consists of advanced

thermal and fast breeder reactors, for long-term energy security. The use of molten salt reactors is now being seen as an option.

*(Source: BARC, DAE)*



## International Relations

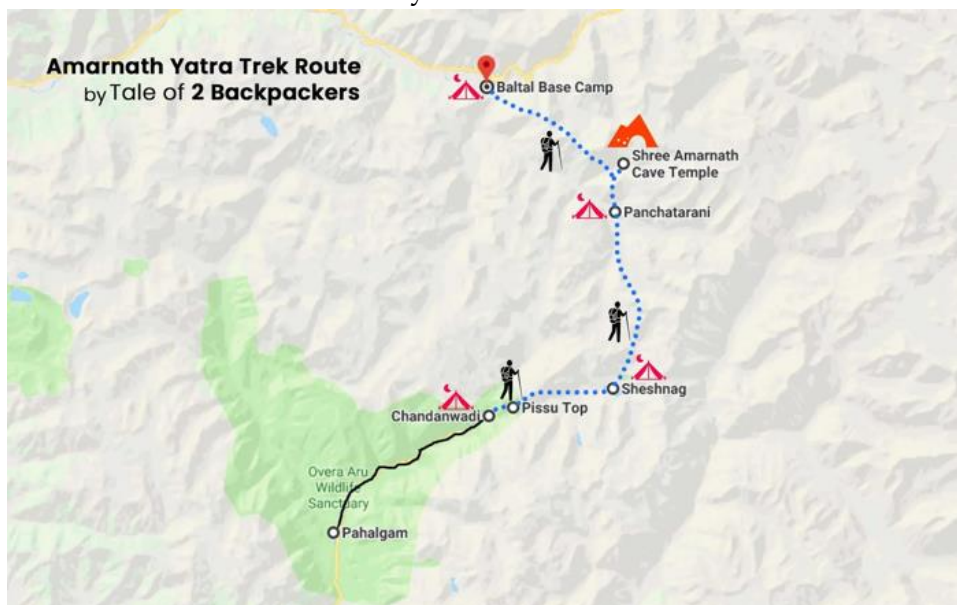
### India's Neighborhood

#### Pahalgam Killings and Aftermath-

##### Context

- Five armed militants, dressed in military-style uniforms and carrying M4 carbines and AK-47s, targeted a group of tourists in the scenic Baisaran Valley.

- In total, 26 people were killed, including 25 tourists and a local Muslim pony ride operator who tried to protect the victims. Another 20 individuals were injured in the attack.



##### Strategic Significance of Pahalgam

- The terrain around Pahalgam connects to the Pir Panjal Mountain range, which is used as an infiltration route by Pakistan-backed militants crossing the Line of Control (LoC).
- This makes it a sensitive zone in terms of counter-insurgency operations and surveillance.
- Pahalgam is one of the main base camps for the Amarnath Yatra, a major Hindu pilgrimage.
- Securing this region becomes vital every year during the yatra season, as it is often targeted or disrupted by militant threats.
- Ensuring the safety of pilgrims adds a religious and political dimension to its strategic value.

- The distance from Pahalgam to the Line of Control (LoC) is approximately 100 to 120 kilometers (as-the-crow-flies)

##### Terror Triangle

- The "Terror Triangle" is an informal term used by security analysts to describe a geostrategic region within South Kashmir where militancy, radicalization, and terror operations are most active and concentrated.
- This triangle is not officially demarcated, but refers to the area connecting Anantnag, Pulwama, and Shopian districts—each a hotspot of terrorist activity.



## Response By GOI - Diplomatic Response

- The government imposed an immediate and comprehensive ban on all imports and transit of goods originating from or exported by Pakistan. This measure, announced by the Ministry of Commerce and Industry, aims to close all loopholes, including indirect imports via third countries, effectively halting cross-border trade worth nearly ₹3,886 crore.
  - Prohibition of Pakistani Ships at Indian Ports- India has barred Pakistani ships from docking at any Indian port and vice versa.
  - This maritime embargo, enforced by the Directorate General of Shipping, is designed to safeguard Indian assets and infrastructure, further isolating Pakistan from regional trade routes.
  - Suspension of Postal Services- All categories of mail and parcels exchanged between India and Pakistan, whether by air or land, have been suspended.
  - Although postal services had been largely inactive since 2019, this formal suspension underscores the current diplomatic freeze.
- The Indian government has banned 16 Pakistani YouTube channels, including prominent news outlets such as Dawn News and ARY News, for spreading provocative and misleading content.
  - Social media accounts including Instagram and X of Pakistani celebrities, including Fawad Khan and Atif Aslam, have also been disabled.
  - **Suspension of IWT- For the first time since its inception in 1960**, India has suspended the Indus Waters Treaty, a pivotal agreement on water sharing. This suspension will remain in effect **until Pakistan unequivocally renounces support for cross-border terrorism.**
  - The **Attari-Wagah border has been fully closed**, with all Pakistani citizens on short-term visas ordered to leave India. **The move has disrupted the movement** of hundreds of people and further severed people-to-people ties.
  - India has revoked the SAARC Visa Exemption Scheme for Pakistani nationals, cancelling all previously issued visas and requiring current holders to exit the country within 48 hours. The India Government later suspended all visa services to Pakistani nationals.
    - In an official statement, India said, all existing valid visas issued by India to Pakistani nationals stand revoked with effect from 27 April 2025. Medical visas were revoked on 29 April.

- **Persona Non Grata-** Defence, Naval, and Air Advisors at the Pakistani High Commission in New Delhi have been declared persona non grata and ordered to leave. India is reciprocally withdrawing its own military advisors from Islamabad. Pakistani nationals residing in India on visas were also given mere 48 hours to leave India. Pakistani spouses married to Indians have also been sent back to the neighbouring country.
- India has announced a reduction in its diplomatic staff at the High Commission in Pakistan, scaling down from 55 to 30 personnel, signalling a significant downgrading of diplomatic engagement.

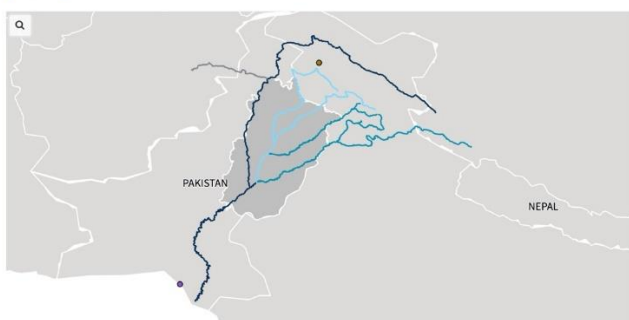
## Indus Water Treaty

- India has said the Indus Waters Treaty (IWT) of 1960 with Pakistan will be held 'in abeyance' with immediate effect, until Islamabad credibly and irrevocably abjures its support for cross-border terrorism.

### Indus river system

The **Indus river** has five tributaries - Chenab, Jhelum (**western rivers**) and Ravi, Beas and Sutlej (**eastern rivers**) Another tributary - Kabul - flows through Pakistan and Afghanistan.

■ Punjab (Pakistan)  
● Capital ■ Reservoir



Source: OpenStreetMap

THE HINDU

- The Ravi, the Beas and the Sutlej are together called eastern rivers while the Chenab, the Jhelum and the Indus main are called as western rivers. Its waters are critical to both India and Pakistan.
- **Although there is no explicit provision in the treaty for its abrogation, Article 62 of the Vienna Convention on Law of the Treaties provides sufficient room under which the treaty can be repudiated in view of the fundamental change of circumstances which has occurred with regard to those existing at the time of conclusion of the treaty.**

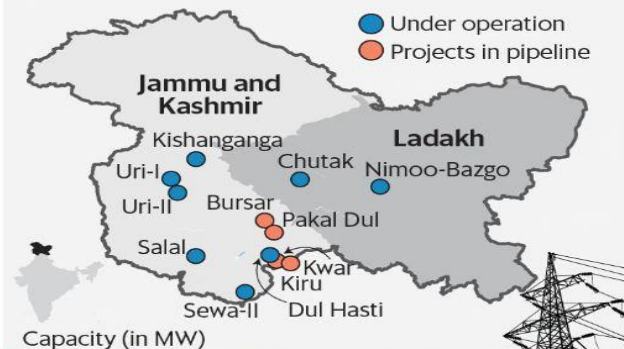
## Post Abeyance of IWT

- In the absence of the treaty, India is under no obligation to follow the restrictions on the "reservoir flushing" of the Kishanganga reservoir and other projects on western rivers in Jammu and Kashmir.
- The Indus Waters Treaty currently prohibits it.
- Flushing can help India desilt its reservoir but then filling the entire reservoir could take days. Under the treaty, reservoir filling after the flushing has to be done in August – peak monsoon period – but with the pact in abeyance, it could be done anytime.
- According to the treaty, there are design restrictions on building structures like dams on Indus and its tributaries. In the past, Pakistan has raised objections over the designs but in future it will not be obligatory to take the concerns onboard.
- In the past almost every project has been objected to by Pakistan.

- Notable are Salal, Baglihar, Uri, Chutak, Nimoo Bazgo, Kishenganga, Pakal Dul, Miyar, Lower Kalnai and Ratle.
- After the Pulwama terror attack in 2019, the government cleared eight more hydropower projects in Ladakh.
- The objections may no longer be applicable for the new projects.

### Power play

NHPC has been present in J&K for around 40 years and has invested ₹20,778.38 cr. Going forward, the plan is to build hydropower projects totalling 3,814MW.



- There are also operational restrictions on how reservoirs are to be filled and operated. With the treaty in abeyance, these are no longer applicable.
- India can stop sharing flood data on the rivers. This could also **prove detrimental to Pakistan**, especially during the monsoon when rivers swell.
- India will now have no restriction on storage on western rivers, particularly the Jhelum, and the country can take a number of flood control measures to mitigate floods in the Valley.

### Additional Facts on IWT

- At the time of Independence, the boundary line between the two newly created independent countries – Pakistan and India – was drawn right across the Indus Basin, leaving Pakistan as the lower riparian and India as the upper riparian.

- A dispute thus arose between the two countries regarding the utilisation of irrigation water from existing facilities. Negotiations held under the International Bank for Reconstruction and Development (World Bank) culminated in the signing of the Indus Waters Treaty in 1960.
- According to the treaty, all the waters of the eastern rivers – Sutlej, Beas, and Ravi with an average annual flow of around 33-million-acre feet (MAF) is allocated to India for unrestricted use while the waters of western rivers – Indus, Jhelum, and Chenab with average annual flow of around 135 MAF is allocated largely to Pakistan.
- However, India is permitted to use the waters of the western rivers for domestic use, non-consumptive use, agricultural and generation of hydro-electric power.
- **The right to generate hydroelectricity from western rivers is unrestricted subject to conditions for the design and operation of the treaty.**
- India can also create storages up to 3.6 MAF on western rivers, the pact states.

### Exit Clause of IWT

- The Indus Waters Treaty **lacks an exit clause**, meaning neither India nor Pakistan can legally abrogate it unilaterally.
- The Treaty has no end date, and any modification requires the consent of both parties.
- But while the Treaty cannot be exited, it does contain a dispute resolution mechanism.



- Since there is no provision in the IWT about its duration or suspension, **there is no avenue that Pakistan can approach for 'revival' of the treaty.**
- Nor can Pakistan approach the International Court of Justice **seeking specific performance** to implement the Treaty.
- Because of the Indian reservation given under the ICJ statute that bars the filing of a case by Pakistan against India.
- In case India 'revokes' the treaty, it literally means it has shunned it.
- The dispute resolution mechanism under Article IX and Annexes F and G of the IWT will be of no use and assistance to Pakistan.
- It is limited to a dispute under the treaty and not meant to provide for specific performance of the treaty itself.

### India suspends SAARC visa exemption scheme for Pakistanis. What is it?

- The South Asian Association for Regional Cooperation (SAARC) was established in 1985.
- It comprises eight member nations - Afghanistan, Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan and Sri Lanka.
- The idea behind SAARC is to promote economic growth, social progress and cultural development in the region.
- SAARC Visa Scheme- This programme was launched in 1992.
- Its origins lie in the Fourth summit in Islamabad in December 1988, at a meeting of the SAARC leaders.

- The leaders at the time appreciated the need for people-to-people contact among SAARC nations.
- They agreed that certain dignitaries should be exempt from visas while travelling within the region.
- The scheme allows persons in 24 categories - dignitaries, higher court judges, parliamentarians, businessmen, sportsmen and journalists to travel within the region without a visa.
- Instead, member nations issue 'visa stickers' to its citizens. These stickers are valid for one year.
- **The scheme is reviewed frequently by the immigration authorities of member nations.**
- **This is the first time one member of the Saarc has suspended the visa scheme for another member.**
- Citizens of SAARC nations are eligible for a business visa to India for up to five years.
- However, this is not true for Nepal, Bhutan, and Pakistani nations.
- Citizens of Bhutan and Nepal do not require a visa to visit India.

### BIMSTEC Summit 2025

- The 6th Summit of the Heads of State/Government of the member States of BIMSTEC (Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation) held in Thailand (April 2025). The theme of the summit is "Prosperous, resilient, and open BIMSTEC (PRO BIMSTEC)."

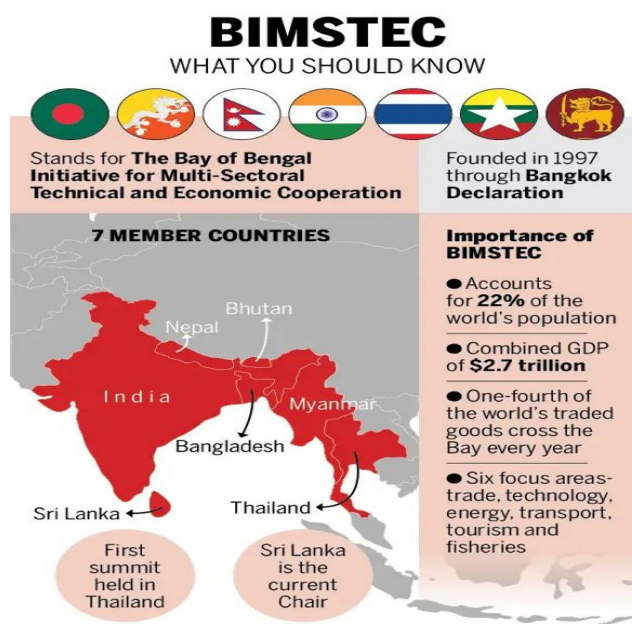


- The summit saw the following outcomes: adoption of BIMSTEC Bangkok Vision 2030, signing of the agreement on Maritime Transport Cooperation, and signing of a Memorandum of Understanding with the Indian Ocean Rim Association (IORA) and the United Nations Office on Drugs and Crime (UNODC).
- BIMSTEC comprises seven countries of the Bay of Bengal region: Bangladesh, Bhutan, India, Myanmar, Nepal, Sri Lanka, and Thailand.
- The BODHI Initiative—short for BIMSTEC for Organised Development of Human Resource Infrastructure—is a regional capacity-building program launched by India during the 6th BIMSTEC Summit in April 2025.
- It aims to enhance human resource development across the seven BIMSTEC member countries.

### Objectives of the BODHI Initiative

- **Youth Skilling:** Train 300 youths annually from BIMSTEC nations in India.
- **Scholarships:** Offer scholarships at institutions like Nalanda University and the Forest Research Institute.
- **Diplomatic Training:** Conduct annual training programs for young diplomats from member countries.
- **Professional Development:** Provide training for professionals, researchers, and students in areas such as digital technologies, governance, traditional medicine, agriculture, and education.

- The BODHI Initiative reflects India's commitment to fostering regional cooperation through education and skill development.
- It complements other initiatives announced at the summit, including the establishment of BIMSTEC Centres of Excellence in disaster management, sustainable maritime transport, traditional medicine, and agriculture research.



### **PM Modi's Visit to Sri Lanka**

- Prime Minister Narendra Modi was awarded the 'Sri Lanka Mitra Vibhushana', the country's highest civilian honour, by Sri Lankan President Anura Kumar Dissanayake on April 5. This is the Prime Minister's 22nd international honour.
- The **Sri Lanka Mitra Vibhushana honours** Heads of State and government heads with whom Sri Lanka has cordial relations. It appreciates "their friendship towards and solidarity with the people of Sri Lanka".

## Visit to Jaya Sri Maha Bodhi Temple

- PM Narendra Modi, during his visit to Sri Lanka, went to **Jaya Sri Maha Bodhi temple** at the historic city of **Anuradhapura**.
- This tree is considered the oldest living cultivated plant in the world.
- Anuradhapura is now a UNESCO World Heritage Site.
- This Bo (*Ficus religiosa*, Pipal in Hindi) tree is believed to have grown from a branch of the tree in Bodhgaya (in present-day Bihar) under which Gautam Buddha attained enlightenment.
- The branch was carried to Sri Lanka by Sanghamitta (or Sanghamitra), the Mauryan king Ashoka's daughter and Buddhist nun.
- Her arrival in Sri Lanka with the tree is still celebrated as Uduvapa Poya, an annual festival observed on a full moon night in December.

## **Kailash Mansarovar Yatra**

- The Ministry of External Affairs (MEA) has announced that the Kailash Mansarovar Yatra, which has not taken place since 2020, will resume this year. This comes as a part of a larger rapprochement between India and China in recent months.

- Lake Mansarovar, known locally as Mapam Yumtso, is a high-altitude freshwater lake near Mount Kailash in the Ngari Prefecture of the Tibet Autonomous Region (TAR).
- There are two primary routes to reach Lake Mansarovar from India: the Lipulekh Pass Route and the Nathu La Pass Route.
- Lipulekh pass lies at an altitude of 5,115 metres, on the border between Uttarakhand and Tibet Autonomous Region (TAR), near the trijunction with Nepal. It is an ancient passageway between the Indian subcontinent and the Tibetan Plateau, frequented by traders and pilgrims alike.
- Nathu La pass lies at an altitude of 4,310 metres on the border between Sikkim and TAR. It is one of two mountain passes in the region – the other being Jelep La that have connected Sikkim and Tibet since ancient times.



## Africa

### The Horn of Africa's Reset: Eritrea -Ethiopia Rift Threatens Wider Instability

- **Background-** The fear of another regional war seems to be looming over the Horn of Africa, backed by a surreal sense of déjà vu in how things unfold. Back in November 2020, a war broke out between the Ethiopian National Defence Force (ENDF) and a coalition of rebel groups led by the Tigray People's Liberation Front (TPLF).
- This war continued for nearly two years, taking the lives of 600,000 people and leaving another 900,000 Ethiopians displaced.
- A peace deal of an indefinite humanitarian truce was worked out in March 2022, only to see the fighting break out by September. In November 2022, another peace agreement was signed that lasted for a little over two years.



### Horn of Africa

- In the last war, the Ethiopian Government forces fought the strong and well-armed TPLF and its allies, including the Oromo Liberation Army (OLA).
- Eritrea sided with the government at that time and helped contain the TPLF.
- However, this time, Eritrea seems to have switched sides and is reportedly supporting different rebel groups against the ENDF.

### Background

- To lay out some historical context, Eritrea, the former Italian colony, was annexed by Ethiopia in 1962. After a three-decade war against Ethiopia, **the country gained independence in 1993, leaving Ethiopia landlocked.**
- After coming to power in 2018, the Ethiopian Prime Minister (PM) Abiy Ahmed Ali normalised the diplomatic relations between Ethiopia and Eritrea.
- As a result of improved relations, Eritrea supported the Abiy-led Ethiopian government, amid its brewing war against the TPLF.
- Nonetheless, Abiy decided to end the war in November 2023 through a Cessation of Hostilities Agreement, known as the 'Pretoria Agreement', without consulting Eritrea.
- The **Pretoria Agreement** refers to a peace accord signed on **November 2, 2022**, between the **Government of Ethiopia** and the **Tigray People's Liberation Front (TPLF)** to end the brutal **Tigray War** that began in November 2020.



- This irked Eritrea, and their frustration was palpable in the way the Eritrean President Isaias Afwerki described the agreement— 'Tekolifna' (we have been frustrated).
- Although the Pretoria agreement provided for the 'withdrawal of foreign forces', Eritrea was not a signatory and maintained some troops inside Ethiopia.

### Regional Armed Organizations in Ethiopia

- Meanwhile, another coalition of militias known as **Fano—an ethno-nationalist group claiming to represent Amhara (Ethiopia's second largest ethnicity that fought alongside the national army against the TPLF)—has been fighting against the national force since April 2023.**
- The name 'Fano' loosely translates as freedom fighter, and dates back to the successful campaign by a volunteer army against the Italian fascist occupation of Ethiopia in the 1930s.

- Fano took arms against the national government because they felt excluded from the Pretoria agreement. An important clause of the Pretoria agreement disbanded all regional forces such as the TPLF, Fano, and OLA. Fano viewed this demand as a threat to their survival, against potential onslaught from the rival regions of Tigray and Oromia.

### Red Sea Deal (Port Berbera)

- Furthermore, in January 2024, PM Abiy Ahmed announced his intention to acquire a Red Sea port by signing a controversial agreement with Somaliland—a breakaway region of Somalia. **Eritrea signed a security agreement with Egypt and Somalia to counter Ethiopia's potential irredentist move.**
- The subsequent deployment of Ethiopian troops at the Eritrea border and Eritrea's nationwide military mobilisation in response have put the Horn of Africa on edge, with the possibility of a looming war.



### Ethiopia's Tigray Crisis



- Besides, a chaotic Red Sea channel would not be conducive to trade through the Suez Canal, Egypt's economic lifeline.

### Grand Ethiopian Renaissance Dam (GERD)



- The **Grand Ethiopian Renaissance Dam (GERD)** is a monumental hydroelectric project situated on the Blue Nile River in Ethiopia's Benishangul-Gumuz region, approximately 14 km east of the Sudanese border.
- With a planned capacity of 5,150 megawatts (MW), GERD stands as Africa's largest hydroelectric power plant and ranks among the world's most significant in terms of capacity.

### Way Forward

- The path to peace in the Horn of Africa should also involve the countries of the Middle East. Both Türkiye and the United Arab Emirates (UAE) have significant investments in the region and would be reluctant to let the region descend into chaos. Egypt is another important country in the area.
- While a weakened Ethiopia would be advantageous for Egypt, especially in the backdrop of their ongoing discord over the sharing of the Nile's water and the Grand Ethiopian Renaissance Dam (GERD), if the conflict blows out of proportion, the crisis could certainly hurt Egypt.



## India & World

### FI Visas

- International students pursuing higher education in the US are now seeing their student visas revoked unceremoniously for reasons ranging from minor traffic violations to pro-Palestinian activism.
- The move comes amid US President Donald Trump's wider crackdown on immigration, and aligns with a Trump campaign promise.
- Students are thus being ordered by the Department of Homeland Security (DHS) to leave the country immediately, breaking from a long-standing tradition of allowing them to remain in the country until the completion of their coursework.

### What is a Student Visa?

- Quite simply, it is the visa issued to immigrant students intending to pursue higher education.
- In the US, the F-1 visa is issued to foreign students who secure admission to a higher education programme in a college or university accredited by the Student and Exchange Visitor Programme (SEVP) of the DHS. They should also meet certain eligibility criteria set by the school and the federal government.
- Students enrolled in vocational or non-academic programmes (barring language training) may be eligible for the M-1 visa, issued to vocational students.

### What Does F1 Visa Entail?

- Eligible students are issued the F-1 visa for the duration of the student's stay in the US, and they can seek an extension of the visa through the US Citizenship and Immigration Services (USCIS) if their coursework or research exceeds the planned duration.
- Students in the US on an F-1 visa are not allowed to work off-campus in their first academic year. After the first year, they may engage in either Curricular Practical Training (CPT), allowing them to pursue subject-related training during their academic program, or Optional Practical Training (OPT), which they typically pursue after completing their program.
- They are also required to prove they can afford to live in the US for the period of study, by showing they have enough money in the bank.

### What rights does the F-1 visa grant students?

- F-1 visa-holders usually enjoy the same constitutional protections and rights as American citizens, according to Joshua Bardavid, a New York-based immigration lawyer who spoke to The New York Times.
- However, the visa can be suspended or revoked if immigration officials determine that students are not complying with visa rules.
- The NYT report cited US Secretary of State Marco Rubio's move to screen the social media content of visa applicants to potentially bar entry to students who criticised the US and Israel.

### **Who is ineligible for entry to the US under the F-1 visa?**

- The US Department of State Travel can deny entry to F-1 visa applicants under Sections 214(b), 221(g) and 212(a) of the Immigration and Nationality Act. Section 212(a) in particular lays out grounds for inadmissibility to the United States, including factors like terrorism, criminal convictions and certain health issues, among others.
- The restrictions on people suspected of terrorism date back to the peak of American anti-crime policies in the 1990s, and a doubling down with the 'war on terrorism' post 9/11. Currently, foreign-born students who are naturalised citizens or lawful permanent residents of the US risk losing their right to live there if immigration officials can connect them with a terrorist organisation.

### **And who can have their visas revoked?**

- The AP report said that leaders at several colleges became aware that the F-1 visas of some of their international students were revoked when they checked a DHS-managed database. Until now, visas were revoked only if F-1 visa holders had violated the rules of their visa programs, or were otherwise determined to be a public danger, the NYT reported.
- Rules violations typically pertain to the standards of academic performance and the period of visa eligibility.

- Students have the option to appeal against their revocation, but face slim odds of success, Bardavid told the NYT.

### **So, do all students who have their visas revoked have to leave the US?**

- Traditionally, no. Students who have their visas revoked are usually allowed to maintain their legal residency status and complete their studies, barring only their ability to leave or return to the US. They could reapply to the State Department for the same.
- However, a student who has lost their residency status must either leave the US immediately or risk detention by immigration officials.

## **Global Pandemic Treaty**

### **Context**

- The pandemic treaty, which was agreed upon without the United States, is the only the second legally binding accord in the WHO's 75-year history, the first being the 2003 tobacco control treaty.
- WHO Director-General Tedros Adhanom Ghebreyesus described the deal as "a significant milestone in our shared journey towards a safer world".

### **Need for Pandemic Treaty**

- The negotiations for a global pandemic treaty began in December 2021, at a time when the Omicron variant of SARS-CoV-2 was spreading across the world and producing a massive new surge of COVID-19.

- By then, countries that were manufacturing COVID-19 vaccines had hoarded millions of doses, leaving those with no vaccine plants often with no access to the shots.
- A 2022 study published by the journal Nature revealed that more than one million lives could have been saved if COVID-19 vaccines had been shared more equitably with lower-income countries – the virus had claimed more than seven million lives across the world.
- A 2021 report published by the Independent Panel for Pandemic Preparedness and Response said, “The combination of poor strategic choices, unwillingness to tackle inequalities, and an uncoordinated system created a toxic cocktail which allowed the pandemic to turn into a catastrophic human crisis.”
- In a bid to prevent loss of human life, and disruption to households and societies at large – as it happened due to the COVID-19 pandemic – during future pandemics, WHO member states got together and began to iron out a treaty. It took nearly three-and-a-half years and 13 rounds of meetings to reach the deal.

### **What Does Pandemic Treaty Say?**

- One of the key elements of the draft agreement is a “pathogen access and benefit sharing” system, which gives pharmaceutical companies access to scientific data such as pathogen samples and genomic sequences in return for more equitable sharing of drugs, vaccines and diagnostics during a pandemic, according to a report in Nature.

- The draft treaty says participating manufacturers will have to allocate 10% of their production of vaccines, therapeutics and diagnostics to the WHO. Another 10% will then be supplied at “affordable prices”.
- Also, member states should “promote and otherwise facilitate or incentivise” the exchange of technology and know-how to help manufacturers in developing nations make their own drugs and vaccines, the draft agreement says.
- Countries also need to develop national policies for putting conditions on research into drugs and vaccines that they fund – given either to universities or companies – to guarantee “timely and equitable access” to resulting drugs or diagnostics during pandemics.

### **How strong is the global pandemic treaty?**

- Although the agreement on the draft treaty has been hailed as groundbreaking and historic, several experts have said that it has a limited scope.
- For instance, the agreement does not give the WHO powers over individual states.
- Clause 24, paragraph three states, “Nothing in the WHO Pandemic Agreement shall be interpreted as providing the WHO Secretariat, including the WHO Director-General, any authority to direct, order, alter, or otherwise prescribe the national and/or domestic laws, as appropriate, or policies of any Party.”

- The draft treaty also says that the WHO does not have the power to mandate or otherwise impose any requirements such as “ban or accept travellers, impose vaccination mandates or therapeutic or diagnostic measures, or implement lockdown”.
- This means that in a situation like the fierce competition for COVID-19 vaccines, the WHO would have no way to ensure countries adhere to the terms to which they had agreed.
- As a result, pharmaceutical companies may hesitate to commit resources to developing medical solutions for emerging pathogens.

## Agent Orange

### Context

- April 30 marks the 50th anniversary of the end of the Vietnam War. On that day in 1975, North Vietnamese and Viet Cong troops entered what was then called Saigon and declared victory.
- However, even after all these years, millions of Vietnamese people continue to feel the lingering effects of Agent Orange, a toxic chemical that the United States used during the war.
- Estimates suggest that currently, there are 3 million people, including many children, in Vietnam who are still suffering from serious health issues associated with exposure to Agent Orange.

### What Was Agent Orange?

- Agent Orange was a blend of herbicides that US forces sprayed over Vietnam to defoliate trees and shrubs, and kill food crops that provided cover and food to North Vietnamese and Viet Cong troops.
- The chemical comprised a 50-50 mixture of two herbicides – 2,4-D and 2,4,5-T – and a toxic contaminant, known as dioxin.
- Although Agent Orange remained toxic for only days or weeks and then degraded, dioxin could survive up to three years in soil that was exposed to sunlight.
- If buried or leached under the surface or deep in the sediment of rivers and other water bodies, it could have a half-life (time required for any substance to decrease by half) of more than 100 years – more than enough time to be consumed by fish, ducks, and other animals that people eat.
- People could also be exposed to dioxin through inhaling contaminated dust, and absorbing it through skin. Dioxin has a half-life of up to 20 years in the human body.

### How many people were exposed to Agent Orange in Vietnam?

- Between 1961 and 1971, the US sprayed around 74 million litres of chemicals over South Vietnam, and border areas of Laos and Cambodia. More than half of this was Agent Orange.

- The concentrations were some 20 times the concentration the manufacturers recommended for killing plants, according to a report by The Aspen Institute, a US-based non-profit organisation.
- During these years, some 4.8 million Vietnamese people and nearly 2.8 million US soldiers were exposed to Agent Orange. Out of these, three million Vietnamese suffered illnesses because of the chemical, one estimate by Vietnam said.

### **How is Vietnam still suffering from the impact of Agent Orange?**

- The severe impact of Agent Orange has been suffered by not only those who were exposed to it during the war, but also the future generations. Over the years, Vietnam has asserted that “those harmed by Agent Orange included the second-, third-, and even fourth-generation relatives of those who experienced the spraying, because of dioxin lingering in the environment or inherited health effects,” according to a report in the journal Science.
- Apart from cancer and diabetes, one of the most prominent health issues among Vietnamese people has been birth defects such as spina bifida (when a baby’s spine and spinal cord do not develop properly), oral clefts, cardiovascular defects, hip dislocations and hypospadias (where the opening of the urethra is not at the tip of the penis). In the early 2000s, the Red Cross of Vietnam estimated that at least 150,000 Vietnamese children were born with serious birth defects.

- However, there have been only a handful of studies that have shed light on the link between birth defects and exposure to Agent Orange. That is because the US until the mid-2000s largely ignored the impact of the toxin in Vietnam, despite the fact that in 1991, the former accepted that certain diseases could be related to exposure to Agent Orange and made US veterans who had them eligible for benefits.

### **To Sum Up**

- The use of Agent Orange also caused wide-scale damage to the environment in Vietnam. A 1983 report, also published by the journal Science, revealed that many sprayed upland forests that villagers tried to convert to agriculture were “unsuitable for growing crops and the land has become covered with a coarse, deep-rooting grass.”
- Notably, since then there have not been many studies on how forests and wildlife have recovered from the spraying of Agent Orange.
- In 2006, the US finally got together with Vietnam and began to clean up Agent Orange from the environment.
- But as the process of clean up is long and very expensive, there are large sites in Vietnam where the work is far from over.
- For instance, in Da Nang, where an air base was contaminated during storage and transportation of Agent Orange, an area the size of 10 soccer fields remains heavily contaminated, according to a report by the Associated Press.





## USA- Ukraine Minerals Deal

### Context

- Before the unceremonious end to the Zelensky-Trump meeting in February 2025 in Washington D.C., a deal on critical minerals between Ukraine and the United States (US) was expected to be a major outcome of the Ukrainian President's visit.
- Ukraine has abundant mineral resources that it views as essential for rebuilding the country after the war. While such a deal is far from ideal for Ukraine, it is leveraging its mineral wealth to keep the US engaged in sustaining its war effort.
- Meanwhile, the US is eager to gain access to these resources, both as a form of repayment, from Trump's perspective, and to safeguard its supply chains.
- The US's heightened interest in Ukraine's mineral resources stems from a broad consensus over its mineral security concerns and an overreliance on China.

### US- Ukraine Reinvestment Fund

- The pact, known as the United States-Ukraine Reinvestment Fund, marks a significant shift in the economic partnership between the two countries.
- Though details of the fund's structure remain sparse, US officials described it as a mechanism that will allow America to tap into Ukraine's valuable rare earth minerals – including titanium, uranium, and lithium – while also attracting global investment to rebuild the war-torn nation.
- This is an equal partnership, adding that the arrangement will last for ten years and require cash contributions from both sides.
- The US has long sought greater access to more than 20 raw materials deemed strategically critical, including titanium – used in aerospace manufacturing – and uranium for nuclear energy and medical uses.
- Ukraine's lithium, graphite, and manganese deposits are also coveted for their role in the production of electric vehicle batteries and other technologies.

### Ukrainian Ownership & USA Access

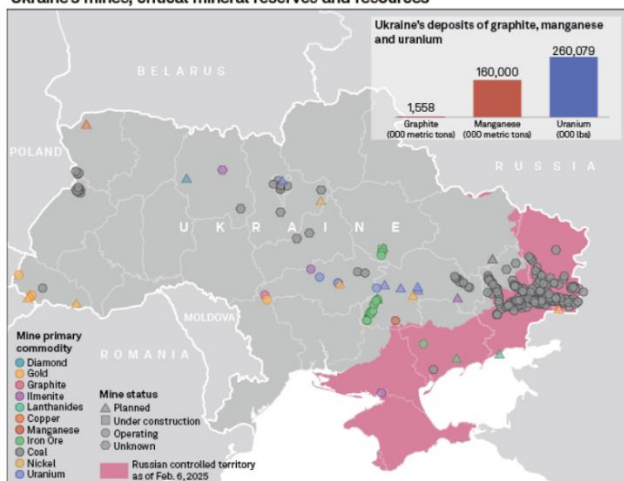
- Ukraine will retain full control over subsoil, infrastructure and natural resources, following the country's laws. Ukraine will also determine what can be extracted and from where, she wrote.
- Crucially for Ukraine, the accord ensures that national enterprises like the oil and gas producer Ukrnafta and nuclear power company Energoatom will remain under Ukrainian control, according to Svyrydenko.

## No Debt Obligation for Ukraine

- Notably, the agreement will include no debt obligation to the US, which Trump viewed as a bone of contention in the past and used to hold out on the agreement.
- Any assistance provided to Ukraine prior to its signing is not subject to this agreement.
- However, new military aid from the US would come under the fund's purview.
- Agreement does not include any explicit guarantee of future US assistance, allowing it to walk away from the table at any time.

## Ukraine's Mineral Wealth

Ukraine's mines; critical mineral reserves and resources



- Ukraine has 20,000 surveyed deposits and ore-bearing sites comprising 97 types of minerals. Of the 8,000 proven deposits, almost half were being mined before 2022.
- Currently, roughly 20 percent of Ukraine's total potential reserves are in areas occupied by Russia's military forces.
- Losing access to these resources has led to global supply chain disruptions, particularly in high-tech and defense sectors.

- For instance, before the war, 45 to 54 percent of the world's semiconductor-grade neon, a by-product of steel manufacturing, came from two Ukrainian companies, which closed operations after the attack.
- Erstwhile Soviet and Ukrainian geoscientists had also identified deposits of lithium and rare earth metals that remain undeveloped.

## Challenges in Mineral Development

- Critical mineral production can be increased by peacetime investment, and upgrades in technology could provide even greater value to whoever controls them. However, the face value of elements does not capture the significant investment and lead time necessary to extract, process, and sell mineral products.
- For instance, a deposit takes an average of 16 years from exploration to extraction. Thus, in the short to medium term, it is unlikely that Ukraine's minerals will make a difference in the global critical minerals supply chains. Moreover, assessments of some of these minerals are based on outdated geological data and classification systems. Data on certain minerals, including rare earths, is also unavailable due to legal restrictions on publicising critical resource information.
- Further, damage from Russian attacks, disrepair in inactive plants, and power instability due to the destruction of Ukraine's energy system cast doubt on the industry's ability to earn a profit even after the conflict ends.

- Thus, while significant opportunities to exploit Ukraine's mineral wealth exist going forward, the path to resource development will not be straightforward

### **To Sum Up**

- Even if Ukraine successfully extracts its critical minerals, the lack of domestic refining capacity means achieving true mineral independence could take longer. In the interim, it may still leave Ukraine and the US reliant on China.
- This makes the economic rationale for signing the minerals deal tenuous, especially in the short term.
- As a result, the deal has been marketed as a form of repayment for military aid, even though tangible returns will take years to materialise.
- The US-Ukraine critical minerals deal represents the complexities of balancing economic interests with geopolitical strategy in an unpredictable conflict.
- For the US, it is an opportunity to secure access to vital resources, but it also risks further alienating Russia and deepening its involvement in Ukraine without clear, immediate returns.
- For Ukraine, the agreement promises American interest in maintaining peace in the region and a possible pathway to economic recovery.

## **Delisting the Taliban**

### **Context**

- On 17 April 2025, the Russian Supreme Court suspended the terrorist status of the Taliban, ending over two decades of the grouping being outlawed on Russian territory.
- This was followed by the decision to upgrade Afghanistan's diplomatic mission in Moscow to the ambassador level, announced by the presidential envoy for Afghanistan, Zamir Kabulov, during his Kabul visit on 23 April 2025.
- For Moscow, these are largely symbolic decisions, while for the Taliban, it marks another step towards emerging from international isolation. As Russia's moves appear to be a political concession to the Taliban, it is not entirely clear what its main drivers are and what Moscow expects from Kabul in return.

### **Good News for Afghanistan**

- The lack of international legitimacy is a well-known weakness of the Taliban dispensation. Various stakeholders have leveraged it to demand greater inclusiveness in the Taliban government and improve its human rights record.
- However, the routinisation of the Taliban's power in Kabul led various actors to either re-establish their diplomatic presence in the Afghan capital or to engage in semi-official contacts with the Islamic Emirate of Afghanistan (IEA).

- As a result, neighbouring states, such as Kazakhstan and Kyrgyzstan, removed the Taliban from their lists of terrorist groups. Moscow has also signalled the same intention since May 2023, yet has delayed the final decision.

### **Russia- Taliban Relations**

- By lifting the ban on the Taliban, Moscow seeks to expand its bilateral relations.
- This also clearly shows Moscow's seriousness in exploring avenues of cooperation with the IEA.
- Consultations with top officials from various parts of the interim government, from political and economic blocs to defence and internal affairs ministries, hinted at Moscow's engagement with all Taliban factions.

### **Russia's Raison D'Etre**

- Firstly, Moscow's Afghan policy is largely driven by a security agenda. In its official discourse, Russia 'appreciates the Taliban's military and law enforcement operations' against the Islamic State Khorasan Province (ISKP).

- Secondly, trade and economic cooperation have greater prominence in Moscow's engagements with Kabul. Although Russia is not the IEA's most important trading partner, the growth of bilateral trade has been rapid, from US\$170 million in 2022 to US\$1 billion in 2024. Afghanistan has emerged as an important destination for the Russian exports of certain commodities.

### **Way Forward**

- Whatever the rationale behind delisting the Taliban and upgrading diplomatic ties, Russia still maintains a degree of ambiguity in its Afghanistan policy.
- One important caveat is that the Bill implies a 'temporary' removal from Russia's blacklist, providing the Russian authorities a mechanism to reverse their own decision in case the Taliban's policies are unfavorable to Moscow.

## Internal Security

### Military Exercises in News

#### Operation Atlanta

- The European Union Naval Force (EUNAVFOR) Operation ATALANTA has proposed conducting a joint exercise with the Indian Navy. Operation ATALANTA.

#### About Operation ATALANTA

- It is a maritime security mission launched by the European Union in 2008.
- It operates under the EU's Common Security and Defence Policy (CSDP).
- **Objective-** To support efforts aimed at maintaining peace, stability, and maritime security. The mission focuses on combating:
  - Piracy
  - Narcotics trafficking
  - Illegal fishing, and other maritime threats.
- **Area of Operation-** The mission operates primarily in the *Western Indian Ocean and the Red Sea region*.

#### Desert Flag

- Context- A contingent of the Indian Air Force reached **Al Dhafra Air Base** in the **United Arab Emirates** to participate in **Exercise Desert Flag-10**.

#### About Exercise Desert Flag-10

- Exercise Desert Flag is an **annual multinational exercise** being **hosted by the UAE Air Force**.

- **Participating contingents:** The Air Forces from of Australia, Bahrain, France, Germany, Qatar Saudi Arabia, Republic of Korea, Turkey, UAE, United Kingdom, and the **United States** in **addition to the Indian Air Force**
- The IAF is fielding **MiG-29 and Jaguar aircraft** in the exercise.
  - **Aim:** The aim of the exercise is to **undertake complex and diverse fighter engagements**, with exchange of **operational knowledge and best practices** with some of the most capable Air Forces in the world.
  - It will enhance **mutual understanding interoperability**, and **strengthens military cooperation** among the participating nations.

#### Exercise DUSTLIK- 6

- The 6th edition of India- Uzbekistan Joint Military Exercise DUSTLIK-VI commenced, at Foreign Training Node, Aundh (Pune). The Exercise was conducted from 16 to 28 Apr 2025.

#### About Exercise DUSTLIK -VI

- It is an annual training event conducted alternatively in India and Uzbekistan.
- This Edition is being held at Foreign Training Node, Aundh (Pune).
- The last edition was conducted in Termez District, Uzbekistan in April 2024.



- **Contingents involved:** Indian contingent comprising of 60 personnel is being represented by a Battalion of JAT Regiment and IAF. The Uzbekistan contingent is being represented by personnel from Uzbekistan Army.
- **Theme:** The theme of the exercise will be based on the theme of Joint Multi Domain Sub Conventional operations in Semi-Urban Scenario.
- **Significance:** The Exercise will enable both sides to share best practices, facilitate developing inter-operability, bonhomie and camaraderie between the two armies and will also enhance defence cooperation, further augmenting bilateral relations.

### Exercise Prachand Prahar

- Context- The Indian Armed Forces recently conducted a multi-domain exercise, Prachand Prahar, in Arunachal Pradesh. Exercise Prachand Prahar.

#### About Exercise Prachand Prahar

- It is a tri-service integrated multi-domain warfare exercise, conducted in the high-altitude areas of Arunachal Pradesh under the Eastern Army Command.

### Border Management

#### Strengthening India-Nepal Military Cooperation (Surya Kiran)

- Continuation of Previous Exercise: It follows Exercise Poorvi Prahar (Nov 2024), conducted along the India-China border, which focused on the integrated use of aviation assets.
  - Objective: Enhancing operational readiness and joint integration of the Army, Navy, and Air Force, while validating surveillance, command, control, and precision firepower in modern warfare.
- #### Key Features:
- Deployment of advanced platforms, including long-range reconnaissance aircraft, UAVs, armed helicopters, and space-based assets.
  - Simulated targets neutralized through coordinated strikes involving fighter aircraft, rocket systems, artillery, and kamikaze drones (loitering munitions).
  - Conducted in an electronically contested environment, replicating real battlefield conditions.
- The 18th edition of the joint military exercise between India and Nepal, Surya Kiran, was conducted in Shanjhandi, situated in the Shivalik ranges of Western Nepal, from 31 December 2024 to 13 January 2025.
- India conducts long-duration military exercises with several countries, but one of its most prominent joint military exercises is with Nepal.

- The primary aim of the joint exercise was to enhance capabilities amongst the two armies as well as develop mutual understanding and enhance operational preparedness.
- The exercise signifies the strong bonds of friendship and mutual trust to address common security objectives and enhance defence cooperation.

### **Historical Aspects**

- Historically, India–Nepal Army relations can be traced back to the Treaty of Sugauli (1816), which established a ground-breaking precedent for recruiting Gorkha soldiers into the British Army.
- In 2025 approximately 34,000 Gurkha soldiers are in the Indian Army with a large number of retired pensioners as well.
- Post-independence, India's cooperation with the Nepal Army involved assistance in special training courses, modernization of equipment supplies and high-level visits.

### **Growing China & Nepal Ties**

- Nepal and China share a border area of nearly 1,400 km, with two main border points – Rasuwagadhi and Kerung.
- Nepal and China held their first ever joint military drill in 2017, a major turning point in bilateral defence cooperation.
- China has deepened ties with Nepal as part of the Belt and Road Initiative (BRI) through significant investments in road networks, airports, hydroelectric power plants and tunnel projects.

- This growing Nepal–China cooperation carries broader implications for regional power dynamics.
- China moreover is printing new maps, which include disputed territories.
- These developments have the potential to alter traditional power dynamics in the region, thereby creating a trust gap in the historically unique and exemplary relations between India and Nepal.

### **Way Forward**

- The Agnipath hiring scheme for recruitment into the Indian armed forces, meanwhile, has raised serious concerns among Nepali youth.
- After the end of the colonial rule, recruiting Gorkhas into the Indian Army continued under the 1947 Tripartite Agreement.
- The continuity of the military exercises is a key pillar to further strengthen India–Nepal bilateral military relations.

### **Gorkha In Indian Army**

- Currently, there are 7 Gorkha Rifles regiments in the Indian Army.
- Gorkha soldiers are known for valour, loyalty, and discipline.
- India recruits Gorkhas both from Nepal and from Indian Gorkha communities (mostly from Uttarakhand, Himachal Pradesh, and Darjeeling).

Under the **Tripartite Agreement of 1947**, India, the UK, and Nepal agreed on recruiting **Gorkha soldiers from Nepal** into the Indian Army under permanent service conditions (pension, long-term benefits, etc.).

However, the **Agnipath Scheme**:

- Offers **only 4 years** of service.

- **Only 25%** of recruits (Agniveers) will be retained permanently.
- **No pension** for those who exit after 4 years.

### Present Status

- Recruitment of Gorkhas from Nepal has been halted since 2022.

- The Indian Army continues to recruit Indian-domiciled Gorkhas.
- Talks are ongoing, but Nepal has not formally approved Agnipath-based recruitment of its citizens.

## Left Wing Extremism

### Operation Kagar

Operation Kagar is a major coordinated anti-Naxal operation launched by Indian security forces in April 2025, marking one of the biggest internal security missions in India's history. At least five Naxals have been killed in the operation involving security personnel from Chhattisgarh, Telangana, and Maharashtra.

- **Regions Covered:** Chhattisgarh, Maharashtra (Gadchiroli), Odisha, Jharkhand, Madhya Pradesh, and Telangana
- **Forces Involved:** Over 20,000 personnel, including state police units and central forces like CRPF
- **Objective:** Eradicate Naxalism by March 31, 2026

### Notable Outcomes:

- Security forces surrounded approximately 1,000 Maoists in the Karregutta hills along the Chhattisgarh-Telangana border
- Significant Maoist casualties reported, with over 150 Naxals eliminated in Chhattisgarh alone in 2025.
- The Operation was launched following intelligence inputs on the presence of top Naxal leaders, including the elusive and most-wanted commander Hidma and battalion chief Deva.

### Security Personnel Involved

- District Reserve Guard (DRG)
- Bastar Fighters, Special Task Force (STF).
- All units of the state police (Chhattisgarh)
- Central Reserve Police Force (CRPF) and its elite Commando Battalions for Resolute Action (CoBRA)

### Significance

- So far, nearly 150 Naxalites have been gunned down in separate encounters in Chhattisgarh this year.
- Of them, 124 have been eliminated in the Bastar division, known as the hotbed of Naxals.



### Strategy of Operation Kagar

- Establishing forward operating bases deep in Maoist territory.
- Building hundreds of fortified police stations in reclaimed areas.

- Gathering intelligence through high-tech monitoring.
- Pushing a "generous surrender policy" that has seen thousands of Naxalites lay down arms in the past decade.

### **Critique of Operation Kagar**

- Critics allege that Operation Kagar has led to a sharp spike in violence and civilian casualties, particularly among tribal communities. Telangana CM accused the Centre of "killing youth and tribals in Chhattisgarh" and called the operation "unfair" and "not the spirit of democracy". He has urged for peace talks with Maoists instead of military action.
- Civil rights activists and groups like the Revolutionary Writers Association (Virasam) argue that the operation is not just about security but is intertwined with broader issues of corporatization, displacement of Adivasis (indigenous people) and the push for resource extraction in mineral-rich forests.

- They claim the government's approach is aimed at clearing the way for big business and suppressing dissent.

### **Stand by Government of India**

- The Centre, for its part, insists that Operation Kagar is yielding results. Security forces have killed dozens of Maoist fighters in recent months, including major encounters in Chhattisgarh and have recovered large caches of weapons.
- Home Minister Amit Shah has set a deadline of March 2026 to "eradicate" the Maoist movement, calling recent successes a sign that "Naxalism is breathing its last".

## **Maritime Security**

### **India's MAHASAGR Vision**

- Context- Prime Minister (PM) Narendra Modi visited Mauritius in March 2025 for a two-day state visit as a guest for the National Day celebrations of Mauritius. Over time, Mauritius has evolved as a vital strategic partner for India in the Indian Ocean.
- In 2015, PM Modi had articulated the SAGAR (Security and Growth for All in the region) vision, which has since become a guiding strategic framework for India's outlook towards the Indian Ocean.

- Predictably, during this visit, he outlined a new vision—MAHASAGAR (Mutual and Holistic Advancement for Security and Growth Across Regions).
- During his speech, PM Modi emphasised the need to expand cooperation on key areas of trade for development, capacity building for sustainable growth, and mutual security for a shared future.

### **Significance of Indian Ocean Region**

- As a key maritime security actor in the Indian Ocean, a peaceful and stable order in the region is vital for India.

- However, India's maritime security outlook in the region appears to be anchored on a continued willingness to engage beyond traditional aspects of the area's security, and includes developmental challenges faced by the littoral states in the Indian Ocean.
- This approach of involving aspects of developmental imperatives rightfully captures the complexity of the challenges and compulsions faced by the Indian Ocean littoral states.
- While security is indeed an important pillar for crafting strategies of cooperation in the region, collaborative thinking at a regional level is equally important. The Indian Ocean region is currently devoid of any major traditional naval-military conflict.
- This has mandated a shift in the focus of the maritime security agenda in the region towards non-traditional issues, resulting in a collective thinking of Humanitarian Assistance and Disaster Relief (HADR) efforts, arising from climate change-induced natural disasters. India's role in framing this agenda has been critical.

### **MAHASAGAR Vision- Key Takeaways**

- The MAHASAGAR vision is poised to further enhance India's role in fostering cooperation in the region. It also seeks to abridge India's growing keenness to play a key role on two fronts.

- First, it projects India's ambitions in actively shaping the maritime security architecture in the Indian Ocean, and second, it demonstrates India's willingness to continue cooperating with the Global South on issues of mutual interest.
- Therefore, in a way, MAHASAGAR knits together India's approach towards its evolving maritime security outlook as well as its approach towards the Global South.
- Given the steady progress of India's maritime security outlook and strategy of engaging with the Indian Ocean region, MAHASAGAR seems to be a natural continuity of India's efforts to foster cooperation in the region.

### **India's Objectives within MAHASAGAR Policy**

- First, this new vision holds potential in cutting across new domains of cooperation, such as maritime trade.
- Second, a calibrated expansion of the ambit of geography of India's cooperation to play an important role in the Indo-Pacific appears to be at play.
- Third, this also marks an attempt at coupling cooperation imperatives in the maritime domain with the wider Global South.

### **BIMSTEC Security Turn**

#### **Context**

- The sixth BIMSTEC Summit, though delayed for one year due to Thailand's political conditions, finally took place from 2-4 April 2025 in Bangkok, marking a milestone in the organisation's trajectory toward becoming a more institutionalised and action-oriented regional grouping.



- While adopting the BIMSTEC Charter in 2022 provided a long-overdue legal foundation, the 2025 Summit built on that momentum by delivering key strategic frameworks, including the Bangkok Vision 2030 and the Summit Declaration, which laid out the organisation's long-term direction.
- Among the various agreements and partnerships formalised during the Summit, the signing of a Memorandum of Understanding (MoU) between BIMSTEC and the United Nations Office on Drugs and Crime (UNODC) stands out as a particularly timely and crucial step.
- At a time when the Bay of Bengal region is grappling with escalating challenges related to transnational organised crime, ranging from drug trafficking and human smuggling to cyber-enabled exploitation, this MoU signals BIMSTEC's growing commitment to addressing non-traditional security threats through structured cooperation with global institutions.
- One of the most alarming trends has been the surge in synthetic drug production, especially methamphetamines and Yaba pills originating from Myanmar's conflict-ridden Shan State. COVID-19, followed by the 2021 military coup and the ensuing internal conflict, has allowed drug syndicates to operate with greater impunity. These narcotics traverse porous borders into Thailand, Bangladesh, and India's Northeast before dispersing into Nepal and, via sea route, Sri Lanka.
- In 2023, methamphetamine seizures in East and Southeast Asia reached a record high of 190 tons, while methamphetamine seizures in the South Asian region, particularly in Bangladesh and India, surged from 7.2 tons in 2013 to 20.4 tons in 2022.
- According to the Directorate of Revenue Intelligence (DRI) 2024, Indian authorities seized 107.31 kg of cocaine, 49kg of heroin, 136kg of methamphetamine, and over 7,349kg of ganja during the 2024 fiscal year, together valued at well over INR 1,600 crore in the illicit market.
- Simultaneously, Myanmar has witnessed a 33 percent increase in opium cultivation since 2023, particularly in the Shan, Kachin, and Chin States. Many ethnic armed groups in these regions rely on the drug trade to finance their operations, further complicating law enforcement efforts.

### **Growing Threats in The Region**

- **Drugs-** Drug trafficking in the BIMSTEC region has expanded significantly in scope, sophistication, and geographic spread, severely impacting security, public health, and economic development. Nestled between the Golden Triangle and Golden Crescent—two of the world's largest drug-producing zones—the region faces endemic vulnerabilities due to porous borders, weak state capacity, and entrenched trafficking networks.

- **Human Trafficking-** Human trafficking has also become more sophisticated and a regionally networked concern. In the last five years, forced labour, sexual exploitation, and, more recently, cyber scam slavery, have emerged as dominant forms of trafficking.
- Nearly 300,000 people – many of them educated and tech-savvy youths from India, Nepal, Sri Lanka, and Bangladesh within the BOB region, among others – are reportedly trapped in scam compounds across Myanmar's Myawaddy region. These individuals are lured by fake job offers in countries like Thailand and the UAE, only to be trafficked to scam centres operating in Myanmar, Cambodia, and Laos.
- These organised crime networks function within pervasive corruption, frequently collaborating with non-state armed actors. Their operations are often enabled by the complicity of senior officials, political leaders, local law enforcement, and powerful business interests, as they operate in a lawless environment.
- Complementing this, the BIMSTEC Sub-Group on Prevention of Illicit Trafficking in Narcotic Drugs, Psychotropic Substances and Precursor Chemicals, established in 2005, serves as a technical and operational arm of the Convention.
- While BIMSTEC's National Security Advisers (NSAs) met annually until 2019 and resumed in 2024, a formal and ratified mechanism for operational coordination, particularly in intelligence sharing and joint enforcement, remains pending.
- The absence of this institutionalised mechanism continues to hinder real-time cooperation and joint action.
- As a result, despite progress in legal and technical frameworks, BIMSTEC's regional security cooperation, while valuable for technical cooperation, remains fragmented, under-resourced, and slow to respond to rapidly evolving threats due to uneven political will and lack of a centralised coordinating body to monitor progress or accountability.

### Existing Frameworks within BIMSTEC

- The BIMSTEC Convention on Cooperation in Combating International Terrorism, Transnational Organised Crime and Illicit Drug Trafficking, signed in 2009, only entered into force in 2021 due to delays in ratification by member states

### Significance of MOU

- The MoU between BIMSTEC and UNODC represents a pragmatic shift towards better managing these crimes. Through its integrated programmes in South and Southeast Asia, UNODC has developed tools for victim protection, law enforcement training, and judicial cooperation, which can directly support BIMSTEC's capacity-building efforts.
- The partnership also addresses a fundamental regional gap: *Inadequate intelligence infrastructure and joint operational frameworks.*

- Criminal networks are increasingly transnational, exploiting legal loopholes, fragmented jurisdictional systems, and the digital domain to evade detection.
- BIMSTEC, while committed to cooperation, lacks the institutional capacity to build and manage sophisticated intelligence or enforcement mechanisms alone.

## UNODC

- The UNODC is a specialized United Nations agency that assists countries in combating illicit drugs, transnational crime, terrorism, and corruption. It plays a key role in setting global standards and offering technical assistance, particularly in upholding rule of law and human rights.

Parameter	Details
Full Form	United Nations Office on Drugs and Crime
Established	1997, through a merger of UN Drug Control Programme and the Centre for International Crime Prevention

Parameter	Details
Headquarters	Vienna, Austria
Executive Director	Ghada Fathi Waly (as of 2025)
Parent Organization	United Nations Secretariat
Member States	Operates in all UN member countries

## Major Functions of UNODC

- Drug Control
- Crime Prevention & Crime Control
- Anti Corruption
- Terrorism Prevention
- Research & Data

Report Name	Relevance
World Drug Report	Global trends in drug use, trafficking, and health impact
Global Report on Trafficking in Persons	Human trafficking patterns, law enforcement gaps
Afghanistan Opium Survey	Annual survey on poppy cultivation and drug economy

## Cyber Security

### Dual-Use AI Technology: A Growing Concern

- **Context-** Dual-use technologies are those that can be utilized for both civilian and military purposes. In the context of Artificial Intelligence (AI), this duality poses significant challenges. While AI offers advancements in sectors like healthcare and education, it also presents risks when misused for malicious activities.

#### Emerging Threats

- **Identity Fraud:** AI tools can now fabricate realistic fake documents, such as Aadhaar and PAN cards, leading to potential misuse in financial and governmental sectors.
- **Deepfakes:** The proliferation of AI-generated deepfake videos and images can be exploited for misinformation campaigns, undermining public trust and national security.

### Regulatory Gaps

- India currently lacks comprehensive frameworks to regulate the dual-use nature of AI technologies.
- The absence of stringent policies allows for the unchecked development and deployment of potentially harmful AI applications.

### Recommendations

- **Policy Formulation:** Develop clear guidelines to govern the development and use of AI, ensuring ethical standards are upheld.
- **Public Awareness:** Educate citizens about the potential risks associated with AI misuse to foster a more informed society.
- **International Collaboration:** Engage with global partners to establish norms and standards for AI usage, mitigating cross-border threats.

## Defense Modernization

### IAF's Challenge: Bridging the Bomber and ALCM Gap

The Indian Air Force (IAF) currently lacks dedicated strategic bombers and a comprehensive arsenal of Air-Launched Cruise Missiles (ALCMs). This deficiency hampers India's ability to project power over long distances and maintain a credible deterrence posture, especially in the face of evolving regional security dynamics.

### Strategic Bombers: A Missing Component

- Unlike major powers such as the United States, Russia, and China, India does not possess long-range strategic bombers.
- The absence of such platforms limits the IAF's capacity for deep-strike missions and rapid response in conflict scenarios.

### Air-Launched Cruise Missiles (ALCMs): Limited Inventory

- India's current ALCM capabilities are primarily centered around the BrahMos-A, integrated with the Su-30MKI fleet.

- The limited range and payload options restrict the IAF's flexibility in targeting and engagement strategies.

### **Comparative Disadvantage**

- China's People's Liberation Army Air Force (PLAAF) operates strategic bombers like the H-6K, equipped with advanced ALCMs, enhancing their long-range strike capabilities.
- This disparity places India at a strategic disadvantage in terms of deterrence and power projection.

### **Nirbhay Missile**

- Nirbhay, developed by the Aeronautical Development Establishment (ADE), is a subsonic missile with a range of 1,000 kilometres (Kms) with a terrain-hugging and sea-skimming capability.
- In the early 2010s, the Defence Research and Development Organisation (DRDO) launched the development of the "Nirbhay" Air Launched Cruise Missile (ALCM) programme.
- Nirbhay has both naval and land attack variants of the projectile. Indeed, limited numbers of the land attack version of the missile are believed to have been even deployed along the LAC for launch from ground-based platforms.
- The naval variant of the missile is being developed as a Submarine Launched Cruise Missile (SLCM).

### **Way Forward**

An IAF ALCM capability delivered from a bomber platform or even a fighter jet from the Indian hinterland will allow the IAF to strike not just tactical Chinese military targets around the vicinity of the LAC, but equally at strategic targets across the depth and breadth

of the Tibetan Autonomous Region (TAR), Xinjiang Autonomous Region (XAR), the Yunnan, Qinghai and Sichuan provinces.

### **Rafale- M**

- Context- India has inked a Rs 63,000 crore deal with France to procure 26 Rafale-Marine (Rafale-M) fighter jets for the Navy. The order includes 22 single-seater jets that can operate from aircraft carriers, and four twin-seater trainer jets, that are not carrier compatible. The delivery will begin in 2028-29, and is set to be completed by 2030.
- The Rafale, designed and built by Dassault Aviation, is a French twin-engine, "omnirole" fighter aircraft most hailed for its versatility. According to Dassault's website, the Rafale's mission capabilities include:
  - Air-defence & air-superiority;
  - Reconnaissance;
  - Nuclear deterrence;
  - Air-to-ground precision strike
  - Close air support;
  - Anti-ship attacks; and
  - Buddy-buddy refuelling.
- What makes the Rafale special is its ability to carry out a diverse range of missions in a single sortie, something that has prompted analysts to liken the aircraft to a Swiss Army Knife.
- And although it is not a 5th generation stealth aircraft, the Rafale incorporates multiple features to reduce its radar signature (making it a 4.5th generation fighter aircraft, as per most military analysts), and comes at a fraction of the cost of an American F-35.



## **What is Naval Aviation?**

- Naval aviation is the use of military air power by navies, involving aircraft that operate from warships — such as aircraft carriers and other aircraft — or helicopter-carrying surface combatants, or land bases to support naval operations.
- It includes specialised naval aircraft designed to meet the unique demands of carrier operations and small decks, such as short takeoffs and arrested landings, and roles such as air-to-air combat, surface and submarine attack, maritime reconnaissance, search and rescue, and logistical support.

## **What is an Aircraft Carrier?**

- An aircraft carrier is a warship that serves as a seagoing airbase, equipped with a full-length flight deck and hangar facilities for supporting, arming, deploying, and recovering shipborne aircraft.
- It allows a naval force to project seaborne air power far from its homeland without having to rely on airfields ashore. Aircraft carriers as part of the Carrier Battle Groups are often the centerpiece of modern naval warfare, with significant strategic and diplomatic influence in deterrence, command of the sea, and air supremacy.

## **How will Rafale M help the Indian Navy?**

- Over the years, India has operated a wide variety of carrier-based fighters — from Sea Hawks, Alizes, Sea Harriers and, at present, the very capable fourth generation MiG29Ks.
- The country is now developing the fifth generation Twin Engine Deck Based Fighter (TEDBF), that is likely to be operationalised in the middle of the next decade.
- The 26 Rafale M jets, a four-and-a-half-generation battle-proven combat aircraft, will augment the existing MiG29K fleet.
- A great advantage that accrues with the induction of the 26 Rafale Ms for the Indian Navy is the commonality with the IAF Rafales.
- This provides the desirable scope for interoperability and joint training, as well as for maintenance and safe practices of these assets and their aircrew between the two services.
- The induction of this very capable aircraft in the coming years is a shot in the arm for the Indian armed forces, and shall ensure continued and enhanced combat capabilities across the full spectrum of India's military might.

## Economy

### Infrastructure and Economic Development

#### State of India's Digital Economy Report 2025

##### Context:

- A new report by the **Indian Council for Research on International Economic Relations (ICRIER)** and **Prosus Centre for Internet and Digital Economy (CIDE)** evaluates India's digital economy using the **CHIPS framework**.

##### Key Findings:

- **Global Ranking:**
  - India is the **3rd largest economy** globally (aggregate).
  - But ranks **28th in digital user spending**, indicating a gap between access and actual use.
- **Digital Growth:**
  - **Digital economy growing at 2x the rate** of the overall economy.
  - Expected to contribute **20% to GDP by 2029**.

##### • **CHIPS Framework Metrics:**

- Evaluates **Connectivity, Harnessing, Innovations, Platforms, and Sustainability**.
- India ranks **8th overall**, combining economic size and user spending.

##### • **Strengths:**

- High **ICT service exports**.
- India is **3rd globally in IT sector market capitalisation**.
- Strong in **start-up culture, decentralised finance, and unicorn valuations**.

##### • **Weaknesses:**

- Low adoption of **Consumer IoT, Metaverse**.
- Weak in **AI infrastructure and research**.
- **North and East India** lag in digital penetration compared to South and West.

### India's Textile Industry

#### India's Textile Industry: Strong in Production, Weak in Exports (Feb 2025)

##### Context:

- India's textile industry has the potential to become a global leader, driven by a growing domestic market, and rising global interest.
- However, key issues such as high production costs, fragmented supply chains, and sustainability challenges have slowed growth and exports.

##### Current Scenario:

- India has the **2nd largest textile manufacturing capacity** globally and ranks as the **6th largest exporter** of textiles and apparel in 2023 (accounting for 3.9% of global trade).
- India is the **2nd largest producer of cotton** in the world (23.83% of world cotton production), with production expected to reach 7.2 million tonnes by 2030.
- India is the **largest producer of jute** in the world, and **2nd largest producer of man-made fibres (MMF)**, including polyester, viscose, nylon, and acrylic.



- **Market Growth Projections:** India's textile and apparel market is projected to reach USD 350 billion by 2030.
- **Government Initiatives:** PM Mega Integrated Textile Region and Apparel (MITRA) Parks, Production Linked Incentive (PLI) Scheme for Textiles, National Technical Textile Mission (NTTM).
  - 100% Foreign Direct Investment (FDI) allowed in textiles under the automatic route to attract foreign investment.
- Textile sector contracted by 1.8% annually (FY20-FY24), while apparel sector shrank by 8.2% per year.
- Apparel exports fell from USD 15.5 billion in FY20 to USD 14.5 billion in FY24.
- **High Production Costs:**
  - Government-imposed Quality Control Orders (QCOs) restrict imports of polyester and viscose, forcing domestic yarn makers to rely on costlier local alternatives.
  - Polyester fibre in India is 33-36% costlier than in China, while viscose fibre is 14-16% more expensive.

### Why India Lags Behind:

- **Lack of Vertical Integration:**
  - India lacks the **factory-to-finished-garment supply chain** that countries like **Vietnam and China** have.
  - Fragmented value chain increases cost and lead time.
  - Countries like Vietnam and China benefit from Free Trade Agreements (FTAs) with major markets, making its exports more competitive.
    - India lacks similar FTAs in key textile-consuming regions like the US.
- India's textile exports are costlier than those of China and Vietnam due to supply chain integration issues.
- Unlike vertically integrated supply chains (company takes ownership of suppliers) in China, India's fragmented supply chain spread across states and complex customs increase logistics costs and reduce competitiveness.
- Additionally, Bangladesh, as a Least Developed Country (LDC), enjoys duty-free exports, gaining a cost advantage over India in many markets due to preferential trade policies.

- **Complex Regulations:**
  - Complicated **GST structure, export documentation, and compliance norms.**
  - In contrast, Bangladesh has **streamlined policies and fiscal incentives.**
    - The global textile and garment sector contributes 6-8% of global carbon emissions (~1.7 billion tonnes/year).
    - Textile production causes 20% of global water pollution from dyeing and finishing and the textile sector was the 3rd largest source of water degradation and land use in 2020.
- **Infrastructure Gaps:**
  - Poor **cold storage, transport, and port connectivity.**
- **Inconsistent Policies:**
  - Delay in schemes like **PM-MITRA Parks** and underwhelming impact of **RoDTEP** (Remission of Duties and Taxes on Exported Products).
- **Reassess QCOs** on polyester and viscose fibres to allow controlled imports and lower domestic costs.
- Develop "fibre-to-fashion" hubs to reduce fragmentation and logistics costs.
- **Labour & Land Reforms:** Uniform labour codes and faster land acquisition.
  - More PM MITRA parks should be established in Uttar Pradesh, Bihar, and Madhya Pradesh, where job demand is high.
  - Housing near factories, similar to China's model, can increase productivity, and improve take-home salaries and reduce attrition rate.
- **Ease of Doing Business:** Simplify compliance, faster GST refunds, digitised documentation.
- **Export Incentives:** Expand RoDTEP coverage and make **PLI Scheme for Textiles** more inclusive.
- **Skill Development:** Enhance textile-specific skilling through **SAMARTH** scheme

### **Way Forward:**

- **Strengthen Supply Chain:** Promote **mega textile parks** with full vertical integration.

## Taxation

### Need for Balanced Cryptocurrency Regulation

#### Why in News?

- The US administration has embraced **crypto assets**, solidifying their place in global finance. While countries like Vietnam push for clear regulations and the EU sets global standards with MiCA, **India still waits for a discussion paper.**

#### What is Cryptocurrency?

##### About

- A cryptocurrency is a **digital or virtual currency** that uses cryptography to secure transactions. It is a **decentralized currency** (not controlled by any government or institution).

- Transactions with cryptocurrency are recorded on a **public digital ledger** called blockchain.
  - This ledger is **maintained by a network of computers** around the world, and each new transaction is verified and added to the blockchain by these computers.
- The decentralization and use of cryptography make it **difficult for anyone to manipulate** the currency or the transactions recorded on the blockchain.
- Some examples of cryptocurrencies include **Bitcoin, Ethereum, and Litecoin.**

#### Difference Between Cryptocurrency, e-Money, Physical Currency

Category	Cryptocurrency	e-Money	Physical Currency (Rs)
<b>Accessibility</b>	Largely limited to Internet connection	Access to e-devices such as mobile phones and an agent network	Physical access to cash, ATMs, and bank branches
<b>Value</b>	Determined by supply, demand and trust in the system	Equal to amount of fiat currency exchanged into electronic form	Backed by the government, determined by monetary policy
<b>Customer ID</b>	Anonymous	Required adequate customer identification	Not required for transactions, but required for bank accounts
<b>Production/Issuer</b>	Mathematically generated ("mined") by	Digitally issued against receipt of equal value of fiat currency	Central bank (RBI)



	community of developers, called "miners"	of central authority by RBI	
<b>Regulator or Oversight</b>	Mostly Unregulated	Central Bank/Board	Central Bank (RBI)

## Regulations

- **Global:** Most cryptocurrencies operate outside national government regulations, serving as **alternative currencies** beyond state monetary policies.
  - **Switzerland** has embraced crypto with a well-defined regulatory framework, ensuring investor protection while fostering blockchain innovation. In September 2021, **El Salvador** became the first country to adopt Bitcoin as **legal tender**.
- **India:** Cryptocurrency in India is **unregulated** but not specifically banned.

## Why Does India Need a Policy for Cryptocurrency?

- **Preventing Talent Exodus:** A blanket ban on cryptocurrencies could lead to a **significant brain drain**, along with the **flight of capital** as seen after the **RBI's 2018 ban**, with blockchain experts moving to crypto-friendly countries and halting blockchain innovation in India.
- **Integrating into the Global Financial Ecosystem:**

- By embracing cryptocurrency, India can position itself as a **key player in the global financial ecosystem**, attracting investments and fostering growth in crypto startups through initiatives like '**crypto export zones**.'
- **Leveraging New Technology and Services:** The growing demand for blockchain applications in **scalability, security, and analytics** presents an opportunity for India to **develop a large talent pool with expertise** in crypto technologies, driving technological advancement.
- **Encouraging Financial Innovation:** The dynamic nature of blockchain technology **offers vast potential for innovative business models** and applications, with long-term impacts that could revolutionize various sectors, necessitating a balanced regulatory approach.
- **Enhancing Investor Protections:** To safeguard investors, **India needs to implement robust education and guidelines** against mis-selling, regulate crypto assets as commodities, which can also **boost government tax revenues** by increasing tax base.

- Stricter oversight is also needed to prevent their use in **sophisticated fraud schemes**, including **ransomware attacks** and investment scams.

### What are the Challenges Cryptocurrency Poses?

- **Market Volatility:** Cryptocurrency is **highly speculative**, leading to significant **price fluctuations** and potential for substantial losses when investing large amounts.
- **Risk of Misuse:** The ease of transferring cryptocurrency across borders without accountability **increases the risk** of it being used for **money laundering** and **terror financing**.
- **Scalability Issues:** Blockchain's **growing data size limits capacity**, making rapid large-scale transactions challenging, especially during national emergencies.
- **Economic Imbalance:** The rise of the cryptocurrency market can **disrupt the circular flow of money** in the Indian economy, differing significantly from traditional cash creation processes.
- **Lack of Regulatory Oversight:** The absence of a dedicated forum or grievance redressal mechanism for crypto assets **leaves consumers vulnerable** to transactional and informational risks.

### Way Forward

- **Regulatory Clarity:** A comprehensive crypto regulation bill must **differentiate between crypto assets on use cases**.

- **Investor Protection:** Establishing **mechanisms for dispute resolution**, fraud prevention, and risk disclosures will ensure that retail investors are protected from bad actors.
- **Stablecoin and CBDC Integration:** India's **digital rupee initiative (CBDC)** can coexist with crypto assets, provided there are clear regulatory distinctions and interoperability guidelines.
  - Additionally, the government **can adopt a stage-based approach** to the use of crypto assets, allowing for **phased integration** based on risk assessment, regulatory readiness, and technological advancements.
- **Taxation Reform:** The current high tax regime in crypto is pushing businesses offshore. A **more balanced tax structure** can encourage domestic innovation while ensuring government revenue.
- **Public-private Collaboration:** Engaging with industry leaders, blockchain startups, and **international regulatory bodies** will help India craft policies that foster innovation while mitigating risks.

## Regulating India's Online Gaming

### Why in News?

- Many experts have highlighted the challenges of excessive regulation in online gaming, citing heavy taxation and legal uncertainties and urged the government to allow them to operate with greater freedom.

- Additionally, India's real money gaming (RMG) industry has collectively signed a code of ethics to establish ethical and transparent business practices.

### What is the RMG Industry?

- **About:** It includes platforms such as Dream11 and PokerBaazi, where users stake real money with the potential to win or lose funds and has generated USD 3.8 billion in revenue in FY 2023-24.

### What is Online Gaming?

- **About:** Online gaming refers to playing **video games over the internet**, allowing players to connect through **computers, gaming consoles, or smartphones**.
  - It facilitates **real-time interaction** and competition between players, regardless of their location.
- **Classification:**
  - **Skill-Based Games:** They prioritize **skill over chance** and are legal in India. E.g., Game 24X7, **Dream11**, and **Mobile Premier League (MPL)**.
  - **Games of Chance:** Their outcome depends mainly on **luck rather than skill** and are illegal in India. E.g., Roulette, which attracts players primarily for monetary rewards.
- **Market Size:** In 2023, India became the **world's largest gaming market** with **568 million gamers** and **9.5 billion app downloads**.
  - The market, valued at **USD 2.2 billion** in 2023, is projected to reach **USD 8.6 billion** by 2028.

### • **Key Drivers of Growth:**

- **Young Demographic:** Nearly half of India's population is **under 25 years old**, creating a **massive gaming audience**.
- **Smartphone Penetration:** The number of smartphone users is expected to grow from 468 million in 2017 to **1.2 billion by 2025**.
- **Internet Accessibility:** India has the **2nd-largest internet user base** after China, with users projected to reach **900 million by 2025**.
- **Localized Content:** Games are being adapted to Indian preferences, including **regional language options** (Gujarati, Bangla, Marathi, Telugu, etc.) and festival-themed events.
- **Booming IT Sector:** India had **275 online game development companies** in 2019, up from just 25 in 2010, contributing to global game development.
- **Digital Payments Adoption:** Users of **digital payment systems** increased from 10 crores in 2019 to **46.52 crores in 2025**, facilitating online transactions.
- **Side Effects:**
  - **Addiction:** **WHO** has officially voted to include '**gaming disorder**' as a **behavioural addiction** under the **International Classification of Diseases**.
  - **Emotional Symptoms:** Restlessness, irritability, **social isolation**.

- **Physical Symptoms:** Fatigue and migraine, Carpal tunnel syndrome (pain in finger and hands).

## How is Online Gaming Regulated in India?

- **Legal Provisions:**
  - State legislatures have exclusive power to make laws on **gaming, betting, and gambling** under **Entry 34 of the State List** in India's Constitution.
  - **Information Technology (Intermediary Guidelines and Digital Media Ethics Code) Amendment Rules, 2023:** It has defined **online game, online gaming intermediary, self-regulatory body, online RMG** and permissible games.
  - **Prize Competitions Act, 1955** regulates **prize-based** competitions.
  - **Public Gambling Act, 1867 (PGA)** exempts **skill-based** games from penalties.
- **FDI Restrictions:** India's FDI policy **prohibits foreign investment and technology collaboration** in lotteries, gambling, and betting, including licensing and brand agreements.
  - Under the **Foreign Exchange Management Act, 1999 (FEMA)**, remittances for **lottery winnings, income from racing, riding, or hobbies** are prohibited.
- **Judicial Stand:** In the *Dr. KR Lakshmanan Case, 1996*, the Supreme Court ruled **horse race betting** as a **game of skill**, making it exempt from most gaming prohibitions.

- In the *Geeta Rani Case, 2019*, the Supreme Court is **yet to decide** whether sports betting qualifies as a game of skill.

- **Taxation:** The **Central Goods and Services Tax (Amendment) Act, 2023** introduced a **28% tax on the full-face value** of entry amounts in online gaming.
  - Under the **Income Tax Act, 1961**, winnings **above Rs 10,000** from lotteries, card games, or any game (including skill-based games) are **taxed at 30%** (excluding surcharge and cess).

## What is the Need for Relaxation of Rules in the Online Gaming Sector?

- **Economic Growth and Employment:** The online gaming industry is a **sunrise sector**, with a projected market size of **USD 8.6 billion by 2028**.
  - Deregulation can foster further investment and expansion, leading to the creation of 2-3 lakh additional jobs.
- **Enhancing Competitive Advantage:** India's vast market potential can be **unlocked** with regulations that help startups **compete globally** instead of facing tax and legal hurdles.
- **Ensuring Regulatory Clarity:** In the *Online Gaming Cos vs GST Case, 2025*, the Supreme Court's stay on the **Rs 1.12 lakh crore retrospective GST** demand highlights the **need for clear and stable policies**.
  - Unclear tax structures create an **unpredictable business environment**, discouraging investment and growth.

- **Preventing Capital Flight:** The 28% GST places online gaming in the same category as gambling and liquor, driving businesses to **offshore platforms**.
  - This results in **tax revenue loss and higher risks** from unregulated online betting.
- **Encouraging Innovation:** Startups in the sector are forced to **divert resources to legal battles** instead of innovation and expansion.
  - A stable regulatory framework can **attract investment, drive technological progress,** and establish India as a key player in online gaming.

### Way Forward

- **Rationalizing Taxation:** The govt. should consider **tiered taxation** based on game classification (skill-based vs. chance-based) to ensure fairness and **reconsider retrospective GST demands** for investment stability.
- **Categorisation of Gaming Platforms:** Categorizing gaming platforms by user base can enhance responsible gaming through targeted regulations. E.g.,
  - **Children & Teens (Under 18):** Parental controls, time limits.
  - **Young Adults (18-25):** Awareness campaigns, spending limits.
  - **Adults (25+):** Betting caps, mental health support.
- **Uniform Regulatory Framework:** A **co-regulatory model** involving industry and government can ensure compliance and **promote responsible gaming**.

- Inculcating inputs from the RMG Code of Ethics in a **national gaming policy** will further strengthen regulation.
- **Responsible Gaming:** Awareness campaigns about **gaming addiction risks** and **helpline support** should be mandated for platforms. E.g., **Tamil Nadu Online Gaming Authority** ensures responsible online gaming and **prevents addiction**, particularly among youth.
  - Stricter enforcement of **data protection laws** should ensure that user data is not exploited.

## Bhutan's Green Cryptocurrency Mining for Economic Growth

### Context:

- Bhutan, the Himalayan kingdom renowned for its **Gross National Happiness (GNH)** index, is leveraging **green cryptocurrency mining** powered by hydropower to boost its economy, attract foreign investment, and address **youth unemployment and brain drain**.

### What Is Green Cryptocurrency?

- **Green cryptocurrencies** are mined using **clean energy sources** like hydro, solar, and wind, rather than fossil fuels.
- Bhutan uses its **100% hydropower-based electricity grid** to mine Bitcoin and other digital assets in an **eco-friendly** manner.

### Key Highlights:

- **Hydropower-Powered Mining:**
  - Bhutan currently generates **3.5 GW of hydropower**; plans to scale to **15 GW in 10-15 years**, with a long-term target of **33 GW**.



- All mined coins are carbon-neutral, supporting **Environmental, Social, and Governance (ESG)** goals.
- **Economic Impact:**
  - Crypto profits have helped pay government salaries for two years.
  - Mining boosts **foreign exchange liquidity** and adds value to Bhutan's hydropower exports.
- **Youth & Employment:**
  - Aims to **train youth in blockchain and AI**, creating jobs and **curbing brain drain** (youth unemployment at **16.5% in 2024**).
  - Over **10% of youth emigrated** between 2022–2023.

### • **Global Appeal:**

- Bhutan exploring B2B sales of green-mined cryptocurrencies to **multinational corporations** seeking carbon-neutral digital assets.

### **Bhutan's Unique Development Model:**

#### • **GNH Index Focus:**

- Bhutan emphasizes **sustainability, well-being, and recreation** over GDP.
- Crypto investments are aligned with Bhutan's values of **sustainable progress**.

## Measurements of Economic Growth

### District-Level GDP Estimation

#### **Why in News?**

- India's economic growth has long been assessed through national and state-level Gross Domestic Product (GDP) estimates, leaving districts (District Domestic Product (DDP) Estimation) overlooked in economic assessments.
  - Prime Minister Narendra Modi has emphasized that to achieve the USD 5 trillion economy target, India must determine district-wise contributions and implement localized development strategies.

#### **What is the Current GDP Estimation**

#### **Methodology?**

- **Current GDP Estimation Methodology:** India's GDP is estimated using a mix of **top-down** and **bottom-up** approaches, depending on the sector.

- The **primary** sector (agriculture, forestry, fishing, & mining) follows a **bottom-up** approach, aggregating data from the district level upwards.
- The **secondary** (**manufacturing, construction**) and **tertiary** (**service, trade, banking**) sectors follow a **top-down** approach, where national GDP is apportioned to **states and districts** based on indicators like employment levels and infrastructure presence, rather than measuring economic activity directly at the district level.
- **Limitations:** Current GDP Estimation method overlooks **local sectoral strengths**, particularly in the **secondary and tertiary** sectors.
  - Economic growth varies across districts even within the same state, but a **lack of granular data leads to generic policies**.

- The approach misses real-time activity, causing inaccuracies, while data gaps in the unorganised sector (unpaid labour (especially by women) weaken GDP estimates.
- The **State of Working India (SWI 2023) report** highlights that the link between GDP growth and employment is weak at the national level, and this issue is even more pronounced at the district level.
- Without employment-linked GDP data, development policies may focus solely on economic output rather than job creation and social equity.

### What are the Challenges in Implementing District-Level GDP Estimation?

- **Informal Sector:** Regional units like **districts** face challenges in DDP estimation due to the **high reliance on informal labor and the unorganized sector**, leading to underestimation.
  - Additionally, the free movement of goods, services, and factor payments across district boundaries further complicates accurate assessment.
- **Financial & Logistical Barriers:** Setting up a **robust statistical framework** for district-level GDP estimation requires **significant investment** in **infrastructure, training, and digital tools**.

- **Inconsistent Data Collection:** Statistics under the **Concurrent List** creates fragmentation between the **Centre and States**, while the decentralized statistical system across ministries lacks uniformity, making **DDP estimation inconsistent**.
  - The absence of standardized district-level data collection leads to inaccuracies across states.
- **Lack of Standardized Methodology:** No internationally accepted framework, like the System of National Accounts (SNA) 2008, for estimating DDP.
  - Defining key metrics such as the base year is challenging due to variations in economic activities across districts.
- **Political and Administrative Hurdles:** States are responsible for compiling Sub-State/DDP but often fail to execute it effectively.
  - Variability in state policies and political priorities leads to delays and inconsistencies in data collection, affecting the uniformity and reliability of DDP estimation.

### What are the Benefits of District-Level GDP Estimation?

- **Boosting Fiscal Federalism:** Decentralized economic data empowers district administrations to develop tailored strategies, ensuring **better resource utilization and targeted investments**.
- **Accurate Economic Analysis:** Helps assess how national or state-level policies impact different districts.

- **Equitable Growth:** Ensures **rural and underdeveloped districts** are included in the growth narrative, preventing economic disparities.
- **Policy Reforms:** The **15th Finance Commission** recommended **performance-based grants** for local governance; district GDP data can help allocate these resources effectively.
  - State and national policies should be adjusted based on district-level economic insights.

### What Should Be the Way Forward for Robust DDP Estimation?

- **Pilot Project:** The government can start with a **pilot project** in districts with high economic activity to test DDP estimation models. Successful models can then be scaled to other districts.
  - Strengthen collaboration between states and research institutions, as seen in the Assam-Pahle India Foundation MoU, to develop **district vision documents**.

- **Local Data Collection Mechanisms:** The government should strengthen district statistical offices, train local data collectors, and ensure strong Central-State collaboration for accuracy.
  - Every **USD 1 investment in data yields USD 32** in development benefits, underscoring its long-term value.
- **Real-Time Economic Indicators:** Aligning with the Sub-National Accounts Committee's recommendations for improving GSDP and DDP estimation, district-level economic dashboards can be developed to track employment trends, tax collections, credit growth, and business activity.
  - Digital tools like **Artificial Intelligence, satellite imagery, and big data analytics** should be leveraged to improve **district-level economic measurement**.
- **Expand Role of MoSPI:** The role of MOSPI should be expanded beyond technical guidance and capacity building to ensure uniformity and interstate comparability in DDP estimation.

## Agriculture

### Ensuring Agricultural Sustainability in India

#### Why in News?

- Union Minister for Agriculture and Farmers' Welfare highlighted the policy paper released by ICAR titled 'A spatial assessment of sustainability in Indian agriculture' and emphasised on the importance of National Mission for Sustainable Agriculture (NMSA).

- It found that sustainability of India's agriculture is under severe threat due to water scarcity, soil degradation, and socio-economic vulnerabilities.

#### What are the Key Findings of the ICAR's Policy Paper?

**Composite Index:** The national average sustainability index is 0.49, indicating a moderate level of sustainability.

- The index is based on 51 indicators covering environmental health, soil and water quality, and socio-economic development.
  - Performance of States: Mizoram, Kerala, MP, Andhra Pradesh, Manipur, West Bengal, and Uttarakhand outperform the national average due to crop diversification, infrastructure, credit access, and sustainable inputs.
    - **Rajasthan, Uttar Pradesh, Punjab, Bihar, Haryana, Jharkhand, and Assam face high risks** due to arid conditions, climate change, and **intensive farming practices**.

### Major Threats to Agriculture:

- **Water Scarcity:** Groundwater depletion has become a serious concern in **Punjab, Rajasthan, and Haryana**, where the **extraction rate has exceeded the recharge rate** by 66, 51, and 34%, respectively.
  - **Water salinity** is rising, majorly affecting **aquifers** in West Bengal, Andhra Pradesh, and Gujarat.
- **Soil Erosion:** Soil erosion from croplands is projected to reach **10 tonnes per hectare annually by 205**.
  - Salinity-affected areas are projected to increase from **6.7 million hectares to 11 million hectares by 2030**.
- **Crop Yield Reductions:** Climate change may cut rainfed rice yields by 20% by 2050 and 47% by 2080. Wheat may drop 19.3% by 2050 and 40% by 2080.

- **Erratic Rainfall:** 80% of India's rainfall falls between June and September, causing **floods and droughts**, while monsoon dry spells are rising in rainfed areas.
- Kharif and rabi rainfall is projected to increase by **2050** leading to **waterlogging, lodging (plant collapse), and pest and disease outbreaks**.

### What is Sustainable Agriculture?

#### About:

- It is a **holistic farming approach** that meets current **food and fiber needs** while preserving resources for **future generations**.
  - It includes practices like crop rotation, organic farming, and community-supported agriculture, ensuring environmental health, economic viability, and social equity.

#### Benefits:

- **Environmental Benefits:** Improves soil health, conserves **water**, protects **biodiversity**, and reduces the **carbon footprint**.
- **Economic Benefits:** Ensures **long-term productivity**, lowers **costs**, creates **market opportunities**, and enhances **climate resilience**.
- **Social Benefits:** Produces **healthier food**, generates **employment**, and strengthens food security.
- **Resilience to Climate Change:** Organic farming, conservation tillage, and agroforestry sequester carbon, **reduce emissions**, and boost climate resilience.

## What is the National Mission for Sustainable Agriculture (NMSA)?

- **About:** NMSA is a flagship initiative under the National Action Plan on Climate Change (NAPCC) aimed at promoting **sustainable agricultural practices** in India.
- **Objectives:**
  - **Enhance Agricultural Productivity:** Improve productivity in rainfed areas, which account for **60% of India's net sown area** and **40% of total food production**.
  - **Promote Sustainable Practices:** Encourage the **conservation and sustainable use** of natural resources like **soil and water**.
  - **Climate Change Adaptation:** Implement adaptation measures to make agriculture **resilient to climate change** impacts.
  - **Livelihood Diversification:** Support farmers in **diversifying** their income sources through integrated farming systems.
  - **Programmes of Action (POA):** NMSA addresses ten key dimensions of Indian agriculture: Alignment with SDGs: NMSA contributes to SDG 2 (Zero Hunger) and SDG 13 (Climate Action) by promoting sustainable farming practices and resilience to climate change.

## Way Forward

- **Financial Incentives for Farmers:** Offer financial rewards to farmers adopting sustainable practices like organic farming, crop rotation, and agroforestry and subsidies for organic fertilizers, biopesticides, and other eco-friendly inputs.
- **Invest in Research and Development (R&D):** Invest in R&D for drought, pest, and disease-resistant crops, and develop affordable organic inputs for small farmers.
- **Market Access for Sustainable Produce:** Improve storage, transport, and processing to cut post-harvest losses, and enable direct farmer-to-consumer sales for sustainable produce.
- **Strengthen Environmental Regulations:** Enforce strict regulations on water use, fertilizers, and pesticides to prevent overuse and pollution, with strong monitoring for compliance.



## External Sector

### India's Remittance Trends 2024

#### Context:

- The Reserve Bank of India's (RBI) 6th Round of India's Remittances Survey (2023-24) highlights those Advanced economies (AEs), particularly the US and the United Kingdom (UK), have overtaken Gulf nations as the top contributors to remittances in India.

#### Key Findings from RBI's 6th

#### Remittance Survey:

India's total remittances have more than doubled, rising from USD 55.6 billion in 2010-11 to USD 118.7 billion in 2023-24.

- U.S. & U.K. now account for 40%** of total inward remittances (FY24), up from 26% (FY17).
  - U.S. share alone: 28%** (FY24), up from 23.4% (FY21).
  - U.K. share: 10.8%**, up from just 3% in FY17 driven by increased Indian emigration and Australia emerged as a key source with 2.3%.
- Rise due to:**
  - Increase in Indian **skilled workforce** in these countries.
  - Higher **student migration** to U.S., U.K., Canada, and Australia.
- Singapore's share** also increased to 6.6% (highest since FY17).
- Australia** joined the significant contributors at 2.3%.

#### Decline in Gulf Remittances:

The overall share of Gulf Cooperation Council (GCC) countries (UAE, Saudi Arabia, Kuwait, Qatar, Oman, Bahrain) stands at 38% (2023-24), down from around 47% (2016-17).

- UAE:** Dropped from 27% (FY17) → 19.2% (FY24).
- Saudi Arabia:** Dropped from 11.6% → 6.7%.
- This reflects:
  - Slowdown in **oil-based economies**.
  - Lower demand for **low-skilled migrant labour**.
  - Greater **economic diversification** of Indian diaspora.

#### Remittance Distribution by States:

- Top Recipients:**
  - Maharashtra, Kerala, Tamil Nadu** – nearly 50% of all remittances.
  - Maharashtra (20.5%) remained the top recipient, followed by Kerala (19.7%).
  - Other major states include Tamil Nadu (10.4%), Telangana (8.1%), and Karnataka (7.7%). Rising trends were seen in Punjab, and Haryana.
- Rising states:** Haryana, Gujarat, Punjab (each <5%).

#### Size of Remittances:

- Remittances > ₹5 lakh: 28.6% of total volume.
- Remittances ≤ ₹16,500: 40.6%.

Mode of Remittance Transfers: Rupee Drawing Arrangement (RDA) remains the dominant channel for inward remittances, followed by direct Vostro transfers and fintech platforms.

Digital remittances are rising, accounting for 73.5% of total transactions in 2023-24.

## What are the Reasons for the Shift in Source of Remittances to India?

- Stronger Job Markets in AEs: The US, UK, Canada, and Australia offer high-paying jobs, especially for skilled Indian migrants.
  - The US job market recovered post Covid-19, leading to higher remittances from Indian professionals.
  - The UK-India Migration and Mobility Partnership (MMP) made it easier for Indians to get work visas, as a result, Indian migration to the UK tripled from 76,000 in 2020 to 250,000 in 2023.
  - Canada's Express Entry and Australia's immigration system favor skilled Indian professionals, leading to high-paying jobs and increased remittances.
- **Declining Job Opportunities in GCC:** Many Indian migrants who returned from the Gulf during Covid-19 and later moved to AEs for better financial opportunities.
  - Additionally, economic diversification and automation have reduced demand for low-skilled Indian labor in the Gulf's construction sector.
  - Meanwhile, nationalization policies like Nitaqat (Saudi Arabia) and Emiratization (UAE) favor local workers, further limiting job prospects for migrants.
- **Changing Migration Patterns in India:** Southern states like Kerala, Tamil Nadu, Andhra Pradesh, and Telangana now prefer AEs over the Gulf.
  - Uttar Pradesh, Bihar, and Rajasthan continue to send large numbers of workers to the Gulf, **lower educational attainment compared to southern states**, reducing eligibility for skilled jobs in AEs.
- **Rise in Education-Driven Migration & Remittances:** The growing number of Indian students in AEs has also boosted remittances. Many students stay back for work, sending money home.
  - Canada hosts 32% of Indian students abroad, followed by the US (25.3%), the UK (13.9%), and Australia (9.2%).

## India's Trade Dynamics

### Context:

In the fiscal year 2024–25, India achieved significant trade milestones:

- **Total exports** (goods and services) reached a record **\$824.9 billion**, marking a **6.01% increase** from the previous year.
- **Exports to the United States** hit an all-time high of **\$86.51 billion**.
- **Imports from China** surged to a record **\$113.5 billion**, leading to a trade deficit of **\$99.2 billion** with China.

### Key Highlights:

- **Total Exports:**
  - **Goods:** \$437.42 billion (0.08% growth).
  - **Services:** \$387.5 billion (13.6% growth), driven by sectors like IT, telecommunications, and financial services.
- **Exports to the U.S.:**
  - Reached **\$86.51 billion**, with a notable surge in March 2025 due to pre-emptive shipments ahead of anticipated U.S. tariffs.

- **Imports from China:**
  - Totalled **\$113.5 billion**, an 11.5% increase from the previous fiscal year.
  - Major imports included electronics, electric batteries, and solar cells.
  - Exports to China declined by 14.4% to \$14.3 billion, exacerbating the trade deficit.

### What is the Sectoral Performance of India's Trade Basket?

#### **Key Export Sectors:**

- India's export basket is led by petroleum products. In 2023, India exported USD 55.8 billion of Refined Petroleum, making it the 3rd largest exporter of Refined Petroleum in the world.
- Engineering goods, contributing 25%, have seen strong growth, while electronics, particularly smartphones, have grown by 151% since FY 2020.
- Spices and agricultural products continue to be significant, with India exporting 225 spice products to over 180 countries.

#### **Key Import Sectors:**

- India's import basket is heavily dominated by crude oil and petroleum products, accounting for 32% of imports, reflecting the country's more than 80% reliance on imported energy.
- Gold imports surged significantly in April 2024 due to cultural demand, while electronics and machinery make up 11.7% of imports, essential for the manufacturing sector.

### What are the Key Factors Driving India's Trade Performance?

- **Front-Loading Strategy:** The sharp increase in exports can largely be attributed to exporters rushing to dispatch shipments ahead of the anticipated reciprocal tariff hikes that came into effect in April.
- **Demand and Market Penetration:** India's export share in key markets such as the US and the UK rose by 13.73% and 14.31%, respectively, indicating stronger demand and improved market penetration.
- **Sectoral Rise in Export:** A major contributor to this growth was the electronics sector, which saw a 32% rise in exports driven primarily by booming smartphone shipments taking the total to USD 38 billion.
- **Coffee exports surged by 40% to reach \$1.8 billion.** This sharp rise was supported by global supply disruptions caused by drought and high temperatures in Brazil, one of the world's top coffee producers.
- **Services Exports:** It grew by 12.45%, reaching USD 383.51 billion during FY25. With services imports standing at USD 195.95 billion, India maintained a healthy surplus in its services trade.

### Implications:

- **Trade Deficit Concerns:**
  - The widening deficit with China underscores India's reliance on Chinese imports, particularly in technology and manufacturing sectors.

- **Policy Measures:**
  - The Indian government is considering safeguard duties and monitoring mechanisms to address the surge in imports and protect domestic industries.
- **Strategic Shifts:**
  - The increase in exports to the U.S. reflects India's growing role in global supply chains, especially in electronics manufacturing.

### **Gold's Rising Share in India's Forex Reserve**

As per the World Gold Council (WGC), India's gold share in foreign exchange reserves has nearly doubled from 6.7% in 2019 to 12% by February 2025.

- India's forex reserves rose to USD 677.84 billion in April 2025, led by an increase of USD 892 million in FCA and a USD 638 million rise in gold reserves, while SDRs fell by USD 6 million.

### **Foreign Exchange Reserves (Forex Reserves):**

About: Forex are reserve assets held by a central bank in foreign currencies. It may include foreign currencies, bonds, treasury bills and other government securities, typically denominated in US dollars.

- They are an important component of the Balance of Payment (BoP)
- The RBI is the custodian of India's foreign exchange reserves, deriving its authority from the provisions of the RBI Act, 1934.

Purpose: It helps meet external payment needs and stabilize the national currency. They also serve as a buffer during global financial shocks and ensure confidence in monetary policies.

### **Components of India's Forex Reserves:**

- Foreign Currency Assets (FCA) (largest contributor)
- Gold reserves (second largest contributor)
- Special Drawing Rights
  - It is not a currency but its value is determined by a basket of 5 major currencies: the US dollar, euro, Chinese renminbi, Japanese yen, and British pound sterling.

Reserve Tranche Position (RTP) with the IMF: RTP is a country's quota-based access to IMF resources, available for borrowing without strict conditions, used for BoPs or financial stability.

## Economic Growth and Development

### India Employment Report 2024: ILO

#### Why in News?

- Recently, the Institute for Human Development (IHD) and International Labour Organisation (ILO) have released a report titled- 'India Employment Report 2024', which highlights that India's youth continue to grapple with soaring Unemployment rates.
- The Institute for Human Development (IHD) was established in the year 1998 under the aegis of the Indian Society of Labour Economics (ISLE), it is a non-profit autonomous institution that aims to contribute towards building a society that fosters and values an inclusive social, economic and political system that is free from poverty and deprivations.

#### What are the Key Highlights of the Report?

- Poor Employment Conditions
- Despite improvements in overall labour force participation and employment rates, employment conditions in India remain poor, with issues such as stagnant or declining wages, increased self-employment among women, and a higher proportion of unpaid family work among youth.

- India's youth account for almost 83% of the unemployed workforce and the share of youngsters with secondary or higher education in the total unemployed has almost doubled from 35.2% in 2000 to 65.7% in 2022.

#### Youth Employment Challenges:

- Youth employment and underemployment surged between 2000 and 2019, with educated youths experiencing significantly higher levels of joblessness.
- The Labour Force Participation Rate (LFPR), Worker Population Ratio (WPR) and the Unemployment Rate (UR) showed a long-term deterioration between 2000 and 2018 but witnessed an improvement after 2019.
- The improvement coincides with periods of economic distress, both pre and post-Covid-19 with the exception of two peak Covid-19 quarters.

#### Paradoxical Improvements:

- Over the past two decades, India's job market has seen some improvements in certain labour indicators, but the overall employment situation remains challenging.
- Non-farm sectors have not grown sufficiently to absorb workers from agriculture, despite non-farm employment growing faster than farm employment before 2018.
- Most workers, around 90%, are engaged in informal work, and the proportion of regular employment, which was steadily increasing after 2000, started declining after 2018.



- India's large young workforce, often seen as a demographic advantage, faces challenges due to a lack of necessary skills.
- A significant portion of youth lacks basic digital literacy skills, with 75% unable to send emails with attachments, 60% unable to copy and paste files, and 90% unable to perform basic spreadsheet tasks like putting a mathematical formula.

### **Wages and Earnings are Declining:**

- While wages of casual labourers maintained a modest upward trend during 2012-22, real wages of regular workers either remained stagnant or declined. Self Employed real earnings also declined after 2019.
- Overall, wages have remained low. As much as 62% of the unskilled casual agricultural workers and 70% of such workers in the construction sector at the all-India level did not receive the prescribed daily minimum wages in 2022.

### **Changing the Structure of Industrial Employment:**

- There has been a rapid introduction of digitally mediated gig and platform work, which are algorithmically controlled by the platforms and have brought about new features in control of the labour process.
- Increasingly, platform and gig work have been expanding, but it is, to a large extent, the extension of informal work, with hardly any social security provisions.

### **Migration is Likely to Increase in Future:**

- The rates of urbanization and migration are expected to considerably increase in the future.
- India is expected to have a migration rate of around 40% in 2030 and will have an urban population of around 607 million.
- The bulk of this increase in urban growth will come from migration. The pattern of migration also shows regional imbalance in the labour markets.
- The direction of migration in general is from eastern, north-eastern and central regions to southern, western and northern regions.

### **Regional Disparities:**

- Significant variations in employment outcomes exist across states, with certain states consistently ranking lower in employment indicators.
- States like Bihar, Uttar Pradesh, Odisha, Madhya Pradesh, Jharkhand, and Chhattisgarh have struggled with poor employment outcomes over the years, reflecting the influence of regional policies.

### **Widening Gender Gap:**

- India is facing the challenge of a substantial gender gap in the labour market, with low rates of female labour force participation.
- The unemployment challenge among young women, especially those who are highly educated, is enormous.

- Social inequalities also persist despite affirmative action and targeted policies, with Scheduled Castes and Scheduled Tribes facing barriers to accessing better job opportunities.
- Although educational attainment has improved across all groups, social hierarchies persist, exacerbating the employment disparity.

### **Policy Recommendations:**

To enhance production and foster growth with a focus on employment, policy recommendations are proposed:

- Integrate an employment creation agenda into macroeconomic policies, particularly emphasising productive non-farm employment, notably in manufacturing.
- Prioritise labour-intensive manufacturing to absorb unskilled labour and complement with selected services.
- Concentrate efforts on supporting micro, small, and medium-sized enterprises through a decentralised approach.
- Increase agricultural productivity, generate non-farm employment opportunities, and encourage entrepreneurship.
- Invest in green and blue economies, leveraging strategic investments, capacity-building initiatives, and policy frameworks to unlock substantial employment potential.

### **To enhance job quality, strategies are recommended:**

- There's a need to invest in and regulate sectors such as the care industry and the digital economy, which are anticipated to be significant sources of employment for young people.
- Fostering an inclusive urbanisation and migration policy is essential, particularly given India's projected rise in urbanisation and migration rates, driven by youths seeking decent employment opportunities, predominantly in urban areas.
- Ensuring a robust supportive role for labour policy and regulation is crucial. This involves guaranteeing a minimum standard of employment quality and safeguarding basic rights for workers across all sectors.

### **To address labour market inequalities, key approaches are suggested:**

- Implement policies to enhance women's participation in quality employment.
- Integrate high-quality skills training into education to uplift economically disadvantaged groups and boost employability.
- Improve access to information technology and bridge the digital gap. Establish a fair labour market by combating discrimination against women and marginalised communities.

## Rising Informality of Women in Manufacturing Workforce

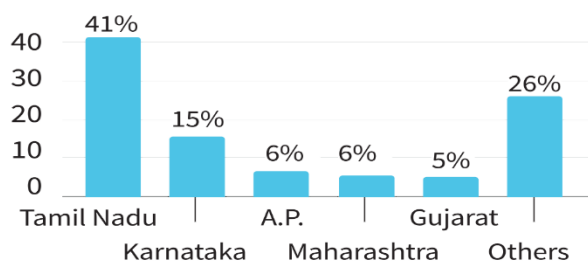
### Context:

- The manufacturing sector, contributing approximately 17% to India's GDP, is considered a key driver for economic growth under the vision of Viksit Bharat. However, women remain significantly underrepresented in the sector, particularly in formal employment, reflecting deeper structural and socio-economic challenges.

### Key Findings:

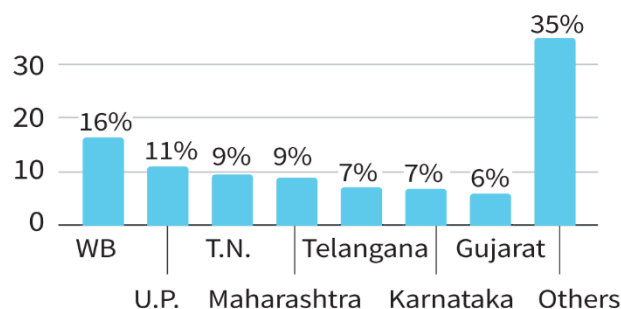
- Decline in Formal Sector Participation:**
  - Women's share in formal manufacturing fell from 20.9% (2015-16) to 18.9% (2022-23).
  - Out of 8.34 million formal manufacturing workers, only **1.57 million are women**.
- Concentration in Few States:**
  - Tamil Nadu employs the highest share (41%) of women, followed by Karnataka, Maharashtra, Andhra Pradesh, and Gujarat, together accounting for nearly 75% of all women in formal manufacturing.

Chart 1a: State-wise share of the formal female manufacturing workforce



Similarly, West Bengal, Uttar Pradesh, Tamil Nadu, and Maharashtra contribute close to 50% of the informal women workforce in the manufacturing sector (Chart 1b).

Chart 1b: State-wise share of the informal female manufacturing workforce



- Informal Sector Dominance:**
  - Women comprise **43% of informal manufacturing** workers.
  - Informal jobs are **low-paying**, lack security and benefits.
- Sectoral Segregation:**
  - Formal Sector: 60% women work in **textiles, apparel, and food processing**.
  - Informal Sector: Women concentrated in **apparel and tobacco** (90% women in informal tobacco industry).

Chart 3b: Sector-wise share of women in the informal workforce

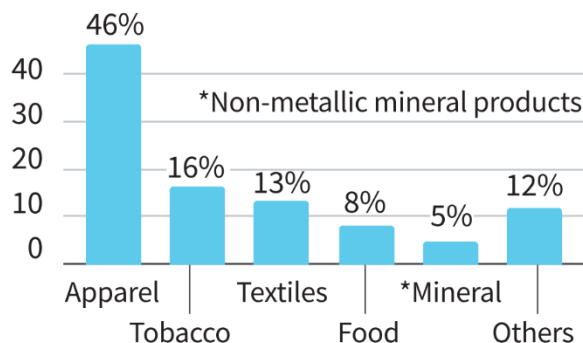
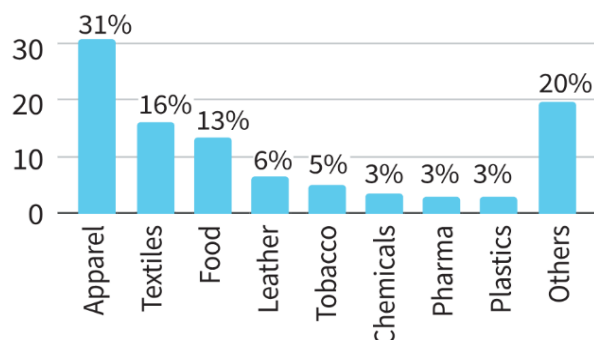


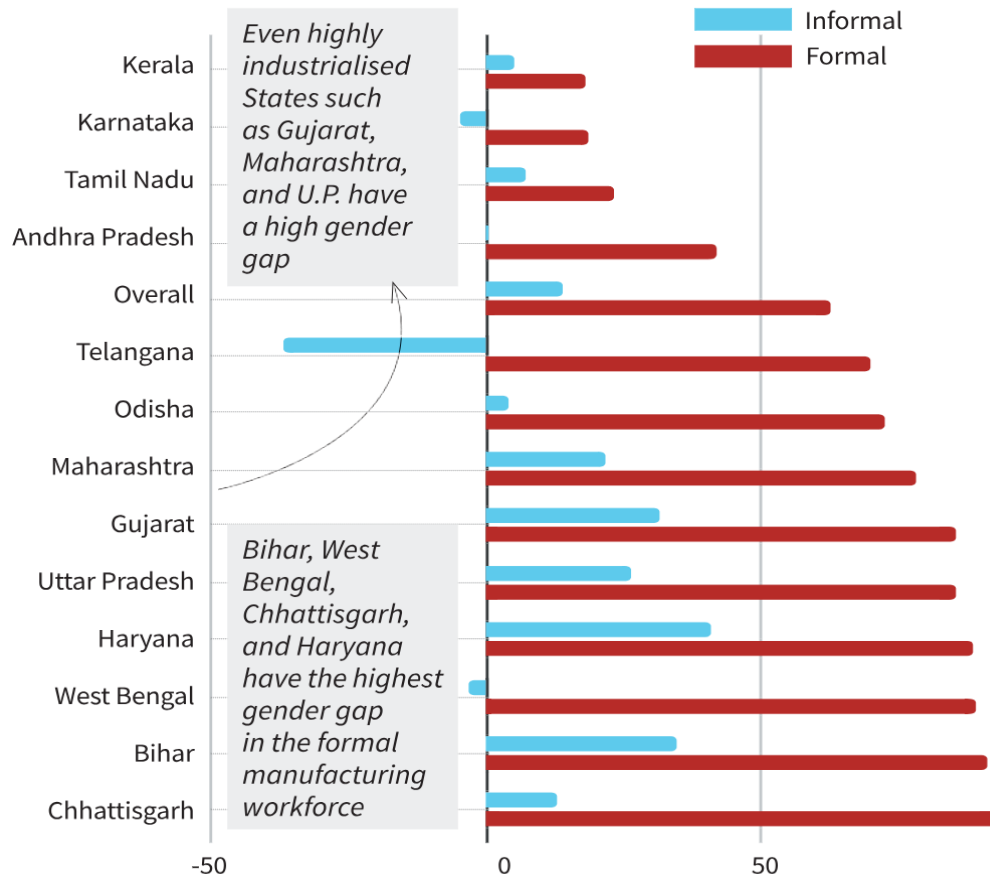
Chart 3a: Sector-wise share of women in the formal workforce



## High Gender Gap:

- Gender disparity is high in Bihar, West Bengal, Chhattisgarh, and Haryana (less than 6% women), and even in industrialised states like Gujarat, Maharashtra, and Uttar Pradesh (less than 15% women).

- In contrast, southern states like Kerala, Karnataka, and Tamil Nadu show relatively better female participation.



## Challenges Identified:

- Low Skill Levels:**
  - Only **6% women** in manufacturing have vocational/on-job training.
- Low Educational Attainment:**
  - Only **30% of women** in manufacturing have completed secondary education, vs **47% of men**.
- Lack of Sectoral Diversification:**
  - Female workforce is concentrated in **few low-paying sectors**.

- Poor Work Conditions:**
  - Safety and social infrastructure (e.g. hostels, sanitation) still lacking in many states.
- Policy Recommendations:**
  - Education and Skill Development:** Only 30% of women in manufacturing have completed secondary education (vs 47% of men), and just 6% have formal vocational training.

- To bridge this gap, women's participation in Skill India Mission and similar initiatives must be expanded, with targeted upskilling in technical and engineering domains to improve access to skilled, better-paying jobs.
- **Sectoral Diversification:** Women in formal manufacturing are concentrated in a few sectors like textiles and food processing (60%).
  - Diversifying their presence into sectors like automotive and electronics through targeted training and incentives is key to improving participation and opportunities.
- **Creating Safe Work Environments:** Creating safe and inclusive workplaces through hostels, transport, and childcare facilities can boost women's entry and retention in manufacturing across states.
- **Policy Interventions:** Strengthening laws like the Maternity Benefit (Amendment) Act and Factories Act can improve working conditions and gender equality.
  - To encourage more hiring of women in manufacturing, the government and industry should share the cost of maternity benefits, reducing the financial burden on employers.

## Conclusion

Women in India's manufacturing sector are mainly employed in low-paying, informal jobs with inadequate conditions. To bridge this gap, it is essential to enhance women's education, skills, and workplace safety, while promoting their shift from informal to formal

employment. Establishing an inclusive and supportive environment will empower women and contribute to India's vision of becoming a "Viksit Bharat."

## India Skills Accelerator

### Context:

- The **Ministry of Skill Development and Entrepreneurship (MSDE)**, in partnership with the **World Economic Forum (WEF)**, launched the **India Skills Accelerator** to address critical skill gaps, promote industry collaboration, and future-proof India's workforce.

### Key Features of the India Skills Accelerator:

#### Purpose:

- A national public-private collaboration platform to enhance skilling, align with future job trends, and drive systemic reforms in skill development.

#### Core Objectives:

- **Shift public mindsets** on emerging skill needs.
- **Strengthen collaboration** & knowledge sharing among stakeholders.
- **Upgrade policy frameworks** and institutional mechanisms for adaptive skilling.

#### Strategic Focus Areas:

- **AI, cloud computing, robotics, cybersecurity, and green energy.**
- **Formalizing informal workforce** and integrating **Global Capability Centres (GCCs)** and **advanced manufacturing.**
- Support **youth employment** and reduce mismatch between education and industry demand.



### **Governance Structure:**

- **Public Co-chairs:**
  - **Shri Jayant Chaudhary** (MoS, Skill Development & Entrepreneurship).
  - **Dr. Sukanta Majumdar** (MoS, Education & Development of NE Region).
- **Private Co-chairs:**
  - **Ms. Shobana Kamineni** (Apollo HealthCo).
  - **Shri Sanjiv Bajaj** (Bajaj Finserv).
- Institutional collaborators: NSDC, DGT, NCVET, UGC, AICTE, NCERT, CBSE.

### **Global and National Integration:**

- **Backed by WEF's Global Learning Network:**

- To enable **peer learning, international benchmarking,** and evidence-based reform.
- Aligns with WEF's **Future of Jobs 2025** report insights.

### **Expected Outcomes:**

- Identify **10-12 high-impact skilling priorities** with measurable KPIs.
- Launch **thematic working groups** to drive execution.
- Foster **lifelong learning, flexible vocational pathways,** and **digital skilling.**
- Establish India as a **global talent hub** in emerging domains.

## Environment

### Environmental Pollution

#### Illegal light fishing



#### Context:

- Recently there has been growing concern over the rising threat posed by light fishing method

#### Light Fishing method

- The method uses high-powered artificial lights to lure fish and squid to the surface
- It has been banned in India's Exclusive Economic Zone (EEZ) since 2017, Yet enforcement remains inconsistent.
- For example, In Maharashtra, Tamil Nadu and Andhra Pradesh rules do exist, but enforcement is weak.
- Kerala, despite a state-level ban, enforcement lapses have allowed LED-equipped boats to operate openly.

#### Impact

- Generators power high-intensity artificial lights that attract fish, including juveniles and bycatch, in large numbers which causes ecological consequences – including overfishing, juvenile stock depletion and coral reef degradation as impacts of this technique.

- There has been growing conflicts between traditional fishers and industrial operators adopting high-intensity lights, which disrupt spawning cycles and livelihoods
- It disrupt food chain, For example, Squid – a key species in the marine food web are particularly vulnerable. Squid are slow-moving and get caught easily when lights are used. This has a cascading effect on the food chain, starving larger predators
- The fallout isn't only environmental – it's deeply social. Small-scale, traditional fishers using hand-cast nets and country boats find themselves at a stark disadvantage compared to mechanised vessels equipped with powerful lights.

#### Past efforts

- The national ban in 2017 was intended as a safeguard, but enforcement has been patchy. While Gujarat has recently imposed a ban, Maharashtra continues to overlook the issue, focusing instead on trawling. Tamil Nadu and Andhra Pradesh maintain partial restrictions that leave loopholes easily exploited.
- In 2023, Maharashtra requested Coast Guard support to crack down on illegal LED use, citing limited state resources. Karnataka officials seized light fishing equipment in Udupi in 2024, but manpower shortages prevent sustained patrols. In Kozhikode, Kerala, fishers allege that non-local boats violate the ban with little oversight, as of February 2025.

## Way Forward

- Countries such as Italy, Croatia and Japan regulate or restrict light fishing to protect marine stocks. These countries show that it's possible to balance innovation with sustainability. India could learn from these policies to preserve both marine life and livelihoods.
- India's fragmented framework – national EEZ restrictions coupled with varied state-level rules – is insufficient. A fully enforced nationwide ban would level the playing field and protect our fish stocks.
- A uniform policy would also align with United Nations-mandated Sustainable Development Goal 14, which focuses on ocean conservation and equitable access to marine resources.
- However, enforcement must be more than symbolic. It requires increased patrolling, stricter penalties and education for fishers. Subsidies for sustainable equipment and alternative livelihoods could ease the transition for those reliant on light fishing.
- In Karnataka's Gangolli in early 2025, authorities fined a number of boats for operating with banned lights and generators. Yet, with returns from a single light-fishing trip often exceeding Rs 1 lakh, a Rs 16,000 fine remains a weak deterrent. Without stronger action, India risks losing its marine bounty and the communities that depend on it.

## **National Mission for Clean Ganga**

### Context

- The 61st Executive Committee (EC) Meeting of the National Mission for Clean Ganga (NMCG) has approved several major projects

### Projects

- Nature Based Solution project with a focus of Yamuna rejuvenation in National Capital.
- installation of pilot CAMUS-SBT (Continuous Advanced Mite Utilizing System – Soil-Based Treatment) plants for the treatment of liquid pollutants in the Shahdara drain, aiming to achieve water quality standards as prescribed by the NGT (National Green Tribunal).
- STP and other allied works in Moradabad town in U.P for “Prevention of Pollution in Ramganga River” was approved.
- Sewage Treatment Plant for Arrah town in Bihar has been approved.
- important project related to the “Interception and Diversion of 14 Untapped Drains of Kanpur City, Uttar Pradesh” was approved
- Integrated Faecal Sludge Treatment Plant (FSTP) was approved in west Bengal
- Establishment of the NMCG-IIT Delhi-Dutch Collaboratory for Intelligent River Systems and Clean Yamuna (IND-RIVERS). This innovative initiative is launched under the India-Netherlands Water Strategic Partnership, aiming to build Centres of Excellence focused on critical areas like urban rivers and nature base solution.

## National Mission for Clean Ganga(NMCG)

- It was registered as a society on 12th August 2011 under the Societies Registration Act 1860. It acted as implementation arm of National Ganga River Basin Authority (NGRBA) which was constituted under the provisions of the Environment (Protection) Act (EPA), 1986.
- NGRBA has since been dissolved with effect from the 7th October 2016, consequent to constitution of National Council for Rejuvenation, Protection and Management of River Ganga (referred as National Ganga Council) vide notification
- The Act envisages five tier structure at national, state and district level to take measures for prevention, control and abatement of environmental pollution in river Ganga and to ensure continuous adequate flow of water so as to rejuvenate the river Ganga as below;
  - National Ganga Council under chairmanship of Hon'ble Prime Minister of India.
  - Empowered Task Force (ETF) on river Ganga under chairmanship of Hon'ble Union Minister of Jal Shakti (Department of Water Resources, River Development and Ganga Rejuvenation).
  - National Mission for Clean Ganga (NMCG).
  - State Ganga Committees and
  - District Ganga Committees in every specified district abutting river Ganga and its tributaries in the states.
- NMCG has a two tier management structure and comprises of Governing Council and Executive Committee. Both of them are headed by Director General, NMCG.
- Executive Committee has been authorized to accord approval for all projects up to Rs.1000 crore. Similar to structure at national level, State Programme Management Groups (SPMGs) acts as implementing arm of State Ganga Committees. Thus the newly created structure attempts to bring all stakeholders on one platform to take a holistic approach towards the task of Ganga cleaning and rejuvenation.
- The Director General (DG) of NMCG is an Additional Secretary in Government of India. For effective implementation of the projects under the overall supervision of NMCG, the State Level Program Management Groups (SPMGs) are, also headed by senior officers of the concerned States.

## Fluoride Contamination

### Context

- Recently a report on presence of excess fluoride in the groundwater of Sonbhadra district, Uttar Pradesh, has led to an escalating public health crisis.
- Villages across Sonbhadra, UP's second-largest district, where rich deposits of granite, an igneous rock, have leached "excess" fluoride into the groundwater, making it unfit for human consumption
- Fluoride levels in these 12 villages exceeded the safe limit of 1-1.5 mg/L, with some recording 2 mg/L or more.

## **Fluoride**

- It is a naturally occurring mineral found in rocks, soil, and groundwater.
- In small amounts, it helps prevent tooth decay.
- However, excessive fluoride intake can lead to fluorosis and other health issues.

## **Ban on use of asbestos**

### **Context**

- The Ministry of Education has banned the use of asbestos in construction or refurbishment of Kendriya Vidyalayas (KVs) and Jawahar Navodaya Vidyalayas (JNVs)

### **Asbestos**

- Asbestos is a group of mineral fibres with widespread current and historical commercial uses, but which can cause deaths and serious ill-health in workers and other people who are exposed to these fibres
- Asbestos is classified as a Group 1 carcinogen, and over 65 countries have implemented bans on its use
- While there are six types of asbestos, chrysotile – white asbestos – is the most common form, used especially in roofing houses.
- Exposure to asbestos, including chrysotile, causes cancer of the lung, larynx and ovaries, and mesothelioma (a cancer of the pleural and peritoneal linings). There is also clear scientific evidence that asbestos causes chronic respiratory diseases such as asbestosis (fibrosis of the lungs), and other adverse effects on the lungs.

## **Desulphurising coal plants**

### **Context**

- Recently a study commissioned by the Office of the Principal Scientific Adviser advises that Union Environment Ministry should roll back its 2015 policy mandating all of India's 537 coal-fired plants to install a class of equipment called Flue Gas Desulphurisation (FGD) in order to reduce sulphur dioxide (SO<sub>2</sub>) emissions.
- Instead, it should only apply to those plants using imported coal or high (>0.5%) sulphur coal,

### **Key Highlights**

- Although coal-fired plants were to have installed FGD by 2018, only 8% of the plants have installed the equipment after the Environment Ministry extended deadlines. As of now, compliance has been pushed to 2027, 2028, and 2029, respectively, depending on the category of the thermal power plant.
- FGD costs ₹1.2 crore per MW to install. India has an installed coal capacity of 218,000 MW, which is expected to rise to 283,000 GW by 2032.
- 92% of the coal used in Indian plants has low sulphur content (0.3%-0.5%). Norms mandated by the Central Pollution Control Board requiring that the stack heights (exhaust columns) in the thermal power plants be a minimum 220 metres, coupled with Indian climatic conditions, ensured that SO<sub>2</sub> emissions did not threaten local air quality..



- A study by the Indian Institute of Technology (IIT)-Delhi in 2024, which the NIAS study references, found that 'acid rain', the most visible consequence of high SO<sub>2</sub> emissions, was not a significant issue in India.
- Installing FGD in all plants would increase power consumption as well as freshwater consumption in the plants, resulting in an additional 69 million tonnes of CO<sub>2</sub> (2025-30), while reducing SO<sub>2</sub> emissions by 17 million tonnes.
- The study argues for SO<sub>2</sub> emissions, citing an Intergovernmental Panel on Climate Change assessment as having masked global warming by 0.5C from 2010-2019 relative to 1850-1900.
- Therefore, adding more long-lived CO<sub>2</sub> emissions while removing short-lived SO<sub>2</sub> emissions by installing FGDs indiscriminately in all TPP in India despite the low sulphur content of Indian coal will enhance global warming

### Recommendation

- The study **recommends** that instead of SO<sub>2</sub>, efforts be made to address particulate matter (PM) pollution that result from these plants, particularly because of the high ash content of Indian coal.
- Installing **electrostatic precipitators** developed by Bharat Heavy Electricals Limited, a public sector company, would cost only ₹25 lakh per MW, compared to the ₹1.2 crore from FGD, and reduce PM pollution by 99%, the study claims.

- Controlling PM emissions from TPP [thermal power plants] stacks at this level will make the maximum impact on air pollution from TPPs even without FG.

### Flue Gas Desulphurisation (FGD)

- It is a technology used to remove sulfur dioxide (SO<sub>2</sub>) from the exhaust (flue gas) of fossil fuel-based power plants, especially coal-fired ones.

### Process (Wet Lime process)

- Flue gas from the combustion chamber is passed into a scrubber.
- A limestone slurry (CaCO<sub>3</sub> mixed with water) is sprayed into the flue gas.
- SO<sub>2</sub> reacts with calcium carbonate to form calcium sulfite, which can be further oxidized into gypsum (CaSO<sub>4</sub> · 2H<sub>2</sub>O).
- The cleaned gas is released, and gypsum is removed as a byproduct.

### Electrostatic Precipitator (ESP)

- An Electrostatic Precipitator (ESP) is a device used to remove fine particulate matter (PM) from industrial flue gases before they're released into the atmosphere — making it one of the most widely used air pollution control technologies in thermal power plants.

### Working

- Flue gas (from coal combustion) containing dust particles enters the precipitator chamber.
- Inside the chamber:
  - High-voltage electrodes create an electric field.
  - Dust particles in the gas are electrically charged (usually negatively).

- The charged particles move toward collecting plates (oppositely charged).
- These particles stick to the plates.
- Periodically, the plates are rapped or vibrated, making the dust fall into hoppers below for disposal.
- The clean gas then exits into the atmosphere with much lower PM content.

### Blue category industries

- **Context- Recently** Central Pollution Control Board (CPCB) **revises classification of industries to introduce new category, blue, for so-called “essential environmental services”**

#### Categories

- The Union Ministry of Environment, Forests and Climate Change (MoEFCC) introduced the concept of categorisation of industries for facilitating decisions related to the location of the industries, formulation of norms for inspection and surveillance, pollution caused and health impacts.
- In order to harmonise the ‘criteria of categorisation’, a Pollution Index (PI) was introduced which is a function of the emissions (air pollutants), effluents (water pollutants), hazardous wastes generated and consumption of resources.
- The PI is a number between ‘0’ and ‘100’ with 0-20 being the least polluting white category industries and 60-100 being the most polluting Red Category industries while Green (21-40) and Orange (41-59) categories lying in-between.

#### Blue category

- The ‘blue category’ industries based on the Essential Environmental Services (EES) for managing the pollution due to anthropogenic activities.
- With this new categorisation, the CPCB will give an additional two years validity for consent to operate a.k.a consent to pollute.
- It includes industries engaging in waste management such as composting, biogas, material recovery facilities and sewage treatment plants

#### Criticism

- As per experts the inclusion of waste-to-energy (WTE) incineration which is the process of burning unsegregated municipal solid waste (MSW) to produce dirty electricity is a huge retrograde step.
- Until recently, the waste-to-energy incineration industries were classified by the CPCB as a ‘red category’, a highly polluting industry with a PI of 97.6 .
- This is because of the flue gas discharges such as SO<sub>x</sub>, NO<sub>x</sub>, HCL, PM, Dioxins and Furans, water effluent with toxic pollutants and hazardous bottom/fly ash that needs to be disposed of in a secured scientific landfill.
- CPCB’s own methodology states that only the projects that *do not emit* hazardous waste can be classified as 'blue category' industries.
- Furthermore, it clearly mentions that, only the projects that promote circular economy can be reclassified as a blue category industry.

- But, the CSIR-NEERI, a pioneering government research institute in environmental science and engineering has clearly stated: 'WTEs defeat the purpose of circular economy and are against the SWM rules, 2016'.

### **Central Pollution Control Board (CPCB)**

- The **Central Pollution Control Board (CPCB)**, statutory organisation, was constituted in September, 1974 under the Water (Prevention and Control of Pollution) Act, 1974.

- Further, CPCB was entrusted with the powers and functions under the Air (Prevention and Control of Pollution) Act, 1981.

### **Function**

- To promote cleanliness of streams and wells in different areas of the States by prevention, control and abatement of water pollution
- To improve the quality of air and to prevent, control or abate air pollution in the country.

## **Climate Change**

### **Mass bleaching at Australian reef**

Context-An “unprecedented” mass bleaching event has been recorded off Australia’s western coast, scientists said Wednesday (March 26, 2025), turning huge chunks of a celebrated reef system a sickly dull white.

### **Reason**

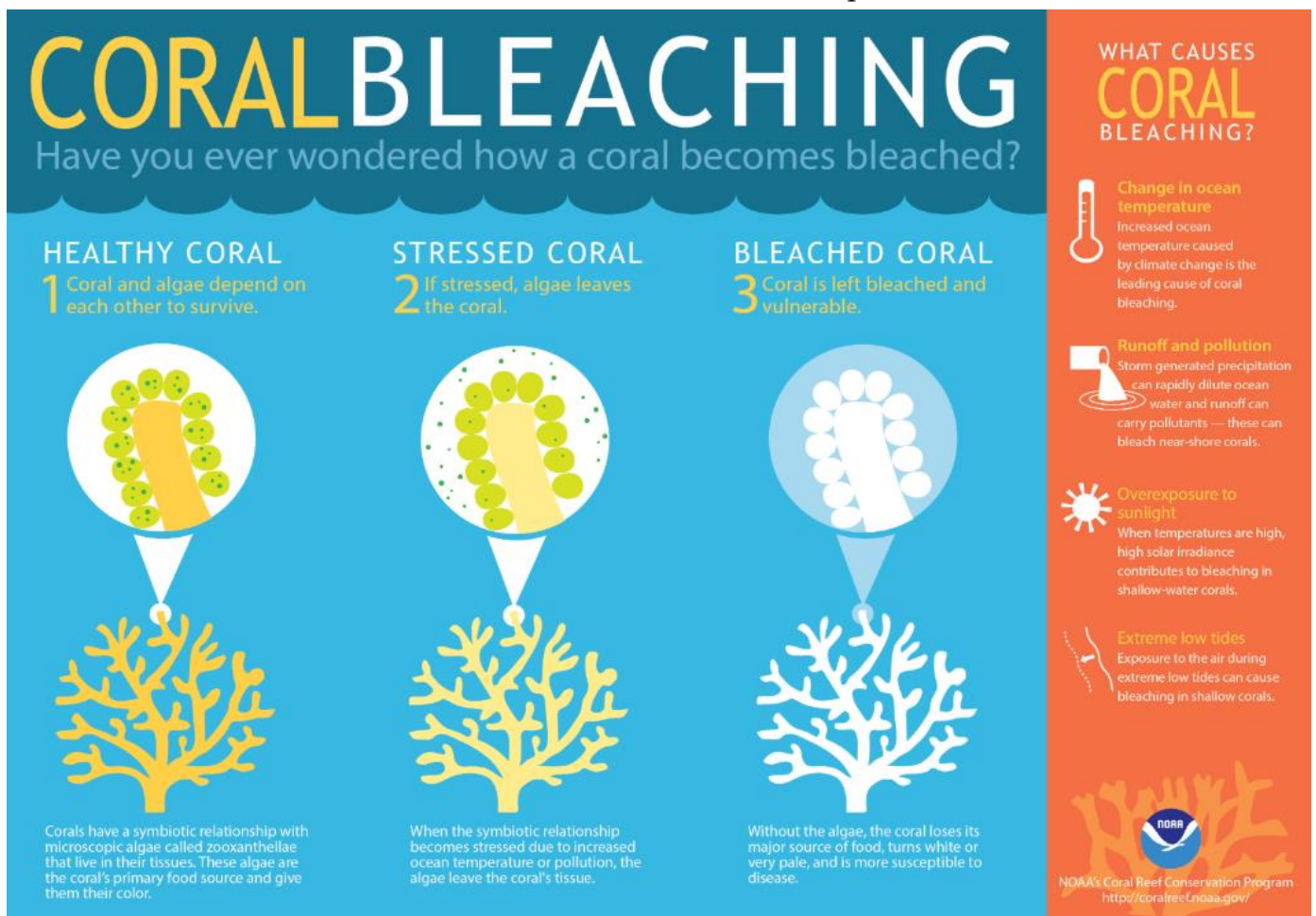
- A months-long marine heatwave had “cooked” the sprawling Ningaloo Reef, part of a world heritage-listed marine park renowned for vibrant corals and migrating whale sharks.

- Branching through shallow waters along Australia’s western coast, the 300-km Ningaloo Reef is one of the largest “fringing reefs” in the world.
- Ocean waters lapping Western Australia have been as much as three degrees warmer than average over recent summer months



## Coral bleaching

- **Healthy coral :** Coral and algae depend on each other to survive. Corals have a symbiotic relationship with microscopic algae called zooxanthellae that live in their tissues. These algae are the coral's primary food source and give them their color
- **Stressed Coral:** If stressed, algae leaves the coral. When the symbiotic relationship becomes stressed due to increased ocean temperature or pollution, the algae leave the coral's tissue.
- **Bleached Coral:** Coral is left bleached and vulnerable. Without the algae, the coral loses its major source of food, turns white or very pale, and is more susceptible to disease



## Significance

### **Biodiversity Hotspots**

- Coral reefs are often called the "**rainforests of the sea.**"
- They support **over 25% of all marine species**, including fish, mollusks, sponges, and crustaceans.

### **Coastal Protection**

- Coral reefs act as **natural breakwaters**, reducing wave energy during storms, cyclones, and tsunamis.
- Prevent **coastal erosion** and protect low-lying coastal communities.



## Climate Regulation

- Corals contribute to **carbon and nitrogen cycling** in marine ecosystems.
- Healthy reefs **sequester carbon**, though on a smaller scale than mangroves or seagrasses.

## Livelihood and Food Security

- Millions of people depend on coral ecosystems for **fishing and tourism**.
- Coral reefs contribute significantly to **local and national economies**, especially in coastal nations.

## Biomedical Potential

- Marine organisms found in coral ecosystems are used in **pharmaceutical research**.
- Potential treatments for **cancer, arthritis, bacterial infections**, and more have been derived from reef species.
- **High-Altitude Climate Research Station**

## High-Altitude Climate Research Station

### Context

- Recently Government launched the first-ever 'Himalayan High-Altitude Atmospheric & Climate Centre' in Nathatop, Chenani, Udhampur district.

## Biodiversity

### Euphaea wayanadensis

- **Context**-Researchers have discovered a new species of damselfly in the Wayanad landscape of the Western Ghats, Kerala.

### About

- The new species belongs to the family Euphaeidae

## About

- The initiative aims to provide accurate climate and weather forecasts, along with research and study of the region's unique high-altitude conditions.
- The project, under the Ministry of Earth Sciences will enhance climate monitoring in the Himalayas.
- The Nathatop centre is a product of multi-tier collaboration—between the Government of India (through the Ministry of Science & Technology), the Government of Jammu and Kashmir (which provided the land), the Central University of Jammu (whose scientists will participate in research), and the Swiss National Science Foundation (which is providing international expertise).

## ICE-CRUNCH

- This is Indo-Swiss Joint Research Project "ICE-CRUNCH(Ice nucleating particles and cloud condensation nuclei properties in the North-Western Himalayas)" a collaborative study between Indian scientists and researchers from ETH Zürich, Switzerland, aimed at exploring the properties of ice nucleating particles and cloud condensation nuclei in the region.

- The species preferred fast-flowing streams with rocks and aquatic vegetation with evergreen and semi-evergreen tree growth on the banks to thrive. They are observed throughout the year, except during the dry seasons of March and April.



## Olive Ridley Turtle

- Context-Recent study of the Olive Ridley turtles has revealed that the population in the Indian ocean is among the oldest in the world.

### Key Highlights

- Olive ridley nesting in Odisha is genetically distinct from other global populations including those found in the South American coast.
- turtles found in the Indian Ocean, particularly on the eastern coast of India, were the most “evolutionarily ancient” populations of Olive Ridley whereas the ones in the Atlantic and Pacific probably only colonized those oceans about a few hundred thousand years ago.
- In the early 2000, people believed that when the Isthmus of Panama was formed 3 million years ago separating Atlantic and Pacific oceans, it led to separation of Olive Ridley turtles -- one on the Atlantic, one on the Pacific. So, if that is true, then the most ancient Olive Ridley populations should be those populations on the east coast of Central America, in Mexico and Costa Rica



- The study, however, found that it is the Indian Ocean population of the species, particularly on the eastern coast of India, that was the most evolutionarily ancient populations of Olive Ridleys.
- It also said that the Pacific and Atlantic populations probably separated from the Indian Ocean population about 300,000-400,000 years ago.
- So, it looks like the Olive Ridleys survived in this region during a period of global climate change about 3 to 4 million years ago and then recolonized the Atlantic and Pacific much later

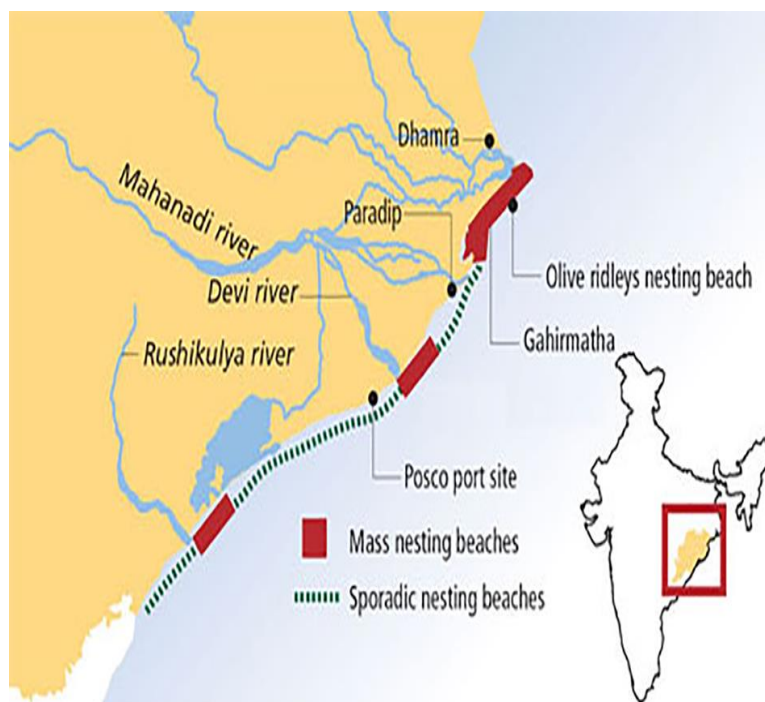
### Olive ridley turtles

- These are the smallest and most abundant of all sea turtles found in the world, inhabiting warm waters of the Pacific, Atlantic and Indian oceans.
- These turtles, along with their cousin the Kemps ridley turtle, are best known for their unique mass nesting called Arribada, where thousands of females come together on the same beach to lay eggs.
- Though found in abundance, their numbers have been declining over the past few years, and the species is recognized as Vulnerable by the IUCN Red list.
- Males and females grow to the same size; however, females have a slightly more rounded carapace as compared to the male.
- They are carnivores, and feed mainly on jellyfish, shrimp, snails, crabs, molluscs and a variety of fish and their eggs. These turtles spend their entire lives in the ocean, and migrate thousands of kilometers between feeding and mating grounds in the course of a year

- The coast of Orissa in India is the largest mass nesting site for the Olive-ridley, followed by the coasts of Mexico and Costa Rica.

### Nesting habits

- The Olive Ridley has one of the most extraordinary nesting habits in the natural world, including mass nesting called arribadas.



- The 480-km-long Odisha coast has three arribada beaches at Gahirmatha, the mouth of the Devi river, and in Rushikulya, where about 1 lakh nests are found annually.
- More recently, a new mass nesting site has been discovered in the Andaman and Nicobar Islands, with more than 5,000 nests reported in a season

- **Threat**-Olive-ridleys face serious threats across their migratory route, habitat and nesting beaches, due to human activities such as turtle unfriendly fishing practices, development and exploitation of nesting beaches for ports, and tourist centres.
- They are extensively poached for their meat, shell and leather, and their eggs, though illegal to harvest, have a significantly large market around the coastal regions.

- However, the most severe threat they face is the accidental killing of adult turtles through entanglement in trawl nets and gill nets due to uncontrolled fishing during their mating season around nesting beaches.

### Conservation

- It is recognized as Vulnerable by the IUCN Red list.
- International trade in these turtles and their products is banned under CITES Appendix I
- Protected under **Wildlife Protection Act, 1972** (Schedule 1)

- **WWF-India**, along with the fishermen community, has been involved in protecting the Olive ridley rookery at the mass nesting site at Rushikulaya, in Orissa, by fencing off the nesting area and patrolling it till hatching and ensuring a safe passage for the hatchlings to the sea.
- Indian Coast Guard's "**Operation Olivia**", initiated in the early 1980s, helps protect Olive Ridley turtles as they congregate along the Odisha coast for breeding and nesting from November to December.

## Neurotoxin makes Sea Lions aggressive

### Context

- An algal bloom near California's coast has caused usually friendly sea lions to become aggressive and attack humans

### Toxin by algal bloom

- Domoic acid – which is secreted by the algae diatom *Pseudo-nitzschia* – is a known marine neurotoxin that enters the food chain and affects not just small fishes but also larger animals that feed on these fishes. Consequently, thousands of sick sea lions are found to be lying on the Californian beaches and are attacking humans in vicinity.
- these animals aren't attacking humans because they want to. Instead, a neurotoxin released by the algal bloom is altering their neural networks and causing them to experience unbearable stress, aggression, muscle spasms and permanent brain damage.

- What is even more concerning is that the neurotoxin can eventually reach humans too and in high amounts, it is a lethal poison.

### Cause of algal bloom

- Prior observations across the world establish that algal blooms happen when the marine waters suddenly undergo an accumulation of nutrients that foster the growth of algae.
- Upwelling, a marine phenomenon that causes nutrient-rich deep waters to rise to the surface, is a major contributor to the algal bloom. This upwelling is majorly caused by high-speed winds which are on the rise due to global warming which causes turbulence in the waters.
- Additionally, releasing effluents into the oceans also contributes to such blooms as chemical waste contains the much needed nutrients which toxic algae thrive on.

### Sea lion

- Sea lions are marine mammals and members of the suborder **Pinnipedia** (which in Latin means 'fin-footed' or 'winged foot'). Together with the fur seals, they constitute the Otariidae family, collectively known as eared seals.
- Sea Lions are found in all sorts of waters except the Northern Atlantic Ocean. Some species live in sub arctic regions while others prefer warmer climates such as the Californian Sea Lion.
- The males are called bulls and the females are called cows. Their offspring are called pups.

- Sea Lions are classed as an Endangered Species by IUCN



## Cheetahs relocation

- **Context-**Cheetah Project Steering Committee is learnt to have cleared the relocation of some of the cheetahs from Kuno National Park to Gandhi Sagar Wildlife Sanctuary.

### Gandhi Sagar Wildlife sanctuary

- The sanctuary was notified in 1974 and is spread over an area of 368sq.km. Its vast expanse lies within the Mandasaur and Neemuch districts of Madhya Pradesh. River Chambal flows through the sanctuary, dividing it into two parts.
- Gandhi Sagar is about 300 kilometres from Kuno.
- Gandhi Sagar Wildlife Sanctuary has been earmarked as an important link for long-term conservation of cheetahs, with the aim to establish a metapopulation of 60-70 cheetahs across the Kuno-Gandhi Sagar landscape, spread across Madhya Pradesh and Rajasthan.

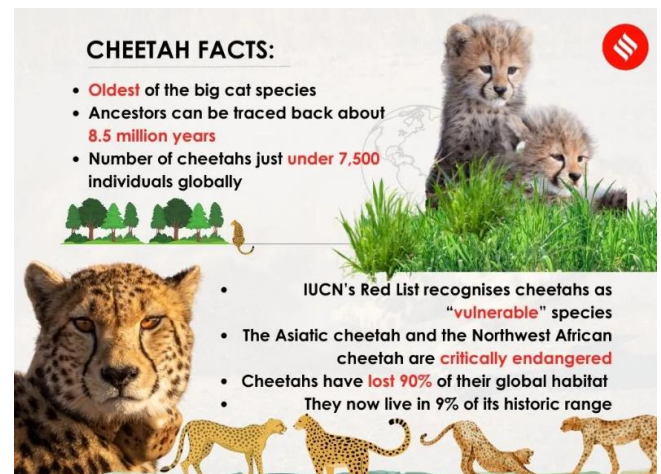
- **Prey augmentation-** A deficit of prey at Gandhi Sagar has been a concern and the steering committee discussed the ongoing efforts to augment prey base through introduction of chital from other forests of Madhya Pradesh. For in-situ (on-site) breeding of prey, there are herbivore enclosures at Gandhi Sagar.

### Cheetah Project Steering Committee

- It was constituted by the National Tiger Conservation Authority in May 2023 to review and monitor the project, and also act as an advisory body.

### Project Cheetah

- Started in 2022 with the translocation of eight cheetahs from Namibia and 12 from South Africa to Kuno National Park.
- The project has faced setbacks with the deaths of eight of these cheetahs and five cubs born in Kuno.



## Leptobrachium aryatium

- **Context-** *Leptobrachium aryatium*, a new-to-science frog recorded in the Garbhanga Reserve Forest on the southwestern part of Guwahati bordering Meghalaya, is now wearing the college's name.



## About

- This frog stood out with its fiery orange-and-black eyes, a unique reticulated throat pattern, and a smooth, rhythmic call at dusk. Scientific analysis of its appearance, DNA, and call patterns confirmed that this was a previously unknown species
- The study has put the spotlight on the Garbhanga Reserve Forest, a biodiversity hotspot that has been threatened by the urban sprawl and habitat destruction.
- A reserve forest that helps regulate Guwahati's climate and water systems, Garbhanga is home to elephants, butterflies, and rare birds, apart from reptiles and amphibians such as *Leptobrachium aryatum*.



## **Mantis shrimp**

**Context**-Researchers have recently uncovered why the mantis shrimp, despite delivering shockwave-inducing strikes, manages to avoid injuring itself

### **Secret Weapon: Dactyl Club**

- It use a hammer-shaped appendage called the dactyl club to strike their prey at a blistering 23 m/s (about 50-times faster than the blink of an eye), smashing into the poor creature's body like a bullet from a gun fired point blank. The strike releases enough energy to send small shockwaves through the surrounding water.

- But the thing about guns is that every bullet fired has a recoil. It's Newton's third law of motion. If a firearm is not securely braced against the body to absorb it, the sudden backward motion can lead to severe injuries.
- Yet despite striking prey hard enough to produce shockwaves, the mantis shrimp remains unharmed.

### **Specialised Microstructure**

- Researchers from the US and France found the answer in a specialised microstructure in the mantis shrimp's club. They found that this structure was capable of phononic shielding — a unique ability that allows it to blunt the flow of acoustic waves and thus weaken the recoil the mantis shrimp has.
- The dactyl club of a mantis shrimp stores its energy in spring-like elastic structures held together by latch-like tendons. When the latch is released, the club is released. As it moves to deliver its punch, it displaces the surrounding water and forms small low-pressure zones. Inside these zones, the water's density drops so much that it turns into vapour, leaving behind a bubble.
- When these bubbles collapse due to the pressure of the surrounding water, they release a considerable amount of heat and shockwaves of very high frequencies, up to hundreds of megahertz.
- Thus, each dactyl-club punch delivers two blows: one from its own punch and the other from the collapsing bubbles, and together they are capable of breaking the tough shells of clams, mussels, and other crustaceans.



The club's strength lies in its **hierarchical design**:

- **Hydroxyapatite** outer surface: thin and tough, spreads force evenly
- **Impact and periodic layers**: biopolymer fibers arranged to resist damage
- Together, they create **mechanical resilience and wave control**

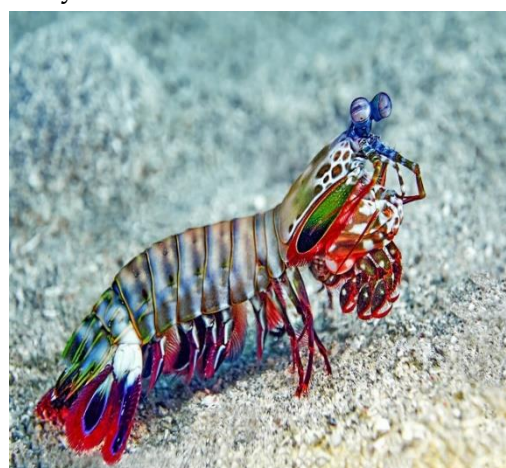
### Significance

- For a long time, scientists believed that materials that could guide the flow of energy in particular ways could only be created in the lab, not in the wild. Such materials are called **metamaterials**: they have specially tailored geometries to achieve these effects. The new finding about the mantis shrimp stands to change this belief. Nature always had metamaterials.
- The study's findings can also be applied to develop synthetic sound-filtering materials for use in protective gear, such as earmuffs for soldiers. They could also inspire new approaches to reducing blast-related injuries in the army and sports, the researchers said in a statement.

### Mantis Shrimp

- The **Mantis Shrimp** (or 'Stomatopod') is a small, aggressive marine Crustacean, that inhabit tropical and subtropical waters of the Indian and Pacific Oceans between Eastern Africa and Hawaii.
- They are beautiful and vibrant in colour, but also deadly, able to club prey with the force of a bullet, or spike them with their sharp claws.

- They are members of the order Stomatopoda and taxonomy group Crustacea, which are hard-shelled animals, such as crabs, lobsters, crayfish, shrimp, krill and more.
- The mantis shrimp is notorious for their **striking force**, and have the nickname '**thumb splitter**', due to the painful gashes they can cause if handled without care by humans.
- Most species in this group of animals live in rocky or sandy substrates. They like to dig elaborate tunnels, or hide in rocky crevices. They spend all of their non-hunting time inside these protective homes. Their preferred habitats are tropical and subtropical waters, and they avoid colder environments.



### **Kasampatty sacred grove**

#### Context

- Recently Tamil Nadu government has notified Kasampatty (Veera Kovil) sacred grove as a Biodiversity Heritage Site.
- The Forest Department has officially published the notification in the Government Gazette to mark the site's recognition under the Biological Diversity Act of 2002.

## **About**

- Kasampatty, located near Alagarmalai Reserve Forest in Dindigul district, now joins Arittapatti in Madurai as the second officially designated Biodiversity Heritage Site in Tamil Nadu.
- The sacred grove, nestled in the heart of Kasampatty village in Rediyapatty panchayat, spans 4.97 hectares. Surrounded by fertile mango plantations, it serves as a crucial ecological bridge, maintaining environmental balance and supporting local wildlife.
- Home to a rich variety of flora and fauna, the Veera Kovil sacred grove is a biodiversity hotspot. It hosts 48 plant species, 22 shrubs, 21 lianas, and 29 herbs, contributing to its genetic richness, the press release said. The grove also provides shelter to over 12 species of birds, small mammals, reptiles, and an array of insects.

## **Biodiversity Heritage Sites (BHS)**

- These are well defined areas that are unique, ecologically fragile ecosystems - terrestrial, coastal and inland waters and, marine having rich biodiversity
- Under Section 37 of Biological Diversity Act, 2002 (BDA) the State Government in consultation with local bodies may notify in the official gazette, areas of biodiversity importance as Biodiversity Heritage Sites

## **The criteria for identification of BHS**

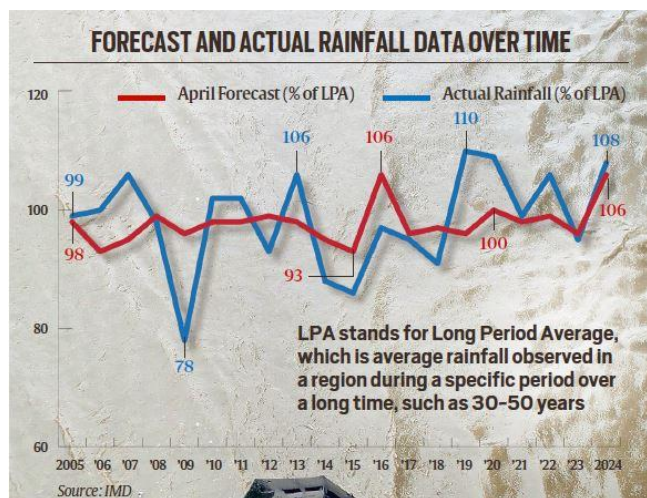
- Areas that contain a mosaic of natural, semi-natural, and man made habitats, which together contain a significant diversity of life forms.
- Areas that contain significant domesticated biodiversity component and /or representative agro-ecosystems with ongoing agricultural practices that sustain this diversity.
- Areas that are significant from a biodiversity point of view as also are important cultural spaces such as sacred groves/trees and sites, or other large community conserved areas.
- Areas including very small ones that offer refuge or corridors for threatened and endemic fauna and flora, such as community conserved areas or urban greens and wetlands.
- All kinds of legal land uses whether government, community or private land could be considered under the above categories.
- As far as possible those sites may be considered which are not covered under Protected Area network under the Wildlife Protection Act 1972 as amended.
- Areas that provide habitats, aquatic or terrestrial, for seasonal migrant species for feeding and breeding.
- Areas that are maintained as preservation plots by the research wing of Forest department.
- Medicinal Plant Conservation Areas.

## Geography

### Climatology

#### The history and evolution of monsoon forecasting in India

**Context:** The India Meteorological Department (IMD) has forecast 'above normal' rainfall – 105% of the long-period average (LPA) – during the June-September southwest monsoon season.



#### Introduction

- The IMD said earlier this month that all major drivers of the Indian monsoon, such as El Niño-Southern Oscillation (ENSO) in the equatorial Pacific Ocean and the Indian Ocean Dipole (IOD), were favourable.
- The April 15 forecast was the first of the IMD's long-range forecasts for this year's monsoon. A second-stage or updated forecast will be made in the last week of May, ahead of the monsoon striking the coast of Kerala.

#### Pre Independence

- A systematic effort to forecast monsoon rainfall began in 1877, two years after the IMD was established with the British meteorologist and palaeontologist Henry Francis Blanford as the first Meteorological Reporter to the Government of India.
- Crop failure that began in the Deccan plateau in the previous year had set off the Great Famine of 1876-78, and the effects were felt across the country by 1877. The colonial administration saw an acute need to understand the arrival of the monsoon and the distribution of rain over the country.
- The first tentative forecasts of the monsoon were provided by Blanford between 1882 and 1885, who analysed the relationship between Himalayan snow cover and the amount of rainfall over the Indian region. Blanford's forecasts were "based on the inverse relationship between Himalayan winter and spring snow accumulation and subsequent summer monsoon rainfall over India. In 1886, Blanford made the first long-range forecast (LRF) of monsoon rainfall for the whole of India and Burma, based on this inverse relationship hypothesis.
- Eliot took forward Blanford's work, combining data on Himalayan snow with factors such as local Indian weather conditions in April-May and conditions over the Indian Ocean and Australia to issue his LRFs.

- But like Blanford, Eliot still could not effectively predict droughts or the famines that followed, bringing starvation and deaths.
- The first colonial official who sought to incorporate the influence of global factors on the Indian monsoon was the physicist and statistician Sir Gilbert Walker, who succeeded Eliot in 1904. Walker developed the first objective models based on statistical correlations between monsoon rainfall and antecedent global atmospheric, land, and ocean parameters. To make his forecasts, Walker identified 28 parameters or predictors with a significant and stable historical relationship with the Indian monsoon. Walker also reasoned that the Indian subcontinent could not be considered as an undivided whole for the purpose of forecasting the measure of rainfall, and divided the region into three subregions: Peninsula, Northeast, and Northwest India.

### **After Independence**

- The IMD stayed with Walker's model of monsoon forecasting until 1987. The forecasts were not very accurate. The main problem was that several of the parameters identified by Walker had lost significance over time – meaning their relationship with the monsoon was no longer the same. IMD scientists attempted several tweaks to the model, but its accuracy did not improve greatly.

- **Gowariker Model:** In 1988, the IMD began to issue operational forecasts of the monsoon based on a power regression model developed by scientists led by Vasant R Gowariker, which used 16 empirically derived atmospheric variables as predictors in a statistical relationship with the total rainfall.
- In 2003, the IMD introduced two new models of monsoon prediction, with eight and 10 parameters. It also adopted a new two-stage forecast strategy. The new models accurately predicted the 2003 monsoon, but failed to forecast the drought of 2004, sending the IMD back to the drawing board.
- In 2007, the IMD came up with a Statistical Ensemble Forecasting System (SEFS) to support its two-stage forecast strategy, and further reduced the number of parameters in its models.

### **Forecasts in recent years**

- **Coupled Dynamic Model:** The improvement in monsoon prediction was also due to the launch of the Monsoon Mission Coupled Forecasting System (MMCFS) in 2012. This was a coupled dynamic model, which could combine data from the ocean, atmosphere, and land to provide more accurate forecasts. The IMD used MMCFS along with the SEFS for its predictions.



- **Multi-Model Ensemble:** The accuracy of forecasts was further enhanced with the launch of a system based on a “multi-model ensemble (MME)” in 2021. This new MME system used the coupled global climate models (CGCMs) from various global climate prediction and research centres, including India’s own MMCFS model.
- Since the introduction of SEFS in 2007 and the MME approach in 2021, the IMD’s operational forecasts for the monsoon have improved noticeably, the Ministry of Earth Sciences informed Parliament this February.

## Mains Analysis

### **Monsoon forecasting in India:**

#### **Issues**

- Climate change has increased the frequency of unprecedented flash floods, cloudbursts, and heatwaves.
- Even with a forecast of above-normal monsoon, rainfall may be unevenly distributed across time and regions
- Large-scale climate phenomena such as ENSO (El Niño–Southern Oscillation) may not always show reliable correlation with actual monsoon rainfall patterns over India, making predictions based on these signals uncertain.
- IMD’s forecasts are typically broad in scope, but lacking the fine-scale precision needed at the block or village level for localized agricultural decision-making.

- Forecasting remains institution-centric (mainly IMD), with limited collaboration with private weather services, startups, or academic research which could enhance accuracy and innovation.
- Forecast information is often technical, delayed, or poorly translated for end-users.

## Conclusion

- While India has made significant strides in monsoon forecasting, especially through institutions like IMD, the system still faces critical limitations in accuracy, spatial resolution, and climate adaptability.
- In an era of rising climate uncertainty, enhancing forecasting capabilities through advanced technology, localized modeling, better communication, and institutional collaboration is essential. Strengthening these systems will not only safeguard agriculture and livelihoods but also ensure greater resilience in India’s climate-sensitive economy.

## Heatwaves in India

**Context :** In March some States and cities in India experienced the first of severe heatwaves for the year 2025. This was 20 days earlier than the first severe heatwave in 2024.

### Socio-economic impact

- Climate change, specifically rising temperature, is one of the causes of farming sector stress in India. Heat stress can reduce livestock production, food production, farm productivity and the ability of outdoor workers/workforce productivity.



- There are estimates that heat stress results in an economic loss of 3% to 5% of GDP in many countries including India. There are estimates that in 2023, nearly 6% of work hours in India were lost due to heat stress. As temperature rises, electricity demand and power cuts affect industrial production. Heatwaves and heat stress impact personal income and may slow down a nation's economic growth.
- Heat-related data indicate that the impact of heat stress is worst on the poor, the marginalised, migrants, subsistence workers, women, and the elderly.
- Most HAPs have four to five components, i.e., early prediction of heatwaves to raise alerts; increasing awareness among the communities/people on actions to be taken; and preparing and getting the health system ready to manage health conditions.
- The fourth component of such plans focuses on ensuring long-term measures to reduce heat, government initiatives to increase the number of trees and parks and keeping gardens open for public use.
- The fifth component of HAP must be collecting, analysing and interpreting heat stress, and also morbidity and mortality data.

Note to the admin : Please add the content on “ Heatwaves “ from previous compilation.

### **Heat Action Plans**

- In 2013, Ahmedabad, Gujarat, became the first municipal corporation in Asia to develop a heat action plan (HAP). Since then, and in the last decade, more than 23 Indian States and around 140 cities across India have State- and city-level HAPs.

### **Value Addition**

#### **Q. What is criterion for declaring heat wave in India?**

Heat wave is considered if maximum temperature of a station reaches at least 40°C or more for Plains and at least 30°C or more for Hilly regions.

#### **a) Based on Departure from Normal**

Heat Wave:	Departure from normal is 4.5°C to 6.4°C
Severe Heat Wave:	Departure from normal is >6.4°C

#### **b) Based on Actual Maximum Temperature**

Heat Wave:	When actual maximum temperature $\geq 45^{\circ}\text{C}$
Severe Heat Wave:	When actual maximum temperature $\geq 47^{\circ}\text{C}$

If above criteria met at least in 2 stations in a Meteorological sub-division for at least two consecutive days and it declared on the second day.

**Q. What is a criterion for describing *Heat Wave* for coastal stations?**

When maximum temperature departure is  $4.5^{\circ}\text{C}$  or more from normal, *Heat Wave* may be described provided actual maximum temperature is  $37^{\circ}\text{C}$  or more.

**Q. What is the period of a heat wave over India?**

In India, Heat Waves occur mainly from March to June and in some rare cases even in July. The peak month of the heat wave over India is May.

**Q. What are the heat wave prone states over India?**

Heat wave generally occurs over plains of northwest India, Central, East & north Peninsular India from March to June. It covers Punjab, Haryana, Delhi, Uttar Pradesh, Bihar, Jharkhand, West Bengal, Odisha, Madhya Pradesh, Chhattisgarh, Rajasthan, Gujarat, parts of Maharashtra & Karnataka, Andhra Pradesh and Telangana. Sometimes it occurs over Tamilnadu & Kerala also. Therefore, most of the states of India are prone to heat waves in varying degrees.

## Causes for Heatwaves

### **Natural Causes of Heatwaves -**

- **Climate phenomena** : The jet stream may get "stuck" in a position (a phenomenon called blocking), keeping hot air over one region for days or weeks.
- **Ocean-Atmosphere Interactions**: Events like El Nino can shift global weather patterns and promote heatwaves
- **Droughts** - Dry soils can't cool the air through evaporation, so surface temperatures rise faster.

### **Anthropogenic Causes:**

- **Global Warming from Greenhouse Gases** - Human emissions are raising average temperatures and amplifying heatwave risks.
- **Changes in Land Use Patterns** - Urbanization and agriculture alter how land absorbs and releases heat.

- **Deforestation** - Reduces shade and evapotranspiration (the natural cooling from trees).
  - Bare land heats up faster and contributes to local warming.
- **Urban Heat Island Effect** - Cities absorb and retain heat due to concrete, asphalt, and a lack of vegetation.

Sector	Impact
<b>Human Health</b>	<ul style="list-style-type: none"> <li>• Rise in heatstroke and dehydration cases</li> <li>• Increased mortality among vulnerable groups</li> <li>• Worsening of chronic illnesses</li> </ul>
<b>Environment</b>	<ul style="list-style-type: none"> <li>• Forest fires and biodiversity loss</li> <li>• Ecosystem disruption</li> <li>• Water resource depletion</li> </ul>

<b>Agriculture</b>	<ul style="list-style-type: none"> <li>Decline in crop yields and soil moisture</li> <li>Livestock stress</li> <li>Increased irrigation demand</li> </ul>
<b>Economy</b>	<ul style="list-style-type: none"> <li>Higher energy consumption</li> <li>Infrastructure damage (e.g., roads, railways)</li> <li>Reduced labour productivity</li> </ul>
<b>Society</b>	<ul style="list-style-type: none"> <li>Strain on healthcare systems</li> <li>Water and power shortages</li> <li>Increased rural-urban and climate-induced migration</li> </ul>
<b>Urban Areas</b>	<ul style="list-style-type: none"> <li>Intensified Urban Heat Island (UHI) effect</li> </ul>

infrastructure, especially in India. Urban heat islands, poor planning, and vulnerable communities worsen the impact. Solutions require better early warning systems, resilient infrastructure, and climate adaptation strategies. Addressing heatwaves must align with India's climate commitments, ensuring long-term resilience against rising temperatures.

## Europe is warming faster

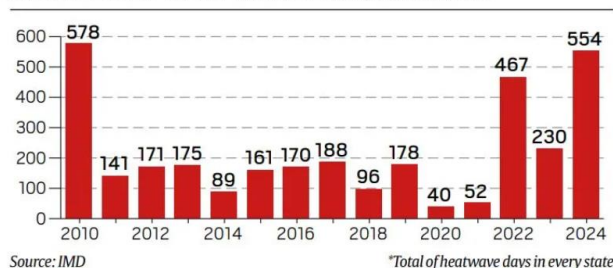
### Why Europe is warming faster:

**Context :** While global temperatures have been rising rapidly, primarily due to human activities that release greenhouse gases into the atmosphere, not every region has been warming at the same rate. Europe, for example, has warmed about twice as much as the world as a whole, as highlighted by the 2024 European State of the Climate Report that came out last week.

### Points to Know :

- The European State of Climate Report – an annual publication of Copernicus Climate Change Service, which is part of the European Commission – captures climate trends in Europe, and is published in collaboration with the World Meteorological Organisation.
- The new edition of the report has said that the year 2024, which was the warmest ever for the planet, was the warmest for Europe as well, though there was a distinct East-West contrast within the continent. Eastern Europe was sunny and warm, while the western part was cloudier and wetter.

### NUMBER OF HEATWAVE DAYS IN INDIA\*



Number of heatwave days in recent years in India.

### Steps taken by the Govt:

- Heat Action plans
- IMD forecasts
- National Framework for Heatwave Mitigation and Management
- NDMA frameworks
- Awareness campaigns

### Conclusion:

Heatwaves, intensified by climate change, threaten health, agriculture, and

- The report said much of eastern Europe saw warmer than average, or record-high, temperatures through the entire year in 2024.

### **High Warming in Europe:**

- The planet as a whole has seen its annual average temperature rise by about 1.3 degree Celsius from the pre-industrial baseline (the average of 1850-1900), though the year 2024 breached the 1.5 degree Celsius warming for the first time. Europe, however, has seen its average annual temperature rise by about 2.4 degree Celsius compared with pre-industrial times. This has resulted in an unprecedented spate of extreme weather events, including heatwaves, heavy rainfall and flooding.
- In 2024 for example, the area of Europe that experienced less than 90 days of below-freezing temperatures was the maximum ever. At the same time, the number of 'cold stress days' — days with extremely cold temperatures — was the lowest on record.

### **The Arctic Effect**

- Several factors contribute to the greater rate of warming over Europe, the most prominent being the fact that a substantial part of the continent lies in the Arctic region. In fact, Europe has the largest inhabited landmass in the polar region. And the warming around the poles, particularly the North Pole, is much more pronounced than anywhere else in the world. The contribution of warming around the North Pole pushes the average for Europe.

- The prime reason for greater warming in the Arctic is what is known as the albedo effect. The ice cover in the Arctic is melting, because of which more land or water is getting exposed to the Sun. Ice traps the least amount of heat, reflecting most solar radiation back. Land or water, which are darker surfaces, tend to absorb solar radiation better, leading to higher degrees of warming.

### **Reduction in Aerosols**

- Another factor contributing to higher warming rate in Europe is the reduction in aerosols emissions, the State of Climate report said.
- These particles are able to scatter sunlight back so that there is less absorption of solar radiation by the Earth's surface. Aerosols also help in cloud formation and clouds, in turn, have an impact on how much sunlight is reflected or absorbed.
- Europe having relatively cleaner air and less emission of aerosols contributes to a faster warming.

## **Atmospheric River**

### **Context:**

- A large part of the United States witnessed heavy rain, strong winds and severe thunderstorms due to a type of storm known as an atmospheric river earlier this month.

### **What is an atmospheric river?**

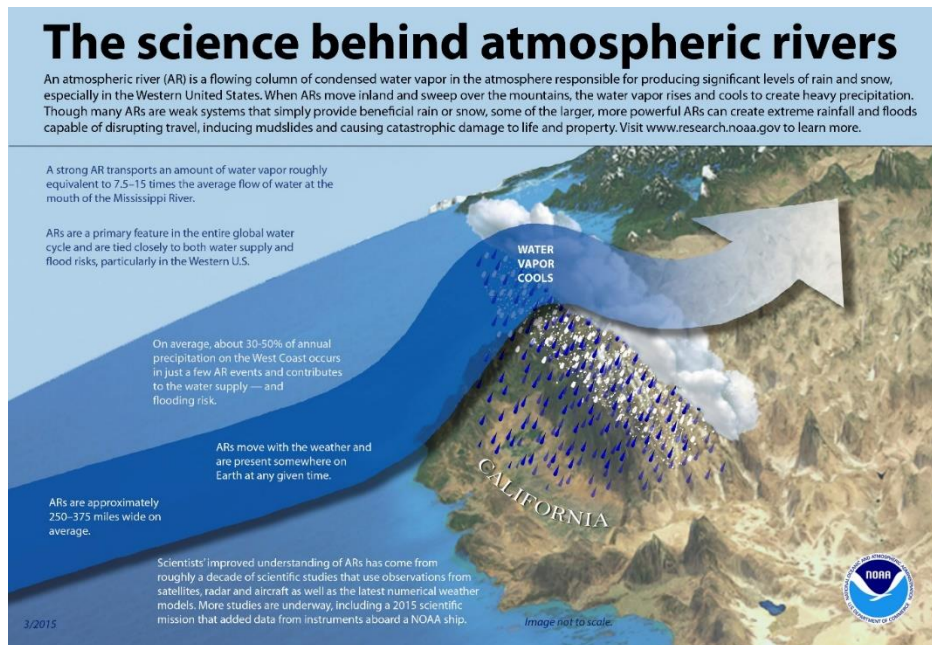
- Atmospheric rivers are a narrow, fast-moving band of moisture and wind — like rivers in the sky — that transport large amounts of water vapour. While they are an essential source of rainfall, they can lead to flooding, trigger mudslides and result in loss of life and property damage.



- Atmospheric rivers can vary greatly in size and strength. But usually, they are 402 to 606 km wide and can be more than 1600 km long.
- Although atmospheric rivers occur all over the world, they are most common in the mid-latitudes.
- One of the most well-known and strongest atmospheric rivers is the Pineapple Express, with moisture transported from the tropical Pacific around Hawaii to the US and Canadian West Coasts.

## Is climate change impacting atmospheric rivers?

- With global temperatures soaring, more water is evaporating into the air. Warmer air can hold more water vapour – for every 1 degree Celsius rise in average temperature, the atmosphere can hold about 7% more moisture. This makes storms more dangerous as it leads to an increase in precipitation intensity, duration and/or frequency, which ultimately causes severe flooding across the world.



## Forest fires affected one-ninth of Phawngpui National Park in Mizoram

### Context:

- Forest fires that had erupted in several parts of Mizoram's Phawngpui National Park have affected nearly one-ninth of the park's total area.

- A blaze had broken out at a slash-and-burn (jhum) cultivation farm and subsequently spread into the park's forest zones. Forest fires triggered by jhum cultivation are a recurring problem in Mizoram.

### Types of Forest Fire

There are two types of forest fire

- Surface Fire and
- Crown Fire



- **Surface Fire-** A forest fire may burn primarily as a surface fire, spreading along the ground as the surface litter (senescent leaves and twigs and dry grasses etc) on the forest floor and is engulfed by the spreading flames.
- **Crown Fire-** The other type of forest fire is a crown fire in which the crown of trees and shrubs burn, often sustained by a surface fire. A crown fire is particularly very dangerous in a coniferous forest because resinous material given off burning logs burn furiously. On hill slopes, if the fire starts downhill, it spreads up fast as heated air adjacent to a slope tends to flow up the slope spreading flames along with it. If the fire starts uphill, there is less likelihood of it spreading downwards.

### **Reasons for Forest Fires**

#### **Natural Causes:**

- *Climatic factors* like high temperature, prolonged dry spells, and strong winds.

#### **Anthropogenic Causes:**

- Slash and burn agriculture (e.g., Jhum cultivation in Northeast).

- Deliberate fires by locals for clearing dry leaves, poaching, or collecting forest produce.
- Negligence, like leaving campfires or burning debris unattended.

#### **Climate Change:**

- Rising temperatures and shifting rainfall patterns have increased fire vulnerability.

### **Way Forward**

#### **Prevention and Preparedness:**

- Use of *technology*: Satellite drones for surveillance.
- Community-based fire management

#### **Capacity Building:**

- Training of forest personnel and equipping them with modern tools.

#### **Policy Measures:**

- Review of National Action Plan on Forest Fires (2018) to align with new climate realities.

#### **International Practices:**

- Learning from World's best practices- example - International Best Practices - Australia's *controlled burning*

## **Economic Geography**

### **Bio-Input Resource Centres**

Context: Centre releases guidelines for setting up bio-resource centres to aid natural farming transition

#### **Bio-Input Resource Centres**

- BRCs are cluster-level enterprises, meant to support local production, availability and supply of ready-to-use bio-inputs for natural farming to farmers who may not be able to produce them individually.

#### **The BRCs serve five purposes:**

- Maintaining and sale of cultures of bio-fertilizers and bio-pesticides for multiplication and use by farmers
- Preparation and sale of ready-to-use organic inputs
- Training farmers on the preparations of botanical extracts and animal-based inputs
- Sharing knowledge on natural farming practices
- Sale of pheromone traps, lures, sticky traps and other

## What do the guidelines say?

- A BRC entrepreneur group / entity must be practising natural farming or have such members with prior experience of natural farming, the guidelines mandate. These centres should be using bio-inputs in their own farms.
- In case there is no member initially practising natural farming, the state natural farming cell, headed by the secretary in-charge of agriculture, shall identify a farmer entrepreneur who is willing to initiate and practice natural farming starting from the immediate crop season.
- The bio-inputs should be prepared as per requirements of the local farmers, local land-use patterns, soil types and locally practiced crop systems.
- The state natural farming cell and district-level monitoring committee must also ensure that the cost of bio-inputs sold at the BRC must be affordable for all types of farmers, including small and marginal farmers.
- Financial assistance of Rs 1 lakh, in two tranches of Rs 50,000 each, will be provided as support to set up a BRC.
- The guidelines also talked about exploring convergence with other schemes / programmes such as Formation and Promotion of 10,000 FPOs, National Mission on Edible Oilseeds, among others for mobilising farmers and making them aware of the BRC.
- The guidelines clearly stated that the financial assistance does not include sheds, renting of premises or other such expenses.

## National Mission on Natural Farming

- National Mission on Natural Farming (NMNF) is a standalone Centrally Sponsored Scheme under Department of Agriculture & Farmers Welfare (DA&FW), Ministry of Agriculture & Farmers Welfare (MoA&FW) with an outlay of ₹2481.00 crore, (Government of India share is ₹1584.00 crore and States share is ₹897.00 crore).
- The Mission is a shift to strengthen agriculture practices with scientifically backed approaches towards sustainability, climate resilience and safe food.
- In two years, NMNF will be implemented in 15,000 clusters in Gram Panchayats, which are willing, & reach 1 crore farmers and initiate Natural Farming (NF) in 7.5 lakh Ha area.

## NMNF Objectives

- To promote nature based sustainable systems of farming, enhancing usage of on-farm made natural farming bio-inputs to reduce dependency on externally purchased inputs and input cost reduction. To also improve soil health and have sustainable agriculture practices.
- To popularize livestock (preferably local breed of cow) integrated agriculture-animal husbandry models
- To strengthen on-farm agroecological research and knowledge-based extension capacities of ICAR institutions, KVKs, Agricultural Universities, etc.

- To build upon the on-field experience of practicing NF farmers and scientific expertise to thereby evolve & improvise location specific NF package of practices for increased spread of NF.
- To establish scientifically supported common standards and easy farmer friendly certification procedures for naturally grown chemical-free produce.
- To create and promote a single national brand for naturally grown chemical-free produce.

## Punjab bans sale of hybrid paddy seeds:

### Context:

- The Punjab government has banned the sale of hybrid paddy seeds (non-Basmati rice)

### Why do Punjab farmers use hybrid paddy seeds?

- Shorter growth duration
- Higher yield
- Efficient water use
- Less Stubble
- More Earning

### Why has the government issued the ban?

- Out turn ratio (OTR) – a measure of the efficiency of the rice milling process – of these varieties was lower than that mandated by the FCI. While the FCI prescribes a minimum OTR of 67%, the millers claimed, the OTR of hybrid rice varieties was between 60% and 63%.

- These seeds lead to a higher percentage of broken rice during milling – the process of removing the outer husk and bran layers from paddy (unmilled rice) to produce edible, white rice – compared to the standards set by the Food Corporation of India (FCI).
- Sold at high prices in the state.

### Do hybrid paddy seeds really have lower OTR?

- Experts - Low OTR is not the fault of the seed itself. It's more about harvesting time and post-harvest handling. Optimal OTR is achieved when paddy is harvested at 22–23% moisture, sun-dried to 16–17% for FCI procurement, and finally milled at 13–14% moisture. Delayed procurement and drying due to logistical challenges lead to moisture loss and excessive breakage, thereby lowering OTR.
- They also emphasised that many rice mills in Punjab still use outdated machinery, which further contributes to poor OTR results. Millers need to upgrade their processing technology to match modern standards, according to expert.

### What does the law say?

- Industry experts contend that Punjab's approach contradicts provisions under the Seed Act, 1966, and the Seed Control Order, 1983, both of which are under the jurisdiction of the Centre. These laws empower seed companies to sell hybrid varieties that have been officially notified by the Centre.

- Sections 6 and 7 of the Seed Act made it clear that once a seed variety was notified by the Centre – including hybrid seeds – it becomes a legally approved variety. The state governments do not have the legal authority to arbitrarily ban the sale of such notified seeds, according to Rana.

## **Saving traditional varieties of seeds**

### **Context:**

#### **Why are traditional varieties disappearing**

The problem is not just about seeds of traditional varieties; it is about how the entire food system is structured, creating issues that make it hard, if not impossible, for traditional seeds to survive.

- The first issue is of market demand and consumer preferences. Supermarkets, government food programmes, and households favour high-yielding rice and wheat, sidelining traditional, climate-resilient grains of millets, pulses and indigenous rice varieties.
- The second issue is that unlike hybrid seeds that are mass-produced and sold commercially, traditional seeds rely on community exchange and local conservation. However, India lacks enough well-funded community seed banks to store and conserve these varieties.

- Third, India's agricultural policies have historically promoted high-yielding varieties, in a well-meaning attempt to prioritise food production and boost food security. However, this has inadvertently caused a trade-off in terms of biodiversity and nutritional quality.

### **Conservation Efforts:**

- A shift is needed – one that funds participatory plant breeding programmes where farmers work alongside scientists to share knowledge and develop improved traditional seeds.
- Well-funded and easily reachable seed banks are critical to prevent seed losses for farmers.
- Governments must support the establishment of a network of regional conservation centres to prevent India from losing its genetic heritage forever.
- The government must create support systems for processing and marketing and provide financial incentives for traditional crop cultivation, recognising their climate-resilient, environmental and nutrition benefits.
- Awareness campaigns and branding initiatives should highlight the health and environmental benefits of traditional crops.

### **Conclusion:**

- By investing in seeds of traditional crops and varieties, India can create a sustainable food system that is not just productive but also resilient, nutritious, and aligned with its agricultural heritage.

## Miscellaneous

### Why Naini Lake is seeing record-low water levels this year

**Context:** The Naini Lake, one of Nainital's key attractions, has recorded a water level of 4.7 feet — marking a five-year low. This time, a decrease in snowfall and rainfall in the winter months has played a role, compounded by long-term issues surrounding the lake's upkeep.

#### Points to Know

- It is a natural freshwater body, situated amidst the town of Nainital in Kumaon, Uttarakhand, India. It is tectonic in origin.
- It is one of the four important lakes of Kumaon; the other three are Sattal Lake, Bhimtal Lake and Naukuchiyatal Lake.
- A 2017 report from the Uttarakhand State Council for Science and Technology found that compared to other Kumaon lakes, Naini Lake "is subjected to the greatest man-made manipulations". It cited unplanned construction, encroachment, and degradation of recharge zones as key factors. The construction of concrete structures nearby further causes low rainwater infiltration, worsened by the low rainfall in some years.
- Enhancing siltation, dumping debris in Sukhatal Lake, which is a major aquifer recharge area for Naini Lake, [is] causing the lake to shrink from its two-hectare area," the report added.
- Encroachments and illegal construction have reduced the catchment area, with houses and hotels coming up near the lake.

- There are other civic issues also. For instance, pollution from the discharge of untreated wastewater, improper disposal of solid waste, and inadequate sewer systems causing sewage to overflow into stormwater drains, which ultimately discharge into the Naini Lake.

### India raises continental-shelf claim in Arabian Sea region

#### Context:

India has increased its claim in the central Arabian Sea, as part of its "extended continental shelf" by nearly 10,000 square km, suggest documents submitted earlier this month with the United Nations.

#### Points to Know

- Coastal countries have an exclusive economic zone (EEZ), which gives exclusive mining and fishing rights, up to 200 nautical miles from their coastlines. In addition to this, such States can make claims for more area in the ocean provided they can scientifically establish to a UN body, called the Commission on the Limits of the Continental Shelf (CLCS), that this claimed area extends unbroken from their landmass all the way to the seabed.
- All of this oceanic area is considered part of a country's extended continental shelf. This gives them rights to commercially mine for valuable minerals, polymetallic nodules and oil reserves. India already has 12 nautical miles of territorial sea and 200 nautical miles of the EEZ measured from the baselines.



## Indian Context

- India made its first claim in 2009 in vast stretches of sea spanning the Bay of Bengal, Indian Ocean and the Arabian Sea.
- Pakistan in 2021 objected to portions of India's claimed territory in the western offshore regions on the grounds that nearly 100 nautical miles overlapped with a maritime border that was under "dispute". Specifically, this referred to a dispute between the countries over the Sir Creek, a strip of water in the marshes of the Rann of Kutch in Gujarat.
- While India countered these objections, the net result was that the CLCS, in March 2023, rejected the entirety of India's claim in the Arabian Sea region. However, the commission gives leeway to countries to submit "modified claims".
- It's in response to this that on April 3, India split its original claim (in the western Arabian Sea) into two "partial ones". Doing so, said an official in the Ministry of Earth Sciences (MoES), is to ensure that India's claim in the central Arabian Sea region is not affected. India increased the claim by an additional 10,000 sq. km based on additional data gathered

**Note :** Some parts of India's continental shelf claims in the Arabian Sea overlap with that of Oman. However, the two countries have an agreement in place since 2010 that while the continental shelf between them is yet to be delimited, it is 'not under dispute'.

India has claimed about 300,000 square km in the Bay of Bengal and the Indian Ocean,

though these have faced contests by Myanmar and Sri Lanka.

The CLCS is expected to begin a new session of consultations later this year.

## Significance:

- With the anticipated addition of approximately 1.2 million square km of extended continental shelf from the two submissions to the ~2 million sq. km of EEZ, India's seabed and sub-seabed area would become almost equal its land area of 3.274 million sq. km," according to the National Centre for Polar and Ocean Research (NCPOR), Goa.
- Resource Potential - Potential access to **vast mineral resources**, including: **Polymetallic nodules**, gas hydrates, hydrocarbon
- Blue Economy Boost- Expansion of ECS contributes to India's Blue Economy goals.
- Enhanced maritime presence : Recognition of the ECS extends India's sovereign rights over vast seabed areas, enabling stronger **naval reach and surveillance** across the Indian Ocean.

## Conclusion

- The recognition and development of India's Extended Continental Shelf will be a game-changer for its **strategic, economic, and scientific aspirations**

## Karnataka farmers join Goa activists against diversion of Mhadei river water

**Context:** Farmers from north Karnataka, likely to be affected by the government's plans to divert waters of Mhadei river (Mahadayi in Karnataka), have joined the

activists from Goa to demand the scrapping of Kalasa Banduri project.

### **Mhadei River**

- Mahadayi river rises in the Western Ghats, from the Bhimgad Wildlife Sanctuary in Khanapur taluk of Karnataka's Belagavi district.
- Flowing westward, it enters Goa from Sattari taluk of North Goa districts.
- A number of streams join the flow of the river to form the Mandovi which is one of two major rivers that flow through Goa. It joins the Arabian Sea at Panaji.
- **Tribuatries** - Rogaro, Kushavati, Nanorem, Nanuz, Valvota, and Mapusa.

### **Kalasa-Banduri project**

- The Kalasa-Banduri project is a proposed water diversion project in Karnataka and Goa. The Mahadayi River, also called Mandovi in Goa, is a rain-fed river that is shared between Karnataka and Goa for their water needs.
- The project involves the construction of dams and a canal system to divert water from the Mahadayi River, located in Goa, to the Malaprabha River basin in Karnataka.
- The main goal of the project is to meet the drinking water needs of the districts of Belagavi, Dharwad, Bagalkot, and Gadag in Karnataka.
- The project has been the subject of a long-standing dispute between the two states.

## **Philippines' Kanlaon volcano eruption**

- Mount Kanlaon, an active volcano straddling the Southeast Asian country's central provinces of Negros Occidental and Negros Oriental, is one of the active volcanoes in the Philippines.



## **GI Tag to Tomato Chilli and Kannadippaya**

### **Context :**

- The Warangal Chapata chilli, or as it is called Tomato chilli, from the State has been granted the Geographical Indication tag by the GI Registry.



- Kannadippaya, a unique tribal handicraft from Kerala, has received the Geographical Indication (GI) tag



## **Points to Know :**

### **What is a Geographical Indication?**

- It is an indication
- It originates from a definite geographical territory.
- It is used to identify agricultural, natural or manufactured goods
- The manufactured goods should be produced or processed or prepared in that territory.
- It should have a special quality or reputation or other characteristics

Geographical Indications of Goods are defined as that aspect of industrial property which refer to the geographical indication referring to a country or to a place situated therein as being the country or place of origin of that product.

Typically, such a name conveys an assurance of quality and distinctiveness which is essentially attributable to the fact of its origin in that defined geographical locality, region or country.

Under Articles 1 (2) and 10 of the Paris Convention for the Protection of Industrial Property, geographical indications are covered as an element of IPRs. They are also covered under Articles 22 to 24 of the Trade Related Aspects of Intellectual Property Rights (TRIPS) Agreement, which was part of the Agreements concluding the Uruguay Round of GATT negotiations.

India, as a member of the World Trade Organization (WTO), enacted the Geographical Indications of Goods (Registration & Protection) Act, 1999 has come into force with effect from 15th September 2003.

Note - A registered GI is valid for 10 years and can be renewed.

### **GI Tag to Tomato Chilli**

- The chilli is called Tomato chilli as it has a bright red colour and is shaped round like a tomato. This is the 18th produce from Telangana that has secured the coveted GI tag
- The chilli is less spicy but lends a bright red colour with extensive flavour due to its capsicum oleoresin properties.
- There are three fruit types existing in the Warangal Chapata chilli, namely the single patti, double patti and odalu.

### **GI Tag to Kannadippaya**

- The product derives its name (literally meaning mirror mat) from its reflective pattern.
- Made from the soft inner layers of reed bamboo, the mat stands out for its unique properties – providing warmth during winter and cooling effect in summer.
- The craft is preserved by the Oorali, Mannan, Muthuva, Malayan, and Kadar tribal communities and by the Ulladan, Malayarayan, and Hill Pulaya artisans in Idukki, Thrissur, Ernakulam, and Palakkad districts.

## **Urban Heat Island Effect**

### **Context:**

A study published in *Nature Climate Change* finds that while the urban heat island (UHI) effect increases heat-related mortality, it may also significantly reduce cold-related mortality, particularly in colder regions. An analysis of data from over 3,000 global cities showed that in 2018, the reduction in cold-

related mortality due to UHI was 4.4 times greater than the increase in heat-related deaths. In high-latitude cities like Moscow, this effect was even more pronounced.

**The authors emphasise that their findings should not be interpreted as downplaying the negative health outcomes of the urban heat island effect but instead offer crucial insights into the specifics of its impact across seasons.**

### **Urban Heat Island**

The term “urban heat island” refers to the fact that cities tend to get much warmer than their surrounding rural landscapes, particularly during the summer.

#### **Causes:**

- Concrete and Asphalt Surfaces: Absorb and retain more heat than natural landscapes.
- Lack of Vegetation: Reduces evapotranspiration, increasing local temperature.
- Anthropogenic Heat Emissions: From vehicles, industries, air conditioners, etc.
- Dense Urban Geometry: Traps heat due to narrow streets and tall buildings ("urban canyon effect").
- Low Albedo Surfaces: Dark building materials absorb more solar radiation.
- Reduced Wind Flow: Obstructed by high-rise buildings, leading to heat accumulation.

### **Way Forward / Mitigation Strategies:**

#### **1. Urban Planning Measures:**

- Green roofing and walls for insulation and cooling
- Urban forests and green belts to enhance shade and evapotranspiration.

#### **2. Infrastructure & Building Codes:**

- Mandate energy-efficient and climate-resilient buildings.
- Promote passive cooling architecture in building design.

#### **3. Policy & Governance:**

- Integrate UHI mitigation into Smart Cities Mission and AMRUT.
- City-level heat action plans and real-time heat monitoring systems.

#### **4. Public Awareness & Community Involvement:**

- Encourage rooftop gardens and tree plantation drives.
- Promote awareness on heatwave preparedness.

### **Conclusion**

- Urban Heat Islands are a growing challenge in the context of climate change and rapid urbanization. A region-specific, seasonally sensitive, and multi-pronged strategy combining technology, policy, and community participation is essential for building climate-resilient cities in India.



## Human Geography

### Lanjia Saora tribal group

**Context :** The women of the Lanjia Saora tribal group in the Gunupur region of Rayagada district, Odisha, celebrate the mango harvest through traditional dance.

#### Points to Know

- Odisha is the main land of the Saora people, small number of people are also found in the states of Andhra Pradesh, Jharkhand, Madhya Pradesh, and Assam. In earlier times, the King of Gajapati (Gajapati is a district in Southern Odisha, inhabited by Saora people) owned tea estates in Assam. At the time, some of the people from the Saora community migrated to Assam to work there.
- Saora people are known by various names – Saora, Sora, Savara and Sabara.
- Agriculture is the main occupation of the Saora community.
- **Economic Organisation** The Saoras can be divided broadly into 2 economic classes – (1) The Saoras of the plains depending on their wet cultivation or wage earning and selling fire wood and (2) The Hill Saoras practicing shifting and terraced cultivation on the hill slopes. In most cases the Saoras of the plains are subservient to the advanced section of the neighbouring non-tribal communities.
- They have their own native language called Sora, which is a Munda language and they are one of the few in India that have script for the language Sorang Sompeng.
- The community has unique art practices, religious customs, as well as dying tattooing tradition called Tantangbo.