Current Affairs
(Consolidation)

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(Part – II)

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Polity & Governance

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Need for Reforms in CBI

Why in News?

The **Department-related Parliamentary Standing Committee** on Personnel, Public Grievances, Law and Justice, in its **145th report** recommended significant reforms in the **Central Bureau of Investigation (CBI)**.

What are the Key Reforms Recommended by the Parliamentary Committee?

➢ **Independent Recruitment Framework:** Establish a **CBI-specific exam via SSC, UPSC**, or an independent body to create a **permanent cadre** with **structured career growth.**

  ○ Establish an **in-house expert team** to reduce reliance on external specialists.

  ○ Retain **deputation only for senior positions** that require diverse experience.

➢ **Lateral Entry**: Introduce **lateral entry** for specialists in **cybercrime, forensics, financial fraud,** and **legal domains.**

  ○ Reduce dependence on external specialists by creating **in-house expertise teams.**

➢ **Separate Law for CBI:** Enact a **separate law** to grant CBI **wider investigative powers** in cases affecting **national security and integrity** without requiring state consent.

  ○ The withdrawal of **general consent by 8 states** has restricted the CBI from investigating **corruption** and **organized crime.**

  ○ Under **Section 6** of the **Delhi Special Police Establishment (DSPE) Act, 1946** CBI requires **state government consent** to investigate cases within a state unless:

  • The Supreme Court, High Court, or Lokpal orders the investigation.

  • The state has granted general consent for certain categories of cases.

> **What are Departmental Related Standing Committees?**
> **Click Here to Read:** **Departmental Related Standing Committees**

What are Key Facts About CBI?

➢ **Establishment:** Formed in 1963 based on the **Santhanam Committee's** recommendations (1962–64).

➢ **Role:** It investigates cases related to **bribery, government corruption, central law violations**, multi-state crime, and international cases.

  ○ India's nodal agency for coordinating investigations with **Interpol.**

➢ **Legal Framework:** Operates under the **DSPE Act, 1946**.

➢ **Administrative Control:** Functions under the **Ministry of Personnel, Public Grievances & Pensions** (PMO).

- **Supervision:**
  - **Corruption Cases:** <u>Central Vigilance Commission (CVC)</u> oversees investigations under the <u>Prevention of Corruption Act, 1988</u>.
  - **Other Cases:** Supervised by **DoPT** under the **Ministry of Personnel.**
- **CBI Director Appointment:** Recommended by a committee comprising the **PM, Leader of Opposition, and CJI (or SC judge)** under the <u>Lokpal Act, 2013</u>.
  - Tenure: **2 years**, extendable up to **5 years** in the public interest.

Reassessing Food Subsidies in India

Why in News?

The <u>Household Consumption Expenditure Survey (HCES) 2023-24</u> reveals a significant **rise in household incomes, reduced poverty levels, and improved food expenditure capacity.** This raises the need to reassess the <u>National Food Security Act (NFSA), 2013</u>, which was based on **2011-12 data** and currently provides **highly subsidized food to over 81 crore people.**

Poverty Lines Estimation in India

- **Tendulkar Committee (2009)**: Defined the **poverty line** based on **minimum calorie intake,** setting it at **Rs 27/day for rural** and **Rs 33/day for urban areas** (2004-05 prices), emphasizing **income and basic needs** for poverty measurement.
  - This metric continues to form the basis of **India's official poverty assessment.**
- **Rangarajan Committee (2014)**: Revised the **poverty line to Rs 32/day for rural** and **Rs 47/day for urban areas,** considering **broader consumption patterns** and **socio-economic factors**, including education and health.
  - Estimated poverty rate at 29.5% for 2011-12, **compared to 21.9% by Tendulkar.**
  - **The report is not adopted for official planning or poverty estimates.**

Why is there a Need to Reassess the Food Subsidy Programmes in India?

- **Rising Consumption:** The **Monthly Per Capita Consumption Expenditure (MPCE)** has seen a significant rise across **both rural and urban areas.**

- In 2023-24, **rural MPCE increased to Rs 4,122** (from Rs 2,079 at 2011-12 prices), marking a **45% rise** from 2011-12 levels, while **urban MPCE reached Rs 6,996** (from Rs 3,632 at 2011-12 prices), reflecting a **38% increase.**
- **Decline in Poverty Levels:** A recent <u>study by SBI (2025)</u> estimates **India's poverty ratio at 4-4.5% in 2024**, with **extreme poverty** of around **6.7 crore people** in poverty.
  - Using the **inflation-adjusted Tendulkar poverty line,** it estimated that **rural poverty** declined from **25.7% in FY12 to 4.86% in FY24**, while **urban poverty** fell from **13.7% in FY12 to 4.09% in FY24**.
  - **India's extreme poverty fell to 8.7% (12.9 crore people) in 2024** from **21.9% in 2011-12 (World Bank)**.
  - **Only 11.28% of the population was living in multidimensional poverty in FY23**, as per the <u>MPI</u>.
- **Discrepancy in NFSA Beneficiary Coverage:** The NFSA provides subsidized food to **81 crore people (75% rural and 50% urban population)**.
  - However, **with poverty now around 10%,** the **coverage exceeds the actual need,** indicating that many **Priority Household (PHH)** beneficiaries **may no longer require subsidies.**
- **Opportunity Cost of Food Subsidy:** The government spends **Rs 2 lakh crore annually on NFSA.**
  - Rationalizing beneficiary coverage could f**ree up resources for key sectors** like **employment generation, industrial growth, and social infrastructure.**
- **Shanta Kumar Committee (2015):** It also recommended **reducing the <u>PDS</u> coverage to 40% of the population** to better target subsidies.

> **What are the Key Highlights of the HCES 2023-24?**
> **Click to Read:** <u>Key Findings of the HCES 2023-24</u>
> **What is the Status of Poverty in India?**
> **Click to Read**<u>: Poverty in India</u>

Antyodaya Anna Yojana (AAY) & Priority Households (PHH)

- Under the **National Food Security Act (NFSA), 2013**, beneficiaries are categorized into **AAY and PHH.**

- ➤ **Antyodaya Anna Yojana (AAY) Households:** AAY covers the **poorest of the poor**, including landless laborers, marginal farmers, and daily wage earners. Each household receives **35 kg of food grains per month** under NFSA.
- ➤ **Priority Households (PHH):** PHH includes **vulnerable populations** identified by states based on socio-economic criteria.
  - ○ Each member is entitled to **5 kg of food grains per month**, totaling around **20 kg per family** (average size: 4.2).
- ➤ **Coverage:** AAY covers around **9 crore people**, while PHH covers **72 crore people,** making up **NFSA's 81 crore total beneficiaries.**

> What is the National Food Security Act (NFSA), 2013?
> Click to Read: National Food Security Act (NFSA), 2013

How Can Food Subsidy Programmes Be Made More Effective?

- ➤ **Data-Driven Targeting:** Using **HCES 2023-24 data,** NFSA **beneficiary lists can be rationalised based on current poverty levels**.
  - ○ Setting **clear inclusion and exclusion criteria** will help ensure that only those who truly need assistance receive benefits.
- ➤ **Gradual Reform of Food Subsidies:** Continue food subsidies for **Antyodaya Anna Yojana (AAY) households** while transitioning **Priority Households (PHH)** to **Direct Benefit Transfer (DBT)** for greater flexibility.
  - ○ Implement a **phased plan to reduce subsidized foodgrain** dependence **for non-poor households.**
- ➤ **Technology-Driven Transparency:** Use **Aadhaar-linked databases** and **AI-based monitoring** to prevent **leakages, while integrating tax,** vehicle, and employment records to update beneficiary lists.
- ➤ **Shift Toward Nutritional Security:** Focus on **providing nutrient-rich foods** (fruits, vegetables, pulses) to c**ombat micronutrient deficiencie**s like **anemia** and **stunted growth**.
  - ○ As per the **State of Food Security and Nutrition in the World (2023)**, around **74% of India's population could not afford a healthy diet.**
- ➤ **Local Purchase with DBT:** Allow beneficiaries to **purchase food from local markets** using **DBT-linked**

accounts, **reducing transportation costs** and making distribution more efficient, thereby lowering the food subsidy bill.

- ➤ **Universal Basic Income (UBI) and Policy Realignment:** Introduce **UBI or unemployment benefits** to provide **direct financial support,** ensuring a **minimum standard of living**.
  - ○ As spending shifts towards education, healthcare, and housing, food security policies must adapt to **focus on broader socio-economic needs**, improving **access to essential service**s alongside affordable food.

Need of Reforms in Judicial Appointments

Why in News?

The discovery of cash at **Delhi High Court** Judge's residence has reignited the debate on **judicial appointments** and raised questions about the **collegium system**.

- ➤ It has renewed focus on the **National Judicial Appointments Commission (NJAC)** and **All India Judicial Service (AIJS)**.

How are Judicial Appointments Made in India?

- ➤ **Appointment of Supreme Court Judges:** A **Supreme Court (SC)** judge is appointed by the **President** under **Article 124 (2)** of the Constitution.
  - ○ The President appoints the **Chief Justice of India** after consulting necessary Supreme Court and High Court judges, while other judges are appointed in consultation with the Chief Justice and relevant judges.
- ➤ **Appointment of High Court Judges:** A **High Court (HC)** judge is appointed by the President under **Article 217** of the Constitution.
  - ○ The chief justice is appointed by the President after consultation with the **chief justice of India** and the **governor** of the state concerned.
  - ○ For appointment of **other judges**, the chief justice of the **concerned high court** is also consulted.
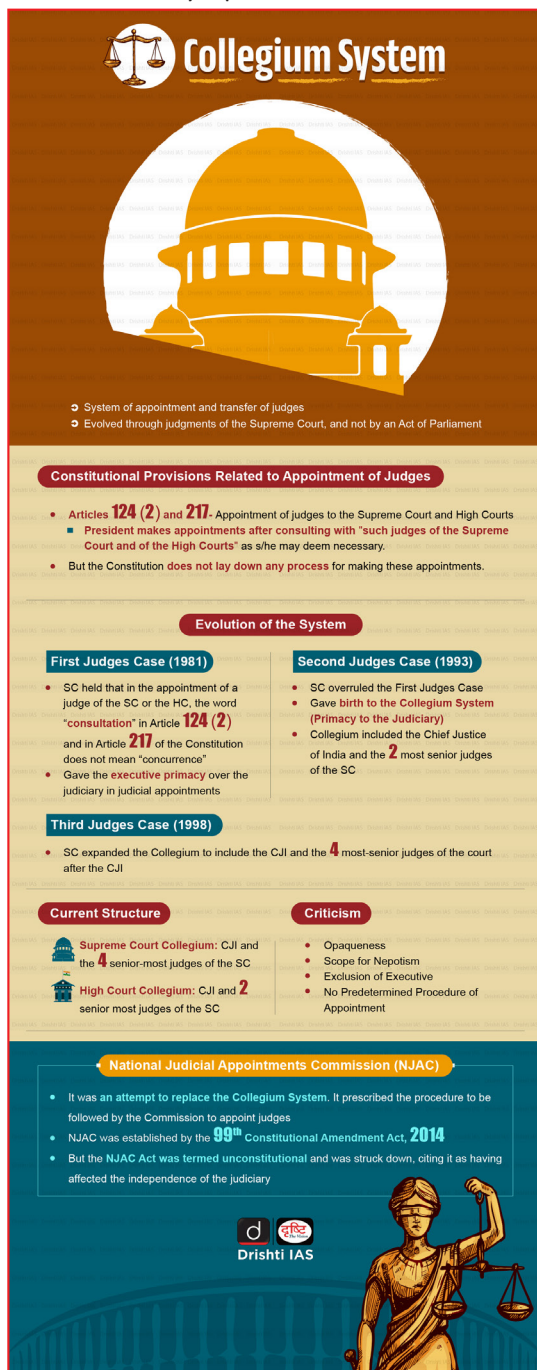
- In case of a **common high court** for two or more states, the **governors of all the states** concerned are consulted by the **president.**

➤ **Collegium System:** It is the system of **appointment and transfer** of judges (SC and HC) that has evolved through **judgments of the SC**, and **not by an Act of Parliament** or by a provision of the **Constitution**.

Collegium System

- System of appointment and transfer of judges
- Evolved through judgments of the Supreme Court, and not by an Act of Parliament

Constitutional Provisions Related to Appointment of Judges

- **Articles 124 (2) and 217** - Appointment of judges to the Supreme Court and High Courts
  - President makes appointments after consulting with "such judges of the Supreme Court and of the High Courts" as s/he may deem necessary.
- But the Constitution **does not lay down any process** for making these appointments.

Evolution of the System

First Judges Case (1981)
- SC held that in the appointment of a judge of the SC or the HC, the word "**consultation**" in Article **124 (2)** and in Article **217** of the Constitution does not mean "concurrence"
- Gave the **executive primacy** over the judiciary in judicial appointments

Second Judges Case (1993)
- SC overruled the First Judges Case
- Gave **birth to the Collegium System** (Primacy to the Judiciary)
- Collegium included the Chief Justice of India and the **2** most senior judges of the SC

Third Judges Case (1998)
- SC expanded the Collegium to include the CJI and the **4** most-senior judges of the court after the CJI

Current Structure
- **Supreme Court Collegium:** CJI and the **4** senior-most judges of the SC
- **High Court Collegium:** CJI and **2** senior most judges of the SC

Criticism
- Opaqueness
- Scope for Nepotism
- Exclusion of Executive
- No Predetermined Procedure of Appointment

National Judicial Appointments Commission (NJAC)
- It was **an attempt to replace the Collegium System**. It prescribed the procedure to be followed by the Commission to appoint judges
- NJAC was established by the **99th Constitutional Amendment Act, 2014**
- But the NJAC Act was termed **unconstitutional** and was struck down, citing it as having affected the independence of the judiciary

Drishti IAS

What are the Challenges Associated with the Current System of Judges' Appointment?

➤ **No Executive Involvement:** Judicial appointments are made **solely by judges**, with **no role for the executive** and **no oversight**, risking secrecy and missed deserving candidates.

➤ **Lack of Merit-Based Selection:** No **defined criteria** for evaluating candidates for the post of judges create **room for favoritism and nepotism** and leads to **Uncle Judge Syndrome.**
- **Uncle Judge Syndrome** refers to **nepotism** in judicial appointments, highlighting **favoritism and lack of transparency** which undermines public confidence in the judiciary.

➤ **Weakens Check and Balance:** The collegium system **centralizes power in the judiciary**, disrupting checks and balances and increasing the risk of **misuse and lack of oversight.**

➤ **Opaque Decision-Making:** The collegium system **operates without an official secretariat**, making it a **closed-door process**.
- Decisions are made **without public scrutiny**, and **no official records** or minutes are publicly accessible.

➤ **Lack of Diversity in Appointments:** The **higher judiciary lacks adequate representation**, particularly of **women and marginalized communities.**
- Currently, the SC has **two women judges**, and as of August 2024, **women** comprise only **14% of High Court judges.**

➤ **Delay in Appointments:** The collegium system has **no fixed timeline**, leading to delays through **clarifications or reconsideration** requests by the President.
- Since 2015, judicial appointments have been **delayed**, averaging **285 days**, up from **274 days earlier.**

What is the National Judicial Appointments Commission?

➤ **About:** NJAC was a proposed **constitutional body** to replace the **collegium system** for appointing judges to the **SC and HCs.**
- The **99th Constitutional Amendment Act, 2014**, and the **NJAC Act, 2014**, were passed to establish a new system for judicial appointments.

- **Composition:** The NJAC would consist of:
  - **Chief Justice of India (CJI)** as ex-officio **chairperson.**
  - **Two senior-most Supreme Court judges** as ex-officio members.
  - **Union Law Minister** as ex-officio member.
  - **Two eminent persons** from **civil society**, selected by a committee of the **CJI, PM, and Leader of Opposition** (with one from SC/ST/OBC/minorities/women).
- **Key Features:**
  - **Veto Power**: Any two members could **block a recommendation** if they disagreed.
  - **Appointment Criteria**: Included **seniority, regional representation**, etc.
- **Supreme Court's Ruling in 2015:** A **5-judge bench** struck down the NJAC by a **4:1 majority**, declaring it **unconstitutional.**
  - **Majority Opinion:** The NJAC **violated the basic structure of the Constitution** by undermining **judicial independence.**
    - **Primacy of judiciary in appointments** is part of the basic structure, and the NJAC diluted this by giving the **executive (Law Minister)** and **non-judicial** members a **veto power.**
    - The **risk of executive interference** in judicial appointments was a **major concern.**
  - **Dissent (Justice Chelameswar)**: Supported the NJAC, arguing that the **collegium system lacked transparency.**

Why is NJAC Considered Better than the Collegium System?

- **Transparent & Accountable:** The NJAC was a **structured and documented** commission with defined procedures and recorded deliberations.
- **Balanced Executive-Judiciary Role:** The NJAC included the Law Minister and two eminent members, ensuring **executive input without dominance.**
  - It also had a **veto power**, allowing any two members to block a candidate, **preventing unilateral decisions.**
- **Better Representation:** The NJAC ensured **quicker appointments** and mandated **diversity** with one eminent member from **SC/ST/OBC, minorities, or women.**
- **Democratic Legitimacy:** The NJAC was passed **almost unanimously** in the Parliament and was ratified by **16 states.**

- **International Comparisons:** NJAC aimed to align India with **global best practices** by involving **executive and legislative oversight** in judicial appointments, as seen in many democracies like the US and UK.
  - E.g., In the **US,** the **Senate** proposes names and its **Judicial Committee** conducts **confirmation hearings.**

What is the All India Judicial Service?

- **About:** AIJS is a **proposed centralized recruitment system** for **additional district judges and district judges** across all states.
  - It aims to **standardize judicial recruitment**, improve efficiency, and ensure uniform quality in lower judiciary.
- **Background:** The idea was first proposed in **Law Commission reports (1958, 1978)** and was **revisited in 2006** by a **Parliamentary Standing Committee.**

Constitutional Basis:
- **Article 312** allows for the creation of AIJS, similar to **central civil services**, through a **Rajya Sabha resolution supported by two-thirds majority**.
  - **Article 312(3)** restricts AIJS to **district judge-level posts and above**, as defined in **Article 236**.
- **Article 236** includes various judicial positions like **city civil court judges, additional district judges, and sessions judges.**
- **Need:**
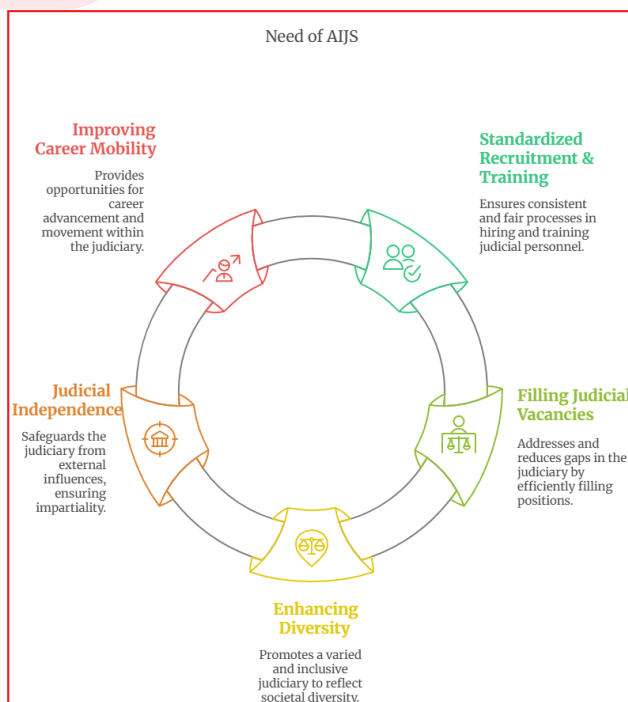
Need of AIJS

Improving Career Mobility — Provides opportunities for career advancement and movement within the judiciary.

Standardized Recruitment & Training — Ensures consistent and fair processes in hiring and training judicial personnel.

Judicial Independence — Safeguards the judiciary from external influences, ensuring impartiality.

Filling Judicial Vacancies — Addresses and reduces gaps in the judiciary by efficiently filling positions.

Enhancing Diversity — Promotes a varied and inclusive judiciary to reflect societal diversity.

➢ **Current Appointment:** District judges are currently appointed under **Articles 233 and 234** that give states the power to appoint **district judges** through State Public Service Commissions and **High Courts**, which oversee the subordinate judiciary.

○ **Article 233:** The **Governor appoints, posts, and promotes** district judges in consultation with the High Court.

○ **Article 234:** Recruitment of **judicial officers** (excluding district judges).

LPG Subsidy Initiatives in India

Why in News?

The **Pratyaksh Hastantarit Labh (PAHAL)** Direct Benefit Transfer (DBT) scheme and the **'Give It Up'** campaign have completed a decade since their nationwide rollout.

➢ Alongside these, the government also launched the Pradhan Mantri Ujjwala Yojana (PMUY) in 2016 to expand Liquefied Petroleum Gas (LPG) coverage, especially for economically weaker households.

What is the PAHAL DBT Scheme?

➢ **About:** The PAHAL DBT Scheme launched nationwide in 2015, is an initiative by the **Ministry of Petroleum & Natural Gas** to ensure the **direct transfer of LPG subsidies** to consumers' bank accounts.

○ The scheme aims to **eliminate leakages, prevent duplicate connections**, and enhance transparency in subsidy distribution.

➢ **Working:** LPG cylinders are sold at market price, and the subsidy amount is directly transferred to consumers' bank accounts.

○ Consumers receive the subsidy through two modes **Aadhaar Transfer Compliant Mode** and **Bank Transfer Compliant Mode** (subsidy credited to the registered bank account without Aadhaar linkage).

➢ **Objectives:** Aims to eliminate middlemen and fake LPG connections, ensuring benefits reach genuine consumers.

○ Encourages beneficiaries to open bank accounts, integrating them into the formal financial system.

➢ **Achievements:** As of 2024, over **30.19 crore LPG consumers** are enrolled under PAHAL. The scheme has saved the government over Rs **1.5 lakh crore by reducing subsidy wastage** and removing ineligible consumers.

○ Aadhaar-based authentication helped **remove duplicate beneficiaries** and **fake or fraudulent LPG connections** from the system.

What is the Give It Up Campaign?

➢ **About:** Give It Up Campaign launched in 2015, by Prime Minister Narendra Modi at the **'Urja Sangam' global energy summit.**

○ It encouraged **well-off LPG consumers to voluntarily surrender their** subsidies, allowing the government to redirect funds to the poor.

➢ **Impact:** The campaign saw **10 million give up subsidies in the first year,** but slowed to **11.5 million by 2025.**

What is the Pradhan Mantri Ujjwala Yojana?

➢ **About:** PMUY aims to provide **deposit-free LPG connections** to adult women from economically weaker households.

○ The scheme promotes **clean cooking fuel**, reduces health risks from indoor pollution, and decreases dependence on **traditional fuels.**

○ Beneficiaries receive **Rs 2,200 per 14.2 kg connection and Rs 1,300 per 5 kg connection (from FY 2023-24)**.

● Additionally, interest-free loans are available for purchasing gas stoves, ensuring wider accessibility.

➢ **Implementation and Expansion:**

○ **Phase 1 (2016-2019)**: Initial target of **80 million LPG connections**, achieved by **September 2019**.

○ **Phase 2 - Ujjwala 2.0 (2021-2022)**: Additional **16 million connections** provided by **December 2022**.

○ **Phase 3 (2023-2026)**: Government approved **7.5 million more connections**, target met by **July 2024**.

● As of **January 2025**, a total of **103.3 million PMUY connections** have been issued across India.

Why is LPG Adoption Still Limited Despite Widespread Access?

➢ **High Recurring Cost of Refills:** Even with deposit-free connections, the cost of **refilling LPG cylinders (~ Rs 1,100/cylinder)** is prohibitive for many BPL families.

- According to the **Petroleum Planning & Analysis Cell (PPAC, 2016)**, **83%** of respondents cited high refill cost as a key deterrent.
- Although PMUY connections are free, 86% of households struggle with the **cost of stoves, hoses, and regulators.**
- While the government provides a refill **subsidy**, it still leaves a substantial cost burden for poor households to maintain a regular LPG connection.

➢ **Low Refill Rates Among Beneficiaries** PMUY households refill on average **3.95 times/year** (2023-24), compared to **6.5 times/year** for non-PMUY users.
- The maximum permitted is **12 subsidised cylinders/ year**, highlighting underutilisation.

➢ **Availability of Traditional Fuels:** Firewood, cow dung, and crop residues are **freely available or low-cost**, making them preferred options in rural areas.
- Cooking on chulhas (traditional stoves) is deeply entrenched in some regions due to habit and cooking style.

> **Read more:** [Pradhan Mantri Ujjwala Yojana (PMUY)](#)

Indian and US Courts on Contempt

Why in News?

The **US President's** possible defiance of a US district court ruling on withholding foreign aid highlights tensions between the judiciary and executive, raising concerns over **separation of powers** and possible **contempt proceedings**.

➢ This situation brings into focus how courts in different democratic systems enforce compliance with judicial orders, particularly in the **US and India**.

Structure and Jurisdiction of the US and Indian Courts

➢ **3 Level Court System:** The US federal court system has 3 levels: **District courts (trial courts), Circuit courts (appellate courts), and the Supreme Court** (final appellate authority).
- **India also has a 3-tier system** with **District Courts** at the bottom, followed by **High Courts** and then **Supreme Court,** as the highest court of appeal.

➢ **Jurisdiction & Structure:** Federal courts handle cases authorized by the **US Constitution or federal statutes**.
- **District Courts** handle civil and criminal trials and their judges serve for life.
- **Circuit Courts** hear **appeals from district courts** and a panel of 3 judges review cases.
- The **Supreme Court** is the highest court, hearing **appeals on constitutional and federal matters**, with **discretionary jurisdiction** through **writs of certiorari.**
  - In India, Indian courts handle cases under the **Constitution, IPC (Bharatiya Nyaya Sanhita), CrPC (Bharatiya Nagarik Suraksha Sanhita), and state laws.**

➢ **Jurisdiction of US Federal and Indian Supreme Court:** The **Indian Supreme Court** has a **wider jurisdiction** than the **US Federal Court**, with **exclusive original jurisdiction (Article 131)** over disputes between the **Union and States** and an **advisory jurisdiction (Article 143)** allowing the **President** to seek legal opinions on matters of public importance, which is absent in the US system.
- Additionally, India's Supreme Court has broader **appellate powers, judicial review**, and allows **Public Interest Litigation (PIL)**, making it more accessible and influential.

How do Contempt Powers Differ in India and the US Courts?

➢ **About: Contempt of court** is a **legal** mechanism to **protect the judiciary from attacks or unwarranted criticism**, and to **punish those who undermine its authority.**

➢ **Types of Contempt:**
- **In the US Court,** there are 2 types of contempt: **Civil contempt (non-compliance with orders), Criminal contempt (obstruction of justice, defiance).**
  - **Civil contempt in the US can be reversed** upon compliance, while **criminal contempt is stricter but pardonable by the president.**
  - Courts have penalized officials for contempt, but never a sitting President.

- In Indian Court, there are also 2 types of contempt: **Civil contempt** (disobedience of court orders), **Criminal contempt** (scandalizing the court, obstructing justice).
  - In case of India, **contempt proceedings can be initiated** either by the **court itself (*suo moto*) or by the individual's petition** with the prior permission of the <u>**Attorney General (AG).**</u>

- **Legal Provisions:**
  - **In the US**, the Judiciary Act, 1789 empowers **all courts** to enforce orders through **contempt powers, sanctions, and legal mechanisms.**
  - In India, **Article 129 empowers the Supreme Court to punish contempt of itself,** while **Article 215 grants the same power to High Courts,** which also hold the **authority to punish contempt of subordinate courts.**
    - The **Contempt of Courts Act (1971)** empowers courts to enforce orders through **contempt proceedings and decrees.**
    - **Exception:** A person **is not guilty of contempt** for publishing a fair comment on the merits of a case that has been **heard and finally decided**.

- **Courts' Contempt Power & Enforcement:** Federal courts in the US ensure compliance through contempt proceedings and attorney sanctions.
  - In India, Courts ensure compliance through **contempt proceedings**.

Compliance, Penalties & Sovereign Immunity of Officials

- **In the US,** Judges prefer **negotiation** as **sovereign immunity** limits penalties on officials. **They rarely impose financial penalties or jail time on federal officials.**
  - In the **US**, **sovereign immunity** is strong, **preventing lawsuits against the government without its consent,** and **qualified immunity** protects officials from personal liability unless they violate constitutional rights.
  - The **US Constitution requires compliance with court orders**. In extreme cases, **non-compliance occurs when the government acknowledges legality but still refuses to comply**. Eg. During the Civil War, **Abraham Lincoln defied a court order in the *John Merryman case*** (detained without charge), even though he recognized its legality.

- US judges **avoid direct confrontations** over court orders and prefer **modifying demands** to ensure compliance.
- **Indian courts** have **punitive authority**, including **fines, imprisonment, and direct summoning of government officials**.
  - Under the **Code of Civil Procedure (CrPC),** courts have provisions for **execution of decrees and orders, including attachment of property and arrest** in cases of deliberate non-compliance.
  - In **India**, **sovereign immunity (rooted in Article 300)** exists but is weaker, allowing lawsuits against the government in various cases.
  - Officials do not have **blanket immunity** and can be **held personally accountable**. Indian courts have **stronger contempt powers**, enabling them to **fine, summon, or jail** officials for non-compliance.

- **Judicial Review:**
  - US Courts **interpret laws** but **cannot s**trike down executive actions **easily.**
  - **In India, Judicial review is well-established**, allowing courts to strike down unconstitutional actions (e.g., <u>*Keshavananda Bharati case, 1973*</u>).

Judicial Transfers and In-House Inquiry

Why in News?

The <u>**Supreme Court (SC) Collegium**</u> has recommended the transfer of Delhi High Court Judge (Justice Yashwant Varma) to the Allahabad High Court. This decision comes in the wake of allegations regarding the discovery of **"sacks of burnt currency"** at his residence.

- Simultaneously, an <u>in-house inquiry procedure</u> was initiated by <u>**Chief Justice of India (CJI) Sanjiv Khanna**</u> to conduct a deeper investigation into the incident.
- The move upholds the <u>**Restatement of Values of Judicial Life,**</u> ensuring judicial integrity, and accountability.

What is the Process of Judicial Transfers in India?

- **Constitutional Provision: Article 222 of Indian Constitution** empowers the President, based on the recommendation of the CJI, to transfer a judge (including Chief Justice) from one High Court to another.

- ❍ **Consent of the judge is not required,** whether it is the first or a subsequent transfer.
- ➢ **Role of the CJI and the Collegium:** The CJI initiates the transfer proposal and his opinion is determinative.
  - ❍ For transferring a Judge (not Chief Justice), the CJI consults the Chief Justice of the transferring High Court and the receiving High Court and considers input from **one or more SC judges** who know the concerned judge's performance.
  - ❍ For transferring a Chief Justice, the proposal is reviewed by the CJI along with the four senior-most judges of the Supreme Court, collectively **forming the Collegium.**
    - In making the final decision, the **Collegium also considers personal aspects of the judge**, like health conditions, and location preferences.
- ➢ **Role of the Executive**: The **Union Law Minister** forwards the Collegium's recommendation to the **Prime Minister,** who advises the President to approve the transfer.
  - ❍ Upon approval, the **Department of Justice** notifies the transfer in the Gazette of India, and the **Chief Justices and Chief Ministers** of the concerned states are informed.
- ➢ **Importance of Transfers:** Help in optimizing judicial efficiency across High Courts by balancing workload and expertise.
  - ❍ Prevents **undue influence or bias** that may arise from prolonged tenure and helps to preserve public trust by addressing concerns about impartiality and judicial misconduct.

What is an In-House Inquiry?

- ➢ **In-House Inquiry:** The Supreme Court introduced an in-house inquiry procedure in 1999. This was prompted by the **C. Ravichandran Iyer v. Justice A.M. Bhattacharjee case (1995),** which exposed the absence of a mechanism to deal with **judicial misconduct falling below the impeachment (Article 124 and 218 of the Constitution)** threshold.
  - ❍ A five-member committee proposed the in-house Inquiry framework in 1997, which was formally adopted in 1999.
  - ❍ The procedure was reaffirmed and detailed in *Additional District and Sessions Judge 'X' vs Registrar General, Madhya Pradesh HC (2014)*, detailed out internal process for judicial inquiries.
- ➢ **Procedure:** The in-house inquiry process begins when a complaint against a judge is received by the CJI, a High Court Chief Justice, or the President, it need not originate from Parliament.
  - ❍ If found credible, the CJI may ask the concerned High Court CJ to conduct a preliminary inquiry.
  - ❍ Based on this report, if deeper investigation is needed, the **CJI constitutes a three-member committee** (two Chief Justices and one High Court judge).
    - The committee conducts the inquiry while ensuring natural justice, allowing the judge to respond. The final report submitted to the CJI must state whether the allegations are substantiated and if they warrant removal.
    - If the misconduct is minor, the judge may be warned or advised, and the report kept confidential (but placed on record).
    - If **serious misconduct is established, the judge may be asked to resign or retire.**
      - Upon refusal, the judge may be relieved of **judicial duties**, and if necessary, the CJI may recommend **impeachment.**

What is Restatement of Values of Judicial Life?

Click here to Read: Restatement of Values of Judicial Life

In-House Inquiry Vs. Constitutional Impeachment		
Aspect	**In-House Inquiry Mechanism**	**Constitutional Impeachment**
Basis	Based on **Supreme Court resolutions (1999)**	**Article 124(4)** (removal of Supreme Court judge) & **218 of the Constitution** (removal of High Court judges)
Applicability	Judicial misconduct below impeachment threshold	Only for **"proved misbehaviour or incapacity"**

Initiated by	CJI, High Court Chief Justice, or President	Members of Parliament
Process Type	Internal, confidential judicial mechanism	Parliamentary and public process
Outcome	Advice, warning, or recommendation for resignation/retirement	Removal from office **by Presidential order**
Role of Parliament	No involvement	Requires 2/3rd majority in both Houses
Transparency	Confidential process to protect judicial dignity	Public and media-visible process
Final Authority	Chief Justice of India	President of India (on PM's advice after Parliament vote)

Challenges in Policing Digital Giants

Why in News?

The **Competition Commission of India (CCI)** imposed a **fine of Rs 213 crore on Meta** and enforced a **five year ban on sharing** user data collected on WhatsApp with other Meta companies such as Facebook and Instagram, for advertising purposes.

➢ However, the **National Company Law Appellate Tribunal (NCLAT)** granted a stay on this ban and penalty.

➢ This case underscores the challenges of regulating Big-Techs and the need for a forward-looking competition law framework in India.

Overview of Meta's CaseL

➢ The **CCI found WhatsApp's 2021 privacy policy** forced user consent for data sharing with Meta, **boosting its dominance in OTT messaging and digital ads.** Meta used WhatsApp's vast user base for targeted advertising, which CCI termed an unfair trade practice, **harming privacy and blocking competition** and imposed a fine and 5 year ban on data sharing.

➢ **NCLAT stayed the ban and penalty on Meta**, citing the need for legal review and required deeper scrutiny of CCI's findings. As a conditional relief, **NCLAT directed Meta to deposit 50% of the fine** while legal proceedings continued.

What are the Challenges in Regulation of Big-Techs?

➢ **Regulatory Lag in Digital Markets:** India's **Competition Act, 2002** lacks explicit provisions to deal with data-centric dominance (data monopolization).

○ The law was framed for **traditional markets focusing on price and output,** whereas digital monopolies thrive on network effects, ecosystem integration, and data aggregation.

➢ **Fragmented Governance:** Regulatory agencies such as the CCI and Ministry of Electronics and Information Technology (MeitY) operate without adequate inter-agency coordination.

○ Additionally, the **Data Protection Board,** proposed under the **Digital Personal Data Protection (DPDP) Act of 2023,** is not yet established.

➢ **Legal Ambiguity:** Digital platforms exploit vague laws to evade scrutiny. India's **Information Technology Act, 2000**, lacks clarity on **Artificial Intelligence (AI)** -generated content, algorithmic bias, and data flows, raising concerns about regulatory ambiguity and ineffective implementation.

○ A key example is **X Corp's** (formerly known as Twitter) **challenge to the Indian government's use of Section 79(3)(b)** of the **IT Act** to block online content.

● The **Supreme Court** in *Shreya Singhal v Union of India (2015)* ruled that content can only be blocked through **Section 69A of the IT Act** if deemed "necessary" under **Article 19(2),** also stated that Section **79(3)(b) provides "safe harbour"** protection to intermediaries like X, shielding them from liability for user content but requiring removal if ordered by a court or government.

● However, MeitY's **"Sahyog" portal (2024)** allows officials to block content under Section 79 without **court or central approval, which X Corp claims violates the law**.

- **Global Nature of Tech Firms:** These companies operate across borders, while **national laws remain territorial**, limiting enforcement and compliance.
  - For instance, Meta faces date scrutiny in the **US, EU, and Australia**, revealing a **transnational challenge**.
- **AI and Emerging Technologies:** There is no clear accountability for AI-generated content, as seen in controversial responses by the **Grok 3 chatbot** (generative AI chatbot developed by **xAI**), algorithmic decisions, or deepfake distribution.
  - Current laws do not address **autonomous content moderation or automated data profiling.**
- **Platform Power and Gatekeeping:** Tech giants like Google control app stores, ads, and communication platforms, giving their products an unfair advantage and limiting competition.

How are Major Economies Regulating Big Tech Firms?

- **US:** The US emphasized the need **for antitrust reform to curb Big Tech's dominance.**
  - Meta faces lawsuits over its acquisitions of Instagram and WhatsApp, while **Google was found guilty of violating the Sherman Act (2024)** due to monopolistic practices in search and advertising.
- **European Union:** Digital Markets Act (DMA) imposes strict rules on **"gatekeepers"** like Google and Apple to prevent anti-competitive behavior.
  - **General Data Protection Regulation (GDPR)** enforces stringent data privacy rules with heavy fines for non-compliance.

What Reforms are Necessary to Regulate Big-Techs?

- **Digital Competition Act:** The **Committee on Digital Competition Law (CDCL), 2023** proposes a **Digital Competition Act** to regulate Big Tech and strengthen CCI, addressing data dominance, network effects, and platform lock-ins.
- **Fast-Track Dispute Resolution:** Set up a **Digital Market and Data Unit (DMDU)** within the CCI to handle cases with defined timelines.
- **Promote Fair Competition:** Set up a **central data-sharing repository** backed by consent protocols, accessible to all tech firms.
  - This will ensure **fair access to anonymised data,** helping smaller players compete effectively.

- **Multidisciplinary Enforcement:** Develop unified frameworks, akin to **EU's Digital Markets Act (DMA),** integrating privacy and competition concerns.
- **Ex-Ante Regulations**: The **Standing Committee on Finance (2022-23)** recommends a shift from **ex post** (after monopolization occurs) to **ex ante** (before monopolization happens) evaluation of competitive behavior to prevent market dominance.
  - The **CDCL, 2023** recommends ex-ante regulation of **Systemically Significant Digital Enterprises (SSDEs)** offering core digital services like search engines, social networks, and web browsers, which are prone to market concentration.
  - Classify **SSDEs** as outlined in **Digital Competition Bill, 2024** to identify and regulate Big Tech firms with significant market influence.
- **Transparency in Algorithms**: Mandate disclosure of algorithmic decision-making, AI biases, and platform policies.
  - Enforce **data silos**, **prohibit cross-platform data sharing** without explicit user consent, and impose **interoperability mandates** to level the digital playing field.
- **Transnational Framework:** Given the transnational presence of tech firms, India must develop a robust data protection framework like the **California Consumer Privacy Act (CCPA).**
  - The CCPA applies to businesses collecting data from Californians, including foreign firms(have customers in California), and grants users rights to access, control, and delete personal data, restrict its sale, and seek transparency in data processing. Parental consent is required for selling children's data.
- **Consumer Data Protection:** Ensure strict data privacy under DPDP Act of 2023 to prevent abuse of user information by dominant firms.

Fast Track Special Courts

Why in News?

The extension of the **Fast Track Special Courts (FTSCs) Scheme** till **March 2026** aims to ensure **speedy and time-bound justice** in cases of **rape and offences under the Protection of Children from Sexual Offences (POCSO) Act, 2012**.

What is the Fast Track Special Courts Scheme?

➢ **About:** It is a **centrally sponsored scheme** under the **Ministry of Law & Justice** that aims to establish FTSCs under the **Nirbhaya Fund**.
  ○ In **2019**, the Supreme Court ordered **fast disposal of POCSO cases**, prompting the **launch** of the FTSC Scheme on **2nd October, 2019.**

➢ **Cost Sharing:** The **Centre** contributes **60%**, and **States 40%**, except for Northeastern, Sikkim, and hilly states, where it's 90:10.
  ○ **UTs with legislatures** follow a **60:40** ratio, while those **without legislature** get **full central funding.**

➢ **Need of FTSCs:**
  ○ **Case Backlogs:** India's courts face a **growing backlog** of rape and POCSO cases, increasing from **2,81,049** in 2020 to **4,17,673** by the end of 2022.
  ○ **Timely Justice:** The **POCSO Act, 2012**, mandates **Special Courts** to complete trials **within one year** of taking cognizance of the **offense**.
  ○ **Deterrence:** Harsh punishment **deters crime**, but its impact depends on **timely trials and swift justice** for victims.

➢ **Performance:** As of **December 2024**, more than **700 FTSCs** are operational across **30 States/UTs**. These include **406 exclusive POCSO (ePOCSO) Courts**
  ○ FTSCs boast a **96.28% disposal rate** in **2024**, and over **3 lakh cases** have been **disposed** of collectively by FTSCs since its launch.

> What is the POCSO Act?
> **Click Here to Read: POCSO Act**

What are the Challenges in Fast Track Special Courts?

➢ **Low Number of FTSCs:** Although **1,023 FTSCs** were sanctioned, only **747 FTSCs** are operational as of **December 2024.**
  ○ India needs at least **1,000 more FTSCs** to dispose of **one rape or POCSO case every three minutes** to clear the backlog in a year.

➢ **Pendency:** Fast-track courts often face **heavy caseloads**, causing delays that **undermine their goal of swift justice.**

○ **Maharashtra** and Punjab have high case disposal rates, while **West Bengal** has the lowest leading to **disparities in justice delivery**.

➢ **Underutilization of Nirbhaya Fund:** The Nirbhaya Fund, set up in **2013** to enhance **women's safety**, remains underutilized, with **Rs 1,700 crore still unspent.**

➢ **Lack of Specialized Support:** Many **FTSCs lack victim-friendly facilities**, including:
  ○ **Vulnerable Witness Deposition Centers** to provide a supportive environment for survivors.
  ○ **Female Public Prosecutors and Counselors** to assist victims in navigating the legal process.

How Can the Fast Track Special Courts be Strengthened?

➢ **Improving Judicial Parameters**: States should appoint **Special Judges** for POCSO cases, provide **sensitization training**, and ensure **female public prosecutors**.

➢ **Vulnerable Witness Deposition Centers (VWDCs):** Establish **VWDCs** in all districts for **victim testimony recording** and **child-friendly trials** behind closed doors.
  ○ Appoint **child psychologists** in FTSCs for **pre-trial and trial** support.

➢ **Technological Upgrades:** Courtrooms should be upgraded with **audio-video recording systems, LCD projectors**, and enhanced **IT systems** for **electronic case filing** and **digital records.**

➢ **Forensic Labs:** Increase **forensic labs** and train **manpower** to speed up pending cases and ensure **timely DNA reports**, aiding **fair and speedy justice.**

Debate on Making Cancer a Notifiable Disease

Why in News?

There are growing calls to make **cancer** a **notifiable disease in India**, but the **Union government resists, citing its non-communicable nature.**

➢ The **inclusion of snakebites as a notifiable disease (2024)** and **global precedents like the US listing lead poisoning (1995)** as notifiable disease challenges this reasoning, prompting a re-evaluation of India's stance on cancer notification.

What is Notifiable Disease in India?

➢ **About:** A **notifiable disease** is one that must be legally reported to government authorities by **healthcare providers** for real-time epidemiological tracking, resource allocation, and early intervention.

  ❍ The **Epidemic Diseases Act, 1897** governs the notification and regulation of **epidemic disease** (rapid spread of disease to a large number) reporting.

  ❍ The **World Health Organization (WHO)** mandates notification for certain diseases to aid in global disease surveillance and control.

➢ **Examples:** Infectious diseases like **tuberculosis, malaria, and Covid-19 are typically notifiable** due to their potential to spread.

  ❍ However, the **Ministry of Health and Family Welfare (MoHFW)** classified snakebite as a notifiable disease, despite it being non-communicable.

What is the Debate on Classifying Cancer as a Notifiable Disease?

Arguments in Favor

➢ **Better Data Collection:** The **National Cancer Registry Program (NCRP),** covering only 16% of India's population, lacks comprehensive data, drawing criticism from a parliamentary committee**,** highlighting the need for improved tracking.

  ❍ With enhanced data nearly **50% of cancer deaths** are preventable by controlling risk factors like **smoking, air pollution, and asbestos exposure**.

  ❍ Some cancers, like **cervical cancer**, are linked to **human papillomavirus** (spreads through contact), prompting experts to propose classifying cancer as a **"documentable disease"** for mandatory data collection.

  ❍ Making cancer notifiable would ensure **real-time data on incidence, prevalence, and mortality rates** can be prevented by controlling risk factors like **tobacco, air pollution, and carcinogenic chemicals**.

➢ **Indian States Approach: 17 states** have made cancer notifiable through administrative orders, highlighting the need for a **national-level mandate**.

  ❍ States with **high cancer incidence, like Kerala and Mizoram,** could benefit from mandatory notification for better intervention.

➢ **Global Precedents:** Countries like **Australia have made cancer notifiable**, while the **United Kingdom** mandates cancer registration, in contrast, India's NCRP registration remains voluntary.

Arguments Against

➢ **Non-Communicable Nature**: Unlike infectious diseases, cancer is not contagious or an **immediate public health threat,** making mandatory notification unnecessary.

➢ **Privacy Concerns**: Notifiable diseases prioritize public health over individual privacy, which may deter people from seeking diagnosis.

  ❍ **Cancer carries social stigma**, and legal obligations to report cases could **reduce patient willingness to seek timely treatment**.

➢ **Burden on Healthcare Providers:** Physicians **may face unnecessary legal burdens** if notification is made mandatory.

  ❍ Cancer requires **personalized long term treatment**, and notifiability is typically used for emergency containment, **not long-term diseases**.

India's Existing Cancer Surveillance Mechanism
➢ The NCRP under **Indian Council of Medical Research (ICMR),** tracks cancer demographics, diagnosis, treatment, and survival through **Hospital-Based (HBRs)** and **Population-Based Registries (PBRs)**.
❍ As of **2022**, India has **269 HBRs and 38 PBRs**, but coverage remains inadequate.
❍ In **2023**, over **14 lakh** cancer cases were reported, with **100 per 1 lakh** people diagnosed.

What Should India Do to Strengthen Cancer Surveillance?

➢ **Phased Notification Approach:** Classify high-risk cancers like cervical and lung cancer as **"documentable diseases"** for mandatory data collection.

➢ **Integrate Digital Health Technologies:** Link cancer data collection with the **Ayushman Bharat Digital Mission (ABDM)** to create a **centralized cancer registry**.

  ❍ Integrate cancer screening records with **CoWIN-like platforms** to ensure targeted follow-ups and treatment adherence.

➢ **Cancer Reporting:** Increase the number of PBRs to expand cancer testing and related facilities nationwide, and implement universal screening for high-risk cancers.

○ **Empower local health workers** (like Accredited Social Health Activists) to actively report cancer cases and conduct door-to-door awareness campaigns.

○ Expand cancer coverage under Pradhan Mantri Jan Arogya Yojana and increase **insurance support**, as treatment is long-term and costly.

● This will enable free screening for **low-income families, ensuring financial barriers do not delay diagnosis and treatment**.

➢ **Reduce Stigma**: Partner with **spiritual leaders, influencers, and media icons** to destigmatize cancer reporting and normalize screenings.

○ Promote **cancer survivors as "ambassadors"**, sharing their stories to inspire early detection and eliminate fear surrounding the disease.

WORLD CANCER DAY
4th February

Drishti IAS

Cancer is a leading cause of death worldwide, accounting for nearly 10 million deaths in 2020, or nearly 1 in 6 deaths.

Most Common Cancers

Breast — Lung — Colon — Rectum and prostate cancers

Around 1/3rd of deaths from cancer are due to-

Tobacco use | High body mass index | Alcohol consumption | Low fruit and vegetable | Lack of physical activity

● Cancer-causing infections, such as human papillomavirus (HPV) and hepatitis, are responsible for approximately 30% of cancer cases in low-and lower-middle-income countries.

● Many cancers can be cured if detected early and treated effectively.

Raisina Dialogue 2025

Why in News?

India hosted the 10th edition of the Raisina Dialogue 2025 in New Delhi, with **New Zealand's Prime Minister, Christopher Luxon,** as the Chief Guest..

What is the Raisina Dialogue?

➢ **About:** Launched in 2016 by the Ministry of External Affairs (MEA), the Raisina Dialogue is named after

Raisina Hills in New Delhi, it is organized annually by the **Ministry of External Affairs** in collaboration with Observer Research Foundation (ORF).

○ It is India's premier geopolitics and geo-economics conference, comparable to the **Munich Security Conference** (Germany) and **Singapore's Shangri-La Dialogue.**

○ The Raisina Dialogue brings together global leaders, policymakers, academics, industry experts, and journalists to address global challenges.

➢ **Theme for 2025:** *"Kālachakra – People, Peace and Planet".*

➢ **Takeaways from Raisina Dialogue 2025:**

○ **Weaponisation of Trade & Economy:** India's External Affairs Minister (EAM) raised concerns against the weaponization of trade through tariffs, sanctions, and financial controls, emphasizing the need for trust-based partnerships.

● India is re-evaluating trade partners for reliability, transparency, and strategic alignment, especially amid ongoing negotiations with the US, EU, and UK.

○ **Indo-Pacific Concerns:** Quad defence leaders expressed serious concerns over China's assertive maritime presence in the Indian Ocean Region(IOR).

● India highlighted its intent to maintain the **IOR as a peaceful, secure trade conduit** while working with small island nations and external partners.

● The Philippines wants India to join the Squad alliance (comprising the US, Japan, Australia, and Philippines) to counter China's tactics in the South China Sea.

○ **Digital Sovereignty:** India is cautious about data flow, Artificial Intelligence (AI) development, and digital regulation in trade negotiations.

● Regulatory frameworks for **big data and AI** are now integral to India's economic diplomacy.

Note: The ORF is a **Delhi-based non-profit organisation** providing policy insights for the Indian government, political, and business communities while guiding India's foreign policy for better governance and quality of life.

UNCAT and Custodial Torture

Why in News?

The UK High Court's **refusal to extradite** Sanjay Bhandari and Tahawwur Rana's **US appeal over custodial torture** risks have renewed debate on India's failure to ratify <u>UN Convention against Torture and Other Cruel, Inhuman or Degrading Treatment or Punishment (UNCAT) 1984</u> and enact **an anti-torture law.**

What is UNCAT?

➢ **About:** It is an international <u>human rights</u> **treaty** to prevent **torture** and other cruel, **inhuman, or degrading treatment** or punishment worldwide.
  - ○ It was adopted by the **UN General Assembly on 10th December 1984** and entered into force on **26th June 1987**.

➢ **Definition of Torture:** Article 1 of UNCAT defines **torture as the intentional infliction of severe physical or mental pain** for purposes like **obtaining information, punishment, or intimidation**, with involvement or consent of a public official.

➢ **Universal Jurisdiction:** Article 5 require states to **prosecute or extradite individuals** accused of torture, **regardless** of where the crime was committed or the **nationality of the perpetrator.**

➢ **State Obligations:** States parties to UNCAT are required to:
  - ○ **Prohibit torture absolutely** (Article 2), even in times of war or other emergencies.
  - ○ **Prohibit the extradition or deportation** of individuals **(Right to Non-refoulement)** to countries where they risk being tortured (Article 3)
  - ○ **Criminalize torture** under domestic law (Article 4).
  - ○ **Investigate allegations of torture** promptly and impartially (Article 12).
  - ○ **Provide redress and compensation** to victims of torture (Article 14).

➢ **Committee Against Torture (CAT):** CAT (Article 17), a body of **independent experts** tasked with **monitoring** the implementation of the Convention.

➢ **Optional Protocol to UNCAT (OPCAT):** Adopted in 2002, it creates a **preventive mechanism** for regular detention visits by international and national bodies.

➢ **India and UNCAT:** India **signed** UNCAT in **1997** but has **not ratified it yet.**

> **What is Custodial Torture?**
> **Click Here to Read:** <u>Custodial Torture</u>

Why Is There a Need for India to Ratify the UNCAT?

➢ **Strengthening Extradition:** It will help extradite **financial fugitives,** often **shielded** by countries like **the UK and US,** while enhancing India's reputation for a fair criminal justice system.

➢ **Addressing Custodial Torture:** The NHRC calls custodial violence in India **"rampant,"** with **1,731 detention deaths** reported in 2019 alone.
  - ○ **Ratifying UNCAT** would require India to implement and **enforce measures to prevent torture.**

➢ **Constitutional Obligations:** <u>Article 21</u> of the Indian Constitution guarantees the right to **life and personal liberty**, which includes protection from torture.
  - ○ In the *RD Upadhyay Case, 1999,* the SC ruled that custodial torture v**iolates basic rights, undermines human dignity**, and must be **addressed realistically** by the courts.

➢ **Ensuring Accountability:** UNCAT mandates **investigating, prosecuting, and criminalizing torture**; ratification would enforce these in India's legal framework.
  - ○ In the <u>*Prakash Singh Case, 2006*</u>, the SC ordered **all States and UTs** to establish **Police Complaints Authorities** for independent oversight and citizen redressal against **police misconduct.**

➢ **Protecting Vulnerable Communities:** Marginalized communities, including **Dalits, minorities, and refugees**, are disproportionately affected by custodial violence.
  - ○ Ratifying UNCAT would **ban torture** on all grounds **(religion, caste, race, and ethnicity),** upholding **human dignity** even in war or emergencies.

What Are the Implications of Non-ratification of UNCAT for India's Global Standing?

➢ **Impact on Extradition Requests:** Fugitives are increasingly using India's **lack of anti-torture laws** to challenge extradition, **compromising** the effectiveness of its <u>criminal justice system</u>.

○ This legal gap **weakens** India's ability to combat **transnational crime and terrorism.**

➢ **Erosion of Soft Power:** India's failure to address custodial torture undermines its **credibility** as a **democratic state committed to human rights.**

○ The **Guantanamo Bay example of US** demonstrates how torture in state custody irreparably damages a **nation's moral authority.**

What are Various Recommendation for an Anti-torture Law?

➢ **Rajya Sabha Committee (2010):** The Rajya Sabha committee on **Prevention of Torture Bill, 2010** recommended a comprehensive **anti-torture law** reflecting strong political and public support.

➢ **Law Commission of India:** In its **273rd Report (2017),** it recommended **ratification of UNCAT** and **enacting a law** to implement the **UNCAT,** emphasizing the need to **criminalize torture.**

○ It also submitted a **draft Prevention of Torture Bill** for government consideration.

➢ **Supreme Court:**

○ *DK Basu vs State of West Bengal Case, 1997*: It laid down guidelines to **prevent custodial torture** and ensure transparency in arrests and detentions.

● The SC said it is the right of the police to **investigate the case** and interrogate the accused but **not allowed to use third-degree tortures** to extract the information.

● In cases of **custodial violence** by **public servants,** the State will also be **liable** for their actions.

○ *State of Uttar Pradesh vs Ram Sagar Yadav Case, 1985*: It is the **police officer** on whom **burden of proof** lies in cases involving custodial torture.

○ **Nambi Narayanan Case, 2018:** Highlighted the **psychological trauma** caused by wrongful prosecution and **custodial abuse**.

➢ **National Human Rights Commission (NHRC):** The **NHRC** advised that **District Magistrates** and **Police Superintendents** must report incidents of custodial torture to its **Secretary General within 24 hours**.

○ Failure to do so may be seen as an attempt to **suppress the incident**.

➢ **International Obligations:** Articles **51(c)** and **253** of the Constitution require adherence to international treaties.

○ India has ratified treaties like **UDHR** (1948) and **International Covenant on Civil and Political Rights (1976)** but has not ratified UNCAT, leaving a key gap in its human rights framework.

How to Address Custodial Torture in India?

➢ **Legal Reforms:** Enact a strict **Prevention of Torture law** with **penalties and victim compensation,** aligning with UNCAT standards, and **ratify UNCAT** to reinforce India's commitment to ending torture.

➢ **Institutional Accountability:** Take **swift, transparent action** against police in custodial violence cases and form district-level **specialized teams** for sensitive cases requiring police remand.

➢ **Capacity Building:** Train police in **human rights, ethical interrogations, and legal consequences** of custodial torture**.** Educate **magistrates on remand evaluation** and natural justice.

○ Separate **law enforcement and investigation wing** in the police to **prevent conflicts of interest** and reduce cases of torture.

➢ **Judicial Monitoring:** Magistrates must **monitor investigations,** ensuring legal compliance. Create independent bodies to probe custodial violence.

World Consumer Rights Day 2025

Why in News?

The **Ministry of Consumer Affairs, Food and Public Distribution** celebrated the **World Consumer Rights Day** with the theme **"A Just Transition to Sustainable Lifestyles."**

➢ India celebrates **24th December** as **National Consumer Day** every year, and the **Consumer Protection Act, 2019** provides comprehensive legislation to strengthen consumer rights.

World Consumer Rights Day
Instituted on 15th March 1983, the day (15th March) commemorates **President John F. Kennedy's 1962 address to the US Congress**, where he became the **first global leader** to **formally recognize consumer rights.**

What is the Consumer Protection Act, 2019?

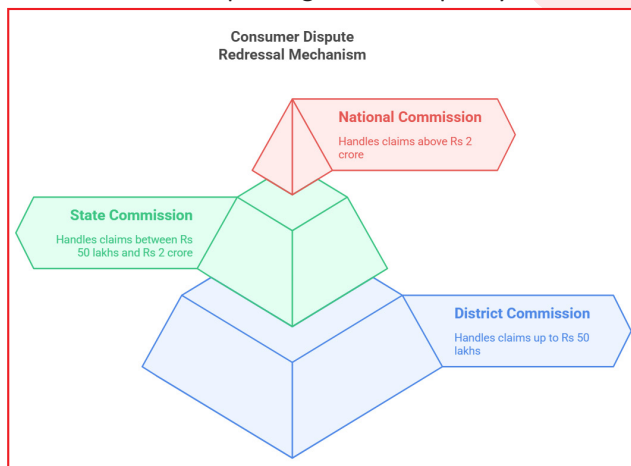➢ **About:** It is a comprehensive legislation that replaced the **Consumer Protection Act, 1986.**

- ○ It aims to **strengthen consumer rights in India,** addressing challenges from **globalization, technology, and e-commerce.**
- ➤ **Key Features:**
  - ○ **Central Consumer Protection Authority (CCPA):** CCPA has been established to **regulate matters related to unfair trade practices**, **misleading advertisements**, and violations of consumer rights.
  - ○ **Consumer Rights**: The Act reinforces **6 consumer rights**, including the **right to be informed, the right to choose, and the right to seek redressal.**
  - ○ **E-Commerce Regulation**: Brings **e-commerce platforms under its purview,** making them accountable for consumer grievances.
  - ○ **Product Liability**: **Manufacturers, service providers, and sellers are held liabl**e for defective products or services.
  - ○ **Simplified Dispute Resolution**: Provides for **mediation,** reducing the burden on consumer courts.
  - ○ **Enhanced Penalties**: Imposes **strict penalties for false or misleading advertisements** and unfair trade practices.
  - ○ **Fast Resolution:** According to Section 38(7) of the Act, consumer complaints should be resolved within 3 to 5 months, depending on the complexity of the case.

Consumer Dispute Redressal Mechanism

National Commission — Handles claims above Rs 2 crore

State Commission — Handles claims between Rs 50 lakhs and Rs 2 crore

District Commission — Handles claims up to Rs 50 lakhs

What are the Key Initiatives to Strengthen Consumer Grievance Redressal Mechanisms?

- ➤ **E-Dakhil Portal and e-Jagriti:** The **E-Dakhil Portal** (launched in 2020) enables consumers to **file complaints online.**

- ○ **E-Jagriti** (introduced in 2024) strengthens **case tracking and management**, using digital interventions for a more streamlined **consumer grievance redressal process**.
- ➤ **National Consumer Helpline (NCH) 2.0:** NCH 2.0 integrates **AI-powered speech recognition, multilingual chatbots**, and partnerships with **1,000+ companies** to expedite grievance redressal. It supports **17 languages** and is accessible via **WhatsApp, SMS, Umang app**, and other platforms for wider consumer outreach.
- ➤ **Consumer Welfare Fund (CWF):** **CWF** provides **financial aid** to strengthen **consumer rights, advocacy, and legal assistance**.
- ➤ **Consumer Protection in E-Commerce and Digital Transactions:**
  - ○ **E-Commerce Rules, 2020**: It mandates **fair business practices, transparency** in transactions, and grievance redressal mechanisms.
  - ○ **Dark Patterns Regulation, 2023**: Introduced by the **Central Consumer Protection Authority (CCPA)** to prohibit **deceptive digital marketing practices** like false urgency, forced actions, and hidden charges.
- ➤ **Jaago Grahak Jaago:** It is a part of the **consumer awareness campaign** which alerts users about **fraudulent URLs**, empowering them to make **informed e-commerce decisions**.

What are the Challenges in Consumer Protection in India & Way Forward?

Challenges	Way Forward
Awareness: Low consumer awareness about rights and redressal mechanisms.	Implement **widespread consumer education** campaigns, **integrate consumer rights education** into school curricula.
Enforcement: Consumer courts face **delays in case resolution,** and **product liability provisions** are inconsistently enforced, weakening consumer protection.	Streamline court processes, expand consumer courts, enhance alternative dispute resolution mechanisms, and improve judicial training with clear enforcement guidelines.

Digital Marketplace Issues: Challenges related to e-commerce, data privacy, and online fraud.	Strengthen e-commerce regulations, enforce data protection laws, and enhance monitoring of online transactions.
Resource Constraints: Limited resources allocated to consumer protection agencies.	Increase funding for consumer protection agencies, hire more staff, and improve infrastructure.
Regulatory Overlaps: Overlaps and conflicts between different regulatory bodies and laws.	Clarify roles and responsibilities of different regulatory bodies, streamline regulatory frameworks.

Narasu Appa Mali Case 1951

Why in News?

The landmark case of *State of Bombay v. Narasu Appa Mali Case, 1951* has had lasting implications on the debate over whether personal laws can be subjected to constitutional scrutiny.

➢ This case remains relevant today, particularly in discussions surrounding the Uniform Civil Code (UCC) and gender justice within religious law.

What is the State of Bombay v. Narasu Appa Mali Case, 1951?

➢ **Background: Narasu Appa Mali**, a resident of Maharashtra, was convicted by a session court under the **Bombay Prevention of Hindu Bigamous Marriages Act, 1946** for marrying a **second wife** as per the custom.
  ❍ The act made **bigamy** a punishable **offence.**
  ❍ The court ruled the law **didn't violate Article 14**, even though it applied only to Hindus, while Muslim men could practice **polygamy.**

➢ **Bombay High Court:** It **upheld** the constitutionality of the **1946 law**, stating that **personal laws**, unless codified, are **not subject** to scrutiny for violation of **fundamental rights.**
  ❍ It ruled that personal laws are **immune** from constitutional scrutiny under **Article 13**, allowing even regressive practices.

➢ **Influence on Later Cases:**
  ❍ *Triple Talaq Case, 2017:* The Supreme Court (SC) struck down **instant triple talaq**, ruling it was codified under the **Shariat Act, 1937** and subject to constitutional scrutiny.
  ❍ *Sabarimala Case, 2018:* The SC **criticized the Narasu judgment,** asserting that all laws, including **personal laws,** must follow **constitutional principles.**

➢ **Current Debate:** Experts argue the Narasu ruling should be **reconsidered for gender justice.**
  ❍ It is often cited to **justify non-interference** in personal laws, causing conflicting rulings on **marriage, inheritance, and customs.**

Other Cases Related to Judicial Intervention in Personal Laws
➢ *Shah Bano Case, 1985:* Recognized Muslim women's **right to maintenance**, highlighting the need for **gender justice in personal laws**.   ➢ *Sarla Mudgal Case, 1995:* Supreme Court advocated **UCC** to prevent **Hindu men** from converting to **Islam solely to practice polygamy.**   ➢ *Shayara Bano Case, 2017:* Declared **Triple Talaq unconstitutional**, promoting gender justice.

Swadesh Darshan Scheme

Why in News?

The Central Government, in collaboration with States, has approved **116 new tourist destinations** for development under schemes like **Swadesh Darshan 2.0 (SD2.0), Challenge-Based Destination Development (CBDD),** and **Special Assistance to States for Capital Investment (SASCI).**

Special Assistance to States for Capital Investment (SASCI) Scheme
SASCI scheme, launched in **2020-21** amid the **Covid-19 pandemic**, aims to **support state governments in capital investment projects**, boosting **capital expenditure** and enhancing **economic productivity**.

What is the Swadesh Darshan Scheme (SDS)?

➢ **Swadesh Darshan Scheme:** It is a **100% centrally funded (Central Sector Scheme)** launched by the **Ministry of Tourism in 2015** to develop **sustainable and responsible tourism in India.**

○ It aims at the **integrated development** of **theme-based tourist circuits** across India such as **Buddhist, Coastal, Desert, Eco, Heritage, Northeast etc.**

○ It provides **financial assistance** to State Governments, UT Administrations, and Central Agencies for **tourism infrastructure development.**

○ **Operation & Maintenance (O&M)** of sanctioned projects is the responsibility of respective **State/ UT governments.**

➢ **Swadesh Darshan 2.0 (SD2.0): SD2.0** adopts a **holistic approach** for development of **sustainable and responsible tourism destinations,** aligning with the **'Vocal for Local'** and **Aatmanirbhar Bharat** vision,

○ It aims to **increase private sector investment** in tourism, hospitality and asset management marking a shift from circuit-based tourism to a **destination-centric model for long-term growth.**

➢ **Challenge-Based Destination Development (CBDD):** CBDD is a **sub-scheme under SD2.0** that adopts a **competitive approach to develop tourism destinations** with a focus on **sustainability, digitalization,** skill development, MSME support, and effective management.

> **What is the Current Status of the Tourism Sector in India?**
>
> **Click Here to Read: Current Status of the Tourism Sector in Indi**a

What are the Key Initiatives for Tourism Development in India?

➢ National Tourism Policy, 2022

➢ Dekho Apna Desh Initiative

➢ Ek Bharat Shreshtha Bharat

➢ Cruise Tourism

➢ **PRASAD Scheme**: Aims at the **development and beautification of pilgrimage sites** to boost religious tourism.

➢ **HRIDAY (Heritage City Development and Augmentation Yojana)**: **HRIDAY** seeks to **preserve and revitalize heritage cities**, ensuring sustainable urban development.

➢ **Development of Tribal Homestays: Homestays** for tourists are being developed in tribal areas under **PM Janjatiya Unnat Gram Abhiyan (PM-JUGA)**.

➢ **Digital Initiatives:**

○ e-Visa Facility

○ **Swachh Paryatan Mobile App**: Enables tourists to report cleanliness issues at tourist sites for prompt action.

> **What is the Significance of the Tourism Sector for India?**
>
> **Click Here to Read: Significance of the Tourism Sector for India**
>
> **What are the Key Issues Related to India's Tourism Sector?**
>
> **Click Here to Read: Key Issues Related to India's Tourism Sector**r

Electoral Reforms in India

Why in News?

The Election Commission of India (ECI) has invited political parties to discuss **strengthening elections** amid allegations of electoral roll manipulation and duplicate Electors Photo Identity Card (EPIC) numbers.

What Are the Legal Provisions Governing Elections?

➢ **Article 324**: Grants the ECI the authority to **supervise, direct, and control** the preparation of **electoral rolls** and the conduct of elections to **Parliament and State legislatures.**

➢ **Representation of the People Act, 1950:** It includes provisions for election officers such as **chief electoral officers, district election officers, and electoral registration officers**, as well as electoral rolls for Parliamentary, Assembly, and Council constituencies.

➢ **Representation of the People Act, 1951 (RPA)**: Deals with the **pre-election process**, mainly the **preparation and maintenance** of electoral rolls.

➢ **Registration of Electors Rules, 1960**: Lays down **detailed procedures** for the **implementation** of electoral roll-related provisions under **RPA, 1951**.

○ E.g., Guidelines for the **inclusion, correction, or deletion** of names in electoral rolls.

➢ **Delimitation Act, 2002:** It was enacted to **redraw the boundaries of parliamentary and assembly constituencies** based on the latest Census data.

Note: Evolution of Voting Methods

➢ **1952 & 1957: Separate ballot boxes** for each candidate.
➢ **1962:** Introduction of **ballot papers** with candidate **names and symbols**.
➢ **2004:** Introduction of **Electronic Voting Machines (EVMs).**
➢ **2019:** Mandatory use of Voter Verifiable Paper Audit Trail **(VVPAT) slips alongside EVMs.**

ELECTORAL REFORMS IN INDIA

ELECTORAL REFORMS ARE CHANGES MADE TO IMPROVE THE ELECTION PROCESS AND ENSURE FAIRNESS.

Electoral Reforms Before 1996

- **Model Code of Conduct (1969):** Guidelines to regulate political parties and candidates prior to elections
- **61st Constitutional Amendment Act (1988):** Lowering of the voting age from 21 to 18 years
- **Electronic Voting Machines (EVMs) (1989):** Switched from individual colored ballot boxes to ballot papers, and later to EVMs
- **Booth Capturing (1989):** Provision for adjournment of poll or countermanding of elections in such cases
- **Elector's Photo Identity card (EPIC) (1993):** Electoral roll is the basis to issue EPIC to registered electors
- **ECI- A Multi-member Body (1993):** Election commissioners were appointed in addition to CEC

Electoral Reforms of 1996

- **Time-limit for By-elections:** Elections must occur within 6 months of any vacancy in a legislative house
- **Listing of Names of Candidates:** Contesting candidates categorized into 3 groups for listing
  - Recognised & registered-unrecognised political parties
  - Other (independent)
- **Disqualification for Insulting the National Honour Act, 1971:** Leads to election disqualification for 6 years upon:
  - Insulting the National Flag, Constitution of India or preventing the singing of National Anthem

Electoral Reforms After 1996

- **Vote Through Proxy (2003):** Service voters in Armed Forces & forces under Army Act can vote by proxy
- **Allocation of Time on Electronic Media (2003):** Equitable sharing of time on electronic media during elections to address the public
- **Introduction of Braille Signage Features in EVMs (2004):** To facilitate the visually impaired voters to cast their votes without an attendant

Electoral Reforms Since 2010

- **Voting Rights to Indian Citizens Living Abroad (2010)**
- **Online Enrollment in Electoral Roll (2013)**
- **Introduction of NOTA option (2014)**
- **VVPAT Voter Verified Paper Audit Trail (2013):** Introduction of VVPAT with EVMs to conduct free and fair elections
- **Photos of Candidates on EVMs and Ballot Papers (2015):** To prevent confusion in constituencies with namesake candidates
- **Introduction of Electoral bonds (2017 Budget):** An alternative to cash donations for political parties
  - Declared as unconstitutional by SC (2024)
- **Launch of Electronic EPIC (2021)**
- **Home Voting for People with Disabilities & Those Above 85 years of Age (2024)**

IMPORTANT COMMITTEES/ COMMISSION

Committees/ Commission	Year	Purpose
▌Tarkunde Committee	1974	▌By Jaya Prakash Narayan (JP) during the "Total Revolution" movement.
▌Dinesh Goswami Committee	1990	▌Electoral Reforms
▌Vohra Committee	1993	▌On the Nexus between Crime and Politics
▌Indrajit Gupta Committee	1998	▌State Funding of Elections
▌Second Administrative Reforms Commission of India	2007	▌Report on Ethics in Governance (Headed by Veerappa Moily)
▌Tankha Committee (Core Committee)	2010	▌To look into the whole gamut of the election laws & electoral reforms.

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What Are the Key Concerns in the Electoral Process?

Voting and Counting Issues:

➢ **Concerns Over EVM Tampering:** Many people sought a return to paper ballots citing concerns regarding **EVM** tampering.

➢ **100% VVPAT Verification:** Critics of EVM seek full **VVPAT-EVM matching** which at present is carried out for **five machines per assembly constituency/segment**.

○ Instead, the SC instructed engineers to verify the **burnt memory of microcontrollers in 5% of EVMs** if tampering is suspected.

➢ **Alleged Electoral Roll Manipulation:** Opposition parties claimed large numbers of **fake voters** were added before the Maharashtra and Delhi Assembly elections.

○ The EC attributed duplication to the earlier **decentralized EPIC allotment** before shifting to the **ERONET (Electoral Roll Management System).**

○ ERONET is a **centralized digital platform** by the ECI for efficient **electoral roll management** nationwide.

➢ **Duplicate EPIC Numbers:** Some voters in states like West Bengal, Gujarat, Haryana, and Punjab reportedly have **identical EPIC numbers.**

○ The EC clarified that voters can **only vote at their designated polling station,** regardless of their EPIC number.

Campaign Process Issues

➢ **Violation of Model Code of Conduct (MCC):** Star campaigners often use inappropriate language, appeal to caste/communal sentiments, and make **unverified allegations.**

➢ **Election Expenditure:** Candidates **exceed spending limits**, while there are **no limits on party expenditure.**

○ It is estimated that political parties spent nearly **Rs 1,00,000 crore** during the **2024 Lok Sabha elections**.

➢ **Criminalization of Politics:** In 2024, **46% (251)** of elected MPs have **criminal cases,** with **31% (170)** facing serious charges like rape, murder, and kidnapping.

What Reforms Are Needed?

Voting and Counting Reforms

➢ **VVPAT Matching:** States should be divided into regions, and any **discrepancy** should trigger a **full manual VVPAT count** in the affected region.

○ Candidates placed second or third should request **5% EVM verification** in case of suspected tampering.

➢ **Totaliser Machines:** To safeguard voter **anonymity**, the ECI's 2016 proposal recommends using **'totaliser' machines** to combine votes from **14 EVMs** before disclosing candidate-wise results.

➢ **Fake Voter Concerns:** To prevent fake voters and duplicate EPIC cards, **Aadhaar-EPIC linking** can be considered after discussions and privacy assurances.

○ Meanwhile, the EC should **eliminate duplicate voter IDs** and ensure unique EPIC numbers.

Campaign and Electoral Reforms

➢ **Stronger Enforcement of MCC:** The EC should have the authority to **revoke a leader's 'Star Campaigner' status** for serious MCC violations, removing campaign expenditure relief.

○ Under the **Symbols Order, 1968,** the EC can also **suspend or withdraw** a party's recognition for failing to follow MCC or its directives.

➢ **Regulating Election Expenditure:** The **RPA, 1951**, should be amended to ensure that a political party's **funding** to its candidate falls **within the prescribed election expenditure limits**.

○ There should also be a **ceiling on expenditure by political parties**.

➢ **Criminalization of Politics:** Strictly enforce the Supreme Court's ruling in *Public Interest Foundation v. Union of India Case, 2018,* requiring candidates and parties to declare **criminal records thrice before elections** in widely circulated media.

> **Note:** The election expenditure limit for candidates is set at **Rs 95 lakh for Lok Sabha seats and Rs 40 lakh for Assembly seats** in larger states, and **Rs 75 lakh and Rs 28 lakh respectively in smaller states**.
>
> ➢ Currently, there are **no expenditure limits imposed on political parties** during elections, allowing them unrestricted spending.

Click Here to Read: SC Judgements on Electoral Reforms?

What are Committee/Commission Recommendations on Electoral Reforms?

➢ **Vohra Committee (1993):** It recommended **strict background checks** and creation of a **nodal agency** to collect, analyze, and act on intelligence about criminal-politician-bureaucrat links.
  ○ Strengthen electoral laws to **curb black money and muscle power.**

➢ **Election Commission:** EC have recommended that even persons against whom **charges** are framed by a **competent court** for an offence that entails **punishment of more than five years** should not be allowed to contest elections.

➢ **Law Commission:** Law Commission's **244th Report (2014)** recommended:
  ○ **Disqualify politicians** once charges are framed.
  ○ Increase the penalty under the **RP Act, 1951 to a minimum 2-year sentence** for false affidavits, with **disqualification for convictions.**

➢ **2nd Administrative Reforms Commission (ARC):** The **2nd ARC's Ethics in Governance report** backed **partial state funding** to curb illegitimate money in elections as earlier recommended by the **Indrajit Gupta Committee on State Funding of Elections (1998).**

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.

➢ **Need of Code of Ethics:**
  ○ **Legal Pressures:** States like **Tamil Nadu** have attempted to impose strict regulations, including **Aadhaar verification** and **gameplay blackouts** (midnight to 5 AM).
  ○ **Lack of Central Regulation:** The Union government's proposed rules for the RMG industry are yet to be enforced, creating pressure on firms to **self-regulate.**
  ○ **Industry Image:** Self-regulation helps RMG companies demonstrate responsibility and legitimacy.
  ○ **Competition from Offshore Platforms:** International gambling websites, which **bypass GST and ID verification** requirements, are growing rapidly, making **ethical commitments crucial** for domestic platforms to distinguish themselves.

Code of Ethics

- **Advertising Transparency** — Clear and honest promotions.
- **Age Restrictions** — Prevent underage gaming.
- **Identity Verification** — Authenticate users to prevent fraud.
- **Self-Lockout** — Players can limit their gameplay.
- **Gaming Alerts** — Warnings for excessive play.
- **Player Protection** — Identify and restrict at-risk users.
- **Truthful Prizes** — Verify and ensure realistic rewards.
- **No Misleading Claims** — Gaming isn't a financial solution.
- **Financial Limits** — Easy spending caps and loss alerts.

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).

Click Here to Read: What are the Challenges to the Gaming Sector?

Distinguishing Between Games of Skill and Games of Chance		
Aspect	**Games of Skill**	**Games of Chance**
Definition	Games where the outcome is primarily determined by the **player's knowledge, strategy, and skill**.	Games where the outcome is primarily based on **random factors and luck**.
Key Determining Factor	Player skill, **decision-making**, and practice.	Randomness, **probability, and luck.**
Control Over Outcome	High – Players' actions directly influence results.	Low – Players have little to **no control over results**.
Examples	Chess, Poker (skill-based), **Esports** (Dota 2, Counter-Strike), **Fantasy Sports,** Sports Betting (knowledge-based).	Slot Machines, Roulette, Lottery, **Scratch Cards, Most Casino Games.**
Legal Status	Often exempt from gambling laws or lightly regulated.	Strictly regulated due to the potential for exploitation and addiction.

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.

■ ■ ■

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Economic Scenario

Highlights

- *India's Aviation Boom*
- *Economic Scenario*
- *Revised Priority Sector Lending Guidelines*
- *India's Automobile Sector*
- *Gross Fixed Capital Formation*

- *India's Remittance Trends 2024*
- *De-Dollarization and India*
- *What is India's Stand on De-Dollarization and it Impacts India?*
- *Ensuring Agricultural Sustainability in India*
- *Rise of Quick Commerce in India*

India's Aviation Boom

Why in News?

India is set to host the **81st International Air Transport Association (IATA)** Annual General Meeting and World Air Transport Summit in June 2025.

➢ This event highlights India's rapidly **growing aviation sector,** which is projected to become the third-largest aviation market in the world within this decade.

What is the Landscape of India's Aviation Sector?

➢ **Market Growth and Global Position:** India is the **3rd-largest domestic aviation market** after the USA and China. India now accounts for **69% of South Asia's airline traffic.**
  - India is expected to become the **3rd-largest air passenger market** (international and domestic) **by 2030.**
  - The **passenger traffic** (international and domestic) during FY25 (till September 2024) stood at 196.91 million.

➢ **Employment Generation**: The aviation industry directly employs **369,700 people** and contributes **USD 5.6 billion** in economic output.
  - When tourism and related industries are included, aviation supports **7.7 million jobs** and contributes **USD 53.6 billion**, which is **1.5% of India's GDP.**

➢ **Infrastructure**: Operational airports increased from **74 in 2014 to 157 in 2024, with a target of 350-400 airports by 2047.** Additionally, 21 greenfield airports were approved, with 11 already operational.

○ **Aircraft movement** increased at a **Compound annual growth rate (CAGR) of 3.85%** from 2.05 million in FY17 to 2.67 million in FY24.

○ New terminals and greenfield airports are under development (e.g., Bagdogra Civil Enclave, Dehradun terminal).

Indian Aviation Sector in FY24

MARKET SIZE

Scheduled Airlines: Distance Flown million km: 969.63

Non-scheduled airlines in operation: 103 (FY23 as of January 2023)

Air Passengers traffic (million): 376.43 (FY24)

Freight Handled (MMT): 3,365.65 (FY24)

Number of Aircrafts: 771 (as of December 31, 2023)

Number of Operational Airports: 148 (2023)

What are the Key Drivers of India's Aviation Growth?

➢ **Growing Middle Class:** India's **growing middle class** has doubled domestic air travel in a decade, reaching **37.6 crore in FY24 with 15% YoY growth.**
  - This demographic shift has led to **increased demand for affordable and accessible air travel,** especially on domestic routes.

➢ **Fleet Expansion:** Airlines like IndiGo and Air India have placed massive aircraft orders. The number of operational commercial aircraft is expected to **reach 1,100 by 2027, up from 771 (2023).**

➢ **Tourism and Business Travel:** The rise of religious, medical, and adventure tourism, coupled with growing **business travel** has boosted the overall growth of India's aviation sector.

➢ **Talent Pool**: India's 15% share of women pilots, compared to the global average of 5%, highlights significant progress in **aviation gender equality.**

UDAN SCHEME

Ude Desh Ka Aam Naagrik

Ministry of Civil Aviation

2016

FEATURES:
- Connecting Small and Medium cities with big cities through air service
- Providing affordable, economically viable, and profitable air travel
- Extending financial incentives to selected airlines to encourage operations from unserved and under-served airports.

ABOUT:
- A Regional Connectivity Scheme (RCS)
- Launched in October 2016 and operational for a period of 10 years
- Formulated in Pursuance of the National Civil Aviation Policy (NCAP)-2016
- Udan 4.1 is the latest project.

BENEFITS:
- Democratisation of the Aviation Sector
- Employment Generation
- Boost to Tourism Sector
- Connecting smaller airports, special helicopters and sea plane routes.

- **Lifeline UDAN:** Air transport of medical cargo and essential supplies across India at the time of the Covid-19.
- **Krishi UDAN:** To assist farmers in transporting agricultural products
- **International UDAN:** To connect India's smaller cities directly to some key foreign destinations.

➤ **Increasing Private Sector Participation:** Public-Private Partnership (PPP) airports have grown from just 5 in 2014 to 24 in 2024. The National Monetization Pipeline includes privatisation of 25 airports.

➤ **Government Initiatives:** UDAN (Ude Desh Ka Aam Nagrik) has enhanced regional connectivity by subsidising airfares and developing under-served airports.
  ○ Under **UDAN over 519 routes have been operationalised** improving accessibility to remote and interior regions across the country.
  ○ **Digi Yatra** enables contactless, paperless air travel through facial recognition technology for seamless passenger processing.

○ The government allows **100% Foreign Direct Investment (FDI) in scheduled domestic airlines** (automatic route up to 49%), while Non-Resident Indians (NRIs) can invest **100% under the automatic route** in Scheduled Air Transport Service.
  ● Between 2000 and 2024, India attracted **USD 3.85 billion in FDI** in the air transport sector.
○ India implements a uniform **5% Integrated Goods and Services Tax on aircraft parts** to boost the domestic **Maintenance, Repair, and Overhaul (MRO) industry,** which is projected to reach USD 4 billion by 2030.

What Challenges Does Indian Aviation Face?

➤ **High Fuel Costs:** Aviation is a low-margin industry with a global net profit margin of **just 3.6%**. Aviation Turbine Fuel (ATF) is heavily taxed in India, making up a significant portion of airline operating expenses and adding to the financial burden

➤ **Exchange Rate Volatility:** The depreciation of the Indian rupee against the US **dollar raises costs for airlines**, as key expenses like aircraft leasing and fuel imports are dollar-denominated.

➤ **Sustainability:** The global aviation industry is committed to achieving net zero carbon emissions by 2050.
  ○ However, India's efforts are hindered by the **slow adoption of Sustainable Aviation Fuel (SAF)** and limited green airport infrastructure, impacting its progress in reducing emissions and environmental impact.

➤ **Skewed Regional Connectivity:** Despite progress under the UDAN scheme, many Tier-II and Tier-III cities, especially in developing states like **Telangana, remain under-connected.**
  ○ Airports like **Kushinagar** (Uttar Pradesh) **and Sindhudurg** (Maharashtra) struggle due to low demand, forcing airlines to cut operations.

➤ **Regulatory Complexity and Overlaps:** Multiple agencies oversee aviation (Directorate General of Civil Aviation, Airports Authority of India, Ministry of Civil Aviation), leading to overlapping mandates and delayed clearances.
  ○ Airlines face complex compliance burdens, including taxation, environmental clearance, and airport charges.

- **Underdeveloped Airspace Modernization**: Rapid increase in aircraft has not been matched by **modernisation of air traffic control and airspace optimisation,** especially in busy sectors leading to flight routing and delays.
  - Additionally, weak cargo infrastructure hampers freight growth despite rising demand.

What Measures are Needed to Strengthen India's Aviation Growth?

- **Rationalisation of ATF Taxation:** Bring ATF under the **Goods and Services Tax (GST) regime** to reduce cascading taxes and provide uniform pricing across states.
- **Airspace Modernisation:** Expedite the proposed **Civil Air Traffic Management System with Advanced-Surface Movement Guidance and Control System** to optimize airspace usage and reduce delays.
- **Boost Sustainability:** India, the world's third-largest **ethanol** producer and consumer, has strong potential to lead in **SAF production** via the **Alcohol-to-Jet (AtJ) pathway** (conversion of alcohols to an alternative jet fuel).
- **Incentivising Cargo Infrastructure:** Develop dedicated **air cargo hubs** under **Krishi UDAN 2.0** with cold chain and warehousing for perishable and high-value goods to boost rural incomes and exports.

Revised Priority Sector Lending Guidelines

Why in News?

The **Reserve Bank of India (RBI)** has issued revised **Priority Sector Lending (PSL)** guidelines under the **Banking Regulation Act, 1949**. These updates aim to enhance credit flow to priority sectors and promote inclusive growth.

What are the Revised PSL Guidelines 2025?

- **Higher Loan Limits for Education:** The RBI has increased the loan limit under PSL for education from Rs 20 lakh to Rs 25 lakh per individual.
- **Renewable Energy Loans:** Loan limits for **renewable energy** projects like **solar power, biomass,** and micro-hydel plants raised from Rs 30 crore to Rs 35 crore per borrower.

- Loans for individual households for renewable energy remain capped at Rs 10 lakh per borrower.
- **PSL Targets for Urban Cooperative Banks (UCBs):** Revised PSL target for UCBs reduced to 60% (from 75%) of **Adjusted Net Bank Credit (ANBC) or Credit Equivalent of Off-Balance Sheet Exposure (CEOBE),** whichever is higher.
- **Housing sector:** Loans limits are increased to boost affordable housing, particularly in Tier-III to Tier-VI cities.
- **Expansion of the 'Weaker Sections' Category:** The list of eligible borrowers under the **'Weaker Sections' category** has been expanded, it now includes **transgenders,** promoting financial inclusion and better credit access for underprivileged groups.

Note: ANBC is the total net bank credit after making necessary deductions and adjustments, and CEOBE is the amount representing the credit risk exposure of off-balance sheet items such as guarantees and letters of credit.

What is Priority Sector Lending?

- **About:** PSL is an **RBI-mandated requirement** for banks to allocate a **set portion of their loans to key priority sectors** that face credit shortages but are crucial for **inclusive economic growth.**
  - **Priority Sector Lending Certificates (PSLCs)** are tradable certificates issued against priority sector loans.

ELIGIBLE CATEGORIES UNDER PRIORITY SECTOR

Agriculture	Micro, Small and Medium Enterprises	Export Credit
Education	Housing	Social Infrastructure
Renewable Energy	Weaker Sections	Others (members of SHGs)

- **Evolution of PSL: Gadgil Committee (1969)** proposed the **'Area Approach',** leading to the **Lead Bank Scheme (LBS)** for regional credit planning.
  - **The Nariman Committee (1969)** supported the Gadgil Committee's recommendations and recommended that each Public Sector Bank should adopt certain districts as 'Lead Banks' to boost PSL.
  - **PSL was formalized in 1972** based on the **RBI's Informal Study Group's report (1971).** Initially, no targets were set, but in **1974**, banks were advised to raise PSL to **33.3% by 1979**.
  - **Krishnaswamy Committee (1980)** recommended a **40% PSL target by 1985**, with sub-targets for **agriculture and weaker sections**.
  - **Usha Thorat Committee (2009)** endorsed the continuation of the LBS for its role in the expansion of PSL.
- **PSL Targets for Banks:**

Bank Category	Target
Scheduled Commercial Banks (SCBs) & Foreign Banks (with 20+ branches in india)	40% of ANBC or CEOBE, whichever is higher
Foreign Banks (less than 20 branches)	40% of ANBC or CEOBE (export Credit: Minimum 32%, and non-export sectors 8%)
Regional Rural Banks (RRBs) & Small Finance Banks (SFBs)	75% of ANBC or CEOBE, whichever is higher

- **Consequences for Banks Missing Targets:** Banks failing to meet PSL targets must contribute to the **Rural Infrastructure Development Fund (RIDF)** and other designated funds at fixed interest rates, ensuring funds still reach priority sectors.

> **Note:** Foreign banks (with <20 branches in India) cannot buy **PSLC General to meet their 8% target for non-export sectors** but can purchase PSLCs for Agri, MSMEs, and Small and Marginal Farmers.

What are the Challenges Regarding PSL?

- **Sectoral Imbalances:** Banks often prefer lending to MSMEs or housing sectors within PSL as they are commercially more viable.
  - Sectors like **small and marginal farming remain underfunded,** despite being a core PSL component.
- **High Non-Performing Assets (NPAs):** Banks face challenges in recovering PSL loans, especially in agriculture, leading to **high NPAs** and financial strain.
  - Studies show PSL contributes to **higher defaults** due to borrower vulnerability and **political interference (with initiatives like loan waivers)** further discourage lending.
- **Low Profitability for Banks:** PSL loans usually have lower interest rates and higher default risks, which makes them less profitable for banks.
- **Target-Driven Approach:** PSL has become **target-driven rather than outcome-oriented.** Banks focus on meeting quotas, often through indirect or non-priority avenues, which dilutes the real developmental impact.

What Can Be Done to Enhance PSL?

- **Performance-Based Incentives:** Shift from quota-based lending to an **impact-driven approach** focused on poverty reduction, livelihood generation, and social outcomes.
  - Introduce performance measurement through **social impact audits** and development indicators instead of just credit disbursal figures.
- **Enhance Risk Mitigation :** Establishing dedicated **credit guarantee schemes** for high-risk segments under PSL, such as the **Credit Guarantee Fund Trust for Micro and Small Enterprises (CGTMSE),** can significantly mitigate the risk of NPAs.
- **Digital and Technological Integration:** Leverage Big Data to profile borrowers, **predict risks**, and personalize credit products. Use geotagging to assess farm output, enhancing agri-credit reliability.

India's Automobile Sector

Why in News?

India's automobile sector under **'Make in India' initiative** has witnessed record growth in 2023-24, with total vehicle production reaching **28 million units** the sector is transforming into a global manufacturing hub, especially for **Electric Vehicles (EVs).**
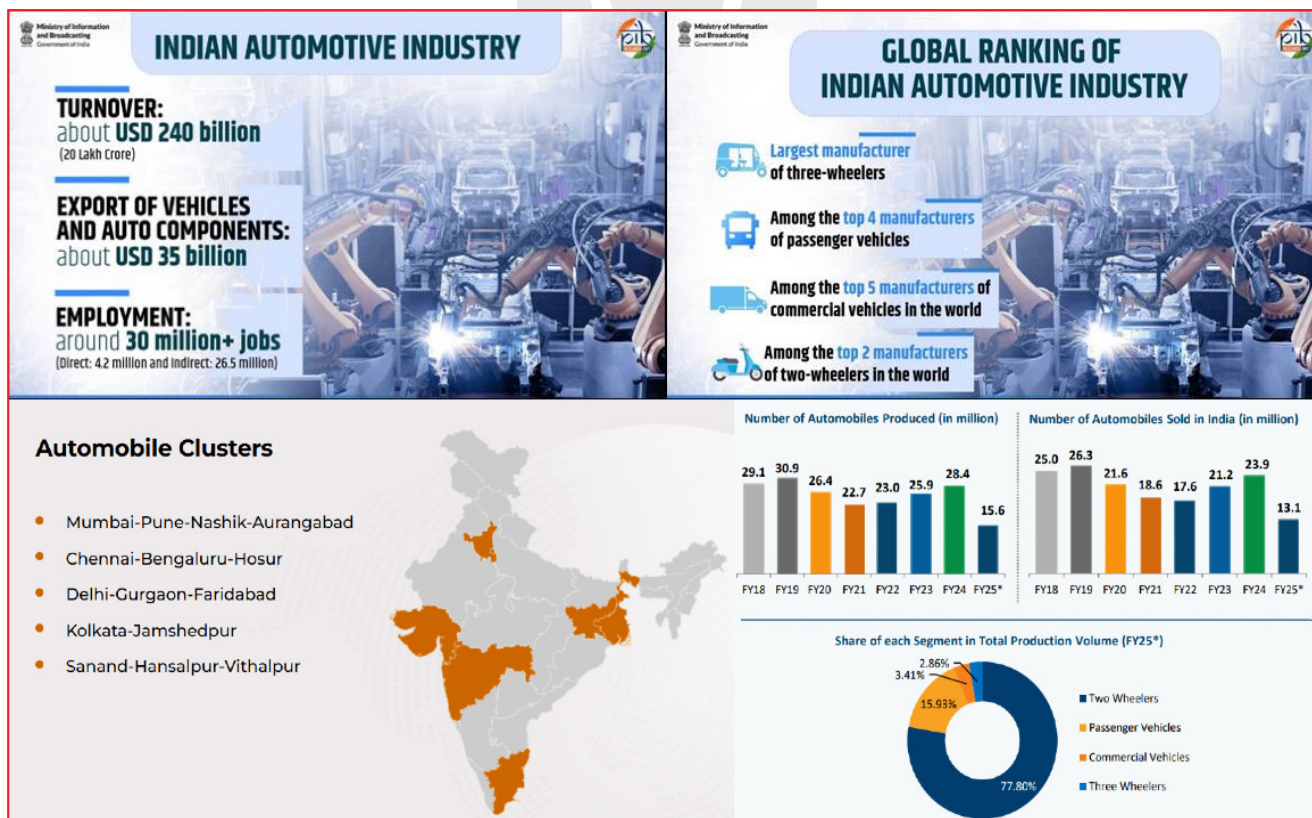
What is the Growth Trajectory of India's Automobile Sector?

➢ **Early Liberalization (Post-1991):** The automobile industry was **de-licensed in 1991**, and subsequent opening up for **100% Foreign Direct Investment (FDI) via the automatic route.**

○ This opened doors for global manufacturers like Suzuki, Hyundai, and Honda to set up production units in India.

➢ **Production Surge:** Vehicle production increased from **2 million units (1991-92) to 28 million (2023-24).**

➢ **Contribution to Economy:** India's automotive industry has a USD 240 billion turnover, the sector contributes approximately **6% to India's GDP** and supports about **30 million jobs** (4.2 million direct and 26.5 million indirect).

➢ **Auto Component Industry:** India's **auto components industry** contributes **2.3% to GDP** and directly **employs 1.5 million people.**

○ In FY24, the industry's turnover reached Rs. 6.14 lakh crore (USD 74.1 billion), with **54% of supplies catering to domestic original equipment manufacturers** and 18% to exports.

○ Growing at a **Compound Annual Growth Rate (CAGR) of 8.63% (FY16-FY24),** exports stood at USD 21.2 billion in FY24 and are projected to reach USD 30 billion by 2026.

➢ **Electric Vehicle Push:** EV registrations crossed **4.4 million by August 2024**. The EV market penetration stood at 6.6%.

➢ **Trade:**

○ **Export Expansion:** Exports touched 4.5 million units in FY24. India's auto component exports are highest to Europe, North America and Asia.

○ **Imports:** The auto component industry exported USD 21.2 billion and imported USD 20.9 billion worth of components during 2023-24, resulting in a **trade surplus of USD 300 million.**

➢ **FDI and Investments:** India attracted **USD 36 billion in FDI (2020-2024)**, and by FY28, the Indian auto industry plans a **USD 7 billion investment to localize electric motors** and automatic transmissions, reducing imports and leveraging the **"China Plus One" strategy**.

INDIAN AUTOMOTIVE INDUSTRY

TURNOVER: about **USD 240 billion** (20 Lakh Crore)

EXPORT OF VEHICLES AND AUTO COMPONENTS: about **USD 35 billion**

EMPLOYMENT: around **30 million+ jobs** (Direct: 4.2 million and Indirect: 26.5 million)

GLOBAL RANKING OF INDIAN AUTOMOTIVE INDUSTRY

- **Largest manufacturer** of three-wheelers
- Among the **top 4 manufacturers** of passenger vehicles
- Among the **top 5 manufacturers** of commercial vehicles in the world
- Among the **top 2 manufacturers** of two-wheelers in the world

Automobile Clusters

- Mumbai-Pune-Nashik-Aurangabad
- Chennai-Bengaluru-Hosur
- Delhi-Gurgaon-Faridabad
- Kolkata-Jamshedpur
- Sanand-Hansalpur-Vithalpur

Number of Automobiles Produced (in million): 29.1 (FY18), 30.9 (FY19), 26.4 (FY20), 22.7 (FY21), 23.0 (FY22), 25.9 (FY23), 28.4 (FY24), 15.6 (FY25*)

Number of Automobiles Sold in India (in million): 25.0 (FY18), 26.3 (FY19), 21.6 (FY20), 18.6 (FY21), 17.6 (FY22), 21.2 (FY23), 23.9 (FY24), 13.1 (FY25*)

Share of each Segment in Total Production Volume (FY25*): Two Wheelers 77.80%, Passenger Vehicles 15.93%, Commercial Vehicles 3.41%, Three Wheelers 2.86%

What are the Key Auto Sector Initiatives Under Make in India?

- **Schemes:**
  - **FAME-II (Faster Adoption and Manufacturing of Hybrid & Electric Vehicles)** supports EV adoption with **16.15 lakh EVs** incentivized and 10,985 charging stations sanctioned.
  - **PLI-Auto (Production Linked Incentive for Auto & Components)** promotes Advanced Automotive Technology (AAT), including EVs & hydrogen fuel-cell components.
  - **PLI-ACC (Advanced Chemistry Cell Battery Manufacturing)** aims for a 50 Gigawatt hours (GWh) battery manufacturing ecosystem (40 GWh allocated to four firms)
  - **PM Electric Drive Revolution in Innovative Vehicle Enhancement** (2024-2026) supports **EVs, e-trucks, e-buses, and charging infrastructure**.
  - The **PM e-Bus Sewa Scheme (FY 2024-29)** targets deployment of over 38,000 e-buses.
- **Policy Measures:** Ministry of Finance reduced GST on EVs from 12% to 5%, and **Ministry of Housing & Urban Affairs** amended **Model Building Bye Laws, 2016** to mandate EV charging stations in private and commercial buildings.

What are the Challenges to India's Automobile Sector?

- **Import Dependency:** India relies on imports for key EV components like **lithium-ion cells** and **semiconductors,** making costs and supply vulnerable to global disruptions, limiting full self-reliance.
- **Limited EV Penetration:** India's EV penetration remains low compared to **12% globally and 30% in China.** Additionally, battery and vehicle **costs remain high despite GST reduction.**
  - Limited charging infrastructure, especially in **tier-2/3 cities** and rural areas, along with **range anxiety,** hinders widespread adoption despite projections of **20% penetration by FY30.**
- **Skilled Workforce Shortage:** Despite a large job market, the industry lacks skilled workers in **automation, fuel cells, and hydrogen tech,** crucial for sustainable mobility.

- **Stricter Emission Norms**: The upcoming **Corporate Average Fuel Efficiency (CAFE III & IV) standards (2027-2032)** will enforce stricter carbon emission limits, pushing automakers to adopt costly technology upgrades.
  - This will likely increase **internal combustion engine (ICE)** vehicle prices as manufacturers invest in cleaner technologies.
- **Shared Mobility & Public Transport:** Ride-sharing apps and improved public transport options reduce car ownership demand, affecting vehicle sales.

How Can India Accelerate Its Automotive Growth and Sustainability?

- **Localization of Auto Components:** Accelerate domestic production of rare earths and lithium by exploring **reserves like those in Jammu & Kashmir** through the Ministry of Mines' **National Critical Mineral Mission.**
- **Scale up Infrastructure:** As recommended by NITI Aayog Integrate EV charging infra with city planning, especially in **smart cities** and urban transport nodes.
  - Create **Green Mobility Credit Guarantee Funds** to support MSMEs and startups in the EV supply chain.
- **Foster Circular Economy:** Implement the **Battery Swapping Framework,** as recommended by NITI Aayog.
  - Adopt **Green Logistics Policies** promoting EV fleets in last-mile delivery, building on **Logistics Efficiency Enhancement Program (LEEP).**
- **Policy Harmonization:** Streamline EV policies across States and UTs to align with **National Electric Mobility Mission Plan** targets (achieve 6-7 million sales of hybrid and EVs year on year from 2020 onwards).
  - Digitize regulatory approvals using the **National Single Window System (NSWS)** for ease of doing business.
- **Transition from ICVs to EVs:** Support CAFE III & IV with financial and technological assistance, especially for MSMEs.
  - Address job displacement in the ICV ecosystem through targeted re-skilling under the **Skill India Mission** and **National Apprenticeship Promotion Scheme.**

○ Align the Vehicle Scrappage Policy with the EV transition by incentivizing the retirement of older ICVs and providing linked rebates for EV purchase.

MP Salary Hike vs. Worker Wage Stagnation

Why in News?

The Central government has notified a **24% hike in the salaries and pensions of <u>Members of Parliament (MPs)</u>** with retrospective effect from 1st April 2023.

➢ However, the <u>India Employment Report (IER) 2024</u> reveals stagnation **and decline in real wages for India's working population,** highlighting the growing economic divide.

> **Note:** MP salaries increased to Rs 1.24 lakh/month, daily allowance to Rs 2,500, and pensions to Rs 31,000/ month.

How are MPs' Salaries Revised?

➢ **Legal Framework:** Since 2018, salaries and pensions of MPs are revised every five years based on the **Cost Inflation Index (CII)** instead of requiring a separate parliamentary approval.

○ This adjustment mechanism was established under the **Finance Act, 2018,** which amended the **Salaries, Allowances, and Pension of Members of Parliament Act, 1954.**

➢ **Cost Inflation Index:** The CII is notified every year under under Section 48 of the Income Tax Act, 1961 by the Income Tax department,

○ CII is used to adjust the **purchase price of assets based on inflation.**

○ CII helps in **indexation** and ensures that taxpayers **do not pay excessive taxes** on <u>long-term capital gains (LTCG)</u> due to the rise in asset prices over time.

○ The CII for **FY 2024-25 is 363,** meaning prices have risen 3.63 times since the 2001 base year (earlier 1981), which has a fixed value of 100.

What Does the IER 2024 Say About Wage Trends in India?

➢ **Wage Trends:** Average real wages for **regular salaried workers declined from Rs 10,925 in 2022 to Rs 10,790 in 2023** and average casual wages dropped slightly from Rs 4,712 to Rs 4,671.

○ The average earnings for self-employed individuals rose from Rs 6,843 in 2022 to Rs 7,060 in 2023.

○ Average earnings for **women in self-employment and casual work declined,** while men in self-employment saw marginal gains.

➢ **Quality of employment generation:** The report states that **poor real wage growth** reflects weak quality of employment generation, despite rising **Gross Domestic Product (GDP).**

What are the Concerns of Rising Political Pay Vs. Worker wage Stagnation?

➢ **Weakening of Democratic Accountability:** India's **per capita income in 2022-23** was estimated at **Rs 1.72 lakh,** or roughly **Rs 14,333 per month.**

○ A retired MP now receives over twice the average Indian income, while a sitting **MP earns nearly nine times as much.**

○ When political leaders receive substantial salary hikes while the general populace experiences wage stagnation, it may lead to perceptions of **self-serving governance.**

● This can undermine the legitimacy of **democratic institutions,** erode public trust in elected officials and widen the divide between the **rulers and the ruled.**

➢ **Asymmetry in Governance Priorities:** While MPs' salaries were hiked by 24% in 2025, India's **National Floor Level Minimum Wage (NFLMW)** remains at a meagre Rs 176/day (unchanged since 2017) and among the lowest in the Asia-Pacific.

○ This stark contrast reveals a mismatch in **urgency and prioritisation,** undermining the moral credibility of democratic governance.

➢ **Fueling Populism:** With wages stagnating, **inflation rising (<u>food inflation at 9.04% in 2024</u>),** and **household savings remain low at 5.3% of GDP in FY24,,** the electorate is increasingly reliant on **state-led freebies.**

○ Rising political pay without addressing these **vulnerabilities may reinforce short-term populist politics** over long-term welfare reforms.

➢ **Undermining Inclusive Growth Goals:** Disparity in wages threatens the idea of **"shared prosperity",** a key Sustainable Development Goal (<u>SDG 10: Reduced Inequalities</u>), and may weaken India's global image as a growth-inclusive economy.
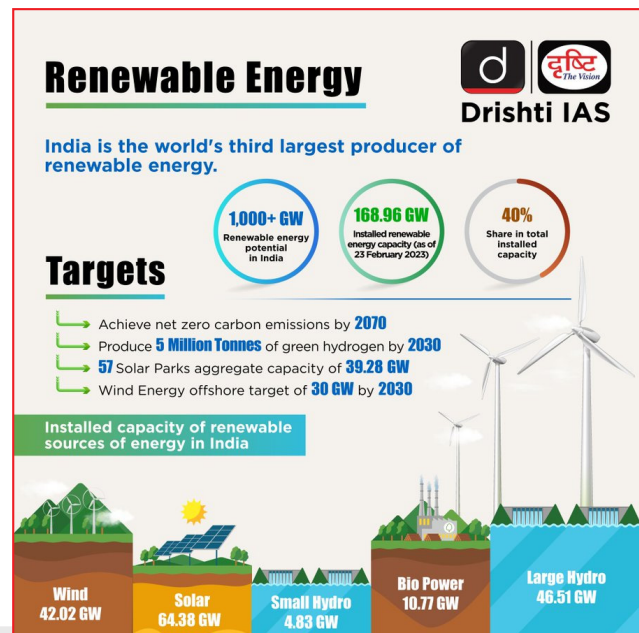
➢ **Weak Social Protection Infrastructure:** Unlike the **European Union,** which has moved towards **fair minimum wages and legal redress mechanisms for wage disputes.**
  ○ India's minimum wage **Minimum Wages Act,1948** remains narrowly defined **(focused mostly on food/calorie norms)** it does not comprehensively address other essential aspects such as housing, health, and education, keeping labour pay survival-focused.

How Can India Bridge the Wage-Inflation Gap?

➢ **Need for systemic reform:** The <u>Second Administrative Reforms Commission</u> and experts like the <u>14th Finance Commission</u> have recommended **independent emoluments commissions** to **depoliticize pay revisions** and align them with economic performance.

➢ **Index Minimum Wages to Inflation:** Indexing minimum wages to inflation can prevent wage erosion and ensure stable real income.
  ○ A **National Wage Indexation Mechanism** with periodic base floor revisions can be implemented.

➢ **Shift from Minimum Wage to Fair Wage:** Aligning with the <u>Article 43 of the Indian Constitution,</u> expand the definition of a **"decent standard of living"** to include health, education, housing, and social mobility.
  ○ Align with the **ILO's Decent Work Agenda** (aims to promote productive employment and decent work through job creation) and EU fair wage frameworks.

➢ **Compliance through Digital Governance:** Leverage the <u>e-Shram portal,</u> and <u>Employees' Provident Fund Organisation (EPFO)</u> databases, and real-time reporting tools to monitor wage compliance, especially in the informal sector.

➢ **8th Pay Commission for Wage Parity:** The <u>8th Pay Commission</u> should align government salaries with inflation and economic conditions, linking public and private sector wage trends for a balanced income structure.

Global Energy Review 2024

The <u>International Energy Agency (IEA)</u> released the **Global Energy Review (GRE) 2024**, analyzing trends in **energy demand, supply, technology, and CO_2 emissions**.

Renewable Energy
Drishti IAS

India is the world's third largest producer of renewable energy.

- **1,000+ GW** Renewable energy potential in India
- **168.96 GW** Installed renewable energy capacity (as of 23 February 2023)
- **40%** Share in total installed capacity

Targets
- Achieve net zero carbon emissions by **2070**
- Produce **5 Million Tonnes** of green hydrogen by **2030**
- **57** Solar Parks aggregate capacity of **39.28 GW**
- Wind Energy offshore target of **30 GW** by **2030**

Installed capacity of renewable sources of energy in India
- Wind **42.02 GW**
- Solar **64.38 GW**
- Small Hydro **4.83 GW**
- Bio Power **10.77 GW**
- Large Hydro **46.51 GW**

➢ **Key Highlights of GRE 2024:**
  ○ **Global Energy Demand Growth:** Increased by **2.2%**, with **emerging economies** contributing **80%** of the rise.
  ○ **Rise of Renewables & Natural Gas:** <u>Renewables</u> accounted for **38% of growth**, adding a **record 700 GW**. **China (340 GW solar, 80 GW wind)** and **India (30 GW solar)** were key contributors.
    ● **Natural gas demand** rose **2.7%**, led by **China's LNG adoption**.
  ○ **Coal Demand Trends: Globally** rose **1%**, with **China (60% electricity from coal) and India (75%)** as top consumers.
    ● Coal's **global electricity share fell to 35%**, the lowest since **1974**.
  ○ **Crude Oil Demand Slows:** Growth was **0.8%**, primarily due to the **petrochemical sector**, while <u>EVs,</u> <u>LNG</u> **trucks, and high-speed rail** reduced transport-related oil consumption.
➢ **International Energy Agency (IEA):**
  ○ **Established:** 1974 by <u>OECD</u> nations (due to **1973-74 oil crisis**).
  ○ **Headquarters: Paris, France**.
  ○ **Mandate:** Ensures energy security, economic development and global engagement through analysis, data, and policy recommendations.

- ❍ **Members: 31 member countries**, **13 association countries** (including **India**), and **4 accession countries**. **Only OECD members** can become IEA members.
- ❍ **Major Reports:** **World Energy Outlook reports**, **India Energy Outlook Report**, **World Energy Investment Report.**

> Read More: IEA Report Electricity 2024

Gross Fixed Capital Formation

Why in News?

The share of **private capital expenditure (capex)** in India's **Gross Fixed Capital Formation (GFCF)** has declined to a decade-low of 33% in FY24.

What is Gross Fixed Capital Formation?

➢ **GFCF:** Also known as **"investment,"** GFCF refers to the net increase in an **economy's fixed capital assets (investment minus disposals)** over a specific period.
- ❍ It includes investments in infrastructure, machinery, equipment, and other durable assets that contribute to long-term economic growth.
- ❍ It is a key part of **Gross Capital Formation (GCF),** which also includes **Change in Stocks (Inventories)** and **Net Acquisition of Valuables** (items like gold, gems, and precious stones etc,).

➢ **Significance:** It constitutes around **30% of India's nominal Gross Domestic Product (GDP),** making it the second-largest component after private final consumption expenditure.
- ❍ GFCF is crucial for economic growth as it **directly boosts GDP,** enhances productivity, and improves living standards.
  - ● It promotes **self-reliance by creating capital assets** and supporting innovation.
- ❍ GFCF as an indicator of **business confidence,** especially in the private sector, reflects future economic potential and overall output capacity.

➢ **GFCF Trends:** From FY15 to FY24, GFCF grew at a **compounded annual growth rate (CAGR)** of 10%.
- ❍ However, growth has been slowing since FY23, with GFCF growth moderating to 9% in FY24 from 20% in FY23.

➢ **Reasons for Declining GFCF:** In FY24, private capex share in GFCF fell to 33% as unlisted entities witnessed a contraction, **leading to an overall decline in GFCF.**
- ❍ A global slowdown and **weak export demand** for Indian products have **reduced investment in production capacity**, while the influx of cheap Chinese imports in certain sectors like textile have discouraged domestic expansion.
- ❍ In FY24, the **cash flow from operations to capex ratio** rose to 1.6x (from 1.3x in FY14–20).
  - ● However, instead of investing in new assets, **firms prioritized debt repayment** leading to a decline in capex and GFCF.

➢ **Implications of Decline in GFCF:** A decline in GFCF hampers **long-term economic growth** by limiting **productive capacity and job creation.**
- ❍ It delays infrastructure development, reduces private sector participation, and signals **weak investor confidence** potentially discouraging **foreign direct investment (FDI).**
- ❍ Decline in GFC leads to over-reliance on **public spending** which is unsustainable and may hinder innovation, competitiveness, and inclusive growth.

What Can Be Done to Revive Private Capex and GFCF?

➢ **Boost Domestic Consumption:** Fast-track the **8th Pay Commission** and increase **MNREGA wages,** as recommended by the Parliamentary Standing Committee on Rural Development, to boost rural spending and overall demand.
- ❍ **Higher disposable income** will encourage businesses to invest in production capacity, leading to increased Capex and GFCF.

➢ **Strengthen Exports and Imports:** Finalize **Free Trade Agreements (FTAs)** with the UK and the EU to integrate Indian businesses into global supply chains, boosting capital formation and investment.
- ❍ To counter Chinese imports **revive traditional industries** (e.g., textiles, toys) by integrating them with e-commerce platforms to expand market reach. Impose **anti-dumping duties on Chinese steel** to protect domestic manufacturers and support the MSME ecosystem.

➤ **Private Sector R&D and Innovation:** Operationalize the **Rs 1 lakh crore innovation corpus (Budget 2024-25)** to incentivize private investment in R&D to enhance global competitiveness and long-term economic growth.

➤ **Industrial Infrastructure:** Provide **infrastructure status to the hospitality sector** to attract private investments.

➤ **Sustainable Growth:** Scale up green finance through **sovereign green bonds** to fund climate adaptation projects and attract private investments.

○ Promote **carbon trading** incentives and **circular economy** models to foster sustainable industrial growth, ultimately driving **higher GFCF and private capex.**

India's Remittance Trends 2024

Why in News?

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

What are the Key Findings of the 6th Round of India's Remittances Survey?

➤ **Shift in Source of Remittances:** 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.**

○ The US led remittances at 27.7% in 2023-24, followed by the **United Arab Emirates (UAE)** at 19.2%.

○ AEs, including the UK, Singapore, Canada, and Australia, contributed over 50%.

● The U.K.'s share rose to 10.8% from 3.4% (2016-17), driven by increased Indian emigration and Australia emerged as a key source with 2.3%.

○ 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).

➤ **State-wise Distribution of 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.

➤ **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%).

Remittance

➤ **About:** Remittances are funds sent by overseas workers to support families back home, playing a key role in household income and the economy.

○ In 2024, India received a record **USD 129.1 billion** in remittances, the highest ever for any country in a single year, accounting for **14.3% of global remittances**. Mexico and China followed as the next largest recipients.

➤ **Regulatory Framework:** The **Foreign Exchange Management Act (FEMA), 1999** regulates all foreign exchange transactions in India.

○ Under the **Liberalized Remittance Scheme (LRS),** a part of **FEMA**, Indian residents can remit up to **USD 250,000 per year** for personal and investment purposes, with higher amounts requiring **RBI approval.**

○ However, **LRS prohibits remittances for gambling, speculative trading, and terrorist financing.**

➤ **Remittances** are recorded under the **current account of the Balance of Payments (BoP) as unilateral transfers.** They represent foreign income inflows that **do not create liabilities.**
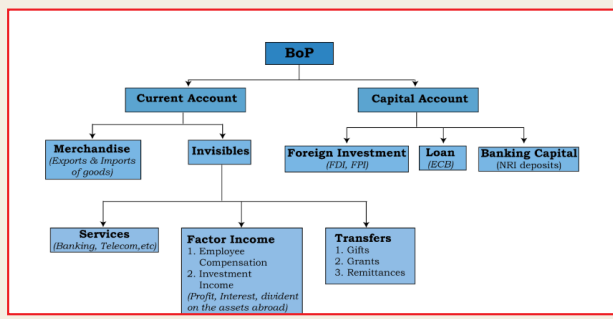
De-Dollarization and India

Why in News?

Recent **financial and currency initiatives**, particularly within the **BRICS+ framework**, seek to lessen dependence on the US dollar-dominated system **(de-dollarisation)** and establish **alternative mechanisms** for global trade and finance.

De-dollarization

➤ It refers to the process of **reducing the dominance of the US dollar** in global trade, finance, and foreign exchange reserves.

➤ It involves **substituting** the **US dollar** with other currencies or assets (such as **gold, cryptocurrencies, or regional currencies**) for international transactions, commodity trading (like oil), and reserve holdings.

What are the Recent Financial and Currency Initiatives for De-dollarisation?

➤ **mBridge Project:** It is a **digital cross-border payment** system using **Central Bank Digital Currencies (CBDCs)**. It was initially promoted by the central banks of several countries like **China, Thailand,** with support from the **Bank for International Settlements (BIS)**.

○ Speculation suggests the **BIS withdrew under US pressure** to protect dollar dominance.

➤ **BRICS+ Initiatives:** BRICS Bridge and **BRICS Clear** are **proposed** financial systems for setting up a **payment and clearing system** among Brics+ countries.

○ BRICS+ group includes original BRICS nations i.e., **Brazil, Russia, India, China, and South Africa** along with new members i.e., **Egypt, Ethiopia, Iran, United Arab Emirates,** and **Indonesia**.

➤ **Petro-Yuan Market: Shanghai International Energy Exchange (2018)** handles **10.5% of global oil trade** and **14.4% of global oil futures**.

○ **Saudi Arabia and the UAE's non-dollar oil trades** boost the **petro-yuan** by increasing **demand** and enhancing its **credibility** as a **stable alternative to the US dollar.**

➤ **BRICS Currency:** At the **16th Kazan BRICS summit 2024**, an agreement in principle was reached to use a new settlement currency called the **"Unit,"** backed by **40% gold and 60% local currencies** of member countries.

What are Global Benefits of De-Dollarization?

➤ **Reduced Geopolitical Risks:** Countries can **insulate** themselves from **US sanctions and foreign policy decisions** that leverage the dollar's dominance (e.g., **freezing assets** or restricting access to the global financial system).

○ E.g., After **Russia's 2022 invasion** of Ukraine, the West froze over **USD 300 billion** in Russian assets.

➤ **Diversification:** De-dollarization promotes **multi-currency use**, reducing reliance on one currency and balancing global finance.

○ E.g., rise of the **petro-yuan and Indian rupee** to create an alternative payment system.

➤ **Strengthening Regional Currencies:** Countries can boost their currencies in trade, strengthening **economic sovereignty** and **reducing exchange rate risks**.

○ E.g., India trading oil with the UAE in rupees.

➤ **Reduced Vulnerability:** Countries become **less impacted** by US monetary policy (e.g., **interest rate changes**), avoiding effects like **capital flight and currency devaluation**.

➤ **Increased Use of Gold:** De-dollarization has led to a **resurgence in gold** as a reserve asset, providing a **stable alternative** to fiat currencies.

➤ **Promotion of Digital Currencies:** De-dollarization speeds up **digital currency** and **blockchain payment** development, driving financial innovation.

○ E.g., China's digital yuan (e-CNY) and **India's Digital Rupee (e₹).**

What Concerns are Associated with Global De-dollarization?

➤ **Short-Term Instability:** Sudden shifts in currency reserves or trade agreements could create **volatility in global markets**, as the dollar remains the **backbone of international trade and finance**.

➤ **Limited Acceptance of Alternatives:** Many alternative currencies (e.g., the yuan, rupee, or ruble) **lack the liquidity, stability, and global trust** that the US dollar enjoys.

➤ **Risk of Fragmentation:** De-dollarization could lead to the formation of **competing currency blocs**, **fragmenting** the global economy and complicating international trade and investment.

➤ **Geopolitical Tensions:** The US may respond aggressively to de-dollarization efforts, potentially escalating **trade wars**, **sanctions, or other forms of economic retaliation**.

○ E.fg., **US tariffs threats** to BRICS countries attempting to reduce dollar dependency.

➤ **Global Repercussions:** A decline in the dollar's reserve status could lead to **reduced demand for US debt**, and economic instability in the US, which could have **global repercussions,** as the US being the largest economy.

➤ **Exchange Rate Determination Problem:** Without the US Dollar as a global benchmark, countries must use alternatives like a multi-currency basket, complicating exchange rates.

○ E.g., **India and Russia** are **still negotiating** a currency **exchange rate** based on their local currencies.

What is India's Stand on De-Dollarization and it Impacts India?

➤ **India's Stand on De-Dollarization:** India engages in **BRICS+ currency discussions** but remains **cautious**, affirming it has **no intent to undermine the US dollar**, seeing it as key to global stability.

Benefits

➤ **Promotion of the Indian Rupee:** It encourages the use of the Indian rupee in **bilateral and multilateral trade agreements**. E.g., India's trade with Russia in rupees for oil imports.

➤ **Greater Monetary Policy Autonomy:** Reducing dollar reliance gives India **greater control over monetary policy** to manage inflation, and interest rates, without being impacted by US policy shifts.

➤ **Diversification of Reserves:** De-dollarization helps India **diversify reserves** into other currencies (e.g., euro, yen, yuan) or gold, reducing dollar **devaluation risks**.

➤ **Reduced Exposure to US Sanctions:** It **reduces** India's vulnerability to **US-led sanctions** providing greater geopolitical flexibility.

○ It **reduces reliance** on the US-centric **SWIFT system,** shielding India's financial system from risks and sanctions.

Concerns

➤ **Impact on Foreign Investment:** Moving away from the dollar could **deter foreign investors** who prefer the **stability and predictability** of dollar-denominated assets.

INTERNATIONALISATION OF RUPEE

MEANING
- Increasing the use of Indian rupee in cross-border transactions

INVOLVES
- Rupee for import and export
- Rupee for current and capital account transactions

> Indian Rupee is fully convertible in current account, but partially in capital account (BoP)

NEED
- Weaponisation of USD by US (for sanctions)
- Wave of de-dollarisation
- Increasing internationalisation of Chinese Renminbi
- India's minimal share in global forex market turnover (1.7%)

RBI'S EFFORTS
- Indian currency in cross-border trade - key component in Foreign Trade Policy 2023
- Mechanism introduced for rupee trade settlement with 18 countries
  - » Banks from these countries allowed to open Special Vostro Rupee Accounts (SVRAs)
- Circular on "International Trade Settlement in Indian Rupees" (2022)
- External commercial borrowings in INR enabled

SIGNIFICANCE
- Reduced dependency on USD
- Lesser need for holding forex reserves
- Better bargaining power of Indian business
- Less exposure to currency volatility

CHALLENGES
- Rupee not fully convertible
- Less need for other countries to hold INR; India's low share in global exports
- Rupee may become more vulnerable to external shocks
- India's lesser control on Rupee supply

STEPS THAT CAN BE TAKEN
- More liberalised settlements in INR (in India and overseas)
- India to expand its reach in the global financial market
- Transition to an export-oriented economy to reduce trade deficit

Drishti IAS

- ➤ **Challenges in Diversifying Reserves:** Alternative currencies or assets like gold may expose India to **new risks**, such as **currency depreciation or price fluctuations in commodities.**
  - ○ India risks **over-reliance on the Chinese yuan**, bringing geopolitical and economic challenges.
- ➤ **Impact on Remittances:** De-dollarization may **disrupt India's dollar-denominated remittances**, impacting millions of families.

Ensuring Agricultural Sustainability in India

Why in News?

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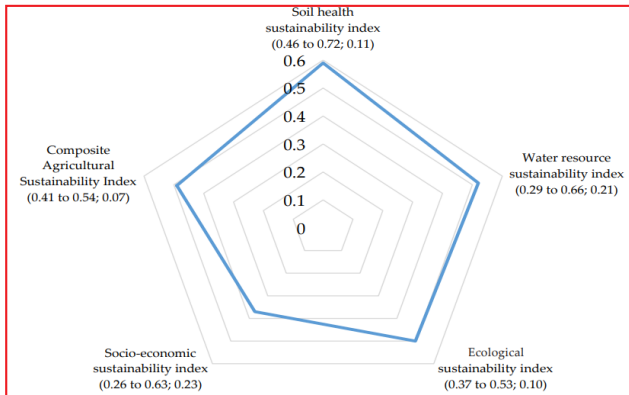
What are the Key Findings of the ICAR's Policy Paper?

➢ **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**.

Radar chart showing: Soil health sustainability index (0.46 to 0.72; 0.11); Water resource sustainability index (0.29 to 0.66; 0.21); Ecological sustainability index (0.37 to 0.53; 0.10); Socio-economic sustainability index (0.26 to 0.63; 0.23); Composite Agricultural Sustainability Index (0.41 to 0.54; 0.07).

➢ **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 2050.**
     - 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**.
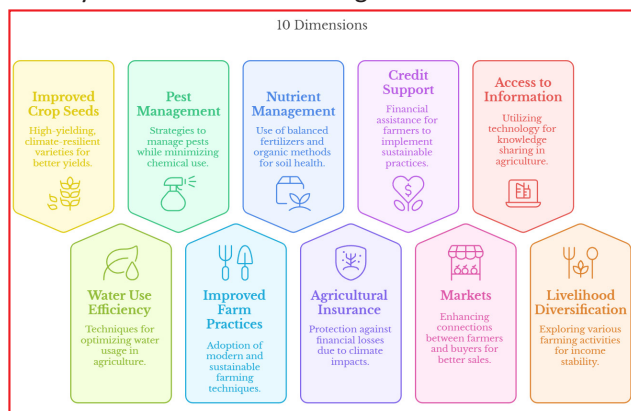   - **Climate Change Adaptation:** Implement adaptation measures to make agriculture **resilient to climate change** impacts.

○ **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:

10 Dimensions

➢ **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.

Rise of Quick Commerce in India

Why in News?

Quick commerce (Q-commerce) has transformed urban shopping habits by enabling **deliveries within minutes**.

➢ While it offers convenience and brand advantages, concerns over **predatory pricing, data privacy, and the displacement of traditional retailers** have sparked regulatory scrutiny.

What is Quick Commerce?

➢ **About:** Q-commerce, a subclass of **e-commerce**, is an on-demand delivery model where goods and services are delivered within **10 to 30 minutes of ordering.**

○ It focuses on **smaller, high-demand items** like groceries, stationeries, and over-the-counter medicines.

➢ **Working Model:** Q-commerce platforms rely on dark stores (local warehouses designed solely for online fulfillment), strategically located in high-demand areas for faster dispatch.

○ Platforms use AI-driven analytics to forecast demand, optimize inventory, and personalize recommendations, while automated supply chains prevent stockouts.

● Unlike **traditional retail** with a fixed **inventory based model** Q-commerce dynamically adjusts stock supply based on real-time consumer trends.

○ Delivery executives in high-density areas enable instant dispatch, with orders assigned via proximity-based route algorithms for efficiency.

○ Unlike traditional stores with fixed hours, Q-commerce **operates round the clock** to cater to immediate needs.

➢ **Impact on Consumers:** Consumers prefer Q-commerce for **urgent and impulse purchases**, particularly for food, beverages, and daily essentials.

○ The ability to order beyond traditional store hours (post 8 PM) has made these platforms indispensable for urban consumers.

○ Minimal cart values for free delivery, combined with aggressive discounts, further encourage adoption.

○ A **NeilsenIQ survey (2024)** found that **12% of urban consumers now prefer quick commerce**, up from 5% two years ago.

➢ **Growth & Expansion in India:** The Indian **Q-commerce market is valued at USD 3.34 billion (FY 2024)** and is projected to reach USD 9.95 billion by 2029, growing at 76% YoY.

○ Major players like **Flipkart, Ola, Blinkit, BigBasket, and Zepto** have aggressively expanded their Q-commerce presence, investing in AI-driven inventory management.

○ Q-commerce now contributes **35% of total e-commerce** sales for large **Fast-Moving Consumer Goods (FMCG) brands.**

Note: In India, **Foreign Direct Investment (FDI)** is prohibited in **inventory-based e-commerce models**. However, Q-commerce platforms operating under the marketplace model are eligible for 100% FDI under the automatic route.

Feature	Traditional E-commerce	Quick Commerce
Delivery Time	3-4 days or more	10-30 minutes
Order Type	Bulk & planned purchases	Small, frequent, impulse buys
Product Range	Extensive catalog	Limited, high-demand essentials
Storage	Large warehouses	Local micro-fulfillment centers
Operational Model	Logistics-driven	Hyperlocal & AI-driven

What are the Concerns Regarding Quick Commerce?

➢ **Predatory Pricing & Market Manipulation:** The **All-India Consumer Products Distribution Federation (AICPDF)** has accused Q-commerce platforms for **setting prices below landing costs** to drive traditional retailers out of business.

  ○ Once competition weakens, platforms allegedly **increase prices to recover initial losses**, a practice known as **"price gouging."**

➢ **Data Exploitation & Algorithmic Pricing:** Q-commerce platforms leverage **big data and Artificial Intelligence (AI) - driven pricing models**, which can result in **differential pricing** based on **location** (higher prices in affluent areas), **device type** (premium phone users might see higher prices) and **shopping patterns** (repeat buyers may get different pricing than new users).

➢ **Impact on Small Retailers & Employment:** Traditional retailers, especially small kirana shops, **struggle to compete** against the deep discounting offered by Q-commerce platforms.

  ○ As these retailers **lose business**, concerns arise about **mass unemployment** in the sector.

  ○ Many distributors and small retailers argue that there must be a **"level playing field"** to ensure their survival alongside digital platforms.

➢ **Environmental Impact:** Quick commerce's growth increases single-use plastic waste and pollution from delivery bikes.

➢ **Gig Worker Exploitation:** Delivery agents face low wages, lack protective gear while driving, endure high-pressure delivery targets, and most of them have no social security.

➢ **Urban-Centric Growth:** Q-Commerce **thrives in Tier-1(especially metropolitan) cities** but **faces challenges in Tier-2 and Tier-3** due to lower digital adoption, weaker demand, and logistical constraints, **restricting its expansion beyond metropolitan hubs.**

■■■

International Relations

Highlights

- IAEA Backs India's NSG Bid via MECR
- International Relations
- Route for IORA Under India's Chairship
- India-US Agricultural Trade Negotiations
- India-New Zealand Relations
- Why Are India and New Zealand Important to Each Other?
- 4th Conference of Global Intelligence & Security Chiefs

IAEA Backs India's NSG Bid via MECR

Why in News?

The **International Atomic Energy Agency (IAEA)** has backed India's entry into the **Nuclear Suppliers Group (NSG)**, a key body within the 4 major **Multilateral Export Control Regimes (MECR)**.

What are Multilateral Export Control Regimes (MECR)?

➢ **About:** MECR are **voluntary frameworks** aimed at **preventing the proliferation of Weapons of Mass Destruction (WMDs)** and **restricting the transfer of sensitive technologies**.
  ○ India is a member of **3 out of the 4** MECRs, **except the NSG**.
➢ **Key Features:** They function **independently of the United Nations (UN)**.
  ○ Their regulations **apply only to members**, and **participation is voluntary.**

4 Major Regimes:

➢ **Australia Group (AG):**
  ○ AG was formed in **1985** as an **informal forum of 43 countries** aimed at **preventing** the proliferation of **chemical and biological weapons**.
  ○ The group helps members comply with the **Chemical Weapons Convention** and **Biological & Toxin Weapons Convention.**
  ○ I**ndia joined it in 2018,** strengthening its position for membership in the **NSG** and advancing global non-proliferation objectives.

➢ **Missile Technology Control Regime (MTCR):**
  ○ MTCR is a **voluntary, informal partnership of 35 countries**, established in **1987**, which aims to **limit the proliferation of missiles and unmanned aerial vehicles (UAVs)** capable of delivering **WMDs**.
  ○ It **restricts the supply of such systems to non-members** and is based on **consensus decisions**.
  ○ India joined as the **35th member in 2016,** gaining access to advanced missile technologies. Members are obligated to **share military information and consult on exports.**
➢ **Wassenaar Arrangement:**
  ○ It aims to **regulate the transfer of conventional arms** and **dual-use technologies.**
  ○ It establishes **lists of sensitive items for export controls** to **prevent destabilizing arms buildups** and ensures that **transfers do not enhance military capabilities** that could undermine global stability.
  ○ Member countries are required to **implement controls and report on the transfer of controlled items**.
  ○ **India** joined it **in 2017.**
➢ **Nuclear Suppliers Group (NSG):**
  ○ NSG was formed in response to **India's 1974 nuclear tests**, aims to **prevent nuclear proliferation** by **regulating nuclear and related exports**.
  ○ It has **48 members** and a **Trigger List** that **restricts the export of certain nuclear items** to **non-nuclear Non-Proliferation Treaty (NPT)** signatories.
  ○ India's NSG membership bid has been **blocked by China,** which calls for **non-discriminatory procedures** for **countries outside the NPT** and **links India's entry to Pakistan's membership**, despite Pakistan's ineligibility.

India And NSG

NSG
- Nuclear Supplier Group (NSG) is a 48-nation body that controls the global nuclear commerce.
- Set up in 1974 after India's nuclear test.

India's Aspirations
- India has sought NSG membership since 2008.
- Key members — USA, Russia, France, Australia and Japan have been supportive of India's entry into the select club.
- NSG had granted 'Clean Waiver' to India in 2008 after intense lobbying by USA.
- Following the **Clean Waiver**, Delhi has signed several civilian nuclear pacts with US, France, Russia, Kazakhstan, Mongolia, Namibia, Canada, UK, Argentina and Australia.

Challenges in India's bid
- Pakistan, backed by China, is also lobbying to become an NSG Member.
- Both Pakistan and India are Non-signatory of NPT.
- Since Pakistan's is unlikely, exercise seems aimed at sabotaging India's prospects.

IAEA

- It was **established** in **1957** for **promoting the peaceful** use of nuclear energy and preventing its military use, including nuclear weapons.
- It is headquartered in **Vienna, Austria** and was awarded the **Nobel Peace Prize in 2005.**
- It reports to both the **UN General Assembly (UNGA)** and the **UN Security Council (UNSC)**.

Route for IORA Under India's Chairship

Why in News?

As India gets ready to take over as **Indian Ocean Rim Association (IORA)** Chair in **November 2025 (currently vice chair)**, it aims to **make the organization's governance more resilient.**

- India plans to boost IORA's budget, enhance data management with technology, and collaborate with institutions to develop maritime courses over the next two years.

What is the Indian Ocean Rim Association (IORA)?

- **About:** IORA is an intergovernmental organisation established to promote economic cooperation and regional integration among countries bordering the **Indian Ocean.**

- IORA member states **work on various initiatives related to trade, investment, and sustainable development** in the Indian Ocean region (IOR).
- **Background:** It **was established on 7th March 1997**. The vision for IORA originated **during a visit by late President Nelson Mandela of South Africa** to India in 1995.
  - This idea led to **the Indian Ocean Rim Initiative (IORI) in 1995** and the formation of the **Indian Ocean Rim Association for Regional Cooperation (IOR-ARC) in 1997**, now known as IORA.
- **Membership:** IORA **welcomes all sovereign states** along the Indian Ocean Rim that adhere to its Charter's principles and objectives.
  - Currently, it comprises **23 member states and 10 dialogue partners,** IORA covers Asia, Africa, and Oceania, connecting nations via the Indian Ocean waters.

Indian Ocean Region

- The IOR forms a **unique geopolitical and economic zone** within the broader Indo-Pacific region.
- It is **home to two-thirds of the world's population** and plays a crucial role in global trade and energy security.
- The Indian Ocean facilitates **75% of global trade and 50% of daily oil consumption**, generating USD 1 trillion in goods and services, with intra-IORA trade reaching USD 800 billion in 2023.

What is India's Role and Strategic Contributions in IORA?

- **Alignment with SAGAR Vision:** India's **Security and Growth for All in the Region (SAGAR) vision** closely aligns with **IORA's strategic objectives**, emphasizing maritime security, economic cooperation, and sustainable development.
- **Leveraging Diplomatic and Economic Ties:** India should **capitalize on its strong diplomatic and economic relations** with IORA member states to **foster long-term, sustainable, and cooperative solutions** for regional challenges.
- **Enhancing IORA's Budget:** India plans to **secure sustainable IORA funding** through **public-private partnerships,** leveraging maritime sectors like **shipping, oil, gas, and tourism to boost economic cooperation.**

SAGAR (Security and Growth for All in the Region) Vision

Launched in 2015 for regional security, sustainable growth, and cooperation in the Indian Ocean Region
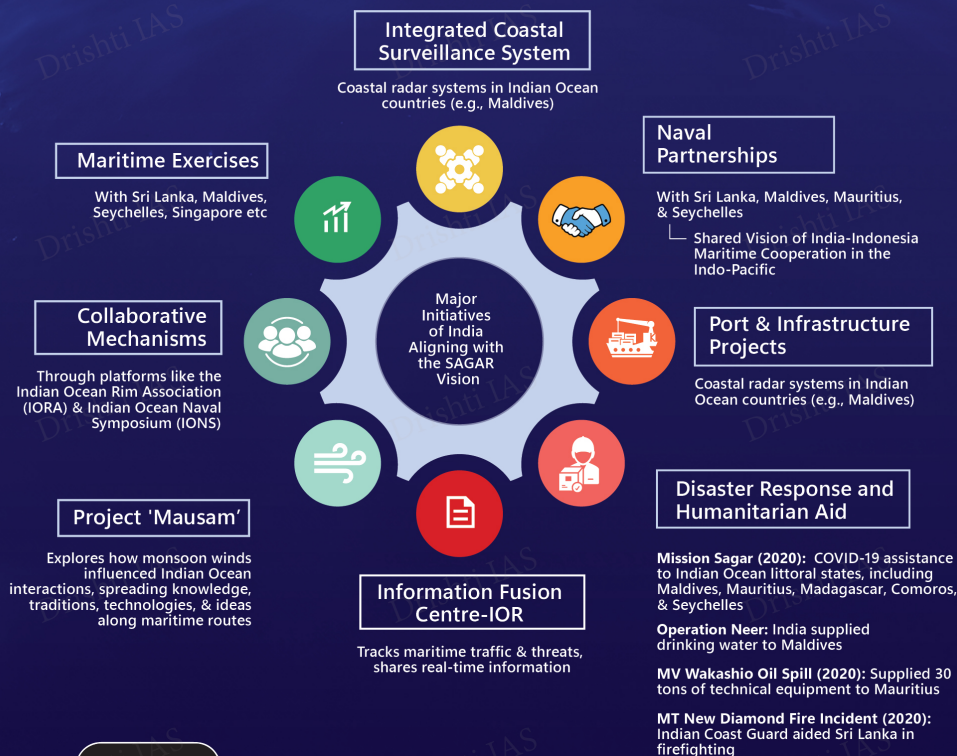
Core Principles

- Trust, respect for maritime norms, regional sensitivity, peaceful dispute resolution, & cooperation
- Aligns with India's Act East Policy & Neighbourhood First policy

Significance of IOR for India

- **Economic Vitality:** 95% of India's trade by volume & 68% of trade by value
- **Strategic Leverage:** Controls key maritime chokepoints (e.g. Strait of Malacca), boosting trade security
- **Defense Shield:** Enhances naval security against piracy & threats
- **Regional Influence:** Strengthens India's role in South Asia and Indo-Pacific

Major Initiatives of India Aligning with the SAGAR Vision

Integrated Coastal Surveillance System

Coastal radar systems in Indian Ocean countries (e.g., Maldives)

Maritime Exercises

With Sri Lanka, Maldives, Seychelles, Singapore etc

Naval Partnerships

With Sri Lanka, Maldives, Mauritius, & Seychelles
— Shared Vision of India-Indonesia Maritime Cooperation in the Indo-Pacific

Collaborative Mechanisms

Through platforms like the Indian Ocean Rim Association (IORA) & Indian Ocean Naval Symposium (IONS)

Port & Infrastructure Projects

Coastal radar systems in Indian Ocean countries (e.g., Maldives)

Major Initiatives of India Aligning with the SAGAR Vision

Project 'Mausam'

Explores how monsoon winds influenced Indian Ocean interactions, spreading knowledge, traditions, technologies, & ideas along maritime routes

Information Fusion Centre-IOR

Tracks maritime traffic & threats, shares real-time information

Disaster Response and Humanitarian Aid

Mission Sagar (2020): COVID-19 assistance to Indian Ocean littoral states, including Maldives, Mauritius, Madagascar, Comoros, & Seychelles

Operation Neer: India supplied drinking water to Maldives

MV Wakashio Oil Spill (2020): Supplied 30 tons of technical equipment to Mauritius

MT New Diamond Fire Incident (2020): Indian Coast Guard aided Sri Lanka in firefighting

➢ **Integrating Technology:** India aims to **enhance data governance and policy analysis** through digital tools, ensuring transparency, efficiency, and faster decision-making.

➢ **Maritime Capacity Building:** India will partner with academic institutions to introduce marine-focused courses, building a **skilled workforce to drive innovation and growth in the blue economy.**

What is the Role of IORA in the Indian Ocean Region?

➢ **Role in Regional Cooperation:** The **IORA**, recognized as one of the **longest-standing regional inter-governmental organizations**, plays a **pivotal role** in fostering **multifaceted cooperation** among its member states.

➢ **Facilitation of Dialogue:** IORA actively **facilitates structured dialogue** on **cultural and academic exchanges, disaster risk management, and maritime security,** aiming to **strengthen regional resilience** and promote **sustainable development.**

➢ **Influence of Middle and Small Powers:** While **global powers like the U.S., China, and the EU engage as dialogue partners,** IORA is mainly driven by middle and small powers that shape its agenda and decisions.

What are the Challenges Faced by IORA?

➢ **Financial Constraints:** IORA faces **significant financial constraints (USD 1.3 billion budget for 2020-2025)**, as its **annual budget remains heavily dependent** on member-state contributions, which limits its ability to **expand operations and implement large-scale initiatives.**

    ○ **Most IORA members**, except Singapore, the UAE, and France, are **budget-constrained developing economies,** weakening the organization's financial stability.

➢ **Resource-Intensive Engagement Areas:** IORA's **expanding mandate** in critical areas such as **maritime safety, fisheries management, disaster risk reduction, blue economy,** demands **sustained financial and institutional resources**, posing a challenge to its **effective implementation and long-term impact.**

➢ **Private Sector Involvement:** IORA **struggles to attract private sector engagement** from key maritime industries **like shipping, oil & gas, and tourism.**

○ Without **stronger partnerships**, it risks missing out on alternative funding sources, **improved operational efficiency**, and long-term financial sustainability.

➢ **Limited Institutional Capacity:** IORA's **Secretariat in Mauritius** operates with a **small workforce and constrained resources**, which limits its ability to **effectively manage administrative and strategic functions**.

➢ **Challenges in Data Management:** The **lack of advanced data management systems** results in **inefficient record-keeping**, increasing the **margin of error** and **hindering accurate policy formulation and decision-making**.

India-US Agricultural Trade Negotiations

Why in News?

The trade negotiations between **India and the US** have highlighted agricultural market access. The US wants India to **open its farm sector to American produce**, citing reciprocity.

➢ However, a major issue is the disparity in **government support for farmers in both countries**. The substantial support for American farmers makes their produce cheaper in India, impacting Indian farmers.

How Does India Support Its Farmers Compared to the US?

➢ **Nature of Support Mechanisms:** India's support primarily includes **subsidies** on inputs such as **fertilizers, irrigation, and electricity,** along with **Minimum Support Price (MSP)** procurement and credit-linked schemes to aid small farmers.

    ○ In contrast, US support mainly comes through **direct payments** under federal programs such as:

       ● **Price Loss Coverage:** Compensates farmers when market prices fall below a set threshold.

       ● **Agriculture Risk Coverage:** Provides payments when actual revenue from a crop is lower than a benchmark level.

       ● **Dairy Margin Coverage:** Protects dairy farmers from fluctuations in milk prices and feed costs.

- **Federal Crop Insurance:** Provides insurance against yield and price losses.
- **Disaster Assistance:** Help farmers to recover from natural disasters.

➢ **Comparison of Financial Support:** India's government spends an estimated **Rs 5 lakh crore (USD 57.5 billion) annually** on agricultural support, higher than the **USD 32.2 billion** average annual US financial assistance.

   ○ However, Indian support is **spread across over 111 million farmers**, while US aid benefits **fewer than 2 million farms**.

   ○ The US provides **direct** payments of **USD 30,782 (Rs 26.8 lakh) per farmer**, while India gives **Rs 6,000 (USD 69) per beneficiary** under the **Pradhan Mantri Kisan Samman Nidhi (PM-Kisan)** scheme.

How Will Differing Government Policies Impact India?

➢ **Unfair Competition for Indian Farmers:** Unequal government support makes Indian **farmers vulnerable to lower-cost American produce** in the Indian market.

   ○ This puts Indian farmers at a disadvantage due to **high capital input costs,** making Indian agricultural products **less competitive in both global and domestic markets.**

➢ **Tariff Reduction vs. Domestic Policy Goals:** India maintains high tariffs on agricultural imports to **safeguard its farmers**, while the **US seeks tariff cuts for easier market access.**

   ○ Any drastic reduction in tariffs could undermine **India's food security policies** and threaten the livelihoods of millions of Indian farmers.

➢ **WTO Rules**: The **World Trade Organization (WTO)** allows developing countries like India to protect their agricultural sector through **higher tariffs and subsidies.**

   ○ The **principle of "non-reciprocity"** states that developed countries should not expect equal market access in return for concessions granted to developing economies.

   ○ India resists **farm market liberalization**, citing weaker financial resilience among its farmers. It is likely to push back against **US demands, emphasizing WTO rules** and farmer security concerns.

Read more: India - US COMPACT Initiative

India-New Zealand Relations

Why in News?

The Prime Minister (PM) of **New Zealand (NZ)** made an official visit to India, held bilateral talks with India's PM, and issued **India-New Zealand Joint Statement**.

➢ The NZ Prime Minister attended the **10th Raisina Dialogue** as the Chief Guest and delivered the Inaugural Keynote Address.

What are the Key Highlights of the India-New Zealand Joint Statement?

➢ **Economic Cooperation:** Both sides agreed to launch negotiations for a **balanced, ambitious, and mutually beneficial** trade agreement as per the NZ's **"Opening Doors to India" Policy.**

   ○ The **Authorized Economic Operators Mutual Recognition Arrangement (AEO-MRA)** was signed to ease the movement of goods between the two countries.

➢ **Security Cooperation:** A defense cooperation MoU was signed for regular engagements like **military exercises** and **naval visits** and NZ expressed interest in joining **India's Indo-Pacific Oceans Initiative (IPOI).**

➢ **Global Cooperation:** Both countries pledged to uphold a **free, inclusive, and stable Indo-Pacific,** supporting rules-based order and navigation freedom under **UNCLOS**.

   ○ NZ endorsed **India's candidature for permanent membership** in a reformed **UN Security Council** and supported its entry into the **Nuclear Suppliers Group (NSG).**

➢ **Climate Change:** NZ reaffirmed support for India's **ISA**, joined **CDRI**, and agreed to cooperate on **SDGs,** the **Paris Climate Agreement** and the **Sendai Framework for Disaster Risk Reduction**.

➢ **Education and Sports:** A renewed **Education Cooperation Arrangement** and a **Sports Cooperation MoU** were signed to strengthen academic partnerships, student exchanges, and sporting ties, with plans to celebrate **100 years of sports relations** in **2026.**

➢ **Diaspora:** Both leaders acknowledged the Indian diaspora's role **(6% of NZ's population)**, for strengthening ties and committed to ensuring the safety of students and tourists.

○ India raised concerns about **pro-Khalistan** activities in NZ, highlighting **anti-India actions** by certain illegal elements.

Click Here to Read: What is Raisina Dialogue?

Why Are India and New Zealand Important to Each Other?

India's Importance for New Zealand

➢ **Expanding Economic Partnerships:** With a **1.4 billion population, a growing middle class**, and an expanding services sector, India offers New Zealand significant opportunities in export of **agricultural products, dairy, meat, wine**, and collaborations in digital services.

➢ **Skilled Workforce:** India is NZ's **largest source of skilled migrants and 2nd-largest source of international students**, with its professionals in IT, engineering, and healthcare helping address NZ's **skill shortages**.

➢ **Digital Economy:** With **880 million internet users** and leading global data consumption, India is a major **digital economy**, presenting NZ's tech firms opportunities for **IT, AI, fintech, and digital commerce collaborations**.

➢ **Strategic Cooperation:** India's growing influence in the Indo-Pacific supports New Zealand's goal of **regional stability**, and strengthens its strategic position.

New Zealand's Importance for India

➢ **Advanced Farming Practices:** New Zealand's expertise in **dairy and horticulture** can support India's **farm modernization**, while collaboration in food processing and logistics strengthens **food security**.

➢ **Skill Development:** NZ's top-tier education attracts Indian students, while its **vocational training programs** can help India address its **skill gaps and improve employability**.

➢ **Clean Energy:** New Zealand's expertise in **climate technology and sustainability** supports India's low-carbon transition, with its firms recognized in **HolonIQ's Indo-Pacific Climate Tech 100**.

○ HolonIQ's Indo-Pacific Climate Tech 100 honors **top climate tech startups across 14 IPEF** partner countries annually.

➢ **Lucrative Market:** New Zealand's vast **EEZ** and maritime security concerns make it a potential buyer of India's **surveillance systems, patrol boats**, and **radars** amid China's Pacific expansion.

○ New Zealand's demand for **organic, sustainable, handcrafted goods** aligns with India's **premium silk, wool, and artisanal products**.

What is New Zealand's "Opening Doors to India" Policy?

➢ New Zealand's **Opening Doors to India policy** is a strategic initiative launched in **2011** to strengthen New Zealand's **economic, political, and cultural ties** with India.

➢ **Key Components:**
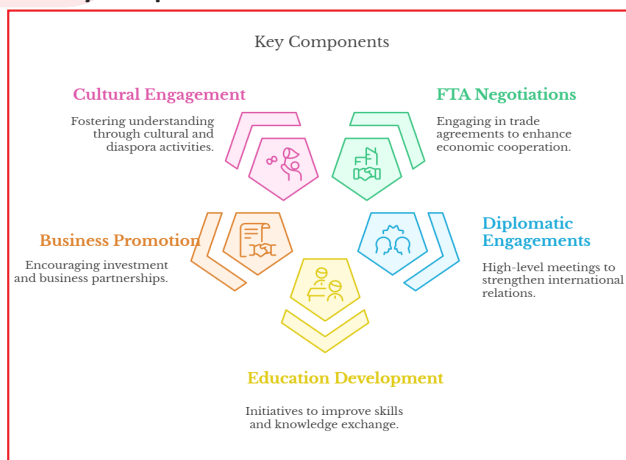
What are the Challenges in India-New Zealand Relations?

➢ **Stalled FTA Negotiations:** Free Trade Agreement (FTA) talks began in **2010 but stalled in 2015** due to India's high tariffs on New Zealand's dairy and agricultural exports to protect its local industry.

- **Non-Tariff Barriers (NTBs):** Indian exports like **grapes, okra, and mangoes** face Sanitary and Phytosanitary (SPS) barriers in New Zealand, while the lack of an **Mutual Recognition Arrangement (MRA)** for standards and certifications further complicates trade.

- **Low Trade Volumes:** In 2023-24, NZ's trade with India totaled only **USD 1.75 billion**, with exports of USD 0.84 billion and imports of USD 0.91 billion.

- **Limited Market Awareness:** Market **complexities** hinder New Zealand's trade with India, while India sees New Zealand mainly for **tourism,** overlooking its strengths in innovation, technology, and sustainability.

- **Geopolitical Differences:** New Zealand's foreign policy is shaped by allies like **Australia and the US,** while its **economic reliance on China** may lead to differences with India on regional security and trade.

4ᵗʰ Conference of Global Intelligence & Security Chiefs

Why in News?

The **National Security Advisor (NSA) of India** hosted the **4ᵗʰ Conference of Global Intelligence and Security Chiefs** which was organized by India's external intelligence agency, the **Research and Analysis Wing (R&AW),** along with the **National Security Council Secretariat (NSCS).**

- The event witnessed the participation of intelligence officials from over 20 countries including the chiefs of the **Five Eyes Alliance.**

What is the Conference of Intelligence and Security Chiefs?

- It is a **high-level annual security dialogue** organized as part of the **Raisina Dialogue which is organised by the Ministry of External Affairs in collaboration with think-tank Observer Research Foundation (ORF).**
  - It was held for the first time in **2022.**

- It is modeled on the lines of the annual **Munich Security Conference** and **Singapore's Shangri-La Dialogue.**

- It is a strategic platform for intelligence and security officials to **discuss emerging threats, collaborative**

security frameworks, and contemporary **geopolitics and geo-strategies.**

- The **2025 conference** focused on **counterterrorism, transnational crimes, intelligence-sharing mechanisms,** immigration and extradition, along with Indo-Pacific cooperation and measures to combat **terror financing and the narcotics trade.**

What is Raisina Dialogue?

Click Here to Read More: Raisina Dialogue

What is Five Eyes Alliance?

- **About:** The **Five Eyes** is an **intelligence-sharing alliance** comprising **Australia, Canada, New Zealand, the United Kingdom, and the United States.**

- **Formation and Evolution:** Originating during **World War II,** the alliance emerged from UK-US cooperation in deciphering **German and Japanese codes.**
  - This alliance is based on **a series of secret agreements,** primarily the **UKUSA Agreement (1946),** which facilitates extensive **surveillance, intelligence collection, and data sharing** among member countries.

- **Scope of Operations:**
  - **Interception, collection, analysis, and decryption** of global communications.
  - **Automatic intelligence-sharing** among the five countries.
  - **Integrated programs, staff, bases, and analytical processes** for global surveillance.

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Social Issues

Highlights

- Barriers to Abortion Access in India
- Migration Trends in India post-Covid-19
- ASHA Workers in India

Barriers to Abortion Access in India

Why in News?

The **Supreme Court's (SC)** denial of late-term abortions in borderline **foetal viability cases (24–30 weeks)**, has reignited the debate over reproductive rights in India..

➢ Despite legal reforms, ethical dilemmas, procedural delays continue to obstruct timely access to abortions.

> **What is Abortion?**
> **Click here to Read: Abortion**

What is the Legal Framework for Abortion in India?

➢ **Pre-1971 Legal Position:** Under the **Indian Penal Code (IPC)** Sections 312 and 313, abortion was a criminal offence.

➢ **Shantilal Shah Committee:** In response to increasing unsafe abortions and maternal mortality, it recommended **a broadening and rationalisation of laws related to abortion** in 1966 to protect women's health.

➢ **MTP Act, 2021:** The **Medical Termination of Pregnancy (MTP) Act, 1971,** last amended in **2021**, allows abortion up to **20 weeks** with the approval of **one registered medical practitioner (RMP)**.

  ❍ Between **20 and 24 weeks** with the approval of **two RMPs**.

  ❍ **Beyond 24 weeks,** a state medical board determines abortion **eligibility based on specific conditions**, such as foetal abnormalities incompatible with life or a serious risk to the mother's physical or mental health.

➢ **Bharatiya Nyaya Sanhita:** The **Bharatiya Nyaya Sanhita (BNS)** (formerly the IPC) continues to criminalize abortion **outside these legal exceptions of MTP Act, 2021**.

➢ **Judicial Interventions**: *Justice K.S. Puttaswamy v. Union of India, 2017* affirmed that abortion is part of a woman's **right to privacy and liberty under Article 21.**

  ❍ The SC ruled that **unmarried women with pregnancies between 20 and 24 weeks** are entitled to the **same abortion rights as married women**, affirming that reproductive autonomy, dignity, and privacy grant all women equal rights to choose whether to continue a pregnancy.

What are the Barriers to Abortion Access?

➢ **State Mandated Polices:** Mandatory pregnancy registration in states like Haryana risks violating **Section 5A of the MTP Act** (which ensures strict confidentiality for women undergoing abortions) compromising women's confidentiality, increasing stigma, and potentially pushing them toward unsafe abortions.

➢ **Lack of Abortion-on-Demand:** Abortion in India is conditional, unlike in jurisdictions (like US) where reproductive autonomy is paramount.

➢ **Foetal viability**: Foetal viability is medically and ethically uncertain, generally assumed at 24 weeks but dependent on medical infrastructure and gestational health.

  ❍ Advances in **neonatal care** may further reduce this threshold, impacting abortion laws.

  ❍ Courts weigh foetal rights against a woman's autonomy, especially in borderline viability cases (24–30 weeks), often overlooking mental or emotional well-being.

ABORTION LAW

Abortion is the deliberate termination of a pregnancy, typically performed during the first 28 weeks of gestation.

Abortion Law in India

Indian Penal Code (IPC), 1860 (Section 312)
- **Criminalized:** Voluntarily abortion
- **Exception:** To save mother's life
- **Punishment:** Imprisonment or fines or both

The Medical Termination of Pregnancy Act (MTP), 1971
- **Based on:** Shantilal Shah Committee, 1964
- **Ground for Legalised Abortion:**
  - Marital rape
  - Safeguarding women's physical & mental health
  - Reduce maternal mortality
  - Children with physical or mental abnormalities
  - Pregnancies from rape or contraceptive failure

The MTP Amendment Act, 2021
- Allowed abortion irrespective of marital status
- **Eligiblity Criteria for Legal Abortion:**
  - Survivors of sexual assault, rape, incest or minors
  - Change of marital status during pregnancy (widowhood & divorce)
  - Women with physical or mental disabilities (as per Rights of Persons with Disabilities Act, 2016)
  - Foetal malformation or risk abnormalities in child
  - Pregnant women in disasters/ emergencies

Justice K.S. Puttaswamy (Retd.) vs. the Union of India Case, 2017
- The Supreme Court recognized reproductive choices of women as **part of personal liberty under Article 21.**

Time Since Conception	MTP Act, 1971	MTP (Amendment) Act, 2021
Up to 12 weeks	On the advice of one doctor	On advice of one doctor
12 to 20 weeks	On advice of two doctors	On advice of one doctor
20 to 24 weeks	Not allowed	On advice of two doctors for special categories of pregnant women
More than 24 weeks	Not allowed	On advice of medical board in case of substantial fetal abnormality
Any time during the pregnancy	On advice of one doctor, if immediately necessary to save pregnant woman's life	On advice of one doctor, if immediately necessary to save pregnant woman's life

Abortion in Other Countries

Countries Criminalized Abortion
- **Total Ban:** Andorra, Malta & the Vatican State
- **Ban with Certain Exceptions:** Poland, Brazil, Chile and Argentina

Countries Legalized Abortion
- **France** is only country to **guarantee voluntarily abortion as constitutional right**

- **Ireland:**
  - **Condition:** Within 12 weeks of pregnancy
  - **Punishment:** 14 years of imprisonment
- **New Zealand:**
  - **Condition:**
    - Within 20 weeks of pregnancy (if life at risk)
    - Approval of two doctors mandatory

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➢ **Medical Board Delays:** Decisions are made on a **case-by-case basis**, often leading to **delays** that push pregnancies even further.

     ❍ Boards lack standardised protocols and may apply **subjective ethical considerations** (perceptions of foetal life) over clinical evidence.

➢ **Specialist Shortage:** Abortion laws require gynecologists or obstetricians, but rural areas face a 70% shortage, per **2019–20 Rural Health Statistics** and lacks neonatal intensive care units (NICUs).

➢ **Legal Fear:** Since abortion is an exception rather than a guaranteed right, healthcare providers fear legal liability, especially in complex cases.

     ❍ Hospitals sometimes require unmarried women to report to the police, leading to potential legal complications.

➢ **Stigma:** Women seeking late-term abortions are often met with **judgmental attitudes**, and intrusive questions. **Unmarried women**, minors, or widowed face even greater scrutiny.

Migration Trends in India post-Covid-19

Why in News?

Five years after the **Covid-19 pandemic, migration patterns** in India have seen significant shifts. While rural-to-urban migration has resumed, international emigration has diversified.

➢ Understanding these trends and improving **migration governance** is crucial to addressing the migrants challenges and maximizing the benefits of migration.

What are the Key Migration Trends in India post-Covid-19?

➢ **Urban to Rural Migration:** The Covid-19 crisis caused **unprecedented urban-to-rural reverse migration**, with **44.13 million** moving from **urban areas to rural regions** during the first lockdown and **26.3 million** in the second.

     ❍ Returning migrants, primarily low-skilled workers, faced wage theft, food insecurity, lack of healthcare, discrimination, economic strain, and unemployment as urban jobs disappeared.

➢ **Rebound of Rural-to-Urban Migration:** Rural economies failed to absorb the returning workforce, as **inadequate employment** (**MGNREGA** offered only partial relief)**, low wages**, and **urban aspirations pushed migrants** back to cities.

     ❍ The **Smart Cities Mission** (aims to develop 100 cities into modern urban hubs and relies heavily on migrant labour) is encouraging urban migration**.**

     ❍ According to the Economic Survey 2023-24, it is expected that by 2030, more than **40% of India's population will reside in urban areas.**

➢ **Climate-Induced Migration:** Climate change is influencing aspirational and distress migration, especially from **agrarian states** like Odisha (FAO-IIMAD report).

➢ **International Migration Shifts:** During Covid-19, Indian emigrants faced job losses, wage cuts, and poor healthcare access, yet remittances remained strong **(USD 83.15 billion in 2020),** accompanied by growing global demand for Indian healthcare workers

     ❍ Post-Covid, many Indian migrants shifted from the **Gulf to advanced economies (AEs)** for better opportunities.

       ● **Indians are exploring Europe** (via the **EU Blue Card programme in 2023 for skilled professionals**) and Africa for opportunities in IT, manufacturing.

       ● **Canada's Express Entry and Australia's immigration policies** attracted skilled Indian professionals, offering high-paying jobs and **boosting remittances (USD 118.7 billion in 2023-24).**

     ❍ **Student migration surged post-pandemic**, with Kerala's student emigrants doubling from **1.29 lakh in 2018 to 2.5 lakh in 2023**.

       ● **Education-related remittances peaked at USD 3,171 million in 2021**, reflecting a rise in international study trends.

What are India's Challenges in Migration Governance?

➢ **Inadequate Migration Data Systems:** Delayed **Census 2021** and outdated migration figures limit policy planning.

     ❍ The **Periodic Labour Force Survey (PLFS)** 2020-21 recorded a migration rate of **28.9%**, a marginal increase from the **28.5% recorded in 2007-08.**
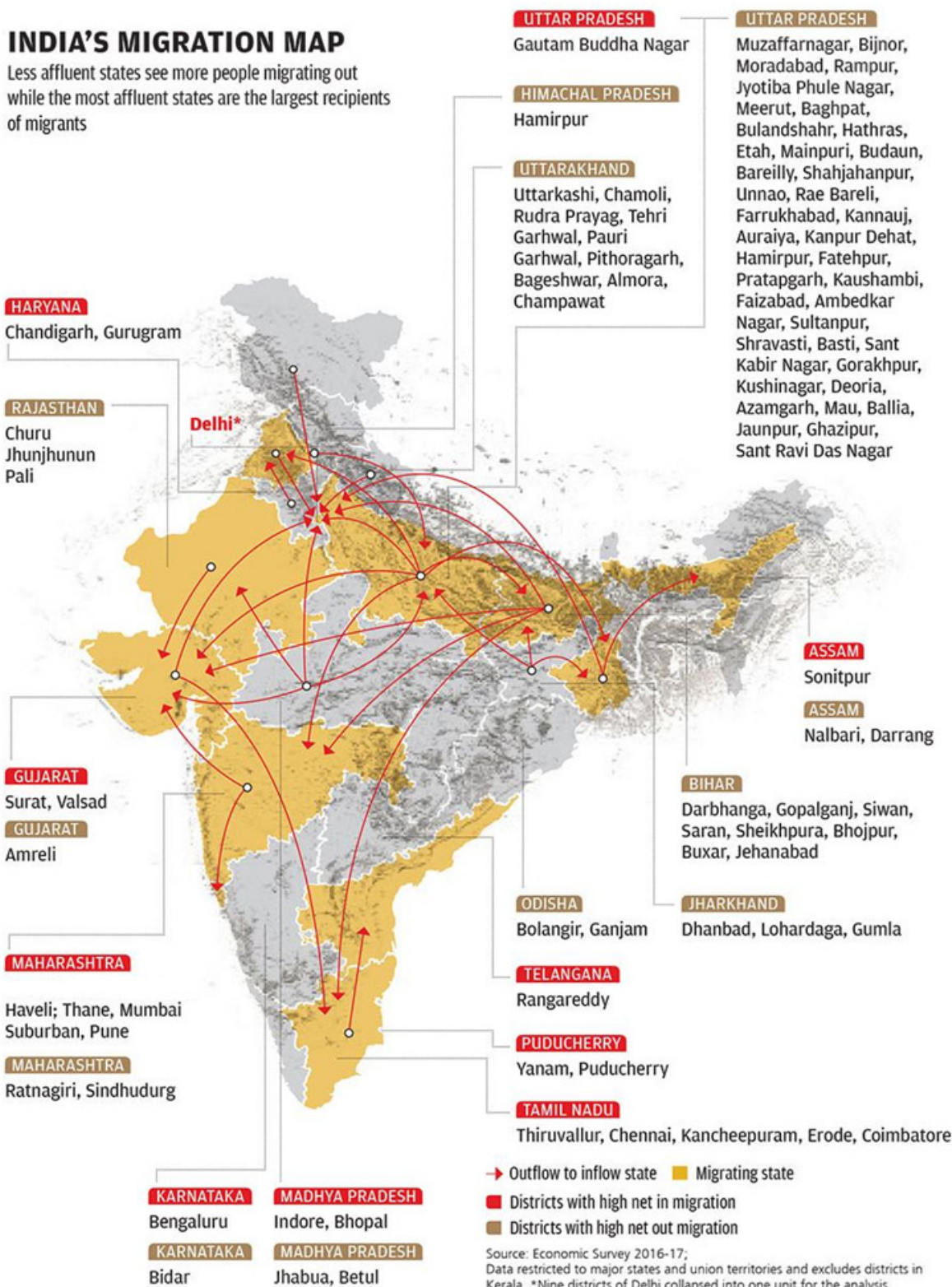
INDIA'S MIGRATION MAP

Less affluent states see more people migrating out while the most affluent states are the largest recipients of migrants

UTTAR PRADESH
Gautam Buddha Nagar

UTTAR PRADESH
Muzaffarnagar, Bijnor, Moradabad, Rampur, Jyotiba Phule Nagar, Meerut, Baghpat, Bulandshahr, Hathras, Etah, Mainpuri, Budaun, Bareilly, Shahjahanpur, Unnao, Rae Bareli, Farrukhabad, Kannauj, Auraiya, Kanpur Dehat, Hamirpur, Fatehpur, Pratapgarh, Kaushambi, Faizabad, Ambedkar Nagar, Sultanpur, Shravasti, Basti, Sant Kabir Nagar, Gorakhpur, Kushinagar, Deoria, Azamgarh, Mau, Ballia, Jaunpur, Ghazipur, Sant Ravi Das Nagar

HIMACHAL PRADESH
Hamirpur

UTTARAKHAND
Uttarkashi, Chamoli, Rudra Prayag, Tehri Garhwal, Pauri Garhwal, Pithoragarh, Bageshwar, Almora, Champawat

HARYANA
Chandigarh, Gurugram

RAJASTHAN
Churu
Jhunjhunun
Pali

Delhi*

ASSAM
Sonitpur

ASSAM
Nalbari, Darrang

GUJARAT
Surat, Valsad

GUJARAT
Amreli

BIHAR
Darbhanga, Gopalganj, Siwan, Saran, Sheikhpura, Bhojpur, Buxar, Jehanabad

ODISHA
Bolangir, Ganjam

JHARKHAND
Dhanbad, Lohardaga, Gumla

MAHARASHTRA
Haveli; Thane, Mumbai Suburban, Pune

MAHARASHTRA
Ratnagiri, Sindhudurg

TELANGANA
Rangareddy

PUDUCHERRY
Yanam, Puducherry

TAMIL NADU
Thiruvallur, Chennai, Kancheepuram, Erode, Coimbatore

→ Outflow to inflow state ■ Migrating state
■ Districts with high net in migration
■ Districts with high net out migration

KARNATAKA
Bengaluru

KARNATAKA
Bidar

MADHYA PRADESH
Indore, Bhopal

MADHYA PRADESH
Jhabua, Betul

Source: Economic Survey 2016-17;
Data restricted to major states and union territories and excludes districts in Kerala. *Nine districts of Delhi collapsed into one unit for the analysis

- ○ However, this data, collected during the **Covid-19 migration flux**, fails to reflect long-term trends.
- ○ The Ministry of External Affairs (MEA) data tends to underestimate the number of emigrants, especially temporary and seasonal migrants. Additionally, illegal migration via **'donkey routes'** remains unaccounted for in official records.

➢ **Weak Implementation of Social Security Schemes: e-Shram Portal (2021)** aimed to cover unorganized workers, suffers from low awareness and digital exclusion.

- ○ **One Nation One Ration Card (ONORC)** aimed at food security for migrants but large sections remain uncovered.
- ○ The weak implementation of the **Inter-State Migrant Workmen Act, 1979,** leaves many workers unregistered and unprotected due to **inadequate monitoring and unlicensed contractors.**
- ○ The new **Four Labour Codes** introduced in 2020 aim to expand migrant worker protections but face delays in rule framing and enforcement.

➢ **Limited Portability of Entitlements:** Migrants often lose access to **state-specific schemes** when moving to other regions. Despite ONORC and **Ayushman Bharat,** inter-state policy harmonization remains weak.

➢ **Neglect of Vulnerable Groups:** Women and children are often overlooked in migration policies.

- ○ Women face risks like **trafficking and exploitation, while migrant children suffer from disrupted education,** poor healthcare, which increases their chances of being marginalized and mistreated.

➢ **Weak Protection for Low-Skilled Migrants**: Gulf nationalization policies **(Nitaqat, Emiratization)** reduce job opportunities, while **low-skilled migrants face poor working conditions and wage theft**.

- ○ There are gaps in providing **adequate skilling and pre-departure orientation for emigrants,** which affects their preparedness and safety abroad.

➢ **Limited Role of Local Governance:** Panchayats often lack the mandate, resources, and capacity to support migrant populations.

➢ **Climate-Induced Migration Overlooked:** Migration due to climate stress (e.g., floods, droughts, sea-level rise) is **not recognized in disaster or climate adaptation policies.**

- ○ This leads to policy neglect for communities undergoing distress-induced mobility.

➢ **Stigma and Discrimination:** Migrants often face xenophobia, cultural alienation, and lack of social inclusion, especially in destination cities.

How can India Strengthen its Migration Governance?

➢ **National Migration Data Models:** Kerala Migration Surveys provide robust data, shaping better policies. States like Odisha, Tamil Nadu, Gujarat, and Punjab are replicating this model.

- ○ A national-level adoption could standardize and enhance migration governance.

➢ **National Migration Policy:** Expedite **NITI Aayog's draft National Policy on Migrant Workers**, which focuses on their overall development.

- ○ Consider formulating a unified framework addressing both internal and international migration, ensuring inter-ministerial coordination (Labour, MEA, Urban Affairs) with rights-based and gender-sensitive provisions.

➢ **Enhance International Migration Frameworks:** Expand **labour mobility agreements** with emerging destinations in the European Union (EU), and Africa.

- ○ The **India Centre for Migration** (research think-tank to MEA) can help to strengthen **Pre-Departure Orientation Training (PDOT)** and skill-building programs, aligning them with destination-specific demands.

➢ **Improve Social Security Access and Portability:** Implement the **Code on Social Security, 2020** effectively to ensure coverage of all unorganised and migrant workers, including inter-state portability of benefits.

- ○ Ensure portability of entitlements (ration, health insurance, pensions) across states via **digital platforms.**
- ○ Establish **one-stop migrant facilitation centres** in urban clusters for enrolment, legal aid, and grievance redressal.

What is Migration?
Click here to Read: Migration

ASHA Workers in India

Why in News?

[Accredited Social Health Activists (ASHAs)](#) in Kerala staged protests demanding higher wages and retirement benefits.

Who are ASHA Workers?

➢ **About:** ASHAs are **community health volunteers** introduced under the **National Rural Health Mission (NRHM),** 2005 to provide essential healthcare services in rural areas.

- ○ In 2013, the NRHM merged with the **National Urban Health Mission (NUHM)** to form the [National Health Mission (NHM).](#)
- ○ ASHAs work alongside [Anganwadi Workers (AWWs)](#) under the [Integrated Child Development Scheme (ICDS)](#) to improve healthcare accessibility.
- ○ An ASHA is a local woman (age 25-45 years), preferably married, widowed, or divorced, with at **least Class 10 education.** NHM considers them volunteers, **limiting their earnings to task-based incentives.**
  - • ASHAs serve **one per 1,000 people,** with 9.2 lakh in rural and 79,900 in urban areas (2022-23).

➢ **Key Responsibilities of ASHAs:** Ensure **antenatal check-ups, and postnatal care**, while educating mothers on **breastfeeding and infant nutrition**.

- ○ ASHAs support **immunization, tuberculosis (TB)** treatment, malaria screenings, and disease prevention. Additionally, they provide **basic healthcare, essential medicines,** first aid, and report births and deaths.

➢ **Concerns of ASHA Workers:** ASHAs face **low** (approx Rs 5000-15000) **and irregular payments**, receiving only a **nominal honorarium and task-based incentives** that vary by state and are often delayed due to **funding issues and Centre-State disputes**.

- ○ Despite their **crucial role during Covid-19**, earning them the **World Health Organization's (WHO's) World Health Leaders Award in 2022**, their struggles persist.
  - • They are not classified as government employees, denying them **fixed wages, pensions, gratuity, provident funds, and medical insurance**, though some states, like **Andhra Pradesh, offer gratuity**.
  - • The **2020 Parliamentary Standing Committee on Labour** recommended **formalizing their roles**, but no action was taken.
- ○ ASHAs, mostly **women from marginalized backgrounds**, also face **gender-based discrimination** in the workforce.

How Can ASHA Workers Be Empowered?

➢ **Formalization:** Recognizing ASHAs as government employees or at least contractual workers with job benefits under the [Code on Social Security, 2020](#) would ensure they receive essential labor rights and protections.

➢ **Skill Development:** Offer training programs for ASHAs to upgrade their skills and transition into higher healthcare roles (e.g., **Auxiliary Nurse and Midwives**).

➢ **Financial Security:** With rising inflation, ASHA workers need financial security. A fixed **salary alongside incentives ensures stability**, while [Direct Benefit Transfers (DBT)](#) prevent payment delays, empowering them to focus on healthcare without financial distress.

> ### National Health Mission (NHM)
>
> ➢ NHM aims to ensure universal access to quality, affordable, and equitable healthcare services while advancing toward **Sustainable Development Goal 3 (Good Health and Well-being).**
>
> ➢ NHM, extended till 2026 and implemented by the **Ministry of Health and Family Welfare,** supports States/UTs in providing accessible and affordable healthcare, focusing on rural infrastructure, workforce, and service delivery.

Read more: [ASHA Workers & Related Challenges](#)

...

Science & Technology

Highlights

- *Lead Poisoning*
- *Bose Metal*
- *Micro-Lightning and Origin of Life*
- *Return of Butch Wilmore and Sunita Williams from ISS*
- *India's CAR T-Cell Therapy*
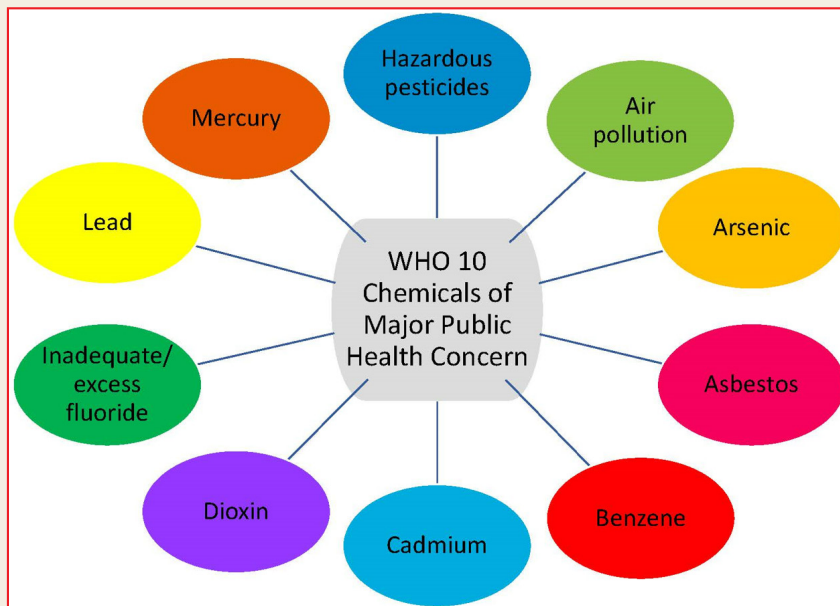- *Neuroscience of Addiction*

Lead Poisoning

Why in News?

Lead poisoning remains a significant but overlooked public health crisis in India, particularly affecting children. While multiple laws regulate lead contamination across sectors, the **absence of a comprehensive legal framework** for its prevention and mitigation hinders effective enforcement and policy coherence.

Lead
➢ **Lead** is a **toxic, naturally occurring heavy metal** characterized by its **softness, malleability, and bluish-white luster**, with **no safe level of exposure** identified.
➢ **WHO** identifies lead as **one of 10 chemicals o**f **major public health concern.**
❍ **In 2021, WHO issued guidelines** recommending that individuals with blood lead levels ≥5 µg/dL should be assessed for exposure sources, and steps taken to eliminate them.
❍ **Lead-based paint** continues to be **a major global source of lead exposure. WHO and UNEP's Global Alliance to Eliminate Lead Paint** urges countries to **implement legal restrictions**; however, as of January 2024, **only 48% have enacted such laws.**

WHO 10 Chemicals of Major Public Health Concern: Hazardous pesticides, Air pollution, Arsenic, Asbestos, Benzene, Cadmium, Dioxin, Inadequate/excess fluoride, Lead, Mercury

What is Lead Poisoning?

➤ **About:** Lead poisoning (also known as **Plumbism** and **Saturism**) occurs when **lead accumulates in the body over time**, typically over months or years, leading to toxic effects.

➤ **Status of Lead Poisoning: Lead is poisoning 1/3 of all children globally.**

○ A **2020 UNICEF-Pure Earth report** found that **half of India's children** have **high blood lead levels (BLL)**. About **275 million** children exceed the **WHO's safe limit (5 µg/dL)**, and **64.3 million** have even higher levels (**above 10 µg/dL**).

○ **CSIR-NITI Aayog Report:** 23 states exceed the recommended 5 µg/dL BLL limit.

○ Approximately 5% of India's GDP loss due to lead poisoning.

➤ **Symptoms & Effects:** Symptoms include **fatigue, abdominal pain, nausea, diarrhoea, loss of appetite, anemia, muscle weakness,** and a characteristic dark line along the gums.

➤ **Sources:**

Everyday risks
There is potential for lead exposure in several common occupations and products that are used in nearly every household

OCCUPATIONAL SOURCES	Non-Occupational Sources
Battery work	Traditional medicine
Mining	Vehicular exhaust
Glass manufacturing	Contaminated cosmetics and sindoor
Automobile repair	Household storage batteries
Ceramic work	Household paints
Painting	Contaminated spices
Pottery	Effluent from lead-based industries
Smelting	Contaminated soil, dust and water near lead-based industries
Printing work	Food grown in lead contaminated areas
Plumbing	Retained bullets
Soldering	Food stored or cooked in lead-coated vessels
Making lead pipes and plastic	Painted toys

What is Mercury Poisoning?
Click Here to Read: Mercury Poisoning

What are the Policy Measures to Combat Lead Poisoning in India?

➤ **Existing Policy Measures/ Legal Provisions:**

○ **Ban on Leaded Petrol (2000): India phased out leaded petrol**, reducing **airborne lead pollution, health risks, and environmental damage**. This transition also helped **reduce engine knocking**, improving **vehicle efficiency and engine longevity**, aligning with global efforts for cleaner fuel and better air quality.

Regulations	Provisions
Environment Protection Act, 1986	It empowers the **central government (CPCB)** to regulate lead contamination by setting permissible limits for **effluents and pollutants**.
Factories Act, 1948	It ensures worker health and safety, indirectly addressing lead poisoning in industries using lead. **Chapter III** focuses on worker safety, welfare, and hygiene. The 3rd schedule deals with a list of notifiable diseases including **lead poisoning**, and **lead tetra-ethyle poisoning**.
The Code of Practice for Water Supply in Buildings, 1957	It prohibits **lead pipes for domestic water supply**, setting a **10 µg/L lead limit in water**. However, it **permits lead piping** for **flushing and overflow systems**. The **Lead Stabilizers in PVC Pipes Rules, 2021** bans lead-based stabilizers in PVC pipes, mandates BIS compliance, and requires water quality testing.
Insecticides Act, 1968	It regulates the import, manufacture, sale, and use of insecticides for safety and efficacy. **Schedule 2** lists **Lead Arsenate** as an insecticide.

Food Safety and Standards Act, 2006	It empowers **FSSAI** to regulate food safety and **set lead limits in food** (e.g., **turmeric (10), leafy vegetables (0.3), pulses (0.2), sugar (5.0), infant Food (0.2), etc.**) and drinking water (**0.01 mg/L** as per BIS). **FSSAI** also bans **Lead Chromate** in spices due to health risks.
Hazardous Waste Management Rules, 2016	It classifies **lead-containing waste** and regulates its storage, treatment, and disposal, requiring industries to obtain **SPCB/PCC** authorization. **Batteries Waste Management Rules, 2022**: It regulates **lead-acid battery** recycling under **Extended Producer Responsibility (EPR)**.
Drugs and Cosmetics Act, 1940	These set a **lead limit of 20 ppm** in cosmetics, mandating compliance for manufacturers and importers with proper ingredient labeling.
The Child Labour Act, 1986	It helps mitigate **lead poisoning** by prohibiting child labor in **hazardous environments**.
Bureau of Indian Standards Act, 2016	It designates **BIS** as India's **National Standards Body**, ensuring **standardization, marking, and quality certification** of goods. It regulates **lead limits in kitchenware** (e.g., **cooking ware: 0.5 mg/dm², cups & mugs: 0.5 mg/L**).

Lead exposure

Although often without obvious symptoms, lead exposure can affect nearly every part of the human body. No safe level of lead in the bloodstream has been determined by the federal Centers for Disease Control and Prevention.

Children

Nervous system — Damage

Brain — Behavior problems, lower IQ, hearing loss, learning disabilities

Blood — Anemia

Kidneys — Damage

Body — Decreased bone and muscle growth

Sources: Centers for Disease Control and Prevention; National Institutes of Health

Adults

Brain — Memory loss, lack of concentration, headaches, irritability, depression

Cardiovascular — High blood pressure

Kidneys — Abnormal function and damage

Digestive system — Constipation, nausea and poor appetite

Reproductive system — Men: Decreased sex drive and sperm count, sperm abnormalities — Women: Spontaneous miscarriage

Body — Fatigue, joint and muscle pain

Nervous system — Damage including numbness and pain in the extremities

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drishti

What are the Challenges to Implementation in Lead Regulations?

➢ **Lead in Insecticides:** The **Insecticides Act, 1968,** still lists **Lead Arsenate** as an insecticide, despite its ban under the **2019 list of prohibited pesticides** by the **Ministry of Agriculture** due to health and environmental risks.

➢ **Lead in Food Products:** FSSAI has banned **Lead Chromate** in **turmeric** but allows **lead content up to 10 ppm,** creating a **regulatory loophole** that permits trace lead contamination despite the ban.

➢ **Lead in Paints:** The **2016 rules** limit lead in new paints but do not address existing lead-based paint in homes.

➢ **Water Contamination:** Weak enforcement of the **Code of Practice for Water Supply in Buildings (1957)** and **Lead Stabilizers in PVC Pipes Rules (2021).**

Bose Metal

Why in News?

A team of researchers from China and Japan has reported experimental evidence that **Niobium diselenide ($NbSe_2$)** exhibits properties of a **Bose metal.**

Niobium Diselenide ($NbSe_2$)
$NbSe_2$ is a **type-II superconductor**, which means it can let some magnetic field pass through **without losing** its superconducting ability. Researchers studied a **single-layer (2D) form of $NbSe_2$** to better observe and enhance quantum effects.

What is Bose Metal?

➢ **About: Bose Metal refers** to an **exotic quantum state** where **electron pairs (Copper pairs-** bound state of two electrons that move through a superconductor without resistance) form but **do not transition into a superconducting state.**

○ **Superconductivity** is a state of matter where a material exhibits **zero electrical resistance** and **perfect diamagnetism** (expels magnetic fields) below a critical temperature (T_0), allowing current to flow indefinitely without energy loss.

➢ **Key Features:**

○ **Absence of Superconducting Transition:** In Bose metal, **copper pairs form, but the material does not achieve zero resistance,** behaving as a better conductor than typical metals.

○ **Anomalous Metallic State (AMS):** It **defies conventional predictions** that metals should either be insulators or superconductors at low temperatures.

○ **Intermediate Conductivity:** The electrical conductivity of Bose metals lies **between an insulator (zero) and a superconductor (infinite)** at **absolute zero** and its conductivity is influenced by quantum fluctuations and external conditions like magnetic fields.

➢ **Applications:**

○ **Quantum Computing Research:** Bose metals can help **explore novel quantum states,** aid in the development of **quantum bits (qubits),** and can provide insights into **complex quantum phases,** including disordered metals and unconventional materials.

○ **Advanced Electronics:** Their unique conductive properties can influence the design of **next-generation electronic devices,** enabling **improved performance and energy efficiency.**

○ **Superconductivity Research:** As an intermediate phase, Bose metals **enhance** the understanding of the transition to superconductivity, contributing to the development of **high-temperature superconductors**.

➢ **Limitations:**

○ Bose metals face **theoretical ambiguities**, with **no universal definition**, and **practical applications yet.** Their **experimental detection is challenging,** requiring **specific low-temperature and magnetic conditions.**

Cooper Pairs
➢ The concept was discovered by Leon Cooper in **1956.**
➢ In **superconductors**, Cooper pairs **condense and allow current to flow without resistance,** but in a **Bose metal, these pairs form yet fail to condense into a superconducting state.**

Micro-Lightning and Origin of Life

Why in News?

A Stanford University study suggests that **micro-lightning i.e. tiny electrical discharges** within water droplets could have played a crucial role in **forming organic molecules necessary for life on earth,** challenging the **Miller-Urey hypothesis**.

What are the Highlights of the Study About the Origin of Life on Earth?

➢ **Key Findings:**
  ❍ The study found that **splashing/spraying water droplets** generate **electrical charges**, and their interaction produces **micro-lightning (tiny sparks)**, facilitating the formation of **essential biomolecules.**
  ❍ It also demonstrated the spontaneous synthesis of **uracil** (a key RNA and DNA component), **glycine** (a fundamental amino acid for protein synthesis), and **hydrogen cyanide** (a precursor to complex biochemical compounds).
  ❍ These findings suggest that **microlighting in natural water bodies like oceans,** waterfalls, and rainfall may have **driven prebiotic chemistry**, aiding the **emergence of life on Earth.**

➢ **Implications:**
  ❍ **Challenges to the Miller-Urey Model:** It suggests that **frequent micro lightning in water bodies might have played a larger role** than rare lightning strikes.
  ❍ **Astrobiological Potential:** Similar mechanisms could operate on icy moons like *Europa* and *Enceladus*, increasing the possibility of extraterrestrial life.

What is the Miller-Urey Hypothesis?

➢ The **Miller-Urey hypothesis** (1952) proposes that **life on Earth originated** through **chemical reactions triggered by lightning (atmospheric electricity)** in the early Earth's atmosphere.

➢ It demonstrated that **amino acids (the building blocks of life)** could form when **electricity was applied** to a mix of **water, methane, ammonia, and hydrogen**, suggesting that **organic molecules necessary for life could form naturally** under **early Earth conditions.**
  ❍ It provided a scientific explanation for **abiogenesis** (the origin of life from non-living matter).

THEORIES OF EVOLUTION

The modification of living organisms during their descent, generation by generation from common ancestors.

Oparin-Haldane Theory of Origin of Life
↻ Also known as Materialistic theory
↻ Describes process of origin of life on early Earth as:

Physio-chemical processes of atoms→ Organic compounds→ Macromolecules→ First living system or cells

Theory of Inheritance of Acquired Character (Lamarckism)
↻ First theory of organic evolution
↻ **Evolutionary ideas:**
  ⊕ Internal forces of life increase the size of organism
  ⊕ New structures appear because of an 'inner want'
  ⊕ Direct environmental effect over living organisms
  ⊕ Inheritance of acquired character
↻ **E.g.;** Long neck of giraffe due to gradual lack of surface vegetation

Theory of Natural Selection (Darwinism)
↻ Foundation of evolutionary biology
↻ **Elements:**
  ⊕ Universal occurrence of variation
  ⊕ Rapid multiplication
  ⊕ **The struggle for existence -** Intraspecific and interspecific
  ⊕ **Survival of the fittest (Natural Selection)**
  ⊕ Inheritance of useful variations; Elimination of non-useful variations
↻ **E.g.;** Survival of more dark-winged moths than white-winged ones in post-industrialisation period

Neo-Darwinism
Integration of Darwin's theory of evolution with Gregor Mendel's theory of genetics

Modern Synthetic Theory
▪One of the proven theories of organic evolution
▪Includes factors such as – Mutation, Variation /Recombination, Heredity, Natural Selection and Isolation

Mutation Theory (Hugo de Vries)
↻ Describes evolution as a jerky process where new varieties of species are formed by mutations (discontinuous variations)
↻ **Salient features:**
  ⊕ Mutation appears all of a sudden and becomes operational immediately
  ⊕ Same type of mutation in several individuals of a species
  ⊕ All mutations are inheritable
  ⊕ Useful mutations are selected and lethal ones are eliminated by nature

Drishti IAS

Return of Butch Wilmore and Sunita Williams from ISS

Why in News?

National Aeronautics and Space Administration (NASA) astronauts **Butch Wilmore and Sunita Williams** have returned to Earth after an **unexpectedly long 286-day mission** aboard the **International Space Station (ISS).**

➤ Initially planned for a 8-day mission, their return was delayed due to **issues with Boeing's Starliner spacecraft**. They finally came back via **SpaceX's Crew Dragon**, highlighting the technological and health challenges of prolonged space travel.

What are the Key Facts About Starliner Spacecraft and SpaceX's Crew Dragon?

➤ **Starliner Spacecraft:** Developed by **Boeing** in collaboration with **NASA's Commercial Crew Program (CCP)**, was designed to **transport astronauts to and from low Earth orbit (LEO)**.

  ○ Boeing's Starliner took **Williams and Wilmore** to the ISS in 2024 but **propulsion issues** delayed their return.

➤ **SpaceX's Crew Dragon:** Crew Dragon is one of the two variants of **SpaceX's Dragon 2 spacecraft**, featuring a reusable capsule and launching atop a **Falcon 9 rocket.** Developed under NASA's CCP, it primarily ferries astronauts to the ISS. The other variant, Cargo Dragon, transports cargo to the station.
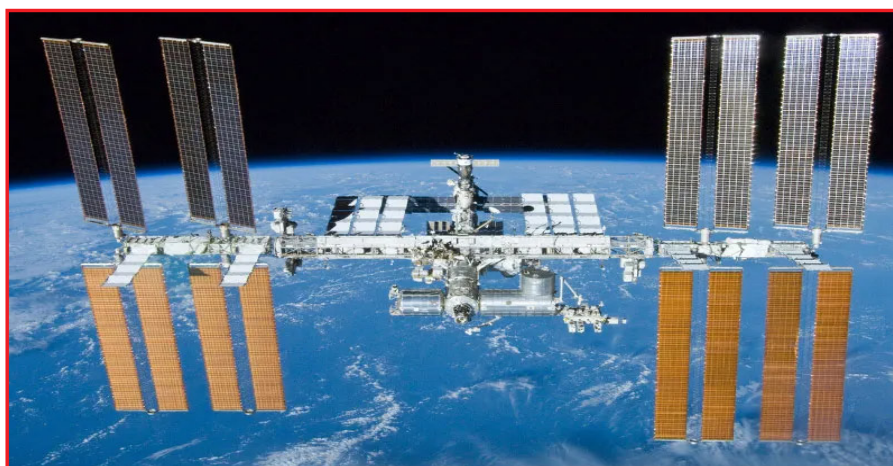
International Space Station: Interesting facts:a

The International Space Station is a large spacecraft. It orbits around Earth. It is a home where astronauts live.

The space station is also a science lab. Many countries worked together to build it. They also work together to use it.

The space station is made of many pieces. The pieces were put together in space by astronauts. The space station's orbit is approximately 250 miles above Earth.

The first piece of the International Space Station was launched in 1998. A Russian rocket launched that piece. After that, more pieces were added. Two years later, the station was ready for people.

The space station is as big inside as a house with five bedrooms. It has two bathrooms, a gymnasium and a big bay window. Six people are able to live there. It weighs almost a million pounds.

The space station is a home in orbit. People have lived in space every day since the year 2000. The space station's labs are where crew members do research.

Astronauts and supplies are ferried by the U.S. space shuttles and the Russian Soyuz and Progress spacecraft.

Information courtesy - www.nasa.gov

○ **NASA's SpaceX Crew-9 mission** returned Williams and Wilmore from the ISS aboard the Crew Dragon spacecraft named **Freedom**.

What are the Health Implications of Space Travel?

➢ **Space Anemia:** A condition where astronauts experience a **drop in red blood cell count** due to fluid shifts in **microgravity**, leading to fatigue, dizziness, and **cardiovascular risks post-mission.**

➢ **Spaceflight-Associated Neuro-ocular Syndrome (SANS)**: It is a vision impairment caused by fluid shifts in microgravity, leading to optic disc swelling and farsightedness.

➢ **Baby Feet Syndrome:** It refers to the **hypersensitivity of the soles and difficulty in walking** experienced by astronauts after prolonged space missions.

○ In microgravity, the **lack of weight-bearing activity causes foot calluses** to disappear, making the skin soft and sensitive upon return to Earth.

➢ **Bone Density Loss:** NASA studies show that astronauts lose around 2% of bone density per month in space. **Without proper countermeasures like exercise,** this loss can lead to osteoporosis-like conditions.

➢ **Risks of Cosmic Radiation Exposure:** In space, astronauts face direct exposure to **cosmic rays and solar radiation,** unlike on Earth, where the **atmosphere and magnetic field** provide protection.

○ This can cause **DNA damage, genetic mutations, and increased cancer risk**.

○ Deep-space missions to **Mars and the Moon pose higher risks** due to prolonged exposure.

India's Gaganyaan Mission and Bhartiya Antriksh Station (BAS)

➢ **Gaganyaan Mission:** Aims to send **three astronauts on a 3-day mission to a 400 km orbit and return them safely to Earth.** This would place India alongside the US, Russia, and China in human spaceflight.

○ The **Gaganyaan mission's** short-term goal is to demonstrate human spaceflight to Low Earth Orbit, with a long-term aim of establishing a sustained **Indian human space exploration program**.

➢ **Bhartiya Antriksh Station:** The **BAS is India's planned space station,** set to orbit 400–450 km above Earth.

○ The first module, the Base Module, will be launched in 2028, with full operationalization by 2035.

○ It will support human spaceflight, Earth observation, and microgravity research while fostering technological innovations.

India's CAR T-Cell Therapy

Why in News?

The clinical trial results of India's first **Chimeric Antigen Receptor (CAR) T-Cell Therapy**, published in *The Lancet Haematology*, report a **73% response rate** in leukemia and lymphoma patients.

What are the Key Findings of India's CAR T-Cell Therapy Clinical Trial?

➢ **High Success Rate**: The trial involved patients with relapsed or refractory B-cell cancers **(Leukemia** (cancer affecting bone marrow and blood) **and Lymphoma** (cancer of the lymphatic system)), who often have limited treatment options.

○ Among the patients analyzed, **73% showed a positive response to the therapy,** offering new hope for such cases.

➢ **Comparable to Global Therapies:** India's **CAR T-cell** therapy matches global effectiveness but is **20 times cheaper,** costing Rs 25 lakh compared to Rs 3-4 crore internationally, where total expenses can exceed Rs 8 crore.

➢ **Side Effects Observed:** The clinical trials of India's CAR T-cell therapy reported manageable side effects, with patients experiencing **neutropenia** (low white blood cells), **thrombocytopenia** (low platelets), and developing **anemia** (low red blood cells).

○ Some patients showed **cytokine release syndrome (CRS),** causing fever and inflammation.

○ **Two treatment-related deaths** were reported, but overall, the **safety profile was considered manageable**.

What is CAR T-Cell Therapy?

➢ **About:** CAR T-cell therapy is an advanced cancer treatment that modifies a patient's **T-cells (a type of immune cell)** to fight cancer more effectively.

➢ **Working:** A patient's T-cells are extracted from their blood and **genetically modified** (to recognize and attack cancer cells).

   ❍ These modified cells, known as **Chimeric Antigen Receptor (CAR) T-cells**, are multiplied and reintroduced into the patient to **target B-cells and prevent relapses.**
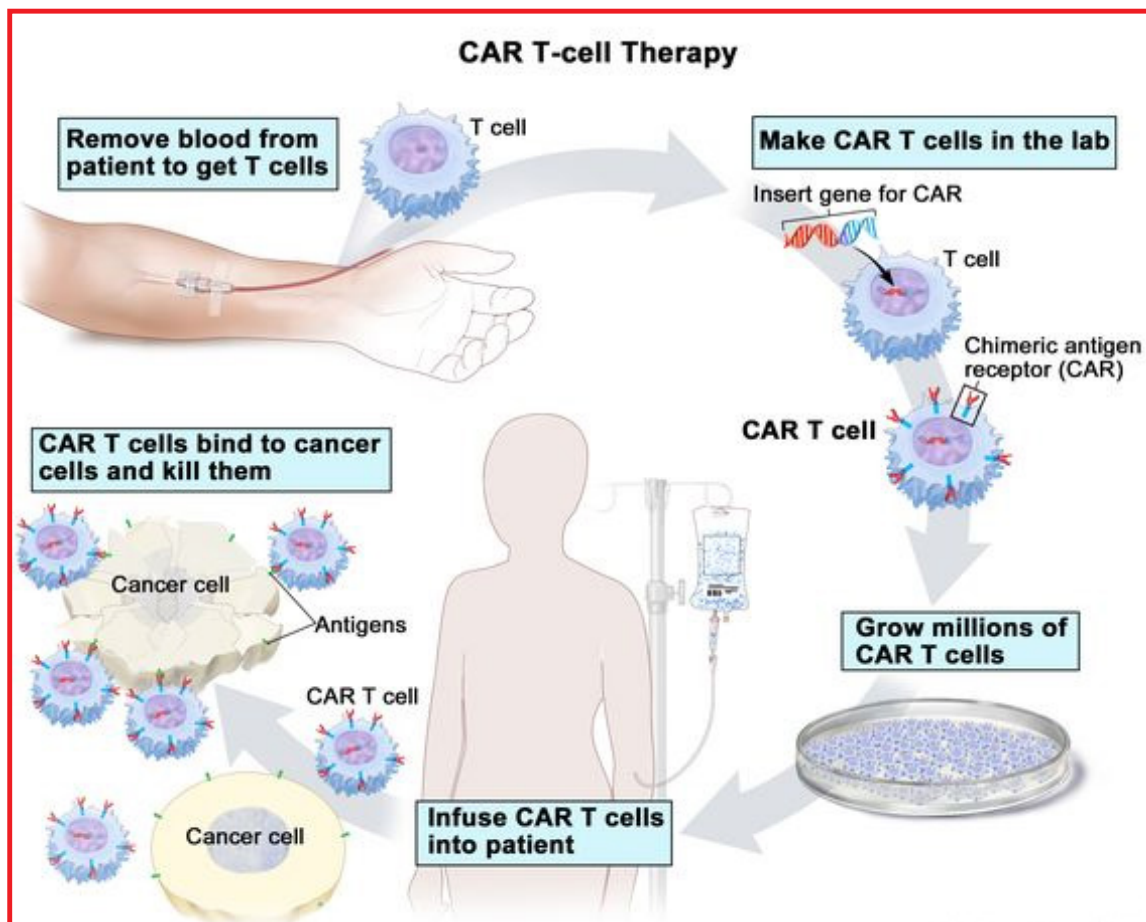
➢ **Importance:** When B-cell tumors **relapse or become refractory** (return after treatment or do not respond to initial therapy), treatment options are limited, often leading to patient death.

   ❍ Uncontrolled B-cell growth causes severe complications due to their role in **antibody production.**

   ❍ India's CAR T-cell therapy provides an additional, patient-specific treatment option, as the modified T-cells remain in the body, offering long-term immunity against cancer recurrence.

      ● It is a **patient-specific treatment,** making it highly precise compared to traditional chemotherapy.

➢ **NexCAR19:** In 2023, **NexCAR19** became India's first approved **indigenous CAR-T cell therapy,** developed through a collaboration between IIT Bombay, Tata Memorial Centre, and **ImmunoACT** (a company incubated at IIT Bombay).

   ❍ As the world's most affordable CAR-T therapy, it positions India on the **global map for advanced cell and gene therapy.**

➢ **Implications:** Researchers are exploring CAR T-Cell Therapy applications and combination with immunotherapies, paving the way for broader adoption of **gene-modified cell treatments in India.**

Neuroscience of Addiction

Why in News?

During the **Brain Awareness Week (March 10-16)**, a study revealed that addiction involves a **complex neural circuit** in the brain affecting **craving, emotional regulation, and decision-making.**

➢ It underscores addiction as a **chronic brain condition** rather than a **moral failing**, paving the way for more effective treatment strategies.

How Does Neuroscience Explain Addiction?

➢ **Role of Brain in Addiction:** The study highlights **3 key brain regions** involved in addiction i.e., **basal ganglia, extended amygdala, and prefrontal cortex.**

    ○ **Basal Ganglia:** It teaches the brain to **repeat pleasurable activities**, whether from food, social interaction, or addictive substances.

        ● It works with neurotransmitters like **dopamine and serotonin** to reinforce pleasurable behaviors.

    ○ **Extended Amygdala:** It triggers **anxiety, irritability, and unease** when substance use stops, pushing **continued use despite harm**.

    ○ **Prefrontal Cortex:** It explains why **substance use continues** despite knowing its harmful effects, a key trait of addiction.

        ● The prefrontal cortex, which handles decision-making, time management, and prioritization, **completes the triad**.

Brain Regions Affected by Addiction

Prefrontal Cortex
• Decision-making
• Impulse control

Basal Ganglia
• Rewards & motivation
• Forming habits & behaviors

Extended Amygdala
• Stress & anxiety
• "Fight or Flight" response

➢ **Vulnerability to Adolescents:** Adolescence represents a **critical "at-risk period"** for substance use because the **brain is still developing.**

    ○ The prefrontal cortex, which controls **impulses and decision-making, matures last**. This makes teens **more vulnerable to addiction**.

➢ **Other Reasons of Addiction:**

    ○ **Genetic Predisposition:** Some individuals are **biologically more prone** to addiction.

    ○ **Psychological Factors: Trauma, stress, and mental health disorders** increase vulnerability.

    ○ **Environmental Influences:** Family history, **peer pressure**, and socioeconomic conditions play a significant role.

    ○ **Age of First Use: Earlier exposure** increases the risk of long-term dependency.
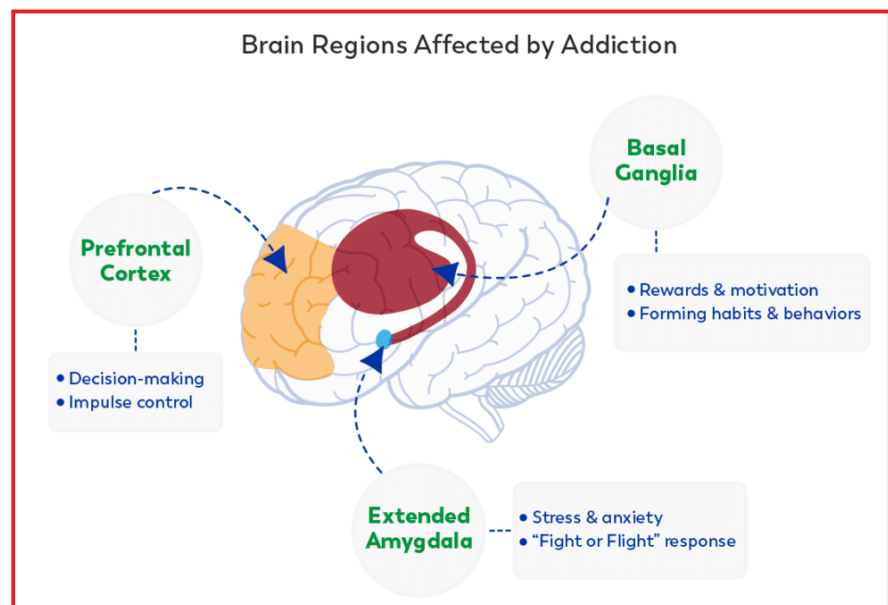
Note:

➢ **Brain imaging (E.g., MRI)** has helped in identifying **structural and biochemical changes** caused by addiction.

➢ **Cognitive-behavioral therapies (CBT)** and neurofeedback techniques are helping in rewiring the brain for recovery.

BRAIN PARTS
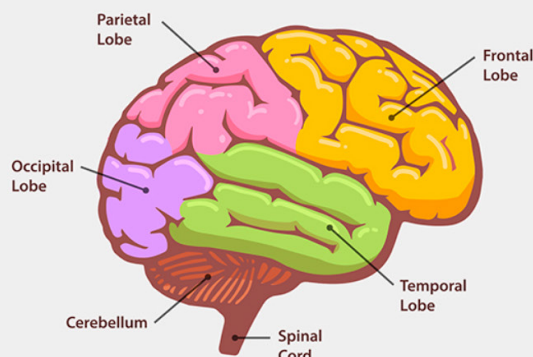
- **Parietal Lobe:** Processes sensory information, such as touch and spatial perception.
- **Frontal Lobe:** Controls higher cognitive functions and voluntary movement.
- **Temporal Lobe:** Handles hearing, memory, and processing auditory information.
- **Occipital Lobe:** Processes visual information for color, shape, and motion perception.
- **Spinal Cord:** Communication channel between the brain and the body for motor and sensory functions.
- **Cerebellum:** Coordinates balance, posture, and precise muscle movements.

(Brain diagram labels: Parietal Lobe, Frontal Lobe, Occipital Lobe, Temporal Lobe, Cerebellum, Spinal Cord)

What is Brain Awareness Week (BAW)?

➤ **About:** It is celebrated annually in the **third week of March** highlighting the role of brain science in understanding **biology, preventing diseases, and improving healthcare.**

　❍ It is organised annually by **Dana Foundation**, a **private philanthropic organization** in New York that is dedicated to **advancing neurosciences**.

➤ **Journey:**

Journey of Brain Awareness Week

Dana Alliance initiates Brain Awareness Week	First Brain Awareness Week celebrated	Launch of the BRAIN Initiative by US President Barak Obama	Expansion to 45 countries and 32 U.S. states
1995	**1996**	**2013**	**2021**

　❍ **Purpose and Participation:** Educates the public on brain **functions, disorders, and research advancements**.

Read More: Working of Anaesthetic Drugs in the Brain

■■■

Environment and Ecology

Highlights

- SDG Progress & Challenges
- Targeted Species-Specific Conservation
- International Day of Forests 2025
- What are the Initiatives for Forest Conservation?
- Natural Farming

- State of Global Climate Report 2024
- Water Circularity
- Mangroves in Indi
- Carbon Credit Trading Scheme

SDG Progress & Challenges

Why in News?

India has shown **significant improvement** in its **Sustainable Development Goals (SDG) index 2024** ranking which has improved to **109**th out of 166 countries.

➤ **States** have also demonstrated **better performance**, with an average increase of **five units** in the composite index over the past three years.

How Has India Performed on SDGs So Far?

➤ **Overall Progress:** India's **SDG index score improved from 57 (2018) to 71 (2023-24).**

➤ **States Performance: Kerala & Uttarakhand** lead with **8 goals each** scoring above 80 (above 80 score is an indicator of **achievement**).

  ○ However, over **9 states** recorded a decline in **No Poverty (Goal 1), Gender Equality (Goal 5),** Reduced Inequality (Goal 10), and Strong Institutions (Goal 16).

➤ **Target Specific Progress:**

  ○ **SDG-3: Maternal Mortality Ratio** reduced from **130 (2014-16)** to **97 (2018-20)** per 1,00,000 live births.

  ○ **SDG-4:** The **Gross Enrolment Ratio (GER)** in **higher education** rose from **23.7% to 28.4%** between 2014-15 and 2021-22.

  ○ **SDG-6:** Over **95%** of people in **rural areas** and **97.2%** in **cities** are having access to improved sources of drinking (potable) water during 2020-2021.

  ○ **SDG-7:** India's renewable energy capacity increased from **180.80 GW** in December 2023 to **209.44 GW** in December 2024.

➤ **Budgetary Allocations:** Some states (like **Haryana, Odisha, Meghalaya**) now publish **SDG-specific budgets.**

  ○ Developing nations need **USD 4 trillion annually** to meet SDGs.

> What are the Key Highlights of the SDG Report, 2024?
> **Click Here to Read: Key Highlights of the SDG Report, 2024**

What are Sustainable Development Goals?

➤ **About:** SDGs are **17 interconnected goals** addressing global challenges like **poverty, inequality, climate change, and environmental degradation.**

  ○ It was adopted in **2015** by **193 UN Member States** as part of the **2030 Agenda for Sustainable Development**

➤ **Aim:** It aims to achieve **peace, prosperity, and sustainability** by 2030 through **global partnership.**

➢ **Historical Background:**

Historical Background

1992	2000	2012	2015
Adoption of Agenda 21 at Earth Summit	Introduction of Millennium Development Goals	Decision to create SDGs at Rio+20	Adoption of 17 SDGs at UN Summit
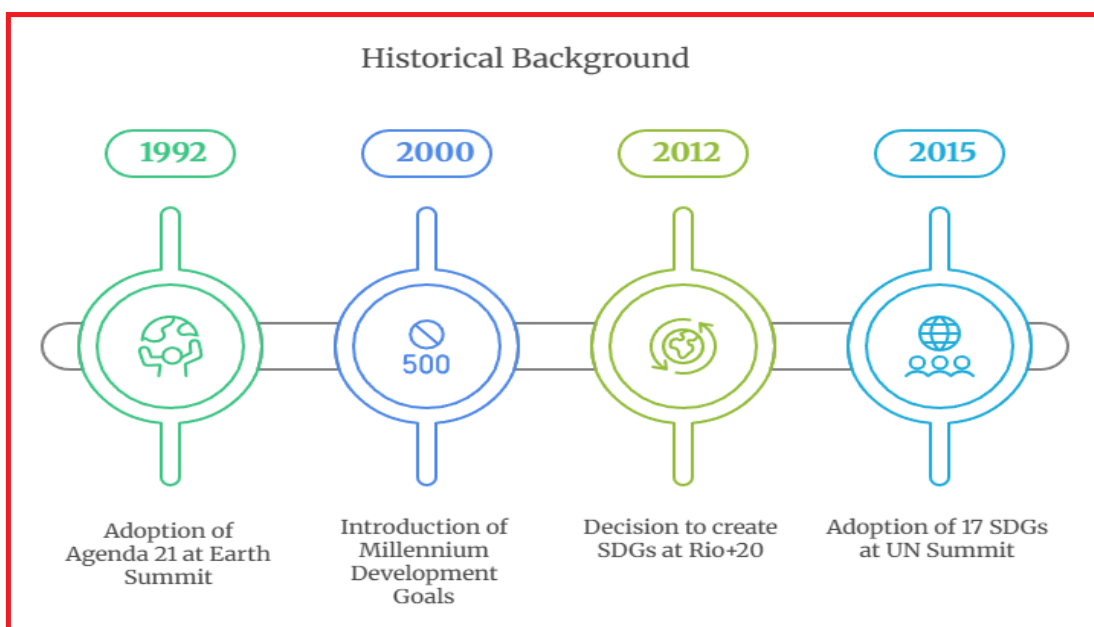
➢ **Core Principles of SDGs:**

○ **Universality**: Apply to **all countries** (developed & developing).

○ **Integration**: Progress in one goal affects others (e.g., poverty reduction improves education).

○ **Leave No One Behind**: Focus on **marginalized & vulnerable groups**.

○ **Multi-Stakeholder Approach**: Requires **governments, businesses, civil society, and citizens.**

➢ **SDGs List:**

SUSTAINABLE DEVELOPMENT GOALS

1 NO POVERTY
2 ZERO HUNGER
3 GOOD HEALTH AND WELL-BEING
4 QUALITY EDUCATION
5 GENDER EQUALITY
6 CLEAN WATER AND SANITATION
7 AFFORDABLE AND CLEAN ENERGY
8 DECENT WORK AND ECONOMIC GROWTH
9 INDUSTRY, INNOVATION AND INFRASTRUCTURE
10 REDUCED INEQUALITIES
11 SUSTAINABLE CITIES AND COMMUNITIES
12 RESPONSIBLE CONSUMPTION AND PRODUCTION
13 CLIMATE ACTION
14 LIFE BELOW WATER
15 LIFE ON LAND
16 PEACE, JUSTICE AND STRONG INSTITUTIONS
17 PARTNERSHIPS FOR THE GOALS

➢ **Monitoring:** Global Sustainable Development Report (GSDR) assesses progress every **4 years.**

➢ **Supporting Agreements:**

○ Sendai Framework for Disaster Risk Reduction to strengthen disaster resilience.

○ Addis Ababa Action Agenda for financing sustainable development.

○ Paris Agreement on Climate Change for combating climate change.

What are the Challenges in Implementation of SDGs?

➢ **War & Political Instability:** Conflicts in key resource-producing nations (e.g., **30% of global wheat exports from Russia & Ukraine**) trigger **food shortages** worldwide.

○ In war-torn regions, basic needs like **healthcare (SDG 3)** and **education (SDG 4)** become unattainable.

➢ **Economic Disparities:** Developing nations rely on **forestry, mining, and fossil fuels** for economic growth, conflicting with **climate goals (SDG 13).**

○ Wealthier countries push for **sustainability**, but poorer nations **lack funds & technology** to transition.

➢ **Governmental Challenges:** Some governments **prioritize short-term economic gains** over sustainability (e.g., **fossil fuel lobbying**).

○ Shutting down polluting industries without alternatives **increases unemployment (SDG 8)** and poverty (SDG 1).

➢ **Poverty & Inequality: 650 million people** still face hunger, while **10% lack electricity**—key barriers to SDG 1 (No Poverty) and SDG 7 (Clean Energy).

○ Rural areas lag in **education, healthcare, and jobs**, worsening inequality (SDG 10).

➢ **Global Economic Crises:** Covid-19 pushed millions into poverty, **reversing years of progress** (e.g., 5 million in Southeast Asia alone).

○ **Economic downturns** in one country (e.g., US recession) hurt trade partners (e.g., Mexico), disrupting SDG progress.

Targeted Species-Specific Conservation

Why in News?

A global study published in *PLOS Biology* has found that **targeted conservation efforts** have helped prevent the extinction of numerous animal species, highlighting the effectiveness of **species-specific interventions** for conservation.

How Have Targeted Conservation Efforts Impacted Global Biodiversity?

➢ **Direct Impact**: Nearly **99.3%** of species that improved in the IUCN Red List category since 1980, benefitted from conservation measures. Out of **969 species** with increasing populations, **78.3%** had active **conservation interventions** in place.

➢ **Species-Specific Outcomes**:

○ **Iberian Lynx**: Grew from a **few hundred to several thousand individuals** through breeding and habitat management.

○ **Kākāpō**: A **New Zealand parrot** revived through intensive monitoring and predator control.

○ **European Bison**: **Reintroduced into wild areas in Eastern Europe** after complete extinction in the wild in the early 20th century.

What is India's Species-Specific Conservation Programme?

➢ The Integrated Development of Wildlife Habitats (IDWH-2008) approved for continuation during the **15th Finance Commission cycle (2021–26),** aims to strengthen wildlife **conservation of critically endangered species in India** through captive breeding, and habitat restoration with community participation.

○ Under the Species Recovery Programme, **22 species (16 terrestrial and 6 aquatic)** have been prioritised for focused conservation.

○ It includes subcomponents like **Project Tiger (1973), Project Elephant (1992),** Development of Wildlife Habitat (covering **Project Dolphin, Project Lion, and Project Cheetah).**

➢ **Project Crocodile,** was initiated by the **United Nations** and the **Government of India,** (following the enactment of the **Wild Life (Protection) Act, 1972**) to boost crocodile populations through **captive breeding** and to protect their natural habitats.

○ The **saltwater crocodile** population in **Bhitarkanika** has significantly increased from **95 individuals in 1975 to 1,811**.

➢ **Sea Turtle** Conservation Project (1999) for Olive Ridley & other sea turtles, especially in Odisha.

○ **Olive Ridley Turtle** listed as **vulnerable (IUCN)**; **WLPA** Schedule I & **CITES Appendix I.**

➢ **MoEFCC** launched a **Vulture Action Plan 2020-25** for the **conservation of vultures** in the country. It will ensure **minimum use of Diclofenac** and prevent the poisoning of the principal food of vultures, the cattle carcasses.

○ A **Vulture Care Centre (VCC)** was established in **Pinjore, Haryana in 2001** to study vulture deaths in India.

○ In **2004**, it was upgraded to **India's first Vulture Conservation and Breeding Centre (VCBC)** to support captive breeding and conservation efforts.

➢ **Indian Rhino Vision 2020** launched in **2005** to increase the population of Greater One-Horned Rhinoceros in Assam. The Rhino population at **Kaziranga National Park** is now over 2,600 (as of 2022).

➢ The Maharashtra forest department is set to be the **first state in India** to have a **dedicated action plan for conservation of pangolins**.

○ Pangolins are listed in **Schedule I of India's Wildlife (Protection) Act, 1972,** implying the highest degree of protection.

➢ **Project Cheetah** **(2022)** aims to reintroduce Cheetahs, extinct in India since 1952. Cheetahs from Namibia and South Africa were brought to **Kuno National Park.**

○ **First cheetah birth** in the wild in India after 75 years occurred in 2023.

International Day of Forests 2025

Why in News?

The **International Day of Forests,** also known as **World Forests Day (WFD)**, is celebrated each year on **21st March** to raise awareness about the importance of forests and trees for the survival of humanity and the planet.

➢ The theme for 2025 WFD is **"Forests and Food"**.

International Day of Forests
➢ The International Day of Forests evolved from the **"World Forestry Day"** established by the **Food and Agriculture Organization (FAO) in 1971**.
➢ It was **formally recognized** by the **United Nations General Assembly** in **2012.**
➢ It aims to **raise awareness about forest conservation** and **sustainable management**.

Note:

➢ **Definition of Forest in India**: In *T.N. Godavarman Thirumulpad vs the Union of India 1996 Case*, the **Supreme Court** interpreted that the word **"forest" must be understood according to its "dictionary meaning".**

  ❍ This description covers all statutorily recognised forests, whether designated as reserved, protected or otherwise.

What is the Significance of Forests?

➢ **Ecological Significance:**

  ❍ **Carbon Sequestration:** Forests absorb **~30% of global CO_2 emissions** (from fossil fuel) annually (FAO, 2020) and store **861 gigatonnes of carbon**, making them crucial for **climate change mitigation**.

  ❍ **Biodiversity Conservation:** Forests host **80% of terrestrial biodiversity** (UNEP, 2021).

  ❍ **India's forests and tree cover (25.17% of total area, ISFR 2023)** shelter species like **tigers (3,167, NTCA 2022)** and **Asian elephants (~30,000, MoEFCC 2023)**.

  ❍ **Water Security:** Forests regulate **hydrological cycles, recharge groundwater,** and **mitigate floods**.

    ● Over **85% of major cities rely on forested watersheds** for freshwater. In crises, forests provide up to **20% of rural family income and ensure food security.**

    ● The **Western Ghats** in India sustain rivers that supply water to **245 million people.**

➢ **Economic and Livelihood Value:**

  ❍ **Global Dependence: 1.6 billion people** (including 70 million indigenous communities) rely on forests for **food, fuel, and medicine** (World Bank, 2022).

  ❍ **Employment:** Over **30 million people in India** depend on **forestry activities** for their livelihood, with **MGNREGA** supporting **afforestation projects** and rural livelihoods.

  ❍ **Livestock Support**: Forests sustain **30-40 million pastoralists** and provide **fodder for 4 billion livestock**. Trees **enhance rangelands** by offering **shade and protection,** improving **livestock productivity**.

➢ **Cultural Significance:** Forests are **culturally revered for regeneration, health, and longevity.**

  ❍ India has **100,000+ sacred groves** (e.g., **Kavus in Kerala, Law Lyngdoh in Meghalaya**), preserving **biodiversity and rare flora** like *Myristica malabarica* (Karnataka).

➢ **Genetic Diversity:** Forests safeguard wild relatives of crops (e.g., wild rice in Assam), essential for breeding climate-resilient varieties.

What is the Status of Forests in India?

➢ As per the **India State of Forest Report (ISFR)-2023**, **forest and tree cover** is **25.17%** of its geographical area (GA), with **forest cover at 21.76%** and **tree cover at 3.41%**.

➢ The country's **forest and tree cover** has **increased by 1,445.81 km²** compared to 2021.

➢ The report said **19 states/UTs have above 33%** of the geographical area under forest cover.

➢ India's forest **carbon stock** is estimated at **7,285.5 million tonnes**, with an increase of 81.5 million tonnes compared to 2021.

➢ **India's mangrove cover is 4,991.68 km² (0.15% of GA),** with a 7.43 km² decline since 2021.

➢ **Largest Forest Cover (Area wise):** Madhya Pradesh, Arunachal Pradesh, Chhattisgarh.

➢ **Highest % of Forest Cover:** Lakshadweep (91.33%), Mizoram (85.34%), Andaman & Nicobar (81.62%).

Global Forest Area (FAO 2020)

Proportion and distribution of global forest area by climatic domain, 2020

- Tropical **45%**
- Boreal **27%**
- Temperate **16%**
- Subtropical **11%**
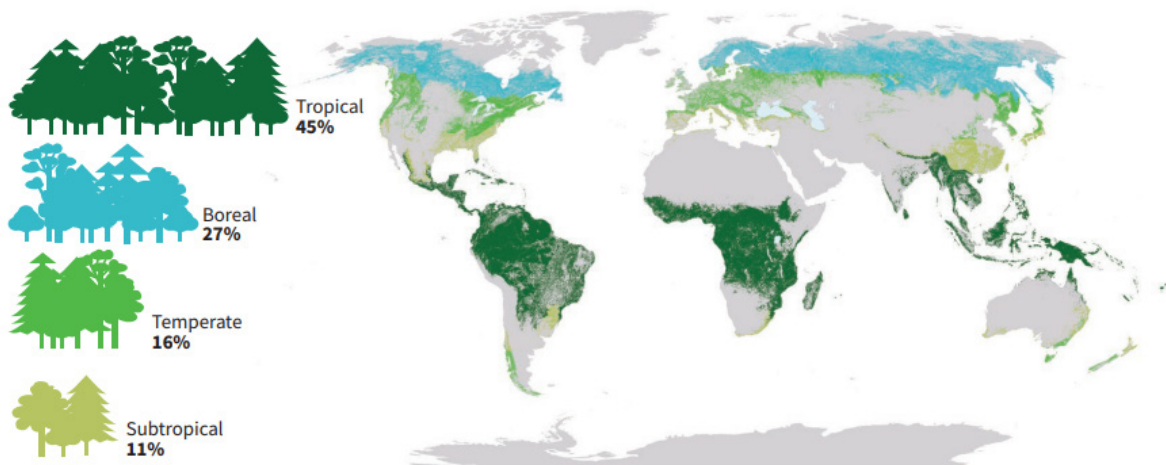
Source: Adapted from United Nations World map, 2020.

Top five countries for forest area, 2020 (million ha)

Russian Federation	Brazil	Canada	United States of America	China	Rest of the world
815	**497**	**347**	**310**	**220**	**1 870**

%	20	12	9	8	5	46
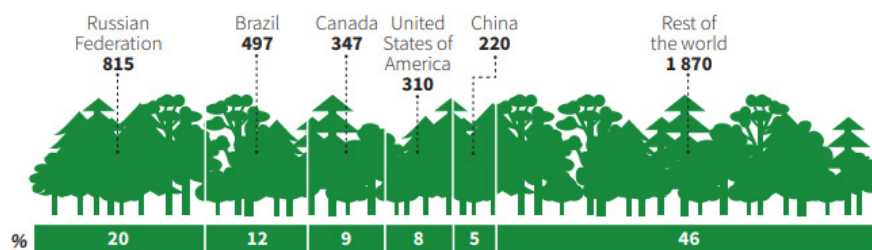
What are the Initiatives for Forest Conservation?

Global Initiatives

➢ **REDD+ (Reducing Emissions from Deforestation and Forest Degradation)**: A UNFCCC initiative incentivizing developing countries to reduce deforestation and enhance forest carbon stocks.

➢ **The Bonn Challenge (2011):** Launched by Germany and IUCN, aims to restore 150 million hectares by 2020 and 350 million hectares by 2030.

➢ **New York Declaration on Forests (2014)**: A non-binding commitment to halve deforestation by 2020 and end it by 2030.

➢ **The Paris Agreement (Art. 5):** It urges **conservation and enhancement of GHG sinks and reservoirs, including forests** to combat climate change.

➢ **FAO's Global Forest Resources Assessment (FRA)**: Provides comprehensive data on forest resources, trends, and conservation efforts globally.

➢ **Convention on Biological Diversity (CBD): CBD** is a key international agreement for forest conservation, aiming to **conserve biodiversity, sustainably use its components**, and **share benefits from genetic resources.**

India's Initiatives

- **Forest Conservation Act, 1980**
- **National Afforestation Programme**
- **Environment Protection Act of 1986**
- **Compensatory Afforestation Fund Management and Planning Authority (CAMPA)**: Uses funds from **diverted forest land projects for afforestation.**
- **Green India Mission (GIM):** It is part of the **National Action Plan on Climate Change (NAPCC)**, launched in **2015-16** with the focus on **biodiversity, water resources, and carbon sequestration**.
  - It aims to expand and improve **10 mha** of forest/tree cover and boost **livelihoods for 3 million households** through forest-based income.
  - **Sub-Missions: Enhancing Forest Cover, Urban Greening** and **Agro-Forestry & Social Forestry.**
- **National Agroforestry Policy:** It was launched in **2014** to promote agroforestry for **climate resilience, environmental conservation,** and **economic benefits**.
  - It focuses on **Quality Planting Material (QPM)** through **nurseries and tissue culture.**
  - **ICAR-Central Agroforestry Research Institute (CAFRI)** is the nodal agency, with support from state agricultural universities.
- **Forest Fire Prevention & Management Scheme:** It is a **centrally sponsored scheme** that **supports states and UTs in preventing and controlling forest fires**.
  - **National Action Plan on Forest Fire** (2018) developed with **World Bank, NDMA, and State Forest Departments**.
  - **Forest Survey of India (FSI)** uses **remote sensing, GPS, GIS**, and a **satellite-based monitoring system** for real-time fire alerts.
- **PM Van Dhan Yojana (PMVDY): Enhance tribal livelihoods** by adding value to **Minor Forest Produce (MFPs)** through **skill training, infrastructure, and market** linkages.
  - **Van Dhan Vikas Kendras (VDVKs):** 300 members from 15 SHGs per Kendra for processing and marketing MFPs.

What are the Challenges in Forest Conservation?

Click here to Read: Challenges in Forest Conservation

What Measures can be Adopted to Enhance Forest Conservation in India?

Click here to Read: Measures to Enhance Forest Conservation

Natural Farming

Why in News?

The **Green Revolution** ensured food security but led to **soil degradation** and higher input costs, hurting small farmers. This has fueled calls for **natural farming** to improve **soil health, farmer incomes,** and **environmental sustainability**.

What is Natural Farming?

- **About:** Natural Farming (NF) is a **chemical-free**, traditional farming method that integrates **crops, trees, and livestock** with functional biodiversity.
  - It emphasizes **minimal human intervention**, earning it the name **"do-nothing farming."**
  - It involves use of **on-farm inputs** like:

drishti

Overview of Natural Agricultural Inputs

Dashparni — A fermented plant-based pest repellent

Neemastra — A neem-based natural pesticide for pest control

Ghan Jeevamrut — A solid bio-fertilizer that provides essential nutrients to plants

Jeevamrut — A liquid bio-fertilizer that improves soil fertility

Beejamrut — A natural seed treatment to enhance germination and growth
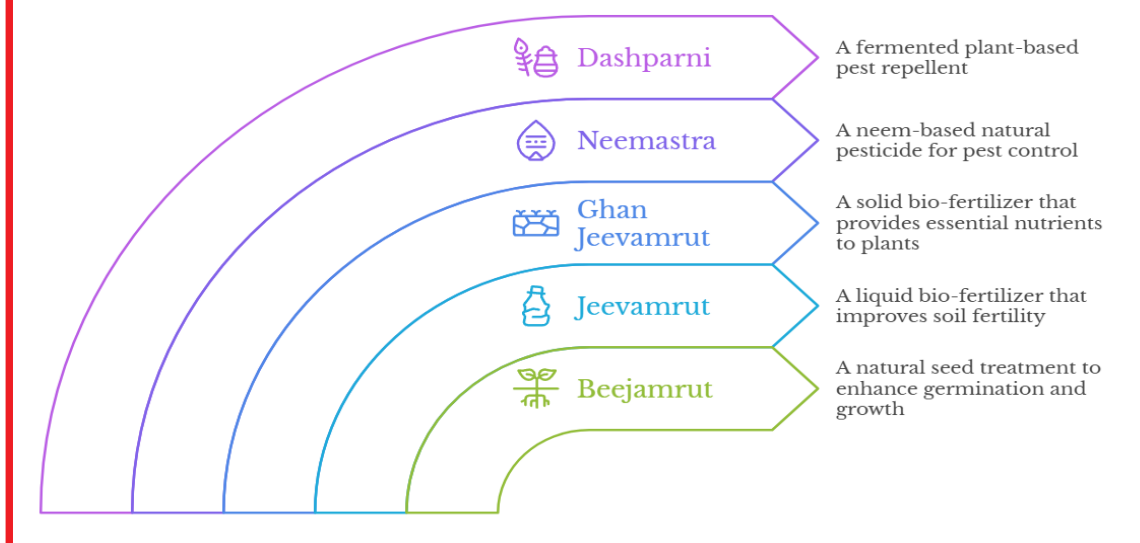
➢ **Difference from Organic Farming:** Unlike organic farming, which allows external organic inputs, natural farming relies **solely on on-farm inputs**. E.g., <u>mulching</u>, **crop diversity, and bio-inputs.**

➢ **Benefits:**
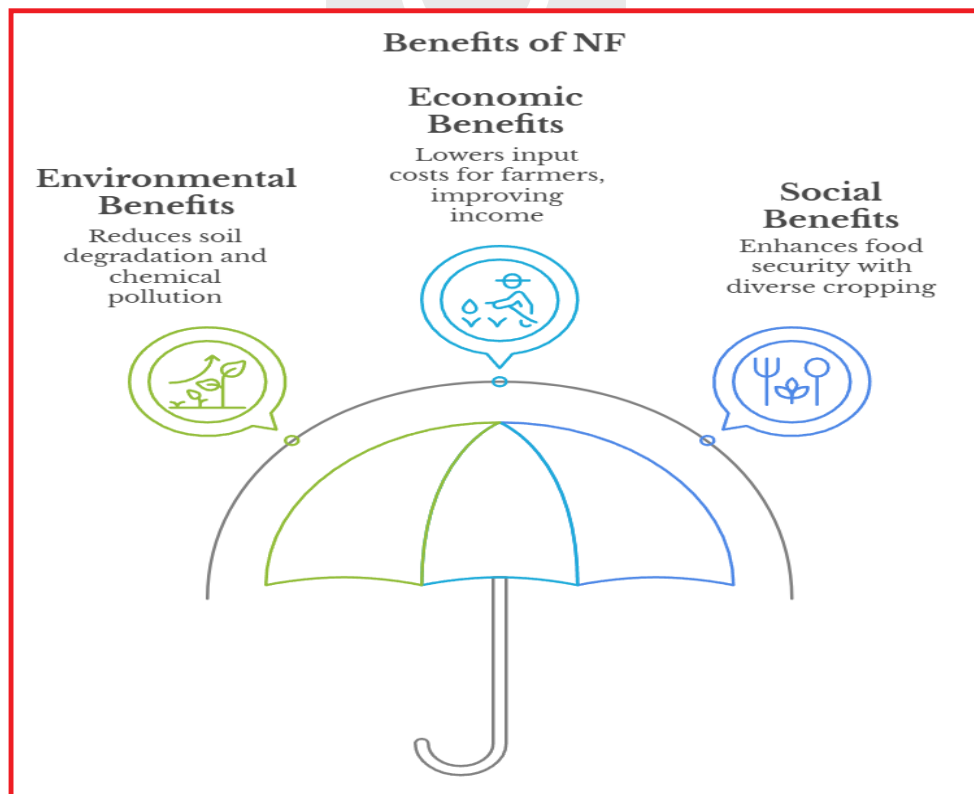
Benefits of NF

Environmental Benefits
Reduces soil degradation and chemical pollution

Economic Benefits
Lowers input costs for farmers, improving income

Social Benefits
Enhances food security with diverse cropping

➤ **Challenges:** Low crop yields, high threat of **pest and disease**, limited market access, rely heavily on **natural inputs**, lack of awareness and education among farmers.

> **What are the Benefits of Natural Farming?**
>
> **Click Here to Read:** Benefits of Natural Farming
>
> **What are Challenges in Natural Farming?**
>
> **Click Here to Read: Challenges in Natural Farmi**ng

What are Government Initiatives for Natural Farming?

➤ **Bhartiya Prakritik Krishi Paddhati (BPKP):** It was launched under the Paramparagat Krishi Vikas Yojna (PKVY) and now supports over **28 lakh farmers** practicing natural farming across **9.4 lakh hectares**.

➤ **National Mission on Natural Farming (NMNF):** NMNF is a **centrally sponsored scheme** launched by the **Ministry of Agriculture & Farmers Welfare** aimed to promote **sustainable, climate-resilient agriculture** and safe food practices.

   ❍ Aims to cover **1 crore farmers** and **7.5 lakh hectares** in **two years.**

   ❍ Establish **10,000 bio-resource centres** and deploy **30,000 krishi sakhis** for grassroots-level farmer support.

   ❍ Develop **2,000 natural farming** demonstration farms.

State of Global Climate Report 2024

Why in News?

According to the **State of Global Climate report** 2024 of the **World Meteorological Organization (WMO)**, global warming is nearing the **1.5°C Paris Agreement** threshold.

What are the Key Findings of the Global Climate Report?

➤ **Current Warming Levels:** Global warming stands at **1.34–1.41°C above pre-industrial levels**, with 19 of the last 20 months surpassing the **1.5°C threshold**.

   ❍ The world could surpass the **1.5°C threshold by September 2029.**
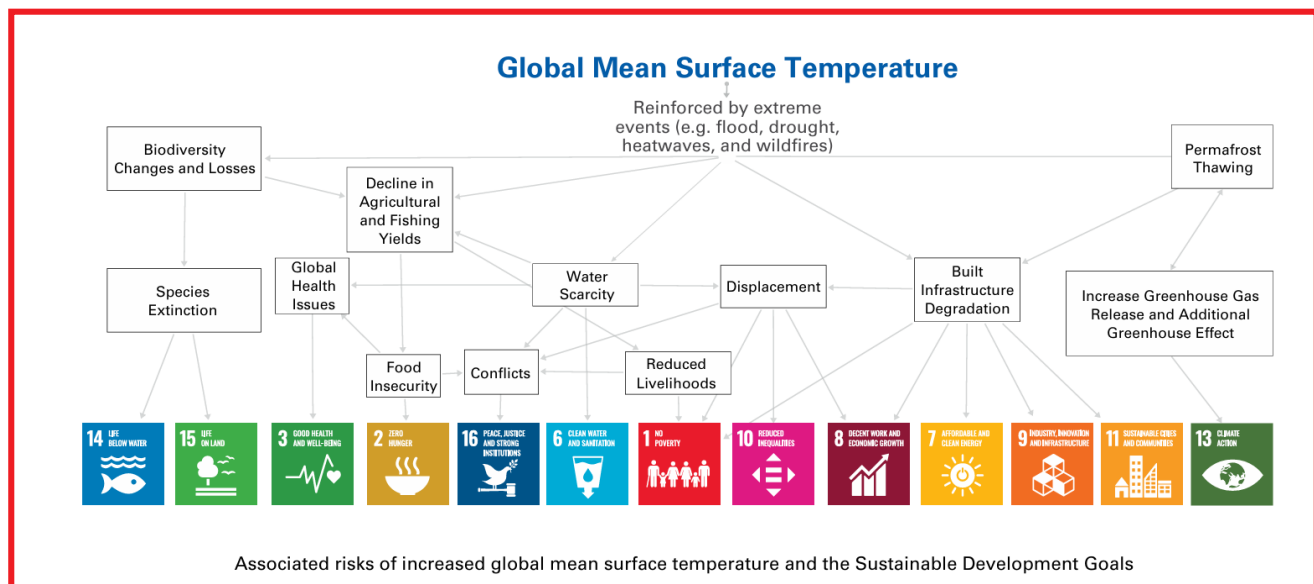
Global Mean Surface Temperature

Reinforced by extreme events (e.g. flood, drought, heatwaves, and wildfires)

Associated risks of increased global mean surface temperature and the Sustainable Development Goals

- **Extreme Weather Events:** In 2024, record **displacements from cyclones, floods, and droughts** worsened food crises, while **heat waves** hit East Asia, Southeast Europe, the Mediterranean, West Asia, and the southwestern US.

- **Carbon Dioxide Levels:** In 2023, **atmospheric CO_2** reached **151%** of pre-industrial levels, the highest in **800,000 years**.

- **Cryosphere Decline:** **Arctic sea ice** hit record lows for **18 consecutive years**, while **Antarctic sea ice** saw its **2nd-lowest** extent in 2024.

- **Irreversible Impacts:**
  - **Ocean Warming:** 2024 saw the highest **ocean heat content** in **65 years**, with warming rates doubling since 1960.
  - **Sea Level Rise:** Global mean sea level reached a record high, with rates **doubling** from **2.1 mm/year (1993–2002)** to **4.7 mm/year (2015–2024)**.
  - **Glacier Melt:** The period **2022–2024** recorded the **most negative glacier mass** balance, with significant losses in **Norway, Sweden, Svalbard, and the tropical Andes**.
  - **Ocean Acidification:** pH levels are declining rapidly, particularly in the **Indian Ocean, Southern Ocean, and equatorial Pacific**, with irreversible effects over centuries.

What is the World Meteorological Organization (WMO)?

Click Here to Read: World Meteorological Organization (WMO)

What is the Paris Agreement?

Click Here to Read: Paris Agreement

Water Circularity

Why in News?

A study, **"Waste to Worth: Managing India's Urban Water Crisis Through Wastewater Reuse,"** published by the **Centre for Science and Environment (CSE),** highlights the need for **water circularity** by reusing **treated wastewater** as a solution to both **water scarcity** and **environmental degradation**.

What are the Key Findings of the Study on Wastewater Reuse?

- **India's Growing Water Scarcity:** India ranks **132nd globally in per capita water availability** (India-WRIS), with freshwater resources declining by **73% from 5,200 cubic meters (m^3) in 1951**.

- The **Central Water Commission** estimates per capita availability at **1,486 m^3 in 2021, projected to drop to 1,367 m^3 by 2031.**

- India is already a **water-stressed nation (below 1,700 m^3 per capita)** and risks becoming **water-scarce (below 1,000 m^3 per capita)** without urgent action.

- India occupies **2% of the Earth's landmass** but has only **4% of global freshwater resources**, while supporting **18% of the world's population** and **15% of its livestock**, putting immense pressure on its water supply.

- **Wastewater Generation Crisis:** In 2020-21, Urban India generated **72,368 million litres per day (MLD)** of sewage, but only **44% (31,841 MLD)** had treatment capacity, with an operational capacity of **26,869 MLD**.

  - As a result, only **28% (20,236 MLD)** was treated, while **72% remained untreated**, polluting water bodies and land.
  - Wastewater generation is expected to increase by **75–80%** over the next **25 years**, reaching **48 BCM annually by 2050**, which is **3.5 times** the current treatment capacity.
  - **Wastewater is an untapped resource** that can supplement fresh water supply while reducing environmental pollution.

Surface water scarcity

Between 1950 and 2024, India has seen a decline of 73 per cent in per capita surface water availability

Per capita surface water availability (y-axis): 0 to 6,000

- 1950: 5,200
- 1990: 2,309
- 2000: 1,902
- 2010: 1,588
- 2025: 1,401
- 2050: 1,191

X-axis (Year): 1950, 1960, 1970, 1980, 1990, 2000, 2010, 2020, 2030, 2040, 2050
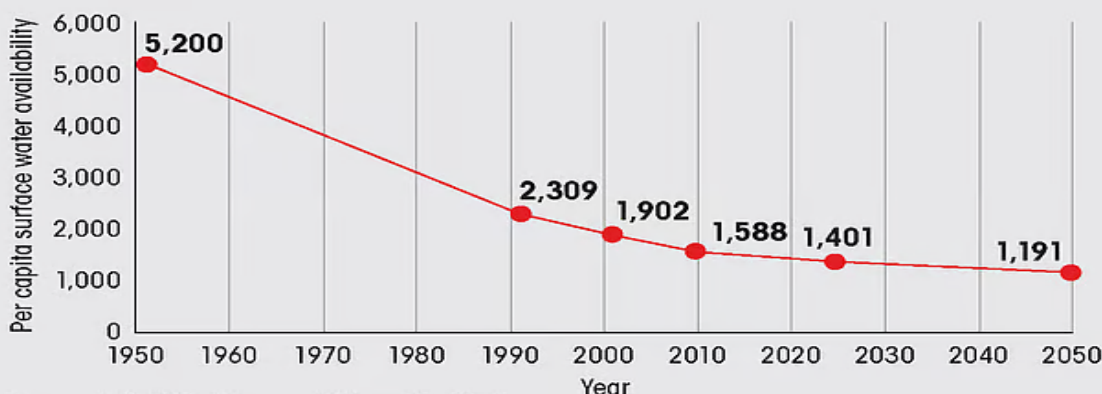
Source: India Water Resource Information System

➢ **Water Governance Challenges:** Indian cities heavily rely on **distant rivers for water** (Bengaluru (Cauvery), and Hyderabad (Krishna, Godavari)). This dependence increases costs, and leads to shortages and unequal access, especially in urban peripheries and informal settlements.

  ❍ The NITI Aayog Composite Water Management Index shows **16 states score below 50 out of 100, indicating poor water management**. Most cities dispose of untreated or partially treated sewage into water bodies.

  ❍ The **Union Ministry of Jal Shakti** mandates that cities **reuse at least 20% of their treated water,** but compliance is low.

  ❍ Wastewater is informally reused in **agriculture and industry**, but without structured policies. Farmers use **untreated sewage**, risking health.

  ❍ Large irrigation projects have **been repurposed** to supply water to urban areas (Narmada Project (Gujarat), Bisalpur Project (Rajasthan)), **reducing water availability for agriculture**.

Wastewater projections

The total wastewater generation in India will rise by 75-80 per cent in 25 years, reaching an estimated 0.13 million MLD by 2050

Estimated wastewater generation (MLD) (y-axis): 0 to 140,000

- 2025: ~80,000
- 2030: ~90,000
- 2035: ~100,000
- 2040: ~108,000
- 2045: ~120,000
- 2050: ~130,000
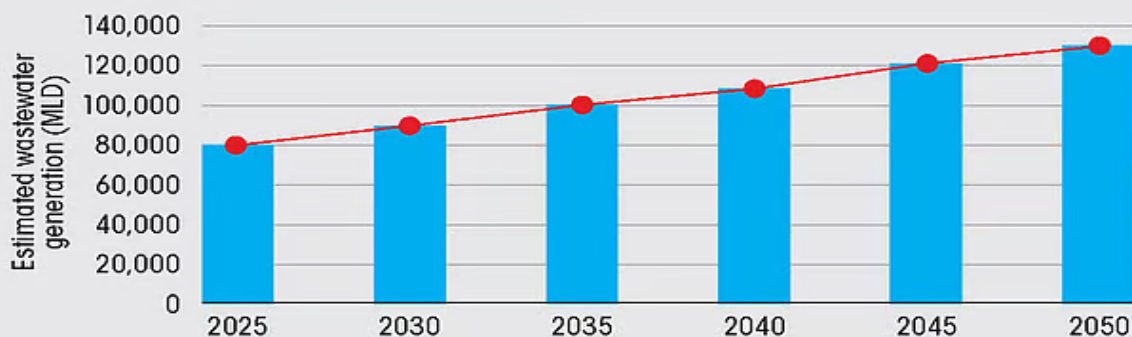
MLD: Million litres a day; Source: NITI Aayog

What is Water Circularity?

➢ **About:** Water circularity is the practice of **recycling, reusing, and recovering resources** within the water treatment cycle to maximize value for people, nature, and businesses. It minimizes waste, reduces pollution, and regenerates natural systems.

WATER IN CIRCULAR ECONOMY AND RESILIENCE
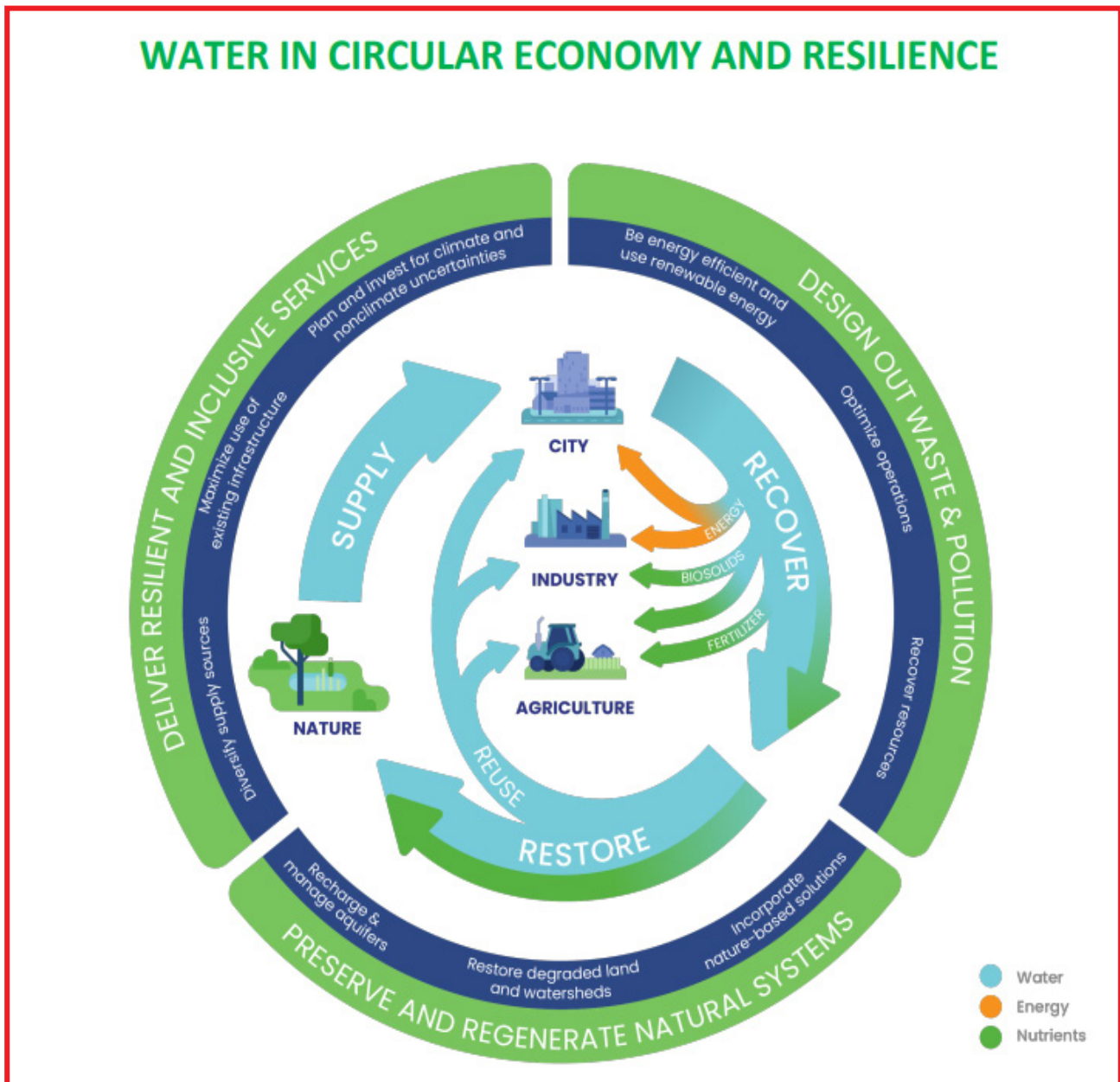
➢ **Benefits of Water circularity:** Recycling treated wastewater lowers industrial water costs, especially in **power plants and data centers running Artificial Intelligence (AI) models**, by replacing freshwater for cooling and supporting **Industry 4.0.**

   ❍ In India, around 317 km³ of municipal wastewater generated every year could potentially irrigate 40 million hectares, covering **10% of all irrigated land.**

○ A study found that **wastewater recycling in thermal power plants** can save **10 million cubic meters of water** annually and generate **USD 300 million per year in benefits**.

○ India's class I and II cities generate 2,500 tonnes of nutrients daily (from 6,400 MLD sewage water), valued at Rs 19.5 million. Recovering nutrients (nitrogen, phosphorus) from treated sewage can produce **organic fertilizers, reducing reliance on synthetic alternatives,** enhancing soil health, and boosting crop productivity.

○ Using treated sewage for **artificial groundwater recharge,** helping replenish **depleted aquifers** and improving water security.

○ Extracting **biogas from wastewater** can power water utilities, while **algal biofuel production (known as 3G ethanol production)** can reduce environmental impact and support **India's climate policies**.

What Measures Can Strengthen Wastewater Reuse in India?

➤ **Water Credit: Water reuse credits** can incentivize industries to adopt water-efficient practices, similar to **carbon trading systems**.

➤ **Decentralized Wastewater Treatment:** Decentralized wastewater treatment systems (households, communities, institutions) can reduce pressure on centralized **large sewage treatment plants (STPs)** and enhance local reuse.

○ Integrate **localized wastewater treatment and reuse systems** in **Smart Cities under AMRUT 2.0.**

➤ **Industries & Power Plants:** Enforce **100% treated wastewater use in thermal power plants within 50 km of STPs** (as per **Power Tariff Policy 2016**).

○ Impose **water abstraction charges** for industries still using freshwater despite available treated wastewater.

➤ **Wastewater Distribution Networks: Convert unused canal networks into wastewater supply channels** (e.g., similar to Uttar Pradesh's initiative to channel treated wastewater for irrigation).

➤ **Tax & Financial Incentives:** Offer low-interest loans for private investments in wastewater recycling and incentives for adopting **zero liquid discharge (ZLD) systems** (which eliminate liquid waste discharge).

➤ **Monitoring & Regulation:** Enforce **Central Pollution Control Board (CPCB)** discharge standards with regular audits and develop **Internet of Things (IoT)** based sensors in all STPs for real-time water quality monitoring.

Year	Policy/Mission	Year	Policy/Mission
2008	**National Urban Sanitation Policy:** Promotes the recycle and reuse of wastewater. The policy mandates that treated wastewater should comprise a minimum of 20 per cent of the water used in a city.	2021	**Swachh Bharat Mission (SBM) 2.0:** This mission aims to ensure that no untreated wastewater is discharged into the environment, all used water is safely contained, transported and treated, along with maximum reuse of treated used water in all cities that have a population of less than 0.01 million.
2010	**Service-Level Benchmark Framework:** Encourages the reuse of wastewater in cities.		
2012	**National Water Policy (NWP), 2012:** NWP 2012 focuses on reducing water pollution; the draft of the revised NWP 2020 embraces the imperative of recycling and reuse.		The mission also aims to work on reuse policies with the states and organize trainings and capacity building programmes for ULBs on solid and liquid waste management. The mission recommends the **utilization of used water as much as is feasible, but not less than 20 per cent.**
2012	**Jawaharlal Nehru National Urban Renewal Mission (JNNURM):** This mission mandates the treatment of 100 per cent of the wastewater in 63 cities and promotes the reuse of treated wastewater. This mission also focuses on the development of bye-laws for reuse of recycled water.		
2014	**National Mission for Clean Ganga (Namami Gange):** This programme focuses on the rejuvenation and conservation of the Ganga. It includes initiatives for the treatment of sewage and industrial effluents, with an emphasis on promoting the reuse of treated wastewater.	2021	**Atal Mission for Rejuvenation and Urban Transformation (AMRUT) 2.0:** The mission mandates that all cities with a population of more than 0.01 million recycle their used water to meet 20 per cent of the city's water demand and 40 per cent of the industrial water demand at the state level.
2015	**Atal Mission for Rejuvenation and Urban Transformation (AMRUT):** Encourages cities to provide the basic needs of sanitation and water supply. Encourages the reuse of wastewater for sustainability. **Smart Cities Mission:** Sanitation (particularly wastewater recycling and storm water reuse) is one of the core infrastructure elements included in the programme.	2022	**National Framework on Safe Reuse of Treated Wastewater:** Published by the National Mission for Clean Ganga (NMCG), the framework acts as a guiding document for states to formulate their reuse water policies and implement the same in a time-bound manner. A draft policy template has also been developed as part of the framework to aid in the preparation of a reuse policy by the respective state governments.
2015	**Namami Gange:** MOUs were signed by NMCG with the Ministry of Power, Ministry of Railways, and Ministry of Agriculture for reuse of treated wastewater.		
2016	**Power Tariff Policy:** Mandates thermal power plants to use treated sewage water within 50kms of STPs.		

Mangroves in India

Why in News?

A recent report by Anna University highlights Tamil Nadu's significant mangrove expansion, **doubling from 4,500 hectares in 2021 to 9,039 hectares in 2024,** bringing mangroves into the discussion.

What are Mangroves?

➢ **About:**
  ○ **Mangroves** are **coastal ecosystems** composed of **salt-tolerant trees and shrubs** that thrive in **intertidal zones of tropical** and **subtropical regions**.
  ○ They are uniquely **adapted to survive in saline, low-oxygen environments** with slow-moving waters, where **fine sediments tend to accumulate.**
  ○ Some common mangrove trees include **Red mangrove, Grey mangrove, and Rhizophora.**

MANGROVES

Diverse group of salt-tolerant plant communities found in the (tropical/subtropical) coastal intertidal zone ✳

CHARACTERISTICS
- Survive under **hostile environments** (high salt, low oxygen)
- Their roots (**pneumatophores**) absorb oxygen from atmosphere
- Thick **succulent leaves** to store fresh water

MANGROVE COVER
- **Global:** Asia > Africa > North and Central America > S America
- **India (ISFR 2021):** West Bengal > Gujarat > A&N Islands > Andhra Pradesh > Maharashtra

Sunderbans – World's largest single patch of Mangrove forests

SIGNIFICANCE
- **Stabilise the coastline** and reduce soil erosion
- Protection against **cyclones**
- **Improve water quality** by absorbing nutrients
- Important **carbon sink**

THREATS
- **Commercialisation** of coastal areas
- Emergence of **shrimp farms**
- **Temperature fluctuations** (Mangroves can't survive freezing temperatures)

CONSERVATION MEASURES

Global
- Inclusion of Mangroves in Biosphere Reserves and UNESCO Global Geoparks
- **Mangroves for the Future** Initiative (IUCN & UNDP)
- **Mangrove Alliance** for Climate (UNFCCC COP27)

India
- **National Mangrove Committee (1976)**
- Mangrove Initiative for Shoreline Habitats & Tangible Incomes (MISHTI) (Union Budget 2023-24)

International Day for Conservation of the Mangrove Ecosystem – July 26 (UNESCO)

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- ➤ **Key Characteristics:**
  - ○ **Habitat & Growth Conditions:** Mangroves thrive in **tidal flats, estuaries, and deltas with high silt** deposition, experiencing **bi-daily tidal flooding.**
    - They adapt to **high solar radiation, anaerobic mud**, and can **extract freshwater from saline water.**
  - ○ **Physiological Adaptations:** They develop **pneumatophores** (*Avicennia*) for respiration, **prop roots** (*Rhizophora*) for stability, and **lenticellated bark** for water loss and salt secretion.
    - Their **salt-secreting glands** aid salt excretion, while roots trap sediments and stabilize coastlines.
  - ○ **Reproductive Adaptations:** Mangroves exhibit **viviparity**, where seeds germinate on the tree before falling, ensuring survival in saline conditions.
- ➤ **Mangroves Distribution:** Mangrove thrive only in **tropical and subtropical latitude**s near the equator, as they **cannot withstand freezing temperatures.**
  - ○ As per FAO (2023), the **global mangrove extent** in 2020 was **14.8 million hectares,** covering **less than 1% of all tropical forests globally.**
  - ○ Largest mangrove areas are in **South and Southeast Asia,** followed by **South America, Africa, North and Central America, and Oceania.**
    - **Indonesia, Brazil, Nigeria, Mexico, and Australia** hold **47%** of the global mangrove cover.

- ➤ **Mangroves Cover in India:** As per the **Indian State of Forest Report (ISFR) 2023**, India's **mangrove cover** is around **4,992 sq. km**, constituting **0.15%** of the country's total geographical area.
  - ○ Major mangrove ecosystems are found in **Odisha (Bhitarkanika), Andhra Pradesh (Godavari-Krishna delta), Gujarat, Kerala, and the Andaman Islands**.
  - ○ The **Sundarbans** is the **largest contiguous mangrove forest in the world**, while **Bhitarkanika** is the **second largest in India**.

MANGROVES IN INDIA

Gulf of Kutch
Gulf of Khambhat
Dumas-Ubhrat

Gujarat

West Bengal
Sunderbans
Subarnarekha
Dhamra
Bhitarkanika

Odisha

Mahanadi
Chilika

Vaitarna
Mumbra-Diva
Vasai-Manori
Vikroli
Kundalika-Revdanda
Shreevardhan
Veldur
Achra-Ratnagiri
Devgarh-Vijay Durg
Malvan
Goa
Karwar
Dakshin Kannada/Honnavar
Coondapur
Mangalore Forest Division

Maharashtra

East Godavari
Coringa
Krishna

Andhra Pradesh

Pulicat
Kazhuveli
Pichavaram

Karnataka

Kannur (Northern Kerala)

Tamil Nadu

Muthupet

Vembanad

Kerala

Ramnad

North Andamans

Nicobar

FACTS

✱ UNESCO observes July 26 as the International Day for the Conservation of the Mangrove Ecosystem.

✱ As per ISFR 2021, the mangrove cover in India is 4,992 sq km, which is 0.15% of the country's total geographical area.

✱ West Bengal>Gujarat>A&N Islands>Andhra Pradesh>Maharashtra, have the largest Mangrove cover in India (ISFR 2021).

✱ In India, mangroves are protected by the Environmental (Protection) Act 1986 and Coastal Zone Regulations.

✱ Sunderbans, a UNESCO World Heritage Site, is the world's largest single patch of Mangrove Forests.

✱ Sundarbans is the first Mangrove forest in the world, which was brought under scientific management, as early as in 1892.

✱ The emergence of shrimp farms is responsible for at least 35% of the overall loss of mangrove forests.

Drishti IAS

Sundarbans

➢ The **Sundarbans** is named after the **sundari tree (***Heritiera fomes***)**.

➢ It extends from the **Hooghly River in West Bengal, India, to the Baleswar River in Bangladesh**, covering the **Ganges, Brahmaputra, and Meghna delta**.

➢ Four protected areas-**Sundarbans National Park (India), Sundarbans West, Sundarbans South, and Sundarbans East Wildlife Sanctuaries (Bangladesh)** are designated as **UNESCO World Heritage Sites**.

➢ The region hosts **rich biodiversity**, including **260 bird species, the Bengal tiger, estuarine crocodile, and Indian python**, among other threatened species.

Spanning across India and Bangladesh, Sundarbans is amongst the world's largest contiguous blocks of mangrove forest. Less than 40 percent of Sundarbans is located in India and the rest is in Bangladesh. On the Indian side, forest boundaries have changed very little since 1943.

What is the Significance of Mangroves?

➢ **Carbon Sequestration:** Mangroves store an average of **394 tonnes of carbon per hectare.** Their unique **anaerobic and saline conditions slow decomposition**, making them **highly effective blue carbon sinks..**

➢ **Coastal Protection:** Mangroves act as **natural barriers against storm surges, tsunamis, and coastal erosion**, reducing **wave energy by 5-35%**.

    ❍ They lower **flood depths by 15-20%** and up to **70% in certain areas**, playing a crucial role in **disaster risk reduction**.

➢ **Biodiversity Hotspots:** They support **5,700+ species across 21 phyla in India**, including Bengal tigers, estuarine crocodiles, Indian pythons, and 260+ bird species.

➢ **Food Security and Livelihoods:** Mangroves support global fisheries by nurturing **800 billion aquatic species annually** and provide **honey, fruits, and leaves**, sustaining coastal communities.

What are the Major Threats to Mangroves?

➤ **Land Conversion**: According to the **"State of the World's Mangroves 2024"** report, **aquaculture (26%), along with oil palm plantations** and rice cultivation (43%), has been a **major driver of mangrove** loss **between 2000 and 2020**.

   ❍ **Timber extraction** and **charcoal production** lead to severe mangrove degradation.

➤ **Pollution**: **Oil spills**, particularly in areas like the **Niger Delta**, threaten mangrove regeneration and ecosystem health.

➤ **Invasive Species**: The spread of *Prosopis juliflora*, an aggressive invasive species found in the mangroves of Tamil Nadu and Sri Lanka, **disrupts mangrove ecosystems** by **outcompeting native species**, altering soil salinity, reducing freshwater availability, and hindering regeneration.

> **Read More:** **What are India's Initiatives Related to Mangroves Conservation?**

Carbon Credit Trading Scheme

Why in News?

The **Carbon Credit Trading Scheme (CCTS), 2023** introduced under the **Energy Conservation (Amendment) Act, 2022,** replaces the **Perform, Achieve, and Trade (PAT) scheme** to establish the **Indian Carbon Market (ICM)**, aligning with **India's climate commitments under the Paris Agreement**.

What is the Carbon Credit Trading Scheme?

➤ **CCTS:** The CCTS is a **market-based mechanism** introduced to regulate and trade carbon credits under the ICM.

   ❍ The CCTS aims to **decarbonize the Indian economy by pricing greenhouse gas (GHG) emissions** and facilitating carbon trading.

➤ **Transition from PAT to CCTS:** The **PAT scheme** focused on **energy efficiency improvements** in energy-intensive industries through **Energy Saving Certificates (ESCerts)**.

   ❍ CCTS replaces PAT, **shifting the focus from energy intensity to reducing GHG emission intensity,** monitoring **emissions per tonne of GHG equivalent.**

      ● It issues **Carbon Credit Certificates (CCC),** each representing a **one-tonne CO2 equivalent (tCO2e) reduction.**

➤ **Mechanisms:** CCTS introduces **carbon pricing** through two key mechanisms to ensure comprehensive carbon reduction efforts.

   ❍ **Compliance Mechanism:** Mandates energy-intensive industries (e.g., Aluminium, Cement, Fertilizers, Iron & Steel) **to meet sector-specific GHG reduction targets.** Entities exceeding targets earn **CCC,** those falling short must purchase credits.

   ❍ **Offset Mechanism:** Allows **voluntary participation** from entities outside the compliance framework to earn carbon credits by reducing emissions.

➤ **Sectors Identified:** CCTS **initially includes energy-intensive industries such as** iron & steel, aluminium, cement, fertilizers, petroleum refineries, pulp & paper, and textiles (account for 16% of India's total emissions).

   ❍ The **power sector (40% of India's GHG emissions)** may be included later.

➤ **Regulatory Oversight:** Managed by multiple government bodies, including the **Bureau of Energy Efficiency (BEE)** and the **National Steering Committee for Indian Carbon Market (NSCICM)**.

➤ **Importance of CCTS in India's Climate Goals:** India aims to **cut emission intensity by 45% by 2030**. The CCTS drives private sector involvement, encouraging clean technologies, renewables, and **carbon capture.**

What is Carbon Pricing?

➤ **About:** Carbon pricing is an economic strategy that captures the **external costs of carbon emissions** (such as damage to crops, rising healthcare costs, and property losses due to extreme weather) and links them to their sources.

   ❍ This mechanism **shifts the financial burden back to polluters,** giving them the choice to either **reduce their emissions, continue polluting and pay for it, or invest in cleaner technologies.**

   ❍ Current global carbon pricing mechanisms cover **12.8 gigatonnes of CO_2** (25% of global emissions) across 89 countries.

➤ **Mechanisms:** Governments use 3 main approaches to price carbon, ensuring emissions reductions at the lowest possible societal cost.

   ❍ **Emissions Trading System (ETS):** Allows industries to **trade emission units**. It operates through two mechanisms; **Cap-and-Trade and Baseline-and-Credit.**

      ● In **Cap-and-trade**, a cap is set on emissions with companies below it can sell allowances, while those exceeding it must buy more.

- While **Baseline-and-Credit rewards industries** that **reduce emissions below a set baseline** by allowing them to sell credits to others.
  - **Carbon Tax:** Unlike ETS, **Carbon Tax** directly sets a price on carbon emissions by charging a fixed tax per ton of CO_2.
    - However, it does **not guarantee a specific reduction in emissions,** as industries decide whether to cut emissions or pay the tax.
  - **Crediting Mechanism:** Allows GHG reductions from projects to generate carbon credits, which can be sold domestically or internationally for compliance or voluntary mitigation purposes.

What is the Carbon Market?

Click here to Read: Carbon Market

What are the Challenges in Effective Implementation of CCTS?

➢ **Target Setting and Carbon Pricing**: Balancing emission reduction targets is crucial. Lenient targets can oversupply CCC, lowering prices, while **stringent targets may increase compliance costs and inflation.**

➢ **Compliance and Enforcement Issues:** Under PAT, **50% of the required ESCerts remained unpurchased,** with no penalties imposed, indicating a lack of strict compliance and enforcement mechanisms in the **carbon market that can impact CCTS, making it ineffective.**

  - CCTS may face the **risk of double counting or inaccurate emissions** reporting, as observed in global carbon markets.

➢ **Delays in Credit Issuance:** Delays in the issuance of credits under PAT since 2021 have reduced market confidence. Similar delays in **CCTS CCC issuance could hinder participation and investment in clean energy.**

➢ **Transparency:** Lack of publicly available data on industry emissions and compliance could reduce market trust.

■ ■ ■

History

Revival of Vikramshila University

Why in News?

Ten years after **the establishment of Nalanda University** in Rajgir, efforts are underway to **revive Vikramshila, another ancient centre of learning** in Bihar, with land allocated for a **Central University at Antichak village** in Bhagalpur district.

➤ **Currently,** the **Archaeological Survey of India (ASI)** has been working to develop the ancient site of the Vikramshila University for tourism.

Nalanda University
➤ **Established:** 5th century CE during the **Gupta dynasty**, likely under **Kumaragupta I**.
➤ **Legacy:** One of the world's oldest residential universities; taught a variety of subjects including **Buddhist philosophy, logic, medicine, and astronomy**.
➤ **Link with Vikramshila:** Both Nalanda and Vikramshila were patronised by **Pala kings** and shared scholars and knowledge exchange.
➤ **Revival:** Nalanda University was **re-established in 2014** as an **international university**.

What are the Key Facts About Vikramshila University?

➤ **Historical Background:** Vikramshila Mahavihara, situated at Bhagalpur, Bihar, was **founded by King Dharmapala** of the **Pala dynasty** between the late 8th and early 9th century AD.

○ It existed and thrived alongside Nalanda during that period.

➤ **Key Features:** Vikramshila was the **only university that specialized in Tantric and occult studies**. It flourished during the era of Tantricism when both **Buddhism** and **Hinduism** included occult sciences and magic as subjects of study.

○ During Dharmapala's reign, Vikramshila reigned supreme and is **known to have controlled Nalanda's affairs as well**.

○ Subjects such as theology, philosophy, grammar, metaphysics and logic were also taught at Vikramshila.

○ The university **produced several eminent scholars, including Atisa Dipankara**, who played a crucial role in **establishing Buddhism in Tibet**.

➤ **Decline:** Vikramshila, like Nalanda, declined around the 13th century **due to the rise of Hinduism and the decline of Buddhism,** along with the invasion of **Bakhtiyar Khalji**.

○ **Remains include** a large stupa, monastic cells, and a library where texts were copied and translated.

Pala Dynasty

➤ The Pala dynasty, **founded by Gopala**, ruled Bihar and Bengal from the 8th to 12th century CE.
  ❍ "Pala" is a **Sanskrit word which means "protector"**. It was added to the names of the emperors, giving rise to the name "Pala" to the empire.
➤ Gopala's reign was **marked by a tripartite struggle** between the **Palas, the Pratiharas and the Rashtrakutas** for the control of Kanauj and North India.
➤ The Palas were **devout patrons of Mahayana Buddhism**.
➤ A **distinctive Pala art style developed under their patronage**, known for exquisite stone and metal sculptures.
  ❍ Pala style was transmitted **chiefly by means of bronze sculptures and palm-leaf paintings**, celebrating the Buddha and other divinities.

Aurangzeb and Maratha Empire

Why in News?

The **public outrage in Nagpur**, leading to demands for the demolition of **Mughal ruler Aurangzeb's 17th-century tomb in Khuldabad**, Chhatrapati Sambhaji Nagar has raised the discussion about **Aurangzeb** and **Marathas.**

Aurangzeb

➤ **Aurangzeb (Alamgir), the son of Shahjahan**, was the **sixth Mughal emperor (after Babur, Humayun, Akbar, Jahangir** and **Shahjahan)** who ruled from **1658 to 1707.**
➤ He ascended the throne after eliminating all competitors, including **Dara Shukoh, Shuja, and Murad**, in a war of succession.
➤ He was the **last powerful Mughal ruler**, under whom the **empire reached its greatest territorial extent** but also faced **significant internal strife.**

What are the Major Policies of Aurangzeb?

➤ **Religious Policies:**
  ❍ **Islamic Orthodoxy:** He followed a **strict interpretation of orthodox Sunni Islam** and emphasized **religious observance** adhered to **austere practices.**
  ❍ **Reimposition of Jizya:** He reinstated the **Jizya tax** on non-Muslims in **1679,** which was perceived as **discriminatory,** particularly **against Hindus** and other religious minorities.
  ❍ **Persecution of Religious Leaders:** He persecuted **Guru Tegh Bahadur** (the ninth Sikh Guru) for refusing to convert to Islam which **fueled Sikh resistance** and contributed to their **armed struggle against Mughal authority**.
  ❍ **Temple Demolition:** In **1669**, Aurangzeb issued a **farmaan** ordering the demolition of major Hindu temples, including **Kashi Vishwanath Temple (Varanasi)** and **Keshavdev Temple (Mathura).**
➤ **Administrative Policies:**
  ❍ **Administrative Centralization:** Aurangzeb curbed **Subahdars' and Zamindars'** autonomy, enforced **fixed salaries for Mansabdars**, and **centralized bureaucratic appointments** to strengthen imperial control.
  ❍ **Reforms in Mansabdari:** Aurangzeb **curbed Mansabdars' financial autonomy**, making them reliant on the central treasury, and **enhanced military efficiency** through the **Daag** (horse branding) and **Chehra** (soldier identification) systems to prevent fraud.
    ● The **Daag and Chehra systems** were introduced by **Alauddin Khilji (1296 to 1316).**
  ❍ **Fatawa-e-Alamgiri:** Compiled Islamic laws to govern administrative and judicial matters, making the state **more theocratic** in nature.
➤ **Economic & Taxation Policies:**
  ❍ He continued the **Zabt system** of revenue collection which imposed **high, inflexible taxes despite crop failures,** leading to **peasant distress and food shortages**. Lack of investment in **irrigation and agricultural reforms** worsened economic stagnation.
    ● The **Dahsala (Zabti) system**, introduced by Raja Todar Mal under Akbar, was a **systematic revenue assessment method** based on the **10-year average of crop production and prices.**

○ **Heavy Military Expenditure**: Prolonged **wars against Marathas and Rajputs** drained finances, increased **tax burden**, and fueled peasant revolts, accelerating **regional resistance**.

○ **Trade Regulations**: Trade restrictions favored **Muslim merchants**, while **strict Islamic commercial laws** discouraged entrepreneurship, reducing the empire's economic competitiveness.

○ **Decline in Arts, Culture, and Infrastructure: Reduced patronage** to artisans and halted monumental architecture, shifting focus to **military fortifications**, limiting economic growth.

What are the Key Facts Related to Maratha Empire?

➤ **Emergence of Marathas:**

○ The Maratha Empire emerged in the **17th century** under the leadership of **Chhatrapati Shivaji (1630-1680),** who laid its foundation by challenging the declining **Adil Shahi** and **Mughal** rule in the Deccan.

○ It was formally established in **1674** with **Shivaji's coronation as Chhatrapati** and lasted until **1819**, when it was defeated by the **English East India Company**.

➤ **Rise of Maratha Empire:** The rise of the Marathas can be attributed to a combination of strategic, geographical, and political factors.

○ **Geographical Advantage:** The **rugged terrain of the Western Ghats** provided a natural defense and facilitated **guerrilla warfare tactics**, while the **numerous hilltop forts** strengthened Maratha resistance and military operations.

○ **Religious and Political Unity:** Shivaji's leadership played a crucial role in unifying the Marathas politically, while the **Bhakti movement** fostered religious cohesion.

● Spiritual leaders like **Sant Tukaram**, **Samarth Ramdas, and Eknath** further promoted **social and cultural unity** among the people.

○ **Administrative and Military Experience:** The Marathas gained **valuable administrative and military experience** by holding key positions in the **Bijapur** and **Ahmadnagar Sultanates**.

Sambhaji Maharaj

➤ **About:** Sambhaji Maharaj (1657–1689), the **eldest son of Chhatrapati Shivaji Maharaj and Saibai Nimbalkar,** ascended the Maratha throne in **1681.**

○ His reign was marked by unwavering **resistance against the Mughal Empire**, particularly Aurangzeb.

➤ **Early Life and Accession:** He was born on **14th May 1657,** lost his mother at the age of 2 and was raised under the care of his grandmother, Jijabai.

○ He showed **military skill from a young age**, leading his first **Battle at Ramnagar** when he was only 16.

○ He married **Yesubai** and had a son, **Shahu Maharaj.**

➤ **Conflict with the Mughals:**

○ **Resistance Against Aurangzeb**: Sambhaji continued his father's struggle against the Mughals and other regional adversaries.

○ **Sack of Burhanpur (1681)**: He launched a successful raid on the Mughal stronghold of Burhanpur, dealing a significant blow to Aurangzeb's forces.

○ **Guerrilla Warfare**: He effectively employed guerrilla tactics to counter repeated Mughal offensives, inflicting heavy losses on the enemy.

➤ **Capture and Execution:**

○ In 1689, Sambhaji was betrayed by **Ganoji Shirke,** his brother-in-law, who revealed his location to the Mughals.

○ He, along with his close aide **Kavi Kalash,** was captured at **Sangameshwar.**

○ Refusing to submit to Aurangzeb, he endured brutal torture before being executed on 11th March 1689, at Tulapur near Pune.

What are the Key Facts Related to Chhatrapati Shivaji?

➤ **Conflict with the Mughals:** Shivaji raided Mughal territories near **Ahmednagar and Junnar (1657),** prompting Aurangzeb to send **Nasiri Khan**, who defeated Shivaji's forces.

○ In 1659, Shivaji repelled an attack by **Shaista Khan** and the Bijapur army in Pune. He later sacked **Surat (1664).**

○ The **Treaty of Purandar (1665)** with **Raja Jai Singh I** led to the surrender of several forts to the Mughals. Shivaji also agreed to visit Aurangzeb's court at Agra and send his son, **Sambhaji**.

➢ **Arrest and Escape:** In **1666,** Shivaji was arrested at Aurangzeb's court in Agra but escaped in disguise with Sambhaji.

○ Peace followed until 1670, when the Mughals revoked Sambhaji's **jagir** of Berar. Shivaji retaliated, swiftly reclaiming lost territories and expanding Maratha control in the Deccan.

Successors of Shivaji

➢ **Sambhaji (1681-1689):** He continued expansionist policies but was captured and executed by the Mughals.

➢ **Rajaram (1689-1700):** Fled to **Ginjee Fort,** led resistance against the Mughals, and later died at Satara.

➢ **Shivaji II & Tara Bai's Regency (1700-1714):** Tara Bai, Rajaram's widow, ruled as regent and led the Maratha resistance.

➢ **Shahu & Rise of Peshwas (1713 Onwards):** Shahu, son of Sambhaji, appointed **Balaji Vishwanath** as Peshwa in 1713, marking the rise of the **Peshwa system** in Maratha administration.

What are the Key Facts About Shivaji's Administration?

➢ **Central Administration:** Shivaji established a well-structured administration, drawing inspiration from the Deccan style, particularly **Malik Ambar's reforms in Ahmednagar.**

○ The **King was the supreme authority**, assisted by the **Ashtapradhan** (Council of Eight Ministers) consisting of:

● **Peshwa (Prime Minister):** Oversaw overall administration.

● **Amatya (Finance Minister):** Managed state finances.

● **Sacheev (Secretary):** Issued royal orders.

● **Mantri (Interior Minister):** Managed internal affairs.

● **Senapati (Commander-in-Chief):** Led military operations.

● **Sumant (Foreign Minister):** Handled diplomatic relations.

● **Nyayadhyaksha (Chief Justice):** Oversaw judicial matters.

● **Panditrao (High Priest):** Managed religious affairs.

○ **Chitnis (Royal Secretary)** played a key role in governance.

➢ **Provincial Administration:** The empire was divided into **provinces (prants), districts (tarafs), and sub-districts (parganas).**

○ Local officials included **Deshmukhs** and **Deshpandes** (revenue collectors).

➢ **Revenue Administration:** Shivaji **abolished the Jagirdari system** and introduced the **Ryotwari system,** altering the roles of hereditary revenue officials such as **Deshmukhs, Deshpandes, Patils, and Kulkarnis**.

○ He closely monitored **Mirasdars**, who held hereditary land rights. His revenue system followed **Malik Ambar's Kathi system**, wherein land was measured using **Rod (Kathi)**.

○ **Key Revenue Sources:**

● **Chauth (1/4th of revenue)** levied on non-Maratha territories as protection money.

● **Sardeshmukhi (10% levy)** imposed on regions outside the kingdom.

○ Controlled the power of **Mirasdars (hereditary landlords)** to prevent corruption.

➢ **Military Administration:** Shivaji maintained a **highly disciplined and efficient army**, including a cavalry of **30,000-40,000 troops**.

○ **Ordinary soldiers were paid in cash**, while chiefs and commanders received **Jagir grants (Saranjam or Mokasa)**. His army comprised:

● Infantry (Mavali foot soldiers)

● **Cavalry (Horsemen and equipment handlers) A strong naval force** to protect coastal territories.

○ Introduced **guerrilla warfare tactics** and fortified numerous strategic locations.

○ Established India's **first naval force** to protect maritime trade and coastal regions.

Philosophical Perspectives of Dr. B.R. Ambedkar

Why in News?

Baba Saheb Dr. Bhimrao Ramji Ambedkar's (1891-1956) philosophy on social justice, equality, and freedom, especially in the context of caste and gender inequality, has gained renewed attention.

What are the Philosophical Perspectives of Dr. B.R. Ambedkar?

➢ **Pragmatism:** Influenced by **John Dewey** (an American philosopher), Ambedkar applied pragmatism (solving problems in a practical way) to address real-world issues, such as the caste system, social injustice, and economic inequality.

 ○ His approach emphasized action-oriented solutions rather than abstract or theoretical frameworks.

➢ **Critique of the Caste System:** Ambedkar strongly criticized the **Hindu caste system** as oppressive and unjust, advocating for a society based on **reason and equality.**

 ○ He saw **Dalits as victims of systemic oppression,** denied basic rights and dignity.

 ○ Ambedkar reconstructed **Buddhism as *Navayana Buddhism*,** focusing on **social equality and ethical living** over rituals which is reflected in his work *"The Buddha and His Dhamma."*

 ○ In, *The Annihilation of Caste (1936)* he argued that caste is not **just a division of labor but a division of laborers** that perpetuates social and economic inequality.

➢ **Legal and Constitutional:** As the chief architect of the Indian Constitution, Ambedkar believed India's foundation should rest on **liberty, equality, and fraternity,** inspired by the **French Revolution (1789-1799).**

 ○ He stated that **"liberty without equality leads to domination leads to domination by a few,** and **equality without liberty leads to oppression",**

and emphasized **constitutional morality**, stating that laws should evolve to reflect the values of justice and human dignity.

 ○ He championed **rule of law, fundamental rights, and affirmative action** to uplift the oppressed. To him **fraternity** is the missing element in Indian society, which was divided by caste and hierarchy.

➢ **Political Philosophy:** Ambedkar saw democracy not just as a political system but as a **way of life, emphasizing liberty, equality, and fraternity.**

➢ **Economic Philosophy:** Ambedkar rejected both **unregulated capitalism and extreme socialism**, advocating a middle path where the **state played a key role in economic planning.**

 ○ His ideas on **land reforms, labor rights, and economic planning** were aimed at uplifting marginalized communities.

➢ **Gender Justice:** Ambedkar was a strong advocate for gender equality, recognizing the intersection of **caste and patriarchy.**

 ○ He played a key role in drafting the **Hindu Code Bill,** which sought to reform personal laws related to marriage, inheritance, and divorce.

 ○ He emphasized the importance of women's education and empowerment in creating an egalitarian society.

➢ **Views on Gandhism:** Ambedkar was a **strong critic of Gandhism,** calling its caste reforms inadequate and advocating legal abolition. Despite differences in caste, religion, and Dalit representation, both sought **social justice and nation-building.**

Note: Navayana (New Vehicle) Buddhism, founded by B.R. Ambedkar in 1956, is a reinterpretation of Buddhism that emphasizes **social equality and class struggle over traditional spiritual doctrines.**

➢ It rejects core Buddhist doctrines like **Four Noble Truths, karma, rebirth, nirvana, and monasticism**, considering them pessimistic and irrelevant to social justice.

➢ Mass conversions of Dalits to Navayana began in 1956, with 14th October marked as **Dhammachakra Pravartan Day.**

Drishti IAS

Dr. Bhimrao Ramji Ambedkar

Babasaheb Ambedkar-
The Father of Indian Constitution
14 April 1891- 06 December 1956

1. Brief Profile

- A social reformer, jurist, economist, author and thinker of comparative religions
- Labour member in the **Executive Council of Viceroy (1942)**
- **Chairman** of the **Drafting Committee** for the new Constitution
- **First Law Minister** of India
- Posthumously awarded **Bharat Ratna (1990)**

2. Contributions

- Led the **Mahad Satyagraha in 1927** against Hindus
- Participated in **all three Round Table Conferences**
- Signed the **1932 Poona pact with Mahatma Gandhi** to abandon the idea of separate electorates for the depressed classes

> The reserved seats for depressed classes were increased from 71 to 147 in provincial legislatures and to 18% in the Central Legislature.

- **Opposed the special status of J&K** (Article **370**)
- Supported **Uniform Civil Code**
- Referred **Article 32** as **"soul of the Constitution and very heart of it"**

3. Resignation and Buddhism

- Differences over **Hindu Code Bill** led to his resignation from Cabinet in **1951**
- Converted to Buddhism; his death is observed as **Mahaparinirvan Diwas**

4. Important Journals

- Mooknayak (**1920**)
- Samatha (**1929**)
- Bahishkrit Bharat (**1927**)
- Janata (**1930**)

5. Books

- Annihilation of Caste
- Buddha or Karl Marx
- **The Untouchable:** Who are They and Why They Have Become Untouchables
- The Rise and Fall of Hindu Women

6. Organisations

- Estd. '**Bahishkrit Hitkarini Sabha**' (**1923**)
- Founded **Independent Labour Party** (**1936**)
- Founded **Scheduled Castes Federation** (**1942**)
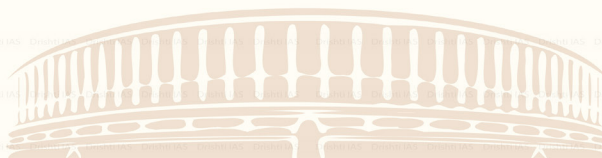
Comparison of Gandhi and Ambedkar's Philosophies		
Aspect	**Mahatma Gandhi**	**Dr. B.R. Ambedkar**
Caste System	Believed in the **Varna system** but opposed untouchability, and called Dalits **"Harijans"** (children of God) to uplift their status in society.	Viewed caste and untouchability as inseparable, advocating for the complete abolition of caste. He preferred the term "**Dalit,"** symbolizing self-respect and **resistance.**
Democracy & Governance	Sought gradual **reform through moral persuasion and non-violence**.	Advocated **legal and institutional reforms** to dismantle oppressive structures.
Method of Upliftment	Appealed to the upper castes to **uplift Dalits and integrate them into Hinduism**	Empowered Dalits through education, reservations, and self-reliance
Economic Views	**Favored village economy (Gramraj),** self-sufficiency, and simple living	**Advocated industrialization** and modernization for economic progress
Religion	Gandhi remained a Hindu reformist, believing in **interfaith harmony.**	Rejected Hinduism, **converted to Buddhism for equality**
Poona Pact (1932)	Opposed separate electorates, fearing division.	Advocated separate electorates to secure Dalits' political rights.
Legacy	Remembered as Father of the Nation, known for non-violence and moral leadership	Referred to as the **Architect of the Indian Constitution and the "Father of the Indian Constitution,"** he was a champion of Dalit rights and social justice.

What is the Relevance of Ambedkar's Philosophy in the Contemporary World?

➢ **Social Justice:** Reservation policies **(affirmative actions) for Scheduled Castes (SC), Scheduled Tribes (ST), and Other Backward Classes (OBC)** are inspired by his vision for social upliftment.

  ○ Movements against **caste-based violence and discrimination** still draw from his advocacy of social justice.

➢ **Constitutional Democracy**: Rising challenges like **majoritarianism, attacks on minorities, and erosion of civil liberties** make his call for **constitutional morality** more relevant than ever.

➢ **Education for Empowerment:** Ambedkar's quote **"Educate, Agitate, Organize,"** emphasizes education for empowerment, and resistance against injustice.

  ○ Encouraging policies like **scholarships for marginalized students, skill development programs, and free education for the underprivileged**.

➢ **Gender Equality**: Ambedkar was a strong advocate for **women's empowerment**, his work remains relevant in ongoing debates on women's rights, **including equal pay and personal law reforms.**

➢ **Economic Equality and Labor Rights:** Ambedkar saw economic justice as essential to **ending social inequality.**

  ○ His advocacy for state-led industrialization, land reforms, and labor rights remains relevant amid **rising unemployment, wealth inequality, and labor exploitation**.

Indian National Army's Legacy

Why in News?

A veteran of the <u>Indian National Army (INA)</u>, celebrated his **99th birthday** by laying wreaths at the statue of <u>Netaji Subhas Chandra Bose</u> on <u>Kartavya Path</u>.

➢ The veteran joined INA on **1st November 1943**, at the age of 17.

What was the Indian National Army (INA)?

➢ **About INA:** It was a **military force** formed during <u>World War 2</u> to fight against British rule in India and played a crucial role in **India's struggle for independence**.

NETAJI SUBHASH CHANDRA BOSE

BIRTH

○ 23rd January 1897 (celebrated as 'Parakram Diwas')

> Subhas Chandra Bose Aapda Prabandhan Puraskar is announced every year on 23 January to honour the selfless service rendered by individuals/organisations in India in disaster management.

EARLY LIFE

○ Cleared the Indian Civil Services (ICS) examination (1919) but resigned later
○ Considered Swami Vivekananda as his spiritual Guru
○ Newspaper - Swaraj

POLITICAL LIFE IN CONGRESS (INC)

○ Stood for unqualified Swaraj (self-governance)
○ Actively participated in Salt Satyagraha (1930)
○ Opposed Gandhi-Irwin Pact (1931) & suspension of Civil Disobedience Movement
○ Won INC Presidential Elections at Haripura (1938) and Tripuri (1939)
○ Resigned from INC (1939) due to ideological differences with Gandhiji
○ Founded 'the Forward Bloc' party to consolidate the Political Left

INDIAN NATIONAL ARMY (INA)

○ Reached Japan-controlled Singapore in July 1943, issued from there his famous slogan - 'Delhi Chalo'

> He also gave the slogan - 'Jai Hind'

○ Announced the formation of Azad Hind Government and INA in Oct 1943
○ INA fought allied forces (1944) in Imphal (India) and in Burma

> INA was first formed under Mohan Singh and Japanese Major Iwaichi Fujiwara. It comprised Indian prisoners of war of the British-Indian Army captured by Japan in Malay and Singapore.

DEATH

○ Believably in 1945 when his plane crashed in Taiwan.

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- **Formation:**
  - ○ **Mohan Singh:** He proposed forming an **army from Indian prisoners of war (POWs)** and gained Japanese support. He initially led the INA, recruiting about **40,000 soldiers**.
    - However, conflicts with the Japanese **over troop size** led to his removal.
  - ○ **Rashbehari Bose:** He was a veteran **revolutionary** and played a crucial role in **mobilizing support** for the INA and formed the **Indian Independence League** in Tokyo (1942).
  - ○ **Subhas Chandra Bose:** On **25th August 1943**, he became the **Supreme Commander of the INA** and later, on **21st October 1943**, established the **Provisional Government of Free India** in Singapore.
    - It was recognized by **9 countries** including **Japan, Germany, Italy,** and China (under Wang Jingwei).
    - Under the **Chalo Delhi campaign**, the **INA** hoisted its flag on Indian soil at **Moirang, Manipur** but it ended in **Imphal** due to Japan's defeat in **World War 2**.
- **Collapse:** The **Japanese retreat (1944-45)** weakened the INA. After **Japan's surrender on 15th August 1945**, the INA also surrendered.
  - ○ On **18th August 1945**, Subhas Bose reportedly **died in a Taiwan plane crash**, leading to the INA's disbandment.
- **INA Trials:** After INA's defeat, many INA soldiers were **court-martialed** as POWs, sparking **nationwide protests** that fueled India's independence movement.
  - ○ The first trial at **the Red Fort** in **November 1945** involved three officers **Prem Kumar Sehgal (a Hindu), Shah Nawaz Khan (a Muslim), and Gurbaksh Singh Dhillon (a Sikh)**, emphasizing the unity of the INA.
  - ○ At the **Bombay Congress session (September 1945)**, a resolution supported INA prisoners. Eminent lawyers **Bhulabhai Desai, Tej Bahadur Sapru, Jawaharlal Nehru, and Asaf Ali** defended them.

- **Major Nationalist Upsurges (1945–46):** Three major violent confrontations took place during this period:
  - ○ **21st November 1945**: Student protests in **Calcutta** against the INA trials led to police firing.
  - ○ **11th February 1946**: Demonstrations erupted in **Calcutta** against the sentencing of INA officer **Rashid Ali.**
  - ○ **18th February 1946**: The **Royal Indian Navy (RIN)** ratings mutinied in Bombay.

> **Click Here to Read:**
> **What are Key Facts About Subhash Bose?**
> **What was SC Bose Role in India's Freedom Movement?**

What is the Significance of Indian National Army (INA)?

- **Direct Challenge to British Authority:** The INA's formation and military campaigns **directly challenged** British rule by attempting to liberate India **militarily** with the help of **Axis powers (Japan and Germany).**
- **Nationalist Unity:** The **INA trials** united Indians across **religious and political divides**, sparking nationwide protests.
  - ○ Political factions like **Congress, Muslim League, Hindu Mahasabha, and Communists** were united against British policies.
- **Impact on the Indian Armed Forces:** The INA inspired **sympathy** among Indian troops, leading to the **Royal Indian Navy Mutiny (1946)**, where **20,000 sailors revolted**, marking a turning point in British control.
- **Forced British Withdrawal:** In **1956**, **British PM** admitted the INA was key to Britain's exit, as fears of **Indian military no longer loyal to the British crown** hastened independence.
- **Legacy and Symbolism:** The INA became a **symbol of armed resistance**, inspiring future generations in India's defense and strategic outlook.
  - ○ The INA's slogan **"Jai Hind"** remains a **rallying cry for national unity.**

> **Click Here to Read:** **What are Key Facts about Rash Behari Bose?**

Geography

Highlights

- *Impact of Cloud Band on Monsoon*

Impact of Cloud Band on Monsoon

Why in News?

A study by the **Indian Institute of Science (IISc)** highlights that the strength of a **monsoon cloud band** plays a crucial role in determining its movement and the intensity of rainfall over the Indian subcontinent**.**

What are the Findings of the Study on Monsoon Cloud Bands?

- ➢ **Strength of Cloud Bands:** Only strong equatorial cloud bands can move northward and trigger wet spells in India. Weak bands fail to propagate, contradicting earlier models which assumed consistent propagation regardless of strength.
  - ❍ The study finds that the **duration and intensity** of wet spells depend on the **size and strength** of the cloud band and **Boreal Summer Intraseasonal Oscillation (BSISO)** influences monsoon wet and dry spells by moving cloud bands from the equator to the Indian subcontinent.
- ➢ **Air-Sea Interaction:** Air-sea interactions in the equatorial Indian Ocean are crucial for moisture buildup and wind strength. Stronger coupling enhances atmospheric moisture, intensifying the monsoon.
- ➢ **Climate Change Impact:** A **warmer atmosphere** will result in **higher background moisture**, increasing the **intensity of wet spells**.
  - ❍ Rainfall during wet spells is projected to **increase by 42% to 63%** over India and adjoining seas in the future.
- ➢ **Improving Climate Models:** Findings will help improve the **efficacy of seasonal and sub-seasonal monsoon forecasting** models.

Boreal Summer Intraseasonal Oscillation

- ➢ The BSISO is a monsoon pattern that moves **convection (heat and cloud activity) from the Indian Ocean to the western Pacific** during June - September.
  - ❍ It controls monsoon's **'active' (rainy) and 'break' (dry) phases** influencing rainfall, wind patterns, and ocean waves.
- ➢ Accurate BSISO predictions help in coastal management and climate forecasting. Its strength and movement are modulated by **El Nino Southern Oscillation (ENSO),** with La Niña enhancing northward propagation and El Niño weakening it.

What are the Key Facts About India's Monsoon?

- ➢ **Etymology:** The term "monsoon" is derived from the *Arabic word "mausim",* meaning season.
- ➢ **Types of Monsoon in India:**
  - ❍ **Southwest Monsoon (June-September):** Also known as **"advancing monsoon",** brings **moisture-laden winds from the Indian Ocean**.
    - Brings heavy rainfall to most parts of India, caused by low pressure over Tibet and high pressure over the Indian Ocean.
  - ❍ **Northeast Monsoon (October-December):** Also known as "retreating monsoon", results from the **southward movement of monsoon troughs** and the withdrawal of the southwest monsoon.
    - Brings rain to **southeastern India**, especially Tamil Nadu and coastal Andhra Pradesh.
- ➢ **Factors Affecting Indian Monsoon:** The **Inter-Tropical Convergence Zone (ITCZ)** shifts northward in summer, creating low pressure over India. The **Tibetan Plateau heats** up intensely, generating the **Tropical Easterly Jet.**

○ These combined factors pull in **moisture-laden winds from the Indian Ocean,** triggering the Southwest Monsoon.

○ **Subtropical westerly jet streams** (associated with the northeast monsoon) also regulate monsoon intensity. Additionally, the Somali Jet strengthens the southwest monsoon winds.

○ The **Indian Ocean Dipole (IOD)** is a temperature anomaly between the western and eastern Indian Ocean; a positive **IOD (warmer west) enhances monsoon and negative IOD weakens it.**

○ **El Niño** is often linked with weak monsoons and droughts in India. **La Niña** typically brings stronger **monsoon activity.**

MONSOON

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Monsoons are seasonal winds that reverse their direction with the change of season.

Origin of Monsoon

⊙ Thermal Concept ⊙ Dynamic Concept

Thermal Concept by Halley

⊙ **Monsoon result of:**
  ▸ Heterogenous character of globe (Unequal distribution of land and water)
  ▸ Differential seasonal heating and cooling of continents and oceans

South-West (Summer) Monsoon

⊙ Sun shines over Tropic of Cancer
⊙ Brings low-pressure centres (Near Baykal Lake and Peshawar) due to High temperature

⊙ Low temperature in Southern hemisphere brings High pressure centre over Australia and Indian Ocean
⊙ Winds Blow from high (ocean) to low pressure in Asia (land)
⊙ Ferrel's law and Coriolis force turn these wind in south-westerly (SW) direction
⊙ They bring moisture from Indian oceans to Indian subcontinent yielding heavy rainfall

North-East (Winter) Monsoon

⊙ Sun shines over Tropic of Capricorn
⊙ Brings High Pressure centers (near Baykal Lake and Peshawar) due to low temperatures
⊙ High temperature in Southern hemisphere brings Low pressure centre over Australia and Indian Ocean
⊙ Winds Blow from high (land) to low pressure (ocean) in north-easterly (NE) direction called Retreating Monsoon

Dynamic Concept by Flohn

⊙ Monsoon originated due to shifting of pressure and wind belts
⊙ Intertropical Convergence (ITC) formed due to convergence of NE and SE trade winds near equator
⊙ Northern and Southern branches of the ITC, known as NITC and SITC respectively, create a belt of doldrums marked by equatorial westerlies

South-West (Summer) Monsoon

⊙ Sun shines over Tropic of Cancer
⊙ NITC extended up to 30º N latitude covering south and SE-Asia and establishes Equatorial westerlies
⊙ It brings atmospheric depressions (cyclones) with heavy rainfall
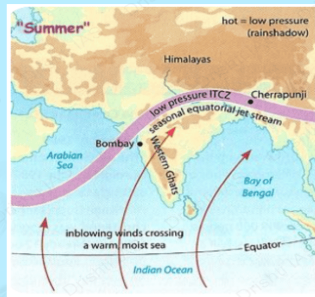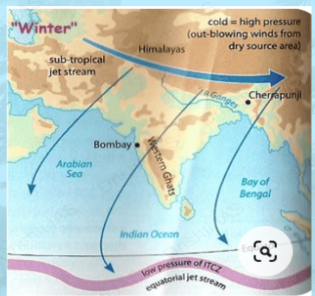
North-East (Winter) Monsoon

⊙ Sun shines over Tropic of Capricorn
⊙ Due to Southward shifting of Sun, pressure and wind belts also shifts
⊙ Western cyclonic disturbances (from Mediterranean Sea) enter India from west in winter due to Westerly Jet stream
⊙ Northeast trade winds reestablished over south and SE Asia
⊙ These NE trades become winter monsoons called Retreating Monsoon and rains in Andhra and Tamil Region

■ ■ ■

Security

Highlights

- *India's Strategy to Eliminate Naxalism*
- *UAVs in Modern Warfare*
- *India's Integrated Theatre Commands*

India's Strategy to Eliminate Naxalism

Why in News?

The Union Home Minister announced that the central government is aggressively working towards a **Naxal-free India,** setting a target to **eliminate Naxalism by 31ˢᵗ March 2026,** ensuring that no citizen has to lose their life because of it.

What is India's Strategy to Eliminate Naxalism?

- **Development Programs:** Under the **Seventh Schedule** of the Indian Constitution, Police and Public Order fall under the **jurisdiction of state governments.**
  - However, to combat **Left-Wing Extremism (LWE),** the **National Policy and Action Plan to Address LWE, 2015** was adopted, implementing a multi-pronged approach that combines security measures, development initiatives, and community rights protection.
  - **Road Connectivity Project for LWE-Affected Areas under** the **Pradhan Mantri Gram Sadak Yojana II** enhances road connectivity to improve access to remote areas and facilitate security operations.
  - **ROSHNI Scheme** focuses on training and employment opportunities for rural youth in LWE-affected districts.
    - Industrial Training Institutes and Skill Development Centers are established in **LWE Districts.**
  - Around 130 **Eklavya Model Residential Schools (EMRS)** were made functional in tribal blocks of LWE-affected districts to improve access to quality education.

- Under the **Universal Service Obligation Fund Scheme (now Digital Bharat Nidhi),** mobile towers are installed to improve communication in LWE-affected areas.
- **Tribal Youth Exchange Programs** under **Nehru Yuva Kendra Sangathan** to enhance outreach to tribal youth in LWE-affected districts.
- **Security Operations:** Large-scale operations like **Operation Green Hunt** deploy paramilitary forces to eliminate the Naxalite presence.
  - Increased deployment of **Central Armed Police Forces (CAPFs)** and state police, along with specialized forces such as **Commando Battalion for Resolute Action (CoBRA)** and **Greyhounds (Andhra Pradesh),** strengthens counter-insurgency efforts in the Red Corridor for long-term security.
- **Legal Framework:** Laws such as the **Unlawful Activities (Prevention) Act (UAPA, 1967** ban Naxalite organizations.
  - Additionally, the **Forest Rights Act, 2006** secures tribal communities' rights over forest produce, while the **Panchayats (Extension to Scheduled Areas) Act, (PESA) 1996** empowers tribal gram sabhas in governance and resource management.
- **Surrender-cum-Rehabilitation Policy:** Financial aid, vocational training, and social reintegration programs are provided for surrendered **Naxals to facilitate their return to mainstream society.**
- **Progress Made:** The number of **LWE-affected districts has reduced from 126 (2014) to just 12 (2024).**
  - Naxal-related incidents have significantly decreased from 16,463 (2004-2014) to 7,700 (2014-2024).
  - **Casualties among security forces due to Naxalism have declined by 73%, while civilian casualties have decreased by 70%.**
  - Fortified police stations have increased from 66 (2014) to 612 (2024).

Great Downfall in Violent acts and area Limit of Left Militants in India

In the last 8 years, Three-Dimensional strategy of Home Ministry has achieved historic success in controlling left extremism. This success can be understood by these data.

Legend:
- 2010 (dark blue)
- 2022 (light blue)

Category	2010	2022	% Decrease
Security Forces Martyred	285	16	94%
Resultant Deaths (Total)	1005	98	90%
Civilians killed	720	82	87%
Incidents - LWE violence	2213	531	76%
Districts Reporting LWE violence	96	45	53%
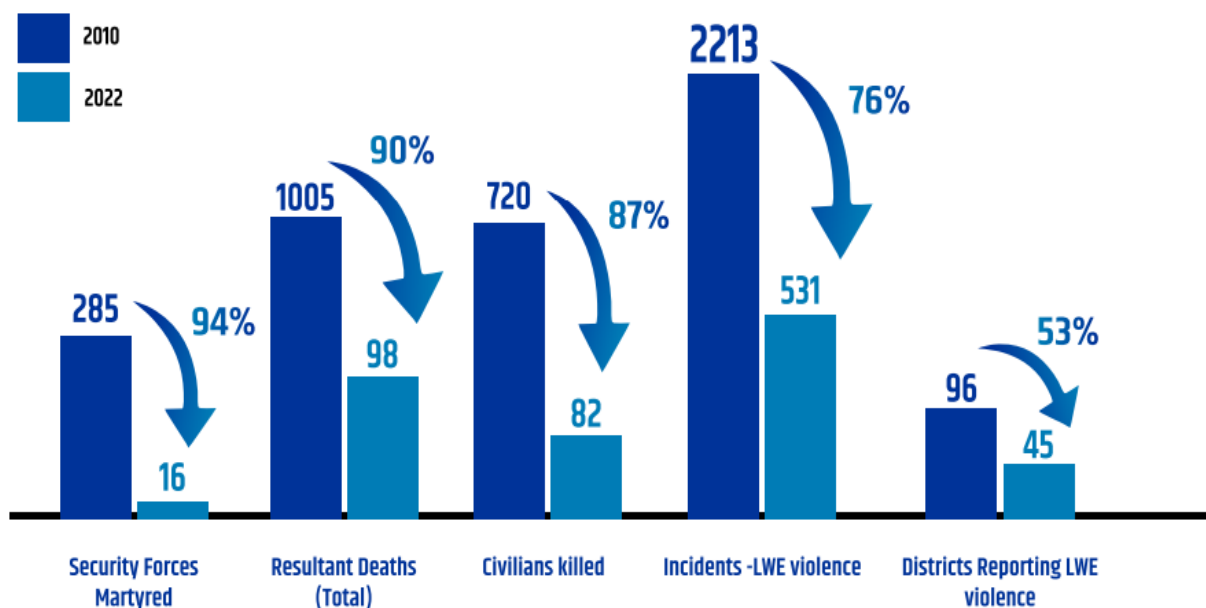
What is Naxalism?

➢ **About:** Naxalism, a form of **LWE** inspired by **Maoist ideology,** seeks to overthrow the state through armed rebellion (violence and guerrilla warfare).

  ○ The term Naxalism derives its name from the **village Naxalbari in West Bengal,** where an uprising of peasants occurred in **1967 against exploitative landlords.**

  ○ It has since evolved into a complex insurgency affecting **several states across India.**

➢ **Causes for Naxalism:**

  ○ **Landlessness and Exploitation:** Unequal **land distribution and exploitative practices** by landlords, moneylenders, and middlemen fuel resentment in rural and tribal areas and led to growth of Naxalism.

  ○ **Poverty and Underdevelopment:** Naxalite-affected regions lack basic amenities like **healthcare, education, and employment opportunities,** driving people towards extremism.

  ○ **Tribal Alienation:** Displacement due to **industrial and mining projects** without proper rehabilitation creates anger and distrust towards the state, leading many to join Naxalite movements.

  ○ **State Neglect and Violence:** A weak government presence, lack of basic services, and **instances of police excesses, including custodial deaths,** have further intensified grievances, strengthening the Naxalite insurgency.

➢ **Indian Maoists:** The **Communist Party of India (Maoist)** is the largest and most violent Maoist group in India. It was formed through the merger of two major Maoist factions: **CPI (Marxist-Leninist) People's War** and the **Maoist Communist Centre of India.**

  ○ The CPI (Maoist) and its organizations were banned under the **UAPA, 1967.**

> **Geographic Spread:** The Naxal movement is most active in the **"Red Corridor,"** spanning parts of several Indian states, including Chhattisgarh, Jharkhand, Odisha, Maharashtra, and Bihar.

LEFT WING EXTREMISM

ABOUT
- **Originated:** 1967 uprising in Naxalbari, West Bengal
- **Aim:** Societal and political change through revolutionary methods

IDEOLOGY
- Overthrow central government through armed revolution (Violence and guerilla warfare)
- Establishment of a communist state based on Maoist principles

FACTORS RESPONSIBLE
- **Massive displacement of tribal population;** Due to development projects, mining operations
- **Tribal dissatisfaction;** Forest (Conservation) Act 1980 prohibits tribes from harvesting forest resources
- **Poverty and lack of sustainable means;** Driving factors for joining Naxalite movement
- **Lack of effective governance;** Insufficient technical intelligence against Naxalism

STATES AFFECTED BY LWE
- **Red Corridor:** Experiences severe Naxalism–Maoist insurgency
- Chhattisgarh, Jharkhand, Odisha, Bihar, West Bengal, Andhra Pradesh, Telangana, Maharashtra, Madhya Pradesh and Kerala

GOVERNMENT INITIATIVES TO CURB LWE
- National Policy and Action Plan to address Left Wing Extremism 2015
- **SAMADHAN Doctrine**
  - **S -** Smart Leadership
  - **A -** Aggressive Strategy
  - **M -** Motivation and Training
  - **A -** Actionable Intelligence
  - **D -** Dashboard Based KPIs (Key Performance Indicators) and KRAs (Key Result Areas)
  - **H -** Harnessing Technology
  - **A -** Action plan for each Theatre
  - **N -** No access to Financing
- **Special Central Assistance (SCA)** in Public Infrastructure and Services
- **Operation Green Hunt**
- **Greyhounds** (Elite commando force in Andhra Pradesh)
- **Bastariya Battalion** (local recruits in Chhattisgarh who know the language and terrain that could generate intelligence and conduct operations)

Countering Naxalism - Bandyopadhyay Committee (2006)
- Highlighted the lack of governance, economic, socio-political and cultural discrimination against the tribals
- Recommended tribal-friendly land acquisition and rehabilitation

A map of India's Maoist conflict
A crackdown on Maoist rebels has led to a rise in the number of casualties in the country's tribal areas. Here are the regions that are most affected.

JHARKHAND
CHHATTISGARH

- Highly affected
- Moderately affected
- Marginally affected

States shown: RAJASTHAN, UTTAR PRADESH, BIHAR, WEST BENGAL, MADHYA PRADESH, GUJARAT, ODISHA, MAHARASHTRA, TELANGANA, KARNATAKA, ANDHRA PRADESH, TAMIL NADU

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UAVs in Modern Warfare

Why in News?

The sighting of two Chinese **unmanned aerial vehicles (UAVs)** near Okinawa (Japanese island) has raised concerns over the **increasing role** of **UAVs** in military and surveillance operations.

DRONE TECHNOLOGY
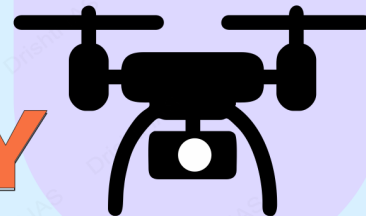
Drone is a pilotless flying machine, using aerodynamics for lift, can operate autonomously or remotely, and may carry lethal or nonlethal cargo.

COMPONENTS
- Unmanned aircraft (UA)
- Control system (ground control station - GCS)
- Control link (specialized datalink)
- Other related support equipment

CLASSIFICATION
(as per Drone Rules, 2021)
- Nano: <250 gm
- Micro: 250 gm to 2 kg
- Mini: 2 kg to 25 kg
- Small: 25 kg to 150 kg
- Large: >150 kg

APPLICATIONS
- **Mapping & Surveying** (asset Inspection, roof inspections)
- **Agriculture** (bird control, crop spraying & monitoring etc)
- Multispectral/thermal/NIR cameras, **Aerial Photo/videography** and Live streaming events
- **Emergency Response** (search and rescue, marine rescue, fire fighting)
- **Disaster** (zone mapping, disaster relief etc)
- **Mining**
- **Monitoring Poachers**
- **Meteorology**, Aviation, Payload carrying

DRONES IN DEFENCE
Purpose
- Surveillance and Reconnaissance
- Search and Rescue
- Maritime Surveillance
- Combat Drones
- Offensive (heterogeneous SWARM drones)
- Counter-Terrorism Operations

India's Counter-Drone System
- **Indrajaal** (India's inaugural autonomous drone-defense dome)
- Procurement of combat-capable **Heron drones from Israel**
- Acquisition of **MQ-9B Armed Drones from the US**

RELATED REGULATIONS
- Aircraft (Security) Rules, 2023
- Drones Rules, 2021 and Drone (Amendment) Rules, 2022

INDIA'S INITIATIVES
- Digital Sky Platform
- No-Permission-No-Takeoff (NPNT) framework
- PLI Scheme for Drones
- Drone Shakti Scheme

ISSUES
- Increased risk of armed attacks
- Data security
- **Cheaper cost** enables a larger population to procure drones
- Use of drones in warfare **(remote warfare)**
- **Procurement by non-state actors** can pose serious threats
- Ease in **delivering mass destruction weapons**

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What are the Advantages of Drones for Military Operations?

➢ **Cost-Effectiveness:** Drones have **lower purchase and operational expenses** (fuel, maintenance, and logistics).

  ○ An **MQ-9 Reaper drone** costs **USD 32 million**, while an **F-35** exceeds **USD 80 million.**

➢ **Reduced Human Risk:** Drones **reduce the risk of pilot casualties**, making them ideal for **high-risk missions** in hostile environments. E.g.,

  ○ **US-Iran 2019:** Iran shot down a **US drone** over the **Strait of Hormuz**. Despite tensions, the **US did not retaliate.**

➢ **Persistent Surveillance:** Drones can stay over a battlefield for **long periods**, providing **real-time intelligence** and improving situational awareness for decision making.

  ○ AI-powered drones operate **autonomously, quickly identifying and engaging targets** with less human involvement.

➢ **Operational Flexibility:** Drones can swarm for **coordinated attacks** and serve in **reconnaissance, surveillance,** and **precision strikes**.

  ○ In the **Nagorno-Karabakh conflict**, UAVs, particularly **Turkish Bayraktar** and **kamikaze drones** by Azerbaijan, played a key role in weakening the Armenian army, leading to **Armenia's defeat**.

➢ **Suitability for Asymmetric Warfare:** Drones are highly effective in **counterinsurgency and counterterrorism**, delivering precise strikes with minimal damage.

  ○ The **US, and Turkey** have used them in the **Middle East and Africa** for eliminating terrorists.

➢ **Lower Logistical Requirements:** Drones **do not require** extensive infrastructure like **airbases, refueling tankers, or pilot support systems**.

  ○ E.g., Russia easily deployed **Iranian Shahed-136 drones** to weaken **Ukraine's defenses**.

How Concerns are Related to Use of UAVs?

➢ **Facilitating Conflict:** Drones reduce the risk and cost of warfare, making it **easier f**or states to engage in **military actions without deploying troops**. E.g., use of US drones in the Ukraine war.

➢ **Empowerment of Non-State Actors:** Drones enable **non-state actors** to compete with state militaries. E.g.,

  ○ The **Houthis attacked Saudi oil facilities** with drones, while **ISIL** used commercial drones for **surveillance in the battlefield**.

➢ **Escalation of Regional Tensions:** The expanding drone market, led by **China, Turkey, and Israel**, fuels arms races and conflict.

  ○ E.g., the US drone strikes in Afghanistan from Pakistani soil have triggered retaliation and escalated **terrorism in Pakistan**.

➢ **Deniability and Proxy Warfare:** Drones allow nations to carry out strikes without direct attribution, maintaining **plausible deniability.**

  ○ It enables indirect involvement in conflicts by supplying drones to **allies or rebel groups,** fueling **proxy wars**.

➢ **Prolonged Warfare:** Civilian casualties from drone strikes, such as those in US operations in the Middle East, have fueled **public outrage and radicalization**, perpetuating **cycles of violence**.

What are the Impacts of Rivals Using UAVs Against India?

➢ **Increased Security Threats:** Growing drone incursions on India's borders with Pakistan and China pose **military and internal security threats** due to **weapon and drug smuggling.**

  ○ AI-powered drones enhance surveillance for **Pakistan in Kashmir and China in Ladakh**, challenging India's **strategic secrecy.**

➢ **Military Asymmetry:** China leads in drone warfare with **AI-driven surveillance** and strikes, while Pakistan leverages Chinese UAVs for better **reconnaissance and combat**.

  ○ Despite India's development of **Indrajaal** (an AI-powered anti-drone system), it **lags in counter-drone capabilities** compared to China.

- ➢ **Cybersecurity Risks:** Indian **drone hacking** incidents near the border expose cybersecurity risks. Strengthening **electronic warfare** remains a challenge.
- ➢ **Dependence on Foreign Drones:** India's reliance on **imported drones like the MQ-9B** risks **supply chain disruptions** and limits military self-reliance.

How India Can Strengthen Its UAVs Capabilities?

- ➢ **Counter-Drone Measures:** Strengthen systems like **Indrajaal** to detect and neutralize threats and invest in **jamming** and **hacking** countermeasures.
  - ○ Improve drone **battery efficiency** and **stability** in harsh **Himalayan conditions** to counter cross-border threats.
  - ○ **Expand eagle training** by defense forces to **intercept enemy drones**.
- ➢ **Indigenous Drone Development:** Promote **domestic manufacturing**, strengthen public-private partnerships, and **support drone startups & MSMEs** with funding and incentives.
  - ○ Promote development of **drone nets** to **entangle drone rotors mid-flight**, disabling propulsion and bringing them down
- ➢ **R&D Investment:** Invest in **AI, robotics, pilot training**, and research on **autonomous drones, swarm technology, and high-altitude UAVs**.

India's Integrated Theatre Commands

Why in News?

The **Ministry of Defence (MoD)** has informed a **Parliamentary Standing Committee on Defence** that several critical issues must be addressed before implementing **integrated theatre commands (ITCs)**. This comes as part of the **MoD's declaration of 2025 as the 'Year of Reforms'**.

What is Integrated Theatre Command?

- ➢ **About:** An ITC is a unified structure where assets from the **Army, Navy, and Air Force** operate under a single commander for a specific geographical area.

- ○ This ensures better coordination, faster decision-making, and improved combat effectiveness.
- ○ ITCs will mitigate the shortcomings of **single-service operations** and integrate emerging war-fighting capabilities, such as cyber and space warfare.
- ➢ **Key Committee Recommendations:** The **Kargil Review Committee, 1999** recommended creation of integrated theatre commands and **Chief of Defence Staff (CDS)** to improve joint operations and address coordination failures during the **Kargil War.**
  - ○ **The Shekatkar Committee, 2016** proposed three integrated theatre commands (Western, Northern, and Southern) to enhance tri-service synergy and resource efficiency.
- ➢ **Proposed Theatre Commands in India:** Northern **Theatre Command (Lucknow)** focused on countering threats from China.
  - ○ **Western Theatre Command (Jaipur)** centered around threats from Pakistan.
  - ○ **Maritime Theatre Command (Thiruvananthapuram)** focused on managing operations in the **Indian Ocean Region.**
- ➢ **Progress Toward Theaterisation:** The appointment of the **CDS** as the head of **Department of Military Affairs** are momentous steps towards the integration and advancement of defence forces.
  - ○ **Inter-Services Organisation (Command, Control, and Discipline) Act 2023** empowers theatre commanders with disciplinary control over all three services and promotes jointness through **cross-postings.**
  - ○ **First Tri-Service Common Defence Station (Mumbai, 2024)** merges **logistics and maintenance** facilities for all three services under one leadership.

Existing Tri-Service Commands
➢ The **Andaman and Nicobar Command,** based in Port Blair, is India's first tri-service theatre command, overseeing Southeast Asia and the South China Sea.
➢ The **Strategic Forces Command (SFC),** based in Delhi, responsible for handling India's nuclear deterrence capabilities.

Theaterisation of Armed Forces

What is Theaterisation?

- It is a concept that **seeks to integrate the capabilities of the three services** — army, air force and navy -- and **optimally utilise their resources** for wars and operations.

- There will be **specific theatre commands – or units – could be geographical —** like looking at a border with a particular country — **or thematic,** like a command for all maritime threats.

- The **Chief of Defence Staff (CDS)** has been given task of establishment of joint/ theatre commands.

- Several nations have theatre commands, **including the US and China.**

What are the Advantages?

- Synergy among all branches of Indian Armed Forces
- Cohesive and Compact Fighting Force
- Utilising the Logistics of all three Services
- Improved Troop Acclimatisation
- Theatre-Specific Resource Optimization
- Speedy Mobilisation and Intel Sharing

What are the Challenges?

- Budgetary Allocations and the Distribution of Finances
- Assets becoming dispersed by multiplication of theatre commands
- Nomenclature and Jurisdiction of Commands
- Leadership of Theatre commands
- Dilution of powers of Armed Sevices Chiefs

What is the Current Command Structure?

17 single-service commands

- Army- 7
- Navy- 7
- Air Force- 3

Two tri-Service Commands [Strategic Forces Command] and the Andaman and Nicobar Command

Shekatkar Committee Recommendation (2015)

Creation of 3 integrated theatre commands

- Northern - China border
- Western - Pakistan border
- Southern- Maritime Security

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What Challenges Need to be Addressed Before Implementing Theatre Commands?

➢ **Lack of Joint Doctrine:** The Indian Armed Forces have overlapping operational zones but divergent strategic cultures and priorities.

  ○ The **lack of a unified war-fighting doctrine** complicates consensus on command structures. The **IAF has resisted theatre commands**, fearing dilution of operational control and limited resources.

➢ **Resource Allocation:** The **IAF operates with 31 squadrons** instead of the sanctioned 42, limiting flexibility in theatre allocations. The **Navy's constrained budget** affects its role in maritime commands.

  ○ The **Army dominates budgetary allocations** and manpower, potentially skewing command influence and resource distribution.

○ Additionally, India's military education system remains largely **service-specific, lacking institutionalized cross-service training**.

- Integrating personnel under a unified command structure raises concerns about **career progression, rank equivalence, and command hierarchy, making the transition complex**.

➢ **Outdated Equipment:** Legacy systems like **MiG-21s** still operate without upgrades, reflecting deeper procurement and planning flaws.

○ Delays in indigenous platforms (e.g., **Arjun tank**, **aircraft carrier INS Vishal**) highlight capability gaps that affect force integration.

➢ **Infrastructure & Logistics:** Underdeveloped infrastructure, particularly in the **Northern Theatre**, hampers joint operations due to inadequate road and rail connectivity.

➢ **Technological Integration:** India's theatre commands must enhance cyber, space, and electronic warfare capabilities, as **ISR (Intelligence, Surveillance, Reconnaissance)** integration is **still nascent in India** compared to China.

➢ **Two-Front Threat:** India's theatre commands must prepare for a two-front threat from a **militarily and economically aligned China and Pakistan**, ensuring readiness for simultaneous operations across diverse terrains.

How Can ITC Challenges Be Addressed?

➢ **Unified Military Doctrine:** Establish a **joint warfighting doctrine** through consensus among services to guide theatre command operations.

○ Promote tri-service strategic planning and operations under the leadership of the CDS.

➢ **Phased Implementation:** Initiate **pilot projects in specific domains,** such as air defense or maritime operations, to evaluate and refine the theatre command structure.

➢ **Modernise Command and Control Architecture**: Invest in a Indigenous robust, secure, and interoperable **C4ISR system (Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance).**

○ Integrate cyber and space commands into theatre command planning.

➢ **Enhance Infrastructure in Forward Areas:** Fast-track infrastructure development in border areas through the **Border Roads Organisation (BRO)** and **Vibrant Villages Programme.**

○ Improve logistics, and energy supply chains for long-term sustainability of forward deployments.

➢ **Establish Joint Training:** Expand a **Tri-Service War College** like National Defence College and integrate service academies with joint training modules.

■■■

Rapid Fire Current Affairs

Highlights

- Exercise Prachand Prahaar
- Disaster Management (Amendment) Bill, 2024
- SEBI Doubles FPI Disclosure Limit
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- Photo-Assisted, Self-Charging Energy Storage Devices
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- PRC to Moran Community
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- India Defers GNSS-Based Toll Collection
- Cabinet Approves Multi-Sectoral Package for Economic Growth
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- Resolving Nagorno-Karabakh Conflict
- India's Space Docking Milestone
- Transforming Northeast India into a Saffron Hub
- Bongosagar 2025 Naval Exercise
- Jalanatheswarar Temple
- Maritime Security Belt 2025

Exercise Prachand Prahaar

The Indian Army conducted the **tri-service integrated multi-domain warfare exercise Prachand Prahaar** under the Eastern Command in **Arunachal Pradesh**.

About Exercise Prachand Prahaar:

➢ The exercise follows **'Exercise Poorvi Prahar' (Nov 2024)** conducted along the **India-China border**, focusing on integrated use of aviation assets.

➢ **It aims to enhance operational readiness** and **integration across the Army, Navy, and Air Force,** while validating an **integrated approach to surveillance**, **command, control**, and **precision firepower** in modern warfare scenarios.

➢ It featured **advanced platforms**, including **long-range reconnaissance aircraft, UAVs, armed helicopters**, and **space-based assets.**

➢ Simulated targets were neutralized through **coordinated strikes involving fighter aircraft, rocket systems, artillery** and **kamikaze drones** (suicide drones or loitering munitions) in an **electronically contested environment** to replicate real battlefield conditions.

Joint Military Exercises of India with Other Countries	
Name of Exercise	**Country**
Garuda Shakti	Indonesia
Ekuverin	Maldives
Hand-in-Hand	China
Kurukshetra	Singapore
Mitra Shakti	Sri Lanka
Nomadic Elephant	Mongolia
Shakti	France
Surya Kiran	Nepal
Yudh Abhyas	USA

Read More: Major Military Exercises of India

Disaster Management (Amendment) Bill, 2024

Parliament has passed the **Disaster Management (Amendment) Bill, 2024** which seeks to amend **Disaster Management (DM) Act, 2005**.

Key Amendments to DM Act, 2005:

➢ **Disaster Management Plans**: **National Disaster Management Authority (NDMA) & State Disaster Management Authorities (SDMAs)** will now prepare plans instead of National and State Executive Committees.

➢ **Expanded Role:** Includes risk assessment (climate risks), technical assistance, setting relief standards, and maintaining disaster databases.

➢ **Regulatory Powers to NDMA:** NDMA is empowered to make **regulations, specify the number and categories of officers and employees under the Act**, with prior central approval.

➢ **Strengthening Disaster Governance:**

  ○ **Disaster Database:** Mandatory national and state-level databases.

  ○ **Urban Disaster Management Authorities (UDMAs):** States can establish them for capitals and major cities.

  ○ **State Disaster Response Force (SDRF):** States can constitute SDRFs and define their functions.

➢ **Statutory Status to Key Committees:**
  ○ **National Crisis Management Committee (NCMC):** Nodal body for major disasters.
  ○ **High-Level Committee (HLC):** Oversees financial assistance to states.
➢ **NDMA Appointments:** Can appoint officers, experts, and consultants with central approval.

Read More: The Disaster Management (Amendment) Bill 2024

SEBI Doubles FPI Disclosure Limit

Securities and Exchange Board of India (SEBI) has increased the **disclosure threshold** for **Foreign Portfolio Investors (FPIs)** from **₹25,000 crore to ₹50,000 crore**. Thus, FPIs exceeding this limit must now reveal beneficial ownership and other key investment details.

Rise in Granular Threshold for FPIs:

➢ **Objective:** To **align regulations with market growth** as **equity trading volumes nearly doubled since FY 2022-23.**
  ○ It is also aimed at **increasing capital inflows easing compliance for mid-sized and small FPIs,** facilitating ease of doing business.
➢ **FPIs:** are entities that **invest in securities and financial assets** such as **stocks, bonds, mutual funds, and Exchange Traded Funds (ETFs)** in **foreign markets** to diversify their portfolio and **earn returns.**
  ○ FPIs in India are governed by SEBI under **SEBI (Foreign Portfolio Investors) Regulations, 2019.**
➢ **SEBI**: India's **securities market regulator,** was established in **1988** and gained statutory status in **1992** under the **SEBI Act, 1992.**
  ○ It **oversees stock exchanges, market intermediaries,** and **investor protection,** ensuring **market transparency and efficiency.**

Read More: RBI's Framework for Reclassification of FPI to FDI, Stock Market Regulation

Concern Over Meghalaya's Rail Connectivity

After years of opposition from **Khasi pressure groups**, citing concerns that **rail connectivity** may lead to a significant **influx of outsiders** in Meghalaya, **Indian Railways** has **decided to abandon the pending railway projects for Byrnihat and Shillong**.

➢ With this, Shillong will **remain the only state capital in the country without railway connectivity**.
  ○ Meghalaya has **only one railway station (operational since 2014)**, at Mendipathar in the **North Garo Hills**.
➢ **Demand for Inner Line Permit (ILP):** Pressure groups are demanding the implementation of the ILP regime in the state **to regulate the influx of outsiders**, as the **indigenous tribal population** fears marginalization.
  ○ The **Garo** population is approximately 10 lakh, while the **Khasi** population ranges between 13-14 lakh.
  ○ ILP is an effort to regulate movement to certain areas located near the international border of India. It is already in place in **Arunachal Pradesh, Nagaland, Mizoram, and Manipur.**
➢ **About & Origin of ILP:** It is an **obligatory official travel document** issued by the concerned State Government **to allow inward travel of an Indian citizen into a protected area for a limited period**.
  ○ Under the **Bengal Eastern Frontier Regulation Act, 1873**, the British framed regulations restricting the entry and regulating the stay of outsiders in designated areas.
    ● This was **to protect the Crown's own commercial interests by preventing "British subjects" (Indians) from trading** within these regions.
  ○ In 1950, the **Indian government replaced the term "British subjects" with "Citizens of India."**

Read More: Inner Line Permit, Northeast India

BHIM 3.0

The **NPCI BHIM Services Limited (NBSL)**, a subsidiary of **National Payments Corporation of India (NPCI)** has launched **Bharat Interface for Money (BHIM) 3.0 app**.

➤ **BHIM 3.0:** It is an upgraded version of **BHIM.**

   ○ **BHIM Unified Payment Interface (UPI)** was launched in **2016** to provide a **simple, fast, and secure** method for cashless payments using **UPI technology.**

   ○ It enabled users to **send and receive money instantly** through mobile phones, without requiring bank account details.

➤ **Key Features of BHIM 3.0:**

   ○ **BHIM 3.0** has **enhanced accessibility and security** with **support for 15+ languages, low-internet optimization,** and **improved security features** for safer transactions.

○ For users, it offers **Split Expenses, Spends Analytics,** and an **Action Needed Assistant** (reminders for pending bills) for better expense tracking and financial management.

○ For merchants, **BHIM Vega** offers a seamless **in-app payment system**, enabling seamless transactions **without switching platforms.**

➢ **NPCI: NPCI** was founded in **2008** by the **RBI and Indian Banks' Association** under the **Payment and Settlement Systems Act, 2007,** to oversee and manage **retail payments and settlement systems** in India.

○ **NPCI International Payments Ltd.** has e**xpanded UPI to 7 countries,** including **Bhutan, Mauritius, Nepal, Singapore, Sri Lanka, and France** with 20 apps like **PhonePe, Paytm, and Google Pay** supporting **international transactions.**

DIGITAL PAYMENT SYSTEMS IN INDIA

A digital or electronic payment refers to transferring money from one payment account to another using a digital device or channel (bank transfers, mobile money, QR codes etc.)

Payment Systems by NPCI

National Payment Corporation of India (NPCI) is an umbrella entity for retail payment (Payment and Settlement Systems Act, 2007).

Immediate Payment Service (IMPS)
- For retail customer
- **Limit:** ₹1-5 lacs (Fees+GST)
- 24/7 (Instant Settlement)
- **Provider:** Banks, PPI, Mobile Wallet Companies

Unified Payment Interface (UPI)
- Technology for digital payment apps based on IMPS
- Push and Pull Transaction
- Also adopted by other countries like France, UAE, Singapore
- **UPI-Lite+NFC:** For offline payment
- **BHIM-UPI:** Money transfer app

Rupay Card Payment Gateway (RuPay)
- **Works in 3 Channels:** ATM, Point of Sale Device, Online Portals
- Given free with PMJDY
- Adopted in foreign countries as well (e.g. Mauritius)

Miscellaneous Initiatives
- Bharat Bill Payment System (BBPS) & Unified Presentment Management System (UPMS)
- National Electronic Toll Collection (NETC)
- PAI Chatbot
- Bharat QR
- e-RUPI
- Aadhaar Payment Bridge (APB) System
- Aadhaar enabled Payment System (AePS)

RBI's Centralised Payment System (CPS)

Real Time Gross Settlement (RTGS)
- For high value transactions
- **Lower Limit:** ₹2 Lacs (No Upper ceiling) (No fees)
- 24/7 (Instant Settlement)
- Provided by banking & non-banking entities

National Electronic Fund Transfer (NEFT)
- For mid-range transactions
- No limit imposed by RBI (No fees)
- 24/7 (Settles net amount between banks @ 30 minutes intervals)
- Provided by banking & non-banking entities

Lightweight Payment and Settlement System (LPSS)
- RBI's emergency alternative to NEFT/RTGS
- Temporary, portable solution

Digital Payment Regulatory Bodies
- Digital Transactions Ombudsman
- Board for Regulation & Supervision of Payment & Settlements Systems (BPSS)

Drishti IAS

Read More: PayU Gets Approval as Payment Aggregator.

Sahyog Portal

X Corp (formerly Twitter) has filed a lawsuit in the **High Court** against the Indian government, challenging alleged **censorship and content regulation** through **Section 79 of the Information Technology (IT) Act, 2000** and the newly introduced **Sahyog portal.**

➤ X argued that **content regulation orders** be issued only under **Section 69A of the IT Act, 2000.**

➤ **Sahyog Portal:** The **Sahyog Portal** has been launched by the **Ministry of Home Affairs (MHA)** to **enhance collaboration** between **government agencies and social media intermediaries** for **easy compliance** and **safer cyberspace.**

   ○ It **streamlines the reporting and removal of unlawful content** and facilitates data requests from law enforcement under the **IT Act, 2000.**

   ○ It integrates **authorized agencies (like police) and intermediaries** on a single platform, ensuring **swift action against illegal digital activities.**

➤ **Sections of IT Act:**

   ○ **Section 69A:** It empowers the **centre** to **block public access to online content** under specific circumstances to protect national security, sovereignty, and public order.

   ○ **Section 79:** It grants **"safe harbor" protection** to **online intermediaries**, protecting them from liability for third-party content if they act neutrally.

      ● Under **Section 79(3)(b)**, intermediaries **lose this immunity if they fail to act expeditiously** on notices regarding illegal content.

Read More: Information Technology Amendment Rules, 2023

Gold Monetisation Scheme

Based on the performance of the **Gold Monetisation Scheme (GMS)**, the Union Government has decided to discontinue the **Medium-Term and Long-Term Government Deposit (MLTGD)** components of the scheme. However, **banks may continue** to offer **Short-Term Bank Deposits (STBD).**

➤ Earlier, the government had also discontinued the **Sovereign Gold Bonds (SGB)**.

➤ **GMS:** The GMS, which comprises the **earlier 'Gold Deposit Scheme' and 'Gold Metal Loan' scheme,** was announced on **15th September 2015.**

   ○ It aims to decrease the country's long-term dependence on **gold imports** and mobilize gold held by households and institutions in the formal economy.

➤ **Components of GMS:**

   ○ Short Term Bank Deposit (1-3 years) (variable interest rate)

   ○ Medium Term Government Deposit (5-7 years) (**2.25%** interest rate)

   ○ Long-Term Government Deposit (12 - 15 years) (**2.5%** interest rate)

➤ **Interest Rate Under GMS:** For **MLTGD, the rate of interest is decided by the Union** Government in consultation with the **RBI**, whereas for **short term deposits**, the rate of interest is **decided by the banks.**

➤ **SGB:** The SGB scheme was **introduced in 2015 to decrease the demand for physical gold** and redirect a portion of domestic savings, which would otherwise be used to buy gold, into **financial savings**.

   ○ The scheme **provides an interest rate of 2.5%** on the initial investment, with interest credited semi-annually to the investor's bank account.

Read More: Gold Monetisation Scheme, Sovereign Gold Bond Scheme, Factors Shaping Global Gold Prices

Bhadra Wildlife Sanctuary and Tiger Reserve

Karnataka has proposed a **"soft-release"** strategy to manage the escalating **human-elephant conflict** in **Hassan, Chikkamagaluru, and Kodagu** districts by gradually rehabilitating captured elephants into the **Bhadra Wildlife Sanctuary** (BWS).

➤ **Soft-Release Strategy:** Elephants will stay in a 20 sq. km enclosure for **acclimatization and health checks** before their phased release at four designated sites in BWS.

➢ **Bhadra Wildlife Sanctuary:** Named after the Bhadra River, it is also known as **Muthodi Wildlife Sanctuary.**

   ❍ It is a **Project Tiger** reserve, and hosts diverse forests, including Southern Moist Mixed Deciduous Forests, Dry Deciduous Forests, **and Shola Forests.**

     ● It also houses the **Jagara Giant**, Karnataka's largest **400-year-old teak tree.**

   ❍ BWS hosts diverse fauna, including tigers, leopards, dholes, gaurs, deer, and elephants. It shelters 250+ bird species like Hornbills, Malabar Trogon, and Hill Myna, many endemic to the **Western Ghats.**

   ❍ The sanctuary currently hosts around 450 elephants, forest officials estimate it can accommodate 200 more elephants.

National Parks & Sanctuaries of Karnataka

Read more: Bandipur Tiger Reserve

CBDT Expands Safe Harbour Rules

The **Central Board of Direct Taxes (CBDT)** has amended the Income-Tax Rules, 1962 to broaden the **safe harbour provisions,** aiming to enhance tax certainty and reduce disputes related to transfer pricing in the EV sector.

➢ **Amendments**: The threshold for availing safe harbour has been increased from Rs 200 crore to Rs 300 crore, applicable for **Assessment Years 2025-26 and 2026-27.**

   ❍ Lithium-ion batteries used in **electric or hybrid vehicles** are now part of the **core auto components** eligible under **safe harbour rules.**

- **Industry Impact:** For large companies, higher thresholds provide a broader safety net against transfer pricing disputes.
  - For the EV industry, the changes incentivize investment and manufacturing in the **Indian clean mobility ecosystem.**
- **Safe Harbour**: Refers to circumstances in which **income-tax authorities** accept the **transfer price** as declared by the assessee.
  - Transfer Price is the **actual price charged in a transaction** between related entities which are part of the same **multi national enterprises (MNE)** group.
  - **Safe harbour** rules are defined under **Section 92CB of the Income-tax Act, 1961**, and Under **Sections 92C and 92CA** companies can declare **Arm's Length Price** (price at which unrelated parties would trade in an open market) without disputes if within safe harbour limits.

> **Read more: CBDT to Overhaul Income Tax Act 1961**

Samarth Incubation Program

The **Centre for Development of Telematics (C-DoT)** has launched the **'Samarth' Incubation Program** to foster innovation in **Telecom and IT sectors** by **startup collaboration** and **attracting investments.**

- **Samarth Program:** It aims to support **DPIIT- recognized startups** developing **next-generation technologies** in **Telecom Software, Cyber Security, 5G/6G, AI, IoT, and Quantum Technologies**.
  - It will provide **sustainable and scalable business models, cutting-edge resources,** and **facilitate startup growth** from ideation to commercialization.
- **Implementation:** Implemented in partnership with **Software Technology Parks of India (STPI)** under **MeitY**.
- **Support Offered:** Programme supports **36 startups in 2 six-month cohorts**, offering **hybrid learning, mentorship, infrastructure, and investor access** to foster innovation in telecom and IT.

- Startups are offered **Rs 5 lakh grants, 6-month C-DOT's office space & lab facilities and mentorship.**
- Successful startups may gain **future collaboration opportunities** under the **C-DOT Collaborative Research Program**.
- **C-DoT:** The **C-DoT** is an **autonomous R&D center under DoT**, established in **1984**, focusing on **indigenous telecom innovations** like **5G, IoT, AI etc** to support **Atma Nirbhar Bharat**.

> **Read More: The Indian Telecom Revolution**

Accelerating Global Glaciers Loss

On the **first World Day for Glaciers (21st March 2025)**, the United Nations (UN) **World Water Development (WWD) Report 2025** revealed that **glacier** retreat in the **Hindu Kush** Himalayas (HKH) accelerated by **65% between 2011 and 2020**.

- **Key Findings of UN WWD Report 2025:** HKH glaciers may **lose 30–50% of their volume by 2100** if global temperatures rise by **1.5°C-2°C**, and nearly **45%** (from 2020 levels) **if it exceeds 2°C.**
  - Mountain glaciers worldwide could lose **26-41%** of their total mass by **2100**, affecting **1.1 billion people** in high-altitude regions.
  - **Glacial Lake Outburst Floods (GLOFs)** are **increasing**, causing **flash floods and landslides.**
    - They have **caused over 12,000 deaths globally in the past 200 years,** and the risk **of GLOFs may triple by 2100.**
- **World Day for Glaciers:** The UN has declared **2025** as the **International Year of Glaciers' Preservation (IYGP)**.
  - It will also mark the beginning of the **Decade of Action on Cryospheric Science (2025–2034),** aimed at strengthening glacier conservation efforts.
- **Hindu Kush Himalaya (HKH):** The **HKH**, known as the **"Water Tower of Asia,"** stretches across **8 countries, including India,** and encompasses **four global biodiversity hotspots** — Himalaya, Indo-Burma, Southwest China, and Central Asia.

The Hindu Kush Himalayan region
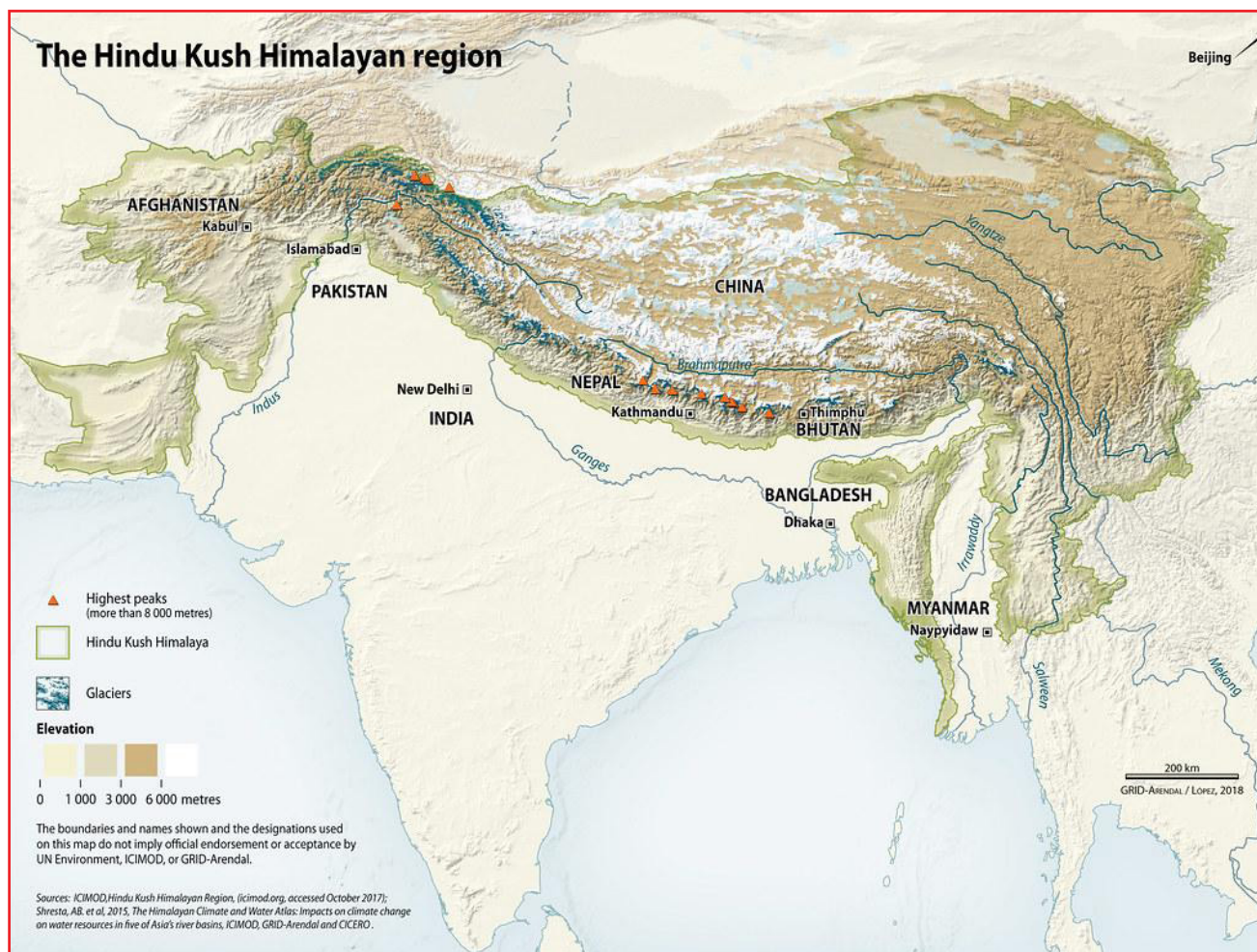
Read More: <u>Sea Ice Loss and Climate Disruptions</u>

Proposed Abolition of Equalisation Levy

The **Union Government** has proposed **abolishing** the **Equalisation Levy** which will benefit advertisers on digital platforms like Google, X (formerly Twitter), and Meta by **reducing tax burdens.**

Equalisation Levy (Digital services tax):

➤ **About: Equalisation Levy,** introduced in **2016,** is a **direct tax** imposed on **foreign digital service providers** to tax income generated from **digital transactions** in India.

➤ **Objective:** It aims to ensure **fair taxation** of **digital businesses** that do **not have a physical presence in India,** aligning with the **BEPS (Base Erosion and Profit Shifting) Action Plan** to curb **tax avoidance**.

➤ **Applicability:** It is deducted at the time of payment by the **service recipient** if:

  ○ The **payment** is made to a **non-resident** service provider.

  ○ The **annual payment** to a single provider **exceeds Rs. 1,00,000** in a financial year.

➢ **Covered Services & Tax Rates:** The **Equalisation Levy** initially applied to **online ads (6%)** and was expanded in **2020** to cover **digital services and e-commerce (2%)**, with the latter **abolished in August 2024**.

➢ **Exemptions:** It does not apply if the **non-resident has a permanent office in India**, **payments are below Rs.1 lakh**, or the income is **covered under Section 10(50) to prevent double taxation**.

○ Income taxed as **royalties or fees for technical services** is excluded.

What is Equalisation levy?

The equalization levy shall be charged at the rate six per cent of the amount of consideration paid to a non resident not having any permanent establishment in India, for specified services. Following are the specified services:

- any other facility or service for the purpose of online advertisement
- any provision for digital advertising space
- Online Advertisement
- includes any other service as may be notified by the Central Government in this behalf.

Read More: Key Economic Reforms in the Budget 2024-25

New Insights into Human Evolution

A recent study challenges the long-held belief that **modern humans (*Homo sapiens*) evolved from a single ancestral population,** suggesting instead that **they emerged through the admixture of two distinct populations.**

➢ The research analyzed **modern human DNA** to trace population splits and reunions, relying on data from the **1000 Genomes Project** rather than ancient fossils.

○ The **1000 Genomes Project** is a global initiative that sequenced DNA from populations across **Africa, Asia, Europe, and the Americas.**

Key Findings:

➢ **Multiple Ancestry & Evolution:** Modern humans (*Homo sapiens*) likely evolved from **2 ancestral populations, with one majority (~80%)** experiencing a significant decline before recovering, while the **other minority (~20%)** contributed genes linked to brain function and cognition.

  ○ Some genes from the minority group underwent **purifying selection,** indicating **evolutionary pressures** that shaped human development.

  ○ This genetic exchange contributed nearly **10 times more material** than the later **Neanderthal-Denisovan interbreeding (~50,000 years ago)**, which accounts for **only ~2% of non-African human DNA.**

➢ **Genetic Mixing:** These populations diverged around **1.5 million years ago** and later interbred approximately **300,000 years ago,** forming the **genetic foundation** of modern humans.

The human lineage

Australopithecus afarensis — *Homo habilis* — *Homo erectus* — *Homo neanderthalensis* — *Homo sapiens*

40 cm
12 inches
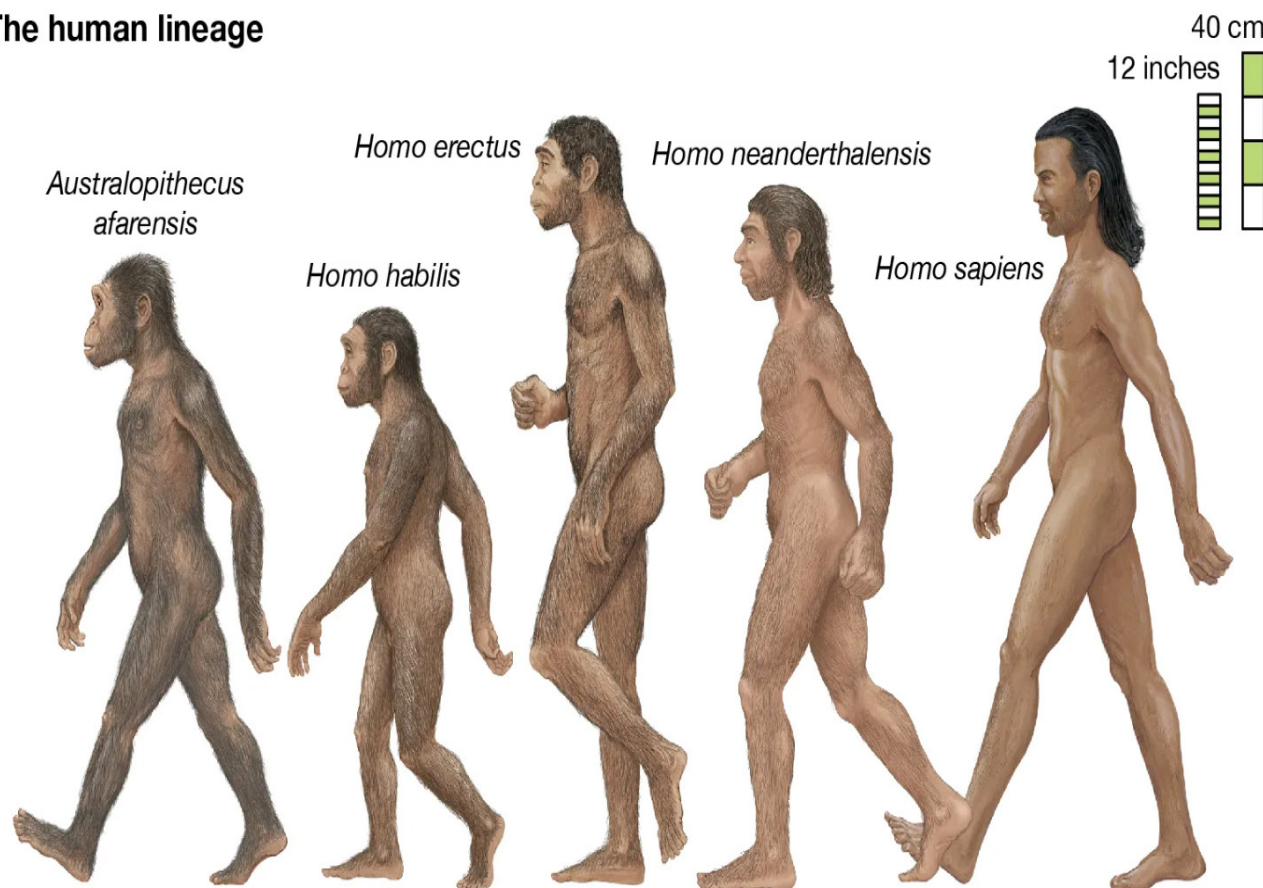
Read More: Genome India Project, Human Evolution and Migration.

Lapis lazuli

Lapis lazuli, a **metamorphic rock and semi-precious gemstone** known for its deep blue color, symbolizes wealth, power, and status across ancient civilizations.

- ➢ **Etymology:** The name originates from Latin ("lapis" = stone) and Persian ("lazuli" = blue).

- ➢ **Composition:** The intense blue color comes from **lazurite** (25-40%), influenced by sulphur content. Presence of **calcite** reduces blueness, while **pyrites** add a golden shimmer.

- ➢ **Major Sources:** Though found in multiple countries like Chile, Russia, and the US, but the finest lapis lazuli comes from **Afghanistan's Badakhshan province**, where it has been mined for over 6,000 years.

- ➢ **Significance in India:** Traders in India imported lapis lazuli from Badakhshan as early as **1000 BC,** with ornamental pieces found in Indus Valley sites like **Mohenjo-daro and Harappa.**

- ➢ **Global Usage:** Ancient Egyptians used it for jewelry and cosmetics, while **Renaissance artists** ground it into ultramarine pigment for paintings.
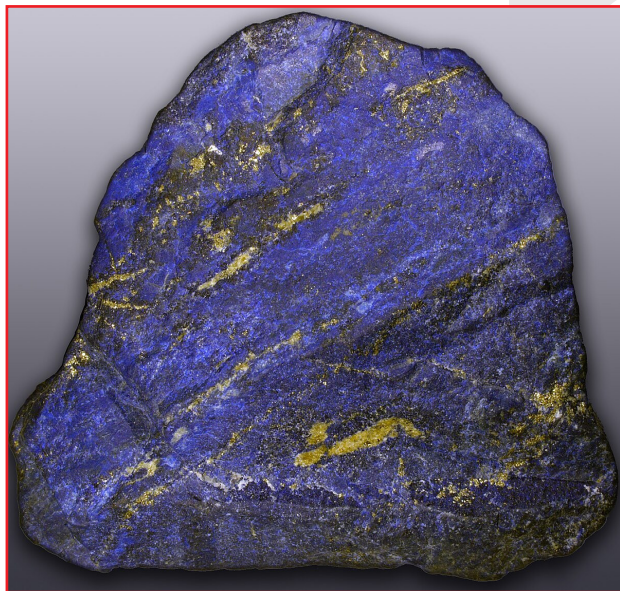
Read more: **Menhirs**

World Water Day 2025

The **Ministry of Jal Shakti** has launched the **6th edition Jal Shakti Abhiyan: Catch the Rain campaign 2025** on **22nd March 2025 (World Water Day)** with the theme:

"People's Action for Water Conservation- Towards Intensified Community Connect" (Jal Sanchay Jan Bhagidari: Jan Jagrukta Ki Or).

- ➢ The government reaffirmed its commitment to the principle of **"Every Drop Counts" with the focus on 148 districts** across India for water conservation, rainwater harvesting, and groundwater recharge.

- ➢ The **"Jal-Jangal-Jan" Abhiyan** was launched with the focus on **restoring ecological links between forests, rivers, and springs.**

World Water Day:

- ➢ **About:** It aims to raise **awareness about water conservation** and its **sustainable management.**
  - ○ It was conceptualized at the **1992 Rio Summit** and officially designated to be observed annually by the **United Nations General Assembly (UNGA)** in **1993**.

- ➢ **Aligns with SDG:** The day aligns with **UN SDG-6: Ensuring water and sanitation for all by 2030**.

- ➢ **Theme (2025):** *'Glacier Preservation'*

  Government Scheme for Water Conservation: **Jal Shakti Abhiyan (JSA)**, **AMRUT 2.0**, **Atal Bhujal Yojana**.

Read More: **Making Water Management Effective in India**.

WEF UpLink Annual Impact Report 2025

The **World Economic Forum's (WEF)** UpLink Annual Impact Report 2025 highlights the contributions of start-ups supported through **WEF's UpLink platform** in driving innovation for climate action.

- ➢ **Key Findings:** In 2023-2024 UpLink-supported ventures have prevented 142,400 tonnes of **carbon emissions**.
  - ○ **140 million hectares of land and water ecosystems** protected (nearly one-fifth the size of the **Amazon rainforest**).

- Additionally, they have treated **2.5 billion litres of hazardous wastewater,** reducing environmental pollution, and tracked **28 million tonnes of waste, enhancing waste management efficiency.**
- **2.7** million people gained access to improved water, sanitation, and hygiene solutions.
- **Indian start-up Indra Water** processed 1.2 billion litres of wastewater in 2024, a 243% increase from 2022.
- S4S (Science For Society) reduced 60,000 tonnes of food waste, enough to feed 2.7 million people for a month.

➤ **UpLink platform:** Launched by the **WEF at Davos in 2020** in collaboration with **Deloitte and Salesforce,** UpLink is an **open innovation platform** that connects **entrepreneurs and experts** to drive the **UN Sustainable Development Goals (SDGs)** and scale impactful solutions.

> **Read more: World Economic Forum Annual Meeting 2025**

Birth Anniversary of Dr. Ram Manohar Lohia

On 23rd March, Prime Minister Narendra Modi paid tribute to **Dr. Ram Manohar Lohia** on his birth anniversary, calling him a visionary leader and a strong advocate of social justice.

➤ **Ram Manohar Lohia**, born in 1910, was a key figure in **India's socialist movement** and freedom struggle.

➤ He joined the **Congress Socialist Party (CSP) in 1934,** serving on its executive committee and editing its journal.

➤ Lohia opposed British involvement in **WWII** and was jailed multiple times for his anti-colonial stance, especially during the **Quit India Movement.**

➤ Lohia left the Congress in 1948 and became a member of the **Praja Socialist Party(1952),** and served as general secretary for a brief period and **resigned in 1955.**

➤ **In 1955,** the socialists gathered at **Hyderabad** and a new Socialist Party of India was established under the chairmanship of Lohiya. After 1964 it became the **Samyukta Socialist Party.**

➤ In 1963, Lohia entered the **Lok Sabha** and championed *Sapta Kranti* focusing on individual freedom and gender equality, and proposed *Chaukhambha Raj* for decentralized governance.

World Tuberculosis Day 2025

World Tuberculosis Day (24th March) raises awareness of **tuberculosis's (TB's)** health, social, and economic impact.

➤ **History:** Dr. **Robert Koch** discovered *Mycobacterium tuberculosi*s on **24th March 1882**, leading to the establishment of World TB Day.

➤ **Theme 2025:** *"Yes! We Can End TB: Commit, Invest, Deliver."*

➤ **TB in India:** India has the **largest TB burden (26% of global cases** and **29% of global TB-related deaths**). In 2023, 25.5 lakh TB cases were notified.

- TB incidence declined **17.7%** (237 per 1 lakh in 2015 to 195 in 2023), while TB deaths dropped 21.4% (28 per lakh in 2015 to 22 in 2023).

➤ **India's Efforts:** **National TB Elimination Programme (NTEP)** aims for TB-free India by 2025, ahead of the global **2030 Sustainable Development Goals.**

- The **PM TB Mukt Bharat Abhiyaan (2022),** a mission mode of NTEP, drives community participation, advanced diagnostics, better treatments, and innovation to accelerate TB elimination.
- **Ni-kshay Poshan Yojana** provides Rs 1,000/month for nutrition. **Viksit Bharat Sankalp Yatra** screened **3.8 crore people** for TB.
- **The Ni-kshay Mitra** initiative supports TB patients with nutrition, diagnostics, and vocational aid. There are 1.55 lakh Ni-kshay Mitras registered, supporting 8.66 lakh TB patients.
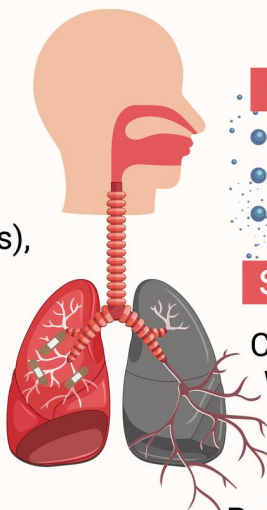
Tuberculosis

Drishti IAS

Tuberculosis (TB) is an infectious disease that affects the lungs. Tuberculosis is preventable and curable.

Prevention

- Seek medical intervention if symptoms persist
- If at a higher risk (HIV patients), get tested for TB.
- Practice good cough hygiene: Wear a mask and avoid contact

Causes:

- *Mycobacterium tuberculosis*
- Coughing droplets
- Prolonged exposure from a patient
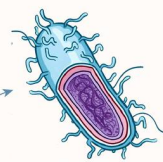
Symptoms of TB:

Chest pain
Weakness
Weight loss
Fever
Night sweats
Prolonged cough

Facts

- 1.6 million deaths in 2021 Worldwide
- 13th leading cause of death
- India aims to achieve the UN's TB-related SDGs by 2025, five years ahead of the global target to end the TB epidemic by 2030.

#Tuberculosis

Ni-kshay Programme

- Nikshay Mitra are individuals or groups who adopt one TB patient for their treatment for a period of 6 months
- Provision of free drugs and diagnostics
- Ni-kshay Poshan Yojana for nutritional support to TB patients

Read more: Tuberculosis, HeroRATS for Tuberculosis Elimination

Shaheed Diwas

On **Shaheed Diwas (23rd March),** Prime Minister Narendra Modi paid tribute to the iconic freedom fighters **Bhagat Singh,** Rajguru, and **Sukhdev,** honoring their supreme sacrifice, as this day marks their execution by British colonial authorities in **Lahore Jail in 1931**.

➤ Three were convicted for their roles in the <u>**1928 Lahore Conspiracy Case**</u> involving the killing of British officer **J.P. Saunders,** mistakenly identifying him as **Superintendent James Scott,** who was blamed for <u>**Lala Lajpat Rai's**</u> death during a protest against the <u>**Simon Commission**</u>.

➤ Three were members of the <u>**Hindustan Socialist Republican Association (HSRA**</u>), an organisation known for their revolutionary struggle against British rule.

➤ **Shivaram Rajguru** born on 24th August 1908, Maharashtra, was celebrated for his unwavering resolve against colonial oppression. A staunch advocate of armed resistance.

➤ **Sukhdev Thapar** born 15th May 1907, Punjab, was a driving force behind mobilizing youth for the freedom struggle.

bhagat singh

Also known as Shaheed-e-Azam (Great Martyr)

Brief Description

- **Birth:** 28th September 1907, Banga, Punjab, British India (now in Pakistan)
- **Jallianwala Bagh Massacre (1919):** At age 12, witnessed the massacre; it ignited his patriotism
- **Organizations:**
  - **1924** – Joined Hindustan Republican Association (HRA)
    - Renamed **Hindustan Socialist Republican Association (HSRA)** in 1928.
- **Key Literary Contributions:**
  - "Why I Am an Atheist"
  - "The Jail Notebook and Other Writings"

Major Actions

- **1928** – Assassinated J.P. Saunders (Lahore Conspiracy Case) to avenge Lala Lajpat Rai's death
- **1929** – Bombed Central Legislative Assembly (with B.K. Dutt)

Arrest & Trial

- **Arrested in 1929** – Assembly bombing
- **Sentenced to death** (Lahore Conspiracy Case)
- **Hanged alongside Sukhdev and Rajguru** (23rd March 1931)

  23rd March – Martyrs' Day

Relevance of Bhagat Singh's Ideologies

Key Ideals	Description
Universal Brotherhood	Advocated peace, equality, and global unity
Communal Harmony	Strongly opposed religious conflicts and divisions
Youth in Politics	Encouraged students to actively participate in politics
Empowerment of Marginalized	Championed the dismantling of caste hierarchies
Revolutionary Spirit	Challenged oppression—an inspiration for modern movements

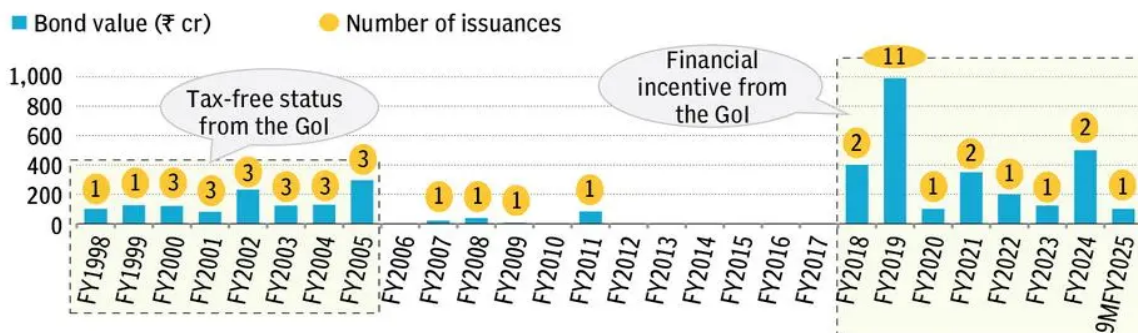**Read More:** <u>**Bhagat Singh's Birth Anniversary**</u>

Municipal Bonds

Municipal bonds, an important source of funding for urban infrastructure, have **not gained much popularity in India.**

➢ **Bonds** are debt instruments where investors lend money to issuers in exchange for periodic interest and principal repayment at maturity.
  ○ It includes **Treasury, Municipal, Corporate, Floating Rate, Zero-Coupon, Convertible, Inflation-Protected Bonds** etc.

Domestic municipal bond issuances revive after FY18

■ Bond value (₹ cr)   ● Number of issuances

Tax-free status from the GoI

Financial incentive from the GoI

Municipal Bonds: Debt instruments issued by **Urban Local Bodies (ULBs)** to fund **infrastructure and development projects.**

➢ **Advantages: Reduce reliance on government funds,** enhance **financial autonomy,** attract **private investment,** and enable **long-term urban financing.**

Challenges with Municipal Bond Market
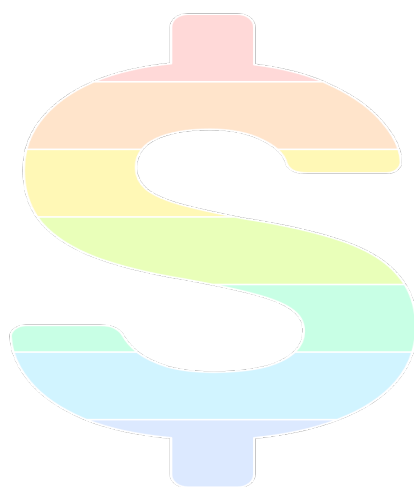
Weak Financial Health
Poor revenue collection and high grant dependence on state government (~38% of their revenue) reduce their creditworthiness.

Limited Investor Interest
Lack of awareness and better returns from other instruments discourage investment.

Accounting Issues
Complex processes and lack of standards cause financial inconsistencies.

High Compliance Costs
Regulatory burdens make bond issuance challenging.

Lack of Liquidity
Small offers and lock-in periods hinder market fluidity.

Inadequate Disclosures
Inadequate and timely financial disclosures affects transparency.

Absence of Secondary Markets
Lack of platforms for trading municipal bonds limits market growth.

➢ **Challenges: Low issuance** due to **heavy dependence on state grants (38% of revenue in FY 24)**. Only a few cities like **Pune, Ahmedabad, Surat, Hyderabad, and Lucknow** have issued bonds.

➢ **Spending Pattern (FY18-FY25): Most funds raised** by municipalities **through bonds** were allocated **to urban water supply and sewerage,** followed by renewable energy and river development.

➢ **Strengthening ULB finances, simplifying regulations**, and **introducing credit enhancement measures** can boost municipal bond adoption and developing a **secondary market** and **offering tax incentives** will attract investors.

Read More: Urban Local Government in India, Bond Yield

Photo-Assisted, Self-Charging Batteries

Researchers have developed a **photo-assisted, self-chargeable energy storage device** that enhances charge storage using **light and atmospheric oxygen.**
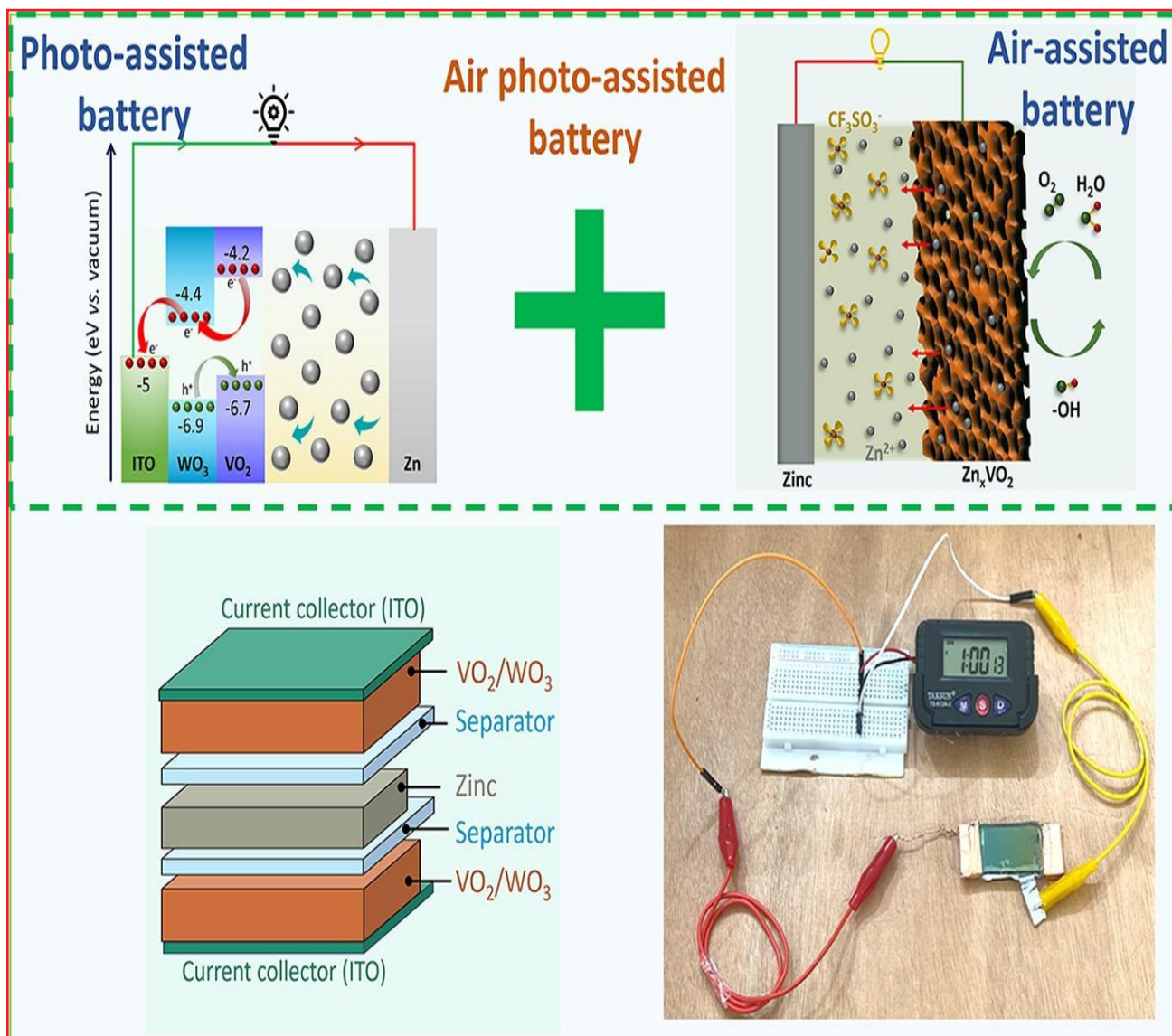
Photo-Assisted, Self-Charging Energy Storage Devices

➢ **About: Photo-Assisted, Self-Charging Energy Storage Devices** are advanced **energy storage systems** (batteries) that **integrate solar energy conversion** with **self-recharging capabilities** using atmospheric oxygen.

➢ **Different from Photo-Assisted Batteries: Photo-assisted batteries** are batteries that combine **solar energy capture with storage**, enabling **direct energy conversion and retention,** but **require external charging** due to incomplete energy storage, low-light dependence, and limited charge retention.

➢ **Key Features:**
  ○ **Dual Charging Mechanism**: Utilizes both photo-assisted charging (**solar energy**) and **air-assisted charging** (oxygen from the atmosphere).
    ● The **air cathode facilitates oxygen-assisted self-charging,** while the **charge-separating layer** enhances **light absorption and energy storage,** enabling efficient dual charging and improved energy retention
  ○ **High Energy Storage Efficiency:** The device enhances energy storage by **170%** under light exposure at **0.02 mA/cm²**, reaching 0.9V **open circuit potential (OCP)** in 140 seconds, with a peak OCP of 1V.

➢ **Potential Applications:** Potential for large-scale applications in renewable energy storage, electric vehicles, and off-grid power solutions.

> **Read More: Electric Batteries and Electrochemical Cells**

World Happiness Report 2025

The **Wellbeing Research Centre at the University of Oxford** in partnership with **Gallup**, the **UN Sustainable Development Solutions Network (UNSDSN)** has published the **World Happiness Report (WHR) 2025** on **World Happiness Day** (**20th March**).

Key Highlights of WHR 2025

➢ **Happiest Countries: Finland** (**8th consecutive year**), followed by **Denmark, Iceland,** and **Sweden**.

➢ **India's Ranking**: **118th (2025), 126th in 2024.**
  ○ **South Asian Nations Ranking:** Nepal (**92nd**), Pakistan (**109th**), Myanmar **(126th),** Sri Lanka (**133th**), Bangladesh (134th).

➢ **Bottom Countries: Afghanistan (147th) (4th consecutive year)**. Others include **Sierra Leone (146th), Lebanon (145th), Malawi (144th),** and **Zimbabwe (143rd).**

About Methodology of WHR:

➢ The **rankings** are based on a **3-year average** of people's **life evaluations** in which respondents rate their current life on a **ladder scale from 0 to 10**.

➢ The **happiness score** is determined by **6 key indicators**: **GDP per capita, social support, healthy life expectancy, freedom, generosity, and perceptions of corruption**.

➢ **Determinants of Happiness: Trust, social connections, shared meals, and communal kindness** play a crucial role in happiness, often outweighing wealth.

World Happiness Day:

➢ **Origin & Initiative**: Initiated by **Bhutan**, which has prioritized **Gross National Happiness (GNH)** over **GDP** since the 1970s.

➢ **UN Recognition**: Adopted by the **UN General Assembly** in **July 2012**, designating **20th March** as the **World Happiness Day**.

➢ **Theme 2025:** *"Caring and Sharing"*

> **Read More: World Happiness Report 2023**

PRC to Moran Community

The Assam government has decided to grant **Permanent Residence Certificates (PRCs)** to members of the **Moran community** living in **Arunachal Pradesh**.

➢ **About Moran:** It is recognized as an **indigenous tribe** of Assam, with a small population also residing in **Arunachal Pradesh**. They are **Vaishnava** by religion and belong to the **Moamoria Sect**.

○ **Sri Aniruddha Deva** (1553–1624), a disciple of Sri Sankara Deva, introduced them to **Neo-Vaishnavism in Assam**.

○ In Neo- Vaishnavism of Assam, **satras (monastries) and namghars (village level prayer houses)** are the pillars of this religion.

○ They are also demanding **Scheduled Tribe (ST) status** in Assam.

➢ **About PRC:** It is a **proof of permanent residence** of a person in the particular state.

○ In **Assam**, PRC is granted to Indian citizens whose forefathers lived there for **over 50 years** and who have resided for **at least 20 years**.

➢ **Revolt of the Moamarias (1769–1799):** This revolt by **low-caste peasants in Assam, inspired by Aniruddhadeva's teachings**, challenged Ahom authority and weakened the kingdom. The Ahoms sought British help to suppress the uprising. Though the rebellion was quelled, the **kingdom later fell to the Burmese during the First Anglo-Burmese War (1824–26)** and eventually came under British rule.

Read More: Tribes in Assam

Advanced Security Ink to Combat Counterfeiting

Scientists have developed a **nanoparticle-based security ink** to improve **anti-counterfeiting** measures in **currency notes and sensitive documents**.

Nanoparticle-based Security Ink:

➢ **Composition**: Made of Sr_2BiF_7 (strontium bismuth fluoride) **nanoparticles** doped with **erbium and ytterbium ions**, synthesized via a **cost-effective coprecipitation technique**.

➢ **Synthesis**: Involves dissolving metal salts, adding a precipitating agent (e.g., **NaOH or ammonia**), followed by separation, purification, and drying for uniform nanoparticle mixing.

➢ **Unique Properties**: Exhibits **fluorescence under multiple wavelengths—blue (365 nm UV), magenta

(395 nm UV), and orange-red (980 nm near-infrared)**—ensuring high security against counterfeiting.

➢ **Advantages**: **Cost-effective, scalable, and environmentally stable**.

➢ **Challenges & Future Scope**: Currently tested for **screen printing**, with research underway for **offset printing** to enhance security in **banknotes and passports**.

Currency Notes Printing:

➢ Banknotes in India are printed at **4 currency presses**: 2 under the **Central Government's Security Printing and Minting Corporation of India Ltd. (SPMCIL)** at Nasik and Dewas and 2 under the **RBI's Bharatiya Reserve Bank Note Mudran Private Ltd. (BRBNMPL)** at Mysuru and Salboni.

Read More: Ink to Curb Fake Printing of Passports and Counterfeiting of Currency Notes, Nanotechnology

World Sparrow Day

World Sparrow Day, celebrated on **20th March,** raises awareness about the declining sparrow population and emphasizes the need to preserve these vital birds for **ecological balance.**

➢ **World Sparrow Day:** It was initiated by **"Nature Forever" in 2010** (a bird conservation organization) and is celebrated in over 50 countries.

○ The **house sparrow** is the state bird of **Delhi and Bihar**, adding to the event's global significance.

➢ **2025 Theme:** *"A Tribute to Nature's Tiny Messengers".*

➢ **Key Facts About Sparrow:** Sparrows aid biodiversity by dispersing seeds, but their numbers are declining due to **habitat loss, urbanization, and changes in agriculture.** Conservation efforts focus on **urban greening** and **agroecological practices.**

○ The House Sparrow *(Passer domesticus),* part of the **Passeriformes order and Passeridae family**, listed as **Least Concern** on the **IUCN Red List.** It is a social species, found in groups of 8 to 10, chirping and chattering to communicate with each other.

- Few Common Species Habitat and Distribution in India:

Sparrow Species	Scientific Name	Habitat Preferences	Distribution in India
House Sparrow	*Passer domesticus*	Urban and rural areas	**Widely distributed across India**
Eurasian Tree Sparrow	*Passer montanus*	Woodlands, parks, and gardens	Found in various regions across India, less common than house sparrows
White-throated Sparrow	*Zonotrichia albicollis*	Northern regions, mountainous areas	Mainly in Jammu & Kashmir or Himachal Pradesh
Chestnut-shouldered Petronas	*Petronia xanthocollis*	Dry forests, scrublands	Inhabit regions like Rajasthan or Gujarat
Rufous Treepie	*Dendrocitta vagabunda*	Wet regions, forests	Prefers areas such as Assam or West Bengal
Baya Weaver	*Ploceus philippinus*	Coastal areas, wetlands	Commonly seen in coastal regions like Goa or Kerala

Read more: World Sparrow Day 2024

Former Philippines President's ICC Trial

The **International Criminal Court (ICC)** has issued an arrest warrant against **former Philippines President (Rodrigo Duterte)** for alleged crimes against humanity, including extrajudicial killings (2011–2019).

➢ Duterte is the **first former head of state from Asia** to face charges at the ICC.

International Criminal Court (ICC):

➢ **About:** Established **under the 1998 Rome Statute** and operational since 2002, the **International Criminal Court (ICC)** is the first permanent international court to prosecute grave crimes, **headquartered in The Hague, Netherlands.**

➢ **Jurisdiction:** It prosecutes **genocide, war crimes, crimes against humanity,** and **aggression for crimes** committed on or after **1st July 2002.**

➢ **Enforcement & Warrants:** The ICC **lacks its own enforcement body** and **relies on global cooperation** for arrests, transfers, asset freezes, and sentence enforcement.
  ○ Its **warrants, binding on member states,** may lead to UNSC referral in case of non-compliance, but **non-member states are not obligated.**

➢ **Independence:** It **operates independently of the United Nations (UN)** under a separate agreement.

➢ **Membership:** The ICC has **125 member states**, with major powers like **India, the US, China, Russia, and Israel are non-members.**

➢ **Structure:** It comprises **18 judges (9-year terms)**, an **independent Office of the Prosecutor,** and key bodies like the **Trust Fund for Victims, Detention Centre,** and **Assembly of States Parties.**

ICJ vs. ICC

	International Court of Justice (ICJ) La Cour Internationale de Justice (CIJ)	International Criminal Court (ICC) La Cour pénale internationale (CPI)
Year Court Established	1946	2002
UN-Relationship	Official court of the U.N., commonly referred to as the "World Court."	Independent. May receive case referrals from the UN Security Council.
Location	The Hague, The Netherlands	The Hague, The Netherlands
Types of Cases	Contentious between parties & Advisory opinions	Criminal prosecution of individuals
Subject Matter	Sovereignty, boundary, & maritime disputes, trade, natural resources, human rights, treaty violations, treaty interpretation, and more.	Genocide, crimes against humanity, war crimes, crimes of aggression
Funding	UN-funded.	Assessed contribution from state parties to the Rome Statute; voluntary contributions from the U.N.; voluntary contributions from governments, international organizations, individuals, corporations and other entities.

Read More: International Criminal Court (ICC)

Birefringence

Refraction is the **bending of light** as it passes from **one medium to another** due to a **change in its speed.** However, some materials also exhibit a phenomenon known as **Birefringence (Double refraction).**

Birefringence: It is the **optical property** of certain materials where **incident light splits into 2 rays**, each **traveling at different speeds** due to **varying refractive indices in different directions.** It arises due to the **anisotropic nature** of materials.

➢ The **refractive index** is the ratio of the **speed of light in a vacuum to its speed in a medium**. A **vacuum has a refractive index of 1**. A **higher refractive index** indicates **greater optical density** and **slower light speed.**

➢ **Types of Birefringent Materials:**
  ○ **Natural:** Calcite, quartz, mica
  ○ **Synthetic:** Barium borate, lithium niobate
  ○ **Induced:** Can be created by applying physical stress, electric, or magnetic fields

➢ **Applications:** Used in **LCDs, microscopes, optical switches, waveplates, frequency converters, and lasers** for light manipulation.

Isotropic and Anisotropic Materials:

➢ **Isotropic Materials:** Have **uniform structure, refract light at a constant angle,** and **allow it to pass at a single velocity** without polarization. **Eg: Glass, Table salt (NaCl).**

➢ **Anisotropic Materials:** Have **different crystal axes, causing light to split into 2 rays with different velocities** and **perpendicular polarization (birefringence).** **Eg: Calcite, Quartz, Mica, Tourmaline.**

Read More: Photonic Crystal

India Defers GNSS-Based Toll Collection

The Indian government has postponed the rollout of the **Global Navigation Satellite System (GNSS) for toll collection,** citing security and privacy concerns.

➢ The government will proceed with **Barrier-Less Free Flow tolling using Automatic Number Plate Recognition (ANPR) cameras and FASTag** instead of GNSS.

➢ **GNSS:** Calculates tolls using **satellites and onboard units (OBUs)** to determine tolls based on the distance traveled by vehicles.

   ○ However, this system raises concerns about **operational control, data privacy, and potential breaches** due to its dependence on **non-Indian satellites.**

➢ **ANPR FASTag System (AFS):** Uses cameras to automatically recognize vehicle number plates and link them to the corresponding **FASTag account** for toll deduction.

   ○ FASTag by the **National Payments Corporation of India** a device that employs **Radio Frequency Identification (RFID) technology** for making toll payments directly while the vehicle is in motion.

      • FASTag (RFID Tag) on the vehicle's windscreen enables automatic toll payments from a linked bank account.

Read more: New Satellite-Based Toll Collection System

Cabinet Approves Multi-Sectoral Package for Economic Growth

The Union Cabinet has approved a **multi-sectoral package worth Rs 22,791 crore** encompassing a **Unified Payments Interface (UPI)** incentive, a urea plant in Assam, a highway project in Maharashtra, and revised dairy development schemes.

➢ **Digital Payments Incentive**: Rs 1,500 crore allocated for the **Incentive Scheme to promote low-value UPI (Person-to-Merchant) transactions (FY25)** under the **Zero Merchant Discount Rate Policy**, to promote digital payments & financial inclusion.

   ○ A **0.15% incentive** is offered for **transactions under Rs 2,000**, benefiting **small merchants (digital payments < Rs 50,000/month)**.

   ○ The government pays incentives to acquiring banks (merchant's banks), which are shared with issuer bank (customer's bank), payment service providers, and app providers.

➢ **Highway Project in Maharashtra:** Approved **Chowk-Pagote six-lane highway** under **PM Gati Shakti** to enhance **Jawaharlal Nehru Port Trust** connectivity.

➢ **Fertilizer Plant in Assam**: Rs 10,601 crore approved for **Namrup-IV Urea Plant** under **'Act East' policy,** boosting Northeast & eastern India's urea supply and exports to **Southeast Asia.**

➢ **Revised National Programme for Dairy Development**: Total outlay revised to Rs 2,970 crore, to establish **10,000 Dairy Cooperatives** & create **3.2 lakh jobs**, mainly for women.

➢ **Rashtriya Gokul Mission (2021-26)** total outlay revised to Rs 3,400 crore to boost **high-yield cattle breeds**.

Read more: **India's Journey of Infrastructure Development**

Sonic Weapons

The **Serbian government** has denied allegations that police used **sonic weapons** to disperse anti-government protesters.

➢ Sonic Weapons are devices that deliver **highly concentrated, amplified sound** over long distances usually for crowd control.

➢ In **2004**, the **United States first used** such special devices to project loud sounds over long distances in **Iraq.**

➢ **It is of 3 types:**

○ **Long-Range Acoustic Device (LRAD):** Produces sound **up to 160 decibels** (dB) causing **ringing ears (tinnitus)**, **hearing damage**, and other health issues.

○ A **jet engine** during takeoff produces **130-140 dB**, and a **gunshot** around **150 dB**. Sounds **above 120 dB** can cause **permanent hearing damage**.

○ **Mosquito:** Emits **high-pitched sounds** painful only to younger people (under 30).

○ **Infrasonic Weapon:** Delivers **low-frequency, inaudible sounds** causing pain and disorientation.

➢ **Serbia** is a **landlocked country in eastern Europe**. **Kosovo declared independence** from Serbia in **2008**, but Serbia does not recognize Kosovo's statehood.

Read More: **Kosovo-Serbia Conflict**

Yemen and Houthis

The US has intensified airstrikes on Houthi-controlled areas in Yemen to counter their missile and drone attacks in the **Red Sea,** citing threats to global shipping routes.

➢ **Yemen:** Located in the Middle East at the southern tip of the **Arabian Peninsula,** borders **Saudi Arabia (north) and Oman (east)**. It has a coastline along the **Red Sea (west),** **Gulf of Aden**, Arabian Sea, and **Guardafui Channel** (south).

  ○ The **Bab el-Mandeb Strait**, between **Djibouti and Yemen**, is a **key maritime chokepoint** connecting the **Indian Ocean to the Mediterranean Sea** via the **Red Sea and Suez Canal**, crucial for global trade.

➢ **Houthis:** A Zaidi Shia militant group from northwestern Yemen, the Houthis emerged in the 1990s as a rebellion against the Yemeni government. Backed by **Iran,** they are part of the **Axis of Resistance** (informal coalition of Iranian-supported militias) and target Israeli-linked ships in the **Bab el-Mandeb Strait** in response to the **Gaza conflict.**

Read more: Escalating Threat in Red Sea

Right to Development and Clean Environment

The **Supreme Court (SC)**, in *The Auroville Foundation vs. Navroz Kersasp Mody (2025)*, ruled that the **right to development through industrialization** is equally significant as the **right to a clean environment**, emphasizing a **"golden balance"** between the two under **Articles 14, 19, and 21 of the Constitution.**

➤ **Case Background:** The **National Green Tribunal (NGT) halted Auroville's development** in Tamil Nadu in 2022, citing environmental concerns in the **Darkali forest.**

  ○ The **Auroville Foundation challenged the decision**, asserting that **Auroville's Master Plan had statutory authority** and required no additional environmental clearance.

➤ **SC Ruling:** SC overturned NGT's 2022 order, upheld Auroville's legally valid Master Plan, and ruled that "Darkali forest" is **not classified as a forest** under the **Forest (Conservation) Act, 1980.**

  ○ SC emphasized fundamental rights, stating that **Article 14** (Right to Equality) ensures a **fair balance between environmental protection and development**, **Article 19** (Right to Freedom) safeguards the **right to trade and industrial activities** with reasonable restrictions, while **Article 21** (Right to Life) includes the right to a **clean environment alongside sustainable economic progress.**

Read more: Balancing Development With Environment

India's Disinvestment Strategy in FY25

The Indian government's **disinvestment** receipts in **FY25 are at their lowest since 2014-15,** signaling a strategic shift from aggressive stake sales to optimizing **Public Sector Enterprises (PSEs) performance.**

➤ **Disinvestment Receipts:** As of FY25, the government has accrued only **Rs 9,319 crore** (lower than **Rs 16,507 crore in FY24**) through disinvestment, marking the lowest level since 2014-15 despite post-pandemic economic recovery.

➤ **Shift in Disinvestment Policy:** Since **FY24, the government has stopped setting annual disinvestment targets**, moving towards a **"value creation"** approach for PSEs.

  ○ The new strategy includes **higher capital expenditure, improved dividends, phased market dilution, and strategic privatization where feasible**.

➤ **Disinvestment:** It is the government's process of selling its stake in PSEs to raise funds, reduce fiscal burden, and boost private participation. It includes **Strategic Disinvestment** (full or substantial stake sale with management transfer) and **Minority Stake Sale** (partial sale without management transfer).

  ○ Disinvestment methods include **Initial Public Offer** for unlisted companies, **Further Public Offer** for listed ones, **Offer for Sale** for quick stake dilution, **Buyback of Shares** to consolidate ownership or utilize surplus cash, and **Exchange Traded Funds (ETF).**

  ○ The disinvestment process is conducted by the **Department of Investment and Public Asset Management** under the Ministry of Finance.

Read more: Status and Proceeds of Disinvestment

Menhirs

The **Mudumal megalithic menhirs** in Telangana's Narayanpet district have been added to **UNESCO's tentative list for World Heritage Sites** in 2025.

➤ A **megalith** is a large stone used in **prehistoric structures**, serving as either a **burial site or a commemorative monument.**

➤ **Menhirs in Europe** date back to 7,000 **Before Present (BP)**, with the **Grand Menhir Brisé in France** being the tallest, originally 20.6 meters high.

Menhirs:

➤ **About:** Menhirs are **large, upright stones, often tapered at the top,** erected by humans. **Mudumal's menhirs are India's oldest menhirs**, dating back 3,500–4,000 BP, and are located near the banks of the Krishna River.

  ○ **BP** is a time scale counting years before 1950 CE.

➢ The Mudumal menhir site is **well-preserved megalithic burial sites.**

➢ They are **precisely aligned with solar events like equinoxes and solstices,** with a stone featuring **cup-marks of Ursa Major (Saptarshi Mandal),** the earliest known star representation in South Asia.

➢ Locals worship the menhirs as **"Niluralla Thimmappa,"** with one revered as **Goddess Yellamma,** preserving ancient traditions.

   Different from Hero Stones: Hero stones (*Veeragallu* in Kannada, *Natukal* in Tamil) are **memorials honoring warriors who died in battle. Found across India, especially in the South, they were erected between the 1st millennium BCE and the 18th century CE to commemorate heroic sacrifices.

> **Read More: Megalithic Burial Sites**

Melioidosis

   A recent study highlights how **climate conditions,** particularly **monsoon-related factors,** influence the spread of **melioidosis**.

➢ **Melioidosis:** It is a **bacterial infectious disease**, linked to **rainfall, temperature, and humidity.**

   ○ It is caused by *Burkholderia pseudomallei* and primarily **acquired** by **inoculation, inhalation and/or ingestion** of soil- and water-dwelling environmental **saprophytes**.

➢ **South Asia** (endemic to **Bangladesh and Sri Lanka**)**,** including **India**, accounts for **44%** of global melioidosis cases, with **Odisha** as a **hotspot** due to its agriculture and extreme weather.

   ○ It is primarily found in **Northern Australia and Southeast Asia**.

➢ Symptoms range from **mild skin infections** to **severe pneumonia and sepsis,** with a fatality rate of up to **50% in septic cases.**

   ○ It is **not transmitted** from **animals to humans**, and **human-to-human** transmission is **rare.**

➢ Melioidosis can be **treated** with antibiotics but it trouble doctors because:

   ○ **Diverse Symptoms:** Causes a wide range of infections, from **mild skin issues to severe pneumonia and sepsis**.

   ○ **Diagnostic Challenges:** Often **misidentified** as *Pseudomonas aeruginosa*, a more common bacterium, leading to **inappropriate treatment**.

   ○ **Complex Treatment:** Needs **prolonged therapy (12-20 weeks)** with a risk of **recurrence** if not treated properly.

What is 'Melioidosis'?

- A disease caused by the bacterium Burkholderia pseudomallei
- Humans can become infected through contact with contaminated soil and surface waters (especially through skin abrasions/wounds); inhalation of contaminated dust/water droplets; and ingestion of contaminated water

Person-to-person transmission is rare

Persons with underlying diseases or immunosuppression are the high risk groups

Preventive measures:

| Clean cuts or grazes and cover with waterproof dressings | Wear appropriate protective clothing or footwear when participating in activities with possible contact with soil or waters, and wash hands afterwards | Avoid contact with contaminated soil | Observe personal and food hygiene and avoid drinking raw water |

Read More: Climate Change & Infectious Diseases

Pi (π) Day

Pi Day, celebrated annually on 14th **March**, honors the **mathematical constant π (pi)**. The day also coincides with **Albert Einstein's birth anniversary (1879)** and the **death anniversary of Stephen Hawking (2018)**.

➤ **Significance of Pi:** It represents the ratio of a **circle's circumference to its diameter** and is an **irrational, infinite number**.
  ○ The **Greek letter π** was first used in 1706 by **Welsh mathematician William Jones**, inspired by the words **"periphery" and "perimeter"**.

➤ **Indian's Contribution: Aryabhata** (476-550 CE), an Indian mathematician and astronomer, calculated an approximate value of **pi as 3.1416** in his work **"Aryabhatiya."**
  ○ The **first algorithms to calculate pi to millions of digits** were based on formulae published by **Indian mathematician Srinivasa Ramanujan in 1914**.

➤ **Applications of Pi:** In **mathematics and engineering**, **Pi** is essential for calculating **circle properties, wave equations, and structural designs**.
  ○ **Space agencies like Indian Space Research Organisation (ISRO)** use π for determining **orbital paths, satellite positioning, and spacecraft trajectories**.
  ○ Even in **everyday life**, π is used for the **construction of domes and bridges**, making it a fundamental constant in science and technology.

Read more: Pi Day

Uniyala Keralensis

Researchers have confirmed the existence of a new plant species, *Uniyala keralensis* (family **Asteraceae**), in the <u>Agasthyamala Biosphere Reserve</u> in Kerala.

About Uniyala Keralensis:

➢ **Genus:** Uniyala

➢ **Plant Type:** Dense shrub with light purple flowers, growing 1-3m tall with **flowering & fruiting** between August and April.

➢ **Distinct Features**: Larger leaves, longer petioles, and fewer lateral veins than *U. comorinensis* & *U. salviifolia*.

➢ **Distribution**: Endemic to **southwest India,** found in **Agasthyamala Biosphere Reserve** at 700-1,400m elevation.

➢ **Population**: Around **5,000 individuals** across 4 subpopulations over 250 km².

➢ **IUCN** Status: **Data Deficient (DD)**
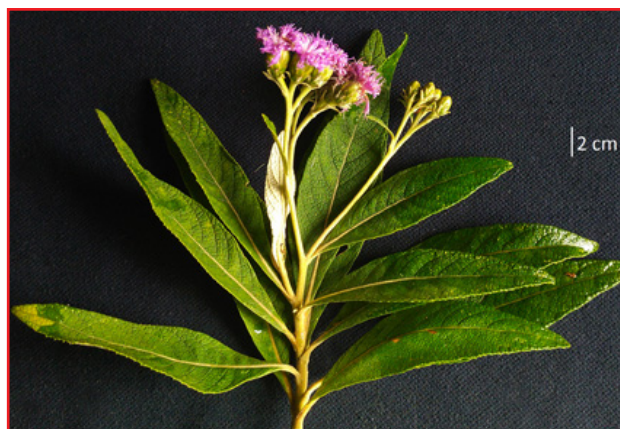
Agasthyamala Biosphere Reserve:

➢ **Location: Southern Western Ghats**, spanning Kerala & Tamil Nadu.

AGASTHYAMALA BIOSPHERE RESERVE

FACT FILE
- Established in 2001
- Area **3,500.36 sq km**
- Area in Kerala **1,828 sq km**
- Area in Tamil Nadu **1672.36 sq km**

Between **8° 8'** and **9° 10' North Latitude**, **76° 52'** and **77° 34' East Longitude**

- Home to 2,254 species of higher plants
- About 400 endemic to the area

Population in tribal settlements 3,000

- Sanctuaries in the reserve
- Shendurney, Peppara, Neyyar wildlife sanctuaries
- Kalakad Mundanthurai tiger reserve

18 biosphere reserves in India   **9** included in UNESCO network

➤ **Protected Areas:** Includes **Shendurney, Peppara, Neyyar Wildlife Sanctuaries** & **Kalakad Mundanthurai Tiger Reserve.**

➤ **Biodiversity:** Hosts **2,254 higher plant species (405 endemic), Nilgiri Tahr, Lion-tailed Macaque, Bengal Tiger, Indian Elephant.**

➤ **Tribes:** Kani tribes (Kerala and Tamil Nadu)

➤ **UNESCO Recognition:** Man and Biosphere (MAB) Programme, 2016.

> **Read More:** Invasive Alien Species , Planting of Exotic Trees in Nilgiris is Harmful

Resolving Nagorno-Karabakh Conflict

Armenia and Azerbaijan have **finalized the text of a peace agreement**, marking a significant step towards ending hostilities over the **Nagorno-Karabakh conflict.**

➤ **About the Conflict:** During the Soviet era, Nagorno-Karabakh was an **autonomous region in muslim dominated Azerbaijan**, but its Armenian population (Christian) sought **unification with Armenia.**

  ○ As the USSR collapsed, tensions **escalated into war (1988–1994)**.

  ○ The **1994** ceasefire left Nagorno-Karabakh under **Armenian-backed control** (but internationally recognised as **part of Azerbaijan**).

➤ **Key Conflicts:**

  ○ **First Nagorno-Karabakh War (1988–1994):** Armenia gained control of Nagorno-Karabakh and nearby Azerbaijani areas.

○ **Second Nagorno-Karabakh War (2020):** Azerbaijan recaptured large parts of the region.

○ **Azerbaijani Offensive (2023):** Azerbaijan regained full control in a one-day operation and the enclave was officially **dissolved.**

● **Over 1 lakh people**, nearly all of Nagorno-Karabakh's population, **fled to Armenia.**

➤ **India has not taken sides** but supports a **diplomatic resolution** via the **OSCE Minsk Group.**

○ Armenia and Azerbaijan are part of the **International North-South Transport Corridor (INSTC)**, a key project for India's trade routes.

> **Read More: Nagorno-Karabakh Conflict**

India's Space Docking Milestone

India has become the **4th country**—after the **US, Russia, and China**—to demonstrate **space docking and undocking capabilities**.

➤ **ISRO autonomously** undocked **two satellites** i.e., **SDX01 (the Chaser)** and **SDX02 (the Target)** in space, reinforcing India's ability to conduct complex orbital maneuvers essential for future space missions.

➤ Space Docking is a process where **two spacecraft in orbit are progressively brought closer and joined together.**

○ It allows for assembling heavy spacecraft in space, which **cannot be launched in a single mission due to weight limitations.**
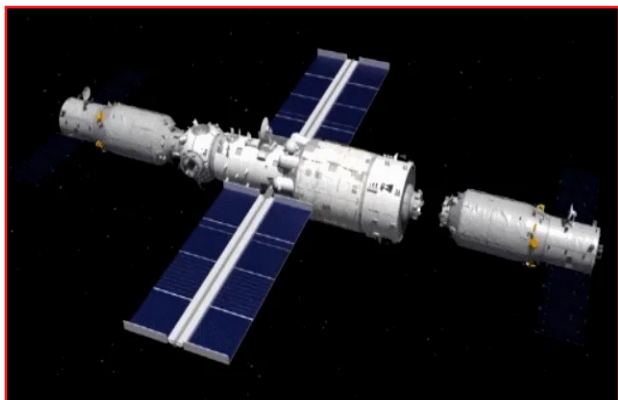
➤ **Space undocking** refers to the process of separating a spacecraft from a space station or another spacecraft.

➤ It is crucial for **India's planned Bhartiya Antriksh Station (by 2035) and human mission to the Moon (by 2040).**

○ **Chandrayaan-4**, which will bring back **lunar soil and rock samples**, will rely on this technology.

➤ In **1966**, NASA's **Gemini VIII**, commanded by **Neil Armstrong**, completed the first manual space docking with the target vehicle **Agena.**

○ In **1967**, the former **USSR's Kosmos 186 and Kosmos 188 spacecraft** achieved the first **autonomous docking.**

○ China achieved its first **unmanned docking** in **2011** and its first **crewed docking** in **2012**.

> **Read More: ISRO's SpaDeX**

Transforming Northeast India into a Saffron Hub

India has identified the **Northeast as India's next saffron cultivation hub,** following Jammu & Kashmir's Pampore. This initiative, part of **Mission Saffron,** was highlighted during the foundation stone-laying ceremony of the **North East Centre for Technology Application and Reach (NECTAR)** permanent campus in Shillong.

➤ **Mission Saffron:** It is a centrally-funded project launched in 2010-11 to support saffron cultivation in Jammu and Kashmir. Since 2021, it has expanded to Sikkim, Arunachal Pradesh, and Meghalaya under the **"Saffron Bowl Project"** by NECTAR.

➤ **Saffron:** Highly valuable spice derived from the **stigmas of flower *Crocus sativus*, known as the saffron crocus.**

○ Saffron thrives at 2000m altitude, in loamy, sandy, or **calcareous soils,** with pH raining from 6-8, requiring a dry to moderate climate with summer temperatures below 40°C and winter temperatures as low as -20°C.

○ Kashmir saffron got **Geographical Indication (GI) tag status.**

NECTAR: An autonomous body under the **Department of Science and Technology (DST),** established in 2014, it

focuses on technology-driven solutions to enhance agriculture, infrastructure, and economic development in the Northeast.

Saffron
Flower Anatomy

- Stigma
- Petals
- Stamen
- Perianth tube
- Leaves
- Bracteole
- Corm
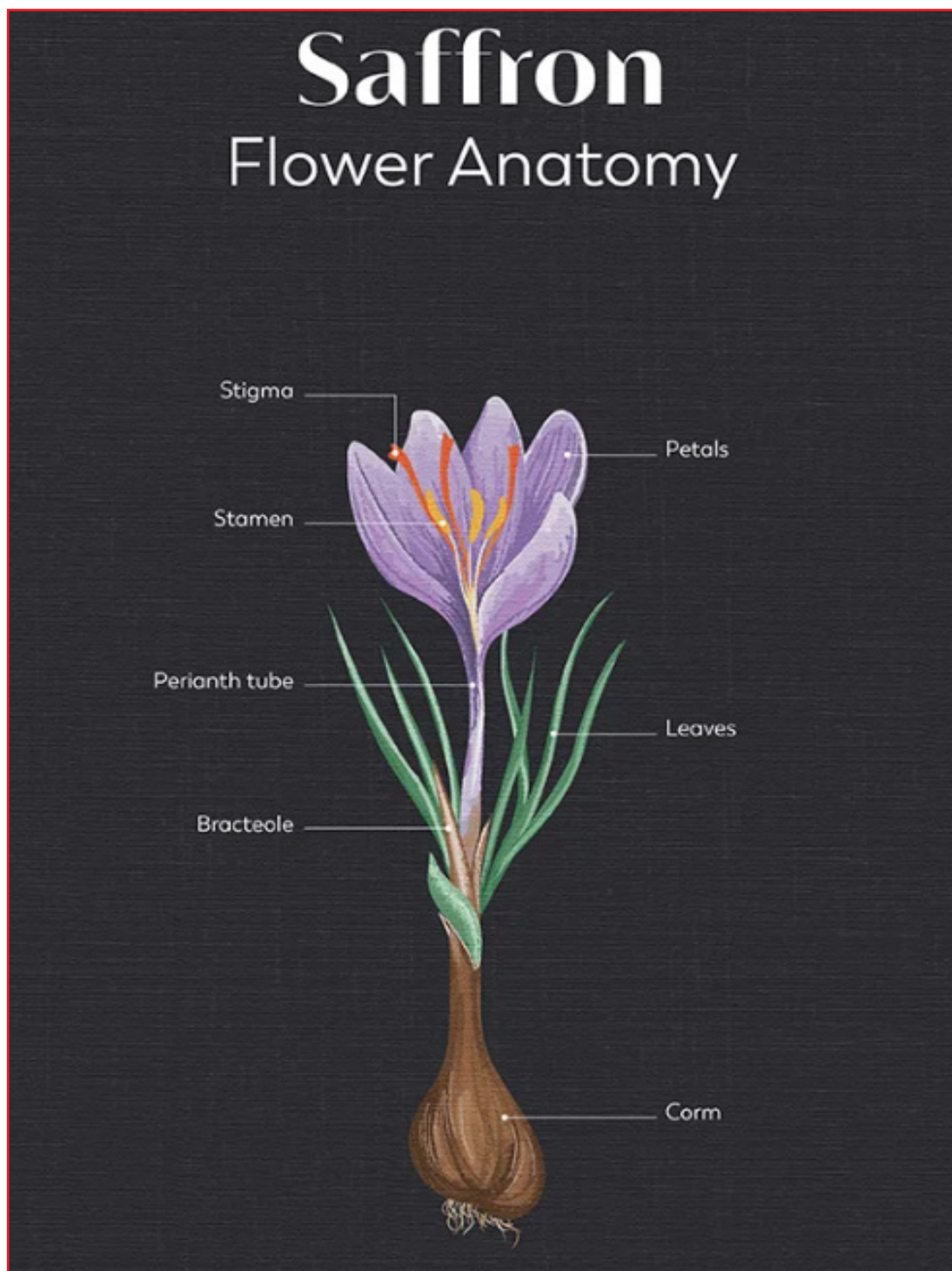
Read more: Saffron Bowl Project

Bongosagar 2025 Naval Exercise

Indian Navy's **INS Ranvir** and Bangladesh Navy's **BNS Abu Ubaidah** conducted the **Bongosagar 2025 Naval Exercise** in the Bay of Bengal, enhancing operational coordination, maritime security, and regional stability under **India's SAGAR (Security and Growth for All in the Region) initiative.**

➢ **INS Ranvir:** It is the fourth of five **Rajput-class Guided Missile Destroyers**, commissioned in 1986.

➢ **SAGAR:** Introduced in 2015, SAGAR is India's foreign policy doctrine aimed at enhancing cooperation, maritime security, economic growth, and regional trust, particularly in the **Indian Ocean region.**

➢ In 2025, India launched **MAHASAGAR (Mutual and Holistic Advancement for Security and Growth Across Regions)**, building on the **SAGAR policy (2015)** to enhance security, trade, and development across the Global South.

➢ **India-Bangladesh Exercises:** Army (**Exercise Sampriti**) and Navy (Exercise Bongo Sagar, and Coordinated Patrol (CORPAT)).

> **Read more: India-Bangladesh Relations**

Jalanatheswarar Temple

The **Jalanatheswarar temple** at **Thakkolam** in **Ranipet district, Tamil Nadu** is in a deteriorating state.

➢ The temple is neglected, with a collapsed wall and an overgrown tank. Its last *kumbabishekam* **(consecration)** was over 15 years ago.

Jalanatheswarar Temple:

➤ The temple was **originally built in 876 AD** by **Pallava King Aparajitha Varman**, while the **3-tiered Rajagopuram** was added in **1543 AD** by **Vijayanagara King Veera Prathaba Sadasiva Maharayar.**

➤ It is situated on the banks of **Kosasthalai river.** It holds the **inscriptions** and records from **Pallava king Aparajita** and **Chola King Aditya I**, detailing **grants of land, gold, and goats.**

➤ The temple showcases **Dravidian-style of architecture**, similar to the **Brihadeeswarar Temple in Thanjavur** and the **Meenakshi Temple in Madurai.**

➤ The 1.5-acre temple features a **3-tiered gopuram**, granite walls, and a **sand-based Prithvi Lingam (Theenda Thirumeni)** of Lord Shiva (as **Lord Jalantheeswarar**).

➤ The temple is one of the **275 *Paadal Petra Sthalams***, glorified in the *Tevaram* **hymns** by **Tamil Saivite Nayanar Sambandar.**

  ○ **Sambandar** was a **7th-century Saiva poet-saint** from Tamil Nadu, who composed 16,000 hymns, with 383 (or 384) surviving in Tamil Shaiva tradition.
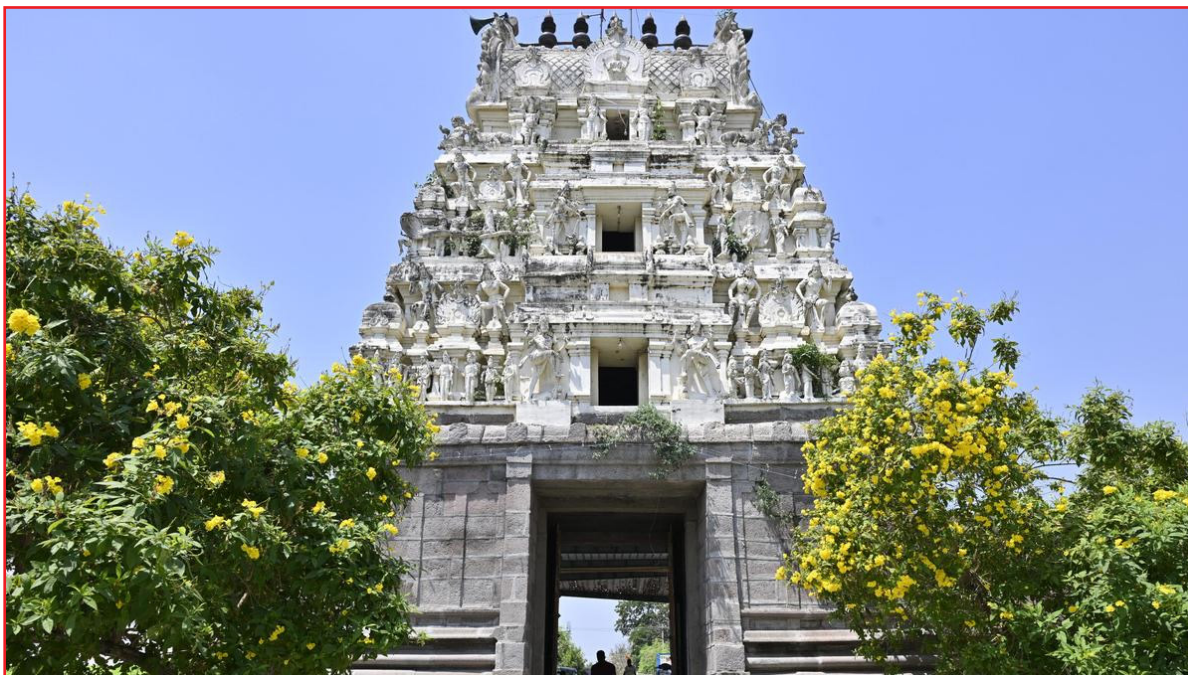
Read More: Temple Architecture

Maritime Security Belt 2025

China, Iran, and Russia held the **Maritime Security Belt** 2025 naval drills in the **Gulf of Oman**, near the **Strait of Hormuz**, amid tensions over Iran's nuclear program.

➤ **About Gulf of Oman:** It is a western extension of the Arabian Sea, connecting it to the **Strait of Hormuz** and the **Persian Gulf**.

➤ **Bordering Countries:** It borders **Iran (north), UAE (west), and Oman (south).**

drishti
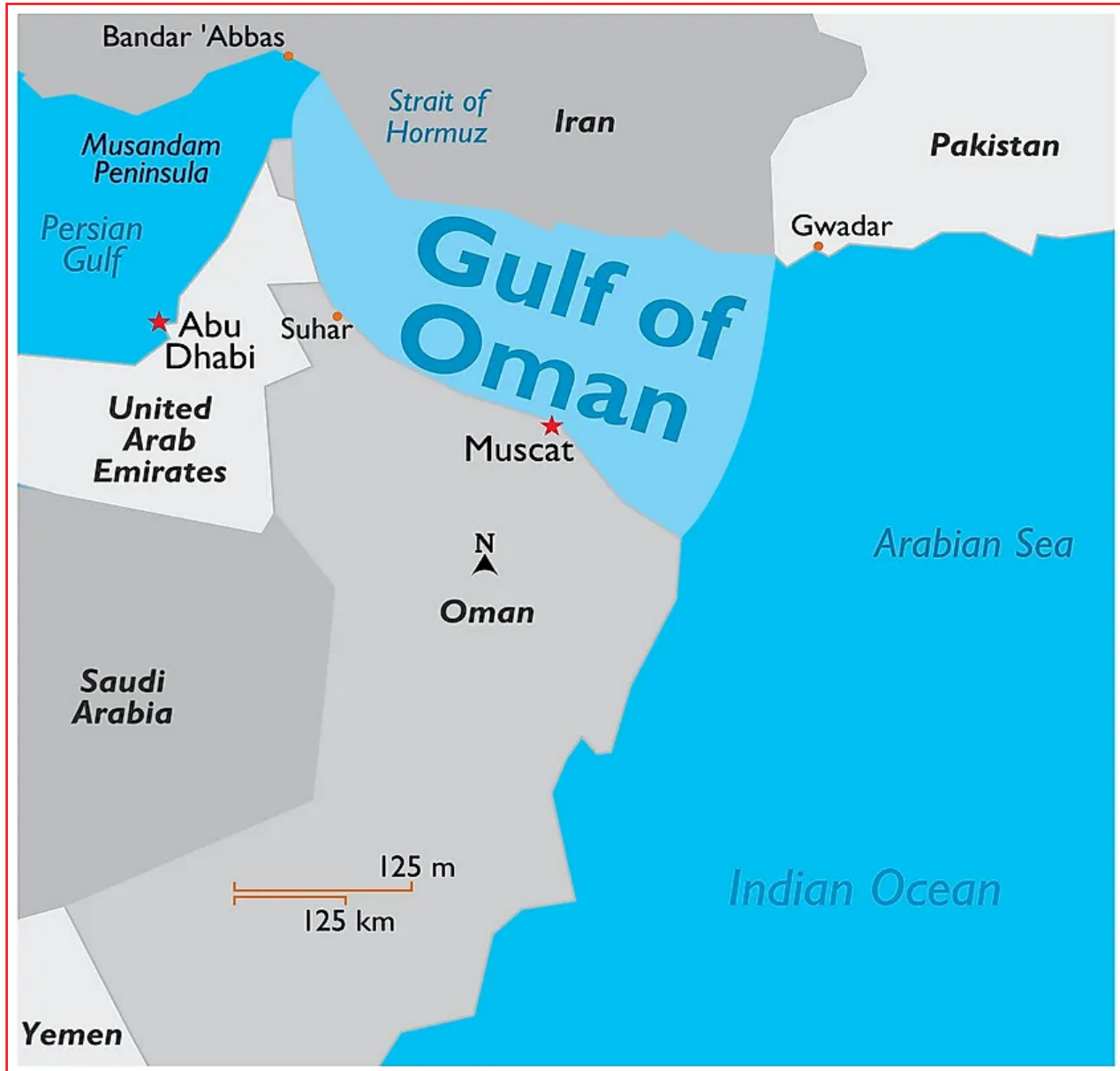
> ➤ **Important islands**: Sheytan Island, Al Fahal Island, Dimaniyat Islands, and Sawadi Islands.
> ➤ **Significance:** It is the **only maritime route for Iran to access open seas**, making it crucial for global trade and energy transportation.
>   ❍ About **a fifth of the volume of the world's total oil trade** passes through the Strait of Hormuz on a daily basis that **opens in the Gulf of Oman.**
> ➤ The **Strait of Hormuz** connects the **Persian Gulf to the Gulf of Oman**, and is situated between **Iran, the UAE, and Oman**.

Read More:

■■■