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IAS ORIGIN

YOUR PATHWAY TO UPSC SUCCESS

2nd June to 7th June 2025

CURRENT AFFAIRS

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01 DOES THE CIVIL SERVICES EXAMINATION NEED REFORM?

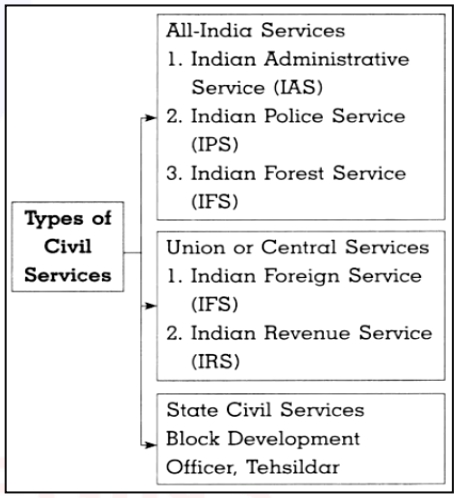
News: The **Civil Services Examination (CSE)**, conducted by **UPSC**, serves as the gateway to India's administrative services, shaping governance and policy implementation.

However, over the years, concerns have emerged regarding its structure, fairness, and effectiveness, prompting discussions on the need for reform.

ABOUT THE CIVIL SERVICES IN INDIA

The Civil Services constitute the backbone of the Indian administrative machinery. They are responsible for implementing laws, managing public resources, and ensuring governance reaches every corner of the country. The services are broadly categorized into:

- **All India Services**: IAS, IPS, and Indian Forest Service (IFoS)
- **Central Civil Services (Group A)**: Includes IFS (Foreign), IRS, Indian Audit and Accounts Service, etc.
- **Group B Services**: Subordinate services like DANICS, DANIPS, etc.



The Civil Services are integral to policy formulation, administration, and developmental functions. They work in coordination with political executives but retain significant independence due to their permanence and expertise.

India's first Home Minister Sardar Vallabhbhai Patel coined the term **'Steel Frame of India'** to the civil services **on April 21, 1947** because of their role in nation-building, governance, and policy execution. India celebrates **Civil Services Day** on April 21 every year to honor the contributions of civil servants.

HISTORICAL EVOLUTION OF CIVIL SERVICES IN INDIA

ANCIENT AND MEDIEVAL PERIODS:

India has a long tradition of public administration dating back to the Maur-yan Empire, where a structured bureaucracy existed under Chanakya's guidance. During the Mughal period, the Mansabdari system served admin--istrative and military functions.

BRITISH COLONIAL ERA:

The modern civil services in India trace their origins to British rule. The British established the **Indian Civil Services (ICS)** to consolidate their power and administer a vast empire. The ICS became synonymous with administrative efficiency and elitism, but also served colonial interests.

KEY MILESTONES INCLUDE:

- **1853**: Competitive examinations for ICS introduced in England.
- **1860s-1905**: Entry of Indians through limited examinations.
- **1919 Government of India Act**: Created provincial autonomy and increased Indian participation.
- **1935 Government of India Act**: Laid the foundation for a federal structure and redefined civil services.

POST-INDEPENDENCE PERIOD:

Post-1947, civil services were retained and repurposed for democratic governance and nation-building. The ICS was replaced by the IAS, and the structure of All India and Central Services was adopted. The emphasis shifted to development administration, welfare delivery, and participatory governance.

Service	Year	Event
IAS	Before 1854	Civil servants were nominated by directors of East India Company
	1855	Civil Service Commission conducted first competitive exam

	1864	Satyendranath Tagore, brother of Rabindranath Tagore, became first Indian to clear the exam, held in London
	1922	Indian civil services exams started to be held in India, too
IPS	1893	First competitive exam held in England and top-10 candidates appointed as probationary assistant SPs
	1920	Decision taken to open service for Indians
	1921	Simultaneous exams held in India, England
IFS	1864	Imperial forest dept established
	1867	Imperial forest service constituted. From 1867 to 1885, officers were trained in France and Germany
	1920	Direct recruitment in both India and England started

- **Macaulay Report of 1854:** It laid the foundation for merit-based selection, and post-independence.
- **Kothari Committee (1975):** It introduced the three-tier system comprising a preliminary exam, main examination, and an interview.
    - It has remained largely unchanged; several modifications have been made to enhance transparency and inclusivity.

KEY REFORMS OVER THE YEARS:

- **2005:** The Right to Information Act led to increased transparency in UPSC's evaluation process.
- **2011:** The S.K. Khanna Committee recommended replacing the optional paper in prelims with a common paper, leading to the introduction of Paper-I (General Studies) and Paper-II (Aptitude Test).
- **2013:** The Arun Nigvekar Committee proposed restructuring the General Studies papers, covering diverse subjects such as Indian Polity, Governance, Economy, and Science & Technology.

CONSTITUTIONAL PROVISIONS RELATED TO PUBLIC SERVICES IN INDIA

The Constitution of India provides a detailed framework for the functioning of public services. Key provisions include:

- **Part XIV (Articles 308 to 323):** Deals with Services under the Union and States.
- **Article 309:** Allows Parliament and state legislatures to regulate recruitment and conditions of service.
- **Article 310:** Civil servants hold office during the pleasure of the President or Governor.
- **Article 311:** Provides safeguards to civil servants against arbitrary dismissal.
- **Article 312:** Empowers Parliament to create new All India Services.
- **Union Public Service Commission (UPSC):** Established under **Article 315**, responsible for conducting examinations and advising the government on personnel matters.

These provisions ensure autonomy, impartiality, and professionalism in public services, thereby safeguarding the administrative apparatus from political interference.

CHALLENGES IN THE CURRENT SYSTEM

Despite its strengths, the Civil Services Examination and the services it recruits for face numerous challenges:

- **Lengthy and Arduous Process:** The CSE spans over a year and includes Preliminary, Mains, and Personality Test stages. This long duration increases the stress and uncertainty for aspirants.
- **Age and Attempt Limits:** Critics argue that the current limits (maximum 6 attempts till the age of 32 for General category) disadvantage late bloomers and those from marginalized backgrounds.
- **Overlapping Syllabus:** The syllabus of General Studies papers often overlaps across stages, leading to redundancy.
- **Subjective Evaluation:** The Mains examination is essay-based, leading to potential subjectivity in evaluation.
- **Lack of Specialization:** The generalist nature of the IAS is increasingly seen as a limitation in an era requiring specialized knowledge in areas like technology, environment, finance, etc.
- **Urban-Rural Divide:** Urban candidates, with better access to coaching and resources, are often at an advantage.
- **Language Barrier:** Despite the provision to write Mains in regional languages, candidates opting for English or Hindi tend to perform better.
- **Coaching Industry:** The proliferation of a high-cost coaching industry has made preparation a financial burden, often skewing access in favor of the affluent.
- **Underutilization of Talent:** Once selected, many officers are placed in departments unrelated to their expertise, leading to inefficiency and frustration.
- **Ethical Concerns:** Increasing instances of corruption, insensitivity, and inefficiency have raised questions about the quality of selections.

REFORMS NEEDED IN THE CIVIL SERVICES EXAMINATION AND SYSTEM

Reforms can be grouped into **examination reforms**, **training and career reforms**, and **structural reforms**:

EXAMINATION REFORMS

- **Reducing Duration:** Compress the examination timeline to 6-8 months to reduce aspirant fatigue and improve efficiency.
- **Revamping Syllabus:** Introduce more contemporary topics like Artificial Intelligence, Climate Change, Governance, and Digital Economy. Reduce historical and factual redundancy.
- **Emphasizing Aptitude and Ethics:** Prioritize analytical skills, problem-solving abilities, and ethical orientation in selection.
- **Increasing Objectivity in Mains:** Use structured answer formats and introduce partial objective components in the Mains.
- **Encouraging Specialization:** Create different tracks for administration, finance, technology, and public health, allowing aspirants to choose their domain.
- **Equal Language Treatment:** Standardize translation quality and provide support for regional language aspirants.
- **Online and Remote Examinations:** Leverage technology to make the examination process more accessible and transparent.
- **Training and Career Reforms**
- **Customized Training Modules:** Post-selection training should be domain-specific and role-oriented.
- **Mid-career Review and Training:** Introduce periodic assessments and refresher courses to upgrade skills.
- **Lateral Entry:** Allow domain experts from private and academic sectors to enter civil services at senior levels, ensuring infusion of fresh ideas and professionalism.
- **Performance-Based Promotions:** Move away from seniority-based progression to merit and outcome-based evaluation.

- **Transparent Transfers and Postings:** Implement digital and merit-based transfer policies to reduce political interference.

STRUCTURAL REFORMS

- **Revisit the Generalist vs Specialist Debate:** Assign roles based on expertise and aptitude, especially in technical ministries.
- **Cadre Policy Review:** Allow flexible movement across states and departments to optimize talent utilization.
- **Decentralization:** Strengthen local administrative machinery and delegate powers from IAS to State and District levels.
- **Reducing Political Interference:** Safeguard bureaucratic functioning through independent civil service boards and oversight mechanisms.
- **Ethical Governance:** Emphasize values of public service, transparency, and accountability from the start of the career.

CONCLUSION

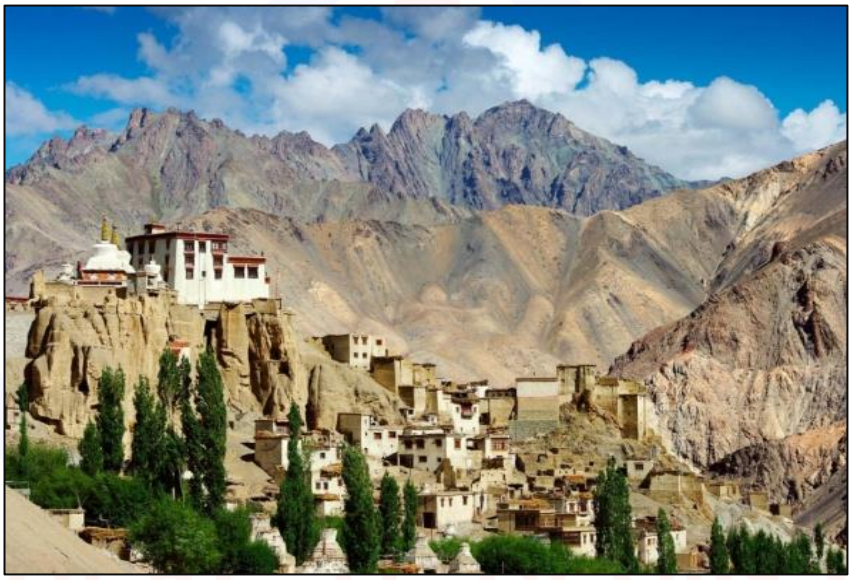
The Civil Services Examination and the services it recruits for are among the pillars of India's democratic governance. While the system has with-stood the test of time and played a crucial role in nation-building, the challenges posed by 21st-century governance demand a re-imagining of both the examination process and the structure of civil services.

Reforms should not only address the procedural and operational in-efficiencies of the CSE but must also realign the ethos of public service with democratic accountability, domain knowledge, and ethical conduct. Only then can the civil services continue to serve as instruments of good governance, inclusivity, and development in a dynamic and aspirational India.

02 REGULATIONS FOR JOBS AND DOMICILE IN LADAKH

CONTEXT

Following the abrogation of Article 370 in August 2019, which led to the bifurcation of the erstwhile state of Jammu and Kashmir into two Union Territories—Jammu & Kashmir and Ladakh the residents of Ladakh have been advocating for constitutional safeguards to protect their unique cultural identity, land rights, and employment opportunities. The absence of a legislative assembly in Ladakh has further intensified these demands. In response, the Central Government has introduced new regulations pertaining to job reservations and domicile criteria in the region.



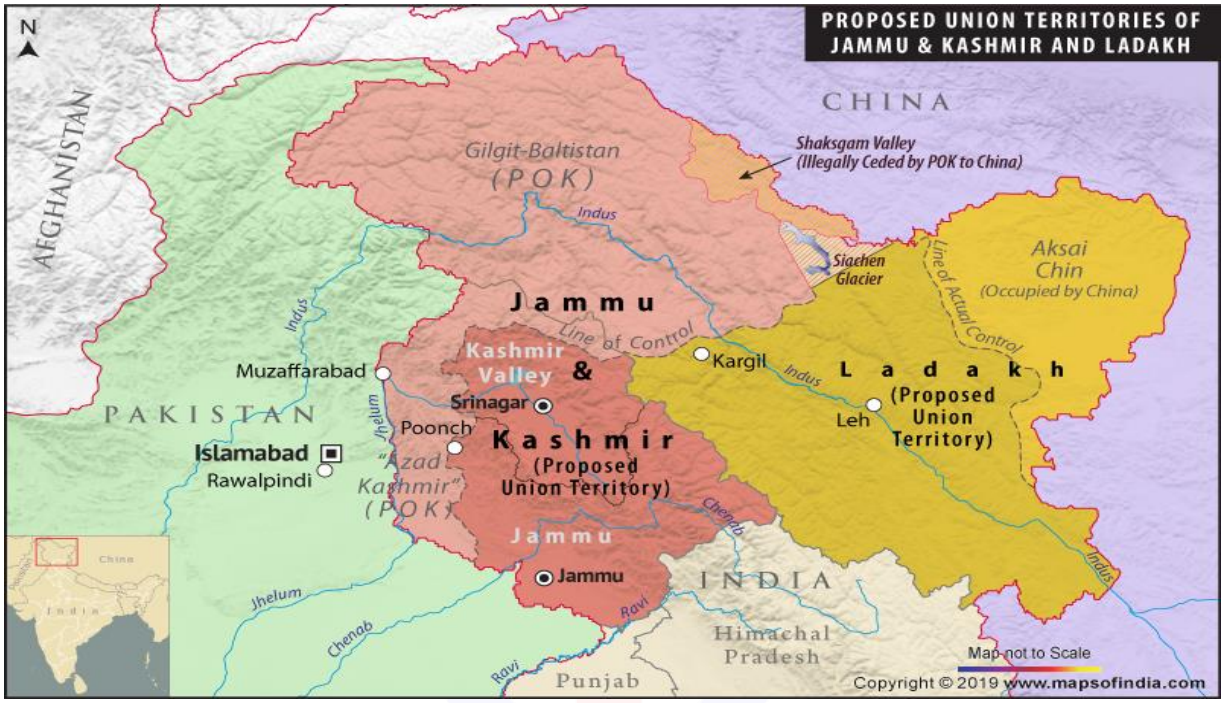
ABOUT LADAKH

Ladakh, often referred to as the "**Land of High Passes**," is a strategically significant region in northern India, sharing borders with China and Pakistan.

It is characterized by its rugged terrain, sparse population, and rich cultural heritage influenced by Tibetan Buddhism and Islam.

The region is administratively divided into two districts: **Leh and Kargil.**

Historically, Ladakh was part of the state of Jammu and Kashmir but became a separate Union Territory without a legislature in 2019.



As of June 2025, the Union Territory of Ladakh comprises seven districts. Initially, **Ladakh had two districts:** Leh and Kargil. In August 2024, the Government of India announced the creation of five new districts to enhance administrative efficiency and bring governance closer to remote regions.

CURRENT DISTRICTS OF LADAKH

- **Leh** – Headquarters: Leh
- **Kargil** – Headquarters: Kargil
- **Zanskar** – Headquarters: Padum
- **Drass** – Headquarters: Drass
- **Sham** – Headquarters: Likir (Sham Valley)
- **Nubra** – Headquarters: Diskit
- **Changthang** – Headquarters: Nyoma

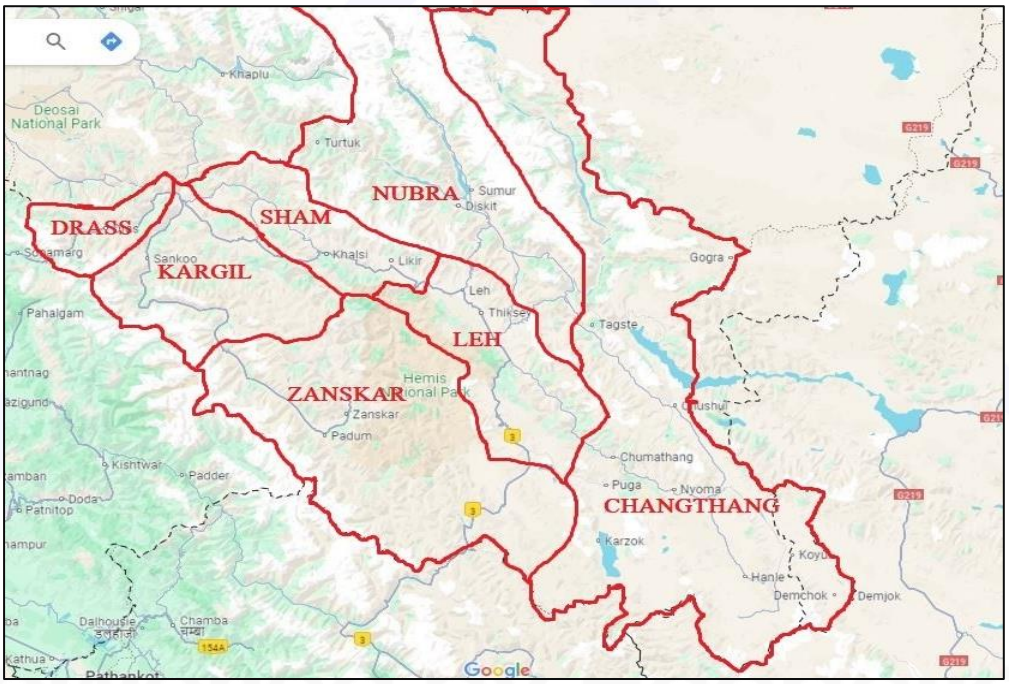
These new districts were carved out from the existing Leh and Kargil districts:

LEH DISTRICT WAS SUBDIVIDED INTO:

- Leh
- Sham
- Nubra
- Changthang

KARGIL DISTRICT WAS SUBDIVIDED INTO:

- Kargil
- Zanskar
- Drass



NEW REGULATIONS

In June 2025, the Central Government notified a series of regulations aimed at addressing the concerns of Ladakh's residents:

JOB RESERVATION:

- **Union Territory of Ladakh Reservation (Amendment) Regulation, 2025** caps the total reservation for Scheduled Castes (SC), Scheduled Tribes (ST), Other Backward Classes (OBC), and other socially

and educationally backward groups at **85%,** excluding the **10% reservation** for Economically Weaker Sections (EWS).

DOMICILE CRITERIA:

- To qualify as a domicile of Ladakh, an individual must meet one of the following conditions:
- Resided in Ladakh for at least 15 years.
- Studied in Ladakh for a minimum of 7 years and appeared in either Class 10 or 12 examinations from a school in the region.
- Children of Central Government employees who have served in Ladakh for 10 years.
- Spouses or children of domiciles.

WOMEN'S RESERVATION:

- **One-third of the seats** in the **Ladakh Autonomous Hill Development Councils (LAHDCs)** are reserved for women, promoting gender representation in local governance.

OFFICIAL LANGUAGES:

- **Ladakh Official Languages Regulation, 2025:** English, Hindi, Urdu, Bhoti, and Purgi have been designated as official languages in Ladakh.

- It also mandates institutional support for the promotion of **Shina, Brokskat, Balti, and Ladakhi**, for preserving Ladakh's linguistic and cultural diversity.

WHAT IS LADAKH AUTONOMOUS HILL DEVELOPMENT COUNCILS (LAHDCS)?

- The **Ladakh Autonomous Hill Development Councils (LAHDCs)** are autonomous district councils established to administer the Leh and Kargil districts of Ladakh, India.
- Formed under the Ladakh Autonomous Hill Development Council Act, 1995, these councils were created to provide greater autonomy and promote democratic decentralization in the region.
- Each LAHDC comprises 30 members: 26 elected representatives and 4 nominated members.

- The councils are empowered to make decisions on local matters such as economic development, healthcare, education, land use, and taxation, working in conjunction with village panchayats. The executive arm includes a Chief Executive Councilor and four Executive Councilors.
- Recent reforms have introduced a 15-year domicile requirement for job eligibility and reserved one-third of LAHDC seats for women, enhancing local representation and gender inclusivity.

- The LAHDCs play a crucial role in preserving Ladakh's unique cultural and tribal identity while facilitating grassroots participation in governance and development.

LIMITATIONS OF THE NEW REGULATIONS

While these measures address certain immediate concerns, several limitations persist:

- **Lack of Constitutional Safeguards**: The new regulations are executive orders under Article 240 of the Constitution, which allows the President to make regulations for Union Territories without legislatures. Unlike constitutional provisions, these can be amended or repealed by the Centre at any time, leading to concerns about their permanence.
- **Exclusion from the Sixth Schedule**: Despite repeated demands, Ladakh has not been included under the Sixth Schedule of the Constitution, which provides for autonomous administrative structures to protect the rights of tribal communities.
- **Absence of Statehood**: The region continues to function without a legislative assembly, limiting local participation in decision-making processes and self-governance.
- **Environmental Concerns**: Activists like Sonam Wangchuk have highlighted that the ecological fragility of Ladakh requires more robust protections, which are not adequately addressed by the current regulations.

THE SIXTH SCHEDULE

- The Sixth Schedule was **adopted under Article 244 of the Constitution** with provisions for formation of autonomous administrative divisions within a state.
- **The Sixth Schedule is applicable to what are officially called as 'tribal areas' in the States of Assam, Meghalaya, Mizoram and Tripura. There are 10 such 'tribal areas' at present in these four States.**

- These divisions, in the form of **Autonomous District Councils (ADCs),** were granted certain legislative, judicial and administrative autonomy within the state.

State	District
Assam	North Cachar Hills District
	Karbi Anglong District
	Bodoland Territorial Areas District
Meghalaya	Khasi Hills District
	Jaintia Hills District
	Garo Hills District
Mizoram	Chakma District
	Mara District
	Lai District
Tripura	Tripura Tribal Areas District

COMPOSITION:

- According to the Sixth Schedule, the ADCs administering a region within a state have 30 members with a term of five years.
- The Bodoland Territorial Council in Assam is an exception to this with more than 40 members and rights to make laws on 39 issues.

JURISDICTION:

- ADCs can make laws, rules and regulations with regard to land, forest, water, agriculture, village councils, health, sanitation, village and town level policing, inheritance of property, marriage& divorce, social customs, and mining, among other issues.
- ADCs also have powers to form courts to hear cases where both parties are members of Scheduled Tribes and the maximum sentence is less than 5 years in prison.

RELEVANCE TO LADAKH:

- **Tribal Population**: Approximately 97% of Ladakh's population is tribal, aligning with the criteria for inclusion under the Sixth Schedule.
- **Demand for Autonomy**: Inclusion under the Sixth Schedule would grant Ladakh greater autonomy to legislate on matters related to land, culture, and local governance, addressing long-standing demands for self-determination.
- **Environmental Protection**: Autonomous councils could implement region-specific environmental regulations, crucial for preserving Ladakh's delicate ecosystem.

COMMUNITY AND POLITICAL RESPONSES

- **Demand for Sikkim-like Domicile Policy**: Local leaders and youth are advocating for a domicile policy similar to Sikkim's, which includes a clear cut-off date and robust legal backing to prevent misuse.
- **Push for Sixth Schedule Inclusion**: To ensure constitutional safeguards for Ladakh's unique cultural and tribal identity, local representatives are urging the Centre to include the region under the Sixth Schedule of the Indian Constitution.

CONCLUSION

The newly introduced regulations mark a step towards addressing the asp--irations of Ladakh's residents by providing job reservations & recognizing local languages. However, the absence of constitutional safeguards, exclusion from the Sixth Schedule, and lack of statehood continue to be significant concerns.

For sustainable and inclusive development, it is imperative to engage in meaningful dialogue with local stakeholders to address these issues com--prehensively.

03 ANY LAW PASSED BY PARLIAMENT OR STATE LEGISLATURE CAN'T BE HELD TO BE CONTEMPT OF COURT

While closing the **2007 Salwa Judum case,** the Supreme Court recently observed that any law made by the Parliament or a State Legislature cannot be held to be an **act of contempt of Court.**

SC'S DIRECTION

- Every State Legislature has plenary powers to pass an enactment and so long as the said enactment has not been declared to be **ultra vires the Constitution** or, in any way, null and void by a constitutional court, the said enactment would have the force of law.
- The top court affirmed that the legislature can pass a law to nullify the basis of a judgment or amend a struck-down law to align it with a constitutional court's ruling.
    - This is the core of the doctrine of separation of powers and must always be acknowledged in a constitutional democracy.

WHAT IS SALWA JUDUM?

- **Meaning**: Salwa Judum means "Peace March" in the Gondi tribal language.
- **Launch**: Initiated in **2005** in **Dantewada district**, Chhattisgarh, by **Mahendra Karma**, a local Congress leader, with support from the state government.
- **Objective**: To counter the growing influence of **Naxalites (Maoists)** in tribal regions by mobilizing local civilians, especially tribal youth.
- **Method**: Created a **civilian militia** to support security forces; volunteers were trained, armed, and known as **Special Police Officers (SPOs)**.

- **Support and Opposition**: Initially backed by the Chhattisgarh government and Centre; widely opposed by human rights groups and civil society.

CRITICISM:

- Allegations of **human rights abuses**, **forced displacement** of villagers, and **burning of villages**.
- Use of children as SPOs in some cases.
- **Judicial Verdict:** In 2011, the Supreme Court of India declared Salwa Judum unconstitutional, ordered disbanding of SPOs, and criticized the state for violating tribal rights.
- **Legacy:** Seen as a failed counterinsurgency strategy that deepened mistrust between the state and tribal communities.

WHAT IS CONTEMPT OF THE COURT

Definition: It refers to any act or omission that obstructs or interferes with the due administration of justice or shows disrespect to the authority, dignity, and integrity of a court.

TYPES OF CONTEMPT:

- **Civil Contempt:** Wilful disobedience to any judgment, order, direction, or decree of a court, or wilful breach of an undertaking given to a court.
- **Criminal Contempt:** Any act that scandalizes or lowers the authority of the court, prejudices or interferes with judicial proceedings, obstructs administration of justice in any other manner.

CONSTITUTIONAL AND STATUTORY BASIS:

- **Article 129:** Supreme Court shall be a court of record and shall have all the powers to punish for its contempt.
- **Article 215:** High Courts enjoy similar powers.
- **Contempt of Courts Act, 1971:** Statutory framework defining and regulating contempt proceedings in India.

- **Article 142(2):** Also empowers the Supreme Court to make orders for the punishment of contempt, subject to any law made by Parliament.

SAFEGUARDS:

- **Truth as Defence:** Post-2006 Amendment, truth can be a valid defence if it is in public interest and made in a bona fide manner.
- **Fair and Reasonable Criticism:** Constructive and balanced criticism of judicial decisions is permitted.
- **Apology:** A genuine, unqualified apology can often lead to dropping of charges.

ISSUES AND CONCERNS

- Potential restriction on freedom of speech and expression (Article 19(1)(a))
- Vagueness of definitions, especially "scandalizing the court," which can be subjective.
- Potential for misuse to shield the judiciary from legitimate criticism.
- The fact that similar laws have been abolished in some countries, like the UK.

RECENT DEVELOPMENTS

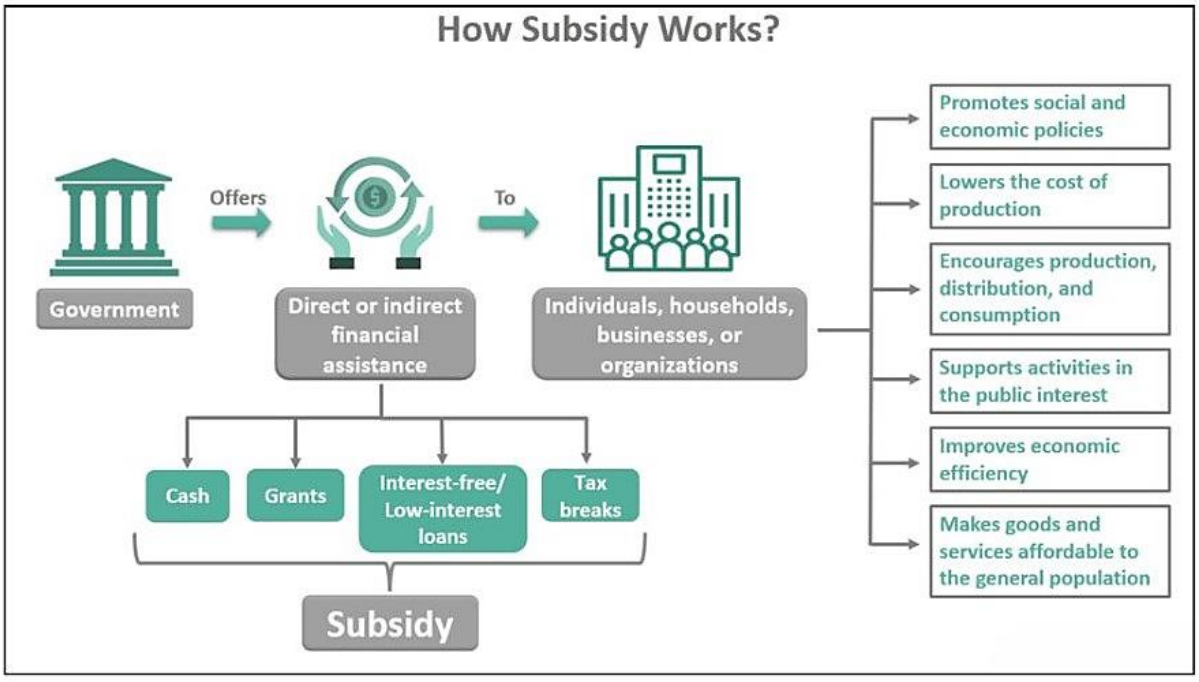
- **Law Commission 274th Report (2018):** Recommended retaining criminal contempt in its current form, citing persistent challenges like non-compliance and erosion of respect for courts.

04 AGRICULTURAL SUBSIDIES

The Vice President stated that direct transfer of agricultural subsidies could significantly boost farmers' income, estimating each could receive at least **Rs 35,000 annually** if all aid reaches them directly (instead of indirect subsidies).

WHAT ARE AGRICULTURAL SUBSIDIES?

Agricultural subsidies are government financial supports provided to farmers to reduce their production costs, stabilize incomes, and encourage agricultural productivity. These subsidies include input subsidies (like fertilizers, seeds, electricity), price supports, and crop insurance. They aim to ensure food security, promote rural development, and protect farmers from market fluctuations and natural risks.



VARIOUS TYPES OF AGRICULTURAL SUBSIDIES IN INDIA

INPUT SUBSIDIES

These subsidies reduce the cost of key inputs such as fertilizers, seeds, water, and power.

FERTILIZER SUBSIDY

- **Description**: The government provides fertilizers at a price lower than their production/import cost.
- **Types**:
  - **Urea Subsidy**: Centrally controlled under the Nutrient-Based Subsidy (NBS) Scheme.
  - **NBS for P&K Fertilizers**: Based on nutrient content (Phosphatic & Potassic).
- **2023-24 Allocation**: ₹1.75 lakh crore.
- **Issues**: Overuse of urea, environmental harm, imbalance in nutrient application.

IRRIGATION SUBSIDY

- **Description**: Water for irrigation from canals and dams is supplied at subsidized rates.
- **Example**: States like Punjab and Haryana provide nearly free canal irrigation.
- **Problem**: Leads to water logging, inefficient water use, and groundwater depletion.

POWER SUBSIDY

- **Description**: Electricity for running tube wells and pump sets is
- heavily subsidized.
- **States with Free Power**: Punjab, Andhra Pradesh, Tamil Nadu.
- **Issues**: Free power has led to excessive groundwater extraction and environmental degradation.

SEED SUBSIDY

- **Provided Under**: National Mission on Seeds and Seed Chain.
- **Objective**: Promote high-yielding and certified seeds among farmers.
- **Example**: Seed Village Programme – farmers are trained and supplied quality seeds at concessional rates.

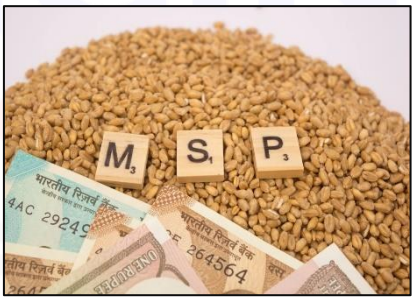
MACHINERY AND EQUIPMENT SUBSIDY

- **Schemes**:
  - **Sub-Mission on Agricultural Mechanization (SMAM)**.
  - **Custom Hiring Centres (CHCs)**.
- **Support**: Up to 50–60% subsidy on tractors, threshers, sprayers, etc.
- **Objective**: Increase mechanization among small and marginal farmers.

PRICE SUPPORT SUBSIDIES

- These aim to ensure fair and remunerative prices for farmers.

MINIMUM SUPPORT PRICE (MSP)



- **Announced By**: Commission for Agricultural Costs and Prices (CACP).
- **Coverage**: 23 crops including paddy, wheat, pulses, oilseeds, and cotton.
- **Procurement Agencies**: FCI, NAFED, and state agencies.
- **Purpose**: Protect farmers from market price fluctuations.
- **Criticism**:
  - Biased towards paddy and wheat.
  - Benefits mainly large farmers in Punjab-Haryana belt.
  - Procurement limited to a few states.

MARKET INTERVENTION SCHEME (MIS)

- **Objective**: Protect farmers against price crashes of perishable and horticulture commodities.
- **Mechanism**: Temporary procurement by state agencies when prices fall below cost of production.

CREDIT SUBSIDIES

- Help farmers access institutional credit at reduced interest rates.

INTEREST SUBVENTION SCHEME

- **Implementing Body**: NABARD and Scheduled Banks.
- **Details**:
  - 2% subvention for short-term crop loans up to ₹3 lakh.
  - Additional 3% for timely repayment = effective 4% interest rate.
- **Goal**: Reduce dependence on moneylenders and informal sector.

KISAN CREDIT CARD (KCC)

- **Launched**: 1998.
- **Objective**: Provide timely and affordable credit for cultivation and other needs.
- **Features**: Revolving credit facility, interest subvention, crop insurance linkage.

INSURANCE SUBSIDIES

Protect farmers against crop loss due to natural calamities or market failure.

PRADHAN MANTRI FASAL BIMA YOJANA (PMFBY)

- **Premium Share**:
  - 2% for Kharif crops.
  - 1.5% for Rabi crops.
  - 5% for commercial/horticulture crops.

- **Balance**: Paid by Centre and State governments.
- **Coverage**: Yield loss, post-harvest losses, prevented sowing.
- **Issues**: Delayed claim settlement, low penetration, insurer profitability concerns.

OTHER SUPPORT/SUBSIDIES

TRANSPORT AND STORAGE SUBSIDY

- **Subsidy for Cold Chains**: Provided under MIDH and PMKSY.
- **Objective**: Reduce post-harvest losses, especially for fruits and vegetables.

FOOD SUBSIDY

- Though not directly to farmers, the **Food Corporation of India (FCI)** buys foodgrains at MSP and sells them at subsidized rates under NFSA (National Food Security Act).
- **2023-24 Estimate**: ₹2.0 lakh crore.

SOIL HEALTH CARD SCHEME

- Provides information on nutrient status of soils to farmers to optimize fertilizer use.
- Indirect subsidy in the form of free testing and recommendations.

RECENT REFORMS & DIGITAL SUBSIDIES

DIRECT BENEFIT TRANSFER (DBT)

- Input subsidies like fertilizer are being transferred to Aadhaar-linked bank accounts.
- Reduces leakages and corruption.

PM-KISAN SCHEME

- **Income Support**: ₹6,000/year in 3 instalments.
- **Objective**: Supplement farmer income directly.

- **Covers**: 11 crore+ farmers.
- **Cost**: ~₹75,000 crore/year.

CONSEQUENCES OF AGRICULTURAL SUBSIDIES IN INDIA

POSITIVE CONSEQUENCES

ENHANCED FOOD SECURITY

- Subsidies on fertilizers, irrigation, and power contributed to the **Green Revolution**.
- Resulted in self-sufficiency in foodgrains, especially **wheat and rice**.
- **Example**: MSP-backed procurement by **Food Corporation of India (FCI)** under **National Food Security Act (NFSA)**.

SUPPORT TO MARGINAL FARMERS

- Subsidies reduce input costs for small and marginal farmers (who make up over 85% of Indian farmers).
- Example: Under **PM-KISAN**, ₹6,000 per year is directly transferred to 11 crore+ farmers.

INCREASED AGRICULTURAL OUTPUT

- Cheap fertilizers and power boosted productivity in states like Punjab and Haryana.
- **Budget 2023-24**: Allocated **₹1.75 lakh crore for fertilizer subsidy**, showing continued government support.

PRICE STABILITY

- MSP acts as a price floor, protecting farmers against market volatility.
- **Example:** During COVID-19, procurement of paddy and wheat at MSP provided income stability.

NEGATIVE CONSEQUENCES

ENVIRONMENTAL DEGRADATION

- Free electricity and fertilizer subsidies led to **excessive use of urea**
- **and over-extraction of groundwater**.
- **Example:** Punjab suffers from severe water table depletion and soil degradation.

REGIONAL DISPARITIES

- Subsidy benefits are concentrated in a few states with better procurement infrastructure (Punjab, Haryana, Western UP).
- Eastern and Central India receive **less MSP procurement support**, perpetuating inequality.

FISCAL BURDEN

- Agricultural subsidies form a major part of India's expenditure.
- Combined cost of **food, fertilizer, and power subsidies** exceeds ₹4 lakh crore annually.
- **Shanta Kumar Committee (2015)**:
    - Suggested restructuring FCI operations.
    - Highlighted that only **6% of farmers benefit from MSP procurement**.

OVERDEPENDENCE ON GOVERNMENT SUPPORT

- Instead of encouraging diversification, subsidies have entrenched
- cropping patterns—mainly rice and wheat.
- This hampers adoption of pulses, millets, and oilseeds despite being climate-resilient.

MARKET DISTORTION

- Distorts natural price signals and disincentivizes private investment.
- Farmers grow for subsidies rather than market demand, affecting agri-market competitiveness.

INEFFICIENCY AND LEAKAGE

- Manual processes and non-targeted subsidies result in leakage and corruption.
- **Example:** Fertilizer diversion to non-agricultural uses.

BALANCED REFORMS NEEDED

COMMITTEE RECOMMENDATIONS

- **Ashok Dalwai Committee (2016)**:
  - Advocated shifting from price support to **income support and investment in infrastructure**.
  - Emphasized rationalizing subsidies and increasing public investment in irrigation, marketing, and storage.

RATIONALIZATION OF SUBSIDIES

- Promote **Direct Benefit Transfer (DBT)** to reduce leakages (used in fertilizer subsidy pilot programs).
- Shift from **input subsidies to outcome-based support** (e.g., incentives for water-saving practices).

ENCOURAGE SUSTAINABILITY

- Subsidize sustainable inputs: **biofertilizers, solar pumps, micro-irrigation** under **PM-KUSUM and PMKSY**.

AGRICULTURAL SUBSIDIES AND WTO

WTO AGREEMENT ON AGRICULTURE (AOA):

- Came into force in 1995 under the Uruguay Round.
- Aims to make global agricultural trade fair and market-oriented.

CLASSIFICATION OF SUBSIDIES (BASED ON TRADE DISTORTION):

- **Green Box**: Minimal or no distortion (e.g., R&D, infrastructure, PM-KISAN) – Allowed without limits.
- **Blue Box**: Production-limiting programs (e.g., capped subsidies tied to set production) – Permitted with conditions.
- **Amber Box**: Trade-distorting subsidies (e.g., price support like MSP, fertilizer subsidy) – Subject to reduction commitments.

DE MINIMIS LIMIT:

- Developing countries like India can provide Amber Box subsidies up to **10% of total agricultural production value**.

INDIA'S CONCERNS:

- MSP and procurement are classified as **Amber Box**, attracting WTO scrutiny.
- Public stockholding for food security has been challenged, especially under **Peace Clause** (Bali Agreement 2013).

PEACE CLAUSE:

- Allows developing nations to continue food security subsidies even if they breach limits, subject to transparency.

INDIA'S STAND:

- Seeks permanent solution for food security subsidies.

- Advocates reclassification of MSP and procurement under Green Box due to social function.

RECENT DEVELOPMENTS:

- At WTO Ministerial Conferences, India continues to push for **greater flexibility** for developing nations in supporting farmers.

Box	Status	Payment Type
Amber	Trade-distorting	• Marketing loan benefits • Product-specific supports • Crop and revenue insurance subsidies • Irrigation subsidies • Renewable energy programs
Blue	Market-distorting and production-limiting	• Deficiency payments
Green	Non-trade-distorting	• Environmental payments • Natural disaster relief • Decoupled income support • Farm credit programs

WHAT ARE THE ADVANTAGES AND LIMITATIONS OF REPLACING AGRI-CULTURAL SUBSIDIES WITH DIRECT BENEFIT TRANSFERS?

Advantages	Limitations
Improved Targeting: Ensures subsidies reach **only eligible farmers**, **reducing leakage and inefficiency**.	**Exclusion Risks: Small or marginal farmers** without proper documentation may be **left out**.
Increased Transparency: Direct payments **reduce intermediaries**, lowering	**Digital Divide:** Reliance on banking and digital infrastructure may **disadvantage remote or**

corruption and misallocation.	**unbanked farmers**.
Promotes Farmer Autonomy: Farmers have **freedom** to decide **how to use funds**, encouraging diversified investment.	**Misuse of Funds:** Transfers may be spent on **non-agricultural needs**, diluting the intended impact on productivity.
Reduces Market Distortion: Avoids **overuse or misuse of inputs** like fertilizers and power by unlinking subsidies from physical inputs.	**Price Volatility Exposure:** Without input subsidies, farmers may **face higher costs** during **price spikes**, increasing vulnerability.
Administrative Efficiency: Lowers cost and complexity of managing large input subsidy programs.	**Implementation Challenges:** Requires **robust beneficiary identification**, grievance redressal, and monitoring systems.

CONCLUSION

While agricultural subsidies have played a critical role in enhancing food security and rural welfare, their unbalanced and inefficient implementation has led to environmental, fiscal, and structural problems. Future reforms must focus on **targeted, transparent, and sustainable subsidies**, as recommended by expert committees, to make Indian agriculture resilient, efficient, and equitable.

05 NAKSHA INITIATIVE

The Ministry of Rural Development launched the second phase of the NAKSHA (NAtional geospatial Knowledge-based land Survey of urban HAbitations) programme.

NAKSHA is implemented under the **Digital India Land Records Modernization Programme (DILRMP).**

WHAT IS NAKSHA?

- The **NAKSHA programme** is a national initiative launched by the Government of India to **digitally map and survey urban habitations** using modern geospatial technologies.
- NAKSHA stands for **"National Geospatial Knowledge-based Survey of Urban Habitations"**.
- It is part of the broader push for **transparent land governance**, **urban development**, and **digital transformation** of property records in India.

CONTEXT AND BACKGROUND

- Land disputes and unclear property titles are a major source of litigation and inefficiency in India.
- As per the **World Bank**, **66% of all civil cases** in India are related to land or property.

- India has traditionally lacked **accurate, geo-referenced, and publicly accessible maps** of urban and peri-urban areas.
- Building on the success of the **SVAMITVA scheme** (rural property mapping), NAKSHA extends the concept to **urban areas**, where land value and ownership disputes are even more complex.
- It supports the **Digital India Land Records Modernization Programme (DILRMP)** and aligns with **UN's SDG Goal 11** – Sustainable Cities and Communities.

NAKSHA

PHASE I: PILOT IMPLEMENTATION AND SURVEY OPERATIONS

- **About:** It was announced in the 2024-25 Budget to standardize record-keeping, simplify processes and bring transparency in land transactions.
- **Coverage:** Initiated across 152 Urban Local Bodies (ULBs) in 26 states and 3 Union Territories, targeting cities with an area less than 35 sq km and a population under 2 lakhs. Cover the entire urban area in the country within a period of 5 years.
- **Technological Integration:** Employed aerial surveys, drone technology, and Web-GIS platforms for high-precision mapping.

PHASE II: CAPACITY BUILDING AND SKILL ENHANCEMENT

- Under this training programme, **304 ULB-level and district officers** have been nominated from **157 Urban Local Bodies (ULBs).**
- These officers will undergo hands-on training in leveraging modern geospatial technologies for effective urban property surveys.
- The training aims to equip ULB officers and field staff with the technical and practical skills required to oversee high-accuracy land surveys under the NAKSHA programme.

OBJECTIVES OF NAKSHA

- **Conduct high-resolution geospatial surveys** of urban areas.
- **Digitally map property boundaries** using drones and satellite imagery.
- **Create GIS-based urban property ownership records**.
- Facilitate **Urban Planning, Taxation, Property Dispute Resolution, and Infrastructure Development**.
- Ensure **transparency in land ownership and property records** in cities and towns.

KEY FEATURES OF THE PROGRAMME

GEOSPATIAL TECHNOLOGY-BASED

- Utilizes advanced tools like **drones, LiDAR (Light Detection and Ranging), CORS (Continuously Operating Reference Stations)**, and **GNSS (Global Navigation Satellite System)**.
- Mapping accuracy is aimed at **sub-decimetre level**.

URBAN FOCUS

- Unlike SVAMITVA (rural), NAKSHA is tailored to **urban and peri-urban habitations** – i.e., cities, towns, and municipal wards.

INTEGRATION WITH NATIONAL LAND RECORDS

- Outputs are integrated with **State Urban Local Body databases**, **MPLADS**, **Smart Cities**, **PMAY-Urban**, and **Digital India Land Records Modernization Programme (DILRMP)**.

CREATION OF PROPERTY CARDS

- Generates **Urban Property Ownership Cards (UPOCs)** like SVAMITVA rural cards.
- Cards can be used for **bank loans, inheritance, legal proof, and urban service delivery**.

GIS DATABASE CREATION

- A central **Geospatial Urban Property Information System (GUPIS)** is being developed.
- Enables real-time access to verified property data by citizens, ULBs, and government agencies.

TECHNOLOGIES USED IN NAKSHA

- **Drones** for aerial surveys and mapping of buildings and parcels.
- **LiDAR sensors** to measure topography and land elevations.
- **GNSS-based control networks** for geo-referencing land features.
- **CORS network** to ensure high-precision positioning.
- **AI/ML tools** for automated feature extraction (roads, plots, utilities).
- **Mobile Apps** for ground-truthing and real-time verification by municipal surveyors.

BENEFITS OF NAKSHA

IMPROVED URBAN GOVERNANCE

- Enables fair and **accurate taxation** based on property size and usage.
- Helps ULBs plug revenue leakages in **Property Tax** collection.

REDUCTION IN LAND DISPUTES

- Legally valid property boundaries help reduce urban property-related litigations.

EFFICIENT URBAN PLANNING

- Helps in **zoning, master planning**, identification of illegal constructions, and slum mapping.

EASE OF DOING BUSINESS

- Streamlines real estate transactions and property registration.
- Improves India's ranking on **"Ease of Registering Property"**.

FINANCIAL INCLUSION

- Urban poor can use property cards as **collateral for bank loans** under PM SVANidhi, PMAY, etc.

DISASTER MANAGEMENT & SMART CITIES

- GIS mapping supports **resilience planning**, **evacuation routes**, and **utility mapping** in disaster-prone cities.

CHALLENGES AND LIMITATIONS

Challenge	Description
Coordination Issues	Between State Urban Local Bodies, Survey of India, and MoHUA
Legal Recognition	Many states still lack proper legal frameworks for digital property cards
Urban Informality	Slums and unauthorized colonies complicate boundary mapping
Citizen Resistance	Fear of higher property taxes or eviction leads to resistance from urban poor
Technical Capacity	ULBs lack trained personnel for GIS, drones, and digital mapping validation

COMPARISONS WITH OTHER INITIATIVES

Programme	Focus	Area Covered
SVAMITVA	Rural property rights	Villages, Gram Panchayats
NAKSHA	Urban property mapping	Towns, cities, and urban habitations
DILRMP	Digital records modernization	Both rural and urban areas
PM SVANidhi	Street vendors & loans	Urban poor and informal economy

RELATED COMMITTEES & RECOMMENDATIONS

NANDAN NILEKANI COMMITTEE ON LAND TITLING (2020):

- Recommended **conclusive titling** based on geo-tagged and verified land records.
- Supported adoption of geospatial tools.

PARLIAMENTARY STANDING COMMITTEE ON URBAN DEVELOPMENT (2022):

- Urged faster rollout of **GIS-based urban mapping** for better municipal revenue and governance.

MOHUA'S URBAN DATA EXCHANGE GUIDELINES (2021):

- Promoted interoperable systems for property and land data sharing across ministries.

06 NEURODEGENERATIVE DISEASES

Recent research by **National Centre for Biological Sciences (NCBS-TIFR)** and other studies has revealed that **neuro-degenerative diseases** may **start long before symptoms appear,** driven by **blood vessel dysfunction** and **abnormal protein activity** in the brain.

This new understanding moves the focus from direct **neuron damage** to **early vascular and molecular changes**, paving the way for earlier diagnosis and prevention.

WHAT ARE NEURODEGENERATIVE DISEASES?

- **Neurodegenerative Diseases** are a group of disorders in which the **brain and nerve cells (neurons)** gradually **break down or die over time.**
- This leads to **problems with memory, movement, speech,** and other important body functions.
- These diseases usually **get worse over time** and currently have no **complete cure,** though treatments can help manage symptoms.
- **Common Examples:**

- **Alzheimer's Disease,** which affects memory and thinking.
- **Parkinson's Disease,** which affects movement and balance.
- **Amyotrophic Lateral Sclerosis (ALS),** which affects nerve cells **(motor neurons)** in the brain and **spinal cord,** which control voluntary muscle movement.
- **Huntington's Disease,** which causes **nerve cells** in the brain to decay over time
- **Guillain-Barre syndrome,** a serious **autoimmune disorder** that affects the **peripheral nervous system.**

WHAT DOES RECENT RESEARCH REVEAL ABOUT EARLY CAUSES OF NEURO-DEGENERATIVE DISEASES?

- **Vascular Dysfunction and Blood-Brain Barrier (BBB) Break-down:** The **BBB** is a **protective layer formed by tightly connected cells lining brain blood vessels,** regulating what enters the brain. **Damage to this barrier,** caused **by dysfunction of the protein TDP-43,** leads to **leakage** that allows **harmful substances to enter,** causing **inflammation and neuron loss.**
  - Studies in mice show these **vascular changes occur early**, before symptoms, suggesting **blood vessel damage is a key early factor in neurodegeneration.**
- **Intracellular Membrane Signaling Failure (Esyt Protein Dysfunction):** Neurons depend on **membrane contact sites** between **the plasma membrane and endoplasmic reticulum** for transferring essential molecules like **lipids and calcium**, crucial for cell signaling and survival.
  - The **Esyt protein** regulates this process by **binding calcium.** When Esyt function is impaired, this **signaling breaks down, disrupting neuron health and potentially initiating degeneration.**

WHAT ARE THE KEY FACTORS CONTRIBUTING TO NEURODEGENERATIVE DISEASES?

- **Genetic Factors: Mutations in specific genes** disrupt normal neuronal function and repair, **increasing susceptibility to degeneration.** These mutations **may be inherited or arise spontaneously.**
- **Protein Abnormalities: Misfolded proteins,** such as **amyloid-beta in Alzheimer's disease or alpha-synuclein** in Parkinson's disease, accumulate and interfere with cell function, triggering **neuronal toxicity and progressive damage.**
- **Oxidative Stress: Excess free radicals** cause **damage to neuronal DNA, proteins, and membranes**. When antioxidant defenses are overwhelmed, this accelerates neuronal cell death.
- **Mitochondrial Dysfunction: Impaired mitochondria** produce **insufficient energy and release harmful byproducts**, compromising neuron survival and promoting degeneration.
- **Chronic Inflammation: Persistent inflammation in the brain** activates immune cells that can damage neurons, exacerbating disease progression.
- **Environmental Factors: Exposure to toxins** like **pesticides, heavy metals, or infections** can induce cellular stress and damage, raising the risk of neurodegeneration.
- **Ageing:** The **natural ageing process weakens cellular repair and waste clearance systems**, making neurons more vulnerable to damage and loss over time.

NEURODEGENERATIVE DISEASES V/S NEUROLOGICAL DISORDERS

- **Neurological disorders** are a **broader category of disorders affecting the nervous system**, including the **brain, spinal cord, and peripheral nerves** and **may be acute or chronic**.
- **Eg: Stroke, epilepsy, and meningitis.**

- Many **neurological conditions are treatable** or **reversible** with timely intervention. **E.g.: Stroke (Ischemic Stroke)**.
- **Neurodegenerative diseases** are a subset of **neurological disorders** characterized by the **progressive and irreversible loss of structure or function of neurons**, often due to **abnormal protein accumulation, genetic factors,** or oxidative stress.
- They are **largely incurable and managed symptomatically.**

07 INDIA AMEND ITS NUCLEAR ENERGY LAWS?

Discussions are ongoing in India to amend the **nuclear liability frame-work,** regulated by the **Civil Liability for Nuclear Damages Act (CLNDA), 2010,** and the **Atomic Energy Act (AEA), 1962.**

It aims to **allow private companies** to build and operate nuclear energy-generation facilities.

India's clean energy transition goals and net-zero commitments **necessitate ramping up non-fossil energy, including nuclear.**

The Civil Liability for Nuclear Damage Act, 2010 (CLNDA) **assigns liability to suppliers, deterring foreign investment.**

The debate hinges on **whether amending this law is necessary or whether the obstacles are deeper and more structural.**

UNDERSTANDING THE ACTS

CIVIL LIABILITY FOR NUCLEAR DAMAGE ACT (CLNDA), 2010

- Establishes a **no-fault liability** and **strict liability** regime operators are financially responsible regardless of fault.
- **Operator liability capped at ₹1,500 crore**; beyond that, the **Central Government steps in**, limited to 300 million SDRs (~₹2,100–2,300 crore).
- **Supplier liability is included:** operators can seek recourse for defective equipment or services unlike most global norms.
- Victims can claim against operators/suppliers under other laws; criminal liability is retained.

KEY ISSUES:

- Caps may be inadequate for large-scale disasters.
- **Supplier liability clause** deters foreign vendors it covers both civil and criminal risk.
- **Time limits** (3 years for operator claims, 10 for suppliers) may be insufficient given latent radiation effects.

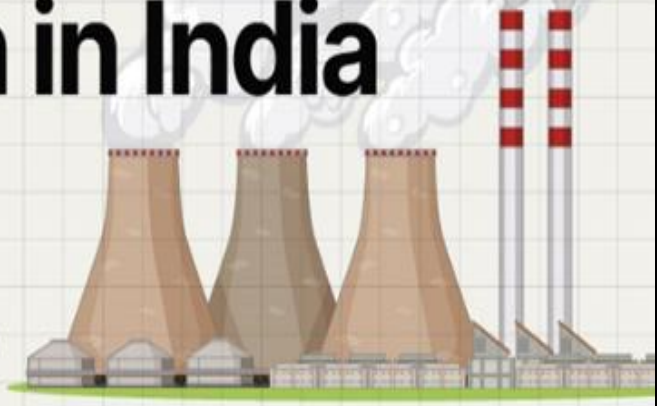
ATOMIC ENERGY ACT (AEA), 1962

- Governs India's nuclear establishment, research, and policy.
- **Currently nationalized** only state-controlled bodies like NPCIL can build and operate plants.
- No legal provision exists for **private or foreign equity** participation.

PROPOSED AMENDMENTS SEEK TO:

- Allow **private companies and foreign participation up to 49%**.
- Facilitate **private entry into SMR development**, fuel processing, and operations.

Nuclear Power Plants under operation in India



RAJASTHAN ATOMIC POWER PLANT-1 (RAPS-1), (RAPS-2), (RAPS-3), (RAPS-4), (RAPS-5), (RAPS-6)

KOTA, RAJASTHAN

NARORA ATOMIC POWER PLANT-1 (NAPS-1), (NAPS-2)

NARORA, UTTAR PRADESH

KAKRAPAR ATOMIC POWER PLANT-1 (KAPS-1), (KAPS-2)

TAPI, GUJARAT

TARAPUR ATOMIC POWER PLANT-1 (TAPS-1), (TAPS-2), (TAPS-3), (TAPS-4)

BOISAR, MAHARASTRA

KAIGA GENERATING STATION-1 (KGS-1), (KGS-2), (KGS-3), (KGS-4)

KAIGA, KARNATAKA

MADRAS ATOMIC POWER PLANT-1 (MAPS-1), (MAPS-2)

KALPAKKAM, TAMIL NADU

KUDANKULAM NUCLEAR POWER STATION-1 (KKNPS-1), (KKNPS-2)

KUDANKULAM, TAMIL NADU

ARGUMENTS FOR AMENDING THE LAWS

UNLOCKING INTERNATIONAL & PRIVATE INVESTMENT

- **Supplier liability** in CLNDA has blocked deals with **GE, Westinghouse, EDF**, etc. Altering it could green-lit agreements like Jaitapur and Kovvada.
- **AEA reform** coupled with CLNDA changes enables private firms like Reliance, Tata, Adani, and Vedanta to invest (₹26–₹27 billion each) and accelerate nuclear projects.

ALIGNING WITH GLOBAL STANDARDS & BOOSTING CAPACITY

- CLNDA amending to align with the **Convention on Supplementary Compensation (CSC)** eases integration with international norms.
- India targets **100 GW nuclear capacity by 2047**; current ~8 GW capacity is insufficient.
- SMR development requires flexibility and private funding goal: 5 indigenous SMRs by 2033.

STRATEGIC & TRADE BENEFITS

- Institutionalizing American and French entry supports geopolitical goals and the **India–U.S. trade deal** aiming for $500 billion by 2030.
- India seeks diversified carbon-free energy to meet **net-zero 2070 goals**, shifting from coal dependency.

ARGUMENTS AGAINST AMENDMENT

PUBLIC SAFETY & POLITICAL BLOWBACK

- CLNDA's supplier clause was added post-Bhopal and Fukushima to ensure **accountability and public trust.**
- Weakening personal liability may face strong opposition from **civil society and political parties**.

COMPENSATION & LIABILITY GAPS

- Fixed caps may be insufficient in extreme nuclear disasters, with no clear recourse if exceeded, imposing burden on taxpayers.

- Time limits ignore **long-term radiation effects** three years too short for health compensation.

LEGAL AMBIGUITIES & INSURANCE ISSUES

- Confusion between Sections 17(a), 17(b), and 17(c) in CLNDA creates **ambiguity on recourse rights**.
- Insurance provisions are unclear foreign suppliers uncertain about adequate coverage.

SOVEREIGNTY & OVERSIGHT CONCERNS

- Allowing foreign equity or private participation in sensitive nuclear infrastructure may raise concerns over national security, fuel control, regulatory complexity, and transparency in licensing/regulation.

WAY AHEAD

STRIKE THE RIGHT BALANCE IN CLNDA

- Cap supplier liability **explicitly to contract value** and **bar criminal recourse** beyond intent, to draw suppliers while retaining recourse for gross misconduct.
- Extend claim periods (e.g., 10–20 years), include clean-up and waste-management costs, and ensure clear definitions of "nuclear damage".
- Institute an **insurance-backed secondary pool**, with government cover above ₹1,500 crore, to assure both investors and victims.

AEA AMENDMENTS WITH ROBUST SAFEGUARDS

- Allow **capped foreign/private stakes (up to 49%)**, with strict vetting and retention of sovereign control over security, safeguards, and safeguards oversight by AERB.
- Implement **clear licensing regimes**, maintain NPCIL-led operations for fuel management, and set enforceable safety norms.

INSTITUTIONAL SUPPORT & STAKEHOLDER BUY-IN

- Establish a **quadruple-layer advisory committee**, including NGOs, experts, and state govts, to ensure transparency.
- Conduct **public hearings** in prospective project areas to build trust (learning from Kudankulam protests).
- Provide a **phased pilot rollout** in select SMR locations to test frameworks before scaling.

REGIONAL & INTERNATIONAL ALIGNMENT

- Continue engaging with **Convention on Supplementary Compensation** signatories to harmonize liability frameworks.
- Model insurance and liability regimes on successful global systems like the U.S. **Price-Anderson Act** (Tiered insurance and federal backstop).

CONCLUSION

Amending India's **nuclear liability and atomic energy laws** is critical to unlock private and foreign investment, boost capacity to 100 GW by 2047, and support energy transition goals. Yet, it must preserve public safety, clarity in compensation, and strong oversight. A well-balanced, fortified legal framework urging clarity, global alignment, public trust, and economic viability can chart the path toward safe and sustainable expansion of India's nuclear sector.

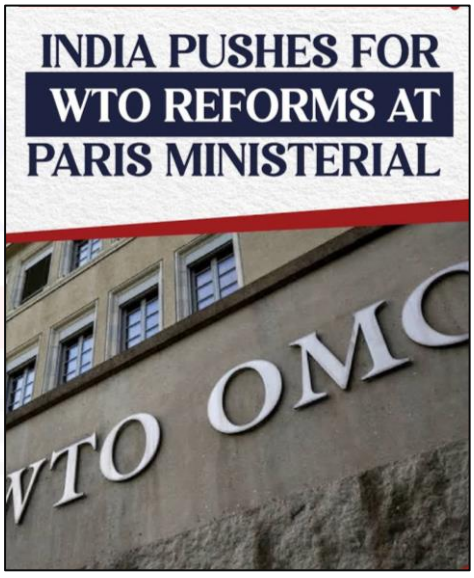
08 INDIA PUSHES FOR WTO REFORMS AT PARIS MINISTERIAL

India raised concerns and proposed reforms **at a mini-ministerial WTO meet in Paris (2025),** attended by 25 member nations.

It aims to strengthen the multilateral trading system, revive WTO's functioning, and protect the interests of developing economies.

INDIA'S 3-PRONGED REFORM AGENDA

- **Tackle Non-Tariff Barriers (NTBs):** NTBs like sanitary and phytosanitary (SPS) measures, technical barriers to trade (TBT) & arbitrary standards are increasingly used to block exports from developing countries. India wants stricter oversight and transparency.
    - **Example:** Indian mangoes and basmati rice often face SPS-related rejections in EU and U.S. markets.
- **Curb Non-Market Economy Distortions:** Address the impact of national economies with heavy state control—primarily China—that distort global trade through practices such as subsidies, dumping, and lack of transparency.
    - **Example:** India's steel and solar industries have been impacted by cheap Chinese imports, prompting safeguard duties and anti-dumping cases.



- **Revive the Dispute Settlement System:** WTO's appellate body has been paralyzed since 2009 due to U.S. blockade of judge appointments. India calls for full restoration of a binding, impartial dispute resolution system.

- **Example:** India's disputes with the U.S. on steel tariffs and ICT product tariffs remain unresolved due to the appellate body deadlock.

WHAT IS THE WTO?

DEFINITION & ORIGINS

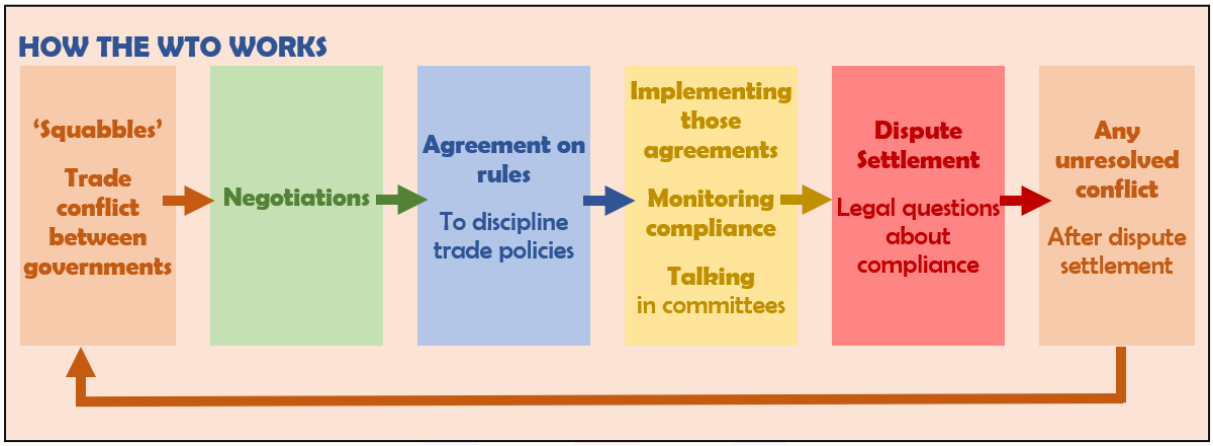
- **Intergovernmental Organization**: Headquartered in Geneva, Switzerland; successor to GATT (1948), established by the Marrakesh Agreement in 1995.
- **Membership**: 166 members, covering 98%+ of global trade and GDP.
- **Mandate**: Create and enforce trade rules to reduce tariffs, distortionary practices, and discrimination.

STRUCTURE & PRINCIPLES

- **Decision-making**: Consensus through Ministerial Conferences (biennial) and General Council; Secretariat supports (~630 staff); DG: Ngozi Okonjo-Iweala.
- **Core Principles**:
  - **Most-Favored-Nation (MFN)**: Equal treatment for all members.

- **National Treatment**: Foreign goods treated no less favorably than domestic ones.
- Exceptions allowed for environmental protection, security.

- **Agreements**: 60+ legal texts on goods, services (GATS), IP (TRIPS), agriculture, etc.



FUNCTIONS

- **Negotiations**: Multilateral rounds (e.g., Uruguay, Doha).
- **Dispute Settlement**: Binding rulings via panels and Appellate Body.
- **Trade Monitoring**: Regular policy reviews for transparency.
- **Development Assistance**: Aid for Trade, technical help, time-bound flexibilities.

RELEVANCE OF WTO IN A MULTIPOLAR WORLD

GLOBAL POWER SHIFTS & MULTIPOLARITY

- The post-WWII bipolar system (US vs USSR) transitioned to multipolarity with emergent powers like China, India, EU, BRICS.
- Traditional global institutions, including WTO, face pressure to adapt to geopolitical shifts.

CORE CHALLENGES FOR WTO

- **Appellate Body Paralysis (since 2019)**: U.S. vetoed appointments, stalling disputes.
- **Doha Round Deadlock**: Since 2001, deals stalled over agriculture, subsidies, market access.
- **Emerging Issues Gap**: No binding rules on e-commerce, digital trade, carbon tariffs.
- **Power Asymmetry**: Developed countries set more favorable rules; developing nations struggle.
- **Consensus Paralysis**: Multipolarity hinders consensus-driven decisions.
- **Plurilateral & FTA Proliferation**: Deals like RCEP and CPTPP challenge WTO's primacy.
- **Geopolitical Rivalries**: U.S.–China tensions and U.S. unilateralism weaken WTO norms.

WHY WTO STILL MATTERS?

- **Trade Governance**: Approximately 75% of trade remains governed by WTO rules.
- **Dispute Resolution**: Even weakened, WTO system remains unique in providing binding enforcement.
- **Development & Inclusivity**: WTO offers Aid for Trade and SDT, benefiting lower-income countries.
- **Monitoring & Transparency**: Peer-review builds trust and accountability.

- **Report from DG**: WTO chief affirms its continuing relevance in supporting a stable global trade environment.

INDIA'S ROLE IN THE WTO

HISTORICAL ENGAGEMENT

- **Pro-reform & Protective Stance**: Supported WTO formation but cautious about liberalization during Doha Round; protects poor farmers and nascent industries.
- **Championing Global South**: Consistently pushed for SDT, fair terms in agriculture, resistance to stringent IP and labor rules.

POSITIONS ON KEY ISSUES

AGRICULTURE & FOOD SECURITY

- Struck against limiting subsidies; insisted on public stockholding protections.

DISPUTE SETTLEMENT

- Urges reform to revive DSB and Appellate Body.

NON-TARIFF BARRIERS & DIGITAL TRADE

- In Paris ministerial, Piyush Goyal pushed to eliminate NTBs and digital trade distortions; promotes rules reform.
- Exercised caution on investment facilitation and e-commerce plurilateral.

GOVERNANCE & INCLUSIVITY

- Demanded more Southern voices in WTO, transparent processes, structural fairness.

INDIA AS DISRUPTOR & BUILDER

- Acts as deal-breaker in plurilateral talks (Investment Facilitation) but also allies with Global South.
- Influential in MC12 outcomes like fisheries and e-commerce discussions.

INFLUENCE VIA G20

- India, during its G20 presidency, steered focus toward WTO reform—digital governance, inclusive rule-making, revitalizing trade.

NEED FOR STRUCTURAL CHANGE: WHY REFORM IS INEVITABLE

DISPUTE SETTLEMENT REVIVAL

- **Critical**: Appellate Body must be reappointed. Without it, "appeals into the void" undermine enforcement.
- **India & others demand**: functional, impartial, faster timelines.

REFORMING NEGOTIATION MODELS

- **Doha failure**: Shows impracticality of "single undertaking" .
- **India advocates**: plurilateral reforms within WTO structure, sectoral negotiations (digital, services).

ADDRESSING POWER IMBALANCES

- **SDT core demand**: Self-declared developing-country concessions need revision and clarity.
- **Enhance representation**: Ensure active Global South role in decisions, secretariat.

MODERNIZING FOR EMERGING TRADE

- **E-commerce & digital trade**: Rules on data governance, cross-border data, electronic payments overdue.
- **Climate & sustainability**: WTO must integrate green subsidies, carbon border mechanisms (e.g. EU CBAM).

GOVERNANCE INNOVATION

- **Move beyond consensus**: Introduce qualified majority voting or opt-in arrangements.
- **Transparency & accountability**: Regular reviews, audit alignment, open data.

THE WAY AHEAD

RESET APPELLATE BODY QUICKLY

- Reappoint judges, consider two-tier appellate structure.
- Expedite timelines; explore arbitration alternatives.

BROADEN NEGOTIATION FORMATS

- Legalize plurilateral agreements (e.g. on services, e-commerce) and allow broader opt-ins.
- Use G20 to coordinate on digital and climate agendas.

CORRECTING IMBALANCES

- Define developing-country criteria; refine SDT usage.
- Support LDCs via Aid for Trade, specialized support.

INTEGRATE EMERGING ISSUES

- Launch rule-making for digital trade: e-payments, data flows, privacy.
- Climate debate: allow negotiations on carbon border taxes, green subsidies.

ENHANCE GOVERNANCE MECHANISMS

- Introduce decision tools beyond consensus (e.g. QMV).
- Improve transparency: audit norms, report reviews, secretariat modernization.

MOBILIZE COALITIONS

- **Middle powers** (EU, Singapore, India) to lead bottom-up reforms.
- Use G20 and G7 platforms to build multilateral consensus.
- Balance activism with engagement India can facilitate plurilateral while protecting domestic interests.

09 INDIA, VIETNAM DECIDE TO COOPERATE IN MEDIA & ENTERTAINMENT SECTOR

India and Vietnam have agreed to **step up cooperation** in the media and entertainment sector during a meeting between the Minister of State for Information and Broadcasting and a delegation from Vietnam.

SOME OF THE PRIORITY AREAS IDENTIFIED INCLUDE:

- **Content exchange** between national broadcasters (e.g., Doordarshan and Vietnam Television).
- **Joint film production** and co-hosted film festivals.
- **Capacity building and training** in journalism, media management, and digital broadcasting.
- **Exchange programs** for media professionals, scholars, and film artists.
- **Promotion of shared cultural and historical narratives**, especially around Buddhism and regional heritage.

INDIA–VIETNAM RELATIONS

- In 2022, the two countries celebrated the **50th anniversary of the establishment of diplomatic relations.**
- **Comprehensive Strategic Partnership:**
  - **2016:** Elevated from Strategic to Comprehensive Strategic Partnership during PM Modi's visit.
  - **2020:** "Joint Vision for Peace, Prosperity and People" adopted.
  - **2022:** 50th anniversary of diplomatic ties celebrated.
  - **2024:** Bilateral momentum strengthened through multiple high-level exchanges.
- **Trade & Economic Relations:**
  - **India-Vietnam bilateral trade (Apr 2023–Mar 2024):** USD 14.82 billion (India's exports: USD 5.47 bn; Imports: USD 9.35 bn).
- **India–Vietnam Defence Cooperation Frameworks:**
  - MoU on Defence Cooperation (2009), Joint Vision Statement (2015).

- Joint Vision Statement on India–Vietnam Defence Partnership towards 2030 signed in June 2022.
- **Defence Training and Supplies:** India provides training to Vietnamese military personnel.
- Defence Line of Credit (LoC) worth **US$ 500 million to Vietnam.**
- **INS Kirpan gifted to Vietnam (2023)** first major warship transfer to an ASEAN country.
- **Joint Exercises and Naval Cooperation:** Regular bilateral naval exercises (e.g., **PASSEX**), the joint military exercise **VINBAX**, **port calls**, and **collaboration on maritime domain awareness**.

- **Regional and Global Cooperation:** Shared vision for free, open, and inclusive Indo-Pacific.
  - Vietnam supports India's bid for UNSC permanent membership.
  - Close coordination in ASEAN, East Asia Summit (EAS), and Mekong frameworks.
  - India supports Vietnam's role in regional architecture under Act East Policy.

- **Recent Developments and Cooperation:**
    - **2024 Plan of Action (2024–2028)** signed to implement the strategic partnership.
    - Vietnam joined the **Coalition for Disaster Resilient Infrastructure (CDRI).**
    - **Joint stamp issued celebrating 50 years,** featuring Kalaripayattu and Vovinam.

CHALLENGES

- **China Factor:** Both countries face maritime disputes with China, but Vietnam remains cautious in overtly aligning with India on regional security.
- **Trade Imbalance:** Vietnam enjoys a trade surplus with India (e.g., USD 9.35 bn imports vs USD 5.47 bn exports in 2023–24).
    - India's export potential remains underutilized due to non-tariff barriers, logistics costs, and limited market access.
- **Slow Progress in FTA Review:** The ASEAN-India Trade in Goods Agreement (AITIGA) is under review since 2022 but progress has been sluggish.
- **Connectivity Bottlenecks:** Limited direct connectivity hampers people-to-people ties, tourism, and trade facilitation.
- **Maritime Security Constraints:** While naval cooperation is improving, joint patrols or maritime domain awareness (MDA) sharing is limited.
    - Vietnam's lack of naval interoperability with India compared to China's footprint in South China Sea complicates deep defence engagement.
- **Competing Economic Models:** Vietnam is more deeply integrated with East Asian supply chains and free trade agreements (RCEP) than India.

- This reduces Vietnam's dependence on India as a trading partner.

WAY AHEAD

- To strengthen ties, India and Vietnam must work towards a **balanced trade relationship** and expedite the review of ASEAN-India Trade in Goods Agreement (AITIGA).
- **Defence and maritime cooperation** should deepen through joint training, logistics support, and shipbuilding collaboration.
- **Improving connectivity,** promoting bilateral investments, and enhancing digital, startup, and energy partnerships are key.
- Both countries should also align on a **rules-based Indo-Pacific order and cooperate closely in regional and multilateral forums.**

10 4TH MEETING OF THE INDIA – CENTRAL ASIA DIALOGUE

Recently, EAM Dr. S. Jaishankar hosted a high-level meeting at **4th edition of the 'India Central Asia Dialogue'** to explore economic growth opportunities and strengthen India-Central Asia relations.

KEY HIGHLIGHTS OF THE MEETING

- **Strengthening Financial Cooperation**: EAM highlighted the **opening of special rupee vostro accounts** by Central Asian banks in Indian financial institutions, facilitating seamless transactions.
    - It included the **potential use of India's UPI** for cross-border payments, enhancing financial integration.
- **Boosting Trade & Connectivity:** The **Central Asian** leaders stressed the importance of diversifying trade baskets to ensure sustainable and predictable economic interactions.
    - EAM emphasized the need to expand air services and streamline transit procedures, making trade more efficient.

- **Commitment from Central Asian Nations:**
    - **Kazakhstan** praised India's innovation-driven business community, expressing commitment to deepening economic ties.
    - **Kyrgyzstan** reaffirmed the strategic partnership between India and Central Asia, highlighting the potential for mutual growth.
    - **Turkmenistan** described India as a major and promising partner, recognizing its role in shaping a modern geo-economic architecture in Asia.

CENTRAL ASIA: COUNTRIES AND RESOURCES

Central Asia is a landlocked region at the heart of Eurasia, comprising five former Soviet republics: **Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, and Uzbekistan**. This region serves as a strategic crossroads between Europe and Asia and has historically been part of the ancient **Silk Road** trade network.

- **Kazakhstan** – The largest Central Asian country, rich in **oil, natural gas, uranium (world's largest producer), and rare earth minerals**. It has a growing economy and strong ties with Russia, China, and the West.
- **Uzbekistan** – Known for its **gold (4th largest reserves), uranium, and cotton** production. It is the most populous country in the region and has significant strategic and economic influence.
- **Turkmenistan** – Holds the **fourth-largest natural gas reserves** in the world. It is relatively isolated but crucial for regional energy exports.
- **Kyrgyzstan** – A mountainous country rich in **gold, hydropower potential**, and water resources. It relies heavily on remittances and agriculture.
- **Tajikistan** – Known for **hydropower, aluminum**, and strategic water resources from the Pamir Mountains.

Collectively, Central Asia is resource-rich, energy-abundant, and geopolitically significant, attracting interest from major global powers like **China (through BRI)**, **Russia**, **India**, and **the USA**. However, challenges like **landlocked geography**, **infrastructure gaps**, and **political instability** hinder its full potential.

INDIA–CENTRAL ASIA TIES

HISTORICAL TRAJECTORY & KEY MILESTONES

EARLY CONTACTS & SOVIET-ERA RELATIONS

- **Silk Route ties** (3rd century BC – 15th century AD): Cultural exchange, Buddhism, trade between South and Central Asia.
- **Post-1991 diplomacy**: India established ties fast with newly independent states: foreign embassies (1992–94); PM Narasimha Rao's visits to Tashkent & Almaty (1993) with financial aid (~$10–15M each).

STRATEGIC PARTNERSHIPS (2000S)

- **Defense & security**:
    - **2002**: MoU with Kazakhstan on military cooperation.

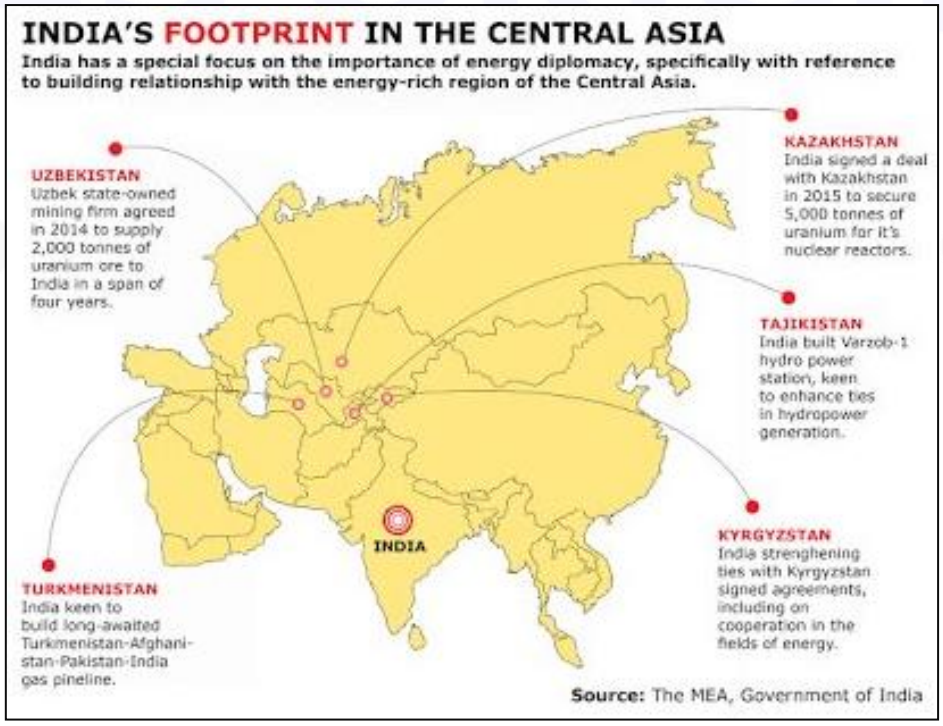
- **2003–06**: India opened **Farkhor (Tajikistan) Airbase**, grew hospital + MiG-29 deployment.

CONNECT CENTRAL ASIA POLICY & SUMMIT VISITS

- **Strategic Partnerships**:
  - Kazakhstan (2009), Uzbekistan (2011), Tajikistan (2012), Kyrgyzstan (2019); Turkmenistan neutral.
- **Connect CA Policy (2012)**: India's first collective vision.
- **Historic PM Modi tour** (July 2015): visited five countries, signing 22 pacts, including uranium deal with Kazakhstan (~80% of Indian imports).

MULTILATERAL ENGAGEMENTS

- **SCO**: India joined as full member in 2017.
- **India–Central Asia Dialogue ("C5+1")**:
  - 1st FM meeting in Samarkand (Jan 2019), 2nd in Oct 2020, 3rd Dec 2021 in Delhi, 4th in April 2023.
- **1st Leaders' Summit**: Virtual, Jan 27 2022, institutionalizing biennial format.



PARTNERSHIP AGREEMENTS & INITIATIVES

SECURITY & DEFENCE COOPERATION

- **Strategic partnerships**: Formal defence pacts with Kazakhstan, Tajikistan, Uzbekistan, Kyrgyzstan.
- **Joint exercises**:
  - India–Kazakhstan (Prabal Dostyk 2016/17).
  - Army drills with Kyrgyzstan & anti-terrorism exercises with Tajikistan/Kazakhstan under SCO.
- **Civil-nuclear cooperation**: Uranium imports via Kazakhstan (2009).

CONNECTIVITY PROJECTS

- **Chabahar Port (Iran)**: Since 2003, India invested $85+M for connectivity to CA via INSTC.
- **INSTC (2000)**: Route India–Iran–Russia–Central Asia–Europe, renewed consultations since 2012.
- **Ashgabat Agreement**: India joined this multimodal corridor (originally 2011) in Feb 2018.
- **TAPI Pipeline**: Ongoing plan since 2006; remains stalled due to Pakistan, Afghanistan issues.

ECONOMIC & INSTITUTIONAL TIES

- **India–Central Asia Business Council**: FICCI-led, since Feb 2020, with annual meetings and summits.
- **Bilateral investment & taxation**: E.g. India–Kyrgyz BIT (2019), DTAA agreements.
- **Education & healthcare**:
    - ITEC, tele-medicine centers, scholarships; India assisted with COVID-19 medical aid.
    - Outreach for Indian students; Uzbekistan conference urged as student/business hub.

DIGITAL & STRATEGIC MINERALS COOPERATION

- **UPI to CA nations**: India offered its UPI digital payment system in Oct 2023 NSA meeting.
- **Rare Earth Forum** proposal to collaborate on strategic mineral supply chains.

STRATEGIC CHALLENGES

GEOGRAPHICAL BARRIERS

- No land access due to Pakistan, unstable Afghanistan (post-Taliban) Routes like Chabahar, INSTC, Ashgabat remain partially operational.

GEOPOLITICAL COMPETITION

- **China's BRI/CPEC**: Significant Chinese presence, including heavy infrastructure and influence via SCO.
- **Russian influence**: Military, economic networks remain dominant.

C+C5 refers to the cooperation framework between **China (C)** and the **five Central Asian countries:** Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, and Uzbekistan. Initiated in **2020**, this mechanism aims to strengthen regional collaboration in **trade, security, connectivity, energy, and digital infrastructure**. It serves as a parallel to other multilateral platforms like **India-Central Asia Dialogue** and enhances

China's Belt and Road Initiative (BRI) in the region. The **first China-Central Asia Summit** was held in **2023 in Xi'an, China**, marking a major step in formalizing cooperation, enhancing regional influence, and counterbalancing Western and Russian strategic presence.

INSTITUTIONAL WEAKNESSES

- Economic cooperation underperforms: India–Central Asia trade remains mere $2–3 bn/year vs potential.
- Connectivity remains fragmented and siloed across corridors.

POLITICAL INSTABILITY

- Central Asian domestic fragilities: Ethnic tensions, corruption, authoritarianism, volatile borders.
- Regional security concerns: Terrorism, drug trafficking, Afghanistan spillovers.

THE WAY AHEAD: STRATEGIC PATHWAYS

ENHANCE CONNECTIVITY

- Operationalize Chabahar with Afghanistan; logistics corridors linking to Central Asia via Iran/Afghanistan.
- Synchronize Ashgabat Agreement with INSTC; ensure TIR, financing, customs smoothening.

EXPAND ECONOMIC CVTIES

- Encourage Indian FDI in CA sectors: energy, infrastructure, digital tech (Kazakh DPM's call, June 7 2025).
- Ramp up India–CA Business Council, trade summits, tariff facilitation, e-commerce paths.

DEEPEN SECURITY & STRATEGIC COOPERATION

- Continue NSA-level dialogues (next in Kyrgyzstan in 2024) .

- Institutionalize joint exercises, intelligence coordination, anti-terrorism frameworks via SCO/RATS and bilateral joint working groups.

ELEVATE DIGITAL & TECH ENGAGEMENT

- Implement UPI and digital public infrastructure sharply.
- Launch rare-earths forum for joint exploration and processing facilities.

BUILD INSTITUTIONAL FRAMEWORKS

- Operationalize India–Central Asia Secretariat in Delhi & India–CA Centre.
- Host biennial leaders' summits and enhance ministerial dialogue under "connectivity + security + economy" trilateral tracks.

CULTIVATE SOFT POWER & PEOPLE-TO-PEOPLE TIES

- Enhance cultural diplomacy: exchange festivals, Hindi departments, Bollywood presence.
- Ramp up scholarships, training via ITEC, ICCR; promote student mobility (Uzbek summit impetus).

BALANCED GEOPOLITICAL POSITIONING

- Maintain strategic autonomy while engaging via SCO, CICA and balancing China/Russia influences.
- Emphasize CA support for India's UN Security Council aspirations and connectivity diversification.

CONCLUDING OUTLOOK

Pillar	Strategy
Connectivity	Operationalizing corridors; reducing logistical/geopolitical bottlenecks

Economic Integration	Boost FDI & trade; diversify beyond energy into tech & infrastructure
Security Architecture	Deepen counter-terror & defence cooperation with NSA, SCO platforms
Digital Diplomacy	Implement UPI, rare earth cooperation, digital public goods
Institution Building	Strengthen C5+1, Secretariat, biennial summits
Soft Power	Cultural exchanges, scholarships, people-to-people links

In sum, India–Central Asia relations blend ancient ties with a dynamic strategic pivot—anchored in connectivity, security, digital partnerships, and institutional depth. By addressing current weaknesses and harnessing recent momentum (e.g. business summits, CA dialogue, strong political alignment), India can consolidate its role as a partner and anchor regional resilience in a shifting Eurasian landscape.

11 CLEAN PLANT PROGRAMME (CCP)

The Union Agriculture Minister launched the "Clean Plant Programme" to establish nine horticultural facilities across the country during India's first Agri Hackathon in Pune.

WHAT IS CLEAN PLANT PROGRAMME (CCP)?

- It is designed to **address critical issues in horticulture** by providing access to **high-quality, virus-free planting material.**
- It aims to **enhance the quality and productivity of fruit crops** across the nation.
- **Nodal Ministry:** Ministry of Agriculture and Farmers Welfare
- **Implementing Agency:** National Horticulture Board in collaboration with the Indian Council of Agricultural Research (ICAR).

WHAT ARE THE CORE COMPONENTS OF THE CPP?

- **Clean Plant Centers (CPCs): Nine** world-class CPCs will be set up across India.
- These centers will have advanced labs for diagnostics, therapy, and tissue culture.
- The CPCs will be located in regions suited for specific fruit crops, such as Grapes (Pune), Temperate Fruits like Apple, Almond, and Walnut (Srinagar & Mukteshwar), Citrus Fruits (Nagpur & Bikaner), Mango, Guava, Avocado (Bangalore), Mango, Guava, Litchi (Lucknow), Pomegranate (Sholapur) and Tropical/Sub-Tropical Fruits in Eastern India.
- **Certification and Legal Framework:** A strong certification system will be put in place to ensure that planting materials are produced and sold with full accountability. This system will be supported by regulations under the **Seeds Act of 1966**.

- **Enhanced Infrastructure:** Large nurseries will receive support to develop the necessary infrastructure for multiplying clean planting materials efficiently.

WHAT IS THE IMPORTANCE OF THE CPP?

- **Sustainability:** The programme aligns with initiatives like **Mission LiFE and One Health,** promoting eco-friendly farming practices.
- **Self-reliance:** It **reduces the need for importing** planting materials, making India more self-sufficient.

- **Global leadership:** CPP will help position India as a **leading exporter of high-quality** fruits, driving transformative changes in the horticulture sector.

HORTICULTURE IN INDIA

DEFINITION AND SCOPE

- **Horticulture** refers to the branch of agriculture that deals with the cultivation of **fruits, vegetables, nuts, ornamental plants, medicinal and aromatic plants, spices, and plantation crops**.
- It is often called **"high-value agriculture"** because of its greater return per unit area compared to field crops.

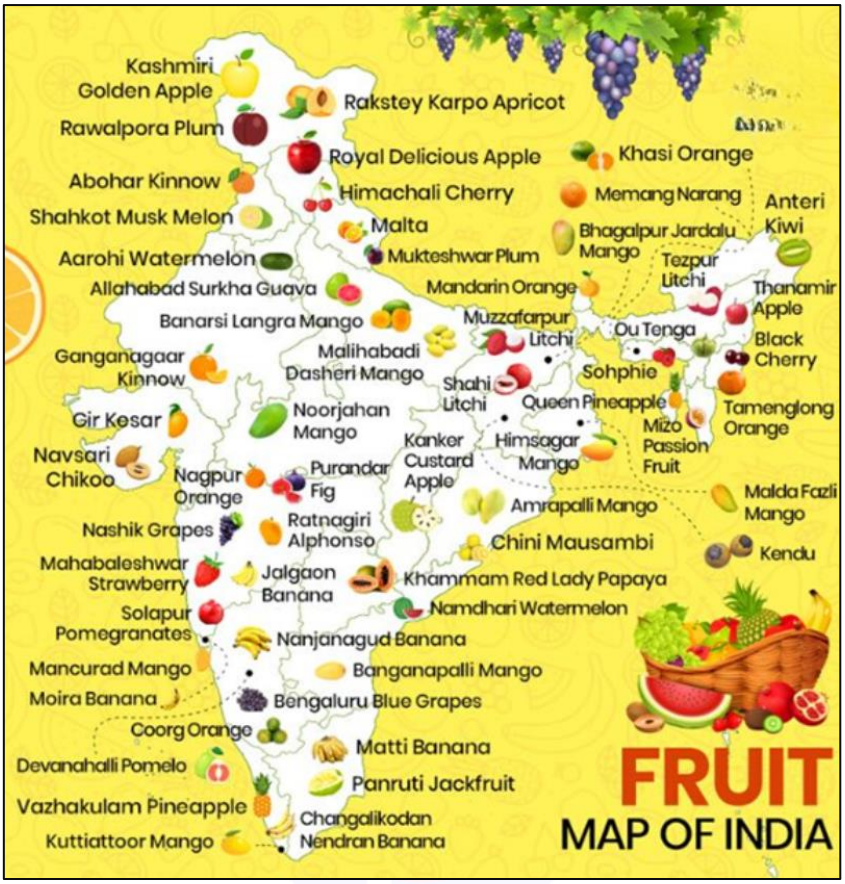
IMPORTANCE OF HORTICULTURE IN INDIA

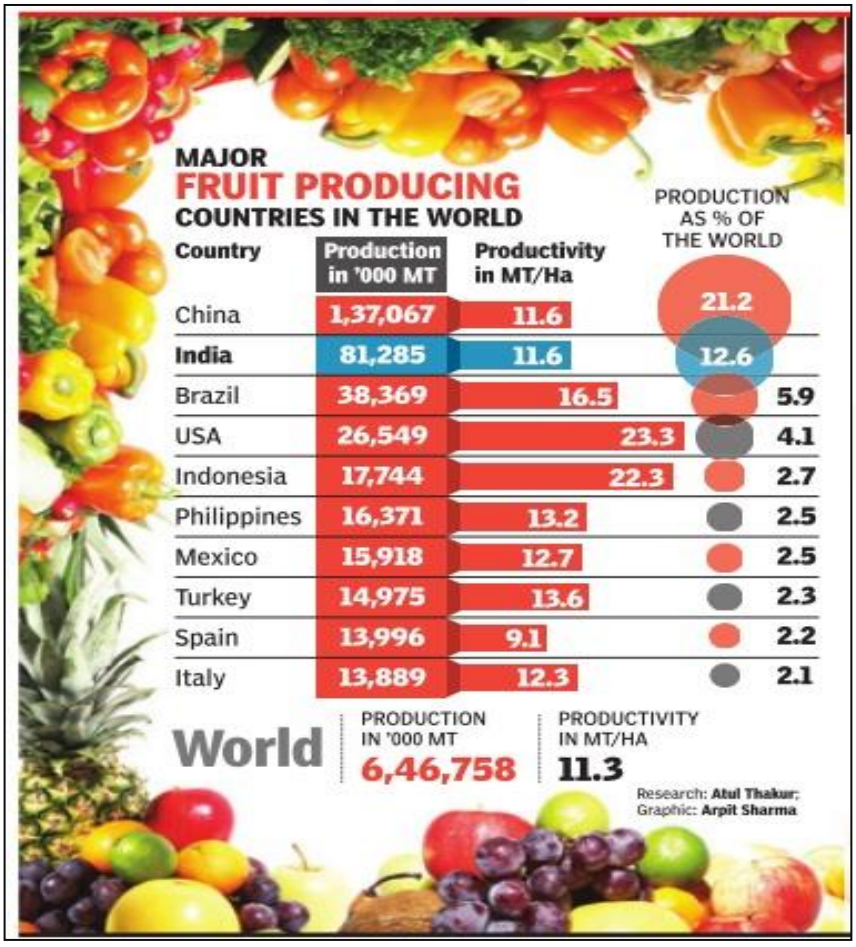
- Contributes to **30% of agriculture GDP** from just **15% of cropped area**.
- India is the **second-largest producer of fruits and vegetables** in the world after China.
- It provides **employment** to a large section of the population, especially **small and marginal farmers**, women, and rural youth.
- Helps in **nutritional security**, **crop diversification**, **sustainable farming**, and **export earnings**.

MAJOR HORTICULTURAL CROPS OF INDIA

FRUITS

- Major fruit crops: Mango, Banana, Citrus, Apple, Grapes, Guava, Papaya, Pomegranate.
- **India ranks 1st in the world** in the production of Mango and Banana.
- Leading fruit-producing states: **Maharashtra, Andhra Pradesh, Uttar Pradesh, Tamil Nadu, Gujarat**.


Kashmiri Golden Apple
Rakstey Karpo Apricot
Rawalpora Plum
Royal Delicious Apple
Khasi Orange
Abohar Kinnow
Himachali Cherry
Memang Narang
Anteri Kiwi
Shahkot Musk Melon
Malta
Bhagalpur Jardalu Mango
Aarohi Watermelon
Mukteshwar Plum
Tezpur Litchi
Allahabad Surkha Guava
Mandarin Orange
Thanamir Apple
Banarsi Langra Mango
Muzzafarpur Litchi
Ou Tenga
Black Cherry
Ganganagaar Kinnow
Malihabadi Dasheri Mango
Sohphie
Shahi Litchi
Queen Pineapple
Tamenglong Orange
Gir Kesar
Noorjahan Mango
Mizo Passion Fruit
Kanker Custard Apple
Himsagar Mango
Navsari Chikoo
Nagpur Orange
Purandar Fig
Malda Fazli Mango
Amrapalli Mango
Nashik Grapes
Ratnagiri Alphonso
Chini Mausambi
Kendu
Mahabaleshwar Strawberry
Jalgaon Banana
Khammam Red Lady Papaya
Namdhari Watermelon
Solapur Pomegranates
Nanjanagud Banana
Mancurad Mango
Banganapalli Mango
Moira Banana
Bengaluru Blue Grapes
Coorg Orange
Matti Banana
Devanahalli Pomelo
Panruti Jackfruit
Vazhakulam Pineapple
Changalikodan Nendran Banana
Kuttiattoor Mango
FRUIT
MAP OF INDIA

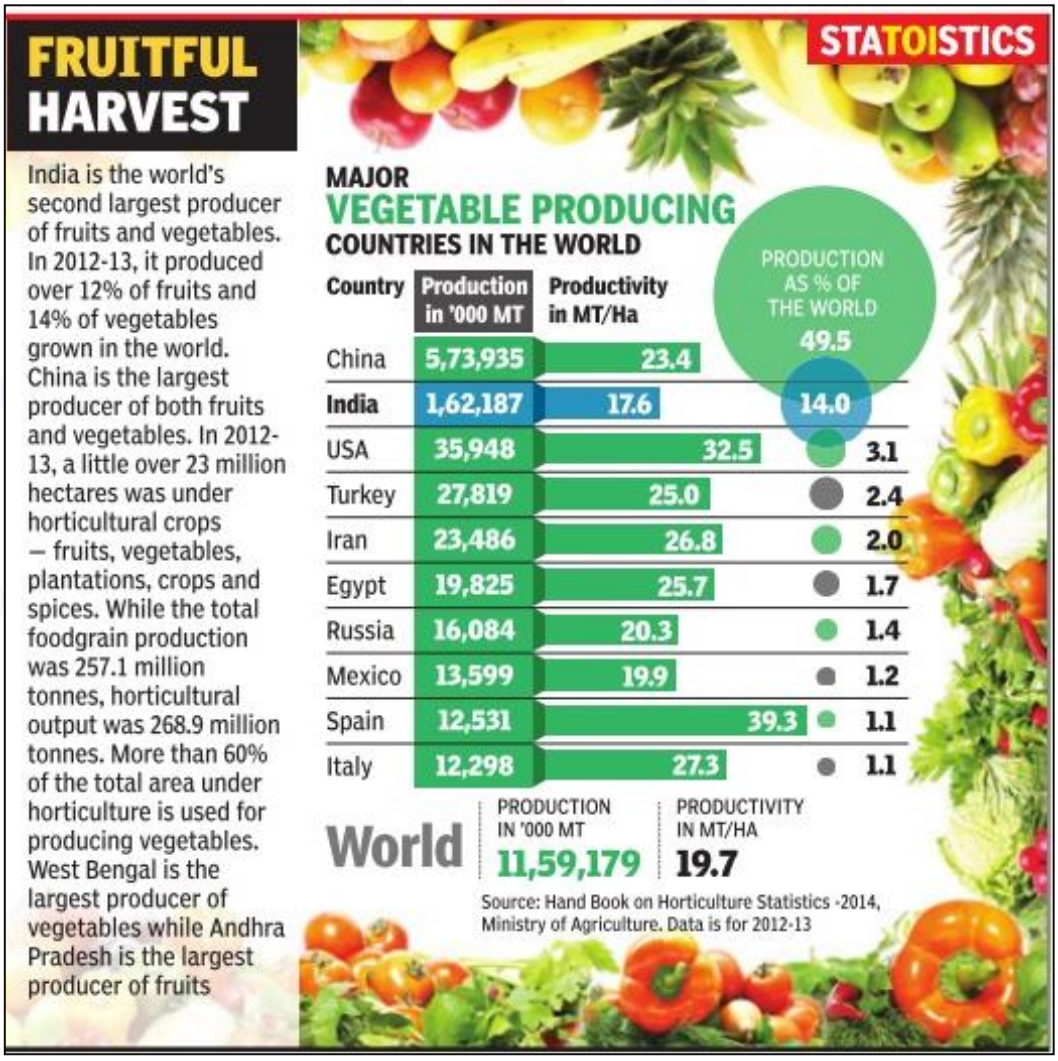

MAJOR
FRUIT PRODUCING
COUNTRIES IN THE WORLD
PRODUCTION AS % OF THE WORLD
Country
Production in '000 MT
Productivity in MT/Ha
China 1,37,067 11.6 21.2
India 81,285 11.6 12.6
Brazil 38,369 16.5 5.9
USA 26,549 23.3 4.1
Indonesia 17,744 22.3 2.7
Philippines 16,371 13.2 2.5
Mexico 15,918 12.7 2.5
Turkey 14,975 13.6 2.3
Spain 13,996 9.1 2.2
Italy 13,889 12.3 2.1
World
PRODUCTION IN '000 MT
6,46,758
PRODUCTIVITY IN MT/HA
11.3
Research: Atul Thakur;
Graphic: Arpit Sharma

VEGETABLES

- **Key vegetables:** Potato, Onion, Tomato, Brinjal, Okra, Cabbage, Cauliflower.
- **West Bengal, Uttar Pradesh, Bihar, Madhya Pradesh, and Gujarat** are top vegetable producers.
- India is a **global leader in Okra** and among the top producers of Onion and Tomato.

PLANTATION CROPS

- **Includes:** Coconut, Arecanut, Cashew, Cocoa, Oil Palm.
- Grown mostly in Kerala, Tamil Nadu, Karnataka, Goa, and the Northeast.



SPICES

- **Major spices:** Turmeric, Chillies, Black Pepper, Cardamom, Ginger, Cumin.
- India is the **largest producer, consumer, and exporter of spices**.
- **States:** Andhra Pradesh, Telangana, Kerala, Karnataka, Rajasthan.

FLOWERS (FLORICULTURE)

- Cultivated for decoration, religious offerings, perfumes.
- Includes roses, marigold, jasmine, tuberose, gladiolus.
- **Leading states:** Karnataka, Tamil Nadu, West Bengal, Maharashtra, Andhra Pradesh.

MEDICINAL AND AROMATIC PLANTS

- **Examples:** Tulsi, Ashwagandha, Aloe vera, Mentha.
- Used in Ayurveda, cosmetics, and pharmaceuticals.
- **States:** Uttar Pradesh, Madhya Pradesh, Gujarat, Rajasthan.

AREA AND PRODUCTION STATISTICS (2023–24)

- Total horticulture production: **355.25 million tonnes** (3rd Advance Estimate, 2023).
- Total horticulture area: Approx. **28 million hectares**.
- Top horticulture crop producers: **West Bengal, Andhra Pradesh, Maharashtra, Uttar Pradesh, Tamil Nadu**.

ROLE IN INDIAN ECONOMY

- Horticulture contributes to **exports** significantly: ~$7–8 billion/year.
- It helps in **increasing farmers' income** (aligned with PM's vision of **Doubling Farmers' Income**).
- Supports **employment** generation in rural areas, especially in post-harvest and processing sectors.

GOVERNMENT SCHEMES & INITIATIVES

MISSION FOR INTEGRATED DEVELOPMENT OF HORTICULTURE (MIDH)

- Launched in **2014**, includes sub-schemes like NHM, NHB, Coconut Mission.
- **Objectives:** Area expansion, productivity enhancement, post-harvest management.

NATIONAL HORTICULTURE MISSION (NHM)

- Part of MIDH; supports fruits, vegetables, mushrooms, flowers, spices.
- **Focus: Cluster-based approach**, improved planting materials, capacity building.

RASHTRIYA KRISHI VIKAS YOJANA (RKVY)

- Provides additional funding to states to strengthen horticulture infrastructure.

OPERATION GREENS

- Launched in **2018** to stabilize prices of Tomato, Onion, Potato (TOP).
- Provides subsidies for cold storage, transport, and processing.

PM FORMALIZATION OF MICRO FOOD PROCESSING ENTERPRISES (PM-FME)

- Encourages value addition and formalization of micro food units including horticultural products.

AGRI-INFRA FUND (AIF)

- Financing for infrastructure: cold chains, packhouses, ripening chambers.

E-NAM

- Online trading of fruits & vegetables to reduce middlemen and ensure better price realization.

TECHNOLOGICAL INNOVATIONS IN HORTICULTURE

- **Tissue Culture**: For crops like Banana, Pineapple, Sugarcane.
- **Drip and Sprinkler Irrigation**: Especially useful in fruits and vegetables.
- **Protected Cultivation**: Greenhouses, polyhouses for flowers and high-value vegetables.
- **Precision Farming**: Use of sensors, GPS for efficient resource use.
- **Post-Harvest Technology**: Cold storage, vacuum cooling, ripening chambers, grading & packaging.

CHALLENGES IN INDIAN HORTICULTURE

- **Perishability**: Lack of cold chains and logistics increases post-harvest losses (20–30%).
- **Fragmented landholdings**: Limits adoption of advanced technologies.
- **Market linkages**: Limited access to formal markets and export infrastructure.
- **Price volatility**: Unstable prices due to oversupply or low demand.
- **Climate vulnerability**: Crops like mango, apple, grapes are weather-sensitive.
- **Pest and disease outbreaks**: E.g., Banana wilt, Citrus canker, Tuta absoluta in Tomato.
- **Water management**: High water requirement of crops like banana, sugarcane.

ROLE OF RESEARCH & INSTITUTIONS

- **ICAR–Indian Institute of Horticultural Research (IIHR), Bengaluru**.
- **National Horticulture Board (NHB)**: Infrastructure and production support.
- **APEDA**: Export promotion of horticulture commodities.

- **State Horticulture Missions**: Implement central schemes and promote localized solutions.

EXPORT POTENTIAL

- India exports:
  - **Mangoes** (Alphonso, Kesar) to UAE, UK, USA.
  - **Onions** to Gulf countries and Sri Lanka.
  - **Spices** to 150+ countries.
- Major export destinations: USA, UAE, Bangladesh, Malaysia, UK, Germany.
- **APEDA** promotes branding, GI tagging (e.g., GI for Nagpur Orange, Darjeeling Tea, Alleppey Green Cardamom).

CASE STUDIES & BEST PRACTICES

- **Maharashtra's Grape Export Clusters**: Use of GI tagging and APEDA support.
- **Banana tissue culture in Tamil Nadu**: 3x productivity increase.
- **Apple cultivation in Kashmir & Himachal**: Transition to high-density planting.
- **Sikkim Organic Mission**: Promotes organic horticulture with export orientation. It is the first organic state of the country.

Horticulture has emerged as a **growth engine for Indian agriculture**, ensuring **income security, nutritional diversity, and export competitiveness**. With targeted policies, investment in infrastructure, digital tools, and climate-resilient practices, India can transform its horticulture sector into a **global powerhouse**.

12 UMEED PORTAL

The Union Government is preparing to launch the Unified Waqf Management, Empowerment, Efficiency, and Development (UMEED) portal.

KEY HIGHLIGHTS:

- All Waqf properties must be registered on the portal within six months of its launch.
- Registration requires complete property details, including measurements and geo-tagged location.
- State Waqf Boards will facilitate the registration process.
- Properties registered in the name of women will not qualify as Waqf assets.
- Women, children, and economically weaker sections will continue as priority beneficiaries.
- Properties unregistered after the deadline (including any 1–2-month extension) will be treated as disputed and referred to the Waqf Tribunal.

BACKGROUND & PURPOSE

- **UMEED** stands for **Unified Waqf Management, Empowerment, Efficiency & Development**—the new name of the **Waqf (Amendment) Act, 2025**.
- It replaces the outdated **1995 Act**, aiming to overhaul the governance of **over 8.7 lakh waqf properties** spanning **9.4 lakh acres**, valued around ₹1.2 lakh crore.

- Directed by MOS Minority Affairs **Kiren Rijiju**, the UMEED Act introduces structural reforms focused on **digitization, transparency, accountability**, and **inclusivity**.

WHAT IS THE UMEED PORTAL?

- Launched **June 6, 2025**, as a **Central Waqf Portal**, it functions as a unified online registry for **all waqf properties** across India.
- Only properties **registered with state waqf boards** and those under "waqf by user" (pre-Amendment Act) are eligible for entry and verification.
- Once uploaded, each property receives a **unique 17-digit ID** for identification and monitoring.

CORE FEATURES & WORKFLOW

CENTRALIZED REGISTRATION

- Mandates digital registration of waqf properties within **six months** of enactment.
- State and central boards upload deeds, maps, mutawalli info, and financials.

GEOTAGGING & VERIFICATION

- GPS tagging ensures accurate mapping and prevents encroachment or duplication.

ROLE-BASED ACCESS

- **Mutawallis** manage property-level data;
- **State Boards** verify uploads;
- **District Collectors or nominated officers** audit and resolve property disputes, replacing arbitrarily granted waqf claims.

TRANSPARENCY & AUDITS

- Digital ledger records transactions and financials;

- Waqf institutions earning over ₹1 lakh annually must undergo audits, while contributions to boards are reduced from **7% to 5%**, freeing funds for welfare.

DISPUTE RESOLUTION & APPEALS

- Decisions by Waqf Tribunals are now appealable to the **High Court within 90 days**, restoring judicial review and reducing tribunals' unchecked power.

All India Muslim Personal Law Board (AIMPLB) is a non-government organization constituted in 1973 to adopt suitable strategies for the protection and continued applicability of Muslim Personal Law in India, most importantly, the Muslim Personal Law (Shariat) Application Act of 1937, providing for the application of the Islamic Law Code of Shariat to Muslims in India in personal affairs. Some Muslims followed Hindu customs before 1937. The Act applies to all matters of personal law except such successions.

BENEFITS & EXPECTED OUTCOMES

- **Transparency**: A national database minimizes opacity and corruption.
- **Protection**: Disallows arbitrary land claims by waqf boards, especially government lands.
- **Financial Efficiency**: Streamlined auditing and registration means higher returns Sachar Report estimated potential revenue of ₹12,000 crore, while actual returns had been under ₹10 crore.
- **Social Development**: Facilitates channeling waqf income into educational, healthcare, and community welfare schemes.
- **Inclusivity**: Features representation of women, non-Muslims, and various Muslim sects on governing councils to ensure diverse, equitable oversight.

CONCERNS & CRITICISMS

- **State Intrusion**: Some Muslim leaders argue increased government control threatens waqf autonomy.

- **Exclusion of 'Waqf by User'**: Legacy unregistered waqf claims may lose status unless they were registered before the Act.
- **Administrative Load**: Smaller waqf bodies may struggle with documentation and compliance under new digital norms.

WAQF BOARDS	
About	**a.** It is a body under the state government. It works as a custodian for Waqf properties across the state. **b.** In most states, there are separate Waqf Boards for the Shia and Sunni communities. Almost all prominent mosques in the country are Waqf properties and are under the Waqf Board of the state.
Composition	A Waqf Board is headed by a chairperson Members- **a.** One or two nominees from the state government **b.** Muslim legislators and parliamentarians **c.** Muslim members of the state Bar Council **d.** Recognized scholars of Islamic theology **e.** Mutawallis of Waqfs with an annual income of Rs 1 lakh and above.
Powers and Functions	**a.** Administration of the Waqf properties and taking measures for the recovery of lost properties of any Waqf **b.** Sanctioning any transfer of immovable property of a Waqf by way of sale, gift, mortgage, exchange, or lease. However, the sanction shall not be given unless at least two thirds of the members of the Waqf Board vote in favor of such a transaction.

WHAT KEY CHANGES ARE INTRODUCED BY THE WAQF AMENDMENT (BILL) 2025?

Retention of Waqf by User Doctrine and future recognition	"Waqf by user" properties registered on or before the law's enactment will retain their status unless they are disputed or identified as government land. However, the Future recognition of waqf status requires documentary proof or declaration from a practicing Muslim of at least five years. *"Waqf by user" is a doctrine rooted in Islamic legal traditions that recognized properties as religious or charitable endowments based on their uninterrupted communal use, even in the absence of formal documentation.*
Inclusion of non-muslims in waqf institutions	• Non-Muslims will be appointed to key waqf institutions, including the Central Waqf Council, State Waqf Boards, and waqf tribunals. • Both the Central Waqf Council and State Waqf Boards must include at least two non-Muslim members. **non-Muslims will remain a minority in both the Council and the Waqf Boards.* • The requirement that a waqf board's chief executive officer must be a Muslim has been removed. • State government representatives on the Waqf Board must be a Joint Secretary-level officer "dealing with waqf matters."

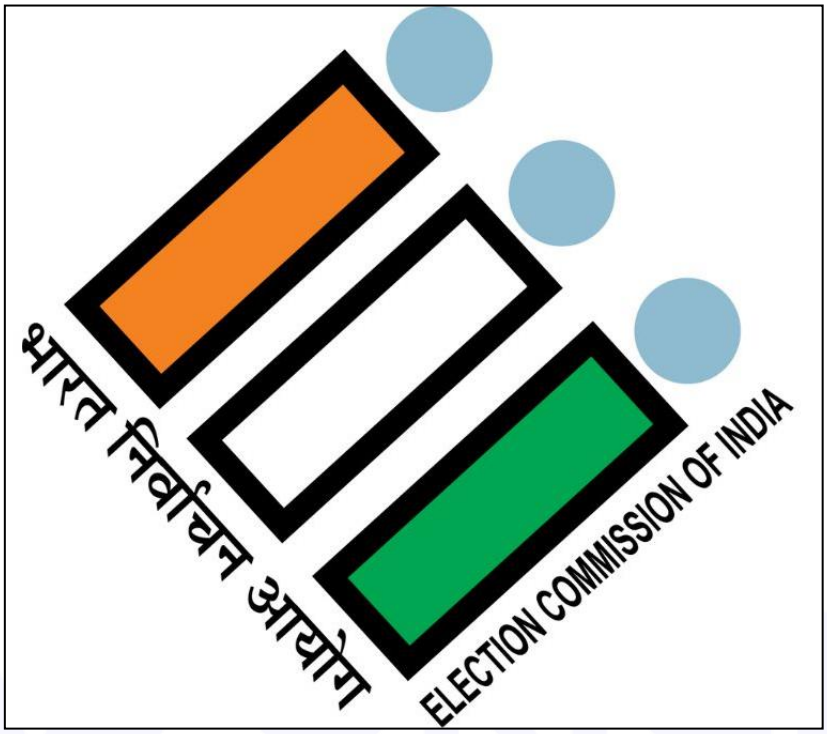
Waqf Tribunal & Legal Changes	1. **Tribunal Composition:** Waqf Tribunals will now have three members instead of two: **a.** A District judge **b.** A Joint secretary-level state officer **c.** An expert in Muslim law 2. **Appeals:** Tribunal decisions can be challenged in the High Court within 90 days
Empowering Government Officials in Property Disputes	• The Bill empowers senior government officers (above District Collector rank) to settle disputes over whether a property is waqf or government land, replacing the Waqf Tribunal's exclusive authority under the 1995 Act. • Until the officer submits a report, disputed properties will be treated as government property.
Application of Limitation Act to Waqf Properties	The Section 107 of the Waqf Act, which had excluded waqf properties from the Limitation Act, 1963, has been removed. With this deletion, the standard 12-year limitation for reclaiming encroached property will now apply to waqf land.
Centralized Digital Registration of Waqf Properties	The Bill mandates the creation of a digital portal for registering and updating waqf properties.
Central Government Oversight	The Comptroller and Auditor General (CAG) will conduct audits.
Separate Waqf Boards	Separate Waqf Boards will be allowed for the Bohra and Agakhani sects

CONCLUSION

The UMEED Portal is a landmark initiative to clean up India's waqf eco-system—improving governance through digitization, property integrity, dispute resolution, financial transparency, and inclusive oversight. If imple--mented earnestly, it can unlock significant social and economic benefits for marginalized communities. However, success hinges on balancing state intervention with community autonomy, expediting digitization, and inte-grating safeguards for smaller waqf holders.

13 ELECTION COMMISSION OF INDIA UPGRADED INDEX CARD SYSTEM

On June 5, 2025, the Election Commission of India (ECI) announced a major technological upgrade in its Index Card system. It aims to improve the efficiency, accuracy, and accessibility of post-election data dis-semination.



WHAT IS INDEX CARD?

The Index Card is a non-statutory, post-election statistical reporting format developed as a suo moto initiative by the ECI.

It serves as a constituency-level data tool to record and publish electoral details for public, academic, and research use.

It provides constituency-level data across multiple dimensions, including candidate information, vote counts, party performance, gender-based voting patterns, and regional voting variations.

Why was the System Upgraded?

Earlier, information was manually filled at the constituency level using

various statutory formats on physical Index Cards.

These physical Index Cards were later used for data entry into the online system to generate statistical reports.

The process was manual and multi-layered, making it time-consuming and resource-intensive.

It frequently led to delays in data availability and slowed dissemination of post-election statistical information.

KEY FEATURES OF THE NEW TECHNOLOGY-DRIVEN SYSTEM

- Automation of data integration and report generation.
- Faster access and dissemination of verified election statistics.
- Reduced human errors and time delays.
- Better support for researchers, academia, journalists, and policymakers.

14 MANGO'S CHEMISTRY AND AROMA

Published in the Indian Express, explores the mango- cherished across South Asia for millennia for its cultural, political, and culinary significance, from Buddha's parables to Mughal orchards.

Volatile Organic Compounds (VOCs) are responsible for the characteristic aroma of mangoes.

KEY VOCS INCLUDE:

- **Esters** – impart the sweet, tropical fruity scents
- **Lactones** – give it a creamy, earthy aroma
- **Terpenes** – floral, pine-like notes
- **Aldehydes** – grassy, mildly spicy fragrance
- Minor compounds contribute to variety-specific aromas.

BOTANICAL CLASSIFICATION:

- Mango (Mangifera indica) belongs to the Anacardiaceae family *(Cashew family)*.
- It is a distant relative of poison ivy.

ALLERGIC REACTIONS

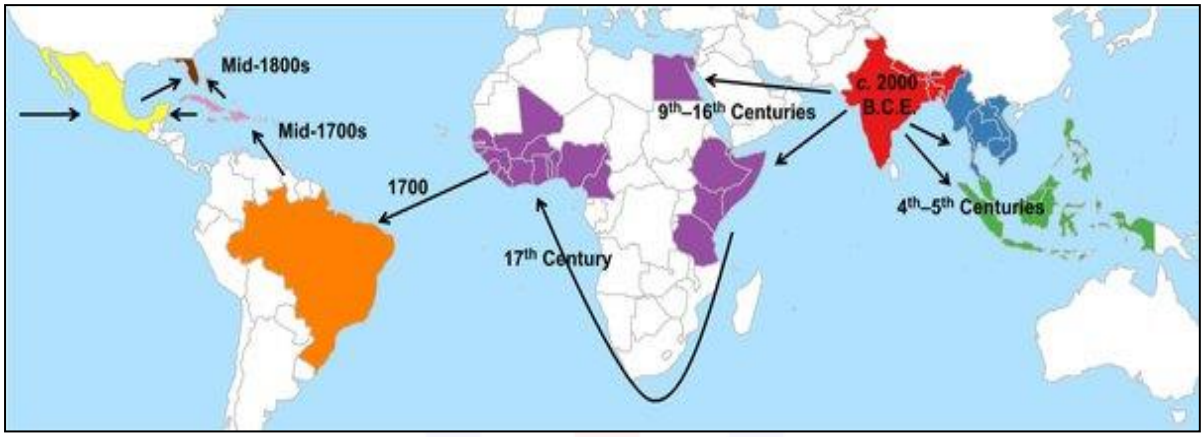
- Mango peels contain urushiol-like compounds, also found in poison ivy.
- These can cause contact dermatitis (skin allergy) in sensitive individuals.

ANCIENT ORIGINS & EARLY CULTIVATION

- **Native Roots** Mango (**Mangifera indica**) is native to **India and Southeast Asia**, cultivated for over **4,000 years**.
- **Vedic & Religious Mentions**
  One of the earliest references appears in the **Brahadaranyaka**

Upanishad (~1000 BCE) and **Shatapatha Brahmana**, indicating its religious and symbolic importance.

- **Buddhist & Jain Symbolism** Buddhist texts describe Buddha's meditation under mango groves and his miraculous creation of a white mango tree. Jain goddess **Ambika** is also depicted under a mango tree, emphasizing fertility and prosperity.



CULTURAL & RELIGIOUS SIGNIFICANCE

- **Kalpavriksha – The Divine Tree**
  In Hindu-Puranic lore, the mango tree symbolizes the **kalpavriksha** or the wish-fulfilling tree, as seen in songs and sculptures of gods under mango branches.
- **Mango in Hindu Worship & Rituals**
  - Mango blossoms adorn **Saraswati Puja**, symbolizing knowledge and art.
  - Leaves are used for door decor (**torans**) during festivals like **Ganesh Chaturthi** and weddings, seen as auspicious symbols drawing **Lakshmi's blessings**.
  - On **Gudhi Padwa**, communities hoist a flag decorated with mango leaves for prosperity.
- **Mango in Poetry & Prose**
  Sentimental expressions permeate poetry **Amir Khusrow** called it "*Naghza Tarin Mewa Hindustan*".
  Kalidasa compared mango blossoms to arrows of love.

ROYAL PATRONAGE & COURTLY CULTURE

- **Mauryan Era Initiatives**
  Emperor **Ashoka** initiated the planting of mango groves along trade routes for shade and sustenance.
- **Delhi Sultanate & Mughal Era**
  - Sultan **Alauddin Khilji** and others cherished mangoes; Khilji famously described them as akin to aphrodisiacs.
- **Babur**, in his autobiography, lauded mangoes.
  - Babur called it the "best fruit of Hindustan," though he preferred musk melons.
- **Sher Shah Suri** introduced the **Chaunsa** variety; **Akbar** planted orchards of 100,000 trees; **Jahangir** and **Shah Jahan** established palace gardens and introduced mango-based dishes.
- Humayun loved mangoes; Himam Pasand, (originally Humayun Pasand), variety of mango was specially grafted for him.

ARTISTIC EXPRESSION: VISUAL ARTS & TEXTILES

- **Temple Pillars & Sculptures**
  Ancient carvings e.g., 12th-century sculptures of deity **Ambika** under mango trees at Odisha's V&A museum and Sanchi's gatehouses symbolize abundance and fertility. A Gupta-era stone relief from Rajasthan also depicts women under mango branches.

- **Mango Motifs in Textiles & Embroidery**
  The famous **paisley/ambi** motif in Kashmiri shawls and Banarasi saris originated from the stylized mango design, representing fertility, eternity, and luxury.
- **Miniature Paintings & Decorative Arts**
  Rajasthani/Bundi paintings (1850) show intimate scenes beneath mango trees. Mughal gold-and-silver perfume flasks in mango

shapes highlight elite appreciation . Mango-decorated snuffboxes also reflect luxury symbolism.

LINGUISTIC LEGACY & VARIETIES

- **Etymology**
  The word "mango" traces back to Tamil **"māṅkāy"**, carried by the Portuguese as **"manga"**, evolving into the English "mango"
- **Varietal Richness**
  India is home to over **1,600 mango varieties**, the richest diversity globally, with regional preferences (sweet in the North, complex flavors in the South).

CULINARY HERITAGE & TRADITIONAL FOODS

- **Diverse Preparations**
  - **Aamras**, aam panna, pickles, chutneys, curries, desserts, and candies—mango permeates Indian cuisine.
  - Mughal chefs innovated with mango meat dishes; **aam ka lauz**, aam panna, and **aam pulao** emerged from royal experimentation.
- **Symbolic & Seasonal Dishes**
  - **Ugadi pachhadi** (Andhra/Telangana) includes raw mango for symbolic flavors.
  - Tamil Brahmin rituals on **Sri Rama Navami** incorporate mango in special preparations.

GEOGRAPHICAL INDICATION (GI) TAGS:

These tags protect products that have a specific geographic origin and possess qualities unique to that region.

Examples of GI-Tagged Mangoes:

- **Alphonso (Hapus):** Grown in the Konkan region of Maharashtra.
- **Dusseheri (Malihabadi):** Grown in and around the city of Agra.
- **Kesar:** Primarily grown in the Junagadh region of Gujarat.

- **Banganapalle:** Grown in the Kurnool district of Andhra Pradesh.
- **Kari Ishad:** Grown in Ankola, Uttara Kannada district of Karnataka.
- **Malihabadi Dashehari:** Grown in Malihabad, Uttar Pradesh.

FESTIVALS, FOLKLORE & PUBLIC CULTURE

- **Mango Festivals**
  Events like the **NMC India Mango Festival** showcase genetic richness, educate consumers, and connect farmers and artisans.
- **Folk Narratives & Celebrations**
  Riddles by poets like Khusrow (14th century) celebrate the sensual delight of mangoes.

- **Diplomatic Mango Gifting**
  As gifts, mangoes have been tokens of friendship: Pakistan sent Sindhri mangoes to Mao in 1968; India gave Alphonsos at King George VI's coronation.

MEDICINAL IMPORTANCE & HEALTH BENEFITS

- **Ayurvedic & Folk Medicine Uses**
  Raw mango cures heatstroke and diarrhoea; ripe mango as heart tonic; leaves and kernels used for various treatments.
- **Nutritional Profile**
  Rich in vitamins A, C, E, K, B-complex, minerals, antioxidants like **mangiferin**, which provide multiple health benefits.

COLONIAL & GLOBAL INTERACTIONS

- **Portuguese Influence**
  Portuguese in Bombay (16th century) introduced grafting, evolving varieties like **Alphonso**, named after Governor Afonso de Albuquerque.
- **Global Spread**
  Alphonso was India's first mango exported to Europe, including sales at George VI's coronation.
- **USA Trade Deal**
  Mango became part of cultural diplomacy, including a trade exchange of mangoes for Harley-Davidson motorcycles in 2007.

MODERN ERA: ECONOMY & CONSERVATION

- **Cultural Icon**
  Mango stands as the Indian **National Fruit**, deeply embedded in identity and domestic culture.
- **Economic Backbone**
  India leads in mango production, exports to global markets (UAE, UK, USA), bolstering rural incomes and livelihoods.

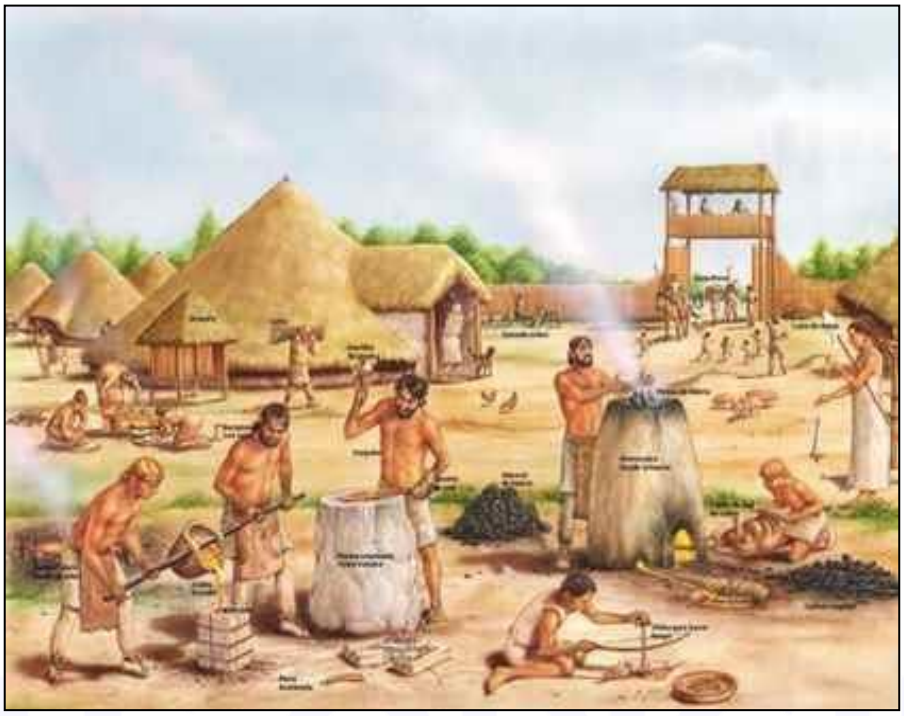
- **Heritage Orchards**
  Orchards like Dumraon's 56-bigha Bada Bagh preserve rare varieties like **Khatma Vilkhair**, showing continuity of royal horticultural traditions.
- **Threats & Sustainability**
  Modern challenges include overuse of pesticides (threatening genetic diversity), land conversion to mono-crop orchards, and pesticide resistance.

WAY FORWARD: CONSERVATION & REVIVAL

- **Preservation of Genetic Wealth**
  Conservation of heirloom varieties (e.g., Khatma Vilkhair) and promotion of regional tastes are vital.
- **Eco-Friendly Practices**
  Push for organic, climate-resilient varieties, pesticide reduction, and traditional grafting methods.
- **Branding & Value Addition**
  Strengthen GI tagging (e.g., Alphonso, Dussehri), value-added products (pickles, juices, snacks), and international marketing (festivals, trade exchanges).
- **Cultural Education & Promotion**
  Use art, literature, festivals, and academic efforts to re-emphasize mango's centrality to Indian heritage.

15 NEOLITHIC AGE

The Archaeological Survey of India recently discovered one of **first rock grooves in Kanniyakumari district** which were created during the neolithic age.



WHAT IS NEOLITHIC AGE?

- The term Neolithic has been derived from **two Latin words**. **'Neo' meaning New** and '**lithic'** meaning **stone**, hence Neolithic period is also known as **New Stone Age**.
- The Neolithic Age in India is generally **dated between 7000 BCE and 1000 BCE**, though this varies regionally.

WHAT ARE THE CHARACTERISTICS OF THIS PERIOD?

- **Agriculture transition and domestication of animals:** People began domesticating animals, cultivating **crops** such as wheat, barley, rice, millets, lentils, ragi, and cotton.
- **Permanent settlements:** This period saw a transition from **nomadic lifestyles to settled village**

- **Tool advancement:** Use of **polished stone tools**, including axes and sickles, indicating technological progress; was seen in the period.
- **Pottery:** Development of **handmade and wheel-turned pottery**, often decorated, reflecting artistic expression.
- **Arts and crafts:** Beads made of semi-precious stones, terracotta figurines (including images of cattle and mother goddesses), and decorated pottery.
- **Social behaviour:** Likely tribal, with nuclear families indicated by small house sizes.
- **Burial practices** included burying the **dead within houses**, and sometimes animal burials, suggesting rituals and **ancestor worship**.
- **Belief systems:** Possible worship of **natural forces and fertility cults**, as suggested by terracotta images and burial customs.

KEY INNOVATIONS:

- **Polished (ground) stone tools**: celts, chisels, adzes.
- **Domestication** of cattle, sheep, goats, pigs, dogs; some sites had chickens.
- **Agriculture**: Wheat, barley, legumes, millets, and rice; early farming emerged in many regions.
- **Pottery**: Greyware, black-burnished, mat-impressed, cord-impressed, handmade and, later, wheel-thrown.
- **Settlements**: Ranged from wattle-and-daub huts to **pit dwellings** (e.g. Kashmir), with **villages**, ash-mounds, and megalithic practices.
- **Social life**: Ritual burials (including animals), beads, terracotta figurines, early evidence of craft and trade.

MAJOR NEOLITHIC SITES IN INDIA

- **Mehrgarh (Balochistan) – 7000 BCE**: earliest farming; wheat, barley, peas, lentils, cotton; mud-brick houses, pottery wheel.

- **Burzahom (Kashmir) – ~3000 BCE**: pit dwellings, polished tools, bone artifacts, dog-burials.
- **Gufkral (Kashmir) – ~2000 BCE**: pit homes, polished tools, steatite beads, animal bones.

- **Chopani-Mando & Koldihwa & Mahagara (Belan Valley, UP) – 6500–3000 BCE**: pit and wattle-daub structures, cord-impressed pottery, cattle-pen with hoof prints, early rice remains.

- **Chirand (Bihar)** – **~2500 BCE**: rice farming, microliths, terracotta idols.
- **Daojali Hading (Assam)** – **~700 BCE**: cord-marked pottery, polished celts; recent finds include iron slag (~2700 BP).
- **South India sites**: Piklihal, Maski, Hallur, Brahmagiri (Karnataka) and Paiyampalli (Tamil Nadu) — **2600–800 BCE**, with ash-mounds, cattle-herding, later iron usage.
- **Kuchai, Golbai Sasan, Pandu Rajar Dhibi (East India)** – polished tools, cord pottery; early Neolithic in Orissa and Bengal.
- **Edakkal Caves (Kerala)** – late Neolithic rock art carvings dated ~6000 BCE.

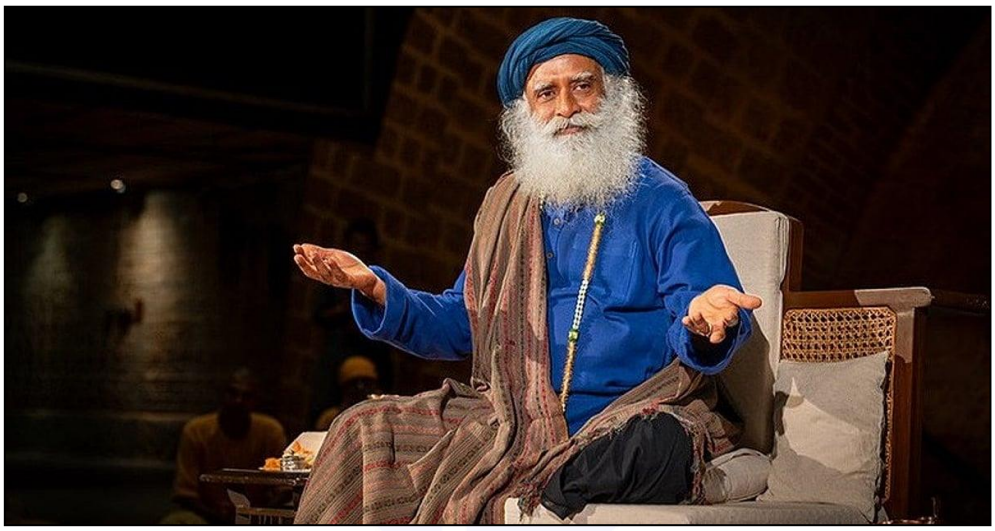
SIGNIFICANCE OF THE NEOLITHIC IN INDIA

- Paved the way for **settled agriculture**, **village life**, **crafts**, **trade contacts**, and **early rituals**.
- Introduced new **social organization**, with land concepts, family units, and community planning.
- **Regional diversity**: Reflects indigenous transformations rather than a single diffusion model.

The **Neolithic Age in India** (7000–1000 BCE) marks the foundational shift to settled life, farming, diversified crafts, and social complexity. Sites across the subcontinent reveal regional trajectories from Kashmir's pit dwellers to the Deccan's pastoral ash-mounds showing India's vibrant, multifaceted prehistoric evolution.

16 PERSONALITY RIGHTS

The Delhi High Court has passed an order protecting the personality rights, and publicity rights of Sadhguru Jaggi Vasudev, founder of Isha Foundation, and restrained various rogue websites from misusing his personality traits by deploying Artificial Intelligence (AI).



WHAT ARE PERSONALITY RIGHTS?

Personality Rights refer to the rights of an individual to control the commercial use of their **identity**, including name, image, likeness, voice, and other distinctive aspects of their personality.

These rights are especially relevant to **celebrities**, public figures, and those whose identity holds commercial value.

LEGAL BASIS:

- Personality rights are **not codified in a single statute** in India but derive from a combination of laws and judicial precedents.
- These are primarily protected under:
    - **Article 21** of the Constitution (Right to Life and Personal Liberty).
    - **Tort Law** (through the right to privacy and right to publicity).

- **Intellectual Property Rights**, particularly through **passing off** under trademark law.

RIGHT TO PRIVACY:

- Recognized as a **fundamental right** by the Supreme Court in **Justice K.S. Puttaswamy v. Union of India (2017)**.
- The right to privacy protects an individual from unauthorized use of personal attributes that can be exploited for commercial gain.

RIGHT TO PUBLICITY:

- Closely related to privacy, it allows individuals to **control and profit** from the commercial use of their persona.
- Notable case: **ICC Development (International) Ltd. v. Arvee Enterprises (2003)** – the Delhi High Court held that the right to publicity is a facet of the right to privacy.

PASSING OFF AND TRADEMARK LAW:

- Using a person's identity without permission, especially in a manner suggesting endorsement, may constitute **passing off**.
- If a person's name or image is registered as a **trademark**, unauthorized use can be challenged under the **Trade Marks Act, 1999**.

INDIAN COURTS UNAUTHORIZED USE IN MEDIA AND ADVERTISING:

- They have repeatedly restrained companies from using celebrity likenesses in ads without permission.
- Example: **D.M. Entertainment v. Baby Gift House (2004)** – singer Daler Mehndi sued for unauthorized use of his likeness in dolls; court recognized the commercial value of celebrity images.

POSTHUMOUS PERSONALITY RIGHTS:

- Indian law **does not clearly recognize posthumous personality rights**. However, in some cases, heirs have tried to enforce such rights.

- The courts' stance on this is evolving and currently inconsistent.

REMEDIES AVAILABLE:

- **Injunctions** to stop unauthorized use.
- **Damages or compensation** for loss of reputation or commercial exploitation.
- **Criminal defamation**, in severe cases under **Section 500 of IPC**.

CHALLENGES AND AMBIGUITY:

- **No specific legislation** governing personality rights.
- Conflicts with **freedom of speech and expression** under Article 19(1)(a) arise, especially in news reporting and satire.
- The judiciary must **balance public interest and individual rights**.

RECENT TRENDS AND DEVELOPMENTS:

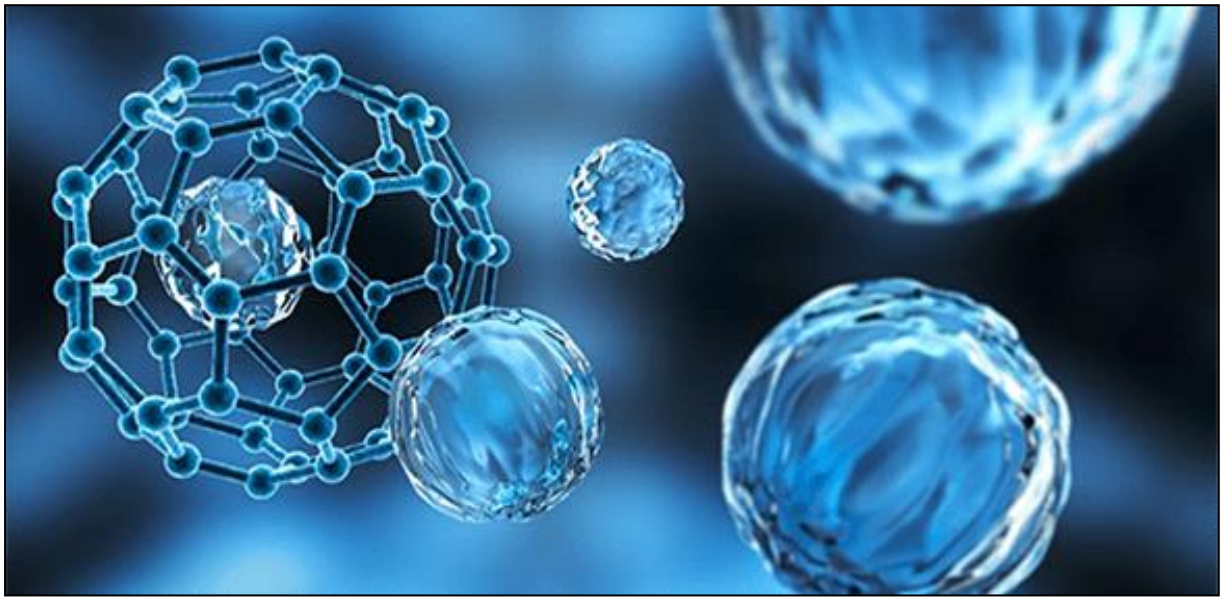
- Increasing awareness due to rising celebrity endorsements and social media.
- Indian courts are gradually adopting global standards, influenced by U.S. and U.K. jurisprudence.
- Cases like actors objecting to AI-generated content and deepfakes have **intensified calls for specific legislation**.

CONCLUSION:

Personality rights in India are evolving through judicial interpretations and a blend of constitutional, tort, and IP law. While key aspects like privacy and publicity are recognized, the absence of a unified statute remains a significant legal gap.

17 NANOENZYME

Researchers at the Indian Institute of Science (IISc.) have developed an artificial metal-based nanozyme that can potentially be used to clamp down on abnormal blood clotting caused by conditions like pulmonary thromboembolism (PTE).



WHAT IS NANOENZYME?

- A nanozyme is a **nanomaterial** that exhibits **enzyme-like catalytic activity**, meaning it can mimic the functions of natural enzymes in facilitating biochemical reactions.
- They mimic the **activity of natural antioxidant enzymes**, which **scavenge reactive oxidative molecules.**
- Nanozymes can be **made** from a variety of **materials**, including **metals, metal oxides, carbon-based materials, and metal-organic frameworks.**

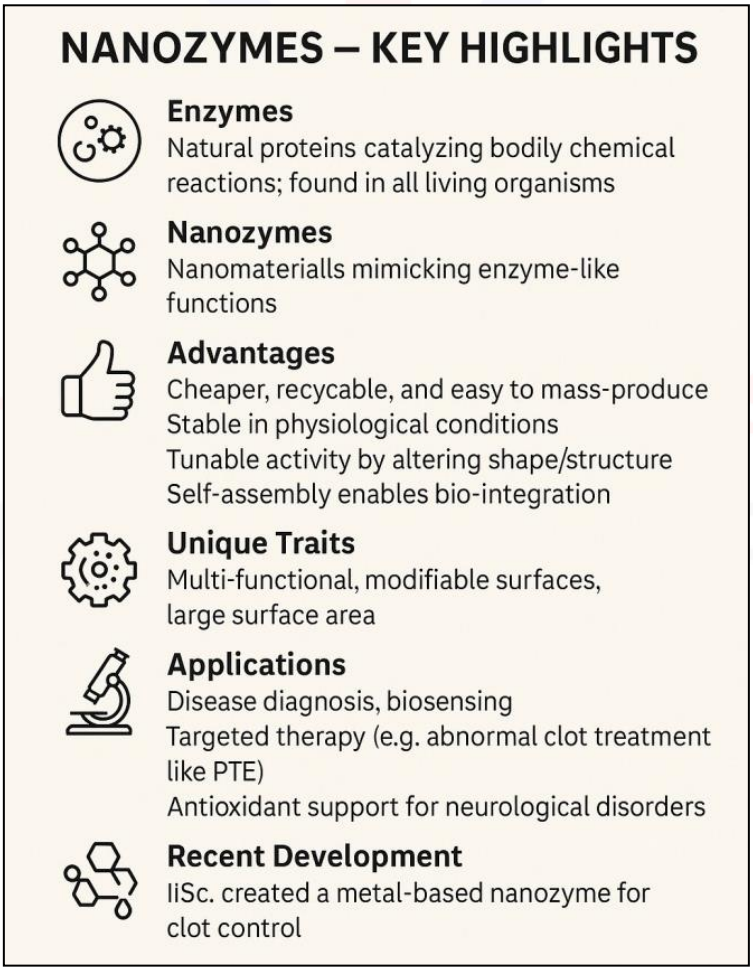
WHAT IS THE SIGNIFICANCE?

- These nanozymes developed by IISc. can be very efficiently used to **clamp down on abnormal blood clotting caused by conditions like pulmonary thromboembolism (PTE).**

- These nanozymes work by controlling **Reactive Oxygen Species (ROS) levels**, thereby preventing the over-activation of platelets that leads to excess clot formation or thrombosis.
- **Reactive Oxygen Species (ROS)** levels refer to the amount of oxygen-containing molecules in a cell that are highly reactive and can damage biological molecules.

WHAT ARE THE MATERIALS USED?

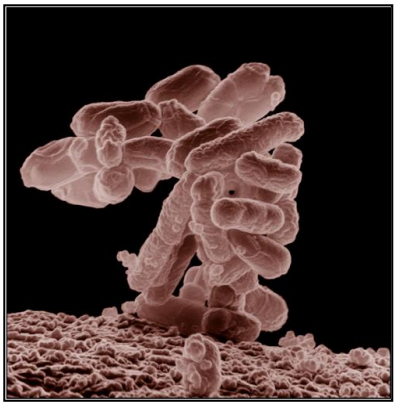
- The spherical-shaped vanadium pentoxide (V2O5) nano-zymes were the most efficient.
- These materials mimic a natural antioxidant enzyme called glutathione peroxidase to reduce oxidative stress.
- **Applications**– Nanozymes have a large range of applications for diagnostic medicine, targeted therapy, and biosensing.



18 THERMOPHILE BACTERIA

Context: Researchers have discovered thermophilic bacteria capable of producing antimicrobial compounds, particularly from the Actinobacteria group in the Rajgir hot spring in Bihar.

THERMOPHILIC BACTERIA



- Thermophiles are heat-loving bacteria that can survive in extreme temperatures ranging from 45°C to 70°C. They thrive in hot springs, deep-sea vents, and compost piles, etc.
- To compete with other microbes, some thermophiles produce strong antibiotics.
    - These antibiotics kill or suppress other bacteria, helping thermophiles survive better.

FINDINGS FROM RAJGIR HOT SPRING STUDY:

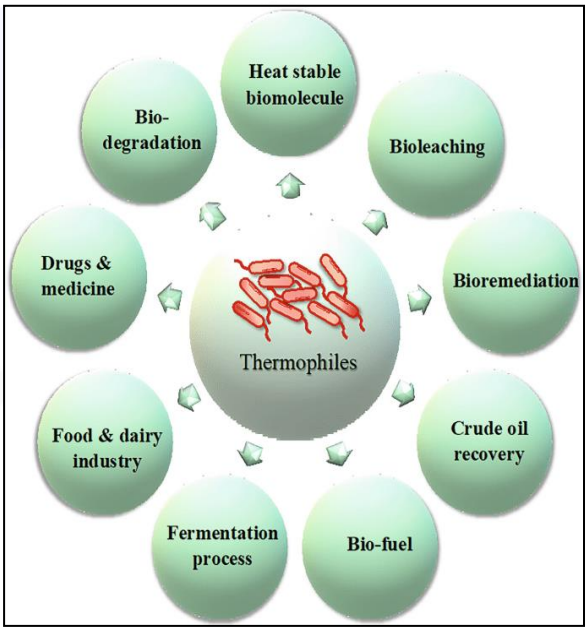
- Using a method called 16S rRNA metagenomics, researchers identified one major group of bacteria- Actinobacteria.
- Actinobacteria constituted 40-43% of the microbial diversity in the lake, a much higher share than typically observed in hot springs (generally ~20%).
- This group of bacteria is well-known for producing antibiotics like streptomycin, tetracycline, and erythromycin.
    - However, not all thermophiles can produce antibiotics.
- Seven strains of Actinobacteria were found that produced potent antimicrobial compounds.
    - These antimicrobial compounds are capable of inhibiting the growth of several pathogenic bacteria, including E. coli,

Salmonella typhimurium, Klebsiella pneumoniae, Pseudomonas aeruginosa, and Staphylococcus aureus.

- Researchers have succeeded in isolating a compound called diethyl phthalate from Actinomycetales bacteria found in the hot spring.
- Using gas chromatography-mass spectrometry (GC-MS), they identified its antibacterial activity against Listeria monocytogenes, a serious foodborne pathogen.
    - This finding highlights the potential use-case of hot spring microbes.

SIGNIFICANCE OF THERMOPHILES:

- **Produce antibiotics:** Discovering antibiotic-producing thermophiles offers a promising solution to combat antimicrobial resistance, which could add $1 trillion to global healthcare costs by 2050.
- **Produce enzymes for diagnostics:** Enzymes from thermophiles like Thermus aquaticus are used in PCR testing, which became a backbone of COVID-19 diagnostics.
- Heat-resistant enzymes from thermophiles are used in biotechnology, molecular biology, and chemical industries.
- **Biofertilisers:** A 2018 study by Banaras Hindu University found that thermophiles from Chumathang hot spring in Leh enhanced plant growth, suggesting application in biofertilizers and heat-stress resistant crops.



19 RAJGIR HOT SPRING

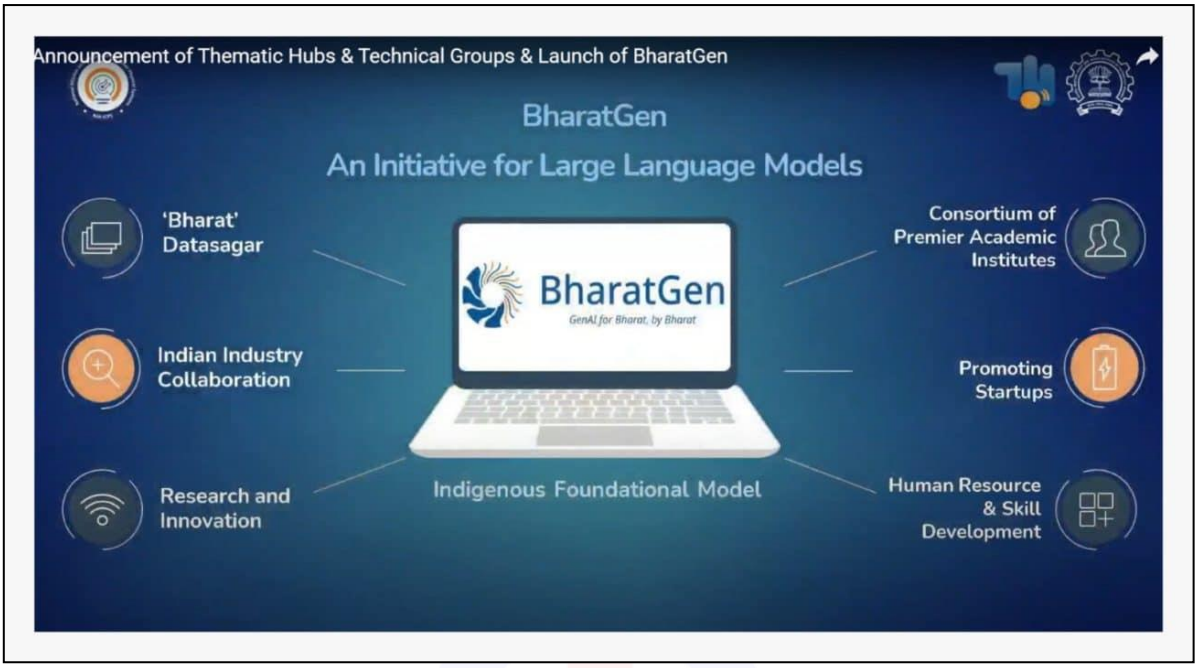
- Situated in **Rajgir**, **Nalanda district**, Bihar, India.
- **Geological Feature:** Natural **geothermal hot water spring** emerging from the **Vaibhav Hills**.
- **Temperature:** Water temperature reaches up to **45°C** (varies by spring).
- **Religious Significance:** Sacred to **Hindus, Buddhists**, and **Jains**.
- **Associated Deities:** Dedicated to various gods; **Brahmakund** is the hottest and most prominent spring.
- **Historical Links:** Believed to be visited by **Lord Buddha** and **Mahavira**.
- **Medicinal Belief:** Waters are rich in **sulphur**; believed to cure skin diseases.
- **Tourism:** Major **pilgrimage and wellness destination** in Bihar.

20 BHARATGEN

The Union Minister of State (IC) for Science & Technology launched "**BharatGen LLM**" at the **BharatGen Summit 2025.**

WHAT IS BHARATGEN?

- It is **India's first indigenously developed**, **government-funded Multimodal Large Language Model (LLM)** in **22 Indian languages.**
- **Multimodal LLMs** are **large language model**s trained on **diverse data types (text, images, audio, and video),** enabling them to **understand and interpret complex human language and multimedia**.
- They o**vercome limitations of unimodal models** (such as earlier versions of ChatGPT) by **providing cohesive responses across multiple data forms.**
- **Developed under National Mission on Interdisciplinary Cyber-Physical Systems (NM-ICPS)**, implemented by the **TIH Foundation for IoT and IoE at IIT Bombay**.
- **NM-ICPS** was launched in **2018** by the **Ministry of Science and Technology** to promote **innovation and R&D in Cyber-Physical Systems (CPS)** and **new-age technologies.**



WHAT ARE THE OBJECTIVES?

- **Promote ethical, inclusive, multilingual AI rooted in Indian values.**
- Provide **region-specific solutions in healthcare, agriculture, education, and governance.**
- **Boost rural telemedicine** with AI doctors speaking native languages.

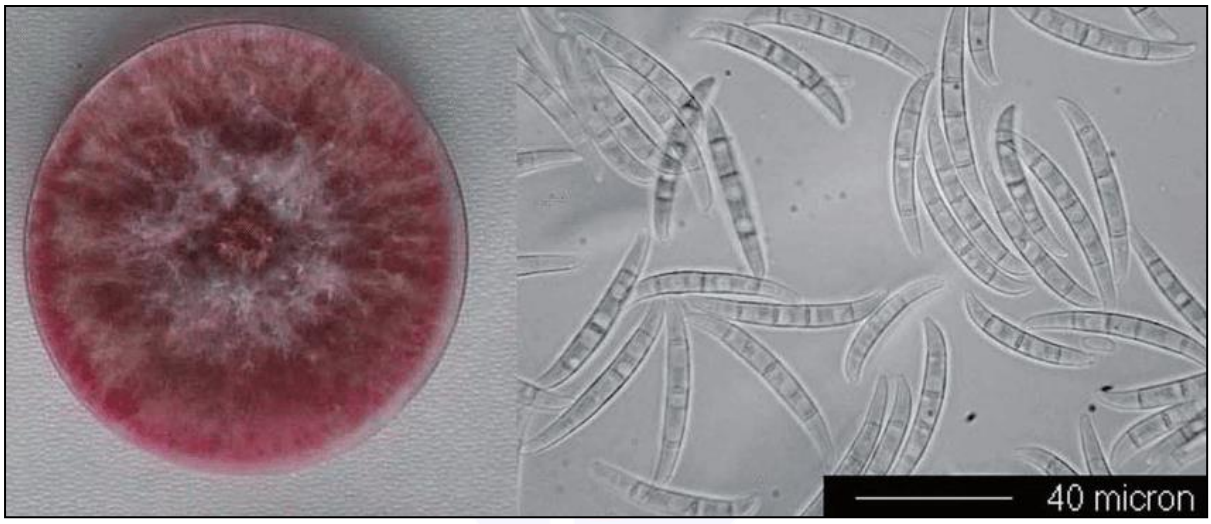
Feature / Aspect	Large Language Models (LLMs)	Generative Adversarial Networks (GANs)	Autoregressive Models (ARMs)
Definition	AI models trained on large text data to generate human-like language	AI models with two networks (Generator & Discriminator) that generate realistic content	Models that predict next value/token based on past sequence
Key Purpose	Text generation, translation, summarization	Image generation, deepfakes, data enhancement	Sequence modeling (text, speech, time-series)

Content Type	Primarily text	Primarily images, videos, or audio	Any sequential data (text, numbers, audio)
Relation to Generative AI	A subset of generative AI for text	A type of generative AI for media content	A technique used in both LLMs and time-series models
Examples	GPT-4, PaLM2, LLaMA	StyleGAN, CycleGAN	GPT, WaveNet, PixelRNN

21 SPECIES IN NEWS

FUSARIUM GRAMINEARUM

Two Chinese nationals had been charged in the US for allegedly smuggling an agricultural pathogen **Fusarium graminearum** into the United States.



ABOUT

- It is an ascomycete fungus responsible for **Fusarium head blight (FHB)** a devastating disease affecting cereal crops such as wheat, barley, maize, oats, and rice. It produces **Vomitoxin (Deo-xynivalenol),** harmful to humans and livestock.
- This pathogen not only reduces crop yields and quality but also contaminates grains with harmful mycotoxins, posing significant risks to both animal and human health.

WHAT IS AGRO-TERRORISM?

- Agro-terrorism is the intentional **use of biological agents** such as plant pathogens, pests, or contaminants to attack a **country's agricultural infrastructure.**

- **It targets food production systems** with the aim of causing **economic devastation, food insecurity, and public panic.**
- Agro-terrorism is attractive to hostile actors because it is low-cost, difficult to detect, and capable of triggering far-reaching economic and social damage.

GLOBAL EXAMPLES

- **UK Foot and Mouth Disease (2001):** Cost over £8 billion; suspected bio-attack.
- **Rice Blast Fungus (Asia):** Could be weaponized to destroy staple crops.
- **Anthrax in Cattle (Soviet Era):** Tested by USSR in Cold War biowarfare labs.

GLOBAL CONVENTIONS

- **Biological Weapons Convention (BWC) (1972):** It bans the development, production, acquisition, transfer, stockpiling, and use of biological and toxin weapons.
- **United Nations Security Council Resolution 1540:** UNSCR 1540 obliges all UN member states to prevent non-state actors from acquiring nuclear, chemical, and biological weapons.
- **Interpol's Bioterrorism Prevention Program:** Interpol works with member countries to enhance law enforcement capabilities in preventing and responding to bioterrorism.

UNGULATES

A report flags tiger-human conflict risk as prey base (ungulates) shrinks in Jharkhand, Chhattisgarh and Odisha.

WHAT ARE UNGULATES?

Ungulates are **hoofed mammals** that primarily walk on the tips of their toes, which are usually protected by a hard covering called a **hoof**.

They include both **herbivorous** and **omnivorous** mammals and play vital ecological roles in grazing and seed dispersal.

SCIENTIFIC CLASSIFICATION:

Ungulates belong to the superclass Ungulata and are traditionally divided into two main orders:

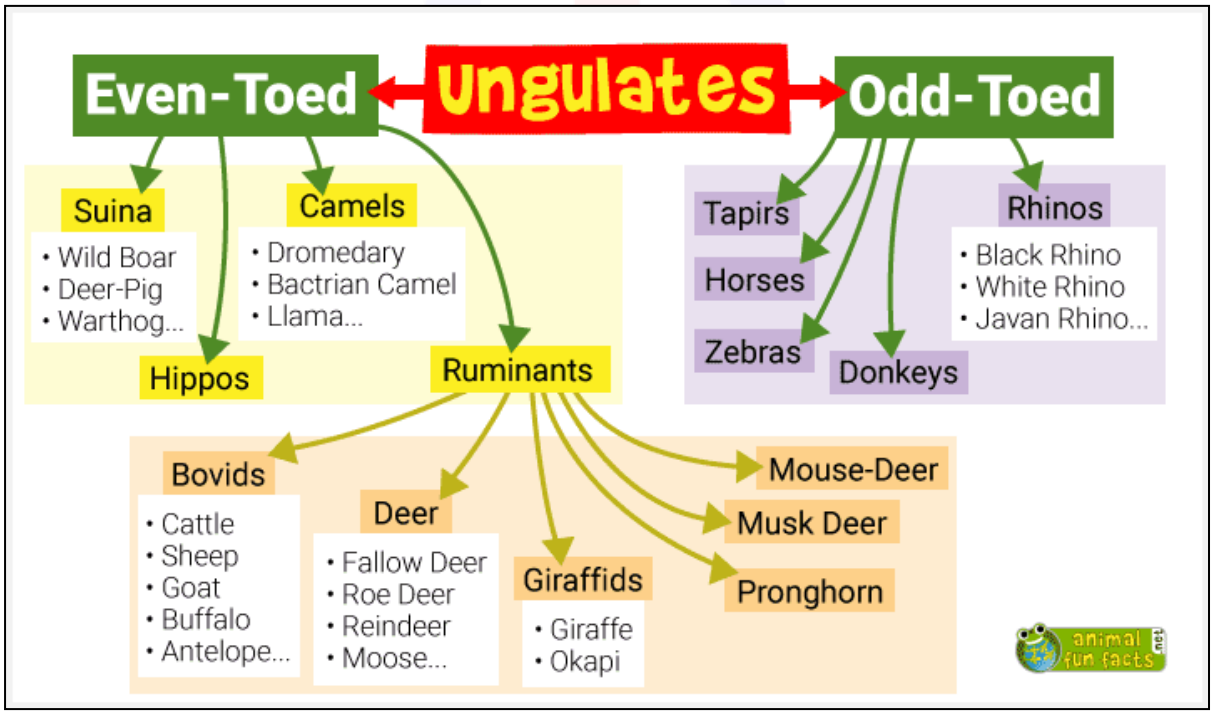
PERISSODACTYLA (ODD-TOED UNGULATES)

- **Examples:** Horses, Rhinos, Tapirs.
- Characteristic: Walk on 1 or 3 toes.

ARTIODACTYLA (EVEN-TOED UNGULATES)

- **Examples:** Deer, Cattle, Sheep, Goats, Pigs, Camels, Giraffes.
- **Characteristic:** Walk on 2 or 4 toes.

Modern classification includes whales and dolphins (order Cetacea) within Artiodactyla due to genetic similarities, under the clade Cetartiodactyla.



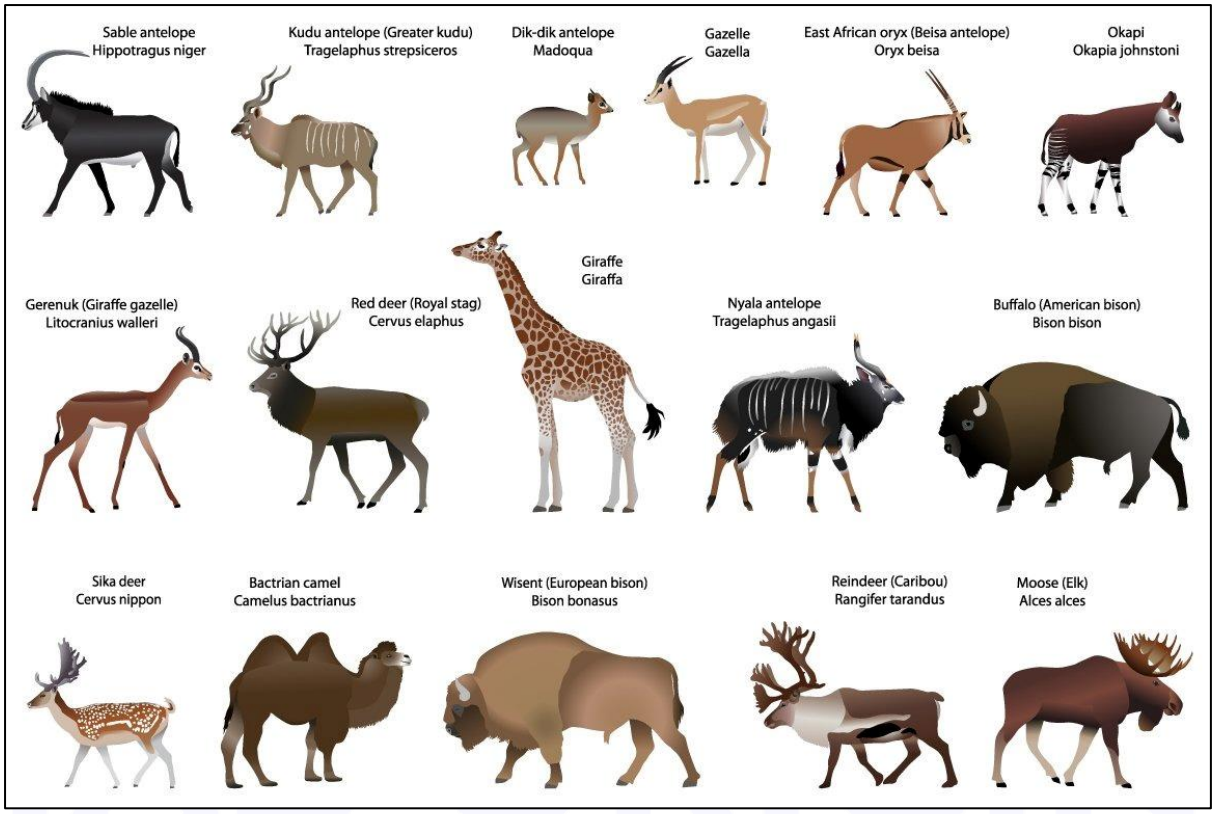
ECOLOGICAL ROLE AND IMPORTANCE

ECOLOGICAL FUNCTIONS:

- Ungulates are primary consumers in many ecosystems and form a key part of the food web.
- They influence vegetation patterns, soil fertility, and are prey for large carnivores (e.g., lions, tigers, wolves).

DOMESTICATED UNGULATES:

- Many are crucial for agriculture, transport, milk, meat, and leather industries.
- Common examples: Cows, buffaloes, sheep, goats, pigs, and camels.



UNGULATES IN INDIA

WILD UNGULATES IN INDIA:

- Include species like Nilgai, Blackbuck, Chital, Sambar, Indian Gazelle (Chinkara), Indian Wild Ass, and Indian Gaur.
- Some are endangered, such as the Indian Rhinoceros and Wild Water Buffalo.

CONSERVATION STATUS:

- Many ungulates are listed under Schedule I or II of the Wildlife Protection Act, 1972.
- Protected in national parks and wildlife sanctuaries across India.

WHAT ARE KEY FINDINGS OF REPORT ON UNGULATES?

- It is a **first-of-its-kind assessment of ungulates** conducted by the **Wildlife Institute of India (WII) and the National Tiger Conservation Authority (NTCA),** using **data** from India's **2022 tiger census.**
- **Key findings**
    - A **density of 30 ungulates per square km** can support four **tigers in 100 squares**
    - Tiger numbers may rise with prey density, but plateau at about 75 ungulates per sq km due to ecological constraints such as territoriality, competition and lack of habitat connectivity.
    - Among the tiger reserves, **Pench in Madhya Pradesh** has one of the **highest chital densities** nearly 54 per sq km.
    - There is a **direct link** between **low prey numbers and human-wildlife conflict**.

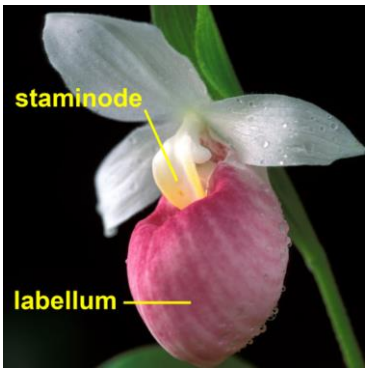
LADY'S SLIPPER ORCHID

The **Lady's Slipper orchid,** once **believed to be extinct in the UK** for nearly a century due to over-collection, was rediscovered in 1930 when a single plant was found. It has **now been spotted growing naturally in the wild again in England.**

LADY'S SLIPPER ORCHID

- **Taxonomy:** It belongs to the subfamily **Cypripedioideae** (Orchidaceae) and known for their distinctive **slipper-shaped labellum** that aids **pollination** by **trapping insects.**
- **Species & Distribution:**
    - Of the 5 global genera (Cypripedium, Mexipedium, Paphiopedilum, Phragmipedium, Selenipedium), **Cypripedium** and **Paphiopedilum** occur in **India,** primarily in the Himalayan states (J&K, Uttarakhand, Sikkim, Arunachal Pradesh) and the **Northeast hills.**
    - Its species are found in **boreal, temperate, and tropical regions of Europe, Asia, and North America.**
- **Habitat & Ecology:** Grow in **moist, shady, boreal, cool temperate forests and alpine zones** of Europe, Asia, and North America. It requires **humus-rich, well-drained soils.**
    - Some species like C. guttatum and C. passerinum in **Alaska sprout under snow.**

- **Threats & Conservation:** Declined due to **overcollection, medicinal use, habitat loss, and failed transplantation.** They are difficult to cultivate due to **specific soil and fungal needs.**
    - Conservation in India is led by the **Botanical Survey of India (BSI)** and other institutions through **in-situ and ex-situ conservation, tissue culture propagation, and habitat restoration.**
- **Conservation Status**
    - **CITES:** Appendix I & II
    - **IUCN Red List:** Critically endangered/ Endangered
    - **Wildlife Protection Act, 1972:** Schedule III



22 PLACES IN NEWS

ARAVALLI GREEN WALL PROJECT

The Prime Minister launched the Aravalli Green Wall project to combat the threat of desertification.

WHAT IS ARAVALLI GREEN WALL PROJECT?

- It is a flagship initiative launched by the Ministry of Environment, Forest and Climate Change (MoEFCC) to combat land degradation.
- The project aims to establish a 5-km-wide green buffer along the entire 700-km stretch of the Aravalli Range (one of the oldest in the world), which runs through Gujarat, Rajasthan, Haryana, and Delhi.
- It is an afforestation and reforestation initiative, focusing on native species, water harvesting, and community involvement.
- The project directly contributes to India's commitments under various international conventions, including the United Nations Convention to Combat Desertification (UNCCD), the Convention on Biological Diversity (CBD), and the United Nations Framework Convention on Climate Change (UNFCCC).

WHAT IS AFRICA'S GREAT GREEN WALL PROJECT?

- **Objective**: To combat desertification, land degradation, and climate change in the Sahel region by restoring degraded landscapes.
- **Initiation**: Launched in **2007** by the **African Union**.
- **Geographic Scope**: Stretches across **11 countries** from Senegal in the west to Djibouti in the east, covering **8,000 km** and aiming to restore **100 million hectares**.
- **Purpose**: Protect livelihoods, improve food security, and sequester **250 million tonnes of carbon** by 2030.
- **Progress**: As of 2021, around **18 million hectares** restored; projects ongoing in Ethiopia, Senegal, and Nigeria.
- **Funding**: Backed by the **World Bank**, **UNCCD**, **African Development Bank**, and others; over **$19 billion** pledged in 2021.
- **Benefits**: Creates **10 million jobs**, boosts biodiversity, and reduces climate migration.
- **Approach**: Not just tree planting includes sustainable agriculture, water management, and community empowerment.
- **Challenges**: Political instability, funding gaps, and coordination among countries.

WHAT IS UNCCD?

- **Established**: 1994, following the 1992 Rio Earth Summit.
- **Headquarters**: Bonn, Germany.
- **Objective**: To combat **desertification**, mitigate effects of **drought**, and promote **sustainable land management** (SLM) in arid, semi-arid, and dry sub-humid areas.
- **Membership**: 197 Parties, including **India**.
- **Legally Binding**: It is the only legally binding international agreement linking **environmental protection** with **sustainable land use**.
- **Key Principle**: Promotes **bottom-up approach**, empowering **local communities** and integrating traditional knowledge.
- **Flagship Initiative**: **Land Degradation Neutrality (LDN)** by 2030.

INDIA'S INVOLVEMENT & DESERTIFICATION DATA

- **India ratified UNCCD** in 1996.
- **Host**: India hosted **COP14** (Conference of Parties) in **2019** in New Delhi.
- **Commitment**: India pledged to restore **26 million hectares** of degraded land by **2030**.

DESERTIFICATION STATUS IN INDIA (AS PER ISRO & MOEFCC):

- **Land Degradation**: Around **29.7%** of India's total land area (~96.4 million hectares) is degraded (2018-19).
- **Major Affected States**:
    - **Rajasthan, Maharashtra, Gujarat, Karnataka, and Madhya Pradesh**.
- **Causes**:
    - Water erosion (**10.98%** of total land),
    - Wind erosion, deforestation,
    - Unsustainable farming,

- Overgrazing,
- Industrial & mining activities.

CHENAB AND ANJI RAIL BRIDGES

Prime Minister Narendra Modi inaugurated the **Chenab** and **Anji** rail bridges in Jammu and Kashmir, marking a historic moment for infra-structure and connectivity in the region.

CHENAB RAIL BRIDGE

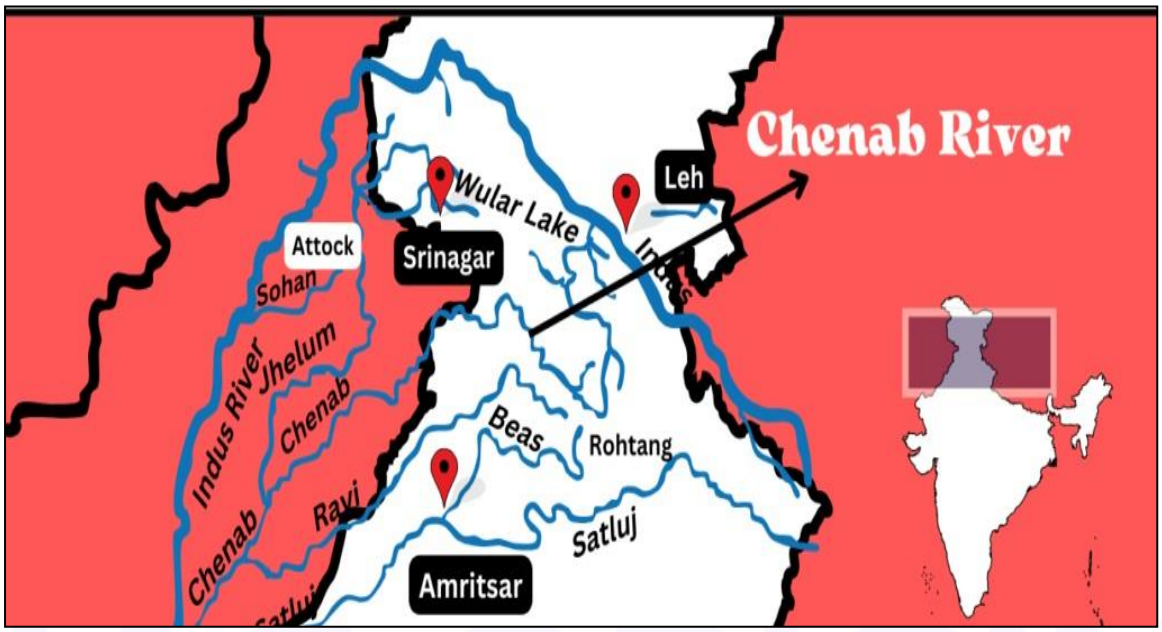
- The Chenab Rail Bridge, situated **359 meters** above the **Chenab River**, is the **world's highest** railway arch bridge.
- It is a **1,315-metre-long** steel arch bridge engineered to withstand seismic and wind conditions.
- A key impact of the bridge will be in enhancing connectivity between **Jammu and Srinagar**.
    - It will take just about **3 hours** to travel between **Katra and Srinagar**.

ANJI RAIL BRIDGE

- The Anji Bridge, **India's first cable-stayed railway bridge**, is located in the Reasi district, spanning **473 meters across the Anji River**, a tributary of the Chenab.

- The bridge is part of the **Udhampur-Srinagar-Baramulla Rail Link project**.
- The bridge will enhance connectivity to the Kashmir Valley, playing a crucial role in improving trade, travel, and defense logistics in the area.

CHENAB RIVER



ORIGIN & MOUNTAIN RANGE

- The Chenab begins as two rivers **Chandra** and **Bhaga** which originate near **Baralacha La Pass** (~4,890 m) in Himachal Pradesh.
- This pass lies in the **Zanskar Range**, part of the **Western Himalayas**.

FORMATION

- The **Chandra River** forms from glaciers east of Baralacha La, while the **Bhaga River** starts from **Suraj Tal Lake**, just below the pass.
- These two streams merge at **Tandi**, in Lahaul and Spiti district, forming the **Chandrabhaga**, later known as the Chenab.

COURSE THROUGH HIMALAYAS

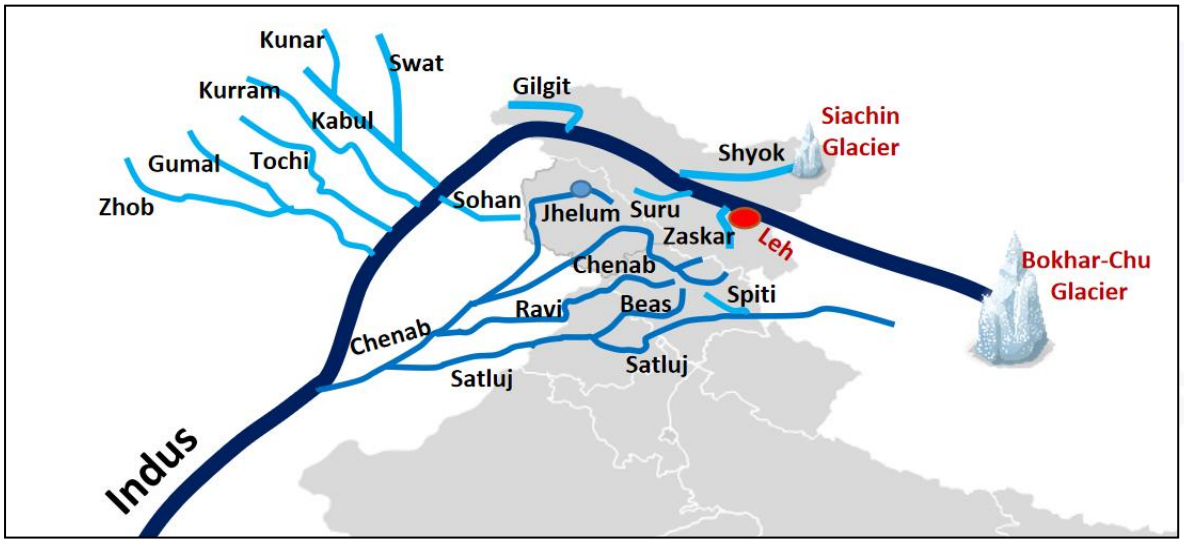
- From Tandi, the river flows through the rugged **Pangi Valley**, keeping south of the **Pir Panjal Range**, then enters Jammu region.

TOTAL LENGTH & EXIT TO PLAINS

- After weaving through Jammu & Kashmir, it enters Pakistan's Punjab province and eventually joins the **Indus River** system via the **Sutlej**.
- Estimated length ranges from **960 km to 1,200 km**, with noted figures around 974 km (~605 miles) and 1,180 km.

TRIBUTARIES

- **Marusudar:** Largest tributary, joining Chenab at Bhandarkot, nourishing agricultural lands.
- **Miyar Nalla:** Himalayan source, contributing to Chenab's cool character.
- **Liddari:** Scenic valleys, enriching biodiversity and charm.
- **Tawi:** Cultural significance near Jammu, providing irrigation and holding a place in local rituals.
- **Kalnai & Neeru:** Key tributaries in Pakistan, play vital roles in irrigation and agriculture.



DAMS ON THE CHENAB RIVER

IN INDIA:

- **Salal Dam:** This 690 MW behemoth near Reasi, Jammu and Kashmir, is a marvel of engineering, generating clean energy and regulating river flow.

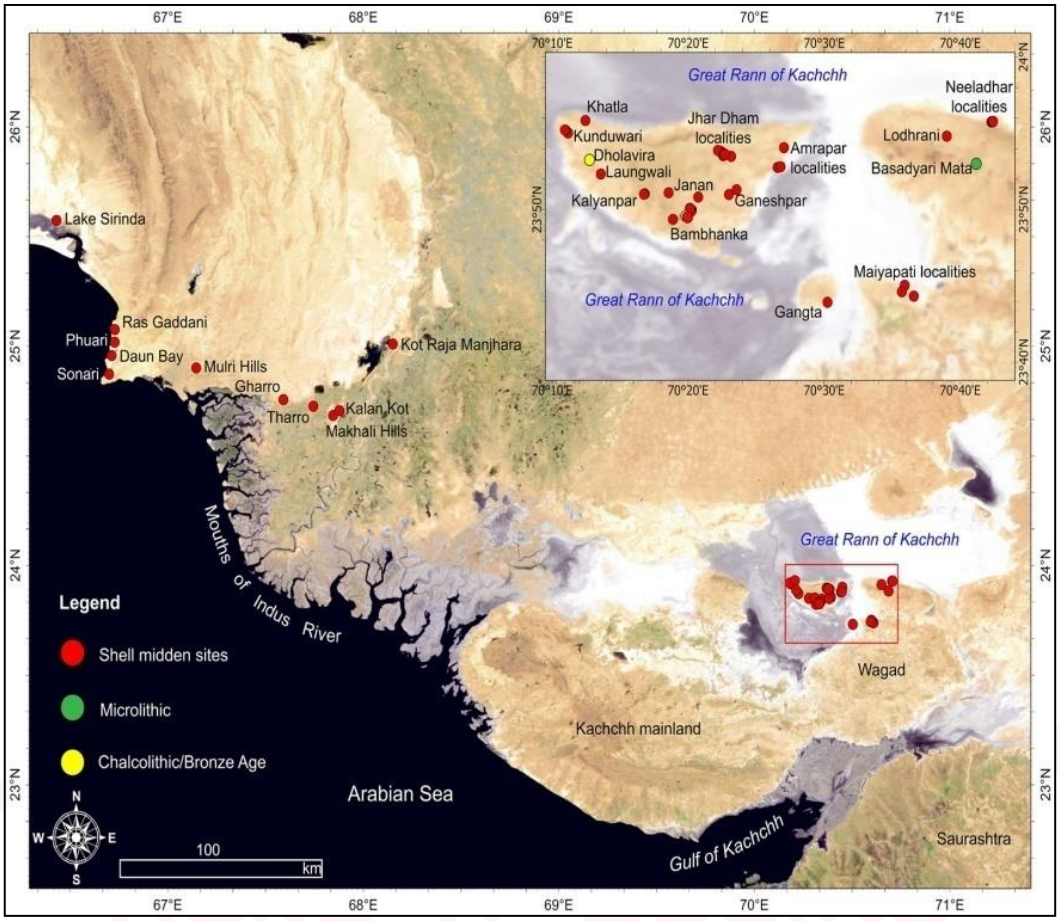
- **Baglihar Dam:** Standing tall near Ramban, Jammu and Kashmir, this 900 MW dam is another major source of hydropower for India.
- **Dul Hasti Hydroelectric Plant:** Located in Kishtwar District, Jammu and Kashmir, this 390 MW plant harnesses Chenab's power for electricity generation.
- **Ratle Hydroelectric Plant:** Currently under construction near Drabshalla in Kishtwar District, this project aims to add 850 MW to India's power grid.
- **Pakal Dul Dam:** A controversial project on the Marusudar tributary, this dam has caused friction between India and Pakistan due to concerns about its impact on downstream water availability. Construction is ongoing despite opposition.

IN PAKISTAN:

- **Marala Headworks:** Located near Sialkot and Gujrat District, this headworks diverts water from the Chenab for irrigation purposes in Pakistan.
- **Khanki Headworks:** Situated in Gujranwala District, this headworks also plays a crucial role in irrigating Pakistan's agricultural lands.
- **Qadirabad Headworks:** Found in Mandi Bahauddin District, this headworks further contributes to Pakistan's irrigation network.
- **Trimmu Barrage:** Located in Jhang District, this barrage helps regulate the flow of the Chenab for irrigation and hydropower generation.

PRE-HARAPPAN COASTAL SETTLEMENTS IN KACHCHH

The study by the researchers of the Indian Institute of Technology Gandhi nagar (IITGN), has uncovered archaeological evidence that pushes back the human presence in this region by at least 5,000 years prior to the arrival of Harappans.



FINDINGS OF THE STUDY

- **Early Human Settlement in Kachchh:** The study suggests that early communities inhabited a mangrove-dominated landscape and relied on shell species (both bivalves like oysters and gastropods), naturally adapted to such environments, as a significant food source.
    - The **presence of stone tools** (for cutting, scraping, and splitting) and tool-making cores indicates the existence of semi-permanent or settled communities.

- **Pre-Harappan Culture with Regional Linkages:** The findings suggest a cultural continuity and regional interaction among early coastal communities from:
    - **Las Bela and Makran regions** (now in Pakistan), and
    - **The Oman Peninsula,** indicating similar subsistence and survival strategies.
- This challenges the long-held belief that urbanisation in Kachchh emerged solely under the influence of the **Sindh-based Harappan culture,** suggesting instead a more complex and indigenous developmental trajectory.

METHOD TO DETERMINE THE AGE OF THE SITES

- The research team used **Accelerator Mass Spectrometry (AMS)** dating of shell remains, a highly precise technique that measures the **radioactive isotope Carbon-14 (C-14)** absorbed by living organisms.
- After death, C-14 begins to decay and is **reduced by half every 5,730 years.**
- As atmospheric C-14 levels have varied over time, the results were calibrated using tree-ring data.
    - **Trees form one ring per year**, and these tree-ring sequences can be matched and extended back over thousands of years, allowing scientists to construct an accurate reference timeline of atmospheric C-14.

KHEER BHAWANI FESTIVAL

The **Kheer Bhawani festival**, an annual celebration held on **Jyeshta Ashtami**, is currently taking place at the **Kheer Bhawani temple in Ganderbal, Jammu and Kashmir.**

KHEER BHAWANI TEMPLE

- The original temple was built by **Maharaja Pratap Singh around 1912**. It was later embellished and **renovated by Maharaja Hari Singh.**
- It is dedicated to **Goddess Ragnya Devi**, who is considered an incarnation of Goddess Durga.
- A distinctive feature of the temple is a **hexagonal spring** located at its center, revered for its sacred water.
- Both the temple and the festival derive their name from the **sweet dish 'kheer',** which is distributed as prasad (a religious offering) to devotees.

KERCH STRAIT

Ukraine says it hit **Kerch Strait Bridge** also known as the **Crimean Bridge** with underwater explosives.

Opened in 2018, the **Kerch Bridge** is a road and rail bridge that connects the Russian mainland with Crimea, crossing **over the Kerch Strait.**

KERCH STRAIT

- **Location:** The Kerch Strait is a narrow waterway that connects the Sea of Azov to the Black Sea.
- **Geography**: It is approximately 4 kilometers wide at its narrowest point and serves as a crucial shipping lane.
- **Control and Access:** Since Russia annexed Crimea in 2014, it has gained control over the entire Kerch Strait area, including the waters and surrounding infrastructure, including the Kerch Bridge.

ECOWAS

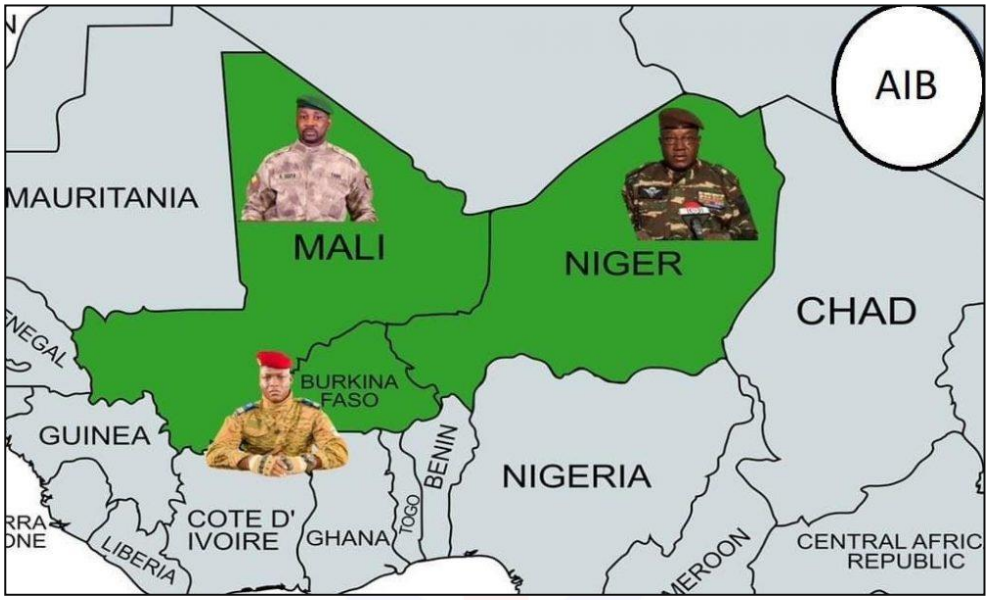
According to a recent study, 54% of Togolese citizens believe their country would benefit from exiting the **Economic Community of West African States (ECOWAS)** to join the Alliance of Sahel States (AES).

WHAT IS ECOWAS?

- Also known as **CEDEAO** in French and Portuguese, it is headquartered in **Abuja, Nigeria**.
- It was established in **1975** through the **Lagos Treaty** to promote economic integration among its members. ECOWAS has also worked to address some security issues by developing a peacekeeping force for conflicts in the region.
- It initially had **15 members**: Benin, Burkina Faso, Cabo Verde, Cote d'Ivoire, The Gambia, Ghana, Guinea, Guinea-Bissau, Liberia, Mali, Niger, Nigeria, Senegal, Sierra Leone, and Togo. However, in **January 2025**, the **military-led governments** of **Mali, Niger, and Burkina Faso** formally **withdrew** from ECOWAS, reducing the bloc to **12 members**.

DO YOU KNOW?

- On 16 September 2023, the three West African junta-led countries of Burkina Faso, Mali, and Niger declared the creation of the **Alliance of Sahel States**, or L'Alliance des États du Sahel (AES).



WHAT IS ALLIANCE OF SAHEL STATES (AES)?

- Established in **September 2023** by **Mali, Burkina Faso, and Niger**.
- Aimed at mutual **defense cooperation**, **collective security**, and **sovereignty protection**.
- Formed after military coups in all three countries and growing tensions with **ECOWAS** and **Western nations**.
- All three nations expelled **French troops**, rejecting foreign military presence.
- An attack on one member is considered an attack on all (similar to NATO's Article 5).
- In January 2024, AES countries **withdrew from ECOWAS**, citing lack of support.
- Focus on **anti-terrorism**, **regional stability**, and **independent foreign policy**.

SHANGRI-LA DIALOGUE 2025

Chief of Defence Staff (CDS) General Anil Chauhan attended the **22nd Shangri-La Dialogue (2025)** to enhance defence diplomacy and engage with global military leadership.

ABOUT THE DIALOGUE

- Hosted annually by the International Institute for Strategic Studies **(IISS)**.
- Named after the **Shangri-La Hotel in Singapore**, where it has been held since its inception in **2002**.
- It is **Asia's premier defence and security summit** that brings together defence ministers, military chiefs, policy makers and strategic experts across the globe.
- The 22nd edition witnessed participation from **40 nations**, focusing on emerging security challenges in the **Indo-Pacific region**.

INDO-PACIFIC REGION

- The Indo-Pacific is a geopolitical and strategic region that stretches from the **east coast of Africa** and **Indian Ocean** to the **western Pacific Ocean**, including countries of **South Asia, Southeast Asia, East Asia, and Oceania**.

- **Strategic Importance**:
  - Houses **major sea lanes of communication (SLOCs)** like the **Strait of Malacca**, vital for global trade.
  - Accounts for **over 60% of global GDP** and **more than half of the global population**.
  - Rich in **natural resources**, **critical minerals**, and **fisheries**.
- **Security Dimensions**:
  - Region faces challenges such as **maritime piracy**, **terrorism**, **territorial disputes** (e.g., South China Sea), and **China's assertiveness**.
  - Presence of major naval powers including **India, USA, China, Japan, and Australia**.

- **India's Role**:
  - Advocates for a **Free, Open, Inclusive Indo-Pacific**.
  - Participates in regional groupings like **QUAD**, **ASEAN-led forums**, and **IORA**.
  - Promotes SAGAR doctrine (*Security and Growth for All in the Region*).

- **Geopolitical Rivalries**:
  - Increasing **US-China rivalry** over regional dominance.
  - **China's Belt and Road Initiative (BRI)** challenges other regional frameworks.
- **Economic Dimension**:
  - Major hub for **trade, investment, technology**, and **blue economy** initiatives.

ICRISAT LAUNCHES AGRI COOPERATION CENTRE FOR GLOBAL SOUTH

The International Crops Research Institute for the Semi-Arid Tropics (ICRISAT), in collaboration with Research and Information System for Developing Countries (RIS), launched the **ICRISAT Centre of Excellence for South-South Cooperation in Agriculture (ISSCA).**

The new Centre is based in **Hyderabad.**

ABOUT

- To catalyze **South-South Cooperation (SSC)** by translating proven agricultural innovations into scalable, impactful solutions.
- **Focus Areas:**
    - Deployment of **low-cost, high-impact** technologies.
    - Promotion of **policy models and capacity-building tools** tailored to dryland and developing regions.
    - **Peer-to-peer learning and knowledge exchange** among countries of the Global South.
- It features a **digital portal** that functions as a living repository of validated innovations.

WHAT IS SOUTH-SOUTH COOPERATION (SSC)?

South-South Cooperation refers to the **collaboration among developing countries** (Global South) in **political, economic, social, cultural, environmental, and technical domains**.

ORIGINS:

Rooted in the **Bandung Conference (1955)** and institutionalized through the **G77 group (1964)** and **UN framework**.

OBJECTIVES:

- Promote **mutual self-reliance** among developing nations.
- Enhance **capacity building**, **technology transfer**, and **trade**.
- Reduce dependency on developed (Global North) countries.
- Foster **solidarity**, **shared growth**, and **sustainable development**.

KEY FEATURES:

- **Horizontal partnership** (not donor-recipient).
- Based on **equality**, **mutual benefit**, and **non-interference**.
- Encourages use of **local solutions and expertise**.

EXAMPLES:

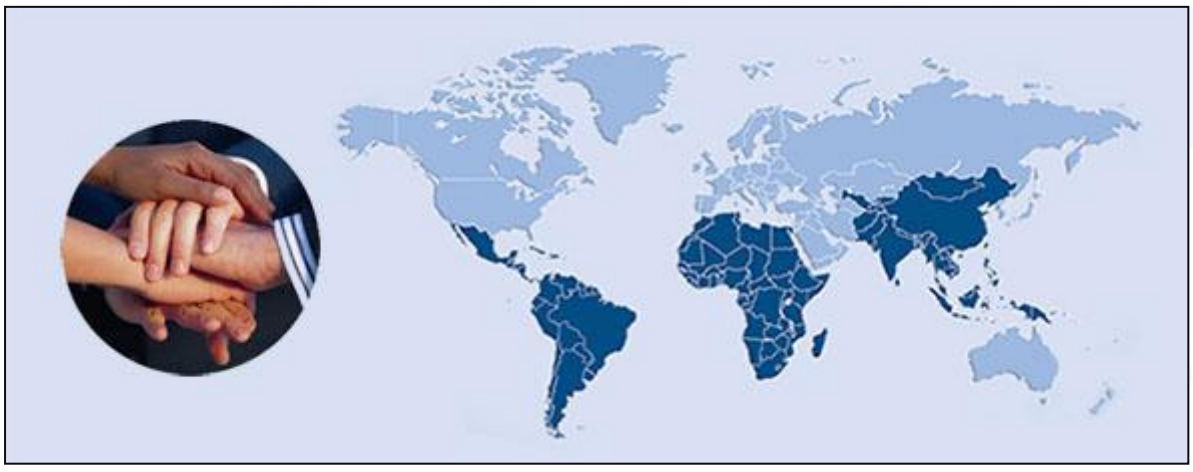
- **India's development partnerships** in Africa and Asia (Lines of Credit, Pan-African e-Network).
- **China's infrastructure projects** and technology transfer in Latin America and Africa.
- **IBSA Dialogue Forum** (India-Brazil-South Africa).
- **BRICS cooperation** in finance, health, and technology.

GLOBAL IMPORTANCE:

- Complements **North-South aid**, helps achieve **SDGs**, and promotes **inclusive globalization**.

CHALLENGES:

- Resource limitations, lack of coordination, and political instability in partner nations.
- SSC is a vital pillar of global development architecture and reflects the rising role of the Global South in international affairs.



MSC IRINA AT VIZHINJAM INTERNATIONAL SEAPORT

MSC Irina (biggest container vessel in the world) first time reached the **Vizhinjam International Seaport.**

VIZHINJAM INTERNATIONAL SEAPORT

- It is developed by the **Kerala government** under a **Public-Private Partnership (PPP) model.**
- It is a deepwater transshipment port for container and multipurpose cargo.
- It is India's **first transshipment port capable of handling** ultra-large container ships.
    - It is located near **Sri Lanka's Colombo Port**, which currently handles 70% of India-bound transshipment cargo.
- It aims to **reduce India's dependence** on foreign ports like Colombo.
- Its natural 24-meter depth allows it to berth the world's largest ships without extensive dredging.

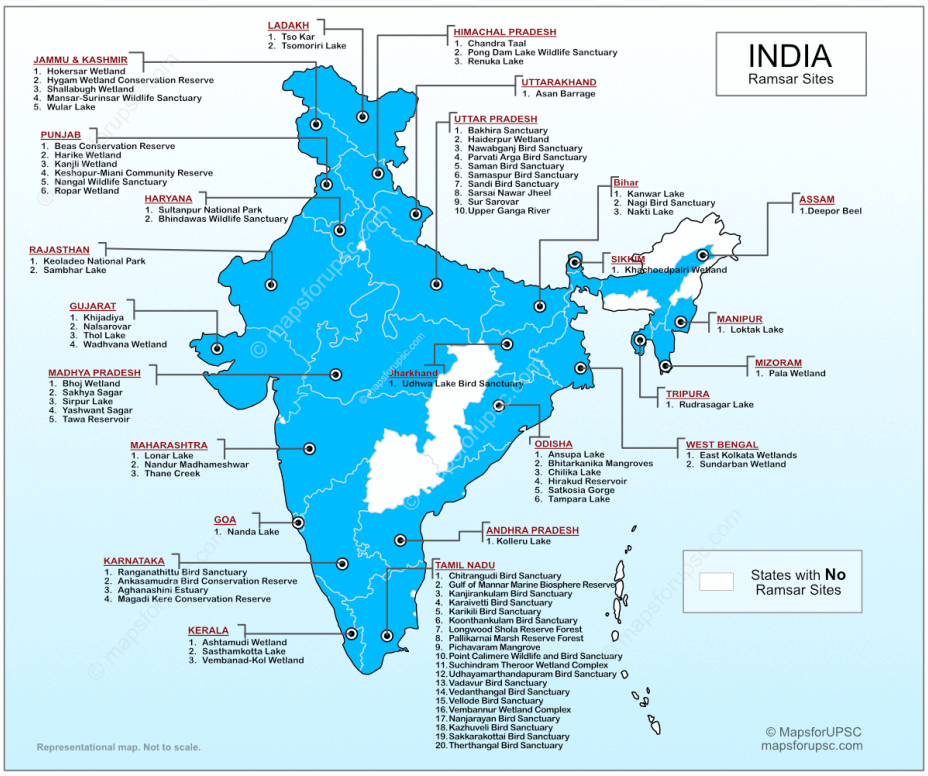
TWO NEW RAMSAR SITES ADDED TO RAMSAR LIST

On World Environment Day 2025 (observed annually on **June 5, 1973** and led by the **UN Environment Programme**), two wetlands from Rajasthan **Khichan and Menar** were designated as **new Ramsar Sites**, taking India's total sites to 91.

Rajasthan now has **four Ramsar sites**, while **Tamil Nadu** continues to lead with the **highest number (20 sites)** in India.

WHAT ARE THE WETLANDS?

- **The Ramsar Convention's definition for wetlands includes:**
    - "Areas of marsh, fen, peatland or water, whether natural or artificial, permanent or temporary, with water that is static or flowing, fresh, brackish or salt, including areas of marine water the depth of which at low tide does not exceed six meters".
- **Human-made wetlands:** Fish and shrimp ponds, farm ponds, irrigated agricultural land, salt pans, reservoirs, gravel pits, sewage farms and canals.



WHAT IS THE RAMSAR CONVENTION?

- The Ramsar Convention is one of the oldest **inter-governmental accords** signed by member countries to preserve the ecological character of their wetlands of international importance.
- It was signed on **February 2, 1971** in **Ramsar, Iran** and came into force in 1975.
    - India became a signatory to the **Ramsar Convention in 1982.**

NEWLY DESIGNATED RAMSAR SITES IN RAJASTHAN

- **Menar Wetland, Udaipur:** A freshwater monsoon wetland complex comprising:
    - **Three ponds:** Braham Talab, Dhand Talab, and Kheroda Talab
    - **Seasonal agricultural lands** that flood during monsoon.
    - **Biodiversity:** White-rumped vulture, Long-billed vulture, Indian flying foxes.
- **Khichan Wetland (Phalodi) Jodhpur:** Located in the northern **Thar Desert.** It comprises; **Ratri Nadi (river), Vijaysagar Talab (pond),** Riparian zones and scrublands.
    - **Biodiversity:** It supports **150+ bird species** and is notable for migratory **demoiselle cranes** with over **22,000 individuals** arriving each winter.

MONTREUX RECORD

- The Montreux Record is a register within the **Ramsar Convention on Wetlands** that identifies wetlands of international importance **facing threats** or **ecological changes**.
- These are sites where ecological changes have occurred, are occurring, or may occur due to technological developments, pollution, or other human interference.
- They **remain part of the Ramsar List** (i.e., inclusion in the Montreux Record does not exclude them from the Ramsar List) and are prioritized for conservation efforts.

- **Two Ramsar sites** from India are currently on the Montreux Record:
  - **Loktak Lake (Manipur)**
  - **Keoladeo National Park (Rajasthan)**
- Chilika Lake (Odisha) was removed from the Montreux Record in 2002 due to successful restoration efforts.

KEY FACTS ABOUT RAMSAR SITES IN INDIA

- The Ramsar Convention entered into force in India on **1 February 1982**.
- As of 2025, there are 89 Ramsar Sites in India covering approximately 13,60,000 hectares.

- At present, the states of **Telangana**, **Chhattisgarh**, **Arunachal Pradesh**, **Meghalaya**, and **Nagaland** do not have any designated Ramsar Sites.

TOP STATES BY AREA UNDER RAMSAR SITES:

- West Bengal
- Odisha
- Tamil Nadu
    - **Goa (0.42 km^2)** has the **smallest area** under Ramsar Sites.

LARGEST RAMSAR SITES:

- **Sundarban Wetland (West Bengal)**
- **Kazhuveli Bird Sanctuary (Tamil Nadu)**
- **Vembanad-Kol Wetland (Kerala)**

SMALLEST RAMSAR SITES:

- Renuka Lake (Himachal Pradesh)
- Vembannur Wetland Complex (Tamil Nadu)
- Vedanthangal Bird Sanctuary (Tamil Nadu)
    - **Chilika Lake (Odisha)** and **Keoladeo National Park (Rajasthan)**, both designated in **1981**, are the **oldest Ramsar Sites in India**.

TELANGANA FORMATION DAY

Telangana Formation Day, also known as Telangana Statehood Day, is celebrated annually on **June 2**.

ABOUT

- **Telangana**, India's youngest state, was officially formed on **June 2, 2014**, by bifurcating the northwestern part of **Andhra Pradesh**, following the enactment of the **Andhra Pradesh Reorganisation Act, 2014**.
- At the time of formation, it was agreed that **Hyderabad** would serve as the joint capital of both Andhra Pradesh and Telangana for a period of **ten years**, after which Andhra Pradesh would establish a new capital.
- The day is marked by **cultural programs**, **official ceremonies**, and **public celebrations** across Telangana.

WHAT IS CONSTITUTIONAL PROVISION?

- **Article 3 of the Indian Constitution** provides that **Parliament may by law:**
    - Form a new State by separation of territory from a State or by uniting two or more States or parts of States;

- Increase the area of any State;
- Diminish the area of any State;
- Alter the boundaries of any State;
- Alter the name of any State.

REGIONAL RAPID TRANSIT SYSTEM (RRTS)

The **Delhi-Ghaziabad-Meerut RRTS**, also known as **NaMo Bharat**, has become operational in its first phase, significantly enhancing semi-high-speed rail connectivity in the National Capital Region (NCR).

REGIONAL RAPID TRANSIT SYSTEM (RRTS)

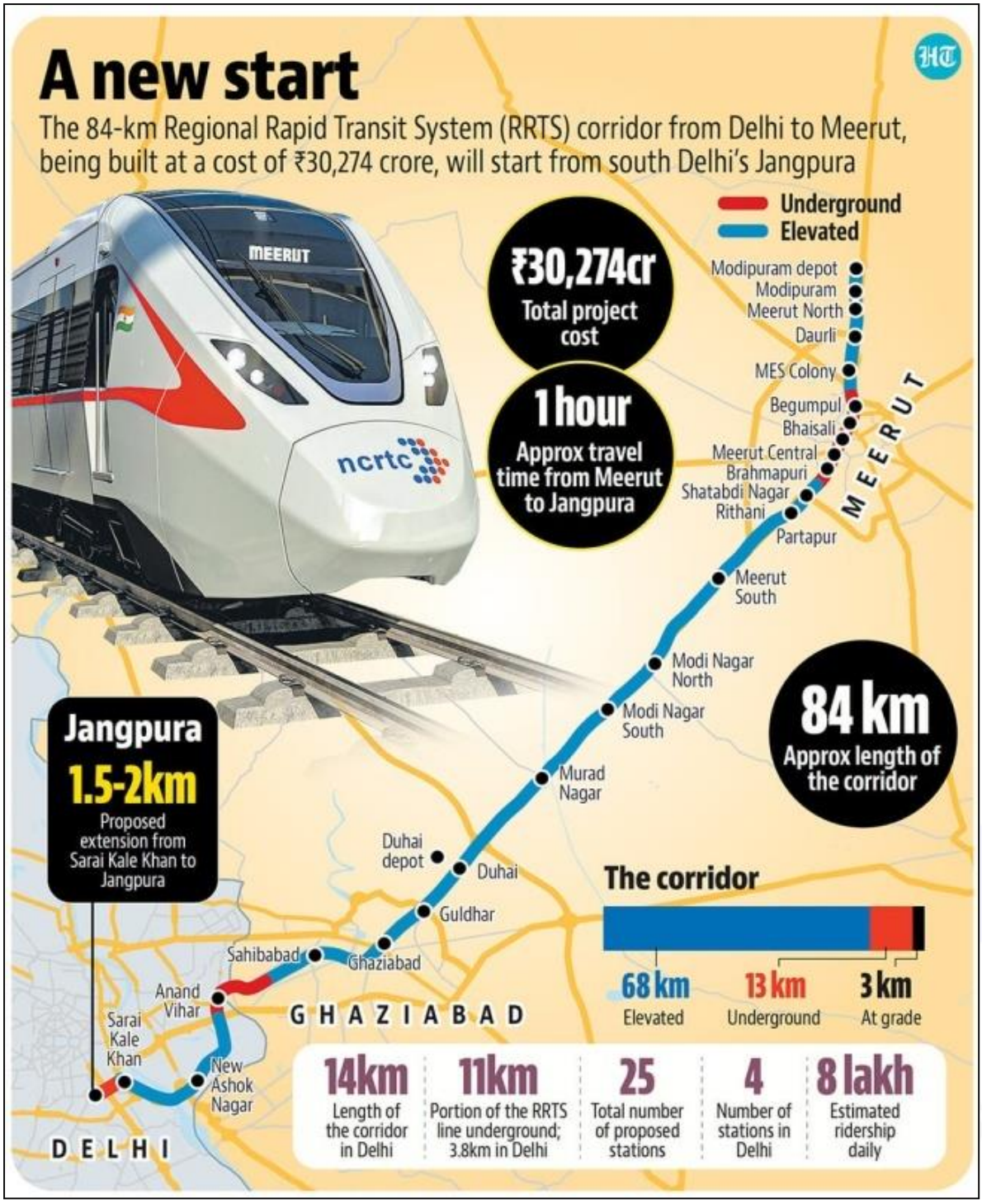
- The Regional Rapid Transit System (RRTS) is a **semi-high-speed rail-based commuter transit system** designed to improve regional mobility within NCR.
- It is implemented by the **National Capital Region Transport Corporation (NCRTC),** a joint venture between:
    - Central Government, and
    - State Governments of Delhi, Haryana, Rajasthan, and Uttar Pradesh.

KEY FEATURES OF RRTS

- **Passenger Control Mode:** The trains are equipped with a unique 'passenger control mode', allowing doors to open only when a button is pressed by passengers.
- **Train Speed:**
    - **Average speed:** 80 km/h and
    - **Maximum speed:** 160 km/h.

SIGNIFICANCE OF RRTS

- **Decongests urban traffic** by offering a fast alternative to road transport.
- **Reduces travel time** from Meerut to Delhi significantly a major boost for daily commuters.
- **Promotes regional development** by improving intercity connectivity and accessibility.


A new start
The 84-km Regional Rapid Transit System (RRTS) corridor from Delhi to Meerut, being built at a cost of ₹30,274 crore, will start from south Delhi's Jangpura
Underground
Elevated
MEERUT
ncrtc
₹30,274cr
Total project cost
1 hour
Approx travel time from Meerut to Jangpura
Modipuram depot
Modipuram
Meerut North
Daurli
MES Colony
Begumpul
Bhaisali
Meerut Central
Brahmapuri
Shatabdi Nagar
Rithani
Partapur
Meerut South
Modi Nagar North
Modi Nagar South
Murad Nagar
Duhai depot
Duhai
Guldhar
Sahibabad
Ghaziabad
Anand Vihar
Sarai Kale Khan
New Ashok Nagar
GHAZIABAD
DELHI
Jangpura
1.5-2km
Proposed extension from Sarai Kale Khan to Jangpura
84 km
Approx length of the corridor
The corridor
68 km
Elevated
13 km
Underground
3 km
At grade
14km
Length of the corridor in Delhi
11km
Portion of the RRTS line underground; 3.8km in Delhi
25
Total number of proposed stations
4
Number of stations in Delhi
8 lakh
Estimated ridership daily

BIRCH GLACIER

A massive section of the Birch Glacier broke off, crashing down into the valley and partially destroying the village of Blatten.

ABOUT

- **Birch Glacier** is a mountain glacier situated in the **Lötschental Valley,** in the canton of Valais, northern **Switzerland.**
- It lies near the alpine village of Blatten, a region known for its scenic beauty and glacial landscapes.

GEOLOGICAL CHARACTERISTICS:

- A small mountain glacier surrounded by **steep rock walls**.
- Known for accumulating rock debris due to frequent **rockfalls and avalanches**.

IMPACT:

- The nearby **Swiss village of Blatten** was severely damaged, with parts buried under mud, ice, and rock.
- One person is reported **missing**.
- The slide blocked the **Lonza River**, creating a temporary lake and raising **flood concerns**.

CAUSES:

- **Climate change**: Rapid warming led to **permafrost thaw**, destabilizing mountain slopes.
- **Increased glacier meltwater** weakened internal ice structures.

SCIENTIFIC SIGNIFICANCE:

- A clear warning of growing **glacial hazards** in Alpine regions due to global warming.
- Used as a case study in **climate science** and **disaster risk assessment**.

RESPONSE:

- Swiss military and emergency services launched rescue and monitoring operations.
- Hydrological teams observed the artificial lake to prevent flash floods.

WESTERN GHATS

Karnataka's Minister of Forest, Ecology, and Environment has ordered a **study on** the **carrying capacity of the Western Ghats** following landslips in Dakshina Kannada, Kodagu, and other areas during pre-monsoon rains.

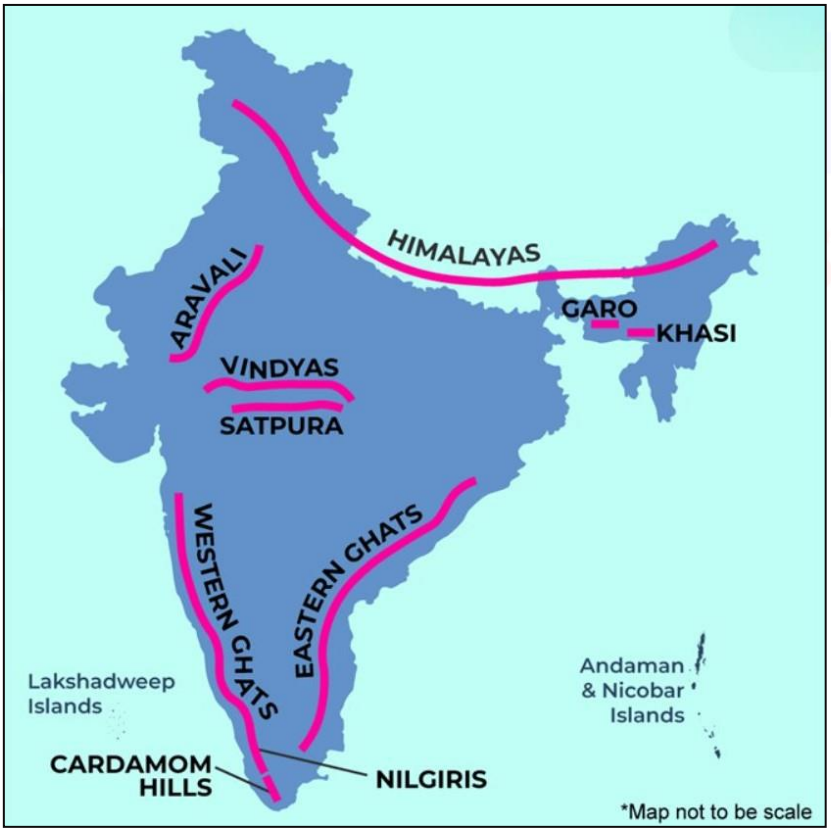
Carrying capacity is the maximum population size of a species that an environment can sustainably support over the long term, without degrading the environment.

WESTERN GHATS

- They are older than the Himalayas and are a mountain range of immense global importance.
- They are known for their unique geomorphic, ecological, and climatic influence on the Indian subcontinent.
- They affect monsoon weather patterns and moderate the tropical climate.
- They are recognized as one of the **world's eight 'hottest hotspots'** of biodiversity.

- They pass through the states of Gujarat, Maharashtra, Goa, Karnataka, Tamil Nadu, and Kerala.
- They are an example of **Block Mountains** formed as land warped into the Arabian Sea.
- They are a biodiversity hot spot, a biologically rich but threatened region, and a **UNESCO World Heritage site**.
- They are home to exceptionally high levels of endemism and at least 325 globally threatened species, including plants, mammals, birds, amphibians, reptiles, and fish.

The **Kasturirangan Committee** was tasked with suggesting a holistic approach for sustainable and equitable development and conservation of ecology in the Western Ghats
It had proposed that 37% of the total area of Western Ghats be declared Ecologically Sensitive Areas (ESA).



DIFFERENCE BETWEEN WESTERN AND EASTERN GHATS

Feature	Western Ghats	Eastern Ghats
Location	Runs parallel to the **western coast** of India	Runs parallel to the **eastern coast** of India
States Covered	Maharashtra, Goa, Karnataka, Kerala, Tamil Nadu	Odisha, Andhra Pradesh, Tamil Nadu, parts of Karnataka
Orientation	**Continuous** range with few passes (e.g., Palghat Gap)	**Discontinuous**, broken by rivers like Godavari, Krishna
Elevation	Higher: **900–1600 m** average	Lower: **600–900 m** average
Highest Peak	**Anamudi (2695 m)** in Kerala	**Arma Konda (1680 m)** in Andhra Pradesh
Rainfall	Receives **heavy rainfall** (SW monsoon, orographic effect)	Receives **less rainfall** compared to Western Ghats
River Flow Direction	Rivers flow **westward** into the Arabian Sea	Rivers flow **eastward** into the Bay of Bengal
Biodiversity	**Rich** in biodiversity, UNESCO World Heritage Site	Comparatively **less biodiversity**
Soil Type	Laterite and red soils	Red and black soils
Economic Importance	Source of major rivers, hydropower, spices, forest produce	Minerals, agriculture, tribal livelihoods

Conservation Status	High ecological sensitivity and protected areas	Facing degradation, fewer protected zones

SUMMARY:

- Western Ghats are **more continuous, elevated, and biodiverse**.
- Eastern Ghats are **dissected, lower, and drier**, but still ecologically significant.

ANDAMAN & NICOBAR COMMAND

Lt Gen Dinesh Singh Rana assumed charge as the **18th Commander-in-Chief of the Andaman & Nicobar Command (CINCAN).**

ABOUT

- The Andaman and Nicobar Command (ANC) is the **first integrated theatre command** in India with **headquarters at Port Blair** and set up in **2001**.
- It integrates the **Army, Navy, Air Force and Coast Guard** to safeguard national interests in the **strategically vital Indian Ocean Region.**
- It is headed by a Commander-in-Chief Andaman and Nicobar Command (CINCAN), a **rotational post among three services (Army, Navy, Air Force).**
    - Typically held by a Lieutenant General, Vice Admiral, or Air Marshal.

FIBRE OPTIC DRONES

Russia has deployed **fibre optic first-person-view (FPV)** drones in Ukraine since spring 2024.

FIBRE OPTIC DRONES

- They are similar to **regular UAVs** but use **ultra-thin glass cables for navigation instead of radio waves.**
- This makes them **immune to electronic interception or jamming since signals** travel through the cable, ensuring secure and high-quality video transmission.
- They have a range of 15 to 30 kilometers depending on their equipment sophistication.
- They offer longer battery life, higher accuracy, and reliable operation in challenging environments like forests, cities, or inside buildings.

SIGNIFICANCE OF FIBRE OPTIC DRONES

- Enhanced Surveillance: **Provide real-time, high-resolution data transmission for border, coastal, and urban monitoring.**
- **High-Speed Communication**: Fibre optics enables ultra-fast, secure, and low-latency data transfer.
- **Stealth Operations**: Lightweight and resistant to electromagnetic interference, ideal for covert missions.
- **Disaster Management**: Useful in search-and-rescue, damage assessment, and communication restoration in disaster-hit areas.
- **Military Use**: Vital for secure reconnaissance, target acquisition, and tactical communication.
- **Scientific Applications**: Employed in environmental monitoring, geological surveys, and atmospheric research.
- **Cybersecurity Advantage**: Fibre cables are difficult to tap, enhancing data integrity.

- **Future Technology**: Supports integration with AI, 5G, and satellite communication.

COUNTRIES DEVELOPED FIBRE OPTIC DRONES

As of June 2025, the primary countries that have developed and deployed **fiber-optic drones** unmanned aerial vehicles (UAVs) controlled via fiber-optic cables to resist electronic jamming are **Russia** and **Ukraine**.

RUSSIA

- **Pioneer in Deployment**: Russia was the first to operationalize fiber-optic drones in combat, notably during the **2024 Kursk offensive**.
- **Key System**: The **Ushkuynik KVN**, a wire-guided FPV loitering munition, utilizes fiber-optic cables for control, making it resistant to electronic warfare tactics.
- **Strategic Advantage**: These drones have provided Russia with a tactical edge by ensuring reliable communication in electronically contested environments.

UKRAINE

- **Rapid Adoption**: In response to Russian advancements, Ukraine swiftly developed its own fiber-optic drone capabilities.
- **Operational Success**: During **Operation Spiderweb**, Ukraine deployed AI-equipped, fiber-optic-controlled drones to strike multiple Russian airbases, destroying significant military assets.

- **Domestic Production**: Ukrainian companies, such as 3DTech, have initiated mass production of fiber-optic drone systems with ranges up to 30 km.

OTHER COUNTRIES

- **Israel**: Plans to expand the use of fiber-optic guided drones, though specific operational deployments remain limited.
- **United States**: Previously developed the **MGM-157 EFOGM**, a fiber-optic guided missile, during the 1980s and 1990s, but it was not widely adopted.
- **China and Iran**: Reportedly exploring or developing similar technologies, but concrete operational details are scarce.

23 UPSC EDITORIALS

A EUROCENTRIC RESET: A GATEWAY FOR INDIA

The recent agreement between the **United Kingdom (UK)** and **European Union (EU)** may seem **Eurocentric**, but presents **both opportunities and challenges for India** that demand urgent attention.

WHAT IS EUROCENTRISM?

- Eurocentrism is an intellectual and ideological stance that centers European culture, history, and values as superior or universal.
- It often marginalizes or distorts the experiences, contributions, and perspectives of non-European societies.

HISTORICAL BACKGROUND:

- Rooted in the colonial era when European powers viewed themselves as the bearers of civilization.
- Reinforced through education, literature, global politics, and economics.

CHARACTERISTICS OF EUROCENTRISM:

- Prioritizing European norms in global policymaking.
- Framing non-European countries as "developing" or "less civilized."
- Promoting Western liberalism as the universal political ideal.
- Bias in historiography—e.g., Renaissance, Enlightenment, Industrial Revolution as solely European achievements.

MODERN EUROCENTRISM:

- Still visible in the global economic order (e.g., IMF, World Bank voting shares).
- Cultural supremacy in media, education, and international law.
- EU's internal policies often assume European standards as global benchmarks.

CRITICISM:

- Undermines diversity and multipolarity.
- India, China, and African civilizations had rich, independent trajectories.
- Pushes back against "Western universalism" with calls for decolonizing knowledge and diplomacy.

WHAT IS THE EUROPEAN UNION (EU)?

The EU is a unique political and economic union of **27 European countries** formed to foster economic cooperation, political stability, and common values like democracy, rule of law, and human rights.

ORIGINS:

- **1951:** European Coal and Steel Community (ECSC).
- **1957:** Treaty of Rome created the EEC (European Economic Community).
- **1993:** Maastricht Treaty officially established the EU.

- **2009:** Lisbon Treaty enhanced democratic governance and external representation.

MAIN INSTITUTIONS:

- **European Commission** – Executive body.
- **European Parliament** – Legislative voice of citizens.
- **European Council** – Heads of states.
- **Court of Justice (ECJ)** – Interprets EU law.
- **European Central Bank (ECB)** – Monetary policy.

CORE OBJECTIVES:

- Economic integration (Single Market).
- Common foreign and security policy.
- Regional development and environmental standards.
- Free movement of goods, people, services, and capital.

ACHIEVEMENTS:

- Largest trading bloc globally.
- Common currency (**Euro**) used by 20 member states.
- Model for regional cooperation.
- Soft power leadership in environmental and social standards.

CHALLENGES:

- **Brexit**: UK's exit in 2020.
- Migration crisis, nationalism, democratic backsliding (e.g., Hungary, Poland).
- Energy dependence on Russia, especially post-Ukraine war.

EUROCENTRIC UK–EU AGREEMENT: A BRIEF OVERVIEW

UNITED KINGDOM (UK)

- It is made up of **mainland Great Britain (England, Wales and Scotland) and Northern Ireland.**

EUROPEAN UNION (EU)

- It is a **political and economic union of 27 member states.** They have a **common currency** (Euro, €).

BREXIT CONTEXT:

- UK left the EU on **January 31, 2020**, following a 2016 referendum.
- A new UK-EU Trade and Cooperation Agreement (TCA) governs post-Brexit ties.

NATURE OF THE AGREEMENT:

- Signed on **24 December 2020**, effective from **1 January 2021**.
- Covers trade, fisheries, transport, law enforcement, data sharing, and dispute resolution.

EUROCENTRIC NATURE:

- Both UK and EU sought to preserve their European identity.
- Agreement reflects mutual prioritization of intra-European rules and standards.
- Trade deals and regulatory regimes were developed largely around **EU norms,** still influencing UK post-Brexit.

KEY ELEMENTS:

- **Zero tariffs and quotas** on goods.
- Complex rules of origin and regulatory checks.
- Limits on services and financial markets (especially hurting UK's City of London).
- **No automatic recognition of professional qualifications**.

POLITICAL MOTIVES:

- EU aimed to prevent Brexit from setting a precedent.
- UK pushed for sovereignty but retained many EU-aligned standards for trade access.

UK–EU AGREEMENT: IMPACTS ON INDIA

BILATERAL TRADE DISRUPTION:

- UK and EU are major trade partners of India.
- Brexit has created regulatory fragmentation, requiring separate compliance for UK and EU markets.
- Customs checks, VAT changes, and rules of origin complicated Indian exports.

SUPPLY CHAIN CHALLENGES:

- Indian pharma, automotive, and textile industries face delays and costs due to UK–EU border checks.
- Multinational companies based in the UK or EU are re-evaluating their base of operations.

INVESTMENT SHIFTS:

- UK's exit from EU's common market affects its attractiveness for Indian investors.
- Companies such as TCS, Infosys, and Wipro now need **dual regulatory compliance**.

SERVICES SECTOR LIMITATIONS:

- Brexit hurt India's **IT and financial services** exports to the UK due to new data and visa restrictions.
- Fragmentation in financial regulations between London and EU financial hubs like Frankfurt.

INDIAN DIASPORA UNCERTAINTY:

- Indian-origin workers and students in the UK faced immigration concerns post-Brexit.
- EU work rights for UK-based Indians are curtailed.

DIPLOMATIC OPPORTUNITY:

- With UK and EU focusing inward, India can reposition itself as a **neutral, emerging power** in Europe.
- Calls for enhanced **bilateral agreements** and technology partnerships.

INDIA'S OPTIONS: NAVIGATING THE UK–EU AGREEMENT

DUAL ENGAGEMENT STRATEGY:

- India must treat the UK and EU as **separate strategic entities** post-Brexit.
- Tailor **free trade agreements (FTAs)** individually to optimize benefits.

UK–INDIA FREE TRADE AGREEMENT (FTA):

- Negotiations began in **2022**; aim to conclude by **2025**.

- Focus on **services, tariffs, professional mobility, and data protection**.

REVIVING EU–INDIA TRADE TALKS:

- India–EU BTIA (Broad-based Trade and Investment Agreement) talks stalled since 2013; restarted in 2022.
- Focus on **digital trade, GIs, IP protection, and environmental standards**.

UTILIZING DIASPORA DIPLOMACY:

- Mobilize the **Indian diaspora in UK and EU** to promote business, education, and soft diplomacy.

INVESTING IN REGULATORY EXPERTISE:

- Equip Indian exporters with knowledge of both UK and EU regulations.
- Set up dedicated **India-UK and India-EU compliance desks**.

STRATEGIC DIVERSIFICATION:

- Reduce dependency on Europe-centric supply chains.
- Focus on ASEAN, Africa, and the Indo-Pacific for new market access.

KEY ASPECTS: INDIA–UK RELATIONS

HISTORICAL BACKGROUND:

- Colonial legacy complicates ties, but modern relations are driven by **economy, education, and diaspora**.

POLITICAL COOPERATION:

- Part of the **India–UK 2030 Roadmap**, focusing on defense, education, and health.
- Regular **strategic dialogues** and joint military exercises (e.g., Konkan Naval Exercise).

India–United Kingdom Relations

Historical Background

Colonial Era (1600–1947)

British East India Company. arrivad in 1901

Post-Independence (1947-1990

Commonwealth membership; earty reclations with luwonum

Emras

Post-Independence

Early relations pei hrumeincuals. egtneirise software services

Modern Era (1990-Present

Strengthening of economic e diplomaatic ties

Economic and Trade Relations

Trade Avceuivento: IS)

Over USD 20 billion +

Indian ekoports in US: sinci 20ε. UK

FDl (nd)

S32 billion +

Indian companies in Ol are anong the largest employers

Education and Cultural Ties

Over 120.000 Indian students in the UK

as s of 2028

- 6th largest investor in UK
- Indian companies in America ong among he largest employers in UK

Climate an Sustaifnabl Development

Green Grids Initiative – One Sun One World One Grid

Promoted at CQP 26 ωk through investments In India s green economy

Future Prospects

- Signing of India UK FTA. a potential game-changer in global geopolitics
- Increased Strategic Alignment. Shle ıved Indo-Paclfic vision

Defence and Strategic Cooperation

Bifense and Strategic Cooperation

- Joint defense R&D
  Future combat air syststems and cybersecurity

Security Cooperation

- Counterterrorism
- Cybersecurity
  Induced B majorekapeeit building

Climate and Bilateral Relations

Signing of Immigration

Concents overstudent and sluiolallied worker mobility

Post-Braxit trade Adjustments

Human rights criticisum
in digital infrastructure arand cybersecurity

Healthcare and Pharma

Joint production of vaccines and research cooperation

TRADE AND INVESTMENT:

- UK is among India's top 15 trading partners.
- Over 850 Indian companies operate in the UK, employing over **110,000 people**.

EDUCATION AND MIGRATION:

- Indian students are the **second largest group** in UK universities.
- **Graduate Route Visa (2021)** allows 2 years of post-study work.

DEFENSE AND TECHNOLOGY:

- **Joint R&D on jet engine tech**, cybersecurity, and maritime security.
- UK supports India's bid for a **permanent UNSC seat**.

CULTURAL TIES:

- Strong people-to-people connect due to **1.6 million-strong Indian diaspora** in the UK.

Category	Statistics
Total Indian-origin population	~1.8 million
% of UK population	~2.5%
Prominent Roles	Politics, business, medicine, law, sports

KEY ASPECTS: INDIA–EU RELATIONS

POLITICAL ENGAGEMENT:

- Strategic Partnership since **2004**.
- Annual **India–EU Summits** to discuss climate change, connectivity, and multilateral reforms.

TRADE AND ECONOMIC TIES:

- EU is India's **third-largest trading partner**, accounting for **€88 billion** in goods trade (2022).
- India is EU's **10th largest trading partner**.

INVESTMENT FLOWS:

- EU is among the **largest investors** in India, especially in **automobiles, chemicals, and services**.
- Indian firms are also investing in **Germany, France, and the Netherlands**.

SECTORAL COLLABORATION:

- **Science and Technology Cooperation Agreement (2001)**.
- Working on **digital partnerships**, AI governance, and 6G innovation.

GREEN PARTNERSHIPS:

- Launched the **India-EU Clean Energy and Climate Partnership (2016)**.
- India supports EU's **Global Gateway Initiative** (alternative to China's BRI).

STRATEGIC AUTONOMY ALIGNMENT:

- Both promote **multipolarity, rule-based global order, and reform of multilateral institutions**.
- EU sees India as a counterbalance to China in the Indo-Pacific.

CONCLUSION: INDIA'S STRATEGIC WINDOW

The UK–EU agreement has created a **geopolitical vacuum** in Europe that India can diplomatically and economically fill.

Moving beyond Eurocentrism, India must assert its **civilizational identity and global role** through **smart trade, diaspora diplomacy, technology leadership**, and **multipolar advocacy**.

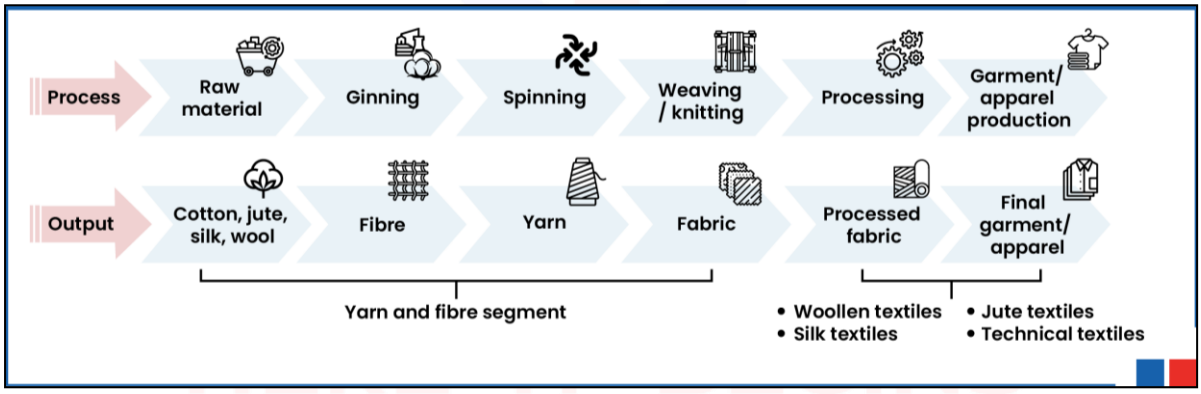
A Eurocentric reset, therefore, offers not just a challenge but a **gateway for India's global ambitions**.

SEEDS OF SUSTAINABILITY FOR INDIA'S TEXTILE LEADERSHIP

As one of the world's largest textile manufacturing hubs, India faces challenges such as geopolitical tensions, fragmented supply chains, and price volatility, and demands sustainability for long-term global leadership.

ABOUT THE INDIA'S TEXTILE INDUSTRY

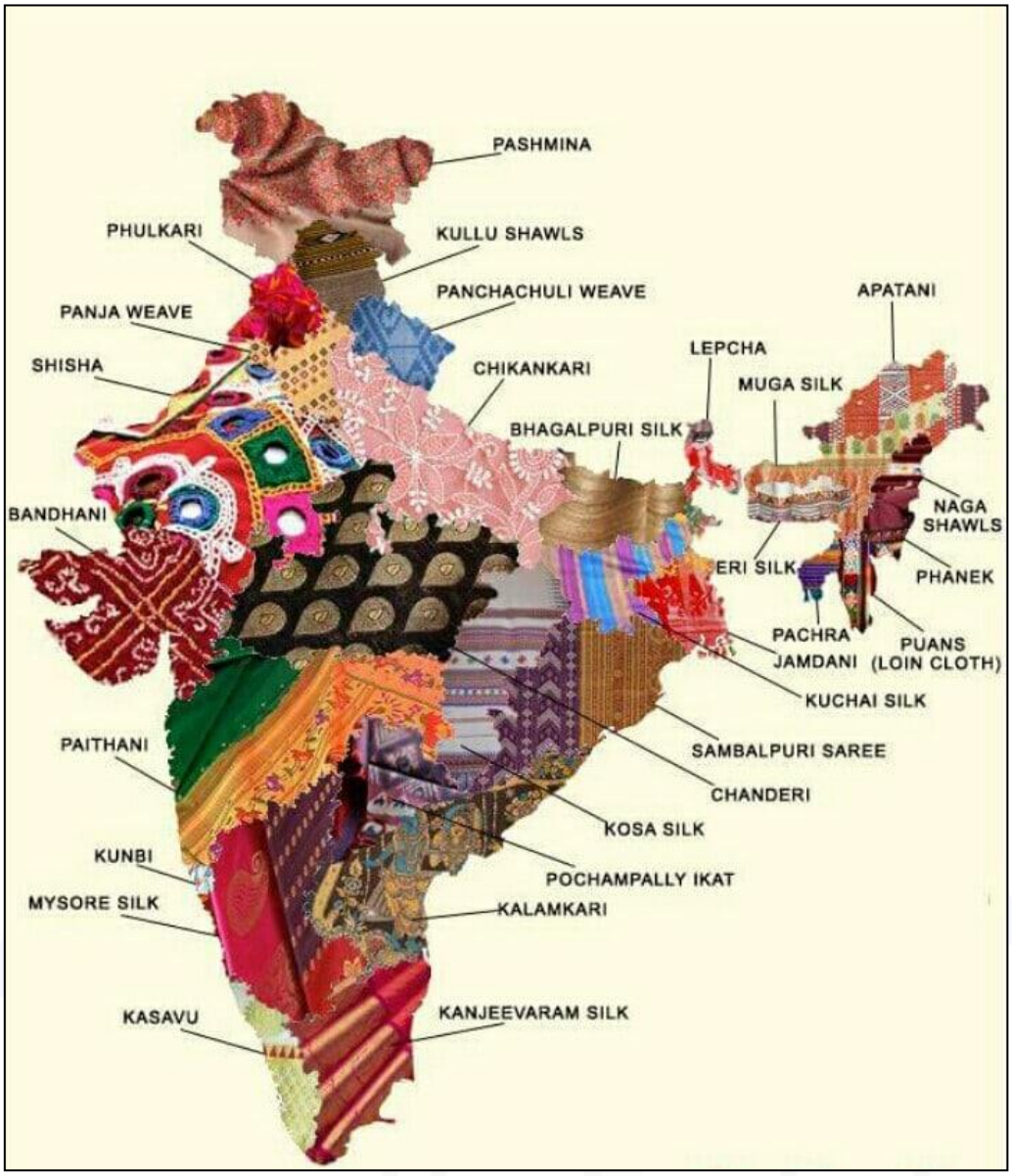
- India has been a major textile producer since ancient times, with its cotton and silk fabrics highly sought after in global markets.
    - It flourished during the **Mughal era**, with intricate weaving techniques and vibrant dyes becoming hallmarks of Indian textiles.
- However, colonial rule disrupted traditional production, leading to a decline.
- **Post-independence**, India focused on reviving its textile sector, establishing mills and promoting indigenous production.



CURRENT DATA AND INDUSTRY INSIGHTS

- It contributes **2.3% to our GDP**, 13% to industrial production, and 12% to exports.
- The industry employs **over 45 million people** (second largest employment generator, after agriculture), making it one of the largest employment generators.
- India is the **6th largest exporter of Textiles & Apparel** in the world, with **$34.4 billion exports in FY 2023-24,** and exports textiles to **over 100 countries, with a 4.5% share in global trade.**

- India's textile sector has a potential of **$350 billion market** and adding **35 million new jobs by 2030.**

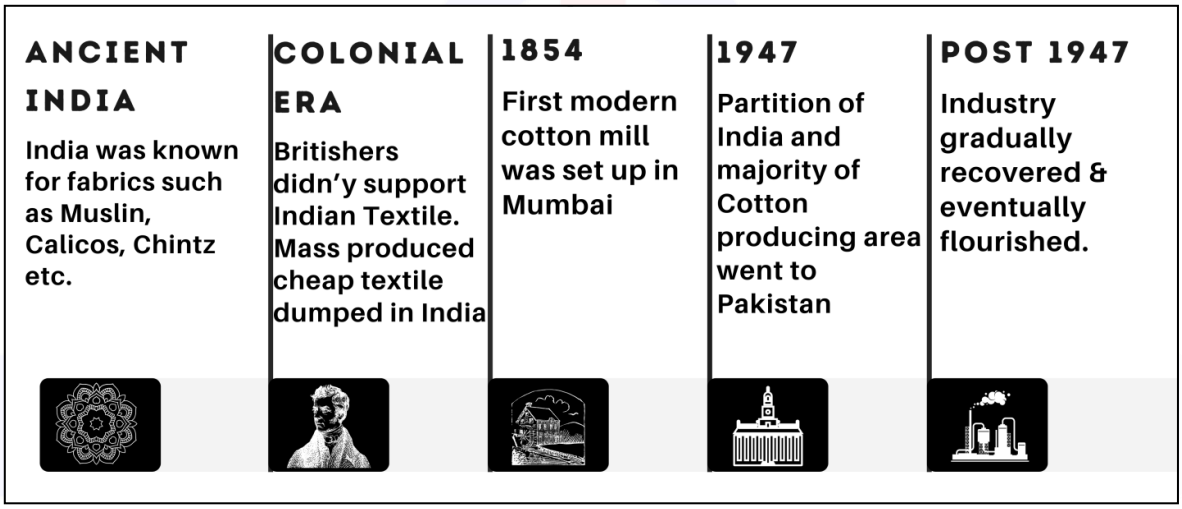


SUSTAINABILITY CONCERNS IN INDIA'S TEXTILE INDUSTRY

- **Textile Waste:** It accounts for **over 5% of global landfill waste**, and excessive water usage remains a pressing issue.
    - Additionally, the use of **harmful chemicals** like **nonylphenol ethoxylates (NPEs) in dyeing** and processing poses health risks to workers.
- **Carbon Footprint and Energy Use:** The industry relies heavily on fossil fuels, contributing to greenhouse gas emissions.

- While some companies are adopting solar rooftops and biomass energy, widespread adoption of clean energy solutions is still lacking.

- **Waste Generation and Circularity Challenges:** Textile waste accounts for a significant portion of global landfill waste.
  - While cotton recycling and polyester recycling are gaining traction, India still struggles with pre- and post-consumer waste management.
- **Lack of Sustainable Raw Material Sourcing:** Conventional cotton farming involves pesticides and excessive water use, harming soil health.



OTHER CONCERNS IN TEXTILE INDUSTRY

- **High Raw Material Costs:** Fluctuating cotton, jute, and synthetic fiber prices, and heavily dependency on **cotton and man-made fibers (MMF)**
- **Outdated Manufacturing Infrastructure**: Low adoption of automation and modern machinery.
- **Competition from Global Markets**: Strong competition from China, Vietnam and Bangladesh.
- **Skilled Labor Shortage:** Workforce needs upskilling to meet industry demands.

- **Supply Chain Issues:** Logistics inefficiencies and export-import bottlenecks.
- **Limited Market Access:** Trade barriers, high tariffs, and FTA limitations.

STRATEGIC OPPORTUNITY FOR INDIA

- **Regenerative Farming:** It addresses concerns related to **raw material sourcing, climate change, and soil degradation.**
    - The government is actively exploring it with **over one million hectares of farmland** being considered for **pilot projects**.
    - In **Maharashtra**, over 6,000 farmers have joined the **Regenerative Cotton Program**, leading to higher yields, improved climate resilience, and reduced reliance on chemical fertilizers.
- **Product Traceability:** It signifies **authenticity, brand responsibility, and global market relevance**. According to the **2023 Consumer Circularity Survey**, **37% of consumers** prioritize traceability in purchase decisions.
    - The **Kasturi Cotton** initiative enhances India's textile branding globally.
    - The **India-U.K. Free Trade Agreement (FTA)** and **EU regulations** offer significant market potential by requiring transparent, traceable production systems.
    - India needs to harness **AI-driven traceability technologies** to stay ahead.
- **Product Circularity:** India generates **8.5% of global textile waste**. **Product Circularity** can cut waste, extend product lifecycles, and reduce reliance on virgin materials. Circular design in products include:
    - Integrating sustainability across production stages: from fiber to packaging
    - Reengineering factory waste into new designs

- Supporting plastic-free and biodegradable solution

EFFORTS TOWARDS SUSTAINABILITY

- **Environmental, Social, and Governance (ESG) Task Force:** It was established by the **Ministry of Textiles** to drive sustainability discussions and implement initiatives.
    - It focuses on integrating environmental and social governance principles into textile production.
- **PM MITRA Parks Scheme:** It aims to create world-class infrastructure for textile manufacturing.
    - These parks aim to promote sustainable production practices, including waste management and renewable energy adoption.

- **Technology Upgradation Fund Scheme (TUFS):** It supports textile manufacturers in upgrading their machinery to energy-efficient and environmentally friendly technologies.
    - It helps reduce carbon emissions and improve production efficiency.
- **Kasturi Cotton Initiative:** It ensures high-quality Indian cotton meets global environmental standards, to enhance traceability and sustainability.

    - It promotes **ethical sourcing and transparency.**
- **National Technical Textiles Mission:** It focuses on innovation in technical textiles, including eco-friendly materials and sustainable production techniques.
    - It aims to position India as a leader in sustainable textile solutions.

WAY FORWARD

- To lead globally, the industry needs to move beyond greenwashing, embrace **regenerative farming,** build **transparent supply chains, and** prioritize **product circularity.**
- Strategic decisions taken today will determine whether India becomes a **sustainable global textile leader** tomorrow.

NITI AAYOG AND A DEEPENING FEDERALISM IN INDIA

Over the past 11 years, India has embraced an era of cooperative and fiscal federalism. The Centre and state governments have actively collaborated on socioeconomic transformation to achieve shared goals.

WHAT IS FEDERALISM?

- **Federalism** is a political system where power is divided between a **central authority** and various **constituent units** (states/provinces).
- Both levels have autonomy in their areas of governance, guaranteed by a **written constitution**.

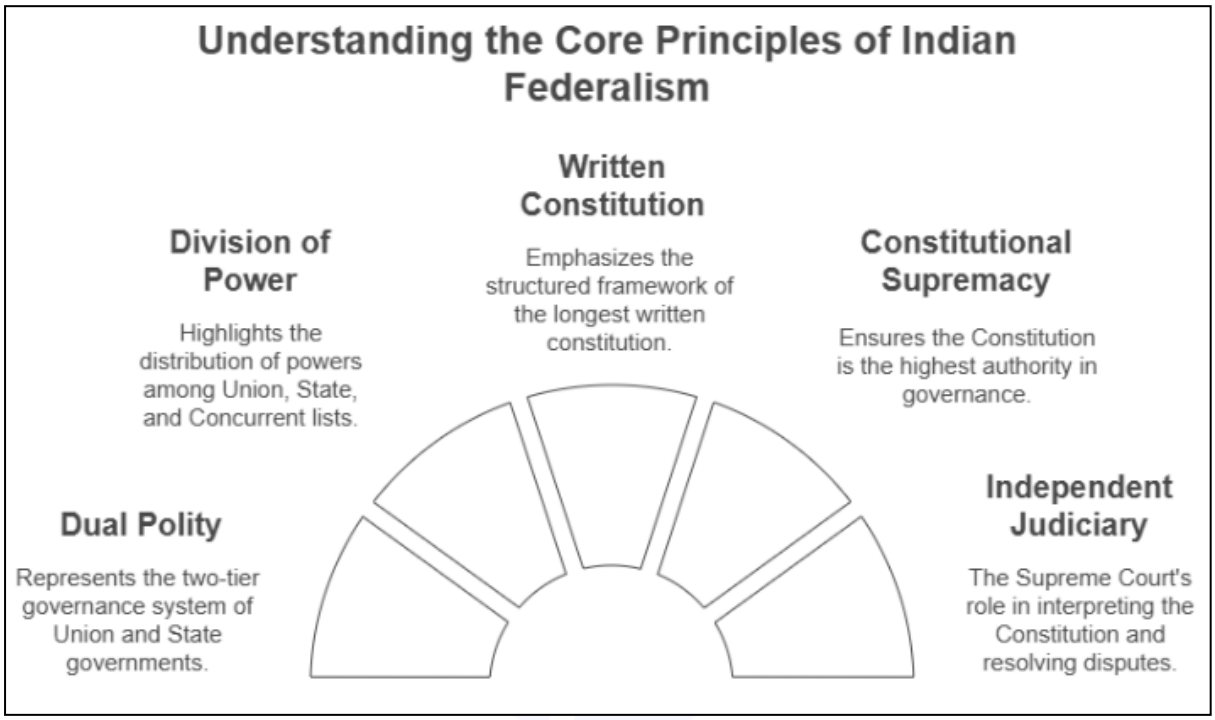
KEY FEATURES OF FEDERALISM:

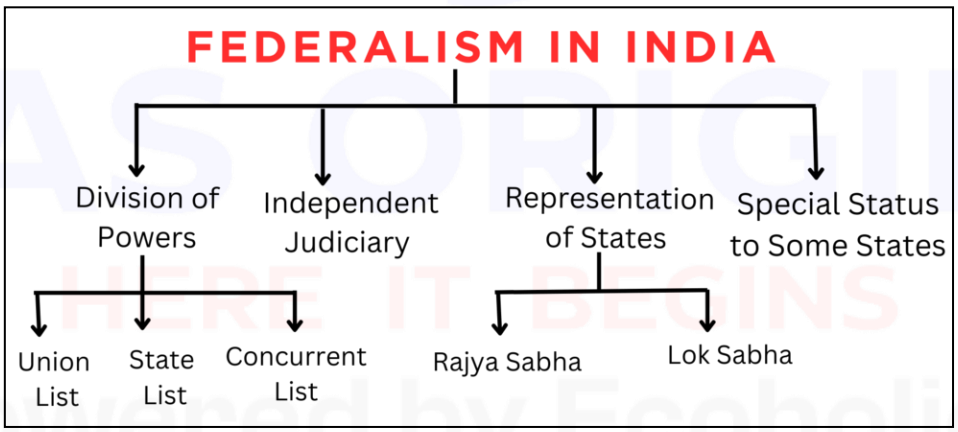
- Dual government structure (Centre and State).
- Division of powers.
- Written Constitution.
- Supremacy of the Constitution.
- Independent judiciary.
- Bicameral legislature (in many federations).

FEDERALISM IN THE INDIAN CONTEXT:

- India is described as a "**Union of States**" under **Article 1** of the Constitution.

- Unlike classical federations (e.g., USA), Indian federalism is unique and often called **"quasi-federal"** or **"cooperative federalism with a strong centre."**





IMPORTANT FEATURES OF INDIAN FEDERALISM:

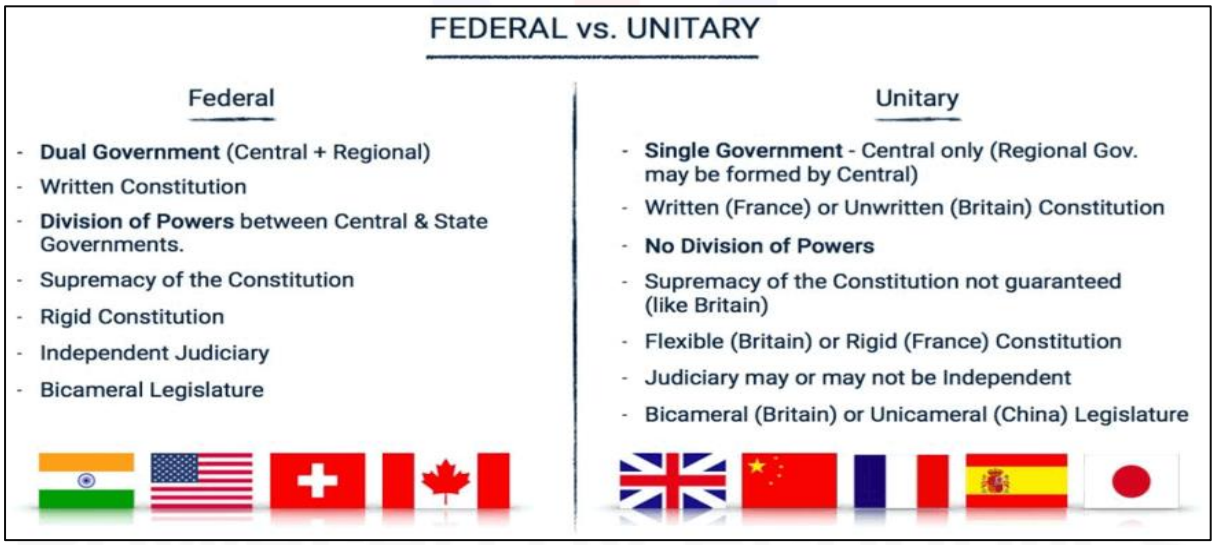
- **Single Constitution** for both Centre and States.
- **Three-tier governance:** Centre, States, and Panchayats/Urban Local Bodies.
- **Division of powers** between Centre and States via:
    - **Union List (97 subjects)**
    - **State List (66 subjects)**

- **Concurrent List (47 subjects)**

- **Article 356:** Centre can impose President's Rule in a state.
- **Single citizenship**, **integrated judiciary**, and **All India Services** are unitary elements.

CONSTITUTIONAL PROVISIONS SUPPORTING FEDERALISM:

Article	Provision
Article 1	India as a Union of States
Article 245–255	Distribution of legislative powers
Article 280	Finance Commission – Fiscal Federalism
Article 356	President's Rule (Breakdown of Constitutional Machinery)
Article 263	Inter-State Council for Centre–State coordination
7th Schedule	Lists: Union, State, Concurrent



TYPES OF FEDERALISM IN INDIA:

COOPERATIVE FEDERALISM

- **Meaning:** Centre and States cooperate and work together for national development.
- **Examples:**
  - **GST Council**: Both Centre and State governments jointly decide tax rates.

- **NITI Aayog**: Replaced Planning Commission to promote cooperative development.
- **Swachh Bharat Mission**: Joint efforts by Centre and States for sanitation.

COMPETITIVE FEDERALISM

- **Meaning:** States compete to attract investments, improve governance, and deliver better services.
- Encourages innovation and efficiency at the state level.
- **Examples:**
  - **Ease of Doing Business rankings** for States by DPIIT.
  - States like **Gujarat**, **Tamil Nadu**, **Karnataka** attracting investments by policy reforms.

FISCAL FEDERALISM

- **Meaning:** Division of financial powers and responsibilities between Centre and States.
- Governed by:
  - **Finance Commission** (Article 280)
  - **Goods and Services Tax (GST)**
  - **Grants-in-aid, revenue sharing**
- **Example:**
  - **15th Finance Commission** recommended 41% share of divisible pool to states.
  - **Cess and surcharge** are not part of divisible pool – often criticized by states.

ASYMMETRICAL FEDERALISM

- **Meaning:** Different states enjoy different levels of autonomy due to historical, cultural, or geographic reasons.
- **Examples:**

- **Article 370** (now abrogated): Gave special status to Jammu and Kashmir.
- **Article 371 (A–H):** Special provisions for Nagaland, Mizoram, Maharashtra, etc.
- **Sixth Schedule**: Autonomous councils for tribal areas in **Assam, Meghalaya, Mizoram, Tripura**.

CHALLENGES TO INDIAN FEDERALISM

CENTRALIZATION OF POWER:

- Frequent use of **Article 356** in the past.
- Over-dependence of States on the Centre for funds.

FISCAL IMBALANCE:

- Centre controls most taxation powers.
- States have limited revenue sources but large expenditure responsibilities.

CESS AND SURCHARGES:

- Not shared with states.
- Over 18% of Centre's revenue comes from cesses (as of FY 2022–23).

INTER-STATE DISPUTES:

- **Water disputes:** Cauvery (Karnataka–Tamil Nadu), Krishna, Ravi–Beas.
- **Boundary disputes:** Assam–Mizoram, Maharashtra–Karnataka.

REGIONAL IMBALANCES:

- Resource-rich states like **Chhattisgarh**, **Jharkhand** complain of underdevelopment.
- Backward states seek **special category status**, often denied post-14th Finance Commission.

MEASURES TO STRENGTHEN FEDERALISM

STRENGTHEN INTER-STATE COUNCIL (ART. 263):

- Reactivated in 1990.
- Should meet regularly to discuss key Centre–State and inter-state issues.

REFORM FISCAL FEDERALISM:

- Reduce cess/surcharge usage.
- Encourage states' financial autonomy.

EMPOWER LOCAL BODIES:

- Implement **73rd and 74th Constitutional Amendments** in letter and spirit.
- Provide fiscal and administrative powers to Panchayats and Municipalities.

PROMOTE COOPERATIVE FEDERALISM:

- NITI Aayog must work as a true platform for **state-centric development**.
- Joint decision-making in national programs.

CONSTITUTIONAL AMENDMENTS:

- Consider amending laws that overly centralize power (e.g., misuse of Article 356).

RECENT EXAMPLES STRENGTHENING INDIAN FEDERALISM

- **GST Council (Art. 279A):** Centre and States together decide on indirect taxes.
- **COVID-19 Coordination:** Despite central control, states like Kerala led in pandemic management.
- **UPI Payment System:** State governments are promoting digital payments in rural governance.

NITI AAYOG: NATIONAL INSTITUTION FOR TRANSFORMING INDIA

ESTABLISHED:

- On **1st January 2015**, replacing the **Planning Commission (1950–2014)**.

PURPOSE:

- Acts as the **policy think tank** of the Government of India.
- Aims to foster **cooperative and competitive federalism**.

CHAIRPERSON:

- Prime Minister of India.

VICE CHAIRPERSON:

- Appointed by the PM (currently **Suman Bery**, as of 2024).

STRUCTURE:

- **Governing Council:** Includes all Chief Ministers and Lieutenant Governors.
- **Regional Councils:** For addressing inter-state issues.
- **Full-time Members, Ex-officio Members** (Union Ministers), and Special Invitees.

KEY FUNCTIONS:

- **Develop long-term strategic plans** (e.g., India@75, Strategy for New India).
- Promote innovation and evidence-based policymaking.
- Monitor implementation of flagship programs.
- **Acts as the nodal agency** for Sustainable Development Goals (SDGs).

INITIATIVES:

- Aspirational Districts Programme.
- Atal Innovation Mission (AIM).
- SDG India Index.

- Health Index, School Education Quality Index (SEQI).

DIFFERENCE BETWEEN NITI AAYOG AND PLANNING COMMISSION

Feature	Planning Commission	NITI Aayog
Establishment Year	1950	2015
Formed By	Executive resolution of Government of India	Executive resolution of Government of India
Nature	Centralized body	Think-tank and advisory body
Type of Federalism	**Centralized federalism**	**Cooperative and competitive federalism**
Chairperson	Prime Minister	Prime Minister
Deputy/ Vice Chairperson	Deputy Chairman	Vice Chairperson
Role in Fund Allocation	Had powers to allocate funds to States	**No financial powers**
Five-Year Plans	Prepared Five-Year Plans for economic development	**No Five-Year Plans**; focuses on strategy and vision
Bottom-up Planning	Less emphasis on state-level planning	Promotes **bottom-up planning** and state participation
Inter-State Coordination	Limited scope for inter-state cooperation	**Encourages inter-state cooperation** through Regional Councils
State Representation	No regular mechanism	States represented through **Governing Council**
Focus	Resource allocation and planning	**Policy formulation, innovation, monitoring**
Monitoring of Implementation	Weak monitoring framework	Active in **data-driven monitoring** (e.g., SDG

		Index, Health Index)
Major Initiatives	Five-Year Plans, Annual Plans	**Aspirational Districts, Atal Innovation Mission, SDG Index**
Approach	Top-down command approach	**Bottom-up, participatory approach**

CONCLUSION

- Indian federalism is a **dynamic and evolving model**.
- Though **not purely federal**, it reflects both **federal and unitary features**.
- For effective governance, India must practice **"cooperative, competitive, and participatory federalism."**
- Strong Centre and strong States together can drive **inclusive national development**.

INDIAN RAILWAYS – DRIVING INDIA TOWARDS A GREENER FUTURE

Indian Railways, **the nation's transport lifeline**, is increasingly **emerging as a key pillar in India's climate action strategy**.

- With over **700 crore passengers annually**, its role goes beyond mobility it embodies India's commitment to **sustainable development and net zero emissions**.

INDIAN RAILWAYS AND INDIA'S PANCHAMRIT GOALS:

- **Alignment with Net Zero by 2070:** Indian Railways is contributing directly to PM Modi's Panchamrit commitments by **shifting freight from road to rail** and **transitioning to clean energy**.
- **Decarbonization at scale:** These efforts are aiding India's broader economic de-carbonization strategy.

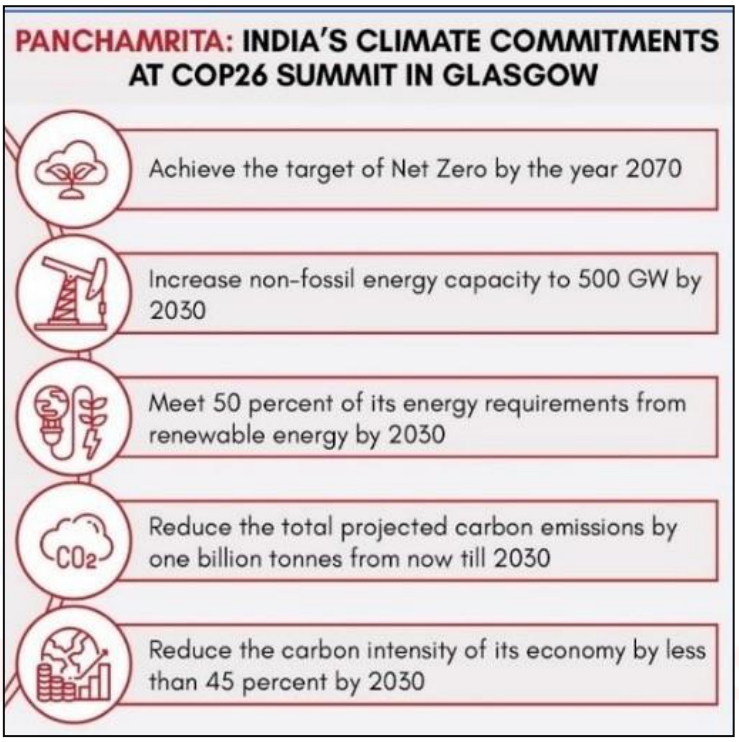
SHIFT FROM ROAD TO RAIL – A SUSTAINABLE TRANSFORMATION:

- **Freight growth:** Cargo movement rose from 1,055 million tonnes (2013-14) to 1,617 million tonnes (2024-25) making Indian Railways the **2nd-largest freight carrier globally**.
- **CO_2 emission savings:** Shift from road has avoided 143 million tonnes of CO_2, **equivalent to planting 121 crore trees.**

- **Economic impact:**
  - ₹3.2 lakh crore saved in logistics costs.
  - 2,857 crore liters diesel saved, worth ₹2 lakh crore.

RAILWAYS AS A CLEANER ALTERNATIVE:

- **Efficiency advantage:** Rail transport emits 90% less CO_2 than trucks.
- **Air quality gains:** Reduced emissions contribute to cleaner air and reduced urban pollution.



ELECTRIFICATION DRIVE – REDUCING FOSSIL FUEL DEPENDENCE:

ACCELERATED PROGRESS:

- In the 60 years before 2014, Indian Railways electrified 21,000 km of track.
- And in the past 11 years, 47,000 km have been electrified. This means, **99%** of broad-gauge tracks are now electrified.
- **Strategic importance:** Electrification **reduces oil import dependency** and **boosts energy security.**

RENEWABLE ENERGY INTEGRATION:

- Indian Railways is increasingly using **solar and renewable energy for stations, factories and workshops.**
- It is **collaborating with states** for cleaner train operations.

INFRASTRUCTURE UPGRADES – DEDICATED FREIGHT CORRIDORS (DFCS):

- **DFCs** are electrified; high-capacity railway lines designed exclusively for goods transport.
- **With 2,741 km operational**, DFCs have eased congestion on roads and significantly reduced diesel consumption and carbon emissions.

INNOVATION – HYDROGEN-POWERED TRAINS:

- **The first train** will run between Jind and Sonipat in Haryana and carry up to 2,600 passengers.
- It will be the **most powerful and longest** hydrogen train in the world.

GLOBAL RECOGNITION AND ECONOMIC-ENVIRONMENTAL SYNERGY:

- **LPI 2023 ranking**: India rose 16 places (since 2014) to **38th** in World Bank's Logistics Performance Index (LPI) 2023.
- **Twin goals:** Railway reforms demonstrate how **economic growth can align with environmental sustainability.**

ROADMAP TO NET ZERO – FAST-TRACKING THE GOAL:

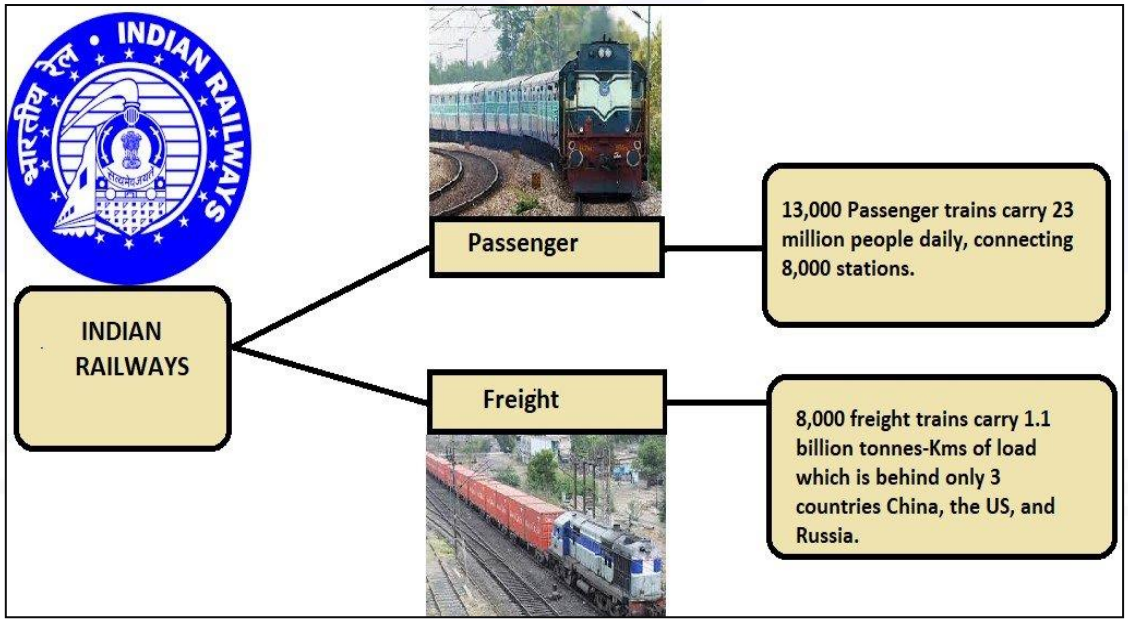
- PM Modi set **2030** as the year to achieve **net zero for Indian Railways**.
- Due to the accelerated electrification and large-scale shifting of cargo from road to rail, Indian Railways is on track to **achieve net zero within 2025**.

HOW THE INDIAN RAILWAY CONTRIBUTES TO THE INDIAN ECONOMY?

- **Backbone of National Transportation:** Indian Railways is the **lifeline of the country, providing affordable and reliable transport** to millions daily.

- It facilitates the movement of both passengers and goods across vast distances, playing a crucial role in economic integration.
- Indian Railways transports over **8 billion passengers annually,** making it one of the busiest railway networks globally.
- During the **Covid-19 pandemic,** Indian Railways operated **"Oxygen Express"** trains to deliver medical oxygen across states, showcasing its **logistical strength.**

- **Economic Growth and Industrial Development:** Railways serve as a crucial driver of economic growth by facilitating **trade, commerce, and industrialization across the country.**
  - The transportation of raw materials like **coal, iron ore, cement, and agricultural produce** ensures the smooth functioning of industries.



- Efficient rail logistics reduce supply chain costs, enhancing the competitiveness of Indian manufacturing and exports.
- Mega infrastructure projects such as the **Dedicated Freight Corridors (DFCs)** aim to boost efficiency and economic productivity.

- **CAG (2021-22)** highlighted that coal alone accounts for **nearly 50% of railway freight earnings**, making industrial supply chains highly dependent on rail connectivity.
- **Employment Generation and Livelihood Support:** Indian Railways is one of the **largest employers in the world**, directly employing millions and indirectly supporting many more in ancillary industries.
    - It employs over 1.2 million people, **making it the world's ninth-largest employer.**
    - It provides **stable employment across various skill levels,** from engineers and technicians to station managers and track maintenance workers.
- The expansion of railway infrastructure, station redevelopment, and manufacturing of new rolling stock create additional employment opportunities.
    - **Privatization and PPP models** in railways are expected to generate further job prospects in operations and logistics
- **Rural Connectivity and Regional Development:** Railways play a pivotal role in connecting remote and rural areas, integrating them with urban centers and markets.
- **Improved railway infrastructure in underdeveloped regions** enhances accessibility to education, healthcare, and employment opportunities.
    - Special railway corridors such as the North-East Connectivity Project aim to boost regional development and national integration.
    - In FY 2023-24, the railways have decided to redevelop 1,275 railway stations under the **Amrit Bharat Station scheme**
    - The **Vande Bharata Express expansion to Tier-2 and Tier-3 cities** is a step toward improving accessibility and regional economic development.

- **Catalyst for Sustainable Development and Green Mobility:** Railways offer an **environmentally sustainable alternative to road and air transport by reducing carbon emissions** and fuel consumption.
    - The transition to **full electrification and renewable energy integration** aims to make **Indian Railways carbon-neutral by 2030.**
    - **14 States/UTs** have been 100% electrified by Indian Railways as of July 2023.
    - **Energy**-efficient locomotives, electrified routes, and green initiatives such as **bio-toilets** are improving the railway sector's sustainability footprint.
- **Rail freight emits nearly 80% less greenhouse gas** per ton-kilometer than road transport, making it a key player in India's sustainable mobility strategy.
    - **Strengthening National Security and Strategic Mobility:** Railways play a crucial role in national security by **ensuring rapid troop movement and defense logistics in border areas.**
    - Dedicated railway lines and freight corridors aid in the **quick mobilization of military supplies, vehicles, and personnel during emergencies.**
    - The construction of **strategic railway lines in border regions, particularly in the Northeast and Ladakh,** enhances defense preparedness.
    - The **Arunachal Frontier Highway** is a landmark infrastructure project, connecting **12 districts along the LAC with China.**
- **Urban Mobility and Decongestion of Road Networks:** The expansion of **metro rail and suburban rail systems in major cities** is reducing congestion and improving urban mobility.
    - Efficient mass transit options help reduce **travel time, pollution, and road accidents in densely populated areas.**

- The integration of m**etro, suburban, and regional rapid transit systems** is fostering seamless multimodal transport networks.
- India achieved over 1,000 km of operational metro rail network, becoming the **world's third-largest metro system after China and the US.**
- The **Rapid Transit System between Delhi and Meerut, set to open in 2025,** will significantly cut travel time between the two cities.

- **Boost to Tourism and Cultural Integration:** Railways enable affordable and convenient travel to India's diverse cultural, historical, and religious sites, promoting tourism.
  - Special trains such as **Bharat Gaurav Trains and luxury services like the Palace on Wheels** attract both domestic and international tourists.
  - Enhanced railway connectivity to **pilgrimage sites, heritage locations, and ecotourism** destinations boosts local economies.

WHAT MEASURES CAN BE ADOPTED TO REVITALIZE INDIAN RAILWAYS?

- **Financial Sustainability and Revenue Optimization:** Indian Railways **must shift towards a sustainable financial model** by reducing dependency on extra-budgetary borrowings.
  - **Dynamic fare pricing, monetization of railway land assets,** and increased private sector participation (as per **Bibek Debroy Committee**) in station development can enhance revenue streams.
  - **Freight tariff rationalization** and **last-mile connectivity solutions** will make rail cargo more competitive.
  - **Strengthening Public-Private Partnerships (PPPs) in infrastructure** projects can reduce fiscal burdens.

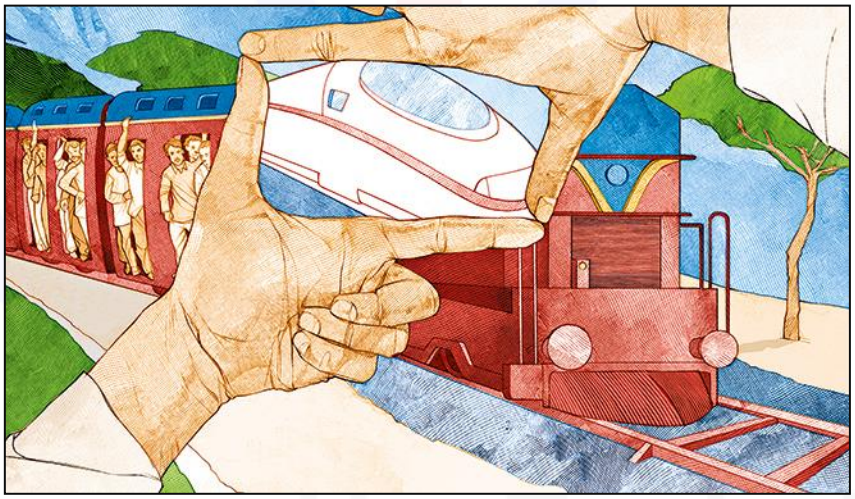
- **Safety Enhancement and Infrastructure Modernization:** Railways must prioritize **track renewal, bridge strengthening, and station decongestion** to minimize accidents and improve operational efficiency.
    - The **widespread implementation of automatic train control systems** like **Kavach** and centralized traffic control can significantly reduce human errors.
    - Upgrading **signaling infrastructure with AI-based predictive maintenance** will enhance real-time monitoring.
    - Comprehensive crowd management strategies, including better station design, holding areas, and **automated entry-exit points,** must be implemented.
- **Technological Advancements and Digitalization:** Implementing **AI-driven predictive maintenance, IoT-based asset monitoring,** and blockchain-enabled freight tracking can boost efficiency and reliability.
    - Expanding the **reach of real-time passenger information systems, smart ticketing solutions,** and integrated mobility apps will improve customer experience.
    - Upgrading railway workshops with automation and robotics will optimize rolling stock maintenance.
    - The **full integration of financial and operational data** under a unified digital platform will streamline railway administration.
- **Freight Sector Reforms and Multimodal Logistics Integration:** Indian Railways must diversify its freight basket beyond coal by **tapping into containerized cargo, automobile logistics, and express freight services.**
    - **Dedicated Freight Corridors (DFCs)** must be expanded with seamless connectivity to ports, highways, and inland waterways.
    - **Rationalizing freight tariffs and reducing terminal handling times** will make rail transport cost-effective for industries.

- A **National Logistics Grid under PM Gati Shakti** integrating rail, road, and ports must be fast tracked to facilitate end-to-end cargo movement.

- **High-Speed Rail and Semi-High-Speed Expansion:** The **Mumbai-Ahmedabad bullet train project** must be expedited while planning additional high-speed corridors along high-demand routes, building upon **Rakesh Mohan Committee (2010).**
  - **Track upgradation projects**, including dedicated high-speed freight lines, should be prioritized.
  - **Indigenous** manufacturing of high-speed rolling stock will reduce procurement costs and **boost Make in India efforts.**
  - **Land acquisition, financing models, and technology transfer agreements** should be streamlined for faster implementation of high-speed rail projects.
- **Railway Station Modernization and Urban Mobility Integration:** Stations must be transformed into **multimodal transit hubs with seamless connectivity to metro networks, bus terminals, and airports.**
  - Infrastructure upgrades such as **elevated concourses, automated ticketing, and congestion-free passenger movement areas** are essential.
  - Expansion of suburban and regional rail networks will decongest metros and provide faster commuting options.
  - The **Indian Railway Station Development Corporation (IRSDC)** must be strengthened to accelerate station redevelopment projects.
- **Sustainable and Green Railways Initiative:** Achieving **100% electrification with renewable energy integration** will reduce dependency on fossil fuels and lower carbon emissions.
  - Expanding **solar and wind power installations** across railway stations, workshops, and vacant land areas will enhance energy sustainability.

- **Hydrogen-powered and battery-operated locomotives** should be piloted as alternatives to diesel engines.
- Strengthening **carbon credit mechanisms and green financing** will support long-term sustainability goals.

- **Increased Private Sector Participation:** Following the recommendations of the **Bibek Debroy Committee**, Indian Railways should open more avenues for private sector participation.
  - Private investments in rolling stock procurement, railway catering, and logistics parks will enhance service quality and efficiency.
  - **Competitive bidding for high-demand routes** can improve financial viability while reducing operational burdens on the government.



CONCLUSION – GREEN TRACKS TO A GREENER BHARAT:

- On **World Environment Day** (June 5), Indian Railways stands as a model of India's sustainable development.
- Every electrified rail line, solar installation, and freight load shifted from road to rail is a step closer to a cleaner, greener Bharat.

FOREIGN DIRECT INVESTMENT

According to the Reserve Bank of India (RBI), India's net foreign direct investment (FDI) crashed from USD 10.1 billion in 2023–24, and just USD 0.4 billion in 2024–25.

The sharp decline in net FDI is mainly due to increased repatriation and disinvestment by foreign firms, totaling USD 51.5 billion in 2024-25, coupled with a rise in Outward FDI (OFDI) by Indian companies.

WHAT IS FOREIGN DIRECT INVESTMENT?

Foreign Direct Investment (FDI) refers to **investment made by a company or individual** from one country into business interests located in another country.

It involves **ownership or controlling interests** (usually 10% or more) in a foreign business enterprise.

ROUTES OF FDI IN INDIA:

Route	Description
Automatic Route	No prior government approval required
Government Route	Prior approval required from the relevant ministry

As of 2023, **most sectors** like manufacturing, telecom, construction, and services are under the **Automatic Route**.

TYPES OF FDI:

Type	Description	Example
Greenfield Investment	Setting up a **new operation** in the host country	Hyundai setting up a car plant in Tamil Nadu
Brownfield Investment	**Merging or acquiring** an existing firm	Walmart acquiring a majority stake in Flipkart
Horizontal FDI	Same industry in host	McDonald's opening outlets

	and investor countries	in India
Vertical FDI	Investing in **supply chain activities**	Toyota investing in auto parts manufacturing in India

KEY CHARACTERISTICS:

- Brings **capital**, **technology**, and **expertise**.
- Offers **long-term relationship** between investor and host country.
- Unlike FII (Foreign Institutional Investment), FDI is **non-volatile** and focused on **productive assets** like factories, infrastructure, etc.

DIFFERENCE BETWEEN FDI AND FII

Feature	FDI (Foreign Direct Investment)	FII (Foreign Institutional Investment)
Definition	Investment in **physical assets or enterprises** in another country	Investment in **financial assets like stocks and bonds**
Nature of Investment	**Long-term and stable**	**Short-term and volatile**
Form	Greenfield, Brownfield, joint ventures, mergers	Purchase of shares, bonds, mutual funds, etc.
Control & Ownership	Leads to **management control** (usually ≥10% ownership)	No management control (usually <10% ownership)
Entry Routes	Automatic & Government routes	Through registered institutional investors (e.g., FPIs)
Sector Involvement	**Infrastructure, manufacturing, services, retail, etc.**	**Capital market (stocks, debt instruments)**
Impact on Economy	Promotes **job creation, tech transfer, infrastructure**	Enhances **capital availability**, market liquidity

Volatility	**Low volatility** – long-term commitment	**High volatility** – can exit quickly based on market trends
Risk to Economy	Low – contributes to real economy	High – can lead to sudden capital outflows
Regulation Authority	**DPIIT & RBI**	**SEBI & RBI**
Example	Toyota setting up a car factory in India	BlackRock investing in Indian stock markets

FDI REGULATION:

- Currently, **FDI in India** is regulated by the **FDI Policy 2020** and the **FEMA (Non-debt Instrument) Rules, 2019** under the **Foreign Exchange Management Act (FEMA), 1999**.
- The **Department for Promotion of Industry and Internal Trade (DPIIT)**, under the **Ministry of Commerce and Industry**, is the main regulator of **FDI in India**.
- **RBI** also plays a key role by enforcing the **FDI Rules.**

FDI PROHIBITION IN INDIA

- FDI is **strictly prohibited** in sectors like **atomic energy generation, gambling and betting, lotteries, chit funds, real estate,** and the **tobacco industry.**

CURRENT STATUS OF FDI IN INDIA:

- **Strong Gross FDI Inflows: Gross FDI** rose to **USD 81 billion** in **2024–25**, up from **USD 71.3 billion** in **2023–24** and **$71.4 billion** in **2022–23**.
- Key sectors attracting FDI were **manufacturing**, **financial services**, **energy**, and **communication services**, together making up **over 60%** of total inflows.

- Top investing countries **Singapore**, **Mauritius**, **UAE**, **Netherlands**, and the **United States** contributed **over 75%** of gross FDI.

WHY IS FOREIGN DIRECT INVESTMENT (FDI) PIVOTAL TO INDIA'S SUSTAINABLE ECONOMIC TRANSFORMATION?

CAPITAL INFLOW FOR DEVELOPMENT

- FDI brings in **long-term capital**, reducing dependence on domestic savings and borrowings.
- Example: **Walmart's $16 billion investment in Flipkart** boosted India's retail and e-commerce sectors.

BOOSTS INFRASTRUCTURE AND INDUSTRIAL GROWTH

- Helps fund critical infrastructure like **roads, railways, ports**, and manufacturing units.
- Example: **FDI in renewable energy** supports sustainable power infrastructure (e.g., ReNew Power partnerships).

TECHNOLOGY TRANSFER AND INNOVATION

- Global companies bring advanced **technology, R&D practices**, and **efficient management**.
- Example: **FDI by Siemens and GE** in India's smart grid and healthcare sectors.

EMPLOYMENT GENERATION

- FDI projects create **direct and indirect jobs**, especially in manufacturing, services, and IT.
- **Example: FDI in automobile hubs** like Pune, Chennai created thousands of skilled jobs.

IMPROVES EXPORT COMPETITIVENESS

- FDI-backed industries increase **production capacity and global integration**.

- **Example: Samsung's manufacturing plant in Noida** makes India a smartphone export hub.

SUPPORTS SUSTAINABLE DEVELOPMENT GOALS (SDGS)

- FDI in green sectors (solar, wind, waste management) aligns with India's climate goals.
- Example: **FDI in clean energy** has helped India reach 175 GW of renewable capacity (target for 2022).

ENHANCES EASE OF DOING BUSINESS

- Global investor interest pressures the government to **improve regulatory frameworks**.

PROMOTES BALANCED REGIONAL GROWTH

- Special Economic Zones (SEZs) and industrial corridors attract FDI to **less-developed areas**.

WHAT MEASURES CAN INDIA ADOPT TO BOOST FDI INFLOWS? (WITH EXAMPLES)

SIMPLIFY FDI POLICIES

- Further liberalize sectoral caps and clarify rules.
- Example: Allowing **100% FDI in telecom** under the automatic route enhanced investor confidence.

EASE OF DOING BUSINESS

- Streamline approvals, reduce compliance burdens, and promote single-window clearances.
- Example: States like **Gujarat and Telangana** rank high in the Ease of Doing Business index.

STABLE TAX REGIME

- Avoid retrospective taxation and provide certainty in tax policies.

- Example: Withdrawal of retrospective tax in the **Vodafone and Cairn cases** restored investor trust.

INFRASTRUCTURE & LOGISTICS DEVELOPMENT

- Develop **industrial corridors, SEZs, and multimodal logistics parks**.
- Example: **Delhi-Mumbai Industrial Corridor (DMIC)** is an attractive FDI zone.

PROMOTE KEY SECTORS

- Focus on **electronics, defence, renewable energy, and digital economy**.
- Example: **PLI (Production Linked Incentive)** schemes attracted global electronics manufacturers like Apple suppliers.

LABOUR AND LAND REFORMS

- Simplify labour codes and facilitate easier land acquisition via digital land banks.

STRENGTHEN BILATERAL INVESTMENT TREATIES

- Update investment treaties for **protection and arbitration** mechanisms.

GLOBAL INVESTMENT CAMPAIGNS

- Expand India's presence through global summits and missions.
- Example: **Vibrant Gujarat Summit** attracts top international investors.

GROSS FDI AND NET FDI

Gross FDI refers to the **total amount of foreign investment** made by investors from one country into another during a specific period, **without subtracting any disinvestments or withdrawals**.

- **Net FDI** is the **total foreign investment** coming into India (**gross FDI**) minus the **money repatriated** by foreign companies and **outward FDI** by Indian companies.
    - **Therefore, Gross FDI = Total inflows of foreign direct investments**.
    - **Net FDI = Gross FDI inflows – FDI outflows (disinvestments).**

CONCLUSION

Despite strong gross inflows, India's net FDI has declined due to rising disinvestment and outward FDI. Addressing **regulatory bottle necks**, **infrastructure gaps**, and **sectoral imbalances** is vital.

A **balanced, investor-friendly environment** with **equitable regional growth**, **policy certainty**, and **global competitiveness** can **sustainably enhance FDI** and **strengthen India's economic resilience.**

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