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Indian Polity



NSO to conduct Survey on Migration across India



Survey to be conducted during July 2026 to June 2027 would capture detailed information on extent/nature of migration, rural-urban and inter-state movement, key reasons, etc.

Recent Trends on Migration in India

- **The overall migration rate was 28.%,** showing significant gender differences in migration patterns (Periodic Labour Force Survey (PLFS) 2020-21).
- The migration rate among males was **10.7%,** whereas it was **47.9% among females.**

Key Reasons for Migration

- Gender Specific: Marriage was the **dominant reason for migration among females (86.8%),** while **employment (labour market opportunities)** emerged as the primary factor for **migration among males (22.8%).**
- Pull Factor: Migration is largely attracted by the availability of employment opportunities and the possibility of improved living conditions.
 - Example: **Rural-to-Urban Migration.**
 - Nearly one in four rural Indians (26.8%) was identified as a migrant in 2020-21 (Economic Survey 2025-26).
- Push Factors: Individuals move away from their native places because of limited employment opportunities, low wages or salaries, adverse environmental conditions, and natural disasters, among other reasons.

KEY MEASURES TO TAKEN TO ADDRESS CHALLENGES

- Rural Development Initiatives: Deendayal Antyodaya Yojana – National Rural Livelihoods Mission (DAY-NRLM); Viksit Bharat-Guarantee for Rozgar and Aajeevika Mission (Gramin) Act, 2025 strengthening rural employment, etc.
- Urban Resilience Initiatives: Atal Mission for Rejuvenation and Urban Transformation (AMRUT); Smart Cities; Implementation of Transit-oriented Development (ToD), etc.
- Workers' Welfare: Key Schemes like Pradhan Mantri Shram Yogi Maan-Dhan Yojana (PMSYM); Pradhan Mantri Garib Kalyan Anna Yojana (PMGKAY); One Nation One Ration Card (ONORC) scheme for robust safety net for migrants, etc.



SC objects to WhatsApp's 2021 privacy policy



SC was hearing appeals by Meta Platforms & WhatsApp against the NCLAT's decision upholding Competition Commission of India (CCI)'s ₹213.14 crore penalty over WhatsApp's 2021 privacy policy.

What is WhatsApp's 2021 privacy policy?

- The policy allows WhatsApp to share users' data with Facebook and all its group companies for the purposes of commercial advertising and marketing.
- **Take-it-or-Leave-it framework:** Under the policy, WhatsApp users have **two options:** Agree to share their personal information with Facebook or delete their WhatsApp accounts.

Issues observed in WhatsApp's 2021 privacy policy

- **Commercial exploitation of personal data:** SC noted that personal data is used to analyze behavioral trends, which Meta then leverages for a **dominant advantage in online advertising on other platforms like YouTube or email.**
- **Abuse of dominant position:** Policy abused its dominant market position by imposing unfair conditions and discriminating against those who did not accept data sharing.
- **Erosion of privacy by Data sharing:** By significantly expanding **internal sharing of personal data with Facebook** and related companies for advertising and business purposes.
- **Lack of Clarity:** SC emphasized that the policy's complex/vague language is unintelligible to common/poor citizens.

STEPS TAKEN IN INDIA FOR DATA PROTECTION

- Digital Personal Data Protection (DPDP) Act, 2023: To provide for processing of digital personal data in a manner that recognizes both the right of individuals to protect their personal data and the need to process such personal data for lawful purposes.
 - SC pointed out DPDP Act, 2023 does not contain provisions for "rent sharing" i.e. issue of value put on data shared by users to companies.
- Judicial Oversight: Supreme Court's Puttaswamy judgment (2017) recognized the right to privacy as a fundamental right under Article 21.
- Justice B.N. Srikrishna Committee (2017): Examined data protection issues and recommended a comprehensive law for data protection.

MPLADS



Recently, a controversy broke out over the use of MPLADS funds.

- According to critics, MPLADS funds are **inefficiently utilized, diverted and poorly monitored** and the scheme should be discontinued.

About MPLADS

- **Type:** Central Sector Scheme launched in 1993.
- **Ministry:** Ministry of Statistics and Programme Implementation is responsible for prescribing guidelines for implementation.
- **Objective:** To enable the Members of Parliament to recommend works for creation of durable community assets like drinking water, sanitation, etc. based on locally felt needs.
- **Implementing Agency:** Govt. departments, trusts, and cooperatives selected by Implementing District Authority (IDA) to execute MPLADS work.
- **Funds Allocation:** Each MP is entitled to ₹5 crore per annum
 - **Lok Sabha MPs** can recommend works in their Lok Sabha constituencies.
 - **Rajya Sabha MPs** can recommend works within the state of election.
 - **Nominated members** can recommend works anywhere in the country.
- **Special provisions for fund allocation to SC/ST Population**
 - MPs shall recommend at least **15% of MPLADS funds** for SC-inhabited areas and 7.5% for ST-inhabited areas every year.
 - **If LS constituency has fewer tribals:** Then MPLAD fund may be utilized in areas predominantly inhabited by Scheduled Castes and vice-versa.
- **Non-lapsable fund:** The funds not released in a particular year are carried forward for release in the subsequent years.
- **Exceptions:** MPs can recommend 25 lakh/year outside their region. In a calamity, MPs can recommend up to 1 crore for the affected district.

Governor's Address

In recent times, many State Governors have walked out of the State Assemblies without completely reading the Governor's address prepared by the State Cabinet.



About Governor's Address to State Legislature

- **Article 176:** At the commencement of the **first session after each general election** to the Legislative Assembly and at the commencement of the **first session of each year**, the Governor shall address -
 - the Legislative Assembly or,
 - in the case of a State having a Legislative Council, both Houses assembled together and inform the Legislature of the causes of its summons.
- **Nature of address:** Reflects the policies and legislative agenda of the elected government.
- **Judicial interpretation:** Supreme Court held that the Governor's address is an executive act performed on the aid and advice of the Council of Ministers. (**Nabam Rebia v. Deputy Speaker (2016)**).

Ad hoc judges

Supreme Court Collegium has cleared 5 ex-judges in ad hoc role for Allahabad High Court.



About Ad hoc Judges

- **Article 224A** empowers the **Chief Justice of a High Court** to request a **retired judge of any High Court** to sit and act as a judge, with the **prior consent of the President of India**.
- **Appointment is temporary**: The person serves only for the period specified and is **not treated as a permanent judge**.
- **Jurisdiction and powers**: Enjoys the same powers, jurisdiction, and privileges as a regular High Court judge while in office.

Motion of Thanks

Protests in Lok Sabha prevent Prime Minister's reply to the Motion of Thanks.



About Motion of Thanks

- **Article 87 (1)** provides that at the commencement of the **first session after each general election to the Lok Sabha** and at the commencement of the **first session of each year** the President shall address both Houses of Parliament assembled together and inform Parliament of the causes of its summons.
- **Under Rule 17 of the Rules of Procedure and Conduct of Business in Lok Sabha**, discussion on matters referred to in the **President's Address** takes place on a **Motion of Thanks** moved by a member and seconded by another member.
- **Amendments allowed**: Opposition members may move amendments expressing regret that the Address omitted or inadequately covered certain issues.

UTs with Assembly

Chief Minister of Jammu and Kashmir asks to do away with the model of Union Territories (UTs) with Assembly model from the Constitution.



UTs with Assembly in India

- Currently, there are 3 UTs with the **Legislative Assembly** – **National Capital Territory of Delhi**, **Puducherry**, and **Jammu and Kashmir**.
- **Constitutional Provisions**
 - **Article 239A** authorizes Parliament to create legislatures/Council of Ministers for UTs.
 - **Government of Union Territories Act, 1963** was enacted under this provision which provides for Legislative Assemblies and Council of Ministers for certain UTs.
 - **Article 239AA (69th Amendment)** provides for Legislative Assembly and Council of Ministers for the NCT of Delhi.

Prakash Singh Judgement

The Supreme Court observed that states were opting for 'acting' and avoiding appointment of regular DGPs with a fixed tenure of two years in violation of Prakash Singh Judgement (2006).



Prakash Singh Judgement (2006)

- **Selection and Tenure of DGP:** The DGP must be chosen from a UPSC panel of senior officers and given a minimum two-year tenure.
- **State Security Commission(SSC):** Every State must establish a SSC to prevent unwarranted political interference in police functioning.
- **Separation of Investigation:** The investigation wing must be separated from law and order duties.
- **Police Establishment Board:** Each State must set up it (headed by DGP) to decide transfers, postings and promotions up to DSP level.
- **Police Complaints Authorities:** To inquire into complaints of serious misconduct, abuse of power and human rights violations by police officers.
- **National Security Commission:** To be established by the Central Government to select and place heads of Central Police Organisations.

Right to Recall

Recently a Member of Parliament in Rajya Sabha floated the idea of introducing 'Right to Recall' in India's parliamentary democracy.



About Right to recall

- It is a form of direct democracy which allows voters to **remove an elected representative before their term ends.**
- **Status:** In India, it is only supported at local level in some states e.g., Chhattisgarh.
 - Many other countries like the US (in some States), UK have provisions for Right to Recall.

Other tools for Direct democracy

While India is a **Representative Democracy**, certain tools allow citizens to exercise power directly.

- **Referendum:** A proposed piece of legislation is referred to the electorate for acceptance or rejection.
- **Initiative:** Citizens can propose a bill to the legislature for enactment.
- **Plebiscite:** Primarily deals with sovereignty, territorial disputes, or political status.

Bonded Labour System

Enacted in February 1976, the **Bonded Labour System (Abolition) Act (BLSA)** marked an important milestone in equality in the Indian society.



Constitutional and Legal Framework against Bonded Labour

- **Constitutional:** Articles 21, 23, and 24 of the Indian Constitution protect against bonded labour.
- **Legal:** The BLSA, 1976 abolishes the system, while Section 143 of the Bhartiya Nyaya Sanhita, 2023 penalizes trafficking and forced labour.

Bonded Labour System (Abolition) Act, 1976

- **Completely abolished** the bonded labour system and declared all forms of bonded labour **illegal**.
- Cancelled all existing bonded debts and mandated **immediate release** and freedom of all bonded labourers.
- **Protection from eviction** of freed bonded labourers from lands they occupied.
- **District-level enforcement** by District Magistrates and Vigilance Committees to identify, release, and rehabilitate bonded labourers.
- **Rehabilitation**, through Central and State-level programmes, offering financial assistance, land, housing, and livelihood support.
- **Rescue operations** through periodic surveys and rescue drives that have identified and released lakhs of bonded labourers over decades.

Why Does Bonded Labour Persist?

- **Persistent poverty**, lack of formal contracts and **weak** regulation in the **informal** sector enable exploitative work.
- **Caste hierarchies** and discrimination mean SC/ST communities are disproportionately affected.
 - Data shows **only ~300,000 freed/rehabilitated since 1978**, indicating gaps in enforcement.
- **Low conviction rates** and a lack of a victim-centric approach fails to act as a deterrent.

Conclusion

- A coordinated strategy combining legal reforms, robust monitoring, rehabilitation support, and social awareness is essential to eradicate bonded labour. Sustained political will and community participation will be the true determinants of lasting change.

Q. Despite constitutional safeguards and legal measures such as the Bonded Labour System (Abolition) Act, 1976, bonded labour continues to persist in India.

Examine the constitutional and legal framework against bonded labour and discuss the factors responsible for its continued existence in India. (250 words)

Removal of the Lok Sabha Speaker

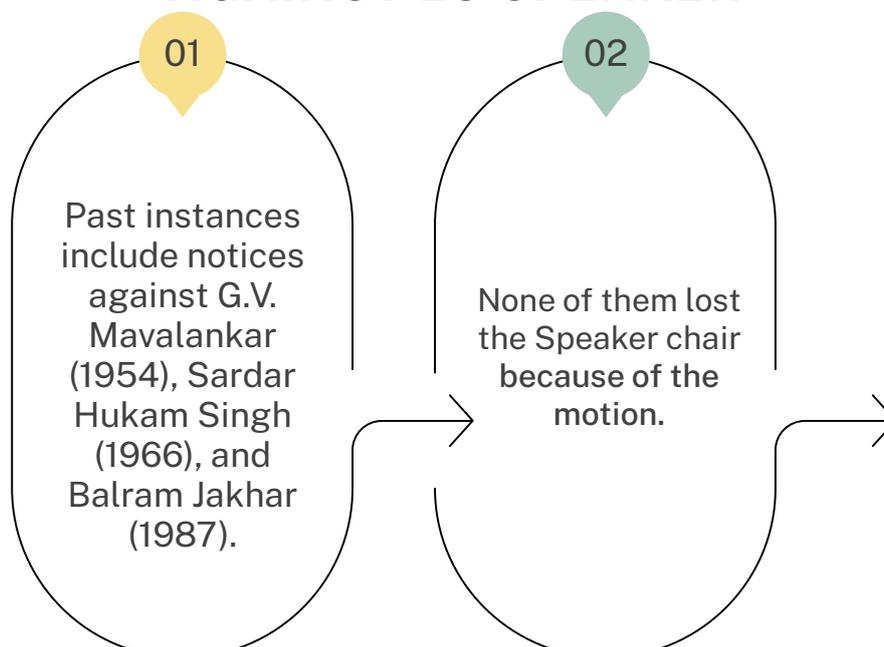
Recently opposition moved a Resolution for removal against Lok Sabha Speaker Om Birla.



Procedure for removal of LS Speaker

- **Constitutional Provision:**
 - **Article 94** provides for the vacation, resignation and removal of those occupying the offices of Speaker and Deputy Speaker.
 - **According to Article 94(c)**, A member holding office as Speaker or Deputy Speaker of House of the People:
 - May be removed from his office by a resolution of House of People passed by a majority of all then members of the House(94(c)).
- **Procedure for admission of resolution for removal by house of people:**
 - A member wishing to give notice of a resolution for removal of the Speaker or the Deputy Speaker has to do it in **writing to Secretary-General of Lok Sabha**.
 - This resolution must be supported by at least 50 members in the House for admission.
 - But no resolution for removal of such officials can be moved unless **at least fourteen days' notice** has been given of intention to move resolution.
 - After such notice is received, a motion for leave to move resolution is **entered in List of Business** on a day fixed by Speaker.
- **Speaker status during Discussion for his removal:** Cannot preside over the House.
 - However, they have the right to speak, take part in proceedings, and vote in the first instance (but not a casting vote in case of a tie).

HISTORY OF RESOLUTION FOR REMOVAL AGAINST LS SPEAKER



Substantive Motion

A MP has submitted a notice to move a substantive motion against the leader of opposition in Lok Sabha.



- Motion is a proposal by a **member seeking a decision or opinion of the House.**

About Substantive Motion

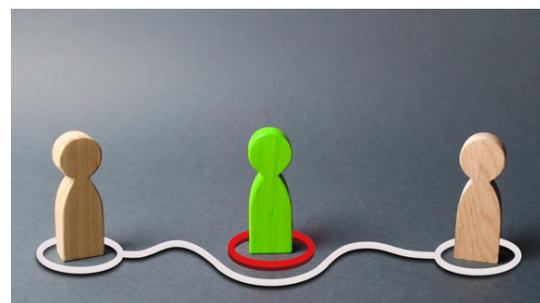
- It is a self-contained proposal **moved by a member of the House** to bring forward a specific subject for **discussion and decision.**
- The **conduct of persons in high authority** can only be **discussed on a substantive motion** drawn in proper terms.
- Motions for the impeachment of President, or a no-confidence motion are **examples** of substantive motions.
- A substantive motion against an MP may result in censure (formal disapproval without removal), suspension, or expulsion.

Other Major Motions

- **Subsidiary motions** – Dependent on a substantive motion and **used to regulate debate** (e.g., amendments, adjournment).
- **Substitute Motion:** Motions moved in substitution of **the original motion for taking into consideration a policy or situation.**

Electoral Trust

Recently ADR released an analysis of electoral trusts FY 2024-25



- It revealed that **82.5% of the donations** by them went to the ruling party.
- **Maharashtra** emerged as the largest contributor state.

About Electoral trust

- **Origin:** Based on the Electoral Trusts Scheme, 2013 and Income Tax Rules, 1962 these are **non-profit** companies.
- **Objective:** To receive contributions from donors and distribute them to registered political parties facilitating transparent political funding.
- **Transparency:** Donations above ₹20,000 must be disclosed to Election Commission of India, but the amount given to each political party remains confidential.
- **Registration:** By **Central board of Direct Taxes.**
- They need to distribute at least 95% of the contributions received during the year to eligible political parties.

Denotified, Nomadic, and Semi-Nomadic Tribes



The Office of the Registrar General of India will enumerate Denotified, Nomadic, and Semi-Nomadic Tribes (DNTs) in the upcoming Census due in 2027.

Who are DNTs?

- DNTs are communities earlier notified as “criminal tribes” by the colonial British government through various legislations, beginning with the **Criminal Tribes Act, 1871**.
 - Criminal Tribes Act was repealed in **1952**, and these communities were “denotified”.
- These communities were enumerated in **1911 and 1931 Census** with 1931 Census being the last census with information on such communities.
 - Idate Commission in 2017 identified close to 1,200 DNT communities that have been **assimilated into existing SCs, STs and OBCs classification** and **268 other DNTs** that had not been classified at all.
 - **Anthropological Survey of India (AnSI)** comprehensively **categorised these 268 DNTs** and recommended their inclusion in SCs, STs and OBCs lists.
- These communities remained largely **socially, economically, educationally, and politically backward**.
- **Government Interventions:** Some schemes of Ministry of Social Justice & Empowerment include:
 - **Scheme for Economic Empowerment of DNTs (SEED):** Educational support, Health Insurance Coverage, livelihood promotion, and Housing support.
 - **Dr. Ambedkar Pre-Matric & Post-Matric Scholarship for DNTs (2014–15).**
 - **Nanaji Deshmukh Scheme of Construction of Hostels for DNT Boys and Girls (2014-15).**

INSTITUTIONAL MECHANISMS

- **Renke Commission (2008):** First National Commission to identify and list DNT communities.
- **Idate Commission (2014–17):** Identified State-wise DNT lists, recommended measures for welfare and proper classification.
- **National Commission for DNTs (2014):** Constituted to prepare State-wise list and suggest welfare measures.
- **Development and Welfare Board for the Denotified, Nomadic, and Semi-Nomadic Communities (DWBDNC):** A registered society formed to formulate, implement and monitor welfare and development programmes.

Freebies



Supreme Court slammed the freebies culture of State Governments

- In ‘Tamil Nadu Power Distribution Corporation Limited v. Union of India’ case, court stated that without drawing any distinction between beneficiaries, freebies would **hamper the long-term economic development**.

About freebies

- RBI defined freebies as “a **public welfare measure** such as that is provided free of charge”.
- As per RBI, freebies can be **distinguished from public or merit goods** such as education which have wider and long-term benefits.

Concerns related to freebies

- **Fiscal Burden:** Combined gross fiscal deficit of States rose from 2.6% of GDP in FY22 to 3.2% in FY25. (Economic Survey 2025-26)
- **Derails Development:** Instead of investing in infrastructure and job creation, money is spent on short-term gains. (Economic Survey 2025-26)
- **Undermines Sustainability:** E.g., CAG report flagged free electricity to groundwater depletion (Punjab Case).
- **Weakens Institutions:** E.g., Loan waivers & free power weaken banks, DISCOMs.

Way forward

- **Subramaniam Balaji v. Tamil Nadu (2013):** States should work to open avenues for employment (welfare) instead of giving non-merit freebies.
 - The judgment stated that Freebies cannot be considered bribery or corruption and courts cannot tell the government how to spend public money.
- **Election Commission of India (ECI):** Via orders of 2014 and 2022, it required political parties to explain the rationale and funding mechanisms behind their promises.
- **Economic Survey 2025-26:** Deliver more durable gains in incomes and productivity than an ever-expanding set of open-ended transfers.
 - E.g., Cash transfers linked to school attendance and health check-ups in Mexico’s Progresa or Brazil’s Bolsa Família.

Q. Consider the following statements:

Assertion (A):

Indiscriminate distribution of freebies without distinguishing beneficiaries may hamper long-term economic development.

Reason (R):

The Reserve Bank of India (RBI) distinguishes freebies from merit goods such as education and health, which generate wider long-term socio-economic benefits.

Select the correct answer using the code below:

A. Both A and R are correct and R is the correct explanation of A

B. Both A and R are correct but R is not the correct explanation of A

C. A is correct but R is not correct

D. A is not correct but R is correct

Blockchain-based Digital Governance



MeitY and C-DAC launched 'Blockchain India Challenge' to encourage Indian startups to pitch & pilot cutting-edge Blockchain-based digital governance solutions.

- Blockchain is a **decentralized, distributed ledger technology** that ensures tamper-proof, transparent, and auditable record-keeping.
 - It operates on **principles of immutability, consensus, and cryptographic security**, making data manipulation virtually impossible.

Role of Blockchain in Governance

- **Certificates and Document:** To address fraudulent documents and delays, NIC developed 'Certificate Chain' for secure storage and retrieval of records.
- **Logistics:** E.g. Karnataka's Aushada system tracks medicine movement from manufacturer to hospitals, including quality checks.
 - **Patients can verify** manufacturer, expiry, and quality, reducing spurious drugs and increasing transparency.
- **Judiciary:** E.g. **Inter-Operable Criminal Justice System (ICJS)** integrates criminal justice ecosystem on a unified digital platform for case records, evidence, and documents.
- **Property:** E.g. 'Blockchain-powered Property Management System' records all property transactions verifying ownership, rights, and liabilities, reducing litigation and speeding dispute resolution.
- **Other:** Additional Proof of Concepts are being developed for **Remote Voting, GST monitoring, Blood Banks, and the Public Distribution System (PDS)**.

OTHER KEY BLOCKCHAIN INITIATIVES BY GOVERNMENT

- **National Blockchain Framework (NBF):** Developed by MeitY, it provides a unified architecture for deploying blockchain solutions for public service delivery, with components like Vishvasya stack, NBFLite, and Praamaanik.
- **Centre of Excellence in Blockchain Technology (CoE):** Established to offer blockchain-as-a-service (BaaS) infrastructure for government departments.
- **Land Records Management:** States like Andhra Pradesh, Telangana, and Maharashtra have piloted blockchain for land title registration.

AI in Judiciary

AI transforming India's legal ecosystem showcased at India AI Impact Summit 2026

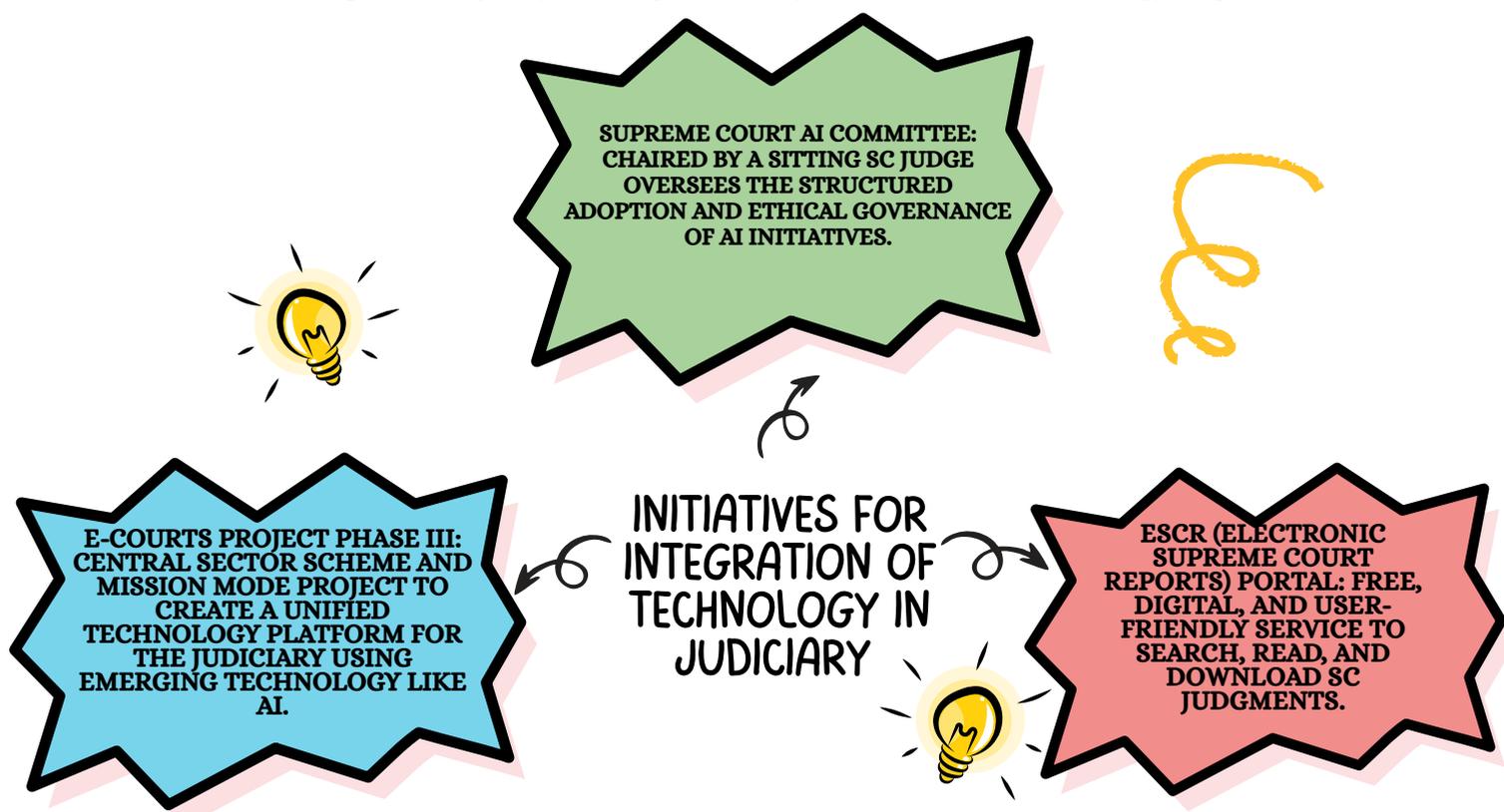


Role of AI in Judiciary

- **Courtroom efficiency:** AI tools assist in voice to text conversion, smart scheduling, case prioritization etc. aiding **reduce backlogs and delays**.
 - E.g. **ASR-SHRUTI** (voice-to-text dictation for orders and judgments)
- **Legal Research and Documentation:** Analyzing vast databases of legal precedents, identifying relevant statutes, and summarizing complex judgments.
 - E.g. **Supreme Court Portal for Assistance in Court Efficiency (SUPACE)** or **Saransh** for judgement summaries
- **Language Accessibility:** AI-driven **Multilingual Translation** tools breaking the English-language barrier for litigants in regional languages and helps **Democratization of Justice**.
 - E.g. **SUVAS** (Supreme Court Vidhik Anuvaad Software)
- **Predictive Analytics:** Can indicate likely case outcomes, **encourage out-of-court settlements** and reduce court burden.

Challenges

- **Algorithmic Bias:** AI trained on historical data may **reinforce biases** related to caste, gender, or community.
 - It can violate Articles 14 (Equality) and 21 (Right to Fair procedure)
- **“Black Box” Problem:** **Opaque** AI algorithms make it hard to understand logic behind outputs, **undermining transparency**.
- **Risk of "Hallucinations":** **Generative AI** can produce **fictitious judgments** posing risk to **judicial integrity**.
- **Security & Privacy:** Use of AI involves sensitive legal data, raising risks of **cybersecurity** breaches and misuse.
- **Others:** **Judicial responsibility** may be compromised by over-reliance on technology, **digital divide**.



Balancing Fraternity and free Expression



Supreme Court reasserts the constitutional balance between fraternity and free expression

In **Atul Mishra v. Union of India (2026)**, the Supreme Court (SC) dealt with a **writ petition** challenging the title of a **proposed film**, on the ground that it allegedly **stereotyped** against a **particular community**.

About the Judgement

- **Protection of community dignity through the value of fraternity:**
 - SC reaffirmed that **vilifying any community** on the basis of **caste, religion, language or region is constitutionally impermissible**.
 - SC held that **fraternity is essential** for sustaining **liberty and equality** in a democracy.
 - During Constituent Assembly debates, **Dr. BR Ambedkar** posited that **liberty, equality, and fraternity form a "union of trinity."** To divorce one from the other is to defeat the very purpose of democracy.
- **Freedom of artistic and expressive speech under Article 19(1)(a):**
 - The court recognised the **right of filmmakers and artists** to express their ideas through **creative mediums**.
 - However, this right is subject to **reasonable restrictions under Article 19(2)** but they must be **based on necessity and not on mere convenience or public sentiment**.

RELATED CONSTITUTIONAL PROVISIONS

- **Fraternity**
 - Key objective in the Preamble: Assures dignity of the individual and unity and integrity of the nation.
 - Article 51A(e) (fundamental duty): imposes a duty on citizens to promote harmony and brotherhood.
- **Freedom of Speech and Expression**
 - Article 19(1)(a): Fundamental right to freedom of speech and expression.
 - Article 19(2): Reasonable restrictions can be imposed on grounds of sovereignty and integrity of India, security of the State, friendly relations with foreign States, public order, decency or morality, or in relation to contempt of court, defamation or incitement to an offence.

Rajya Sabha Elections

Election Commission announced biennial elections for 37 seats of Rajya Sabha in 10 states.



About Rajya Sabha Elections

- **Nature of Rajya Sabha: Permanent House, not subject to dissolution.**
 - However, **one-third Members retire after every second year, with tenure of each member being six years.**
- **Manner of Election:** Indirect, in accordance with system of **proportional representation** by means of **single transferable vote (Article 80(4)).**
- **Electoral College:** Representatives of **each State and three Union territories** are elected by **elected members of Legislative Assembly** of that State.
 - For 3 UTs (NCT of Delhi, Puducherry, and Jammu & Kashmir), it consists of **elected members of respective Legislative Assemblies.**

Principle of Just Deserts

Supreme Court highlighted adherence to the principle of Just Deserts as the primary responsibility of the courts.

Principle of Just Deserts

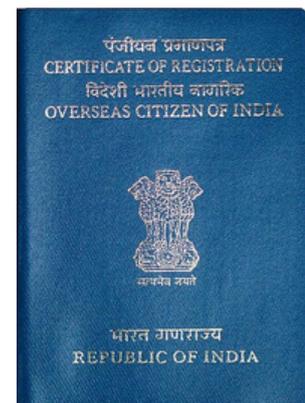


About the Principle of Just Deserts

- It refers to a **philosophy within criminal justice** emphasizing the idea of **proportionality in punishment**, asserting that individuals should receive consequences commensurate with the crimes committed.
- Retribution acts as the **primary philosophical foundation** for this with the idea that **offenders morally deserve punishment for their wrongful acts.**
- It acts as a response to perceived leniency in the justice system, advocating for standardized penalties and accountability.

Overseas citizen of India (OCI)

Supreme Court dismisses OCI request for state bar council membership.



About OCI scheme

- **Introduced in 2005**, by amending the **Citizenship Act, 1955**
 - OCI is not to be misconstrued as 'dual citizenship'. OCI does not confer political rights to vote.
- **Benefits for OCI Cardholders**
 - Lifelong **multiple-entry visa** to visit **India**.
 - Equality with NRIs in certain financial, economic and educational matters except for acquisition of agricultural or plantation land.
 - Prior special permission is required for **certain activities** such as **research activities**, etc.
- **Eligibility:**
 - All Persons of Indian Origin (PIOs) who **were citizens of India on 26th January, 1950 or thereafter**.
 - Eligible to become a citizen of India on 26th January, 1950 or belonged to a territory that became part of India after 15th August, 1947; etc.
 - **Exceptions:** No person, who or either of whose parents or grandparents had been a citizen of Pakistan, Bangladesh or such other country as the government may specify.

Parliamentary Friendship Groups

Lok Sabha Speaker has constituted Parliamentary Friendship Groups with more than 60 countries.



Parliamentary Friendship Groups

About Parliamentary Friendship Groups

- It aims to **deepen dialogue** and **exchanges with legislatures across continents** and to complement traditional diplomacy with **sustained parliamentary interaction**.
- It will allow lawmakers to **speak directly to their counterparts abroad**, **share legislative experience**, and **build trust** through regular engagement and **exchange best practices**.
- It will also **facilitate conversations on trade, technology, social policy, culture, and global challenges** that democracies face today.

NOTA option in Elections

Supreme Court questions the effectiveness of the NOTA (None of the above) option in elections. The Supreme Court noted that more than a decade after its introduction, it has had little impact on the choice of candidates fielded by political parties.



- In NOTA, citizens choose to vote by not giving a vote to any political candidate.
- In 2013 in **PUCL vs Union of India**, Supreme Court directed the ECI to include a NOTA option on Electronic Voting Machines (EVMs).
 - **First Implementation:** NOTA was first implemented in the 2013 legislative assembly elections in Chhattisgarh, Mizoram, Rajasthan, Madhya Pradesh, and Delhi.

Challenges with NOTA

- **Uncontested Elections:** Voters cannot exercise the NOTA option in constituencies where a candidate is elected unopposed.
- **No Impact on Election Results:** Even if NOTA gets the highest votes, the candidate with the next highest votes is declared the winner.
- **Ineffectiveness Against Criminality:** As political parties continue to select candidates based on electability rather than moral considerations.

Way Forward

- **The 50%+1 Rule and Candidate Bans:** Under this rule, re-elections happen if NOTA gets 51% of valid votes, with the previous candidates barred from contesting again.
 - This is done in **Columbia**.
- **State-Level Initiatives:** The State Election Commissions of Maharashtra and Haryana have taken positive steps by treating NOTA as a fictional candidate and ordering re-elections when NOTA secures a majority.

Contempt of Court

The Supreme Court observed that NCERT's textbook with references to "corruption in judiciary" can come within the purview of criminal contempt of court.



About Contempt of Court

- **Constitutional Provisions:** Article 129 grants Supreme Court power to punish for contempt of itself; Article 215 for High Court.
- **Legislative Framework:** Contempt of Courts Act, 1971 classifies it into two types
 - **Civil Contempt:** Wilful disobedience of court orders or undertakings.
 - **Criminal Contempt:** Publishing or doing anything (spoken, written, signs, etc.) that scandalises/lowers court's authority; prejudices/interferes judicial proceedings; interferes/obstructs in administration of justice, etc



Boost for Orange Economy



The Union Finance Minister highlighted the Orange Economy (Creative Economy) in the Union Budget 2026, recognising its role in employment generation, innovation, exports, and soft power.

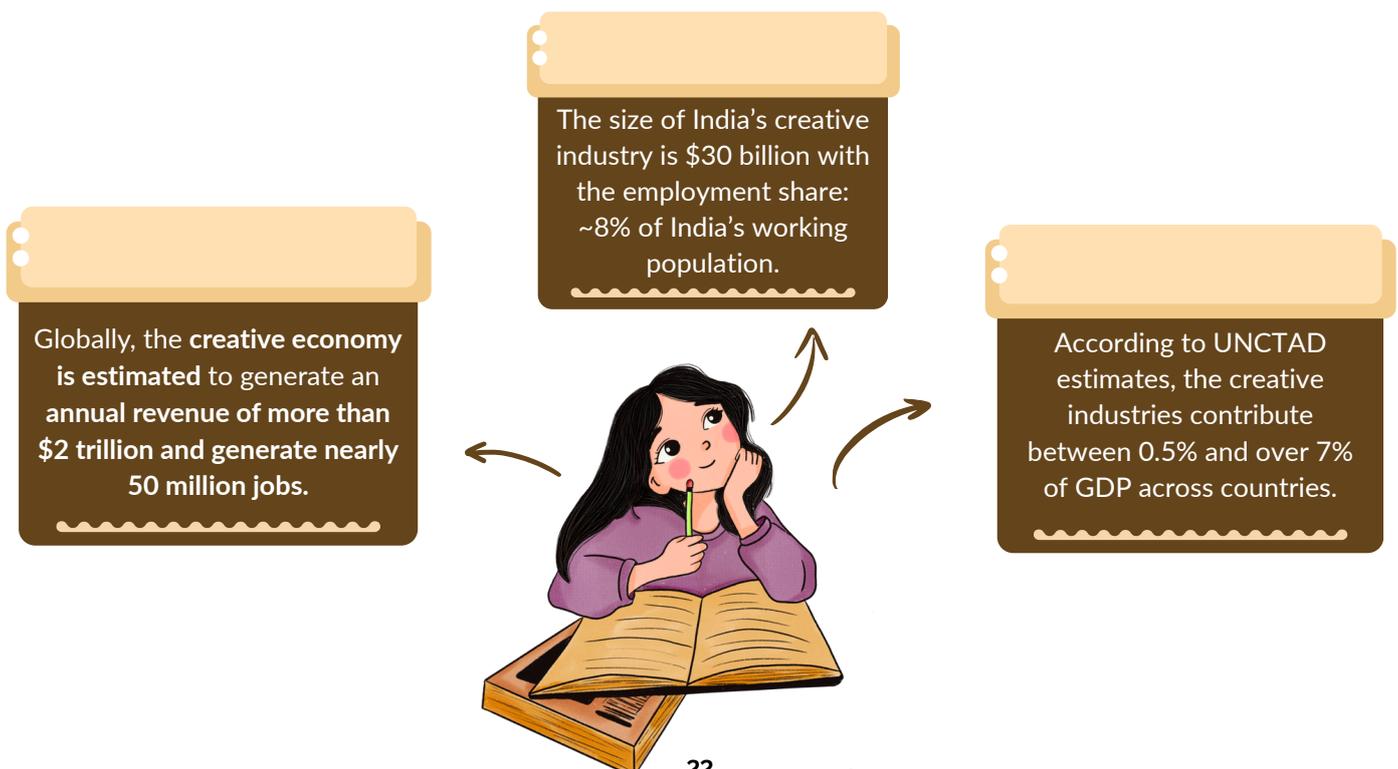
What is the Orange Economy?

- The term was coined by former Colombian President **Iván Duque Márquez** and **Felipe Buitrago** in their 2013 book “**The Orange Economy: An Infinite Opportunity**”.
- It refers to knowledge-based economic activities **where ideas and creativity are transformed into cultural goods and services**, with their value primarily **determined by intellectual property**.
- Unlike traditional manufacturing-led growth, these sectors derive their primary value from **ideas, artistic expression and cultural capital rather than physical goods**.
- **Sectors Included:** Audiovisual media (film, television), Live Entertainment like Music Concerts, Gaming Industry, Design, Theatre etc.

Key Budget Announcements

- **AVGC (Animation, VFX, Gaming & Comics) Sector:** Support to **Indian Institute of Creative Technologies (IICT)**, Mumbai in setting up AVGC Content Creator Labs in 15,000 secondary schools and 500 colleges.
- **Strengthening Design Education:** Establishment of a new **National Institute of Design (NID)** in the eastern region through the challenge route.
 - India currently has seven NIDs, all recognised as institutes of national importance.

Present state of Orange Economy



16th Finance Commission



16th Finance Commission

16th FC was constituted in 2023 under the chairmanship of Dr. Arvind Panagariya, former Vice- chairman of NITI ayog,

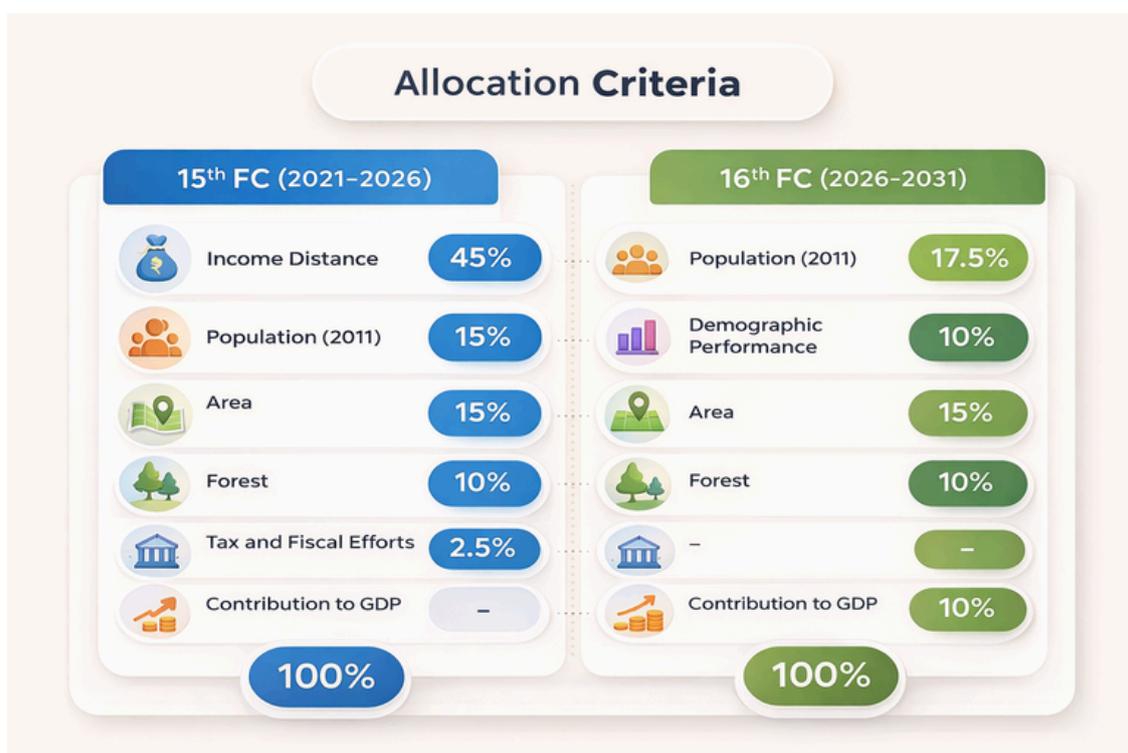
- Its key recommendations have been accepted by the Government for implementation from 2026-27 to 2030-31

About FC

- It is a **Constitutional body** under **Article 280**, constituted by the President of India every 5 years or earlier.
- **Composition:** Chairman and 4 other members appointed by the president for a term specified by him.
- Under **Article 281**, Government lays the Finance Commission's report and an Action Taken Memorandum before Parliament.

Key recommendation

- **Vertical devolution:** States' share in the divisible pool remains at **41%**, unchanged from the 15th FC.
 - The divisible pool consists of gross tax revenue **excluding the cost of collection, cesses, and surcharges**
- **Horizontal Devolution:** how the 41% is divided among states
 - **Southern States** will see higher devolution due to inclusion of Contribution to GDP as a criteria, reduced weightage to Income distance and area.
- **Path to Macro and Fiscal Stability:** States' fiscal deficit should be capped at 3 % of their respective GSDP (excluding loans under Special Assistance to States for Capital Investment (SASCI) scheme).



Creating Champion MSMEs

It recognises a three-pronged approach to help MSMEs grow as 'Champions' for Viksit Bharat.



Three-pronged approach Includes

- **Equity Support**
 - Dedicated ₹10,000 crore **SME Growth Fund** for incentivizing enterprises based on select criteria.
 - Proposed to top up the **Self-Reliant India Fund** set up in 2021, with ₹2,000 crore to micro enterprises.
- **Liquidity Support**
 - Maximizing the potential of the **TReDS (Trade Receivables Discounting System)** platform through four specific measures:
 - **Mandatory TReDS Use:** All CPSE purchases from MSMEs to be settled via TReDS.
 - **Credit Guarantee Support:** CGTMSE to provide guarantees for invoice discounting on TReDS, reducing lender risk. **GeM-TReDS Integration:** Linking GeM with TReDS to share government purchase data with financiers, enabling faster and cheaper MSME credit.
 - **Secondary Market Development:** Introduction of TReDS receivables as asset-backed securities to boost liquidity.
- **Professional Support (Corporate Mitras)**
 - These **accredited para-professionals** will help MSMEs meet compliance requirements at affordable costs.
 - Professional institutions like ICAI, ICSI, and ICMAI will be facilitated to design short-term, modular courses to train these professionals.

About TReDS (Trade Receivables Discounting System)

- TReDS is an electronic platform set up to facilitate MSMEs to unlock working capital by converting their receivables into cash.

About Credit Guarantee Fund Trust for Micro and Small Enterprises (CGTMSE)

- Set up in 2000 by Ministry of Micro, Small and Medium Enterprises and SIDBI
- The scheme aims to provide credit guarantees for the credit facilities extended to MSEs by the Member Lending Institutions (MLIs), without collateral security or third-party guarantees.

Bharat-VISTAAR for Agricultural

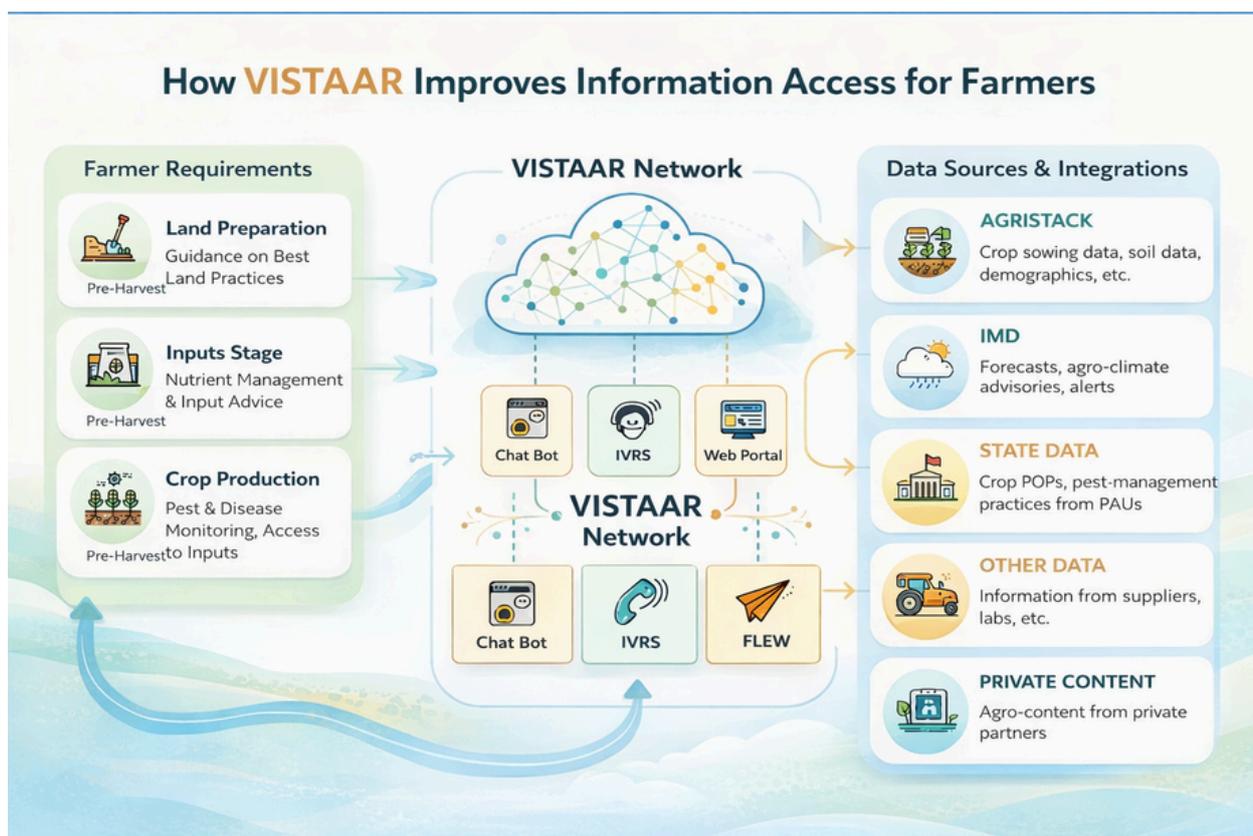


Bharat VISTAAR (Virtually Integrated System to Access Agricultural Resources) will be a multilingual AI (Artificial Intelligence) tool that will integrate the AgriStack portals and the ICAR package on agricultural practices with AI systems.

- AgriStack has been envisaged as a **Digital Public Infrastructure (DPI)** for Agriculture, based on **India's Digital Ecosystem Architecture (InDEA) 2.0**.

About Bharat-VISTAAR

- VISTAAR is an **open, interoperable, and federated public network** dedicated to **agricultural information and advisory services**.
- A decentralized repository, it will facilitate the **discovery & fulfillment of verified agriculture content, best practices, and agri-skilling** across diverse private and public provider platforms.
- **Potential Significance:**
 - Enhancing **farm productivity** through data-driven and timely interventions.
 - Improving **farmer decision-making** at every stage (input, crop production, market etc.) by providing accurate, localized insights, best practices and data services.
 - **Reducing market risks** via customized, crop- and region-specific advisory support.
 - **Supporting Government** in real-time monitoring, improved delivery of agriculture extension services, and targeted intervention.



Dedicated Rare Earth Corridors

Corridors to be developed in Odisha, Kerala, Andhra Pradesh, and Tamil Nadu for mining, processing, research, and manufacturing of Rare Earth Permanent Magnets (REPMs).



What are REPMs?

- They are amongst the **strongest types of permanent magnets** with high magnetic strength and stability.
- **Applications:** Advanced engineering applications such as **electric vehicle motors, wind turbine generators etc.**
- **Significance:** REPM demand is expected to **double by 2030.**

Significance for India

- **Strategic Self-Reliance:** Ensures access to **critical materials** reducing India's heavy dependence on imports, particularly from **China**.
 - India imported **60-80% (value-wise)** and **85-90% (quantity-wise)** REPMs from China (2022-25).
- **Climate Goals:** REPMs support India's **clean-energy transition and Net Zero 2070 vision.**
- **National Security:** Ensures reliable domestic supply for **defence equipment and precision sensors**, reducing vulnerability to global supply chain disruptions.

Key government Initiatives

- **REPM Manufacturing Scheme:** 7,280 crore Scheme to establish an **integrated domestic REPM manufacturing ecosystem** with **6,000 MTPA capacity**, covering the full value chain from rare-earth oxides to finished magnets.
- **National Critical Minerals Mission (NCMM):** Creation of a long-term, **end-to-end supply chain** for critical minerals including rare earths.
- **MMDR Amendment Act, 2023:** Amendments to the **Mines and Minerals (Development and Regulation) Act, 1957**, providing Dedicated list of **critical and strategic minerals**, **Auction of mineral concessions** etc.



Agricultural Credit Societies



The Government aims to establish new multipurpose PACS/dairy/fisheries cooperatives to cover all panchayats and villages over the next 5 years.

About PACS

- PACS are the **grass-root level institutions** of the **short-term co-operative credit structure** and it acts as a **last-mile link** between borrowers and higher financing institutions such as Scheduled Commercial Banks and RBI/NABARD.
- **Status: PACS sanctioned: 79,630, New PACS registered: 32,802, PACS digitised: 61,478**
- **Regulation:**
 - **Multi State PACS:** Entry 44 of Union List of the Constitution and are centrally administered by **Central Registrar of Cooperative Societies (CRCS)** under provisions of **Multi-State Co-operative Societies Act, 2002**.
 - **Single State PACS:** Entry 32 of State List of the Constitution and are administered by the concerned **State Registrar of Cooperative Societies (RCS)** under respective **State Cooperative Societies Act**.

Potential & Significance of PACS

- **Agriculture:** Enhanced infrastructure and post-harvest support through the **World's Largest Decentralized Grain Storage Plan** (which establishes godowns and custom hiring centres).
- **Dairy Sector:** Enhance milk procurement by **50% over 5 years** through registration of **>21,000 new Dairy Cooperative Societies**.
- **Fisheries sector:** Improve market linkages and value addition through **converting 1,000 fisheries cooperative societies into Fish Farmer Producer Organisations (FFPOs)**.

INITIATIVES TAKEN FOR PACS PROMOTION

- **PACS Computerization Project:** Computerization of PACS under a common ERP-based national software.
- **National Cooperation Policy (NCP) 2025:** Membership expansion and leadership roles for women and weaker sections.
- **Adoption of Model Bye-laws:** Enabling PACS to function as multipurpose service centres (PM Kisan Samridhi Kendras, Common Service Centres, warehousing, custom hiring centres, primary processing).
- **Inclusive Governance:**
 - **Mandatory representation of women and SC/ST members in cooperative boards under Multi-State Cooperative Societies (Amendment) Act, 2023.**
 - **Inclusion of SHGs, small & marginal farmers and tribal communities.**

Strengthening Capital Goods Sector



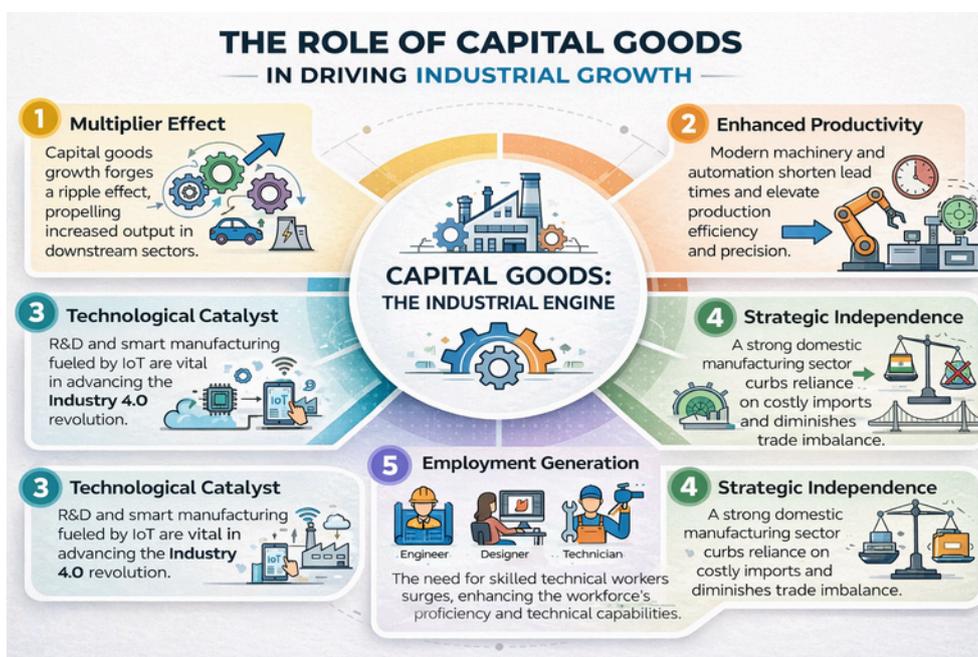
Capital Goods means any plant, machinery, equipment or accessories required for manufacture or production, either directly or indirectly, of goods or for rendering services, including those required for replacement, modernization, technological up-gradation or expansion.

Budget Focus on Capital Goods

- **Infrastructure Engine:** Increased public capex by ~9% to ₹12.2 lakh crore in FY 2026–27 aimed at increased inland shipping and expanding high-speed rail corridors.
- **High-Tech Tool Rooms:** Establishment of CPSE-led hi-tech tool rooms to locally design and manufacture high-precision components at scale.
- **CIE Scheme:** Launch of the Scheme for Enhancement of Construction and Infrastructure Equipment (CIE) to boost indigenous production of tunnel-boring machines.
- **Logistics Boost:** Outlay of ₹10,000 crore for a new Container Manufacturing Scheme to reduce import dependency and logistics costs.
- **Duty Exemptions:** Extension of Basic Customs Duty (BCD) exemptions for capital goods used in Lithium-ion cell manufacturing and critical mineral processing.
- **Income tax exemption:** For a period of five years to any non-resident entity that provides capital goods, equipment or tooling to a toll manufacturer operating in a bonded zone.

Recent Policy Support Strengthening Capital Goods Sector

- **PLI Schemes:** Production-Linked Incentives driving technology adoption & scale.
- **Scheme for Enhancement of Competitiveness in the Indian Capital Goods Sector:** Focusing on advanced Centers of Excellence and testing infrastructure.



Minimum Alternate Tax



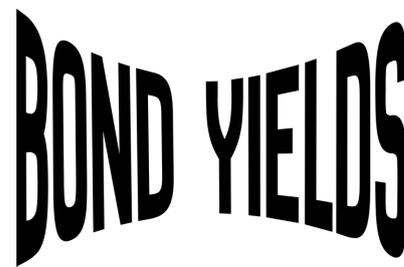
Union Budget 2026-27 proposed making Minimum Alternate Tax (MAT) a final tax and reducing its rate from 15% to 14%.

- It also proposed to provide exemption from MAT to all non-residents who pay tax on presumptive basis.

About MAT

- It is a tax that requires a company to pay a minimum amount of its book profit when its normal income-tax liability is minimal or zero.
 - A company is required to pay higher of either MAT or corporate tax.
- **Legal basis** - it is levied under Income Tax Act 1961.
- **Applicable:** To both domestic and foreign companies.

Bond Yields



Benchmark 10-year bond yield settled at around 6.77%, sharply higher than the previous session with its highest close since mid-Jan 2025.

About Bond Yields

- It represents the **annual return** an investor earns by **holding a security until maturity**, taking into account both **interest payments and the principal repayment relative to the purchase price**.
- It has **inverse relations with bond prices**. A rise in yields translates into lower bond prices in the secondary market.
- **Impact of Higher bond yields:** Reduce the market value of existing bond; raise borrowing costs for companies, etc.

Power Gap Index

Economic Survey 2025-26 cited the Power Gap Index to show that India is operating below its full strategic potential.



About Power Gap Index

- It is a **secondary analysis** derived from the **Asia Power Index**, an **annual index** produced by the **Australia-based Lowy Institute**.
- It measures **resources and influence** to rank the **relative power of states in Asia**.
- Ranks **27 countries and territories** through **131 indicators across 8 thematic measures**:
 - Military capability and defence networks, Economic capability and relationships, Diplomatic and cultural influence, as well as Resilience and Future resources.
- As per 2025 Edition, India is **operating below its full strategic potential** with a **power gap score of -4.0**.

Debt-to-GDP ratio

India is on track to reach debt-to-GDP ratio of 50±1 percent by 2030-31 as debt-to-GDP ratio is estimated to be 55.6 percent of GDP in BE 2026-27.



- Debt-to-GDP ratio is being increasingly used as the **primary policy target** instead of **fiscal deficit–GDP ratio** used under **Fiscal Responsibility and Budget Management Act, 2003**.
- FRBM Act aims to guide the government's fiscal policy towards a sustainable path, thereby promoting economic stability.

About Debt-to-GDP ratio

- It is a financial metric that compares a **country's public debt** to its **gross domestic product (GDP)**, indicating the **nation's ability to repay its debt**.
- The **higher the debt-to-GDP ratio**, the **less likely** it becomes that the country will **pay back its debt** and the **higher its risk of default**.

Advance Pricing Agreement

Union Budget rationalises Advance Pricing Agreement (APA) rules etc., indicating a more investor-friendly tax regime.

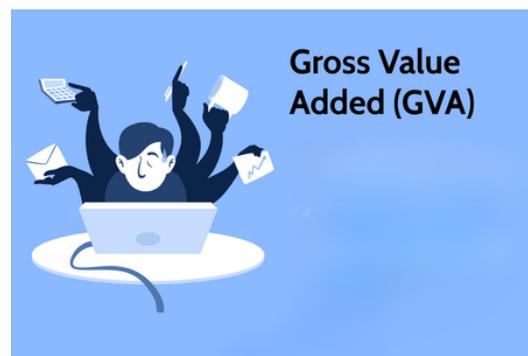


Key Changes for IT sector

- Consolidation of **IT services** into a single category of **Information Technology Services** with a **uniform safe harbour** margin to reduce disputes and litigation.
 - Threshold for **safe harbour eligibility** raised (₹300 crore to ₹2,000 crore); automated, rule-based approvals.
- **Advance Pricing Agreement (APA)** process **fast-tracked** to be completed within 2 years (extendable 6 months).
 - **APA is a pre-emptive arrangement** between a **taxpayer and tax authorities** that determines transfer pricing methodology for specified transactions in advance, ensuring **tax certainty and reducing disputes**.
 - **Transfer Pricing** means **fixing fair prices** for transactions between related companies so that **profits are not shifted to avoid tax**.

Gross Value Added

As per the provisional estimates(PE), GVA of the agriculture sector registered a growth of 10.4% during 2024-25.



- The government has raised the budget allocation of Department of Agriculture & Farmers Welfare(DA&FW) to Rs. 1.27 lakh crore (2025-26).
- GVA percentage growth in agriculture and allied sector including crops, livestock, fisheries and horticulture, during the last five years (at current prices) is as under:

2020-21	2021-22	2022-23	2023-24	2024-25
10.0	10.6	8.5	9.6	10.4

- GVA is the value of **total output** produced in the economy less the value of **intermediate consumption** (the output which is used in production of output further, and not used in final consumption).
 - GVA at basic prices includes the net production taxes but not net product taxes.

PFC and REC Merger



About PFC

- **Genesis:** Incorporated in 1986, it is a **Schedule-A Maharatna** Central Public Sector Enterprises (CPSEs)
- It is a leading **Non-Banking Financial Corporation (NBFC)** in the Country.
- Classified as an **Infrastructure Finance Company** by the RBI in 2010.
- **Ministry:** Ministry of Power.

About REC

- **Genesis:** Incorporated in 1969 in the backdrop of severe drought and famine, to energise agricultural pump-sets for irrigation purposes.
- It is a '**Maharatna**' company and is registered with RBI as NBFC, Public Financial Institution (PFI) and Infrastructure Financing Company (IFC).
- **Ministry:** Ministry of Power.
- It is the National Project Implementation Agency for the “PM Surya Ghar Muft Bijli Yojana”.

Chemical Parks

The initiative, backed by a ₹600 crore allocation, aims to transform India into a global manufacturing hub through a cluster-based, infrastructure-led approach.



About Chemical Parks

- They are planned industrial clusters explicitly designed for **chemical and petrochemical manufacturing**, where multiple units operate together, sharing world-class infrastructure and common services.

Status of Chemical Industry in India

- Contributes **7% to national GDP**.
- Accounts for **8.1% of manufacturing GVA** (Gross Value Added) (FY24)
- India is **6th largest** chemical producer **globally** and **3rd largest in Asia**.

Challenges faced by Chemical Industry

- **Import Dependency:** Heavy reliance on imports led to a **USD 31 billion trade deficit** in 2023.
- **Infrastructure & Logistics:** Outdated industrial clusters and **high logistics costs** create a significant price disadvantage compared to global competitors.
- **Missed Opportunities:** Focusing on **bulk production (upstream)** instead of **high-value specialty products** (downstream).
- **Low R&D:** Investment in R&D stands at only **0.7%** (against global average of 2.3%).
- **Environmental compliance (EC) hurdles:** Long processing times, complex clearance requirements, and overlapping regulatory scrutiny at state and central levels.
- **Skill Gap:** A **30% shortfall** in skilled professionals, particularly in niche areas like green chemistry, nanotechnology, etc.

OTHER INITIATIVES FOR PROMOTION OF CHEMICAL INDUSTRY:

- **Plastic Parks:** Focuses on plastic waste management, recycling, and synergizing capacities of processing industry.
- **Bulk Drug Parks:** Aimed at achieving self-reliance in pharmaceutical raw materials (APIs).
- **Petroleum, Chemicals and Petrochemicals Investment Region (PCPIRs):** Large-scale investment regions for petroleum and petrochemicals.
- **Production linked incentive (PLI) Schemes:** For Promotion of Domestic Manufacturing of Critical Key Starting Materials (KSMs), Drug Intermediates and APIs.

Startup Recognition Framework Revised



Revision was done with a view to expand access to research, innovation in startups, establish India as a manufacturing-led economy and hub for emerging technologies.

Key Provisions of Revised Framework

- **Enhanced Turnover Threshold:** Increased from ₹100 crore to **₹200 crore**.
- **Introduction of dedicated Deep Tech Startups Category:** For entities working on cutting-edge and breakthrough technologies.
 - This category has been accorded **expanded eligibility criteria** with **age limit extended from 10 to 20 years** from date of incorporation/registration, **turnover limit enhanced to ₹300 crore**.
- **Inclusion of cooperative societies as eligible entities:** Extended to both **Multi-State Cooperative Societies** (under Multi-State Cooperative Societies Act, 2002) and **Cooperative Societies** (under State and Union Territory Cooperative Acts).

Recognised Startups and Startups Ecosystem in India

- **Recognised Startups:** Startup granted **official recognition** by **Department for Promotion of Industry and Internal Trade (DPIIT)**, based on **eligibility criteria notified from time to time**.
- **Benefits of a Recognised Startup:** Not required to include cash flow statement with financial statements; **100% tax exemption on profits for three years** under Income Tax Act 1961; etc.
- **Status in India:** Over **2 lakh DPIIT-recognised startups** (December 2025), with around **50% of originating from Tier-II and Tier-III cities**.
- **Key Initiatives for Startup Support:** Startup India Initiative; Atal Innovation Mission (AIM); GENESIS (Gen-Next Support for Innovative Startups); NIDHI (National Initiative for Developing and Harnessing Innovations), etc.

Startup Recognition Criteria



Years Since Founding

Startup must be founded no longer than 10 years ago, or 20 years ago for deep tech.



Business Structure

Must be registered as a Private Limited Company, Limited Liability Partnership, Registered Partnership, or Cooperative Societies.



Annual Revenue

Annual revenue must not exceed **Rs. 200 crore** (Rs. 300 crore for deep tech) since inception.



Originality

Must not be created by splitting up, rebranding, or restructuring an already existing business.



Innovation & Scalability

Demonstrate product, process, or service innovation with a scalable and profitable business model.

Rat-hole mining

Rat-hole mining is prone to collapsing because they lack engineered roofs and side-wall protections.



What is Rat-hole mining?

- Rat Hole' mining is a primitive and unscientific form of mining.
- In this process, **Land is first cleared by cutting and removing the ground vegetation** and then **digging pits** into the ground to reach the **coal seam**.
 - **Coal seams** are reached by excavating the hill slopes and then coal is extracted through a horizontal tunnel, where workers enter and extract coal.
- **Methods of extraction:** Side-cutting, Box-cutting

Reasons for Illegal Mining Continuation

- **Natural Factors:** E.g., Coal seams in Meghalaya are very thin which makes rat-hole mining more economically viable than opencast mining.
- **Lack of Alternatives:** Without viable economic substitutes in sectors like horticulture, construction, manufacturing, the population reverts to mining for survival.
- **Complex Ownership Structures:** The specific ecosystem in Meghalaya involves small, privately or community-owned landholdings with fragmented ownership.

Measures taken to stop illegal rat hole mining

MEGHALAYA HAS A FRAMEWORK TO PREVENT ILLEGAL MINING, TRANSPORT, AND STORAGE UNDER THE MINES & MINERALS (DEVELOPMENT & REGULATION) ACT, 1957.

NATIONAL GREEN TRIBUNAL (NGT) BANNED RAT HOLE MINING IN MEGHALAYA IN 2014, STATING IT IS UNSCIENTIFIC AND UNSAFE FOR WORKERS. THE BAN WAS UPHELD BY THE SUPREME COURT.

Integrated Farming System

The Union Agriculture Minister urged scientists to develop Integrated Farming Systems (IFS) for small farmers



About Integrated Farming System (IFS)

- A synergistic approach integrating multiple components: crops, livestock, horticulture, fishery, poultry, and apiary, on a single farm unit.
 - ~89.4% of Indian farmers are operating on small landholdings (<2 hectares)

Significance of IFS for Small Farmers

- **Income Security:** Diversified revenue streams buffer farmers against crop failure and market volatility, potentially increasing net income.
- **Resource Efficiency:** Recycling on-farm nutrients reduces input costs (fertilizers, feed).
- **Nutritional Security:** Provides a balanced diet (milk, eggs, vegetables) for the farming household, combating rural malnutrition.
- **Ecological Diversity:** Enhances biodiversity through scientific cropping methods (intercropping, mixed crop rotation) to reduce competition for water, nutrition, and space.

Challenges

- **Capital Intensive:** Establishing allied sectors (e.g., cattle sheds, fishponds) requires high initial investment.
- **Knowledge Gap:** Traditional farmers may lack technical skills to manage complex, multi-layered systems.
- **Labour Requirement:** IFS is labour-intensive.

GOVERNMENT INITIATIVES

- National Mission for Sustainable Agriculture (NMSA)- Rainfed Area Development (RAD): The primary mission promoting location-specific IFS clusters.
- Rashtriya Krishi Vikas Yojana (RKVY): Provides states flexibility to fund diverse IFS models and infrastructure.
- Paramparagat Krishi Vikas Yojana: Promotes organic nutrient cycling between livestock and crop components.
- Viksit Krishi Sankalp Abhiyan: Aims to bridge the lab-to-land gap, deploying scientists to disseminate region-specific IFS models.
- ICAR-AICRP: The All India Coordinated Research Project (AICRP) on IFS is developing location-specific models across 25 states to optimize productivity for different agro-climatic zones.

Integrated Programme for the Textile Sector announced in Union Budget 2026-27

Integrated Programme is a comprehensive and integrated policy framework that aims to strengthen the entire textile value chain—from fibre to fashion, from village industries to global markets.

- It consists of five sub-components.

Five sub-components of the Integrated Programme

- **National Fibre Scheme:** Aimed at achieving self-reliance across the fibre spectrum.
 - The scheme will support natural fibres such as silk, wool and jute, man-made fibres, and new-age fibres.
- **Textile Expansion and Employment Scheme:** Focuses on modernisation of traditional textile clusters through capital support for machinery, technology upgradation, and the establishment of common testing and certification centres.
- **National Handloom and Handicraft Programme:** Existing schemes for handloom and handicrafts will be integrated and strengthened under a unified national programme.
- **Tex-Eco Initiative:** Aims to promote globally competitive, environmentally sustainable textiles and apparel manufacturing.
- **Samarth 2.0:** Aims to modernise the textile skill ecosystem through deeper collaboration with industry and academic institutions.

ANOTHER INITIATIVE ANNOUNCED FOR THE TEXTILE SECTOR

- **Mahatma Gandhi Gram Swaraj Initiative:** It will strengthen khadi, handloom and handicrafts. The initiative will focus on global market linkage, branding, etc.
 - It will support the One District One Product (ODOP) initiative.
- **Mega Textile Parks and Technical Textiles:** It will support growth in technical textiles, a high-potential segment critical for industrial, medical, defence and infrastructure applications.

16th Finance Commission gives recommendations for strengthening local bodies

It has recommended a total grant of ~₹7.9 Lakh crore to India's rural and urban local bodies for the next five years (FY 2026-27 to 2030-31) with other important recommendations.

Challenges in Local Body Financing

- **Structural Revenue Gaps:** E.g., Property tax collections are low due to incomplete and inaccurate property records, low coverage, undervaluation of properties etc.
- **Overdependence on Union/State Govt.:** E.g., Panchayats' reliance on Grants (over 90% of their revenues)
- **Limited Access to Debt and Capital Markets:** Municipal borrowings in India are estimated at less than 0.05% of GDP.
- **Other:** Underdeveloped Bond Market; Data Gaps and Accounting Issues; Delays in Constitution of State Finance Commissions (SFCs) etc.

Recommendations by 16th Finance Commission

- **Property database:** States should develop a citizen friendly GIS based property tax IT system.
- **Rural-Urban Split:** The aggregate grant to be divided in a 60:40 ratio between RLBs and ULBs.
- **Urbanisation Premium:** An allocation of ₹10,000 crore is designated to incentivize merger of peri-urban villages into adjoining larger ULBs (with population > 1 lakh).
- **Constitutional Amendment:** Removing constitutional requirement (Articles 280(3) (bb) and (c)) that binds Central FC to make recommendations "on the basis of" SFC recommendations.
- **Best Practices:** NITI Aayog recommended to study SFC functioning and publish a compendium of good practices for States.

Sources of Local Body Financing



Liberalized Remittance Scheme

Union Budget 2026 cut the Tax Collected at Source (TCS) rate for education and medical expenses abroad under the Liberalised Remittance Scheme (LRS).



- TCS is an additional tax collected by sellers from buyers at the time of sale for specific goods/services under Section 206C of the Income Tax Act, 1961.

About Liberalised Remittance Scheme

- **Overview:** All resident individuals (including minors) are allowed to freely remit up to **USD 2,50,000** per financial year for permissible current or capital account transaction or a combination of both.
 - It is **not available** to corporates, partnership firms, Hindu Undivided Family (HUF), Trusts etc.
- **Introduced:** 2004 by Reserve Bank of India (RBI)
- **Prohibited under LRS:** Gambling & Lottery, Trading & Speculation

Exchange Traded Funds

In a first for India, investments in gold Exchange Traded Funds (ETFs) were greater than inflows into equity-oriented mutual funds.



About ETFs

- It is an investment fund that **holds multiple underlying assets**. It can be bought and sold on an **exchange**, much like an individual stock.
- ETF share prices **fluctuate throughout the trading day**, unlike mutual funds, which only trade once a day after the market closes.
- ETFs, generally, **have higher daily liquidity and lower fees than mutual fund schemes**.
- It cannot be bought or sold in fractions, **unlike mutual fund units**.

NITI Aayog Report Critical Mineral

The report highlights that India's pathway to Net Zero by 2070 will be materially shaped by secure, affordable and responsible access to Critical Energy Transition Minerals (CETMs).



- Critical minerals are those minerals which are essential for **economic development and national security** of a country.

Key Challenges Associated

- **Demand Surge:** Projected demand for CETMs under Net Zero Scenario is 51% higher than the current policy scenario primarily due to **battery-linked minerals** demand.
- **High Import Dependence:** E.g. 100% import-dependent for key minerals like lithium, cobalt, nickel.
- **Concentration Risk:** E.g. dependence on China exposes India to price volatility and supply disruptions.
- **Domestic Bottlenecks:** Underutilised domestic mining, refining and recycling capabilities, limited private sector participation, limited R&D capabilities.

Policy Suggestions:

- **Strengthen Domestic Exploration & Mining:** Introduce conditional "**First Come, First Served**" (FCFS) model in early-stage exploration.
- **Build Domestic Innovation (R&D):** Launch **mission-oriented R&D** focused on processing and refining technologies.
- **Diversify International Supply:** Participate in "**value-chain stack**" **partnerships** (e.g., **Mineral Security Partnership**), Strengthen **Khanij Bidesh India Limited (KABIL)** for overseas CETM execution.
- **Scale Circularity & Refining:** Provide financial incentives (capital support, output-linked incentives) to make domestic refining and recycling economically viable.
- **Institutional Architecture:** Establish a **National Critical Raw Material (CRM) Analytical Unit** to conduct continuous risk assessments etc.

OTHER INITIATIVES FOR CRITICAL MINERALS

- **National Critical Mineral Mission (NCMM):** To establish a robust framework for self-reliance in the critical mineral sector.
 - **Incentive Scheme for the Promotion of Critical Mineral Recycling:** To incentivize the development of recycling capacity in critical minerals.
- **Khanij Bidesh India Limited (KABIL):** A joint venture company of the Ministry of Mines to acquire critical minerals globally.
- **Rare Earth Corridors** across four states Odisha, Kerala, Andhra Pradesh, and Tamil Nadu.

NITI Aayog releases Study on Agriculture

The report on Scenarios Towards Viksit Bharat and Net Zero emphasises on ‘strategic sequencing’ as a transition strategy focussing on resource efficiency like micro irrigation and fertilizer optimization.

- Strategic scaling of pathways like **crop diversification (away from rice, sugarcane)**, increasing share of solar and electric pumps could offer **mitigation co-benefits** and energy savings.

Agriculture Sector of India

- **Contribution:** Supports **46% of workforce** and contributes **~14% to Gross Value Added (GVA)**.
- **Role in Food Security:** Between 2011 and 2019, food grain production increased to **~285 million tonnes** and to **~332 million tonnes in 2023-24**.
- **Key Challenges:**
 - Dominance of **small and marginal farmers**.
 - **Dual challenge of meeting food demand and managing environmental food prints:**
 - Sector currently accounts for **~14% of national Greenhouse Gas (GHG) emissions**, driven by **methane from enteric fermentation and rice cultivation** and **nitrous oxide from agricultural soils**.
 - Consumes **~18% of national electricity** primarily to **power groundwater irrigation** and **expanding mechanisation**.
- **Emission Scenario:**
 - **Under Current Policy Scenario:** Agricultural emissions (non-energy) are expected to rise from **~506 MtCO₂e in 2019** to **~531 MtCO₂e in 2070**.
 - **Net Zero Scenario:** Total emissions of **~399 MtCO₂e in 2070**, offering **~25% mitigation co-benefits** relative to the CPS.
- **Key Policy Suggestions:** Integrating both demand and supply side levers to create targeted roadmaps; Institutionalize integrated “agri-food” systems framework, etc.

Implementation Approaches and Expected Benefits

Intervention Strategy	Associated Government Initiatives	Intervention Strategy	Associated Government Initiatives	Intervention Strategy
Productivity Enhancement & Crop Diversification	Pradhan Mantri Krishi Sinchai Yojana (PMKSY); Crop Diversification	Increase productivity per hectare (kg/ha)	Higher farmer earnings; Improved food availability; Greater resilience	Lower emission intensity per unit area (CO ₂ e/ha)
Organic & Natural Farming Promotion	National Mission on Natural Farming (NMNF); Paramparagat Krishi Vikas Yojana	Improvement in soil organic carbon (SOC); Enhanced agro-biodiversity	Sustainable yields over time; Better nutritional outcomes	Reduction in nitrous oxide (N ₂ O) emissions
Climate-Smart Rice Farming Techniques	Bringing Green Revolution to Eastern India (BGREI)	Improved water-use efficiency (litres/ha)	Income stability for farmers; Greater climate adaptability	Significant cut (up to ~60%) in methane (CH ₄) emissions

Periodic Labour Force Survey

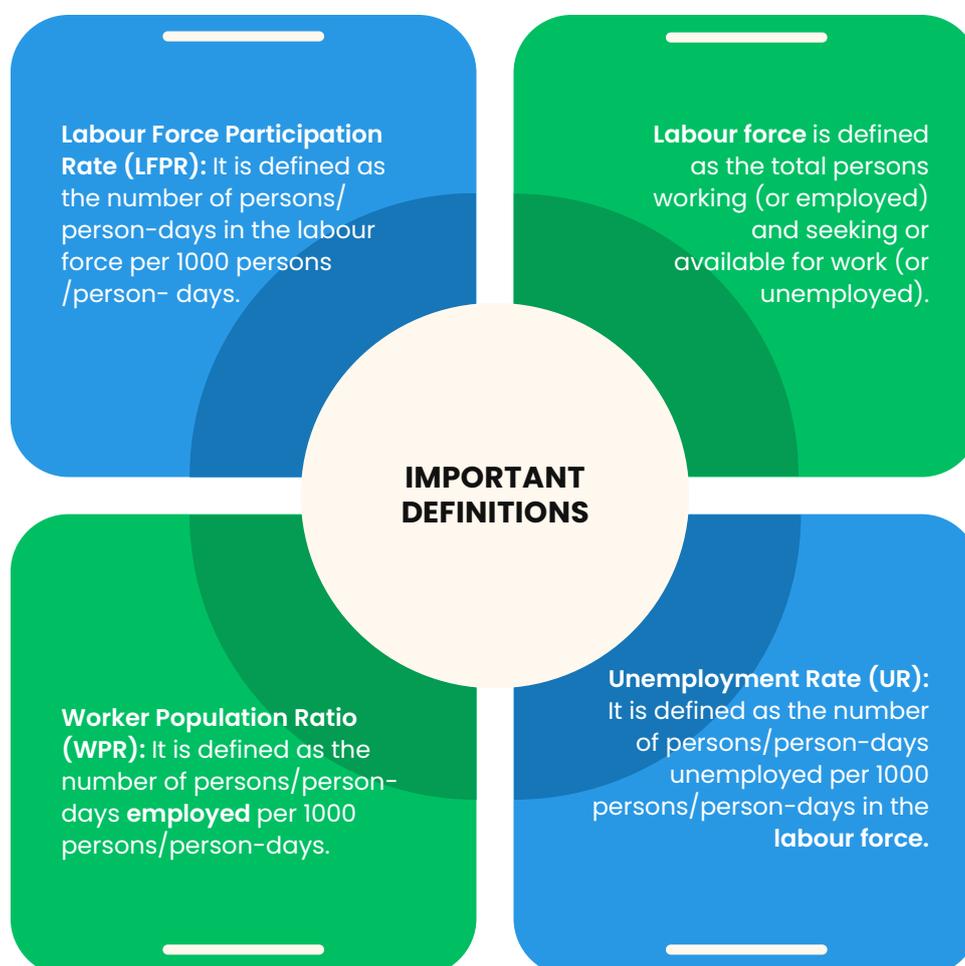
PLFS is the primary source of data on employment-unemployment conditions of the population conducted by National Statistical Office (NSO) under the Union Ministry of Statistics & Programme Implementation (MoSPI).



Periodic Labour Force Survey

Key Findings of PLFS during October – December 2025

- **Labour Force Participation Rate (LFPR):** Overall LFPR among persons of age 15 years and above witnessed an increase to 55.8%.
- **Female LFPR showed an increasing trend:** Overall LFPR of females aged 15 years and above showed upward trend, increased to 34.9%.
- **Rise in workforce:** The overall Worker Population Ratio (WPR) for persons of age 15 years and above rose to 53.1%.
- Rural WPR for persons aged 15 years and above continued to show a steady upward trend across both genders.
- **Unemployment Rate (UR):** It declined across both rural (4%) and urban (6.7%) sectors.
- **Self-employment:** Increased in both rural (63.2%) and urban (39.7%) areas.
- **Concentration of workforce:** In Rural areas the majority of workers engaged in the **agriculture sector** (58.5%), whereas in the urban areas, the **tertiary sector** remained stable, engaging 61.9% of workers.



Consumer Price Index



Ministry of Statistics & Programme Implementation
released Consumer Price Index (CPI) with base year 2024

CPI has been revised for representing current household consumption patterns, price structures, and the evolving nature of the Indian economy.

- The base updation was done on the basis of latest **Household Consumption Expenditure Survey (HCES) 2023–24**, which provides comprehensive information on household expenditure patterns across rural and urban areas of the country.

Key Highlights of CPI

- **Inflation:** Year-on-year inflation rate for month of January 2026 over January 2025 is 2.75% (Provisional).
 - Corresponding inflation rates for rural and urban are 2.73% and 2.77%, respectively.
- **Change in Items: Addition of new items** including OTT subscriptions, rural house rent, value-added dairy, pen drives, babysitting services, fitness equipment, and **removal of obsolete items** like VCR/DVD, tape recorders.

About CPI

- CPI track **changes over time in the general retail prices of a basket of goods and services** purchased by households for consumption.
- **Compilation:** It is compiled by **MoSPI every month** for rural, urban and combined sectors.
- **Formula:** For compiling CPI, **Laspeyre’s Index Formula is used**, which is based on three elements – Base Year Price, Base Year Weights, and Current Month’s Price.

CPI Methodology Comparison: Base 2012 vs Base 2024

Aspect	CPI (Base 2012)	CPI (Base 2024)
Reference Year	2012 as the base year	2024 as the base year
Number of Items in Basket	299 items (259 goods + 40 services)	358 items (308 goods + 50 services)
Coverage of Online Markets	Not included	Covers 12 online platforms in cities with population above 25 lakh
Classification Framework	Based on COICOP 1999 (Groups & Sub-groups)	Based on COICOP 2018 (Divisions, Groups, Classes & Sub-classes)
House Rent Index (HRI)	Only urban areas; includes employer-provided housing	Covers urban and rural areas; excludes employer-provided housing
State-Level Data Release	Only combined (overall) index released	Separate rural, urban and combined index along with inflation rates
Weight of Food & Beverages	45.86%	36.75%

Agriculture Infrastructure Fund

The Prime Minister has announced the doubling of the Agriculture Infrastructure Fund (AIF) loan target from ₹1 lakh crore to ₹2 lakh crore. It is aimed at strengthening India's entire agriculture value chain.



Agriculture Infrastructure Fund

About Agriculture Infrastructure Fund (AIF)

- **Objective:** It is a **medium-long term debt financing facility** for investment in viable projects for **post-harvest management infrastructure** and **community farming assets** through **interest subvention** and **credit guarantee support**.
- **Type:** Central Sector Scheme
- **Implementation Period:** From 2020-21 to 2029-30.
- **Key Feature:** Loans with **interest subvention of 3% per annum** and credit guarantee coverage under **Credit Guarantee Fund Trust for Micro and Small Enterprises** for loans up to ₹ 2 Crores.
- **Eligible Beneficiaries**
 - **Primary Beneficiaries** such as Farmers, Primary Agricultural Credit Societies (PACS), Farmers Producer Organizations (FPOs), Self Help Groups (SHGs), etc
 - **Government/Agencies** such as Agricultural Produce Market Committees.
- **Eligible Projects**
 - **Post-Harvest Management Projects:** Such as warehouses, Cold Chains, Cold storage, Ripening Chambers.
 - **Community Farming Assets:** Such as Infrastructure for smart and precision agriculture (e.g., Drones, Sensors, AI).

Reliance on Agriculture	Dominance of Marginal Farmers	Losses After Harvest
A large share of the population depends on farming for livelihood and income generation.	The agricultural sector is largely composed of small and marginal landholders with limited operational area.	Significant quantity of farm produce is lost due to inadequate storage, processing, and supply chain facilities.

Other Initiatives for Agriculture Infrastructure Development in India:

- **Agricultural Marketing Infrastructure (AMI):** Subsidy support for constructing rural godowns.
- **Mission Organic Value Chain Development (MOVCDNER):** Focuses on organic clusters in the North East
- **Pradhan Mantri Matsya Sampada Yojana (PMMSY):** Aiming to boost fish production to 22 million metric tons and exports to ₹1 lakh crore by 2024-25.
- **Micro Irrigation Fund (MIF):** ₹5,000 crore corpus to expand micro-irrigation coverage.

Wheat

The government lifted the wheat export ban after four years to ensure remunerative prices for farmers and due to



About Wheat

- **Type:** Rabi Crop
- **Regions:** Tropical sub-tropical zones, temperate zone
- **Climatic requirement:** Cool and moist weather during the vegetative growth period followed by dry, warm weather for the grain to mature and ripening
 - **Optimum temperature:** 20-25 Degrees Celsius
 - **Ideal Rainfall:** 50-75 cm
- **Status of India:** World's 2nd-largest producer (~14% of global output), world's largest area.
- **Top 3 Producers:** Uttar Pradesh, Madhya Pradesh, Punjab.

Urban Challenge Fund

A ₹1 lakh-crore Urban Challenge Fund (UCF) was approved by the Union Cabinet



About Urban Challenge Fund

- Announced in the Union Budget 2025–26
- **Focus Areas:**
 - Cities as Growth Hubs
 - Creative Redevelopment of Cities
 - Water and Sanitation
- **Funding Mechanism:**
 - UCF will finance up to 25% of project costs.
 - At least 50% of funding must come from market sources like:
 - Municipal bonds
 - Bank loans
 - Public–Private Partnerships (PPPs)

Food Safety and Standards Authority of India



Supreme Court (SC) urged FSSAI to Consider Front-of-Pack (FoP) Labels Warning Of High Sugar, Fat & Sodium In Food.

- **FoP labelling** is simplified, evidence-based nutrition-labelling system placed on front of food packages to help consumers make informed and healthier purchasing decisions.
- **Draft FSS (Labelling and Display) Amendment Regulations, 2025**, proposed requirements relating to nutrition information but were not agreed.

About FSSAI

- **Ministry:** Ministry of Health and Family Welfare.
- **Statutory Body:** Food Safety and Standards Act, 2006.
- **Mandate:** Lays down science-based standards and regulates food manufacture, storage, distribution, sale and import ensuring safety.
- **Key Initiative:** Eat Right India.
- **Governing Structure:** Food Authority with Chairperson and 22 members (one-third being women).

Default Loss Guarantees

Reserve Bank of India (RBI) has restored use of DLGs for Non-banking finance companies (NBFC), who can now factor in DLGs when setting aside buffers for potential loan losses.



About DLGs

- **Contractual arrangement** between a Regulated Entity (RE) and an eligible third party, where **third party guarantees compensation for loss** due to borrower default to RE.
- **Cap on DLG:** RE to ensure that total amount of DLG cover on any outstanding portfolio (specified upfront) **shall not exceed 5% of the amount** of that loan portfolio.

RBI Rules on Acquisition Financing



RBI has issued amendment in the Directions to allow banks to provide higher acquisition financing.

Key Highlights of the Directions

- Banks are allowed to finance **acquisitions up to 20%** of their eligible capital base (earlier proposal: 10%).
 - **Acquisition:** One company **purchases controlling stake** in another; acquired company may continue to exist.
- Banks can now lend up to **75% of acquisition value** for purchasing listed and unlisted companies.
- Acquisition can be through **equity shares and/or compulsorily convertible debentures (CCDs)**.

India's Power Generation Capacity



India's Power Generation Capacity

India adds more than 50,000 MW of power generation capacity in the current financial year 2025–26.

- It surpassed the previous record of 34,054 MW achieved during FY 2024–25.

India's total installed power generation capacity stands at approx. 520,000 MW, comprising:

- Fossil Fuel-Based Capacity~248,500 MW
- Non-Fossil Fuel Capacity~272,000 MW
- Nuclear~8,800 MW
- Renewable Energy Sources~263,200 MW

Central Bank Digital Currency

Introduction of Central Bank Digital Currency (CBDC) in the Public Distribution System (PDS) aims to ensure transparency, efficiency and beneficiary empowerment in India's food security architecture.



About the Pilot Project

- **Programmable Digital Rupee (e₹)** is credited directly to beneficiaries' digital wallets and can be **used only for purchasing entitled foodgrains** at Fair Price Shops through QR/coupon codes.
- The system enables **real-time, secure and traceable transactions**, eliminates repeated biometric authentication, reduces leakages, and strengthens last-mile delivery.

What is CBDC?

- It is a **digital form of fiat currency** issued and regulated by the **Central Bank (Reserve Bank of India)**.
- It is a **legal tender** and a **liability of the central bank**, appearing on its balance sheet, **as per Section 26 of the RBI Act, 1934**.
- Denominated in **sovereign currency** (₹ in India) and available in the same denominations as physical currency
- It was launched in pilot mode in India since **December 2022** [Digital Rupee -Wholesale (e₹-W) and Digital Rupee-Retail (e₹-R)].

Significance of CBDC

- **Financial Inclusion:** Provides digital payment access to unbanked/underbanked populations; enables direct transfers and welfare delivery through wallets issued by the Reserve Bank of India.
- **Transparency & Leak-proof Transactions:** Digital ledger creates real-time traceability, helping reduce corruption, tax evasion and subsidy leakages.
- **Programmable Payments:** Allows conditional transfers (e.g., subsidies usable only for specific purposes), improving efficiency of DBT and monetary policy transmission.

Conclusion

By combining technological efficiency with social equity, programmable digital currency has the potential to deepen financial inclusion, reduce systemic leakages, and set the foundation for a more transparent, accountable, and citizen-centric governance ecosystem.

10 years of UPI Launch

Department for Financial Services, Ministry of Finance has released Report titled “Socio-Economic Impact Analysis of Incentive Scheme for Promotion of RuPay Debit Card and low-value BHIM-UPI Transactions (P2M)”.



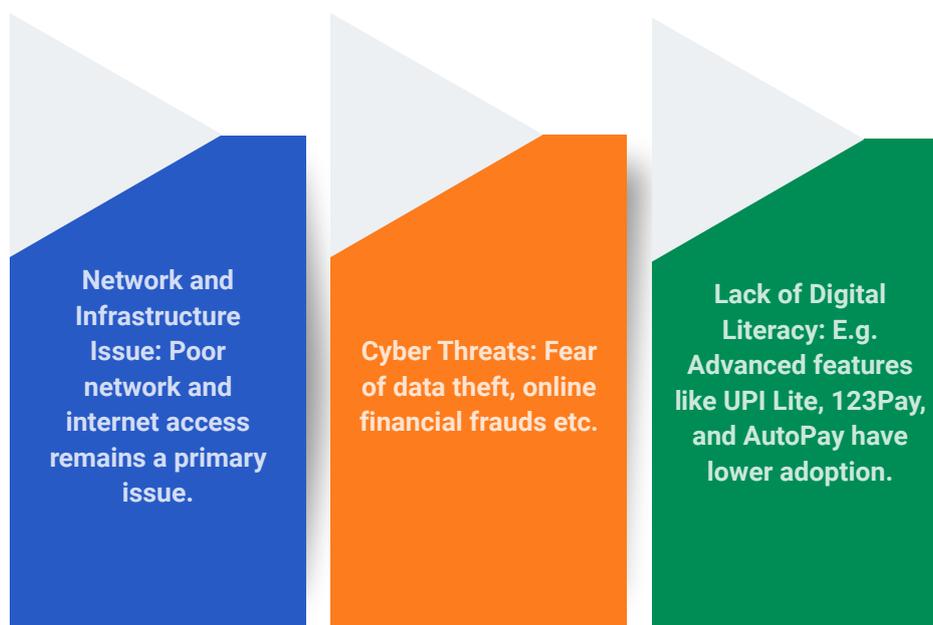
Key Highlights of the Report

- **Dominance of UPI:** UPI is the most preferred transaction mode (57%), surpassing cash (38%).
- **Global Leadership:** India accounts for approximately half of the world’s instant payment transactions (49%).
- **Merchant Integration:** UPI adoption among merchants stands at 94%, driven by faster transactions and improved record-keeping.
- **Economic Impact:** UPI contributed an estimated \$16.2 billion to India's GDP in 2022 through cost savings and efficiency.
- **International Expansion:** UPI and RuPay are expanding internationally, with UPI live in eight countries, including the UAE, Singapore, Bhutan, Nepal, Sri Lanka, France, Qatar and Mauritius.

Recommendations

- **Expand Merchant Acceptance:** Extend support for QR and sandbox deployment in Tier 3–6 and subsidize POS terminals.
- **Offline Capability:** Scale UPI Lite and 123Pay to serve low-bandwidth zones effectively.
- **Financial Inclusion and Sustainability:** Integrate UPI with Direct Benefit Transfer (DBT) programs for government subsidies.
 - Launch digital literacy programs targeting female entrepreneurs in rural areas.
- **Other:** Deploy AI-driven anomaly detection and real-time alerts to prevent fraud; Enable scheduled payments for recurring bills in education, healthcare; etc.

Challenges



External Commercial Borrowings

Reserve Bank of India (RBI) released the updated guidelines on ECBs through Foreign Exchange Management (Borrowing and Lending) (First Amendment) Regulations, 2026.



- RBI has made amendments to the **Foreign Exchange Management (Borrowing and Lending) Regulations, 2018** by exercising power conferred under the **Foreign Exchange Management Act, 1999**.

ECB Framework

- **Eligible borrowers:** Any non-individual resident entity incorporated under central or state law is now eligible to raise overseas loans, subject to statutory permissions.
- **Increased Borrowing Limits and Maturity**
 - **Higher Caps:** Eligible companies can now raise ECBs of up to \$1 billion or 300% of their net worth.
 - **Maturity Periods:** The general minimum average maturity period is set at **three years**.
 - Borrowers in the manufacturing sector are permitted a shorter average maturity period of 1 to 3 years under certain conditions.
- **Conversion of ECB into non-debt instrument:** An ECB (including those which is matured but unpaid) may be converted into a **non-debt instrument**, subject to compliance with the Foreign Exchange Management (Non-Debt Instruments) Rules, 2019.
- **Arm's length principle:** ECB from a related party shall be carried out on an arm's length basis.
 - **Arm's length principle** means a transaction between two related parties that is conducted as if the transacting parties were unrelated, so that there is no conflict of interest.
- **End-Use Restrictions:** ECB funds cannot be used for: Chit funds or Nidhi companies, Stock market investments, etc

About ECB

01

ECBS REFER TO THE BORROWING OF FUNDS FROM FOREIGN SOURCES IN THE FORM OF LOANS, FOREIGN CURRENCY CONVERTIBLE BOND (FCCB), OR OTHER FINANCIAL INSTRUMENTS.

02

AN ELIGIBLE BORROWER MAY RAISE ECB DENOMINATED IN FOREIGN CURRENCY (FCY) OR INDIAN RUPEE (INR).

03

IMPORTANCE ECBS: INTEREST RATES ARE LOWER, COMPARED TO DOMESTIC FUNDS, ETC.

Rising Gender Budget allocation

Marked by an allocation of 5.01 lakh crore rupees, reflecting an 11.55% increase over previous financial year.



- Further, share of Gender Budget in total Union Budget increased to 9.37% with total 53 Ministries/Departments and five UTs reporting allocations this year.

Gender Budget (GB) in India

- **Meaning:** Mechanism for establishing whether government's gender equality commitments translate into budgetary commitments.
 - It does not seek to create separate budgets for gender concerns, rather views the Government Budget from a gender perspective.
- **Adoption in India:** India formally adopted GB in 2004-05.
 - India has institutionalized GB at both national and state levels, with Gender Budget Cells established across ministries and departments.
- **Parts of GB:**
 - **Part A:** Schemes with 100% provision for women.
 - **Part B:** Schemes where allocations for women constitute at least 30%.
 - **Part C:** Included in Union Budget 2024-25, where allocation is below 30%.
- **Significance:** Integrates gender concerns into planning, help reduce structural inequalities and promote inclusive development.

KEY INITIATIVES PROMOTING GB IN INDIA

- **Gender Budgeting Scheme:** Under 'Samarthya' sub-scheme of Mission Shakti scheme of Ministry of Women and Child Development (MWCD).
 - It aims for 100% coverage of GB in all central and state Ministries/Departments, rural and urban local bodies.
- **Gender Budgeting Knowledge Portal (2025):** By MWCD as a digital repository of all information related to GB practices.
- **State level efforts:** Odisha adopted GRB in 2004-05 with Women Component Plan; Karnataka developed a gender audit manual for monitoring and deepening of GB, etc.

Food Corporation of India



FCI and World Food Programme (WFP) have signed an agreement for supply of rice in support of global humanitarian operations aimed at combating hunger.

- WFP ,established in 1961 , is the food-assistance branch of the UN and the world's largest humanitarian organization addressing hunger and promoting food security.

About Food Corporation of India (FCI)

- **Genesis:** It is a statutory body set up under the Food Corporations Act 1964.
- **Core Functions:**
 - **Procurement:** Procure food grains from farmers at Minimum Support Prices (MSPs).
 - **Storage:** Maintains an extensive network of modern warehouses and silos to store food grains .
 - **Buffer Stock Management:** It manages the strategic buffer stock of essential food grains to meet any unforeseen contingencies, such as droughts, floods etc.
 - **Quality Control:** The Quality Control (QC) wing of FCI manages procurement & preservation of foodgrains.

Controller General of Accounts

Controller General of Accounts (CGA) launched Government Bank Dashboard (real time monitoring of banking functions) and Government Bank Manual (standardized framework) to strengthen compliance in handling of government business by banks.



About CGA

- CGA is the **Principal adviser on accounting matters** to the Union Government. Unlike CAG, CGA is **non-constitutional**.
- Works under the **Department of Expenditure, Ministry of Finance**.
- **Functions:**
 - Responsible for preparation, consolidation and submission of **Union Government accounts**.
 - **Ensures exchequer control**, administers receipts and payments, and oversees internal audit functions across Ministries.
 - Prepares **monthly and annual analysis of expenditure, revenues, borrowings** and various fiscal indicators for the Union Government.

Export Promotion Mission



Ministry of Commerce and Industry launched seven additional interventions under Export Promotion Mission

- EPM is a flagship initiative aimed at empowering Micro, Small and Medium Enterprises (MSMEs) for exporting to global markets and operates through **two integrated sub-schemes - Niryat Protsahan and Niryat Disha.**

New Interventions

- **Under Niryat Protsahan:**
 - **Export Factoring Support:** Promotes export factoring as working capital solution for MSMEs and digital claim mechanism for transparency.
 - **Credit Assistance for E-Commerce Exporters:** **Direct E-Commerce Credit Facility** will provide support up to ₹50 lakh with 90% guarantee coverage; **Overseas Inventory Credit Facility** will extend support up to ₹5 crore with 75% guarantee coverage.
 - **Support for Emerging Export Opportunities-** To access new or high-risk markets.
- **Under Niryat Disha:**
 - **TRACE (Trade Regulations, Accreditation & Compliance Enablement):** Supports Testing, Inspection, Certification (TIC) requirements.
 - **FLOW (Facilitating Logistics, Overseas Warehousing & Fulfilment):** Supports overseas warehousing & e-commerce export hubs.
 - **LIFT (Logistics Interventions for Freight & Transport):** LIFT mitigates geographical disadvantages faced by exporters in low export intensity districts.
 - **INSIGHT (Integrated Support for Trade Intelligence & Facilitation):** INSIGHT strengthens exporter capacity-building, district and cluster-level facilitation under the Districts as Export Hubs initiative, and development of trade intelligence systems.

ABOUT EXPORT PROMOTION MISSION

- **Vision:** Provides a comprehensive, flexible, and digitally driven framework for export promotion.
- **Financial Outlay:** Rs. 25,060 crores.
- **Timeline:** Six years (FY 2025–26 to FY 2030–31).
- **Two sub-schemes:**
 - **Niryat Protsahan (Financial Support):** Improving access to affordable trade finance for diversification into new markets.
 - **Niryat Disha (Non-Financial Support):** Enhancing the market readiness and competitiveness of exporters.
- **Implementing Agency:** Directorate General of Foreign Trade.

Industrial Corridors

National Industrial Corridor Development Programme (NICDP)



Industrial Corridors, key for strengthening India's Industrial Ecosystem

- Union Budget 2026-27 announcement towards developing an **integrated East Coast Industrial Corridor** with a well-connected node at **Durgapur** highlights a major push towards Industrial Corridors.

About Industrial Corridors

- **Meaning:** They are **linear development zones** that connect **major economic centres** through an integrated network of roads, railways, ports, and airports.
 - They house **globally comparable infrastructure**; facilitate economic agglomeration; use regional strengths through focussed investments, etc.
- **National Industrial Corridor Programme (NICDP):** Under this various projects across **11 corridors** are being implemented, through a sustainability-focused framework supporting **Low-Carbon Cities (LCCs)**.
 - **National Industrial Corridor Development Corporation (NICDC)** previously **Delhi Mumbai Industrial Corridor Development Corporation Limited (DMICDC)**, was incorporated in **January 2008**; as an autonomous body under **Ministry of Commerce & Industry** for implementing NICDP.
 - **National Industrial Corridor Development and Implementation Trust (NICDIT):** Received **₹3,000 crore** under **Budget Estimates 2026-27**.

Benefits of Industrial Corridors



Improved Efficiency

Integrated infrastructure boosts transportation and logistics.



Faster Business Setup

Pre-built facilities and simplified approvals speed up launch time.



Sustainable Development

Renewable energy, recycling, and eco-friendly building standards are promoted.



Local Employment

Skill development and local hiring create a more capable workforce.



Effective Collaboration

Public-Private Partnerships lead to efficient management.

KEY CHALLENGES ASSOCIATED WITH INDUSTRIAL CORRIDORS

- **Land Acquisition issues:** E.g. Delhi-Mumbai Industrial Corridor (DMIC) requires huge areas for greenfield development, which could be easily provided by bigger states while smaller ones suffer.
- **Lack of Coordination between Departments:** E.g., In Chennai Bengaluru Industrial Corridor (CBIC), industrial estate near Tumakuru is governed by Tumakuru Industrial Township Limited operating independently of local bodies and other agencies, etc.
- **Others:** lack of state support; lack of training among staff; Environmental Impact Assessment (EIA) overlooking views of locals, etc.

New series of GDP

The Ministry of Statistics and Programme Implementation (MoSPI) released the New Series of Annual and Quarterly National Accounts Estimates (including the GDP).



Key changes in the New GDP Series

- **New Base Year: 2022-23** (earlier 2011-12).
 - FY 2022-23 was selected as the **most recent "normal" period** following the COVID-19 disruptions of 2019-2021.
- **New Data Sources:** Now integrates **high-frequency and administrative data**, including GST collections, the e-Vahan portal, and the **Public Financial Management System (PFMS)**.
- **Refined Deflation Techniques:** **Double deflation** (discounting input price as well, along with output price) is now applied in manufacturing and agriculture, discontinuing the use of **Single deflation**.
- **Integration of Supply and Use Tables (SUT):** The SUT framework has been **aligned with National accounts** to reduce discrepancies between production- and expenditure-based GDP estimates.
- **Improved Estimation of Private Final Consumption Expenditure (PFCE):** By integrating direct estimation from production, administrative data, and the commodity flow approach.
- **General Government Adjustments:** Government estimates now account for the rollout of the **National Pension System (NPS)** alongside the Old Pension Scheme (OPS).
- **Other:** Inclusion of
 - **Hired domestic workers** capturing digital, platform and gig economy activities in the Revised GDP Series;
 - **Annual Survey of Unincorporated Sector Enterprises (ASUSE)** and the **Periodic Labour Force Survey (PLFS)** to better measure the household and informal sectors.

WHY GDP BASE YEAR BEEN REVISED?

- **Structural Shifts:** The new base captures the expansion of digital services, renewable energy, and evolving consumption patterns over the last decade.
- **International best practices:** Periodic revisions support alignment with international best practices recommended by the UN Statistical Commission.

Implications

- **Decrease in GDP Size:** While the real growth rate has increased to 7.6% (FY 2025-26), the nominal size of the economy has been revised downward by roughly 3.3% to 3.8% (₹345.47 lakh crore for FY 2025-26) for the years spanning 2023-26 compared to earlier estimates.
- **Higher Fiscal Deficit:** The lower GDP base pushes the FY 2025-26 revised fiscal deficit estimate up from 4.36% to 4.51% of GDP.
- **Higher Debt-to-GDP:** for FY 2026-27 is now pegged at 57.5% (against a budgeted target of 55.6%), complicating the government's target of bringing central debt down to 50% by 2031.

International Relations



India-US trade Deal



India and the United States sign Landmark Trade Agreement

About the Trade Agreement

- US reciprocal tariffs on Made in India products will now be **reduced from 25% to 18% effective immediately**. US has also **withdrawn the additional 25% duty**.
 - **In August 2025**, the US imposed a tariff of up to **50%** comprising a **25%** reciprocal tariff plus an **additional 25% duty** over **Russian oil imports**.
- As reported by the US, **India** has agreed to scale up **imports** of **American goods**, including over **\$500 billion** worth of energy, technology products, and nuclear equipment.
 - India will **progressively reduce its Tariffs and Non-Tariff Barriers** against the US.

Significance of the deal

- **Economic Significance:** Provides increased opportunities for farmers, MSMEs, entrepreneurs, and skilled workers to **Make, Design and Innovate in India for the world**.
 - It will help India get **technology** from the US.
- **Strategic Reset in Bilateral Relations:** The deal ends a phase of tariff-led escalations and upholds **momentum and trust** in India–US strategic and economic engagement.
- **Geopolitical implications:** It strengthens India’s position in the **global supply chain**, potentially countering **China’s dominant position** in global trade and manufacturing.
- **Macroeconomic Stability:** The deal potentially helps stabilise capital flows, supports the rupee, and improves investor confidence amid global uncertainty.

ABOUT INDIA-US TRADE

- **Largest Trading Partner:** The US is one of India’s top trading partners; India runs a trade surplus with the US, driven mainly by services and high-value goods exports.
- **FDI investment:** USA is the 3rd largest investor in India with cumulative foreign direct investment (FDI) inflows of US\$ 70.65 billion (2000-2025).
- **Trade volume:** Bilateral trade has stood at a record US\$ 132.2 billion in FY25 as against US\$ 119.71 billion in FY24.
- **Key Indian exports to US:** Pharmaceuticals, engineering goods, electronics, gems & jewellery etc.
- **Key US exports to India:** Crude oil, LNG, aircraft and parts, defence equipment etc.

India - Gulf Cooperation Council

Signed between India and Gulf Cooperation Council (GCC), ToR defines the scope, structure and modalities of the proposed India-GCC FTA.



- Framework Agreement of Economic Cooperation to explore the possibility of FTA between India and GCC was signed in New Delhi in 2004.

Significance of India-GCC FTA for India

- **Unlock Full potential of a mutually-beneficial Economic relationship:** GCC countries represent a market of 61.5 million people (2024) and US\$ 2.3 trillion in terms of GDP at current prices.
- **Diversifying India's Energy Sources:** Sectors like food processing, infrastructure, petrochemicals, and Information and Communication Technology (ICT) are expected to benefit largely from this.
- **Reinforce Relations amidst prevailing global uncertainties:** Helping strengthen long-term supply security and trade expansion.
- **Enhance Trade and Investment:** India's trade with GCC stood at USD 178.56 billion in FY 2024-25, (15.42% of India's global trade).
 - Region is also a significant source of Foreign Direct Investment (FDI) with investments exceeding USD 31.14 billion (September 2025).
- **Enhance People to people ties:** GCC is home to nearly ten million members of Indian community.

About GCC

- **Genesis:** Cooperative agreement among six-nation bloc, established by an agreement concluded on 25 May 1981.
- **Members (6):** United Arab Emirates; Kingdom of Bahrain; Kingdom of Saudi Arabia; Oman; Qatar; Kuwait.
- **Headquarters:** Riyadh, Kingdom of Saudi Arabia.
- **Objective:** Effect coordination, integration and inter-connection between Member States to achieve unity between them.
- **Main Organizations under GCC:** Supreme Council with attached Commission for Settlement of Disputes; The Ministerial Council; The Secretariat General.

BRICS Centre for Industrial Competencies



India has Joined BRICS Centre for Industrial Competencies (BCIC) to support manufacturing and MSMEs.

- BRICS is a group of **eleven countries** which serves as a political and diplomatic coordination forum for countries from the Global South.

About BCIC

- Launched in partnership with the **United Nations Industrial Development Organization (UNIDO)**.
- It serves as a **one-stop centre** providing integrated support services to **manufacturing companies and Micro, Small and Medium Enterprises (MSMEs)** across BRICS countries, with a focus on strengthening Industry 4.0 competencies.
- **National Productivity Council (NPC)** has been designated as the India Centre for BCIC.

FORGE Initiative



The United States announced the launch of the Forum on Resource, Geostrategic Engagement (FORGE) during the inaugural Critical Minerals Ministerial.

- **Ministerial was hosted by US** in Washington DC, bringing together delegations from over **50 countries (including India)** to advance collaboration on securing and diversifying global critical mineral supply chains.

About FORGE

- FORGE has been created as a **successor to the Minerals Security Partnership (MSP)**.
 - MSP aimed to bolster critical minerals supply chains to support economic prosperity and climate objectives.
- **Objective:** FORGE partners will collaborate at the policy and project levels to advance initiatives that strengthen **diversified, resilient, and secure critical minerals supply chains**.

Prime Minister of India's Official Visit to Malaysia

During the Official visit, the joint statement emphasizes a shared commitment to regional stability, economic integration, and technological synergy.

- India-Malaysia diplomatic relations were elevated to a **Comprehensive Strategic Partnership (CSP)** in August 2024.

Key Highlights of the Joint Statement

- **Strategic & Defence Cooperation**
 - Establishment of **Strategic Affairs Working Group (SAWG)** and **Su-30 Forum** that Enables cooperation between both the air forces on **maintenance and technical expertise, reducing supply-chain vulnerabilities.**
 - Conducted **joint military exercise Harimau Shakti (5th edition)** and called for **zero tolerance of terrorism** and for concerted **international efforts to combat terrorism.**
- **Energy & Climate Cooperation**
 - Malaysian companies **expanding investments in India's: Solar energy, Green hydrogen, shared commitment to net-zero emissions.**
 - Semiconductor cooperation in **Workforce development, Supply chain resilience and institutional tie-ups.**
- **Trade & Investment**
 - Focus on **balanced, diversified trade; priority sectors: Semiconductors, Digital Economy, Local currency settlement (INR–MYR) encouraged via RBI–Bank Negara Malaysia cooperation.**
 - Cooperation across **trade, resilient supply chains, investment, and advanced manufacturing.**
- **Food Security & Agriculture**
 - Malaysia reaffirmed commitment as a **reliable palm oil supplier.**
 - **Cooperation in: Oil palm value chain, Downstream & value-added products.**
 - Support for **Coalition for Disaster Resilient Infrastructure (CDRI).**
- **Regional & Multilateral Cooperation**
 - Reiterated commitment for: **UN reforms, India's permanent membership in a reformed UNSC.**
 - Support for: **ASEAN Centrality, Indo-Pacific vision to implement ASEAN Outlook on the Indo-Pacific (AOIP) for Peace and India's Indo-Pacific Oceans Initiative (IPOI), Reaffirmation of UNCLOS 1982, freedom of navigation.**

INDIA-MALAYSIA RELATIONS

- **Economic & Trade Significance:** Malaysia is India's 3rd largest trading partner in ASEAN.
- **Strong People-to-People connect:** Malaysia has the largest Pravasi Bharatiya Divas participation.
 - Malaysia hosts: ~2.75 million Persons of Indian Origin (2nd largest globally after the US).
 - ~2.9 million Indian diaspora (3rd largest globally)
- **Cultural & Soft Power:** Strong cultural footprint with almost 20,000 Hindu temples, Gurudwaras and many Indian languages.

India-US Interim Trade Agreement Framework



The agreement paves way for a comprehensive U.S.-India Bilateral Trade Agreement (BTA).

Tariff Reform Measures

- India proposes to lower customs duties on a broad range of U.S. industrial and farm products, including items such as nuts and alcoholic beverages.
- Duties on select American agricultural goods — such as distillers grains (DDGs), feed sorghum, edible oils, fruits (fresh and processed), and spirits — may be reduced or phased out.

Reciprocal Trade Adjustments

- The United States plans to impose an 18% reciprocal tariff on certain Indian exports, with a roadmap for possible tariff withdrawal after successful completion of the interim agreement.
- Tariff relaxations or quota-based access may apply to sectors such as:
 - Aircraft components
 - Certain metal-related goods
 - Automobile parts
 - Generic medicines
 - (Subject to national security reviews and compliance requirements.)

Strategic Procurement Commitment

- India has expressed intent to procure approximately \$500 billion worth of U.S. energy resources, aircraft, and defense equipment over a five-year period.

Reduction of Non-Tariff Restrictions

- Both countries aim to streamline regulatory standards in:
 - Medical devices
 - Information and Communication Technology (ICT) products
- Efforts will also focus on aligning digital trade regulations to facilitate smoother cross-border commerce.

Technology & Supply Chain Cooperation

- Enhanced collaboration is planned in:
 - Advanced semiconductor-related hardware such as GPUs
 - Data center infrastructure
- The objective is to strengthen critical technology supply chains and improve resilience.

Significance

- Supply chain resilience: Enhanced economic security alignment and innovation through complementary actions.
- Pharma Access: Opens negotiated pathways for Indian generic pharmaceuticals, reinforcing India's role in global healthcare supply chains.

India Seychelles Relations

Both Countries announced a joint vision for Sustainability, Economic Growth, and Security through Enhanced Linkages.



Key Outcomes

- **Special Economic Package:** India announced a package totaling USD 175 million, aimed at development projects, capacity building, and maritime security.
- **Regional Cooperation:** Seychelles to become a full member of the **Colombo Security Conclave (CSC)**.
 - CSC is a regional security grouping comprising India, Sri Lanka, Mauritius, Maldives and Bangladesh.
 - It aims to promote regional security by addressing transnational threats and challenges of common concern to the Member States.
- **Disaster Resilience:** Seychelles agreed to join the **Coalition for Disaster Resilient Infrastructure (CDRI)**.
- **Health:** Seychelles to recognize **Indian Pharmacopoeia**, book of standards for the drugs, to procure affordable, quality medicines.
- **Digital Transformation:** India agreed to undertake comprehensive efforts to build Digital Public Infrastructure (DPI) in Seychelles.
- **Maritime cooperation:** Seychelles will set up a **Hydrographic Unit** with Indian assistance.

SIGNIFICANCE OF SEYCHELLES FOR INDIA

- **Vision MAHASAGAR & SAGAR:** Seychelles is a central pillar in India's vision of SAGAR (Security and Growth for All in the Region) and the recently articulated Vision MAHASAGAR (Mutual and Holistic Advancement for Security and Growth Across Regions).
- **Geostrategic:** Its location near critical Sea Lines of Communication enables monitoring of key shipping routes, particularly the Mozambique Channel.
 - E.g., India's quest to develop Assumption Island to boost surveillance.
- **Balancing China's expansion:** E.g., deployment of the Coastal Surveillance Radar System in Seychelles by India for Maritime domain awareness.
 - China is increasing its influence in the Indian Ocean through String of Pearls, Two Ocean Strategy, and Belt and Road Initiative (BRI).
- **UNSC Bid:** Seychelles supports for India's permanent membership at the UN Security Council.
- **Defence Cooperation:** E.g., joint maritime exercise LAMITYE

Global wind and solar 2025: The G7 gap

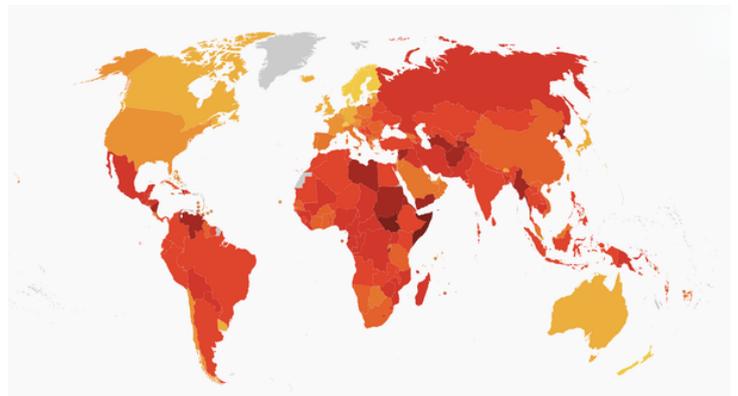


Global Energy Monitor (GEM) released a new analysis of the global pipeline of wind and utility-scale solar projects.

Key Highlights

- **Pipeline:** The global wind and utility-scale solar pipeline reached a **record 4.9 TW** in 2025, **marking an 11% year-on-year increase**.
- **The G7 Gap:** G7 nations account for **only 11%** of this prospective capacity, despite controlling **50% of the global wealth**.
- **Operating solar and wind power capacity:** China has passed 1.6 TW of operating wind and solar projects. India ranks third globally, with more than 163 GW of operating wind and solar capacity.
- **Solar Composition:** Distributed solar now comprises **42%** of **global** solar capacity, though deployment remains unevenly concentrated in a few key markets.

Corruption Perceptions Index



The 2025 Corruption Perceptions Index reveals **worsening global corruption, with number of countries scoring above 80 dropping from 12 to just five in a decade**.

About Corruption Perceptions Index

- **Released by:** Transparency International.
- **Methodology:** It evaluates **182 countries** based on perceived public sector corruption, using a scale from zero (**highly corrupt**) to 100 (**very clean**).
- **Least Corrupt nations:** Denmark, Finland and Singapore.
- **Most Corrupt nations:** South Sudan, Somalia and Venezuela.
- **Performance of India:** Rank **improved from 96 (2024) to 91 (2025)**.

Arctic Sentry

North Atlantic Treaty Organization (NATO) launched a new mission, Arctic Sentry, to bolster security in the Arctic.



- NATO is a **political and military alliance** created in **1949** after signing the **North Atlantic Treaty**.
- Currently has **32 members** and is **headquartered in Brussels, Belgium**.

About Arctic Sentry

- **Led by: Joint Force Command Norfolk (JFC Norfolk)** that serves as a bridge between North America and Europe for NATO.
- **Strategic Purpose:** Safeguard NATO members, protect territory, and maintain stability in challenging scenarios like increased military activity from Russia and growing interest from China.

G4 Grouping

G4 grouping reiterated its demand for comprehensive reform and expansion of the UN Security Council (UNSC).



About G4 Grouping

- Membership: **India, Brazil, Germany, and Japan**.
- G4 demands **reform and expansion** of the United Nations Security Council in both permanent and non-permanent categories.
- **Objective:** make UNSC more **representative, democratic and reflective** of present geopolitical realities.
- G4 supports greater representation for **developing regions**, especially Africa, Latin America, and Asia.

UNODA

Indian Army hosts first UN Training Program on Small Arms Control for Asia-Pacific region in Jabalpur, Madhya Pradesh.



UNODA
UNITED NATIONS OFFICE FOR
DISARMAMENT AFFAIRS

- Program is being **organised by United Nations Office for Disarmament Affairs (UNODA)** and is being held under the aegis of India's Ministry of External Affairs and the Ministry of Defence.

About UNODA

- **Origin:** Established in 1998 as the Department for Disarmament Affairs by UN Secretary General.
- **HQ:** New York, USA.
- **Goal:** Complete elimination of weapons of mass destruction especially nuclear weapons and the strict control of conventional weapons.

Reforming Global Trading System



While reforms should keep pace with geopolitical tensions and rapid technological change, WTO chief urged the importance of multilateral cooperation to avoid chaos.

Key Issues faced by Global Trading System

- **Dispute Resolution:** World Trade Organization's **Appellate Body**, keystone of organization's two-tier dispute settlement mechanism has been **immobilized** since December 2019,
- **Unresolved Issues with WTO:** Several crucial issues remained unresolved including trade on **agricultural goods, subsidies, and conditions of application of Special and Differential (S&D) treatment** to large emerging economies, stalled of Doha Development Agenda, etc.
- **Geopolitical Shifts and Protectionist Patterns:** E.g., USA's reciprocal tariff, escalating tariff war, emphasis on bilateral trade agreements.
- **Other :** New set of concepts on **data privacy, cross-border data flows, and taxation of digital services, climate change, Supply Chain Vulnerabilities** etc.

Ways to Strengthen Global Trading System

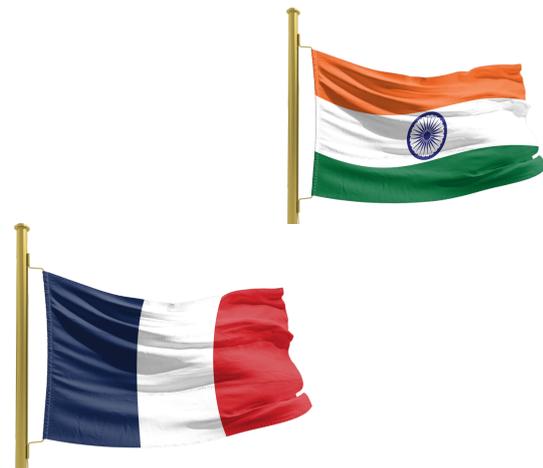
- **Reaffirm multilateralism as foundation of global trade:** Acknowledging its historical including trade liberalization under WTO.
- **Responsible use of plurilateral agreements:** Where consensus of all WTO members is not feasible along with upholding multilateral systems.
- **Recognize new Anthropocene context:** Aligning industrial policies/international trade with commitments to combat climate change; **greater interoperability in digital sphere**, etc.
- **Restore a fully functioning dispute settlement system:** Offering dispute resolution in a timely and efficient manner.

WORLD TRADE ORGANIZATION (WTO)

- **Genesis:** 1995 post Marrakesh Agreement.
 - Successor to General Agreement on Tariffs and Trade (GATT).
 - 1986-94 Uruguay Round negotiations led to its creation.
- **Members:** 166 including India.
- **Headquarters:** Geneva, Switzerland.
- **Decisions:** Based on consensus.

India and France upgrade Strategic Partnership

The French President's visit to India resulted in 21 important outcomes in areas from defence to critical minerals.



Key Outcomes

- **Defence and Security**
 - **H125 Helicopter Final Assembly Line** Inaugurated at Vemagal, Karnataka
 - H125 is a light utility single-engine Helicopter of Airbus, the only helicopter to land on Mt. Everest Summit.
 - Joint venture between Bharat Electronics and Safran to produce **HAMMER missile** in India launched.
 - **Highly Agile Modular Munition Extended Range (HAMMER)** is a Smart Precision Guided Air-to-Ground Weapon system adaptable for Rafale and LCA Tejas aircrafts.
- **Technology & Innovation Cooperation**
 - Launch of **India-France Year of Innovation 2026** and **India-France Innovation Network**.
 - Constitution of a **Joint Advanced Technology Development Group** and **Indo-French Centre for Digital Sciences and Technology**.
 - **Indo-French Centre for AI in Health (AIIMS, New Delhi)** launched.
- **Critical Minerals and Energy Cooperation**
 - Joint Declaration on cooperation in **critical minerals** to ensure diversified and resilient supply chains.
 - To deepen cooperation in **large nuclear power projects (including Jaitapur), Small Modular Reactors (SMRs) and Advanced Modular Reactors (AMRs)**.
- **Trade and Economic Cooperation**
 - Amending the **Double Tax Avoidance Agreement** between India and France.
- **Other Areas of Cooperation:** Startups, Health, Renewable Energy, student mobility and Skilling.

India-France Relations



1 Strategic Partnership: Established in 1998, this was India's first strategic partnership with a Western nation.

2 Horizon 2047 Roadmap: Adopted in 2023, to guide the relationship for the next 25 years.

3 Bilateral trade: More than doubled in the last decade to Euros 12.67 billion in 2024-25.

4 Joint defence exercises: SHAKTI (Army), GARUDA (Air Force), VARUNA (Navy).

Strait Hormuz

Iran closed the Strait of Hormuz for several hours for live fire drills amid talks with the US in Geneva.

About the Strait of Hormuz

- Located between Oman and Iran.
- It is a crucial maritime passage that connects the Persian Gulf with the Gulf of Oman & the Arabian Sea.
- It narrows to just 33 km at its slimmest point.
- **Strategic Importance:** About 20-25% of the world's oil passes through the Strait of Hormuz.



Chagos Archipelago

United States urged United Kingdom to not hand over Diego Garcia over Chagos to Mauritius.

- **Diego Garcia is the largest island** in Chagos archipelago, and is used as joint military base by UK and US.
- Following the 2019 ruling by International Court of Justice and building international pressure, UK signed an agreement with Mauritius in 2025 to return Chagos while keeping Diego Garcia military base on a 99-year lease.

About Chagos Archipelago

- **Location:** Indian Ocean in the northeast of Mauritius.
- **Background:** Became a British territory along with Mauritius in 1814 under treaty of Paris.
 - Designated as **British Indian Ocean Territory** in 1965 and was detached from Mauritius, which became independent in 1968.



Conflict In Sudan

A UN mission in Sudan reported indications of genocide in the siege of El-Fasher city by a paramilitary group.

About the Sudan conflict

- **Military factions:** Sudanese Armed Forces (official military) vs Rapid Support Forces (paramilitary group)
- **Major Places affected**
 - Khartoum (Capital city)
 - **Darfur Region** (West Sudan)- El Fasher (capital of North Darfur), El Geneina, Zamzam Displacement Camp etc.
 - **Other regions:** Kordofan region(capital- El Obeid), Blue Nile state
- **Communities affected:** Masalit, Zaghawa, Fur



America-India Subsea Gateway



It is a collaborative infrastructure initiative to establish a new international subsea gateway in Visakhapatnam (Vizag) anchored by five-year \$15 billion AI infrastructure investment.

Key Highlights

- **Connecting India's East Coast:** A direct fibre-optic path between **Vizag and Chennai** on India's east coast to **South Africa**, connecting **American East coast around Africa to Vizag**.
 - Additionally a **direct path between Vizag and Singapore**, offering a south pacific route connecting American West Coast through Australia to Vizag.
- **Connecting India's West Coast:** Through a direct fibre-optic path between **Mumbai and Western Australia**.
 - It complements **Blue, Raman, and Sol** subsea cables, which together form a **data corridor** from American east coast through **Red Sea to Mumbai**.
- **Significance:** Establish **Vizag as a major International subsea gateway**; turning maritime merchant shipping routes between "New World" and India into **digital trade routes**; etc.

About Undersea/Submarine Communications Cables

- **Meaning:** **Fibre-optic cables** laid on ocean floor to transmit data between continents, serving as a **backbone of global internet**.
- **Significance:** More than **95% of data** goes through these; capable of transmitting multiple **terabits of data per second**.
- **Technical Features:** Contains multiple **optical fibres** (thin strands of glass/plastic); Use **light signals** for minimal loss; protective steel armour, waterproof insulation and repeaters (signal amplifiers), etc.
- **Vulnerabilities:** Accidental damage due to **fishing trawlers and ship anchors**, sabotage & geopolitical risks, E.g. attacks on Red Sea sub-sea cables (2024); etc.
- **Indian Initiatives:** Submarine optical fibre cables between **Chennai and Andaman & Nicobar and Kochi and Lakshadweep**; etc.

India–UK Offshore Wind Taskforce



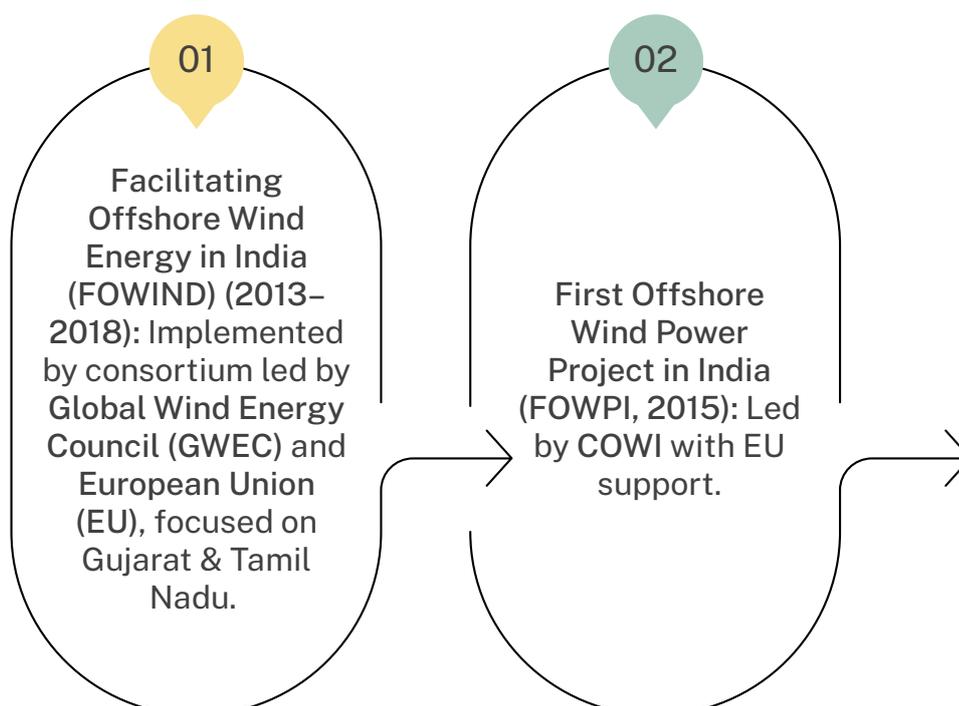
The Taskforce has been constituted under Vision 2035 (India–UK Roadmap) and Fourth India–UK Energy Dialogue

- **Objective:** Strategic leadership & coordination for India’s offshore wind ecosystem.

About Offshore Wind Energy

- It refers to the use of **wind turbines** to generate **electricity in bodies of water** such as **oceans or large lakes**.
- **Advantages of Offshore Wind over Onshore Wind Energy**
 - **Generates more energy:** Offshore turbines generate 1MW more energy than onshore turbines **due to larger turbines**.
 - **Efficiency:** winds at sea are **stronger** and blow in the **same direction more often** than winds on land.
 - **No land requirement:** **Land acquisition issue** absent with no discomfort to locals.
- **Challenges of Offshore Wind Energy**
 - **High Capital Costs** for installation
 - Exposure to harsh marine conditions like saltwater corrosion increases wear and tear, **requiring more frequent and specialized maintenance**.
 - Underwater operational noise **can affect marine fauna and ecosystems**.
- **In India, Ministry of New and Renewable Energy (MNRE)** is the Nodal Ministry for offshore wind development.
 - **Potential:** Gujarat (36GW), Tamil Nadu (35GW) (according to National Institute of Wind Energy).

KEY PROJECTS & INTERNATIONAL COOPERATION



India Joins The Pax Silica Initiative

India joined the Pax Silica initiative by signing the Pax Silica Declaration along with a bilateral Joint Statement on the India–U.S. AI Opportunity Partnership.



- The move advances the vision of deeper tech cooperation under the Transforming the Relationship Utilizing Strategic Technology (TRUST) initiative in India–U.S. relations.

About Pax Silica Initiative (2025)

- Pax is a historical term denoting peace, stability, and prosperity.
- It is a US-led initiative on AI and supply chain security, advancing a new economic security consensus among allies and trusted partners.
- Core Objectives
 - Reduce coercive dependencies
 - Partner to secure global tech supply chains, address AI supply chain opportunities and vulnerabilities, and explore joint investment
 - Protect sensitive technologies and build trusted digital infrastructure
- Long Term Framework
 - Unite countries hosting advanced tech companies to unleash the economic potential of the new AI age.
 - Establish a durable economic order to drive AI-powered prosperity across partner nations.
- Signatories: Australia, Greece, Israel, Japan, Qatar, Republic of Korea, Singapore, United Arab Emirates, and United Kingdom.

Strategic Importance of Pax Silica for India

- Secures critical supply chain: E.g., Australia is the leading exporter of Lithium (a key component in rechargeable batteries and digital products) and has significant Rare Earth Element (REE) deposits.
- Reducing Dependence on China: China has emerged as a principal supplier of REEs and acquired the capability to shape the global flow of these resources.
- Boost to Domestic Manufacturing: Membership provides India with the opportunity to lock in billions of dollars in AI and technology investments boosting the domestic manufacturing industry.

India-Brazil relations



State Visit of the President of the Federative Republic of Brazil to India concluded

During the Visit both nations **revised** their bilateral trade goal from \$20 billion to \$30 billion by 2030.

- The nations emphasized **enhanced cooperation across diverse sectors, including space, renewable energy, and agriculture.**

Key Outcomes of the Visit

- **Strategic MoUs:** 10 agreements were signed, notably covering Rare Earth and Critical Minerals, the Postal sector, MSME entrepreneurship, and pharmaceutical regulations.
- **Digital Cooperation:** Adoption of a **Joint Declaration/Action Plan on a Digital Partnership for the Future.**
- **Visa Facilitation:** Extension of the validity of multiple-entry tourist and business visas from five to ten years, on a reciprocal basis.

INDIA-BRAZIL RELATIONS

- Diplomatic relations established in 1948; upgraded to Strategic Partnership (2006)
- Work closely at plurilateral fora such as BRICS, BASIC, G-20, G-4, IBSA, and larger multilateral bodies such as the UN, WTO, UNESCO, and WIPO
- Trade: In 2025, the bilateral trade grew by over 25% reaching USD 15.21 billion.
 - Engagement under India-MERCOSUR Preferential Trade Agreement.
- Renewable Energy: Brazil became the co-founder member of Global Biofuel Alliance.
 - Brazil ratified the International Solar Alliance (ISA) Agreement in 2022.

India and France amends DTAC



India and France signed a Protocol to amend the Double Taxation Avoidance Convention (DTAC), which was originally signed in 1992.

- DTAC is the formal/legal name used for some Double Tax Avoidance Agreements (DTAAs).
- DTAA is an agreement signed between two countries to prevent individuals or businesses from being subject to double taxation on their income.

Key Amendments

- Removed the Most-Favoured-Nation (MFN) clause to eliminate ambiguity in treaty benefits.
- Incorporation of Base erosion and profit shifting (BEPS) Multilateral Instrument (MLI) Provisions to prevent profit shifting.

About the Most-Favoured-Nation (MFN)

- It is a fundamental principle of the World Trade Organization (WTO).
- It ensures that countries do not discriminate between their trading partners.
 - If a WTO member grants favourable trading terms like lower tariffs to one country, it must extend the same benefits to all other WTO members.

About the BEPS Multilateral Instrument (MLI)

- An international treaty that enables countries to modify existing bilateral tax treaties without renegotiating them individually.
- The BEPS MLI entered into force in 2018, and its provisions entered into effect in 2019.
- Objectives:
 - Implements tax treaty measures developed under the OECD/G20 BEPS Project.
 - Helps prevent Base Erosion and Profit Shifting.
- BEPS are tax avoidance strategies used by MNCs to shift profits to low or no-tax jurisdictions by exploiting gaps in tax rules, reducing overall corporate tax liability.

Chabahar Port

Iran reaffirms its commitment to the Chabahar port and cooperation with India, despite US sanctions uncertainty.



About Chabahar port

- **Location:** Sistan-Balochistan province in Iran's southern coast.
- **Genesis:** India Ports Global Limited (IPGL) started operating the port in 2018.
- **Significance:** It connects India to Afghanistan, Central Asia and International North-South Transport Corridor (INSTC) bypassing Pakistan
- In 2024, IPGL signed a 10-year contract with the Ports and Maritime Organisation of the Islamic Republic of Iran for equipping and operating the Shahid Beheshti Terminal of Chabahar Port.
- India has fulfilled its commitment of contributing USD 120 million for the procurement of port equipment.

UN Launches Road Safety Financing Project



The UN Launches Road Safety Financing Project in Four States of India

- **Project:** Sustainable Financing for Road Safety in India: A Collaborative Approach
- **Funding:** UN Road Safety Fund (refer box).
- **Technical support:** WHO, UNICEF, and the UNESCAP.
- **States:** Rajasthan, Kerala, Tamil Nadu, and Assam.
- **Focus Area:** Building national and sub-national capacities for the effective implementation of road safety action plans.
 - On reducing road fatalities and serious injuries that lead to disabilities.

Road Safety Scenario in India (As per the latest Road Accidents in India data (MoRTH))

- ~1.68 lakh fatalities were reported in 2022-23.
- Majority of victims: 18-45 years age group.
- Largest share: Two-wheelers
- Leading cause: Over-speeding.
- India loses around 3% of GDP annually due to road crashes.

Road Safety Initiatives by the Government

- **Motor Vehicles Amendment Act, 2019:** enhancing governance, accountability, and penalties for traffic violations.
- **National Road Safety Strategy 2018-2030:** Sets a framework targeting a 50% reduction in road fatalities by 2030.
- **Integrated Road Accident Database (IRAD):** A unified crash data management system, launched by MoRTH and MHA.
- **State Support Programme for Strengthening Road Safety:** A centrally sponsored 6-year programme implemented in 14 high-fatalities states backed by ₹7,270 crore from the World Bank, ADB, and the Government of India.

ABOUT THE UN ROAD SAFETY FUND (UNRSF)

- Established in 2018 to mobilise financing for road safety in low- and middle-income countries.
- Supports evidence-based policy, legislation, and capacity-building projects.
- Works with governments, civil society, and private sector partners.

Other Global effort: Declaration of Marrakesh

- Adopted at the 4th Global Ministerial Conference on Road Safety (2025).
- Calls for political commitment, sustainable financing, and safe-system approach.

Free Trade Agreements



Free Trade Agreements provide India preferential access to global trade

As of 2025, India has various active Free Trade Agreements (FTAs) providing India preferential trade access to nearly two-thirds of global trade.

About FTAs

- **FTAs:** FTAs are **legally binding treaties** between two or more countries aimed at reducing or eliminating trade barriers, such as tariffs, quotas, and restrictions on imports and exports.
 - These agreements often include provisions for trade facilitation, intellectual property rights, and investment protections.
- **India's FTA partners:** US, UK, Australia, UAE, Oman, New Zealand, Japan, Singapore, South Korea, Sri Lanka, Nepal, Bhutan, Thailand, and Malaysia.
 - Regional Groupings include European Union, European Free Trade Association (EFTA), ASEAN, and SAARC.
- **Ongoing FTA Negotiations:** Gulf Cooperation Council (GCC), Israel, Chile, Canada, Peru, Bangladesh, Maldives, Qatar, Eurasian Economic Union (EAEU), Bahrain.

Significance of FTAs

- **Trade Diversification:** FTAs will enable India to geographically diversify its export and import markets, increase the value of its exports, and lower import barriers.
- **Integration of Indian Industry:** Better integrate India into global supply chains, increase the competitiveness of Indian businesses in developed markets, and create jobs.
- **Geopolitical Strategy:** They help to build broader trust with partners and contribute to multi-aligned foreign policy.
- **Optimum Resource Utilization:** Under FTA, each country produces those goods in which it has the best advantages.

Greece

India and Greece have signed joint declaration of intent to strengthen defence cooperation.



Political Features

- **Location:** southernmost of the countries of the Balkan Peninsula.
- **Bordering Nations:** Albania (northwest), North Macedonia(north), Bulgaria (north) and Turkey(northeast)
- **Bordering water bodies:** The Aegean Sea (East), Mediterranean Sea (South) and Ionian Sea (West) and Cretan Sea (South)

Geographical Features

- **Mountains:** Pindos (or Pindus) Mountains (central mountain range forming the core of mainland Greece).
- **Highest Point:** Mount Olympus
- **Climate:** Mediterranean climate

India - Israel



Indian Prime Minister's visit to Israel During the Prime Minister's recent visit, India and Israel agreed to further deepen and expand their bilateral cooperation across key strategic and economic sectors.

Key Outcomes of the Visit

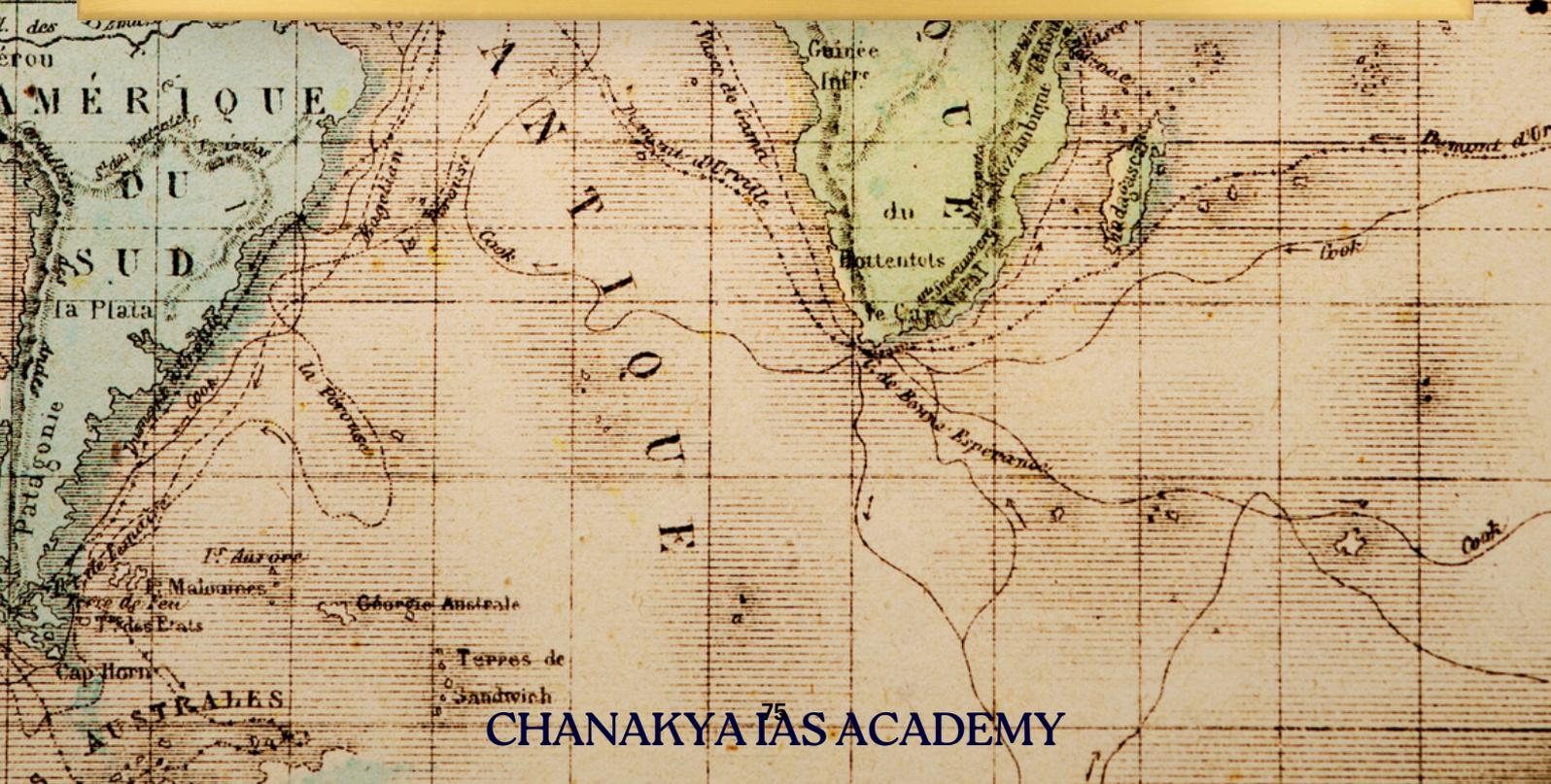
- **Upgradation of ties:** To a “Special Strategic Partnership for Peace, Innovation & Prosperity”.
- **New initiative on Critical & Emerging Technologies (CET):** Led by National Security Advisors of both countries covering AI, cybersecurity, semiconductors, quantum computing, biotechnology and space.
 - MoU on Artificial Intelligence; launch of Horizon Scanning/Strategic Foresight Mechanism.
- **Labour mobility:** Quota of up to 50,000 Indian workers over next 5 years.
- **Cybersecurity Cooperation:** Developing Multi-year cybersecurity roadmap; establishment of India–Israel Centre of Excellence in Cybersecurity in India; etc.
- **Agriculture & Water Technology Partnership:** MoU for establishment of India–Israel Innovation Centre for Agriculture (IINCA); 20 Joint Fellowships in Agricultural Research; etc.
- **Others:** Exploring UPI–Israel payment linkage; launch of India–Israel Academic Cooperation Forum; India-Israel Parliamentary Friendship Group etc.

OVERVIEW OF INDIA-ISRAEL RELATIONS

- **Diplomatic:** India recognized Israel in 1950; Relations since 1992.
- **Economic:** India is Israel's 2nd largest Asian trading partner in merchandise.
 - Bilateral trade: US\$ 3.75 billion (FY 2024–2025)
 - Key sectors: Diamonds, chemicals, technology.
- **Defence:** Israel a major defence supplier.
- **Technology:** India-Israel Industrial R&D and Innovation Fund (I4F); cooperation in drip irrigation, desalination and water management.
- **Regional connectivity:** Cooperation under I2U2 and India–Middle East–Europe Economic Corridor (IMEC).

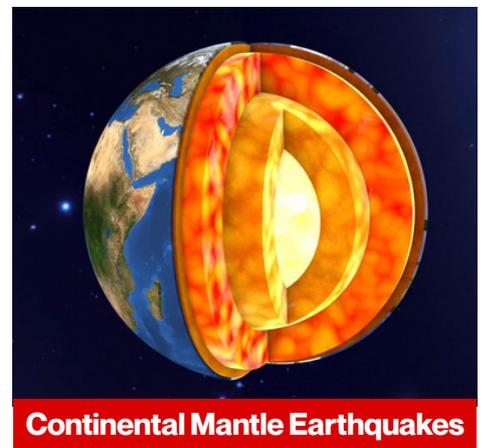


Geography



Continental Mantle Earthquakes

Stanford University researchers have created the first global map of rare continental mantle earthquakes.



About Continental Mantle Earthquakes

- Mantle earthquakes occur far **deeper**, sometimes more than 80 km below the **Mohorovičić discontinuity**, unlike most earthquakes, which originate in the Earth's crust at depths of around 10 to 29 kilometres.
 - The **Mohorovičić discontinuity** or “**Moho**”, separates the crust from the warm, semi-solid mantle that makes up most of the planet's interior.
- They do **not cause serious shaking** at the surface.
- Mantle earthquakes offer a novel way to explore earthquake origins and the internal structure of Earth.

Mud Volcano

A rare mud volcano eruption has been reported in Diglipur, Andaman Islands, prompting scientific monitoring.



- **Andaman Islands** lie near the **convergence of several tectonic plates** which makes the region prone to seismic and volcanic features.

Mud Volcano

- Geological structures that release a **mixture of mud, water and gases (mainly methane)** due to subsurface pressure, without magma involvement.
- **Genesis:** Associated with **tectonic activity**, sediment compaction and hydrocarbon-rich regions.
- **Characteristics:** mud is cold or perhaps only slightly warmer than the ground temperature.
- **Significance:** Indicators of underground gas reserves and active geological processes.

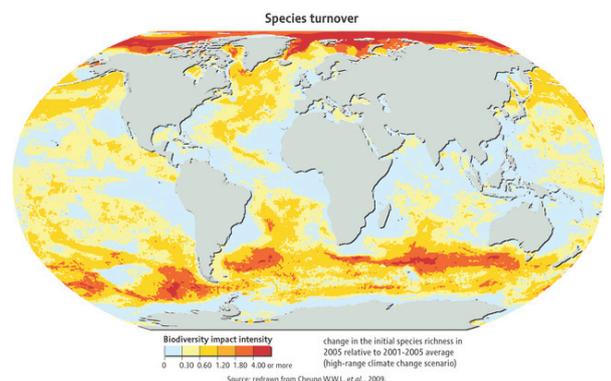
Species Turnover

A study highlighted that short-term species turnover has slowed in many ecosystems over the past century.

- Observed deceleration is a side effect of **environmental degradation and the shrinking of regional species pools**.

About Species Turnover

- ‘Turnover’ is defined as the rate at which species exit and are replaced by others **within ecological communities**.
- Species turnover occurs because of **species interactions like competition, predation, mutualisms etc.**
- The loss of turnover momentum could **reduce ecosystems’ capacity to cope with future climate fluctuations**, amplifying the risk of abrupt ecological regime shifts.



Monsoon Breaks

Research suggests that desert winds from the west and northwest of India can be used to predict monsoon break periods.

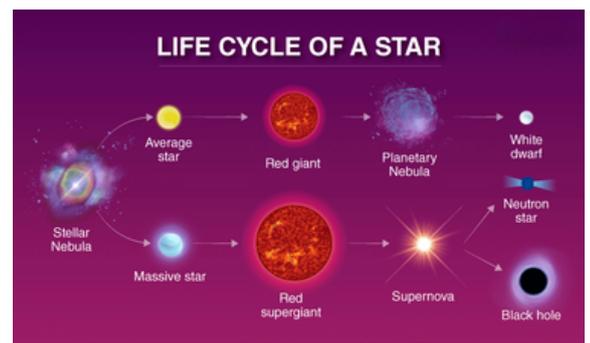


About Monsoon Breaks

- **Meaning:** During the **south-west monsoon**, after having rains for a few days, if **rain fails to occur for one or more weeks**, it is known as break in the monsoon.
 - These dry spells are quite common during the rainy season.
- **Reasons for Monsoon Break:**
 - In **northern India**, rains are likely to fail if the **rain-bearing storms are not very frequent along the monsoon trough or the ITCZ** over this region.
 - Movement of monsoon trough towards Himalayas creates dry spells in plains.
 - Over the **west coast** the dry spells are associated with days when winds **blow parallel to the coast**.

Life cycle of Star

Scientists have captured the clearest view of a star collapsing directly into a black hole without exploding as a supernova.



About Life Cycle of Star

Birth

- **Molecular Clouds:** Stars form deep within massive, cold clouds of gas and dust.
- **Protostar Formation:** Gravity causes high-density pockets within these clouds to clump and collapse creating a "protostar".

Life

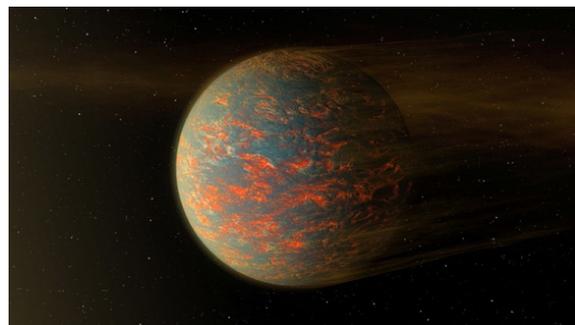
- **Main Sequence:** **Nuclear fusion** ignites in the core and releases huge amounts of energy. This stable period is the **longest phase of a star's life**.

Death

- **Low-Mass Stars:** Sun-like stars expand into giants, shed their outer layers as a **planetary nebula**, and leave behind a **cooling white dwarf core**.
- **High-Mass Stars:** These stars **fuse** elements up to iron, after which **the core collapses**, triggering a **supernova** that leaves behind a **neutron star or a black hole**.

Super-Earth

Super-Earths are a unique class of planets that are larger than Earth but lighter than "ice giants" like Neptune and Uranus.



Key Features:

- **Size and Mass:** have a mass up to 10 times that of Earth and a diameter about 2 times Earth's radius.
- **Composition:** can be made of rock, gas, or a combination of both.
- **Importance:** help scientists understand how planets form and evolve.

Snowball Earth

A study has reported evidence that shorter climate cycles still operated during at least one phase of this snowball earth.



About Snowball Earth

- Snowball Earth refers to hypothesized period of **extreme glaciation episodes** during the **Cryogenian Period** (~720–635 million years ago) when ice likely covered even tropical regions.
 - Oceans were largely frozen, **weakening climate–ocean interactions**.
- This glaciation was reinforced by the albedo effect and is believed to have had a major impact on the evolution of life during the Proterozoic aeon.

Rapti River

NGT directs Suav's status be changed from drain to river in official records.

- Suav (or Suwawan) is a tributary of the Rapti River.

About Rapti River

- It is the most important left bank tributary of the Ghaghra, which is a tributary of Ganga.
- Origin: It rises in Nepal in the Dregaunra range.
- Its Catchment area falls in Nepal, and the remaining in the State of U.P.
- Total length: 782 km.



Rapti River

River Pollution in India



Supreme Court shifts river pollution monitoring to NGT
After five years of near inaction, the Supreme Court closed its 2021 suo motu proceedings on remediation of polluted rivers and shifted the primary oversight responsibility to the National Green Tribunal (NGT).

- The Court also observed that the ‘**right to live in hygienic conditions with human dignity and a clean environment**’ forms part of the **Right to Life under Article 21** of the Constitution.

River Pollution in India (as per CPCB’s 2025 Report)

- **Polluted River Stretch (PRS):** Defined as stretches where the **Biochemical Oxygen Demand (BOD)** exceeds **3 mg/L**.
 - BOD (key indicator of water quality) is the **amount of dissolved oxygen needed by aerobic microorganisms to break down organic matter** in water over a specific period.
- **Status: 296 river stretches** were polluted on 271 rivers (out of 645 rivers assessed) across 32 states and Union Territories. Highest in **Maharashtra (54)**.
 - It includes **Yamuna** in Delhi, **Sabarmati** in Ahmedabad, **Chambal** in Madhya Pradesh, **Tungabhadra** in Karnataka, and **Sarabanga** in Tamil Nadu.

Major Sources of River Pollution

- **Untreated Sewage:** According to the CPCB, **more than 60% of untreated sewage water** is released into rivers daily.
- **Untreated Industrial Effluents:** Industries such as those producing chemicals, sugar, paper, and tanneries generate wastewater.
- **Others:** Municipal solid waste, agricultural runoff, sand mining and illegal encroachment.

Initiatives taken for cleaning and rejuvenation of Rivers

1.

Namami Gange Programme (2014): for cleaning and rejuvenation of river Ganga includes wastewater treatment, solid waste management, riverfront management etc.

2.

Yamuna Action Plan (1993): Aims to clean the stretch of river Yamuna.

3.

National River Conservation Plan (NRCP): It is the **Centrally Sponsored Scheme** implemented for abatement of pollution in identified stretches of rivers in the country, **excluding those in Ganga basin.**

4.

Technology used for Pollution Monitoring: **LiDAR and Drone survey** are used to identify all drains discharging into the river, enabling a comprehensive response to drainage-related challenges.



ENVIRONMENT

CHANAKYA IAS ACADEMY

Announcement of Biopharma SHAKTI



Union Finance Minister announced 'Biopharma SHAKTI (Strategy for Healthcare Advancement through Knowledge, Technology & Innovation)'.

About Biopharma SHAKTI

- **Objective:** Develop India into a global biopharmaceutical manufacturing hub by building the ecosystem for domestic production of biologics and biosimilars.
 - **Biologics** are class of medicines which are made from natural and living sources like animal and plant cells, and microorganisms. These include vaccines, blood and blood components, somatic cells, gene therapy, proteins etc.
 - **Biosimilars** are copies of biologics that are highly similar to biologics and have no clinically meaningful differences from the reference product.
- **Funding:** Outlay of ₹ 10,000 crores over the next 5 years.
- **Strategy:**
 - Biopharma-focused network with **3 new National Institutes of Pharmaceutical Education and Research (NIPER)** and upgrading 7 existing ones.
 - Creating a network of over **1000 accredited India Clinical Trials sites**.
 - **Strengthening the Central Drugs Standard Control Organisation (CDSCO)** to meet global standards and approval timeframes through a dedicated scientific review cadre and specialists.
- **Potential Outcomes:**
 - Catalysing investments in **advanced biomanufacturing infrastructure**, promote innovation and enhance India's capabilities in high-value, next-generation therapies.
 - Enhancing the **quality and credibility of clinical research** in India, and accelerating drug development timelines.
 - Developing a **highly skilled workforce**, promoting industry-academia collaboration, and supporting the growth of a globally competitive biopharmaceutical sector.

INDIA'S BIOECONOMY

- Bioeconomy uses renewable resources like plants, animals, and microorganisms to produce food, energy, and industrial goods.
- India's bioeconomy grew from USD 10 bn (2014) to USD 165.7 bn (2024), targeting USD 300 bn by 2030.
- It contributes 4.25% to the national GDP.
- India's bioeconomy is powered by four key subsectors: BioIndustrial (47%), BioPharma (35%), BioAgri (8%), and BioResearch (9%).

Kaziranga National Park

A study by Birbal Sahni Institute of Palaeosciences (BSIP) has examined reasons behind decline and present confinement of megaherbivores, especially Indian one-horned rhinoceros to Kaziranga NP.



- Study shows through fossil evidence that the species was once **widely distributed across the Indian subcontinent**, but this distribution greatly **reduced since the Holocene**.

About Kaziranga National Park

- **Geography:** Located in Assam's **Brahmaputra floodplains** between the Brahmaputra River and the Karbi (Mikir) Hills in Assam, India.
- **Status:** Declared **UNESCO World Heritage Site in 1985** and a **Tiger Reserve**.
- **Biodiversity:** The park hosts two-thirds of the world's one-horned rhinos, Tiger, Elephant, Asiatic Water Buffalo, and Eastern Swamp Deer.
- **Conservation:** Established as a **Reserve Forest in 1905**, it is now an recognized **Important Bird Area** by birdlife international.

Turtle Trails

The Union Budget's 'turtle trails' announcement has drawn apprehension from conservationists and wildlife researchers.



Turtle Trails

- **Budget Proposal:** The Centre plans **ecologically sustainable Turtle Trails** along key coastal nesting sites in Odisha, Karnataka, and Kerala.
- **Ecological Threat:** Experts argue **Arribada** (mass nesting) sites must remain **no-go zones**, as artificial light and movement disorient turtles.
- **Conservation vs. Tourism:** Researchers warn against building infrastructure at critical rookeries like Rushikulya, **citing past ecotourism failures in sensitive habitats**.
- **Sustainability Path:** non-invasive infrastructure, low carbon impact, community engagement.

Bandhavgarh Tiger Reserve

Madhya Pradesh Government reported 8 tiger deaths in Bandhavgarh Tiger Reserve since November due to electrocution from illegal live wires.



Bandhavgarh Tiger Reserve

- **Location:** Situated in the **Vindhya hills of Umaria district, Madhya Pradesh**; named after the historic Bandhavgarh Fort linked to the Ramayana tradition.
- **Conservation Status:** Declared a **National Park** and later designated a Tiger Reserve under **Project Tiger**.
- **Flora:** Dominated by **tropical dry deciduous forests with sal forests, mixed vegetation and grasslands**.
- **Fauna:** Known for high tiger density; also home to leopards, deer species, gaur and diverse birdlife.

Weakening of India's Environmental Laws



Of late, systematic "watering down" of environmental protections have been observed, characterized by the judicial recall of progressive judgments, the adoption of reductionist definitions for protected areas (such as the Aravalli hills), etc.

Systematic Dilution of Environmental Regulation

- **EIA Process Undermined:** Since December 18, 2025, for non-coal mining projects, land acquisition can occur before an Environmental Impact Assessment (EIA), and EIAs can be conducted without specific details regarding location and area.
- **Judicial recalls:** The recall of **Vanashakti vs Union of India (2025)** diluted the ban on retrospective clearances, signalling a **retreat from pro-environment jurisprudence**.
- **Aravalli Hills Controversy:** The Court accepted a **100-metre height-based definition**, excluding large ecologically vital areas from protection impacting violation of **Article 21**, weakens **article 48A**.
- **Mangroves & Coastal Ecology:** Judicial approval for destruction of mangroves (e.g., Raigarh, Maharashtra for Adani Cementation Ltd.) reflects reliance on **compensatory afforestation**, which ignores ecological science.
- **Strategic Defense vs. Ecology:** Court allowed wider roads based on strategic defense needs despite recognizing the area's ecological importance. (**Citizens for Green Doon vs Union of India, 2021**).
 - This "balancing act" has been linked to subsequent flash floods and ecological disturbances in Uttarakhand.

Constitutional and Jurisprudential Implications

- **Constitutional provisions at risk:** Article 14 (principle of non-arbitrariness and equality before law), Article 21 (right to clean and healthy environment), **Article 51A(g)** (fundamental duty of citizens to safeguard the environment), etc.
- **Erosion of Public Trust doctrine:** Established in **M.C. Mehta vs. Kamal Nath (1996)**, the **Public Trust Doctrine** asserts that natural resources belong to the state in trust for the people and cannot be sold for private exploitation.
 - Current judicial trends that approve environmental degradation appear to contradict this foundational jurisprudence.

New 'bio-warrior' Marine Worm Species



Researchers from the Zoological Survey of India (ZSI) have uncovered two remarkable new 'bio-warrior' marine worm (polychaetes) species from the coasts of West Bengal.

- Known as 'bio-warrior' as they thrive where other life withers.

About New Marine Worm Species

- **Namalycastis solenotognatha:**
 - Named for its "channeled jaw" structure.
 - Found in sulfide-rich, foul-smelling mudflats and decaying mangrove wood.
 - Adapted to extreme and polluted environments.
- **Nereis dhritiae:**
 - Named after the first woman director of ZSI, Dhriti Banerjee
 - Found inside wooden dock piles on sandy beaches.
 - Survives in areas submerged during high tide.

Tea Board of India



According to Tea board of India, India witnessed highest-ever tea exports (280.40 million kg) in 2025.

- Tea is a **perennial evergreen crop**.
- It requires **well drained soil with high amount of organic matter, pH 4.5 to 5.5 and Optimum temperature of 20 – 27 degree C**.

About Tea Board of India (HQ: Kolkata)

- **Statutory body:** Constituted in 1954 under the Tea Act 1953.
- **Ministry:** Ministry of Commerce and Industry.
- **Board:** Comprises of **31 members** (including Chairman) from Members of Parliament, tea producers, traders, brokers, consumers, etc.
 - Board is **reconstituted every three years**.
- **Key Functions:** Financial and technical assistance for **cultivation, manufacture and marketing of tea, export promotion**, etc.

Mangrove Clams

ICAR–Central Marine Fisheries Research Institute (CMFRI) has successfully achieved induced breeding of mangrove clam (*Geloina Erosa*) under captive conditions.



About Mangrove Clam

- Mangrove clams, commonly known as **mud clams**, are **ecologically important but dwindling bivalve species** distributed across mangrove and estuarine ecosystems in South and Southeast Asia.
 - **Bivalves** are diverse group of mollusks that include clams, oysters, scallops and mussels.
 - These have **two shells** and live in both freshwater and saltwater.
- Inhabits **organic-rich muddy substrates**; ecologically important for **nutrient recycling and sediment stabilisation**.
- Supports **coastal livelihoods and food security** (locally called *Kandal Kakka* in parts of Kerala).

Cheer Pheasant

Hunting and habitat degradation continue to be the primary drivers of population decline in Cheer pheasant.

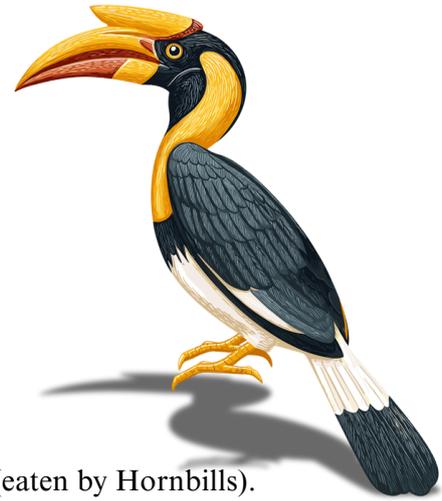


Cheer Pheasant (*Catreus wallichii*)

- **Habitat:** Mainly found in **mid-montane grassland** of western Himalayas across its global range (Pakistan, India, and Nepal).
 - “Cheer” refers to the birds’ occurrence near **Chir Pine forests** and “Pheasant” means a member of the game-bird family which mostly **include ground dwelling birds**.
- **Conservation Status:** IUCN (Vulnerable); CITES (Appendix I); **Wildlife Protection Act (WPA), 1972** (Schedule I).

Malabar Pied Hornbill

Chhattisgarh Forest Department is establishing hornbill restaurants in Udanti Sitanadi Tiger Reserve (in Gariband District) to protect rare Malabar Pied Hornbill.



- **Hornbill Restaurants** are natural clusters of fruit-bearing trees (eaten by Hornbills).

About Malabar Pied Hornbill (*Anthracoceros coronatus*)

- **Distribution:** Endemic to the **Indian subcontinent** - Western Ghats moist forests, North-eastern Himalayan foothills (India & Nepal), Satpuda Hills and Sri Lanka.
- **Features:** Black body with white underparts; **Keystone seed disperser** in tropical forests.
- **Diet:** Primarily **frugivorous**.
- **IUCN Status:** Near Threatened.

Loggerhead turtles

Loggerhead turtles face significant threat due to climate change.

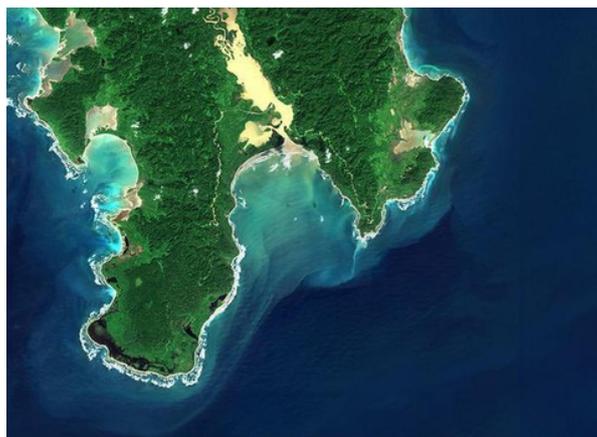


Loggerhead turtles

- Marine turtle
- **Habitat:** Temperate and tropical oceans worldwide; prefers coastal bays, estuaries, and continental shelves.
- **Key Feature:** Large head and powerful jaws adapted for crushing hard-shelled prey like crabs and molluscs.
- Loggerheads are carnivores, only occasionally consuming plant material.
- **Lifespan:** 70 to 80 years or more.
- **Protection Status**
- **IUCN Status:** Vulnerable
- Protected under **Schedule I of the Wildlife (Protection) Act, 1972**
- **Distribution in India:** Occasional sightings along Indian coasts; not as common as Olive Ridley.
- **Key Threats:** Bycatch in fishing nets, coastal development, plastic pollution, etc.

NGT cleared Great Nicobar Project

NGT while noting the “strategic importance of the project” upheld its environmental clearance and compliance with ICRZ (Island Coastal Regulation Zone) and CRZ norms.



About the Great Nicobar Project

- **Location:** Great Nicobar Island (southernmost island of Andaman and Nicobar Islands) including parts of Galathea Bay, Campbell Bay and Great Nicobar Biosphere Reserve.
- **Objective:** Project envisions transforming the remote outpost into a major transshipment and defence hub with integrated township, 450 MVA Gas and Solar-based power plant, dual-use civil-military airport, etc.
- **Implementing Agency:** Andaman and Nicobar Islands Integrated Development Corporation along with the NITI Aayog.

Concerns associated with the Project

- **Regulatory Lapses:**
 - Environmental Impact assessment (EIA) relied on single-season data instead of comprehensive multi-season assessment.
 - Proposed compensatory afforestation in Haryana is inadequate to offset loss of a tropical rainforest ecosystem.
 - Forest Rights Act (FRA): Government has proceeded with project even after Tribal council withdrew its consent.
- **Threat to Biodiversity:** The project involves diverting approximately 130 sq. km of tropical rainforest (felling one million trees), home to the Nicobar megapode, Nicobar tree shrew, Giant leatherback turtles, corals, etc.
- **Social Impact:** Project might negatively impact tribal population, e.g. Shompen (Particularly Vulnerable Tribal Group) and Nicobarese.
- **Natural Disaster Vulnerability:** The Island falls in the highest seismic-risk zone (Zone VI).

SIGNIFICANCE OF THE PROJECT FOR INDIA

- **Strategic:** Island overlooks the Strait of Malacca, through which 40% of the world's trade and most of China's energy imports pass.
- **Logistics:** Currently, 75% of India's transshipment cargo is handled at foreign ports, raising logistics costs.
- **Others:** Improved connectivity, promotion of tourism, increased presence in the Indian Ocean region etc.

Kuno National Park

Three cubs born to a South African cheetah in Kuno National Park.

- **Cheetah Gamini** has given birth to three cubs taking the total number of the cheetahs in India to **38**.
- This is the **ninth** successful cheetah litter in Kuno.

About the Kuno National Park

- **Houses Project Cheetah:** India's **exclusive home for cheetahs**.
- **Location:** lies in **Madhya Pradesh's** Sheopur-Shivpuri region, in the **Vindhyan** landscape, named after the **Kuno River**.
- **Area:** Spread across **~74,200 hectares** (around 748 sq km), known for **dry deciduous forests and open grasslands**.
- **Biodiversity:** **Flora** like Kardhai, Salai, Khair and diverse; **fauna** including deer, hyena, reptiles and over 200 bird species.

Lion Tailed Macaque

Recent scientific analysis of lion-tailed macaques shows steady primates population and, in some locations, even increasing within plantation-dominated terrains.

About the Lion tailed macaque

- **Conservation status**
 - **IUCN Status:** Endangered
 - **CITES Listing:** Appendix I
 - **WPA Status:** Schedule I and IV
- **Characteristics:** Sometimes called **bearded monkeys** due to grey mane around their face.; tail resembles a lion's tail.
- **Habitat:** Evergreen rainforests of **southern Western Ghats** (Tamil Nadu, Kerala, Karnataka).
 - Nilgiri-Silent Valley landscape, the Anamalai-Parambikulam complex, the Sharavathi Valley in Karnataka and the Agasthyamalai ranges spanning southern Kerala and Tamil Nadu.
 - **Two genetically distinct subpopulations** of the species have been identified north and south of Palghat Gap.
- **Threats:** Extensive agriculture, Urbanization and Mining, Hunting & trapping terrestrial animals Logging & wood harvesting etc.

Report on Soil Health Degradation in India

'Healing Soils in India: For Better Crop Health and Human Nutrition' Report has been released by Indian Council for Research on International Economic Relations (ICRIER).

Primary Causes of Soil Degradation

- **Distorted Fertilizer Policy:** Highly subsidized urea (a source of N) receives over 80% subsidy, while subsidies for P and K are significantly lower. This price distortion encourages farmers to overuse N.
- **Faulty Farming Practices:** Intensive tillage, prolonged water stagnation in rice cultivation, heavy reliance on monocropping (e.g. cereal-cereal rotations), and burning of crop residues accelerate native carbon loss and damage soil structure.
- **Massive Soil Erosion:** India loses about 5.3 billion tonnes of topsoil annually to water and wind erosion. This strips away 5.4–8.4 million tonnes of primary nutrients every year.

Negative Impact on Crop and Human Health

- **Dropping Crop Efficiency:** Plants can no longer absorb nutrients well. This reduces the efficiency of crop production.
- **Loss of Nutritional Quality:** Weak soils produce crops deficient in essential micro nutrients such as zinc and iron.
- **Rise of Hidden Hunger:** Nutrient deficient crops cause stunting, wasting, malnutrition in children.
- **Water Contamination:** Over-dose of fertilizer leaches out in groundwater making it unsafe for drinking.

Micronutrient Deficiency	Low Soil Organic Carbon	Phosphorus and Potassium Availability	Nitrogen Deficiency
Around 50% of Indian soils are deficient in essential micronutrients such as sulphur, boron, and zinc, which are crucial for crop growth.	Nearly 75% of soils in India contain soil organic carbon below the recommended level of 0.75%, indicating poor organic matter content.	Only about 45% of soils have adequate phosphorus, while merely 32% contain sufficient potassium, leading to nutrient imbalance.	Approximately 95% of Indian soils do not have sufficient nitrogen, making it the most widespread nutrient deficiency.

Way Forward

- **Reform Fertilizer Policies:**
 - Bringing urea under the NBS regime would rationalize prices.
 - Provide direct income support in place of subsidy.
 - **Promote Innovative Products:** Customized fertilizers, water-soluble formulas, and bio-fertilizers etc.
 - Using AI and machine learning to combine land records, satellite imagery, and fertilizer sales to identify and support tenant farmers.
 - **4R Framework:** Applying the Right Source at the Right Rate, Right Time, and Right Place.
- **Other:**
 - Promoting Integrated Nutrient Management (INM) by combining synthetic fertilizers with organic inputs (like farmyard manure and biochar).
 - Cover cropping, and crop diversification (such as integrating legumes) will rebuild soil organic carbon and restore ecosystem balance.

Government Initiative to Promote Soil Health: Soil Health Card Scheme; PM-PRANAM Scheme; Paramparagat Krishi Vikas Yojana; Neem-Coated Urea, etc.

Gentoo Penguins

Gentoo penguins have become first bird species to be infected with H5 avian influenza on Australia's Heard Island.

- **Heard Island** is a remote Australian external territory in the Southern Indian Ocean, dominated by **Big Ben (Mawson Peak)**, Australia's highest active volcano.
 - It along with McDonald Islands form **part of a UNESCO World Heritage Site**.

Gentoo Penguins

- **IUCN Status: Least Concern.**
- **Distribution:** Antarctic Peninsula and sub-Antarctic islands; vagrants recorded in Argentina, New Zealand, and Tasmania.
- **Identification:** White head stripe, bright orange beak, peach-coloured feet; third-largest penguin species.
- **Special feature:** Fastest-swimming penguin; generalist feeder on krill, fish, and squid.

Smooth Coated Otters

Uttarakhand Forest Department has documented the presence of smooth-coated otters in Uttarakhand's Nandhaur Wildlife Sanctuary.

- As **bio-indicators**, otters only inhabit pristine freshwater environments with a robust food chain, indicating healthy and unpolluted environment.

About Smooth-Coated Otters

- **Conservation Status:** IUCN – Vulnerable.
- Listed under **Schedule I of the Wildlife Protection Act (WPA), 1972**.
- **Habitat:** Freshwater rivers, lakes, wetlands, estuaries, and mangrove forests **across South & Southeast Asia**.
- **Distribution (India):** Ranges from the Himalayas to southern India; co-occurs with other otter species in the Western Ghats and Northeast India.
- **Key Features:** Largest Asian otter; smooth short fur; highly social; strong swimmer; mainly fish-eating.

Pangolin

Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) report reveals over 500,000 pangolins were seized globally from 2016 to 2024.

About Pangolins

- They are **only mammals wholly-covered in scales** and use those scales to protect themselves from predators in wild.
 - Scales made of **keratin** (same material as human nails).
- Also called “**scaly anteaters**” due to diet of ants & termites.
- **Key characteristics:** Solitary, primarily nocturnal animals; long, sticky tongues that are longer than their bodies, toothless.
- **Distribution:** 8 pangolin species are found on two continents (Asia and Africa).
- **Two pangolin species found in India:**
 - **Indian Pangolin (IUCN status: Endangered):** Found throughout country, south of Himalayas, excluding north-eastern region.
 - **Chinese Pangolin (IUCN status: Critically Endangered):** Ranges through Assam and eastern Himalayas

Project Cheetah

Eight cheetahs from Botswana will be introduced in Kuno National Park as part of cheetah reintroduction programme named Project Cheetah.

- This is the 3rd batch of African cheetahs brought to India under the **translocation programme** following earlier introductions from Namibia in 2022 and South Africa in 2023.
 - **Asiatic cheetah**, earlier found in India, were **declared extinct** in India in 1952.

About Project Cheetah

- **Genesis:** Launched in 2022, it aims to **translocate African cheetahs** to India.
- It is the **world’s first intercontinental large** wild carnivore translocation initiative.
- **Implementing agency:** National Tiger Conservation Authority (NTCA).
- **Technical Assistance:** Provided by Wildlife Institute of India (WII).

Human-Elephant Conflict

Increasing instances of Human-Elephant Conflict in Jharkhand and West Bengal India holds nearly 60% of the global Asian elephant population and Human–Elephant Conflict (HEC) leads to ~500 human deaths annually.

Triggers for Human–Elephant Conflict

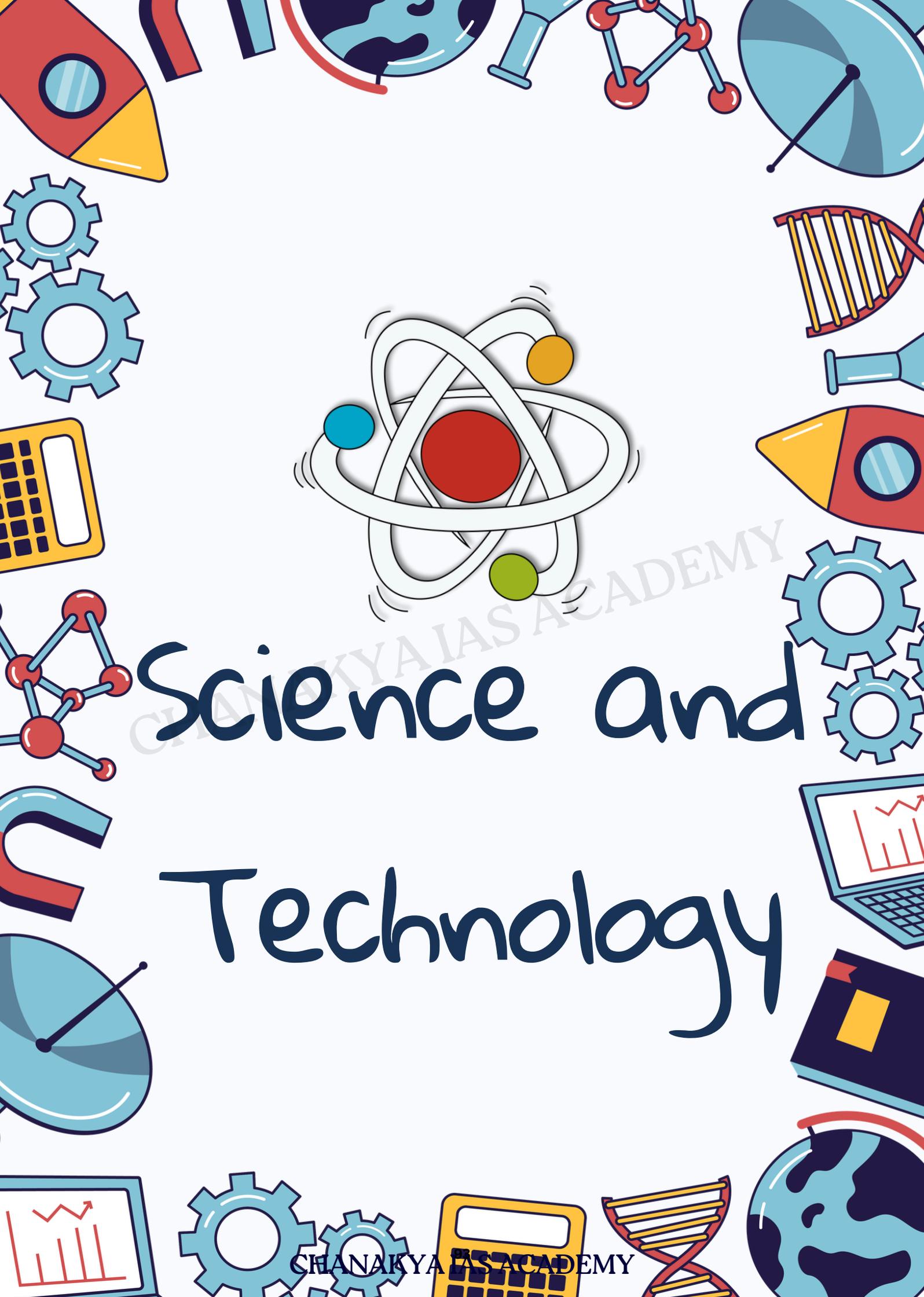
- **Man-Made Triggers**
 - **Habitat Loss and Fragmentation:** Deforestation, expansion of agriculture, human settlements etc. divide elephant habitats, pushing them into human settlements.
 - **Infrastructure Development:** Construction of highways, railway tracks block traditional migratory corridors.
- **Natural Triggers**
 - **Climate Variability:** Like droughts, rising temperatures reduce food and water availability, forcing elephants to move into new areas.
 - **Seasonal Migration Patterns:** Elephants migrate in search of forage and water and its scarcity pushes them into croplands.
 - **Natural Habitat Degradation:** Wildfires, invasive species spread, or ecological changes reduce natural forage availability.

Potential Solutions

- **Landscape-Level Habitat Connectivity:** Secure and legally protect elephant corridors to reconnect fragmented habitats through initiatives like IFAW’s Room to Roam.
- **Early Warning and Technology:** Use SMS alerts, LED warning systems, sensors, GPS collars, and railway detection systems to prevent surprise encounters.
- **Physical and Biological Barriers:** Install solar fencing, trenches, bee-hive fences, chilli deterrents, and bio-fencing to restrict elephant entry into farms.
- **Habitat Improvement Measures:** Enhance forest resources by developing waterholes, borewells, fodder plantations, bamboo restocking, and removing invasive species.
- **Alternative Cropping Patterns:** Encourage cultivation of elephant-unpalatable crops like chilli, citrus, ginger, and onion in vulnerable areas.

INITIATIVES TO MITIGATE HUMAN-ELEPHANT CONFLICT

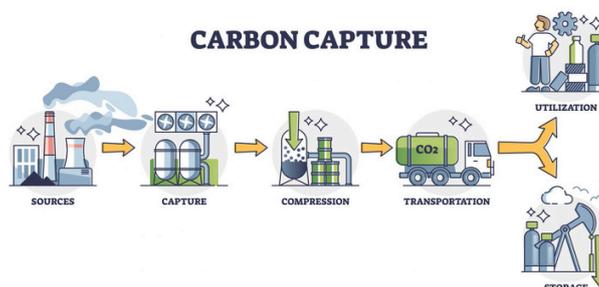
- **Project Elephant (1992):** It is a central scheme to conserve elephants, protect habitats and corridors, and reduce HEC.
- **Behavioural Study:** Study to analyze elephant conflict issues with Wildlife Institute of India, radio collaring of wild elephants in conflict areas, and manual on best practices for HEC management.
- **Regional Action Plan (RAP):** Ministry of Environment, Forest and Climate Change (MoEF&CC) has initiated development of RAP adopting a landscape-level, and multi state approach.



Science and Technology

Carbon Capture Utilization and Storage

Aligning with Department of Science and Technology's CCUS Roadmap 2025, CCUS technologies at scale will achieve higher readiness levels in end-use applications across five industrial sectors, including, power, steel, cement, refineries and chemicals.



About CCUS

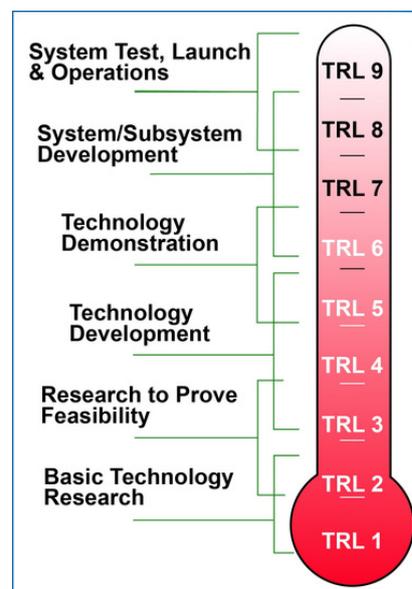
- **CCUS:** CCUS involves the **capture of CO₂**, generally from large point sources like power generation or industrial facilities that use either fossil fuels or biomass as fuel.
 - If not being used on-site, the **captured CO₂ is compressed and transported** to be used in a range of applications, or **injected into deep geological formations** such as depleted oil and gas reservoirs or saline aquifers.
- **Technologies:** Chemical Solvent-based Absorption, Cryogenic Separation, Direct Air Capture, Enhanced Oil Recovery, Bio Energy Carbon Capture and Storage etc.
- **Need:**
 - **Tackling emissions in hard-to-abate sectors**, particularly heavy industries like cement, steel or chemicals.
 - **Enablement of least-cost low-carbon hydrogen production**, which can support decarbonisation of different sectors.
 - **2050 global net zero target** requires at least 1 billion tonnes per year CCUS capacity by 2030.
 - **Making products competitive** in external markets in the wake of carbon-related tariffs like CBAM.
- **Challenges:** Insufficient technological maturity, prohibitive cost along its entire value chain (especially carbon capture), limited testing and scaling of technologies and insufficient funding.

DST'S CCUS ROADMAP

- Phase 1 (2025-2030): Support breakthrough research programs for materials discovery, creation of few critical research facilities, support pilot-scale projects etc.
- Phase 2 (2030-2035): Initiate implementation of hub and cluster model, draft national CCS regulations, accelerate mineralization projects in basalt formations/Deccan Trap, create carbon market linkages etc.
- Phase 3 (2035-2045): Develop two commercial scale CCS hubs in industrial clusters, integrate CCS with India's hydrogen economy initiatives and complete regulatory frameworks for CCS commercialization.

Research, Development and Innovation (RDI) Scheme

First Technology Development Board (TDB) call under RDI Fund focuses on supporting projects at Technology Readiness Level (TRL) 4 and above.



- TRL is a measure of **estimating technology maturity** of core technologies until these technologies, or products utilizing them, attain market readiness.
- Originally **introduced by NASA**, the TRL scale is a metric with nine TRLs for describing the maturity of a technology from **ideation stage (TRL-1)** to **highest degree of application/commercial readiness (TRL-9)**.

About RDI Fund

- **Special Purpose Fund under RDI Scheme** which is a flagship initiative under Department of Science and Technology (DST).
- **Objective:** Accelerating investment in India's RDI ecosystem and support private sector enterprises, startups, and industries working in sunrise and strategic sectors to transform ideas into globally competitive technologies and products.
- **Corpus:** Rs.1 lakh crore over six years.
 - **Mode of Funding** include **Loans** (long tenure collateral free) upto 50% of fund requirement, **Equity participation** upto 25% of assistance sought, and **Debt to Equity Conversion** at a later date.
- **Priority Sectors:**
 - Energy Security, Transition and Climate Change
 - Deep Technology (Quantum, Robotics and Space)
 - Artificial Intelligence for Indian Applications
 - Biotechnology and Medical Technologies
 - Digital Economy and Digital Agriculture

Sodium Ion vs. Lithium Ion Battery

Amid rising EV adoption and energy storage needs, India is rethinking its battery strategy to reduce dependence on lithium-ion technology and strengthen energy security.



Sodium-ion battery vs Lithium Ion Battery

Aspect	Sodium-ion Batteries (SiB)	Lithium-ion Batteries (LiB)
Raw Material	Uses abundant sodium (e.g., soda ash)	Depends on relatively scarce lithium, cobalt, nickel, and graphite
Energy Density	Slightly lower energy density	Higher energy density
Safety	Safer; lower thermal runaway risk; can be stored at zero volts	Higher fire risk; classified as dangerous goods
Supply Chain	Low geopolitical risk; widely available materials	High import dependence; globally concentrated supply chain
Charging Speed & Lifecycle	Charges faster; up to three times higher lifecycle	Slower charging rate; comparatively smaller lifecycle

Zinc Ion Battery

Scientists unlocked a new cathode material enabling Zinc-Ion Batteries for grid storage

About Zinc Ion Battery

- It is a type of **metal-ion battery**, similar in some ways to the widely known lithium-ion batteries.
- **Significance:** Zinc ion battery is comparatively cheaper, more environment friendly and safer as compared to lithium ion battery

Basic Components of batteries

- **Cathode:** Common materials used- Nickel, cobalt, manganese, aluminium etc.
- **Anode:** Common materials used- Graphite, zinc, silicon, lithium etc.
- **Electrolyte:** A solution that facilitates the flow of ions between the anode and cathode.

Technology-driven Border Management

Highlighting modernization of Defence forces, he asserted that advanced tech is essential to achieve the goal of zero infiltration.



merging Challenges to Border Management

- **Use of Technology: Asymmetric Threats** such as surge in **drone** incursions dropping **narcotics and weapons**, particularly in the western sector.
- **Cyber & Electronic Warfare**: E.g. attacks on border surveillance infrastructure and communication networks.
- **Terrain**: Managing **unfenced gaps** in difficult terrain like the **shifting eastern riverine borders** and marshes of Gujarat.

Role of Technology in Border Management

- **Smart Fencing**: Comprehensive Integrated Border Management System (**CIBMS**) to plug gaps where physical fences are not feasible. E.g. **BOLD-QIT** (Border Electronically Dominated QRT Interception Technique) along Bangladesh border.
- **Anti-Drone Systems**: Integration of jamming and detection tech to **counter** aerial threats. E.g. IG T-Shul Pulse Anti-Drone System
 - **V.O. Chidambaranar Port**, Tamil Nadu India's first port to initiate installation of advanced 'Anti-Drone System'.
- **Communication and Data Systems**: Secure satellite and digital communication networks, Real-time command centers and AI-based analytics assist Inter-Agency Coordination.
- **Vibrant Village Programme (VVP)**: To enhance digital and physical connectivity in border villages, turning them into the "first villages" of India.

BORDER MANAGEMENT IN INDIA

- **Scale**: India has a 15,106.7 km land border with seven nations and a coastline of 11,098.89 km.
- **Framework**: The Department of Border Management (Ministry of Home Affairs) operates on the One Border, One Force principle.
- **Forces**: Key agencies include-
 - Border Security Force (BSF) (Pakistan/Bangladesh),
 - Indo-Tibetan Border Police (ITBP) (China),
 - Sashastra Seema Bal (SSB) (Nepal/Bhutan), and
 - Assam Rifles (Myanmar).

National Quantum Mission



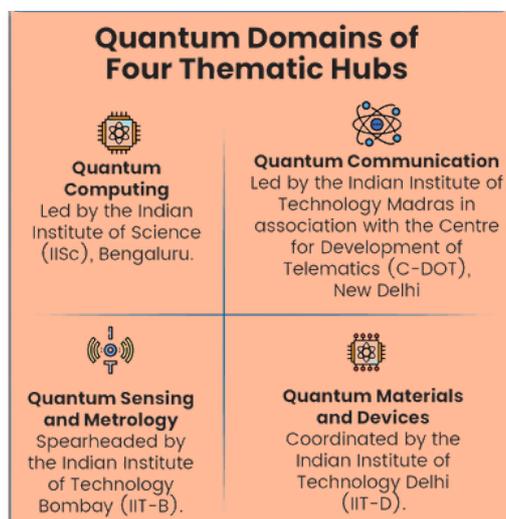
Amaravati is being developed as a major hub for quantum research and innovation, under National Quantum Mission.

About National Quantum Mission (NQM)

- **Aim:** To seed, nurture and scale up scientific and industrial R&D and create a vibrant & innovative ecosystem in Quantum Technology (QT).
 - **Quantum Technology** uses qubits as the basic unit of information instead of binary bits (0 and 1).
- **Budget Allocation:** ~₹6,000 crore (2023–24 to 2030–31)
- **Objectives**
 - **Developing intermediate-scale quantum computers:** With 20-50 physical qubits within 3 years, scaling up to 1,000 qubits within 8 years.
 - **Quantum Communications:** Satellite-based secure communications over 2,000 km and inter-city Quantum Key Distribution (QKD) networks.
 - **Advanced Sensing & Metrology:** Creating high-sensitivity magnetometers and atomic clocks for precision navigation.
 - **Synthesizing next-gen materials:** Like superconductors and topological materials for fabricating qubits.

Significance of NQM

- **Strategic and security Necessity:** Facilitate unhackable quantum encryption and QKD to protect defense, banking, and digital infrastructure.
- **Global Standing:** Positions India among a select group of elite nations with dedicated quantum missions.
- **Sectoral Transformation:**
 - **Healthcare:** Enable precision radiation therapies, faster drug discovery, and personalized medicine.
 - **Economy:** Expected to drive job creation, support startups, and boost India's space economy.



Bharat GenAI

Bharat GenAI will complete text models in all 22 scheduled languages this month as per Union Minister of State (Independent Charge) for Science and Technology.



BharatGen

GenAI for Bharat, by Bharat

- Currently, supports **15 Indian languages**.

About Bharat GenAI

- **First government supported national initiative** to develop a range of sovereign **foundational AI models** tailored to Indian languages and societal contexts.
- Spans multiple modalities, including text (Large Language Models), speech (Text-to-Speech and Automatic Speech Recognition), and vision-language systems.
- **Spearheaded by: IIT Bombay**, with participation from several other institutions.
- **Active Technology Innovation Hubs (TIH):** In **IIT Bombay** and **IIT Madras** under **National Mission on Interdisciplinary Cyber-Physical Systems (NM-ICPS)**.

Agni-III

India successfully test-fires Agni-III intermediate-range ballistic missile from Integrated Test Range in Odisha



About Agni-III

- **Developed by:** Defence Research and Development Organisation (DRDO)
- **Specification:** It is a two-stage, solid-fuelled ballistic missile
- **Range:** >3000 km
- **Warhead:** It is capable of carrying both conventional and nuclear warheads.

CAR-T Cell

A new study has shown a gentler way to recover lab-grown T-cells without damaging them.

About T-cells

- They are **white blood cells that detect infections** and abnormal cells like cancer.
- They either **kill diseased cells directly** or **activate other immune cells**.
- Their precision makes them **central to modern immunotherapy**.

What is CAR T-cell therapy?

- Doctors collect **T-cells from a patient's blood**.
- In the lab, these cells are **genetically modified to carry Chimeric Antigen Receptors (CARs)**.
- CARs act like **targeting systems, helping T-cells recognise cancer cells**.
- The engineered cells are **multiplied and infused back into the patient**.

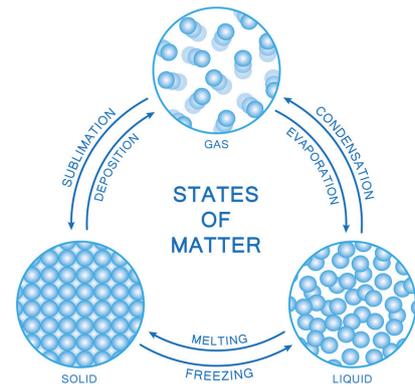
Phases of matter

In a study scientists observed a reversible phase transition from superfluid to supersolid for the first time ever.

- It will help understand quantum phase transitions, explore new states of matter, **advance quantum materials science** etc.

About Phases of matter

- **There are four states of matter:** solid, liquid, gas and plasma.
- **But there are other possibilities such as,**
 - **Superfluid:** A rare quantum state of matter in which a fluid flows without any friction or viscosity.
 - **Supersolids:** Rare and exotic quantum state of matter that behave like a solid and a superfluid at the same time.



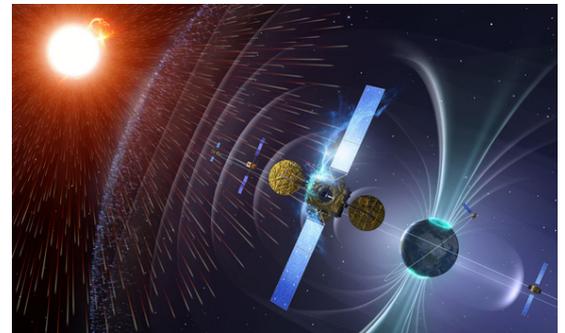
Space Situational Awareness

Indian aerospace firm Azista Space successfully demonstrated "in-orbit snooping" (or "space watch") by capturing images of the International Space Station.

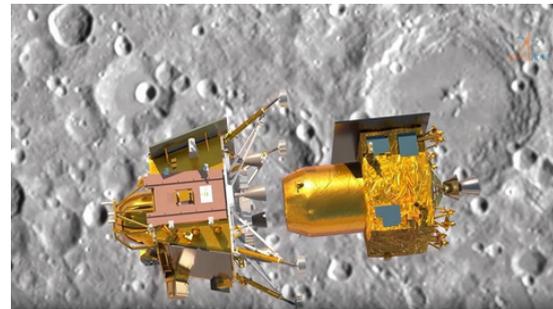
- This strengthens the country's space **situational awareness capabilities**.

About Space Situational Awareness (SSA)

- It is a **comprehensive monitoring, tracking, and prediction** of man-made satellites, space debris, and natural objects (like asteroids) in Earth's orbit.
- **Significance:** Ensure the safety and sustainability of space activities by analysing potential collisions and enabling avoidance maneuvers.
- **Initiatives of ISRO:**
 - Network for space objects TRacking and Analysis (NETRA) project
 - IS4OM (Space Situational Awareness Control Centre) at Bengaluru.



Chandrayaan-4 and Mons Mouton



Chandrayaan-4 Mission identified Mons Mouton, a location on the Moon to land its lander.

- Chandrayaan-4 will be **India's fourth mission** to Moon that will demonstrate taking off from the lunar surface after collecting surface samples, and bringing back the same to the Earth.
- The planned timeline for **Chandrayaan-4 mission** is **2027**.

About Mons Mouton

- Mountain near **Moon's south pole**, known informally as **Leibnitz Beta**, named after NASA mathematician and computer programmer Melba Roy Mouton.
- **Key Features:** Flat-topped spanning almost **100 kilometres** and rises roughly 6000 meters above the surrounding terrain.

Kyasanur Forest Disease

Indian Council of Medical Research (ICMR) initiated human clinical trials towards developing an improved vaccine against KFD.



About KFD

- **Viral Disease** caused by **KFD virus**. First reported in 1957 in **Shimoga District, Karnataka**.
 - **KFD virus** is a member of the genus **flavivirus** and family **Flaviviridae**.
- Found in **Karnataka, Tamil Nadu, Kerala, Goa, and Maharashtra states of India**.
- **Spread to people:** Primarily occurs through tick bites [Hard ticks (*Hemaphysalis spinigera*)] who spread the virus to people and animals like rodents and monkeys.
- **Other Features:** prevalent mainly in the dry season of **November to June**.

Very Short-Range Air Defence System

DRDO conducts successful flight-trials of Very Short-Range Air Defence System



Very Short-Range Air Defence System (VSHORADS)

- VSHORADS is a **Man-Portable Air Defence System (MANPADS)**.
- **Developer:** Indigenously designed by DRDO's Research Centre Imarat.
- **Capability:** Intercepts and destroys high-speed aerial threats at varying ranges and altitudes.
- **Operational Use:** Intended for induction into Indian Army, Navy and Air Force; strengthens layered air defence.

NLST and NLOT

The 2026 Union Budget has sanctioned the establishment of two new telescopes to study the sun and the origins of the universe in Ladakh



About the Two New Telescopes

- **National Large Solar Telescope (NLST):** A 2-metre aperture telescope in Merak (Ladakh) to study solar dynamics, magnetism, and space weather.
 - Once operational, NLST will serve as India's third ground-based solar observatory.
 - Currently, the Kodaikanal Solar Observatory (in Tamil Nadu, established 1899) and the Udaipur Solar Observatory (in Rajasthan, established 1975) are operational.
- **National Large Optical Telescope (NLOT):** A 13.7-metre segmented-mirror telescope in Hanle (Ladakh). It will research exoplanets and the universe's origins using optical-infrared wavelengths.

Lysosomal Storage Disorders

Researchers from 28 institutions across six States and two UTs have compiled India's first government-supported national biobank for Lysosomal Storage Disorders (LSDs).



- **Biobank** is a special facility where biological samples like blood, tissue, or DNA are collected and safely stored along with health information.

About Lysosomal Storage Disorders (LSDs)

- LSDs are a group of **inherited metabolic diseases** arising due to defects in **genes** encoding **lysosomal proteins**.
- LSDs cause a buildup of toxic materials in the body's cells.
- Treatment options are **limited and extremely costly**, with many LSDs having **no cure yet**.

Note: Lysosomes are **membrane-bound organelles**, also called the “suicidal bags” of the cell, contain digestive enzymes to break down waste and recycle cellular components.

Epstein-Barr Virus

Scientists develop promising antibodies to prevent Epstein-Barr infection.



Epstein-Barr Virus (EBV)

- **Type:** Viral infection (Human Herpesvirus-4).
- **Spreads** mainly through **saliva and body fluids**.
- **Common Symptoms:** Fever, sore throat, fatigue, swollen lymph nodes.
- **Complications:** Rarely associated with cancers such as **Burkitt lymphoma** and **nasopharyngeal carcinoma**.
- **Treatment:** No specific vaccine or cure.

India's strategy to democratize AI



Democratization of AI refers to making artificial intelligence accessible, affordable and usable for a wide and diverse set of users.

- It goes beyond access to finished applications. It includes **access to the core building blocks of AI** such as computing power, datasets and model ecosystems.

Key Pillars of AI Democratization

- **Democratizing AI Applications for Public Impact:** Such as Bhashini (Enabling Language Access through AI), Kisan e Mitra for aiding farmers, MausamGPT for disaster management etc.
- **Accessible Data and Models:** The national platform AIKosh serves as a shared resource, offering over 7,500 datasets and 273 reusable models to developers.
- **Affordable Computing Power:** IndiaAI Mission has onboarded over 38,000 high-end GPUs available at a subsidized rate of ₹65 per hour, significantly lower than the global average.
- **Robust Infrastructure & Connectivity:** Widespread AI deployment is supported by 5G services, which now cover 99.9% of districts in India
- **Sustainable Energy:** Recognizing the high energy demands of AI, India has aligned its infrastructure with green energy goals, achieving 50% of installed electricity capacity from non-fossil fuel sources by June 2025.

Steps taken for AI Democratization

REGULATORY AND POLICY ENVIRONMENT: GI CLOUD KNOWN AS MEGHRAJ UNDER DIGITAL INDIA INITIATIVE FOR E-GOVERNANCE, DIGITAL PERSONAL DATA PROTECTION ACT 2023 STRENGTHENS SAFEGUARDS AROUND PERSONAL DATA.

EDUCATION, SKILLING AND AI LITERACY: 5 NATIONAL CENTRES OF EXCELLENCE FOR SKILLING, SKILLING FOR AI READINESS INITIATIVE, YUVAI INITIATIVE, AI COMPETENCY FRAMEWORK ETC.

Anti-microbial Resistance

The Compact, supported by Unified Coalition for AMR Response aims to unlock sustainable financing from both public and private sources to reduce the global AMR deaths, saving more than 100 million lives by 2050.



About AMR

- It occurs when **bacteria, viruses, fungi and parasites** no longer respond to antimicrobial medicines (antibiotics, antivirals, antifungals, etc.) making them ineffective.
- It is a **natural process** that happens over time through genetic changes in pathogens.
 - However, its spread is accelerated by human activity, mainly the **misuse and overuse of antimicrobials**.
- **Status in India:** Around **6 lakh lives** are lost each year due to resistant infections.

 Expansion of Drug-Resistant Microbes	 Transmission of Resistance Genes	 Impact on Human Capital	 Economic Consequences
<p>The growing presence of antimicrobial-resistant organisms weakens our ability to cure routine infections and safely conduct critical medical treatments and surgeries.</p>	<p>The movement of resistance genes among pathogens is fueling a “hidden pandemic,” projected to result in more than 39 million deaths worldwide between 2025 and 2050.</p>	<p>AMR affects quality of life by reducing productivity, disrupting education and employment, and raising healthcare costs.</p>	<p>The transfer of resistant pathogens from animals to humans could impose global losses of up to \$5.2 trillion, according to the World Bank.</p>

Key Initiatives taken to address AMR

- **National Action Plan on AMR 2.0 (2025-2029):** Unified and coordinated effort across the human, animal, agriculture and environmental sectors.
- **First Indigenous Antibiotic, Nafithromycin:** Launched in 2024 ,it is designed to treat both typical and atypical drug-resistant bacteria.
- **National surveillance networks:** Generate annual AMR surveillance reports, with data submitted to the **Global AMR Surveillance System (GLASS)**.
- **Global Initiatives Efforts:**
 - **Global Action Plan (GAP) on AMR** during 2015 World Health Assembly.
 - **United Nations General Assembly High-Level Meeting on AMR, 2024**, to reduce global deaths associated with **bacterial AMRs by 10% by 2030 against the 2019 baseline, etc.**

ISRO Propelling National Development Goals



Indian Space Research Organisation (ISRO) has undertaken a number of projects to aid in National development across various sectors.

Key Development Goals Supported by Space-Based systems

- **Agricultural Development:** CROP (Comprehensive Remote Sensing Observation on Crop Progress); support to schemes like Pradhan Mantri Fasal Bima Yojana (PMFBY); etc.
- **Disaster Management:** Monitoring of Glacial Lakes, Mapping of flood affected area; Lightning Nowcasting; Satellite Integrated landslide Assessment and Alert System, etc.
 - Vessel Communication and Support System (VCSS) under Pradhan Mantri Matsya Sampada Yojana (PMMSY) provides safety-of-life and disaster alerts to fishermen.
- **Climate Monitoring:** Development of GeoAI Framework for Air Quality Monitoring; Quantification of Greenhouse Gas Emission Inventory for Land Use, Land Use Change, etc.
- **Societal Welfare:** Monitoring of the Watershed Development Component – Pradhan Mantri Krishi Sinchayee Yojana (WDC-PMKSY); Monitoring projects under Pradhan Mantri Awas Yojana-Housing For All (Urban), Bhuvan Geoportal providing online remote sensing data services, etc.
- **Defence:** E.g., MOSDAC-IN (Meteorological and Oceanographic Satellite Data Archival Centre – Indian Navy) web-portal providing customised satellite derived weather products.

INDIA'S SPACE PROFILE

- ISRO (Hq: Bengaluru): Formed in 1969 is India's space agency aiming to harvest the benefits of outer space for India and mankind.
 - Major constituent of the Department of Space (DOS).
- Major Fleet: Active operational launch vehicles: Polar Satellite Launch Vehicle (PSLV), Geosynchronous Satellite Launch Vehicle (GSLV), Geosynchronous Satellite Launch Vehicle Mk-III (LVM3); Key Spacecraft Missions: NISAR; Aditya L1; Chandrayaan-3; etc.

AI in Healthcare

Transforming Healthcare Delivery Through Artificial Intelligence (AI)



Role of AI in Healthcare

- **Disease Management and Diagnostics:** AI is extensively used to overcome specialist shortages and enhance screening capabilities.
 - E.g. MadhuNetrAI for diabetes retinal screening
- **Telemedicine and Remote Monitoring:** AI enhances the reach of medical advice to rural and underserved areas.
 - E.g. eSanjeevani CDSS: AI-based differential diagnosis recommendations
- **Public Health Surveillance and Nutrition:** AI systems are deployed to monitor population health and environmental factors.
 - E.g. Media Disease Surveillance (MDS): Early warnings based on AI scans national digital news sources for symptom clusters
- **Administrative Efficiency and Fraud Detection:** AI streamlines healthcare administration and ensures the integrity of government schemes.
 - **Record Management:** Tools like Eka Doc and Sunoh.Ai use AI and Natural Language Processing (NLP) to summarize patient records

Challenges: Algorithmic bias may affect underrepresented populations, digital divide, accuracy and reliability of AI diagnostics, data security, etc.

Health Priority	AI-Based Initiative	How Technology is Applied	Healthcare / System Impact
 Tuberculosis Control	Treatment Risk Forecasting Model	AI systems identify patients who are more likely to experience unsuccessful treatment outcomes at the start of therapy.	Documented reduction of nearly 27% in negative treatment results.
 Indigenous & Traditional Medicine	Ayurgenomics and National AYUSH Digital Platform	Artificial Intelligence analyzes Prakriti (body constitution) patterns and classical Ayurvedic literature to detect disease indicators.	Appreciated internationally as a benchmark for combining AI with traditional medical systems.
 Oncology Services	National Imaging Repository	A centralized database of over 20,000 cancer cases (radiology and pathology records) is being developed to support AI research.	Facilitates development of precise AI tools for early diagnosis and better cancer management.

Quantum-Safe Cryptography

This cutting-edge initiative will enable early detection of cryptographic weaknesses across networks (such as defense, telecommunications, banking, devices, and applications) helping organizations transition proactively to Post-Quantum Cryptography (PQC).



About Automated Tool

- It will generate a **detailed report highlighting quantum-vulnerable algorithms, their purpose, and their exact location** within the device to support informed migration planning toward quantum-safe security.
- **It will comprise of three core modules: Web Application** (for network traffic, vulnerability assessment and quantum risks), **Security Scanner Agent**, and **Control Software**.

About Post-Quantum Cryptography (PQC)

- It is a **set of cryptographic algorithms** that are designed to resist attack by quantum computers, which will be much more powerful than classical computers.
- It aims to **ensure confidential data remains secure** even when extremely powerful quantum computers make current encryption methods obsolete.
- **US' National Institute of Standards and Technology (NIST)** has finalized its initial set of post-quantum cryptographic standards.

What is Quantum Cryptography?

- It is a set of methods that uses the **rules of quantum mechanics** to securely encrypt, transmit, and decode information.
- It employs **quantum devices, such as sensors capable of recording individual particles of light (photons)**, to protect data from an adversarial attack.
- **Types:**
- **Quantum key distribution (QKD):** It is a secure communication method for exchanging encryption keys only known between shared parties.
- **Quantum coin-flipping:** It is a type of cryptographic primitive (something of a building block for algorithms) that allows two parties who do not trust each other to agree on a set of parameters.

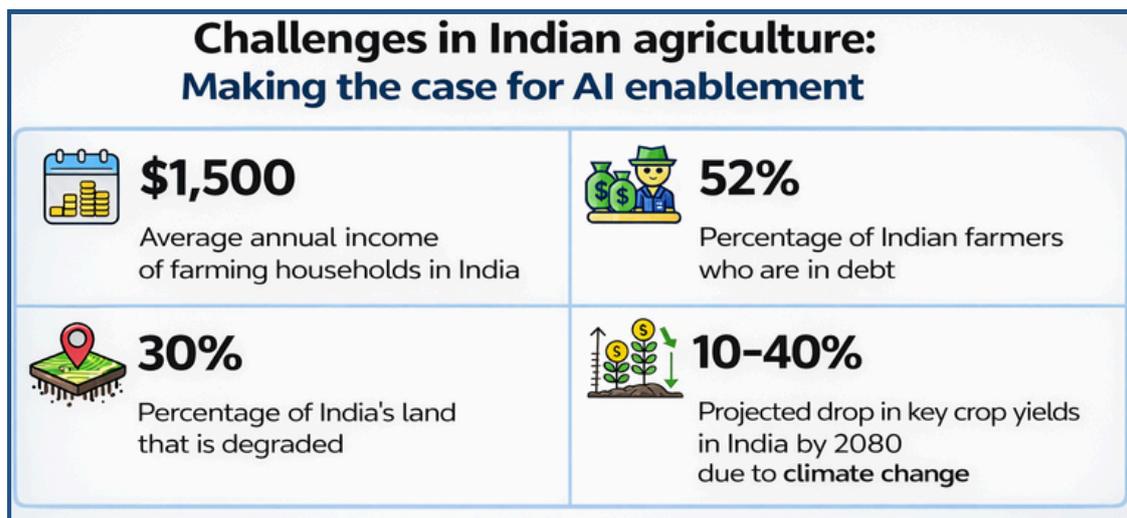
AI in Indian Agriculture

Agriculture is the Cornerstone of Indian Economy offering livelihood to nearly half of India's population and contributing about 18% to GDP.



Key Applications of AI in Agriculture

- **Soil Health Diagnostics:** Using deep learning by analysing signals from **satellite images, drone observations**, etc.
- **Climate-Responsive Crop Monitoring and Advisory Services:** Analyses weather and climate data to predict changing rainfall patterns, temperature variations, etc.
- **Farm Mechanisation Efficiency:** AI-based systems offer round-the-clock surveillance of high-value crops reducing labour dependency, optimised input use, etc.
- **Improving Price Realisation for Farmers:** AI-driven **predictive analytics** leverage large datasets from platforms like e-NAM, AGMARKET, etc., to assess price movements.
- **Enabling Precision Farming:** Transforms data from GPS, sensors, satellites, and drones into actionable farm-level insights, offering **advisory at localised levels**.



Initiatives to promote AI Driven Agriculture

- **Advisory and Decision Support Services:** **Kisan e-Mitra**, a voice-enabled, AI-powered chatbot; **National Pest Surveillance System** for early detection of pest infestations and crop diseases, etc.
- **Data-Driven Governance:** **Digital Agriculture Mission (2024)**, to advance delivery of innovative, farmer-centric digital solutions; **AgriStack** (providing unique digital ID to farmers linked to land records), **Krishi Decision Support System (KDSS)**, etc.
 - Union Budget 2026-27 proposed **Bharat-VISTAAR (Virtually Integrated System to Access Agricultural Resources)** to integrate AgriStack with AI systems.
- **Mapping Soil Profile:** **Nationwide Soil Resource Mapping project**, by Soil and Land Use Survey of India (SLUSI).
- **Crop Insurance:** **Pradhan Mantri Fasal Bima Yojana (PMFBY)**; **YES-TECH** (Yield Estimation System based on Technology); **CROPIC** (Collection of Real-Time Observations and Photographs of Crops); **WINDS** (Weather Information and Network Data System), etc.

AI and Employability



Artificial Intelligence (AI) has now become a widely deployed economic technology and is redefining employability across economic sectors.

How AI is Redefining Employability?

- **Job Replacement:** AI is replacing jobs involving predictable, rule-based tasks (e.g., assembly lines, customer service chatbots, accountants, administrative assistants etc).
- **New Job Opportunities:** New opportunities are arising in technology oriented areas like data scientists, machine learning experts, niche market solutions etc.
- **Qualitative Shift:** Hiring is becoming skills-based particularly in fast-moving technological domains with **wage premium** (e.g., 28% higher wages according to world bank in AI-focused roles).
- **Improved Labour Productivity:** Full adoption of Generative AI will raise the level of labour productivity by around 15%, translating into rise in unemployment rate.

Strategies for Adaptation

- **Focus on Skill Diffusion:** Targeted skill acquisition through shorter, modular trainings.
- **Educational Overhaul:** Move away from static knowledge toward fostering **lifelong learning** with emphasis on adaptability and complex problem solving in curricula.
- **Collaborative Approach:** Clear national commitment involving the government, industry, and educators to align AI adoption with citizen welfare.
- **Democratization:** Policies must support Small and Medium Enterprises (SMEs) in upskilling and ensure access to certification pathways to prevent a digital divide.
- **Ethical Considerations:** Transparency and fairness must be central to employment practices.

KEY INITIATIVES FOR AI ADOPTION

- **Digital Infrastructure:** Expansion and development of data centers, widespread internet connectivity, AI-deployment etc.
- **National Program on AI:** Overarching framework for fostering AI adoption.
- **Skilling Initiatives:** SCAR (Skilling for AI Readiness) Initiative, YUVAi (Youth for Unnati with AI), National Education Policy 2020, and FutureSkills Prime etc.
- **BHASHINI Initiative:** Leveraging AI for 36+ language, enhancing workforce participation, particularly for those in non-English speaking regions.

AI Impact Summit 2026

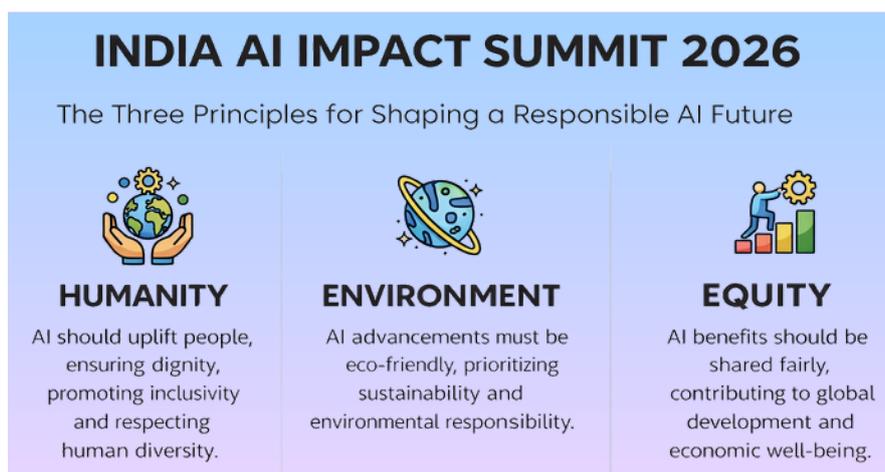


AI
IMPACT
SUMMIT
भारत 2026 INDIA

'India AI Impact Summit 2026' Begins in New Delhi
It is the first multilateral AI gathering to be hosted in the Global South.

Key Features of the Summit

- **Theme:** 'Sarvajana Hitaya, Sarvajana Sukhaya' (welfare for all, happiness for all).
- **Objectives:**
 - To translate global AI deliberations into **actionable development outcomes** under the IndiaAI Mission and the Digital India initiative.
 - To **strengthen global collaboration, promote responsible and ethical AI; accelerate AI adoption and position India as a global hub for AI.**
- **Foundational pillars:** (Refer infographic)
 - **3 Sutras** define how AI can be harnessed for collective benefit.
 - **7 Chakras** represent **key areas of multilateral cooperation** that channel collective efforts towards sustainable societal outcomes.
- **Flagship Events: Global Impact challenges** to identify scalable, development-oriented AI solutions.
 - **AI for ALL:** to identify AI solutions **with potential for large-scale impact** (implemented in partnership with **Startup India**).
 - **AI by HER:** to promote **women-led innovation in AI** (in partnership with NITI Aayog's **Women Entrepreneurship Platform**).
 - **YUVAi:** to **encourage young innovators (13-21 age) to develop AI solutions** (in partnership with MyBharat and the National Institute of Electronics and Information Technology).



Other Multilateral AI forums

- **Global Partnership on AI (GPAI):** Integrated partnership **bringing together OECD members and GPAI countries** to advance **human-centric and trustworthy AI**.
 - It has 29 members and **India is a founding member** (hosted by OECD).
- **UK AI Safety Summit (Bletchley Declaration):** Focused on **managing risks from "Frontier AI,"** this summit established a shared safety understanding among 29 nations and EU, **including India**.
- **G7 Hiroshima AI Process:** A **G7-led initiative to promote guardrails and a code of conduct** for advanced AI systems globally.

Akash Missile System



Defense minister flagged-off Akash 3rd and 4th Regiment Combat systems and inaugurated Mountain Fire Control Radar at Bharat Electronics Limited (BEL) in Bengaluru.

- Mountain Fire Control Radar is part of air-defence fire control radars, specialising in high-altitude operations (thin air and complex topography).

About Akash

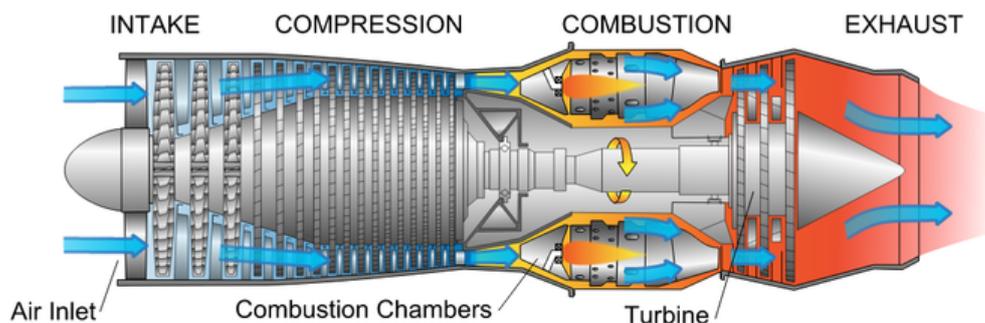
- **Type:** Medium range, surface-to-air missile system which provides air defence.
- **Developed by:** DRDO in collaboration with BEL and Bharat Dynamics Limited.
- **Features:** Can simultaneously engage multiple aerial targets e.g. aircraft, missiles, and unmanned aerial vehicles.
 - Covers upto 18 km in altitude.
 - **Multi-function fire control radar** named **Rajendra**, which has a coverage of 80 km.
 - **3D Central Acquisition Radar** scans the airspace upto 120 km.

Gas Turbine Engine

Minister for Defence reviewed projects of indigenous military gas turbine engine (Kaveri Programme) development at DRDO's Gas Turbine Research Establishment (GTRE) in Bengaluru.

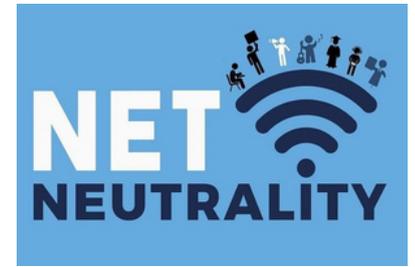
About Gas Turbine Engine

- It is a type of internal combustion engine that converts chemical energy from fuel into thermal energy.
- **How It Works:** The process follows four main steps: intake, compression, combustion, and exhaust.
 - **Compression:** A compressor draws in air and compresses it.
 - **Combustion:** The fuel burns in presence of air and produces high temperature gas.
 - **Power Generation:** Turbine extracts power from the hot gas flow.
 - **Exhaust:** Remaining gas is removed through nozzle.



Net Neutrality

Indian telecom operators are urging the TRAI to update 2016 Net Neutrality Regulations to permit 5G network slicing for premium services.



- **Network Slicing** creates several virtual networks on a single physical infrastructure.
- Each slice works like its own separate network and can have different performance levels regarding speed, latency etc.

About Net Neutrality

- The Principle of Net Neutrality states that internet users should be able to access all content on the internet without being discriminated by Telecom Service Providers (TSPs)
- **Key Components:**
 - All websites or applications should be treated equally by TSPs.
 - All applications should be allowed to be accessed at the same internet speed.
 - All applications should be accessible for the same cost.

PERT

Single genome-editing strategy based on PERT could potentially treat multiple genetic disorders.

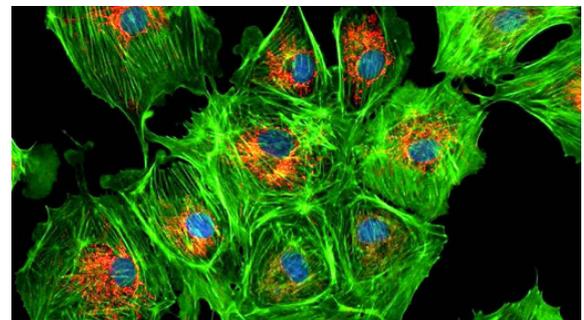


About PERT

- Many genetic diseases happen because of a specific error in DNA called a "nonsense mutation" that forces the cell to stop building a protein too early.
- PERT uses **prime editing** - a precise **CRISPR/Cas9 DNA editing system** with the **power to search and replace genetic sequences at their exact location** in the genome, all without making double-strand breaks in DNA.
- PERT does not edit nonsense mutations but instead makes another edit that equips cells with a tool to produce the normal, functional version of the protein, regardless of which gene is impacted.

Fluorescent Proteins

Two studies show fluorescent proteins can detect magnetic fields and respond to radio waves, acting as quantum sensors.



About Fluorescent Proteins

- **Fluorescent proteins (FPs)** are biological macromolecules, initially derived from organisms like the Aequorea victoria jellyfish and corals, that **emit visible light when exposed to UV or blue light**.
- It revolutionised biology by enabling **visualisation of molecules inside cells**.
- Widely used in cancer research, neural circuit mapping and protein tracking.
 - Traditionally used only as **optical markers**.
- Discovery of **Green Fluorescent Protein (GFP)** recognised with the **2008 Nobel Prize in Chemistry**.

SAHI and BODH Initiatives

Both SAHI and BODH initiatives mark a significant step in India's journey towards building a robust, responsible, and globally competitive health AI ecosystem.

Strategy for Artificial Intelligence in Healthcare for India (SAHI)

- It is the **national framework** to guide the **responsible integration of AI into India's health system**.
- **Vision:** To enable the **safe, ethical, evidence-based, and inclusive adoption** of AI across India's healthcare system.
- It leverages **digital public infrastructure** to expand access, improve outcomes, and establish India as a **global leader** in responsible healthcare AI.
- It **supports ecosystem stakeholders** by providing shared principles, strategic direction, etc.

About Benchmarking Open Data Platform for Health AI (BODH) initiative

- **Developed by:** IIT Kanpur in collaboration with **National Health Authority (NHA)**.
- **Purpose:** It is a **privacy-preserving benchmarking platform** that enables rigorous evaluation of AI models using diverse, real-world health data without sharing underlying datasets.
- It has been positioned as a **digital public good** under the **Ayushman Bharat Digital Mission**.

Core Pillars of SAHI



Enhancing Governance and Safety Standards



Developing Robust Data and Digital Systems



Strengthening Workforce and Institutional Capabilities



Promoting Ethical Innovation and Evidence Generation



Facilitating Ecosystem-level Implementation and Scaling

Other Initiatives for AI in Healthcare

- **Centres of Excellence for Artificial Intelligence:** AIIMS Delhi, PGIMER Chandigarh, and AIIMS Rishikesh lead the development of indigenous AI solutions.
- **Ethical Oversight:** All AI deployment follows the **ICMR Ethical Guidelines (2023)**
- **IndiaAI Application Development Initiative under IndiaAI Mission:** Aims to develop, scale, and promote the adoption of impactful AI solutions designed to tackle significant national challenges.

M.A.N.A.V. Roadmap in AI



At India AI Impact Summit, Prime Minister gave the human-centric vision of AI models in the form of M.A.N.A.V. Framework.

- These principles are to be translated into actionable outcomes across various sectors such as education, healthcare while developing AI models.

About M.A.N.A.V. framework

- **M (Moral and Ethical system):** includes fairness, transparency, and human oversight.
 - E.g. National Education Policy 2020 prioritises digital and AI literacy, ensuring early exposure to data-driven decision-making and ethical AI principles.
- **A (Accountable Governance):** includes transparent rules and robust oversight and clear institutional responsibility.
 - E.g. IndiaAI Mission institutionalises standards for responsible development and monitoring AI systems.
- **N (National Sovereignty):** securing critical datasets, strengthening domestic compute capacity, and fostering indigenous AI model development.
 - E.g. India Semiconductor Mission to reduced import dependence in semiconductors.
- **A (Accessible and Inclusive AI):** AI must serve as a multiplier for society, not a monopoly of a privileged few.
 - E.g. India's Digital Public Infrastructure (such as MeghRaj GI Cloud) is enabling AI solutions to scale affordably across sectors by democratising access to shared computing resources.
- **V (Valid and Legitimate Systems):** AI must include Trust, Safety, and Legality esp. at a time when deepfake pose risk to social trust.
 - E.g. Information Technology (Intermediary Guidelines and Digital Media Ethics Code) Amendment Rules, 2026 formally define synthetically generated content.

RELATED NEWS: NEW DELHI FRONTIER AI IMPACT COMMITMENTS

- Launched by: Minister for Electronics and Information Technology at the India AI Impact Summit.
- About: It is a voluntary framework by leading frontier AI companies and domestic innovators to advance inclusive, responsible, and equitable AI development and deployment, with emphasis on democratizing access, innovation, and benefits for the Global South.
- Outcome: Following two Commitments announced
 - 2nd Commitment (Strengthening Multilingual and Contextual Evaluations): to ensure effectiveness of AI systems across languages, cultures, and real-world use cases.
 - Organizations will collaborate with governments and local ecosystems to develop datasets, benchmarks, and expertise that support evaluation in under-represented languages and cultural contexts.
 - 1st Commitment (Advancing Understanding of Real-World AI Usage): focuses on data-driven analysis of AI use, helping governments design informed strategies on the impact of AI on jobs, skills, productivity, and economic transformation.

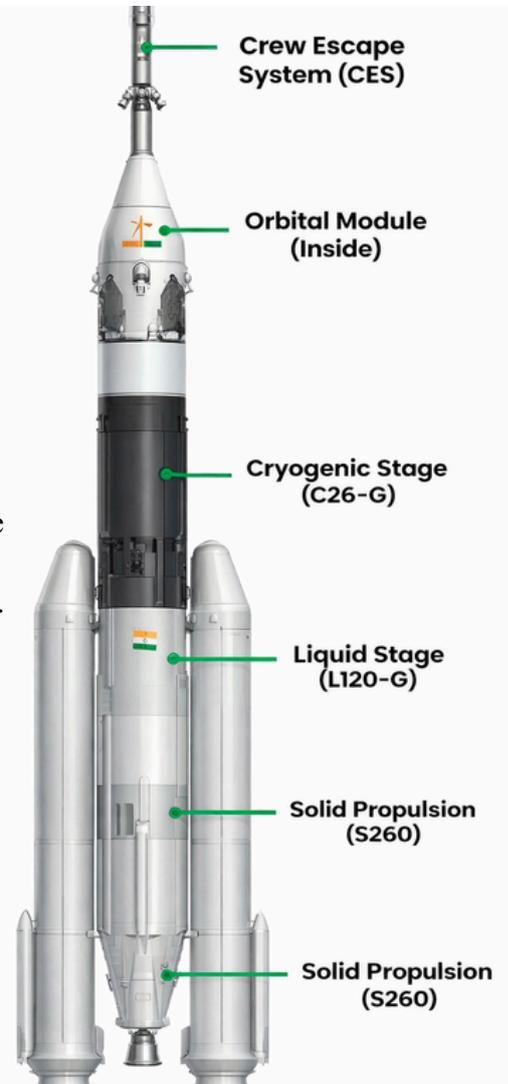
Gaganyaan Mission

Successful qualification test for Gaganyaan Drogue parachute

- The test was conducted by DRDO with the ISRO and Aerial Delivery Research and Development Establishment.
- The test proves India's expertise in designing and manufacturing of **high strength ribbon parachutes**.
 - **Crew Escape System (CES):** CES is a safety mechanism designed to save the astronauts' lives if something goes wrong during launch.

About Gaganyaan Mission

- **Objective:** Demonstration of human spaceflight capability by launching a crew of 3 members to a Low Earth Orbit of 400 km for a 3 days mission and bringing them back safely to earth, by landing in Indian sea waters.
- **Components of the Mission**
- **Human Rated Launch Vehicle (HLVM-3):** Formerly known as the GSLV Mk-III, it is a **three-stage rocket**:
 - **First stage:** Two solid-fuel boosters strapped to the rocket core.
 - **Second stage:** Powered by two liquid-fuelled, clustered Vikas 2 engines.
 - **Third stage:** Equipped with the **CE-20 indigenous cryogenic engine**, using liquid hydrogen and liquid oxygen as fuel and oxidiser, respectively.
- **The Orbital Module:** two main parts
 - **Crew module:** Include environmental control and life support systems (ECLSS), parachutes.
 - **Service module:** An unpressurised bus carrying propulsion, power, thermal radiators, and water and oxygen tanks.



SIGNIFICANCE OF THE GAGANYAAN MISSION FOR INDIA

- **Space Diplomacy:** India will become only the fourth nation (following the US, Russia, and China) to possess an independent human spaceflight capability opening doors for space collaborations.
- **Technological Innovation and Societal Benefits:** The capabilities developed will benefit fields like telecommunications, remote sensing, weather forecasting, agriculture, healthcare etc.
- **Other:** Economic Growth, Employment Creation, pave the way for future endeavors (like Bharatiya Antariksh Station) etc.

Radiation Safety Standards

The US Department of Energy (DOE) announced the elimination of the "As Low As Reasonably Achievable" (ALARA) philosophy from its directives and regulations for global radiation protection.



- This represents a shift to a **risk-informed** approach, **prioritizing operational efficiency and cost-effectiveness**.
- It **risks increasing worker exposure** by removing the mandate to minimize doses below statutory limits.

Foundations of Radiation Protection

The global framework for radiation safety has historically rested on two primary pillars:

- **ALARA**: A core safety principle dictating that radiation exposure should be kept **as low as reasonably achievable**, balancing social and economic factors.
- **LNT (Linear No-Threshold)**: The **scientific model behind ALARA**, which assumes that any radiation dose, no matter how small, carries some cancer risk.

Global Radiation Safety Rules

- **ICRP**: International bodies like the **IAEA** and the International Commission on Radiological Protection (**ICRP**) recommend **optimization principles similar to ALARA** as part of global safety frameworks.
- **IAEA Updates**: The International Atomic Energy Agency (IAEA) plans to update its 2014 Basic Safety Standards based on the new ICRP inputs to ensure universal acceptance of radiation protection practices.
- Most countries use **dose limits plus optimization** to protect workers and the public.

Indian Radiation Safety Rules

- The **Atomic Energy Regulatory Board (AERB)** strictly enforces the ALARA principle **across all nuclear facilities**, aligning fully with ICRP recommendations.
- Indian regulations set **dose limits** (e.g., 20 mSv/year for workers) **but mandate ALARA to keep actual doses far lower**.

Edge Computing

Recently, at India AI summit, Reliance chairperson committed investment to fund nationwide edge computing network.



About Edge Computing

- Edge computing lets devices **process data locally** (on the device or a nearby server).
 - Only essential data is sent to the central data center, thus, **reducing latency**.
 - **E.g.** A security camera in a remote warehouse uses AI to detect suspicious activity and sends only relevant clips to the main data center, instead of streaming footage 24/7.
- **Difference from**
 - **Fog Computing**: Fog computing **stores and processes data between the cloud and edge** when edge devices lack enough computing power.
 - **Cloud computing**: Cloud computing **uses centralized data centers** (more latency).

AI in Rural Development

Artificial Intelligence (AI), Emerging as a foundational driver of Inclusive Rural Development India's dual framework on AI combining national strategy for inclusive growth with robust governance architecture, is particularly suitable for rural and socially sensitive contexts.



How AI helps in Inclusive Rural Development?

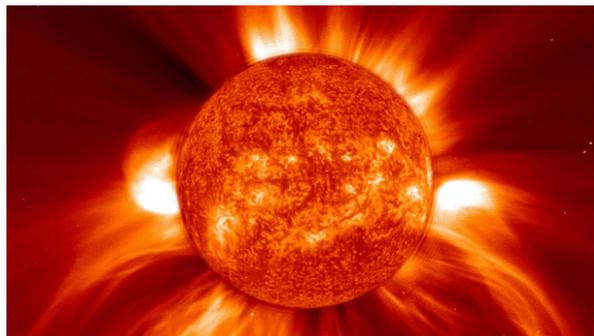
- **Detecting Underserved Villages:** By analysing healthcare, education, and sanitation deficits using Mission Antyodaya data.
- **Predictive Future Planning:** Forecasts future development needs based on population growth and economic activity.
- **Fulfilling Infrastructure Needs:** Identifies villages lacking proper roads using **Pradhan Mantri Gram Sadak Yojana (PMGSY)**, etc.

Key Initiatives Promoting AI for Inclusive Rural Development

- **Decentralised Rural e-governance:** Through tools like **SabhaSaar**, AI-enabled tool that generates minutes of Gram Sabha and Panchayat meetings, digital platforms like **eGram Swaraj** and **Gram Manchitra**, etc.
- **Infrastructure Monitoring:** **BhuPRAHARI** platform for monitoring assets created; **Digital Shram Setu Mission** dealing with informal sector.
- **Sectoral Analysis:**
 - **Agriculture and Food Security:** **Kisan e-Mitra**, a virtual assistant providing information on government schemes; **National Pest Surveillance System**, **Crop Health Monitoring**, **Precision Faming**, etc.
 - **Education:** NCERT's **DIKSHA** platform; **Youth for Unnati and Vikas with AI (YUVAI)** for building foundational socio-technical/AI skills among grades 8-12.
 - **Healthcare:** State-led AI innovations like Madhya Pradesh's **Suman Sakhi WhatsApp Chatbot** for rural women, delivers maternal/newborn health information, etc.
- **Societal Benefits through Multilingual Governance:**
 - **BHASHINI:** AI-enabled language platform offering **translation, speech-to-text, and voice-based interfaces** across more than **36 Indian languages**.
 - **BharatGen:** India's first **government-funded, sovereign, multilingual, and multimodal Large Language Model**.
 - **Adi Vaani:** Addressing communication barriers faced by tribal communities.

Coronal Mass Ejection

Indian scientists observed shock waves triggered by CME
Coronal Mass Ejection (CME) Discovery was made using Gauribidanur radio telescope of Indian Institute of Astrophysics, and Visible Emission Line Coronagraph (VELC) onboard Aditya L1.



- **Gauribidanur** is currently India's only dedicated low-frequency solar radio observatory.

About Coronal Mass Ejection (CME)

- Coronal Mass Ejection is a **massive burst of solar plasma, charged particles (such as electrons and protons) and magnetic fields** ejected from the Sun's **outer atmosphere (Corona)**.
- Fast-moving CMEs **generate shock waves** which can compress Earth's magnetosphere, leading to geomagnetic storms that **disrupt satellites, GPS systems, radio communications, and even power grids**.
 - They can also **intensify auroras and increase radiation risks** for astronauts and high-altitude flights.
- **Origin:** CMEs occur due to **changes in the Sun's magnetic field** in the corona.
 - When twisted magnetic field lines suddenly reconnect, they release huge energy and eject solar material into space.
 - CMEs are **most common during solar maximum** during times when the sunspot cycle is most active.
 - They are often linked to **solar flares (bright flash of light)** but can also occur independently.

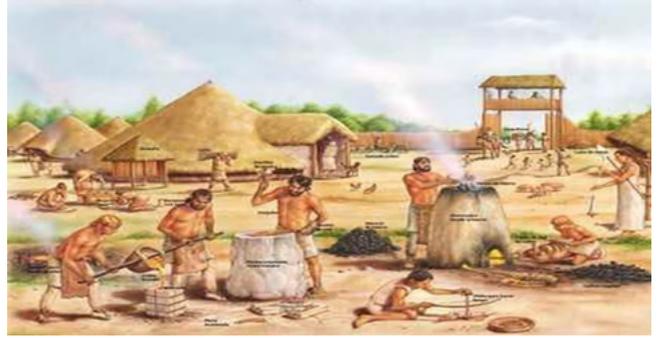
ABOUT ADITYA L1

- It is India's first dedicated solar mission aimed at observing photosphere, chromosphere and the outermost layers of the Sun (the corona) using electromagnetic and particle and magnetic field detectors.
- Launch: 2023 by PSLV-C57.
- Payloads: it has 7 payloads (all indigenously developed).
- Location: Placed in a halo orbit around the Lagrange point 1 (L1) of the Sun-Earth system, about 1.5 million km from the Earth.
 - L1 is a location in space where the gravitational forces of two celestial bodies, such as the Sun and Earth, are in equilibrium.

HISTORY



Neolithic Age (7000 BCE- 2000 BCE)



A team led by a scholar from the US has unearthed a largely intact human burial site from Neolithic and later periods, in Ballari district of Karnataka.

About Neolithic Age

- It was the **final stage of the Stone Age**.
- It was characterized by **stone tools shaped by polishing or grinding, dependence on domesticated plants and animals, settlement in permanent villages**, and the appearance of pottery and weaving.
- Neolithic cultures of India were **contemporary with Harappan, Chalcolithic and microlith-using hunter-gatherers**.
- **Neolithic sites in India:** Kashmir (Burzahom), Vindhyan region of Prayagraj, Mirzapur and the Belan river valley, The area of northern part of Bihar, Central Eastern region, Assam and the sub-Himalayan region, Peninsular India etc.

Tamil Brahmi Script



Researchers have identified inscriptions in Tamil Brahmi script in Valley of the Kings in Egypt belonging to 1st and 3rd Centuries C.E. shedding light on ancient trade links.

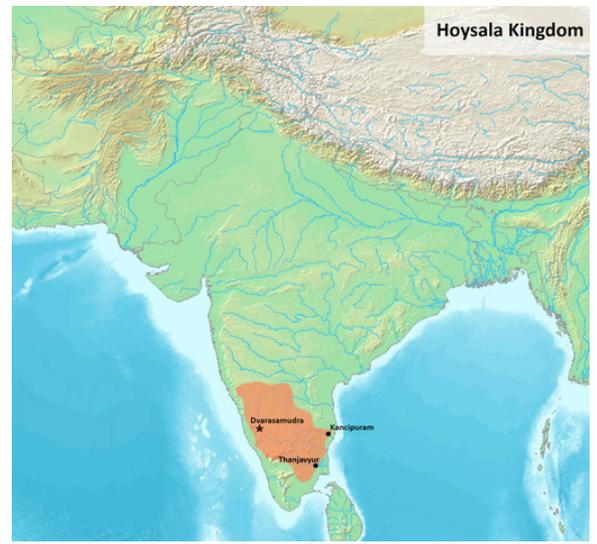
- It mentions names of trader in **Tamil Brahmi script** eg. **Cikai Korran (Crown Leader), Kopan, Catan, Kiran**.
 - Korran is also mentioned in **Sangam literature** where a Chera king is directly addressed as korran.

About Tamil Brahmi Script

- A **variant of Brahmi script** used to write the ancient Tamil inscriptions.
- **Period:** 300 BC and 100 AD.
- **Greatest Work:** Thirukkural.

Hoysala Dynasty

Mandya Inscription Highlights Hoysala–Tamil Connections An inscription engraved on a slab at the Sri Mahalakshmi Temple offers fresh insights into the 12th century, highlighting close ties.



About Hoysala Dynasty (10th to 14th Century)

- **Region:** Parts of Southern Deccan and Kaveri (Cauvery) River valley
- **Capital:** The initial capital was **Belur**, later shifted to **Halebidu** (also known by the name **Dwarasamudra/ Dorasamudra**).
- **Founders:** Nripa Kama II (started as a feudatory of the Western Gangas).
- **Administration:** The kingdom was divided into **Nadus, Kampanas, Vishayas and Deshas** (in descending order).
- **The Sacred Ensembles of Hoysalas in Karnataka,**
 - These were declared as the **42nd UNESCO World Heritage Sites (WHS)**.
 - Includes the temples of **Chennakeshava (Belur), Hoysaleshwara (Halebidu), and Keshava (Somanathapur)**.
- **Hoysala Architecture Style**
 - Followed the hybrid or **Vesara temple style** (Basic blend of **Dravidian and Nagara style**).
 - Show a strong influence of **'Bhumija'**(a variety of North Indian shikhara).
 - **Style:** Followed a **stellate plan** (looking like a star) built on a **raised platform (adhithana)**.
 - **Material used:** **Soapstone**, which is soft and amenable to carving.
 - **Shrine types:** **Ekakuta** (single sanctum), **Dvikuta** (double sanctum), **Trikuta** (triple sanctum) and Rare **Panchakuta** (five shrines)



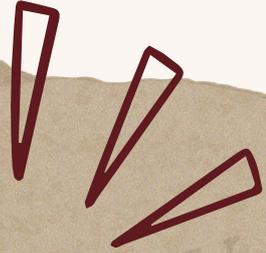
Chennakeshava Temple



Hoysaleshwara Temple



Keshava Temple



OTHER NEWS

CHANAKYA'S ACADEMY



SANKALP Scheme

The Public Accounts Committee flagged weak planning, fund underutilisation, and poor Centre–State coordination in the Skill Acquisition and Knowledge Awareness for Livelihood Promotion scheme



About SANKALP Scheme (2018)

- **Objective:** Improve quality and scale of short-term skill training through institutional strengthening, better market linkages, and inclusion of marginalised groups.
- **Ministry:** Ministry of Skill Development and Entrepreneurship
- It is a World Bank loan assisted scheme

Winter Olympics 2026

The Winter Olympics 2026 (February 6 to 22) have officially concluded.



Key Highlights

- **Locations:** spread across northern Italy, primarily in Milan and Cortina d'Ampezzo.
- **Sports & Events:** 116 medal events across 16 sport disciplines.
- **Medal Table:** Norway (18 gold medals, 41 total) topped, followed by the United States (12 gold, 33 total), and the Netherlands (10 gold, 20 total).
- **New Sports & Events:** Ski mountaineering (skimo) made its Olympic debut with sprint and mixed relay events.
- **Other new medal events:** women's large hill ski jumping, dual moguls in freestyle skiing, and a mixed team relay in skeleton.

Scenarios Towards Viksit Bharat and Net Zero

NITI Aayog has released three study reports on Scenario towards Viksit Bharat and Net Zero focusing on an overall roadmap, macroeconomic implications and financing needs.

- **Viksit Bharat 2047:** Envisions making India a developed country and a **USD 30 trillion** economy by 2047.
- **Net Zero Emission Target:** India has committed to achieving **Net Zero greenhouse gas emissions** by 2070.

Key Macroeconomic Implications

- **GDP Resilience, High Investment Need:** Net Zero has limited long-term GDP impact.
- **Shift to Investment-Led Growth:** Economy structurally rebalances from **consumption-led** to **capital-intensive growth** under Net Zero pathways.
- **Industrial Expansion:** Industry GVA rises to ~33% by 2050 driven by **clean energy** and **manufacturing**.
 - Fossil fuel-based manufacturing is projected to contract.
- **Employment Reallocation:** Jobs shift from fossil fuels to renewables, construction, transport and clean manufacturing, with net employment effects modest.
- **Reduced Import Dependence:** The fuel import bill is projected to drop from 4% of GDP today to 0.2% by 2070

Policy Suggestions

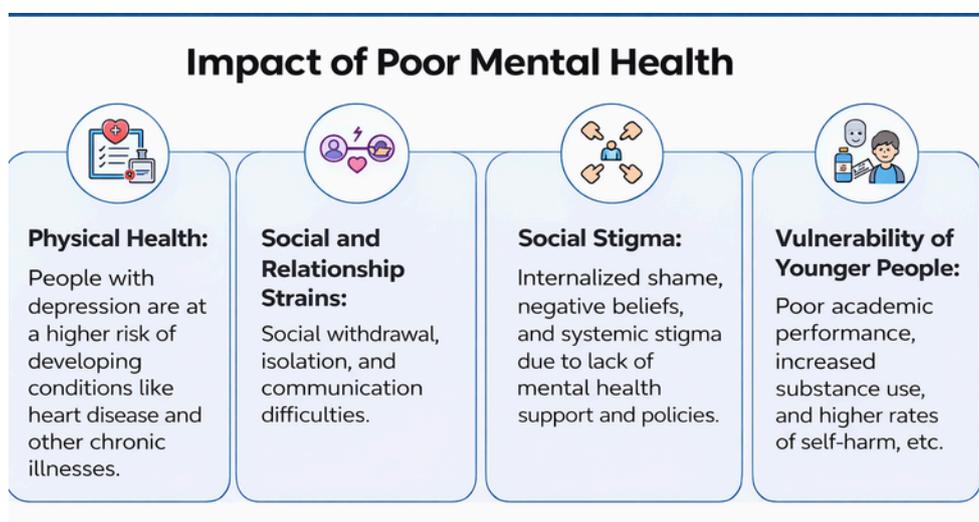
- **Civilisational Sustainability:** Scale traditional low-carbon practices via Mission LiFE, circular economy and efficient design to redefine development around well-being and resilience.
- **Net-Zero Infrastructure Push:** Frontload public investment in grids, urban infra, EVs and logistics, leveraging blended finance and bankable project pipelines.
- **Green Jobs Mission:** Promote labour-intensive green sectors with targeted reskilling and a Green-Digital Skills Stack for future readiness.
- **Green R&D Boost:** Increase public-private R&D to global benchmarks to accelerate clean-tech innovation and deployment.
- **Institutional Strengthening:** Reform DISCOMs and energy institutions, simplify regulations and enable single-window clearances for faster transition.

India's Mental Health Crisis

According to World Health Organisation (WHO), mental health is a state of mental well-being that enables people to cope with stresses of life, realize their abilities, learn well and work.

Mental Health Scenario in India

- **Prevalence: 10.6%** of adults suffer from mental disorders (National Mental Health Survey (NMHS) 2015-16 by NIMHANS).
 - **70% to 92%** of people do not receive proper treatment due to lack of awareness, stigma, and shortage of professionals.
- **Economic loss:** Estimated at **USD 1.03 trillion** between 2012-2030 (WHO).
- **Prevalence of Suicides:** **171,418** suicides were reported in 2023 (National Crime Records Bureau (NCRB)).
- **Rising Digital Addiction:** **Addictive behaviour** linked to digital devices, like smartphones, gaming and social media addiction due to near-universal mobile/internet use (Economic Survey 2025-26).



Key Initiatives on Tackling Mental Health In India

- **NIMHANS Act (2012):** Declares National Institute of Mental Health and Neurosciences (NIMHANS), Bengaluru as an Institute of **National Importance**.
 - **Union Budget 2026-27** provides for setting up of a **NIMHANS-2** & upgrading National Mental Health Institutes in Ranchi and Tezpur.
- **National Suicide Prevention Strategy (NSPS), 2022:** Reduce suicide mortality **by 10% by 2030**.
- **Financial Protection:** Through Ayushman Bharat PM-JAY, mental health conditions are covered under Rs. 5 lakh per family annual insurance.
- **Rights of Persons with Disabilities (RPwD) Act:** Expanded the definition of disability to **include mental illness**.
- **National Tele Mental Health Programme (Tele MANAS):** Free, 24/7 mental health support through a national toll-free helpline.

Besides the above initiatives, emphasis on **“whole-of-community” approach**, integrating **mental well-being** into school curricula, strengthening **workplace policies** to address stress and burnout is needed.

Prime Minister Approves Major Schemes

Prime Minister Approves Major Schemes for Women, Youth and Vulnerable Citizens

Key Decisions Taken

PM RAHAT (Road Accident Holistic Action for Treatment) Scheme launched

- **Purpose:** To prevent deaths due to lack of **immediate medical help** by covering expenses for **accident victims**.
- **Coverage:** Cashless treatment of **up to ₹1.5 lakh**.

Lakhpati Didi Initiative: Target revised

- **Target doubled** to support **6 crore Lakhpati Didis by March 2029**.
- The earlier target of 3 crore Lakhpati Didis achieved ahead of the original March 2027 timeline.
- **About Lakhpati Didi Initiative (2023)**
 - **Objective:** To enable rural SHG women to move out of poverty by diversifying livelihoods through skilling, financial inclusion, market access etc.
 - E.g. running small enterprises or livestock management
 - **Definition:** A Lakhpati Didi is an SHG member with a sustainable annual household income of ₹1,00,000 or more.
 - **Ministry:** **Ministry of Rural Development** (under Deendayal Antyodaya Yojana-National Rural Livelihoods Mission (DAY-NRLM))

Startup India Fund of Funds 2.0 (FFS 2.0) approved with a corpus of ₹10,000 crore

- FFS 2.0 for startups, unveiled in the **Budget 2025-26**, focuses on the manufacturing and high-technology sectors, requiring longer-term funding.
- **About Fund of Funds for Startups (FFS)**
 - Flagship initiative of the **Department for Promotion of Industry and Internal Trade (DPIIT)** under the **Startup India Action Plan**.
 - **Managed by:** **Small Industries Development Bank of India (SIDBI)**
 - It supports **SEBI-registered Alternative Investment Funds (AIFs)**, which in turn invest in startups, expanding access to **domestic risk capital** and strengthening entrepreneurship.

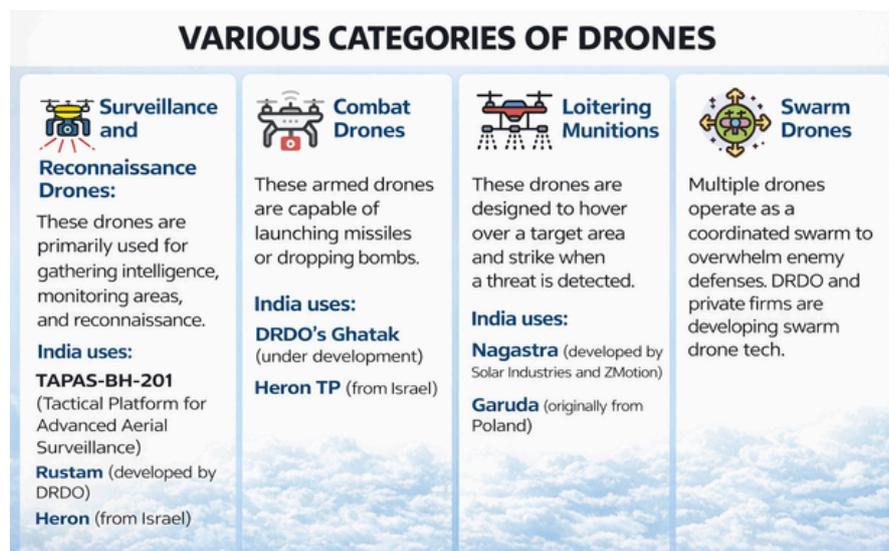
India's Drone Ecosystem

India has transitioned from pilot drone projects to a regulated drone ecosystem with 38,500+ registered drones (Unique Identification Number (UIN)).

- The expanding drone ecosystem is reshaping public service delivery, infrastructure management, agriculture, and national security.

Transformation of Public Service Delivery through Drone Technologies

- **Agriculture & Livelihoods:** Namo Drone Didi Scheme (2023) provides drones to Women SHGs to generate sustainable rural livelihoods.
- **Land Mapping:** SVAMITVA Scheme (2020) uses drones for rural abadi surveys to resolve land disputes and enable property cards, improving access to institutional credit.
- **Highway Monitoring:** NHAI mandates monthly drone-video mapping of highway projects for progress tracking, digital reporting, discrepancy checks, and use as evidence in dispute resolution.
- **Disaster Management:** E.g., North East Centre for Technology Application and Reach (NECTAR) *drones* provide real-time aerial visuals during floods and landslides, aiding rapid assessment, coordinated rescue, and emergency response.
- **Railway Surveillance:** Ministry of Railways deploys UAVs for inspection of tracks, bridges, and hard-to-reach infrastructure, improving maintenance efficiency and safety.
- **Defence Applications:** Drones enable border surveillance, intelligence gathering and precision strikes; integrated with radar and air-defence networks, they enhance **rapid threat detection** and protection of **critical infrastructure** (e.g., Operation Sindoor).



Accelerating Drone Adoption in India

- **Drone Rules, 2021 and Drone (Amendment) Rules 2022 & 2023:** It has significantly liberalised India's drone ecosystem.
 - E.g., Nearly 90% of Indian airspace was declared a Green Zone for drone operations, allowing flights up to 400 feet.
- **Production Linked Incentive (PLI):** PLI scheme for drones and drone components has an approved outlay of ₹120 crore.
- **GST Rationalisation:** GST on drones reduced to 5%, replacing earlier 18% and 28% slabs.
- **Digital Sky, 2018 and eGCA:** The regulatory services such as drone registration, remote pilot certification, Type certification and RPTO authorisation has been migrated from Digital Sky platform to eGCA.
- **Ecosystem Development and Capacity Building through Flagship Programmes:** E.g., National Innovation Challenge for Drone Application and Research (NIDAR) engages students and researchers.

India unveils first anti-terror policy-PRAHAAR

The Ministry of Home Affairs has unveiled 'PRAHAAR', India's new National Counter-Terrorism Policy and Strategy.

- It is driven by a principled policy of 'zero tolerance' against terrorism.
- Counter-Terrorism Strategy (The PRAHAAR Framework)**
- **Prevention of Terror Attacks:** Employs proactive, intelligence-guided approach via **Multi Agency Centre (MAC)** and **Joint Task Force on Intelligence (JTFI)** for real-time sharing.
 - **Response:** Local police as first responders, backed by state/central anti-terror forces and **NSG** (nodal counter-terror force under MHA).
 - NIA and state agencies ensure rigorous investigations and high prosecution rates for deterrence.
 - **Aggregating Capacities:** Includes the modernization of law enforcement agencies and the standardization of uniform anti-terrorism structures across states, supported by specialized training from the **Bureau of Police Research & Development (BPR&D)**.
 - **Human Rights and Rule of Law Based Processes:** The strategy emphasizes that all anti-terrorism laws must protect fundamental human rights and provide multiple levels of legal redressal from district courts up to the Supreme Court.
 - **Attenuating the conditions conducive to Terrorism:** Graded police response for vulnerable youth, engaging community leaders/NGOs/moderate preachers against radicalization.
 - **Aligning and Shaping the International Efforts:** Strengthening multilateral cooperation through **Mutual Legal Assistance Treaties (MLATs)** and Extradition Treaties; **deny safe havens** and **restrict terror funding globally**.
 - **Recovery and Resilience through a whole-of-society approach:** Advocates for public-private partnerships to ensure rapid recovery post-incident.

EVOLVING TERRORISM CHALLENGES FACED BY INDIA

- **State-Sponsored & Global Terrorism:** India faces cross-border state-sponsored threats, plus global groups like Al-Qaeda and ISIS establishing sleeper cells.
- **Crime-Terror Nexus:** Growing convergence between terrorists and organized crime/illegal arms syndicates for logistics, funding, and recruitment.
- **Technological Warfare & Cyber Threats:** Extremists use the internet, messaging, dark web for propaganda, radicalization, crypto-financing.
- **CBRNED Vulnerabilities:** Critical challenge in intercepting access to Chemical, Biological, Radiological, Nuclear, Explosive, and Digital (CBRNED) materials.

