SARAANSH

Monthly Current Affairs

August 2025

- Polity and Governance
- Nation & States
- Economic Scenario
- International Relations
- Environment & Ecology
- Science & Technology
- History, Art & Culture
- Social Issues
- Facts for Prelims

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Polity & Governance

Transformative Reforms for Viksit Bharat@2047

As India prepares to celebrate its **100th year of Independence in 2047,** the **Viksit Bharat@2047** vision aspires to transform the nation into a developed economy of **USD 30 trillion**, powered by transformative reforms across all sectors. The following reforms are imperative for India to realise the vision of Viksit Bharat@2047:

Governance & Bureaucracy Reforms

- **C – Cut the Compliance Burden:** India faces 69,000+ compliances under 1,500+ laws. Outdated processes persist, making a digital, faceless system vital for deregulation.
  - **Regulatory Impact Assessment (RIA)** helps evaluate if policies work on the ground, improves decision-making, and prevents regulatory failures.
- **I – Institutions for Accountability:** Modernise bureaucracy with **lateral entry** and an **independent Civil Services Board** to oversee appointments and transfers, reducing political interference.
  - Strengthen **judiciary with more judges**, faster trials to curb **'Tareek pe Tareek issue'** and tech-enabled contract enforcement.
- **V – Voter & Electoral Reforms:**Focus on voter education to empower citizens against misinformation and manipulation.
  - Also, electoral funding transparency must be enhanced. In the 2024 Lok Sabha elections, candidates spent an average of ₹57.23 lakh each, often from opaque sources, highlighting the need for electoral reforms to improve transparency and fairness.
- **I – Inclusive Cities & Federalism:** Build **liveable cities** with **affordable housing, sanitation, 24x7 utilities, urban green codes.**
  - **Goods and Services Tax (GST)** has demonstrated the strength of Centre–State cooperation, but future reforms need fairer tax sharing and greater state responsibility for fiscal discipline and spending.
- **C – Cyber & Digital Public Infrastructure:** Expand **Digital Public Infrastructure** with AI-enabled governance. Revamp **central know your customer (CKYC)** for universal, real-time, secure financial access.
  - Advance secure, resilient, and citizen-centric digital systems that bridge the divide and drive inclusive growth.

Economic Reforms

- **L – Labour & Land**: Implement **labour codes** and streamline land acquisition to boost formal jobs and investment.
- **I – Inflation Targeting**: Strengthen the **Consumer Price Index (CPI)** basket and improve repo rate transmission for better price stability.
- **B – Banks & Bankruptcy**: Strengthen banking ecosystem for global competitiveness and speed up resolutions under **Insolvency and Bankruptcy Code (IBC).**
- **E – Ease of Doing Business**: Swift implementation of **Jan Vishwas Act, 2023** is needed to decriminalise more minor business offences.
- **R – Research and Development (R&D):** Raise **R&D spending to 2% of GDP** and integrate private players into innovation ecosystems.
- **A – Asset Sales**: Pursue calibrated **disinvestment** and strategic privatisation of loss-making PSUs to unlock capital.
- **T – Tax Reform (GST)**: Simplify GST and gradually expand its ambit to include fuel, alcohol, electricity, and real estate under it.
- **E – Empower Consumers & Investors**: Enhance trust and participation by ensuring transparent markets, stronger protection mechanisms, and efficient redressal systems, thereby driving financial inclusion and sustained investment growth.

Industrial & Manufacturing Reforms

- **M – MSMEs & Markets**: Revive **MSME growth with enhanced credit access,** and provide global listing opportunities for Indian firms via **GIFT IFSC.**
- **A – Atmanirbhar in Defence:** Raise **Defence Spending to 3% of GDP,** scale up domestic production, and foster private–public collaboration to reduce import dependence and position India as a **global hub for defence exports.**
- **D – Deregulation**: Setting up a factory in India requires too much paperwork. A **functional single-window system, integrating state and central approvals** online with strict timelines, is needed.
  - Smaller towns should define their own industrial zones, with simpler zoning laws, to become the next manufacturing hubs.
- **E – Energy & Exports**: Strengthen renewable energy capacity, optimize energy use, and establish dedicated industrial zones for **rare earth metals** with simplified clearances, incentives, and **e-waste recycling for strategic metals to reduce foreign dependence for energy requirements.**

- Promote **International Organisation for Standardisation (ISO)/Bureau of Indian Standards (BIS) certifications** in **high-value exports to enhance acceptance and credibility.**

Agriculture Reforms

- **F – Finance & Fertility:** Improve farm credit access. Replace input subsidies with **direct cash transfers. Boost fertility via irrigation, mechanisation, climate-resilient seed varieties,** and **climate-smart farming.**
  - India can reduce **6–12% post-harvest losses** by investing in cold storage at farms and mandis.
- **A – Agri Markets & Export:** Expand **APMC (agricultural produce market committee)** coverage, **allow private procurement and contract farming.**
  - India can boost agricultural exports to USD 70 billion by focusing on value chains for high-potential items like rice, spices, fruits, and vegetables.
- **R – Rural Livelihoods:** Promote **dairying, poultry, fishing, and beekeeping to diversify incomes.**
  - India should actively pursue an ethanol blending programme to boost farmers' income, making them **'Urjadata' alongside 'Annadata.'**
    - However, **India must balance food and energy security,** as 20% **ethanol blending** diverts grains and sugarcane, risking food shortages.'
- **M – Market & Land Security:** Replace **MSP (Minimum Support Price)** with **comprehensive insurance covering market prices & disasters.**
  - **Ensure clear land ownership titles** via digitalisation and integrate blockchain in **Digital India Land Records Modernization Programme (DILRMP).**

Education Reforms

- **L – Literacy & Learning:** India needs to spend **6% of GDP on public education**, focus on foundational skills, teacher training, and accountability.
- **E – Education Regulation:** Strengthen higher education regulators like th**e University Grants Commission and All India Council for Technical Education** to reduce administrative burdens, **allowing institutions to focus on quality, research, and innovation.**
- **A – Acquire Skills Early:** Integrate vocational training in schools to bridge the gap between academics and industry needs.
- **R – Reach Global Standards: Invite top foreign universities,** aim for **an Indian university in the global top 100**, and improve sports infrastructure in schools.
- **N – Nurture Innovation & Digital Learning:** Digitize curricula, leverage tech in classrooms, encourage private capital in universities, and reform testing mechanisms supported by initiatives like **PARAKH.**

Health Reforms

- **C – Coverage & Care:** Guarantee **Right to Health** with a Universal Health Coverage under **Ayushman Bharat Yojana.**
- **U – Unified Standards:** Mandate **hospital accreditation and enforce clear labelling** of health products for quality, safety, and affordability.
- **R – Records & Rights:** Under the **Ayushman Bharat Health Account (ABHA),** ensure health data ownership, explicit patient consent, digital security, and strong oversight for personal health information.
- **E – Encourage Innovation:** Promote domestic **MedTech start-ups,** support early-stage innovations, and create a **national trauma care grid** for emergency response.

Environment & Sustainability Reforms

- **G – Green Manufacturing & Hydrogen:** Mandate eco-friendly industrial practices, promote **green hydrogen adoption,** and decarbonise key sectors like steel, cement, and metals.
- **R – Renewable Energy & Battery R&D:** Expand **renewable energy capacity,** invest in future battery technology, and reduce dependence on imports for energy storage.
- **E – Emissions & Carbon Trading:** Develop **structured carbon markets,** voluntary crediting mechanisms, and policies to prevent **double counting and fraud.**
- **E – Environmental Protection & Waste Management:** Tackle air pollution by improving district-wise monitoring.
  - Promote **recycling, e-waste management, and create marketplaces for recyclable waste.**
- **N – Nature & Climate-Resilient Urban Planning:** Under the **Smart Cities Mission,** plan climate-resilient **cities as beacons of India's Green Transition** by incentivizing sustainable urban development and linking grants for municipalities to cleanliness and renewable energy adoption.

Infrastructure Reforms

- **T – Transport Modernisation**: Future rail mobility requires investments in **Hyperloop, bullet, and driverless trains,** with policy reforms for fare rationalization and private investment, while maintaining affordability.
  - **Public transport needs efficient bus**, rapid rail, and monorail systems and last-mile connectivity to improve state services.
- **R – Regulate & Rationalise**: Promote **green freight with multimodal hubs** and electric trucks for low-carbon logistics.

- Introduce **single-window vehicle clearances for manufacturing, emissions, and safety approvals.**

- **I – Infrastructure Indexing**: Create a **public district-level infrastructure dashboard** tracking **health, education, transport, civic amenities, and digital assets** to guide policy and ensure equitable development.
- **P – Ports & Logistics**: About 95% of India's trade by volume and 65% by value moves through maritime transport.
  - As India pursues its ambitious target of **10,000 Million Tonnes Per Annum(MTPA)** port capacity by 2047, it requires the development of world-class ports, digitized cargo systems, green freight solutions, and efficient logistics hubs.

Tech & Digital Reforms

- **I – Invest in AI & Emerging Technologies:** Expand India's **domestic AI ecosystem** by building robust public compute infrastructure, chip fabrication facilities, and a sovereign cloud to ensure **technological self-reliance and global competitiveness**
- **D – Digital Rights & Consumer Protection:** Swiftly implement **Digital Personal Data Protection (DPDP) Act, 2023** to give users **control over data, hold companies accountable, and enable secure data transfer, ensuring privacy and trust.**
- **E – Education & Skills for the Future:** Integrate **ethics, arts, climate, and digital civics** into **STEM** to nurture critical thinking and responsible innovation.
- **A – Audits & Ethics in Technology:** Mandate **Tech Impact Assessments for start-ups** and implement **ethical and explainable AI law with bias checks, data consent, and transparency.**
- **S – Security, Crypto & Innovation:** India needs a modern cybersecurity framework ready to tackle **future AI led cyber warfare.**
  - India must set **clear crypto rules on taxation**, compliance, and consumer protection to **boost innovation and global digital economy integration.**

Pradhan Mantri Fasal Bima Yojana

The **PMFBY** has seen major expansion, but states have defaulted on approx. Rs 6,450 crore in claim settlements since FY20, raising concerns over delays and farmer support.

PMFBY

- **About:** Government-sponsored **crop insurance** scheme launched by the **Ministry of Agriculture & Farmers Welfare**. It aims to provide financial support to farmers in the event of crop loss due to natural calamities, pests, or diseases and to stabilize their income.
- **Premium:** Farmers pay 2% (Kharif), 1.5% (Rabi), 5% (commercial crops); balance shared between Centre–States (50:50, NE States 90:10).
- **Coverage & Benefits**: Losses from disasters, pests, diseases, post-harvest events; claims settled within 2 months; tech tools (satellite, drones) for faster assessment.
- **Scale**: Voluntary for all; claims paid ₹1.78 lakh crore so far; awareness drives (*Fasal Bima Saptah*, *Meri Policy Mere Haath*).

Challenges Affecting the Implementation of PMFBY

- **Large-Scale State Defaults**: States like Andhra Pradesh, Rajasthan, and MP have delayed their premium contributions that impacted the timely settlement of farmer claims and eroded trust.
- **Delayed Payouts**: delays in receiving claims undermines the scheme's core objective of timely risk mitigation.

- **Assessment Bottlenecks**: Manual and outdated crop loss assessment methods.
- **Limited Private Sector Confidence**: Repeated payment delays and high claim ratios deterred insurance companies.
- **Disparity in Enrollment:** Categories like **tenant (6.5%) and marginal (17.6%)** farmers remain underrepresented compared to **loanee farmers (48%).**

Measures to be Introduced to Improve PMFBY

- **Digital Reforms: National Crop Insurance Portal (NCIP)** developed as a single platform for farmer enrolment, claim tracking, and DBT.
  - **Digiclaim Module** integrates NCIP with PFMS and insurers' systems to ensure timely, transparent claim processing. A 12% penalty is auto-imposed on insurers for claim delays from Kharif 2024 onwards.
  - **Crop Cutting Experiments (CCEs)-Agri App** captures crop cutting experiment data, directly uploaded to the **NCIP**.
  - **YES-TECH** (Yield Estimation System Based on Technology), which uses **remote sensing to estimate crop yields more accurately.**
    - From Kharif 2023, YES-TECH became mandatory for paddy and wheat. Soybean was added in Kharif 2024.
  - **WINDS (Weather Information Network and Data System)** expanded the network of **weather stations** and rain gauges at Gram Panchayat and block level to support yield estimation, drought management, and better insurance products.
- **Escrow-Based Advance Premium System**: States must deposit their share of premiums in **escrow accounts** to ensure timely fund availability.
- **Proportional Claim Disbursal**: The **Centre's premium subsidy is delinked** from **state contributions**.

Veer Parivar Sahayata Yojana 2025

It is a nationwide legal aid scheme launched by the National Legal Services Authority (NALSA).

NALSA

- Statutory body established in 1995 under the Legal Services Authorities Act, 1987
- **Role:** Monitors and evaluates legal aid programs and ensures legal services
- **Beneficiaries (as per Section 12 of the Act):** Women, children, SC, ST, EWS, Industrial Workers, Persons with Disabilities, and Transgender Individuals.

Pradhan Mantri Kisan Sampada Yojana

Recently, Rs 6,520 crore has been approved for the 15th FC Cycle (2021–22 to 2025–26), including an additional Rs 1,920 crore for food processing infrastructure and safety.

Key Approvals

- **50 Multi-product Food Irradiation Units** under Integrated Cold Chain and Value Addition Infrastructure (ICCVAI).
- **100 NABL-accredited Food Testing Labs (FTLs)** under Food Safety and Quality Assurance Infrastructure (FSQAI).

Key Features of PMKSY

- **Objective:** Create modern infrastructure for efficient farm-to-retail supply chain management.
- Major Components:
  - Mega Food Parks
  - Integrated Cold Chain & Value Addition Infrastructure (ICCVAI)
  - Agro-Processing Cluster Infrastructure
  - Backward & Forward Linkages Creation
  - Expansion of Food Processing & Preservation
  - Food Safety & Quality Assurance Infrastructure (FSQAI)
  - Human Resource Development & Institutions

PMUY Subsidy Extension

The Union Cabinet has approved to continuation the LPG subsidy under **PMUY** for FY 2025-26, offering Rs 300 per 14.2-kg cylinder (up to 9 refills per year via **Pratyaksh Hastantarit Labh (PAHAL)** DBT scheme).

Pradhan Mantri Ujjwala Yojana (PMUY)

- **Launch: 2016** (Ministry of Petroleum and Natural Gas)
- **Objective:** To provide clean cooking fuel (LPG) to rural and disadvantaged households
- **Ujjwala 2.0:** Allows migrant families to obtain LPG connections by self-declaration (rather than address proof or ration cards)
- **Eligibility – women aged 18+ belonging to:**
  - Households without LPG connections,

- SC/ST categories, PM Awas Yojana – Gramin, Most Backward Classes, AAY, tribal groups, forest dwellers, island residents
- SECC-listed households, or other poor families

- **Achievements (till July 2025):**
  - 10.33 crore+ PMUY connections nationwide
  - Average per capita LPG consumption ↑ by 49% (2019-24)

130th Constitution (Amendment) Bill, 2025

The Central Government has introduced the **130th Constitution (Amendment) Bill, 2025** in the Lok Sabha to remove central and state Ministers arrested for 30 consecutive days on **serious criminal charges.**

Provisions of the Bill

- **Amendments:** The Bill proposes amendments to **Articles 75, 164, and 239AA** of the Constitution, which deal with the **Union Council of Ministers, Council of Ministers in the states, and Ministers in Union Territories respectively.**
- **Key clause:** If a Minister remains in custody for **30 consecutive days**, the **Prime Minister or Chief Minister** must advise their removal by the 31st day; otherwise, the Minister ceases to hold office from the day thereafter.
  - At the central level, the **President** acts on the Prime Minister's advice; at the state level, **the Governor acts** on the Chief Minister's advice; and in Delhi, the President acts on the Chief Minister's advice.
  - If the **Prime Minister or a Chief Minister (including Delhi)** is in custody for 30 consecutive days, they must resign by the 31st day or automatically cease to hold office from the day thereafter.
  - Removal is reversible upon release from custody.
- **Objective:** Uphold **constitutional morality and good governance**, ensuring ministers under serious allegations **cannot continue in office** and maintain **public trust**.

Current Legal Framework for Removing Detained Ministers from Office

- There is **no automatic removal** of a Minister upon arrest. Under **Section 8 of the Representation of the People Act, 1951 (RPA)**, legislators (including Ministers) are **disqualified only after conviction** for certain offences with **imprisonment of two years or more**.
  - Under **Section 8(1) of the RPA, 1951**, a legislator convicted under the **Prevention of Corruption Act, 1988,** is disqualified for six years if punished with a fine.
    - ❖ If sentenced to imprisonment, disqualification lasts for the entire imprisonment period plus six years after release.
  - Ministers are subject to the same qualifications as legislators, though their duties differ.
- The **presumption of innocence** applies until conviction; mere arrest does not trigger removal.

Key Judicial Pronouncements Regarding Ministerial Accountability

- **Public Interest Foundation PIL (2018):** The Supreme Court held it **cannot legislate or add new grounds** for disqualification beyond Parliament's provisions. Parliament alone has the power to make laws on disqualification.
  - SC recommended a strong law requiring political parties to revoke membership and deny tickets to those charged with heinous offences.
- **Manoj Narula v Union of India (2014):** The Supreme Court ruled there is **no legal bar on appointing Ministers** with criminal antecedents but advised the **Prime Minister** to avoid selecting those charged with serious or heinous offences.
- **V Senthil Balaji Case:** In 2025, the Supreme Court directed Tamil Nadu Minister V. Senthil Balaji to choose between **freedom or office** after noting it had been misled by his reappointment post-bail, which was granted in the alleged cash-for-jobs scam.
  - He subsequently stepped down from office, and his bail continued.
- **Arvind Kejriwal Case (2024):** The SC granted Arvind Kejriwal bail in the liquor policy money laundering case, **barred him from official duties, could not compel resignation**, but he later voluntarily resigned from office.

Need for a New Provision for the Removal of Detained Ministers

- **Tackling Criminalisation of Politics:** Many elected representatives have pending criminal cases. Current laws only disqualify them **after conviction**, allowing accused Ministers to continue in office for years, eroding public trust.
  - The Association for Democratic Reforms (ADR) 2025 report on MLAs reveals that 45% of the legislators analyzed have **declared criminal cases**, with 29% facing serious charges such as **murder, kidnapping, and crimes against women.**
- **Strengthening Accountability of Ministers:** Ministers hold **executive power** and can influence investigations.
  - Judicial processes in India are slow. By the time a conviction is reached, Ministers may have served long terms while under investigation, defeating the purpose of accountability.
  - A mechanism is needed to ensure that those **detained for serious offences** cannot continue in office unchecked.
- **Enhancing Public Confidence in Governance:** Ensuring that Ministers facing serious charges are **temporarily removed**

protects the integrity of government and reassures citizens about ethical governance.

Measures Needed for Strengthening Ministerial Accountability

- **Strengthen Legal and Constitutional Provisions:** Introduce clear rules for removal or suspension of Ministers facing serious criminal charges, even during investigation or detention.
  - **170th Law Commission Report (1999)** proposed disqualification of legislators when **charges are framed** for offences punishable by up to **five years' imprisonment**, for **five years or until acquittal**, whichever is earlier.
    - ❖ The Election Commission (2004) and Law Commission's **244th report (2014)** supported this approach.
  - **244th Law Commission Report (2014)** proposed disqualification should occur **when charges are framed by a court**, indicating **prima facie judicial satisfaction** of sufficient material for trial.
- **Transparent Appointment Process:** Ensure that political parties exercise **due diligence when selecting Ministers,** avoiding candidates with criminal antecedents.
  - Implement guidelines for the Prime Minister and Chief Ministers to prioritize integrity in ministerial appointments.
- **Parliamentary Oversight:** Strengthen the role of committees and ethics panels to monitor Ministers' conduct. Mandate periodic disclosures of assets, liabilities, and pending cases to Parliament for scrutiny.
- **Ethical Governance and Codes of Conduct:** Implement a binding ministerial code of conduct emphasizing transparency, integrity, and service to the public.
  - Encourage political parties to adopt internal accountability mechanisms and enforce ethical standards.

Transforming India's Electoral Landscape

The Election Commission of India (ECI) has undertaken several initiatives to streamline the electoral process, enhance transparency, strengthen voter participation, and uphold the credibility of India's democratic framework.

Key Reforms Undertaken to Strengthen India's Electoral Process

- **Electoral Roll Management**: The **Election Commission** has identified **476 inactive Registered Unrecognised Political Parties (RUPPs)** for **delisting**, ensuring that the **list of political parties** remains **accurate and up-to-date**.
  - **Electoral rolls** were **revised** ahead of **by-elections** in **four states** through a **special summary revision**, marking the **first such exercise in two decades**.
  - Also, a **special intensive revision** of the **electoral roll in Bihar** was carried out to ensure that **no eligible voter is left out** and **no ineligible names remain**.
  - **Duplicate EPIC (voter) cards** were **eliminated nationwide**, giving each voter a **unique identification number** and **reducing errors** in **voter lists**.
- **Technology-Driven Transparency and Monitoring**: The **Election Commission** launched **ECINET**, a **one-stop digital platform**, which brings together over **40 applications and websites** used by **electors, voters, election officials, and political parties**.
  - **Digital index cards** and **reports** were introduced to make **election-related data** more **accessible** at the **constituency level**, supporting **informed decision-making**.
  - **100% webcasting of polling stations** was implemented to **monitor key activities** and ensure that the **polling process** is conducted **smoothly and without violations**.
- **Booth-Level Improvements**: **Standard photo ID cards** were issued to **Booth Level Officers (BLOs)** to improve **field-level transparency** and enhance **public trust** in the **election process**.
  - **Polling stations** were **limited to 1,200 voters each**, reducing **crowding**, **shortening queues**, and allowing **additional booths** in **high-rise residential complexes and societies**.
- **Voter Verification and Accuracy**: **Mandatory VVPAT slip counting** was enforced in cases of **mismatch** between **Form 17C (account of votes recorded at a polling station)** and **EVM data**, and wherever **mock poll data** was **not erased**, to ensure the **accuracy and credibility** of **vote counting.**

Major Challenges Confronting India's Electoral Process

- **Escalating Election Expenditure:** The **gap between actual expenses** incurred in elections and the **legally permitted limit** is widening.
  - Candidates and parties often overshoot spending ceilings, leading to underreporting and shadow financing.
  - This fuels **corruption** and contributes to the **generation of black money**.
- **Criminalisation of Politics:** Many **criminal-background candidates** contest and win, as the **politician-criminal nexus** thrives on funds and muscle power.
  - In the 2024 Lok Sabha elections, **251 of 543 newly elected MPs (46%)** face **criminal cases**.
- **Voter Disenfranchisement and Turnout Issues:** Despite **robust machinery**, challenges like **bogus voting**, **missing names in electoral rolls**, and **low urban turnout** persist.
  - **Internal migrants**, the **elderly**, and **differently-abled citizens** face **barriers** to exercising their **democratic rights**, weakening **inclusivity**.

ELECTORAL REFORMS IN INDIA

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

Electoral Reforms Before 1996

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

Electoral Reforms of 1996

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

Electoral Reforms After 1996

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

Electoral Reforms Since 2010

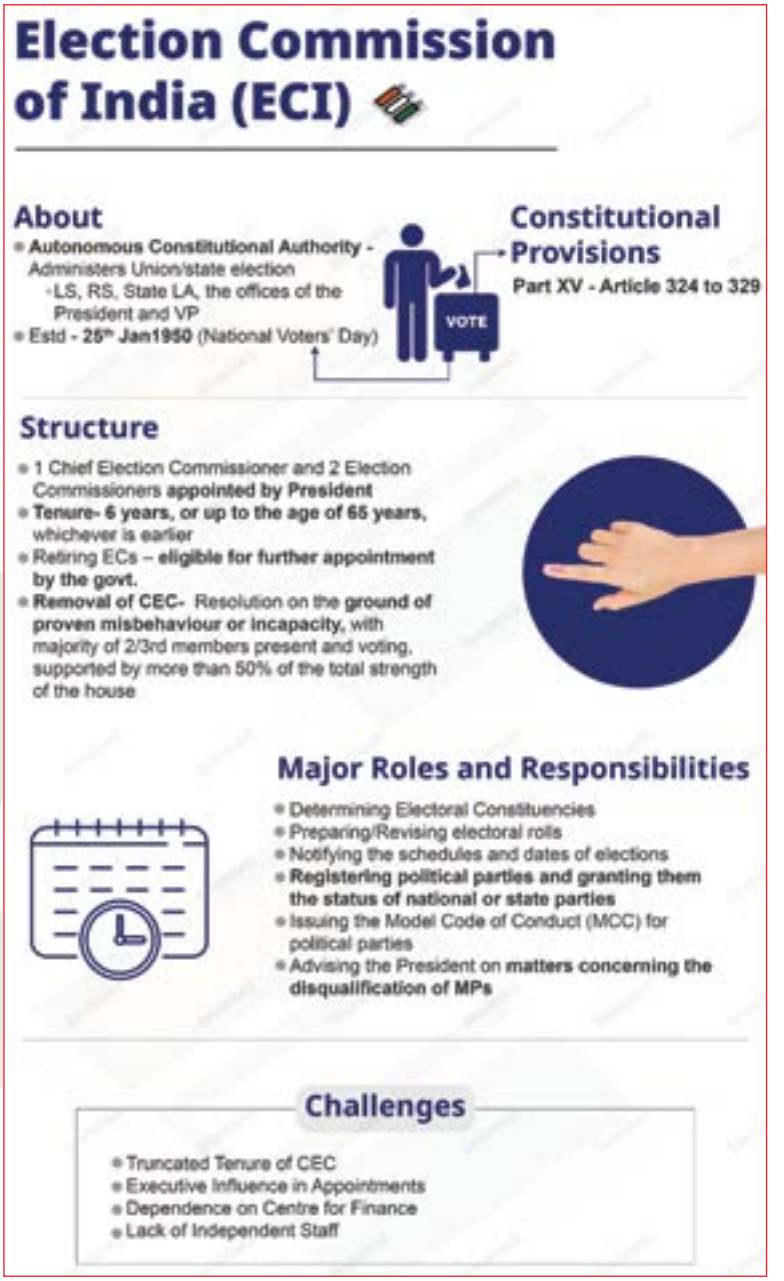
- **Voting Rights to Indian Citizens Living Abroad (2010)**
- **Online Enrollment in Electoral Roll (2013)**
- **Introduction of NOTA option (2014)**
- **VVPAT Voter Verified Paper Audit Trail (2013):** Introduction of VVPAT with EVMs to conduct free and fair elections
- **Photos of Candidates on EVMs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

IMPORTANT COMMITTEES/ COMMISSION

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

Drishti IAS

- **Freebie Politics and Populist Promises:** The growing culture of **unsustainable freebies** during **elections** undermines **fiscal discipline** and **responsible governance**.
  - **Voters** are swayed by **short-term gains** rather than **long-term developmental agendas**.
  - **Absence of clear guidelines** makes it difficult to distinguish between **welfare schemes** and **fiscal populism**.
- **Electoral Violence and Booth-Level Vulnerabilities: Electoral Violence** and **Booth-Level Vulnerabilities**: Though reduced, **sporadic violence**, **intimidation of voters**, and **disclosure of booth-level voting patterns** still occur.
  - **Weak booth management** in **sensitive constituencies** undermines **free and fair elections**.
  - **Absence of totalizer machines** further exposes communities to **post-poll reprisals**.
- **Technological and Cyber Threats:** The emergence of **deepfakes**, **misinformation**, and **algorithm-driven manipulation** on **social media** poses a **new-age threat** to **electoral integrity**.
- **Electoral Roll Manipulation: Electoral roll manipulation** allegations and **duplicate EPIC numbers** across states undermine voter list credibility and public trust.
- **Lack of Inner-Party Democracy: Political parties** continue to function in a highly **centralised** and **opaque** manner with **dynastic dominance**, lack of **transparent candidate selection**, and **weak accountability**.
  - This contradicts the **democratic ethos** and restricts **genuine leadership** from emerging.



Steps Required to Strengthen India's Electoral Framework

- **Electoral Finance Reform**: Introduce partial state funding (as suggested by the **2nd ARC**) with reimbursement of legitimate expenses, mandatory **digital disclosure of donations above a threshold**, regulation of **anonymous corporate funding**, stronger **CAG/ECI audits**, and a **public election expenditure portal** to curb money power and enhance voter trust.
  - Also, the idea of bringing political parties under **Right to Information Act, 2005** should be explored.
- **Promoting Inner Party Democracy**: Political parties are the backbone of democracy, yet most function as closed, family-controlled units.
  - The law must mandate **regular internal elections, transparent candidate selection processes, and audited party constitutions.**
  - Also, the **1999 Law Commission Report** recommended a **regulatory framework** for **inner party democracy**.
- **Regulating Digital Campaigns & Deepfakes:** Mandate **traceable disclosure labels** on all political ads (sponsor, funding, geo-targeting).
  - Establish a **National Deepfake Detection Cell** (with IITs & CERT-In) to scan social media in real time.

- Enforce **strict takedown protocols** with penalties for non-compliant platforms. Launch **voter literacy drives** to counter algorithmic bias, deepfakes, and misinformation.

- **Strengthening the ECI:** Election Commission must enjoy financial autonomy, with its budget charged to the Consolidated Fund of India.
  - **Regional EC cells with permanent staff** can ensure robust monitoring across India's vast constituencies.
  - **Regular performance audits** of electoral processes by parliamentary committees would **enhance credibility** and **strengthen the ECI** as guardian of free and fair elections.
  - **ECI** should establish a **permanent, independent cadre of officers** to ensure **autonomy and impartiality**, reduce **dependence on central/state governments**, eliminate **conflict of interest**, and protect the **sanctity of the electoral process.**
- **Electoral Process Reforms:** Expand use of **totalizer machines** nationwide to mix votes across booths, preventing disclosure of booth-level patterns.
  - Ensure **uniform electoral rolls**, stricter adherence to the **Model Code of Conduct**, and **cap campaign duration** to maintain a level playing field and boost voter confidence.
- **Towards Simultaneous & Sustainable Elections:** Pilot **One Nation, One Election** at local/state levels. Implement a **permanent national electoral roll** and **common voter ID** to reduce duplication.
  - Redirect savings from simultaneous polls to governance, and gradually introduce a **fixed electoral calendar** for cost-efficient, time-efficient, and governance-friendly elections.

Fast Track Special Courts

The **Fast Track Special Courts (FTSCs)** in **Delhi**, established under the **FTSCs Scheme 2019** for speedy trial of **rape** and **child sexual abuse** cases, have disposed of only around **43%** of cases as of **June 2025**.

- This is **significant** as the **slow disposal rate undermines public confidence (despite dedicated mechanisms)** in the justice system's ability to swiftly address crimes of such severity.

About Fast Track Special Courts Scheme

- **About:** It is a **Centrally Sponsored Scheme** under the **Ministry of Law & Justice** aimed at setting up **FTSCs** through the **Nirbhaya Fund**.
  - Under the scheme, **each FTSC** is tasked with disposing of **at least 165 cases annually.**
  - The scheme has been **extended twice**, with the latest extension valid **until 31st March 2026**, aiming to establish **790 FTSCs.**
- **Need of FTSCs:**
  - **Case Backlogs:** Alarmed by the **large backlog of rape and POCSO cases**, the **Supreme Court** in **July 2019** directed districts with **over 100 pending POCSO cases** to establish **exclusive special courts**.
  - **Timely Justice:** The **POCSO Act, 2012** mandates **Special Courts** to conclude trials within **one year** from the date of taking **cognizance of the offence**.
  - **Deterrence:** Harsh punishment can deter crime, but its effectiveness relies on **timely trials** and **swift justice** for victims.
- **Performance:** As of **June 2025**, **725 FTSCs** (including **392 exclusive POCSO courts**) are operational across **29 States/ UTs**, achieving a **96% disposal rate in 2024 alone**.

Challenges in Fast Track Special Courts

- **Insufficient FTSCs:** Of the **1,023** sanctioned **FTSCs**, only around **700** are functional, and as per estimates around **1,000 more** are required to clear the backlog.
- **Quality Concerns:** Some **critics** say **FTSCs** are a **"political gimmick"**, as **fast-tracking** one case delays others by reallocating the same **judges.**
- **Lack of Specialized Support:** Many **FTSCs** lack **victim-friendly facilities** such as **Vulnerable Witness Deposition Centers** for survivors and **female prosecutors** or **counselors** to guide them through the legal process.

Measures to Strengthen Fast Track Special Courts

- **Judicial Improvements:** Appoint **Special Judges** for **POCSO** cases, provide **sensitization training**, and ensure **female public prosecutors**.
- **Victim Support Facilities:** Set up **Vulnerable Witness Deposition Centers (VWDCs)** in all districts for recording victim statements and holding **child-friendly trials** in-camera. Deploy **child psychologists** in **FTSCs** for pre-trial and trial support as per the FTSCs scheme.
- **Technology in Courts:** Upgrade courtrooms with **audio-video recording**, **LCD projectors**, and better **IT systems** for **e-filing** and **digital records**.
- **Forensic Strengthening:** Expand **forensic labs** and train staff to clear pending cases faster and deliver **timely DNA reports** for **speedy justice**.

ESG Oversight in India

A **Parliamentary Standing Committee on Finance** has recommended that the Ministry of Corporate Affairs (MCA) establish a dedicated **ESG (Environmental, Social, and Governance) oversight body.** The push comes amid rising concerns over **greenwashing**.

Environmental, Social, and Governance

- **About:** ESG refers to standards for assessing an organisation's environmental and social impact.
- **Importance of ESG for India:**
  - **Climate**: India is prone to **floods, heatwaves, and sea-level rise** (according to the Centre for Science and Environment (CSE), in 2024, **India experienced extreme weather events on 322 out of 366 days)**.
    - ❖ Companies with strong environmental practices, using clean energy and cutting emissions can reduce these risks.
  - **Social**: India faces social challenges such as **poverty, inequality,** and lack of basic needs.
    - ❖ Companies that prioritize social responsibility can drive positive societal change, creating a more inclusive economy.
  - **Governance**: Strong **corporate governance** built on transparency and ethical conduct helps rebuild trust, draw investments, and support stable, sustainable economic growth.
- **Parliamentary Standing Committee Recommendations:** The committee has recommended creating an **ESG oversight body within the MCA to ensure companies make genuine sustainability claims.**
  - This body should have forensic experts to detect fraud, set sector-specific ESG guidelines, and help **Micro, Small, and Medium Enterprises (MSMEs)** adopt ESG practices.
  - It proposes amending the **Companies Act, 2013 to make ESG a core duty of directors,** embedding sustainability into business strategy with stronger rules for accurate and meaningful ESG actions.
    - ❖ It also calls for stricter, faster penalties for false ESG claims to deter greenwashing.
  - Additionally, the panel has urged to develop strategies for addressing financial crimes early on and strengthen the **Serious Fraud Investigation Office (SFIO)** and the **National Financial Reporting Authority (NFRA).**
    - ❖ It also emphasized improving the transparency and effectiveness of the **Corporate Social Responsibility (CSR)** oversight system.
- **India's Initiative Related to ESG:** The **Securities and Exchange Board of India (SEBI)** has mandated the top 1,000 listed companies to disclose their ESG performance through the **Business Responsibility and Sustainability Reporting (BRSR) Framework.**
  - This framework aligns with global standards like the **Global Reporting Initiative (GRI)** and the **Sustainability Accounting Standards Board (SASB).**

Greenwashing

- **About:** Greenwashing refers to the deceptive practice where **companies make false or exaggerated environmental claims** about their products to create a misleading impression of being environmentally friendly.
  - This tactic is used to **attract consumers** who prefer sustainable and eco-friendly products.
  - It involves false advertising, vague labels, or confusing messaging regarding product recyclability, eco-friendly materials, and sustainability practices.
- **Factors Contribute to the Prevalence of Greenwashing:**
  - **Rising Eco-Consumerism:** Growing awareness about climate change and pollution, especially among younger Indians, has led to a surge in demand for sustainable products.
    - ❖ To exploit this trend, some brands use vague terms like **eco-friendly or natural without certification** or real sustainable practices.
  - **Weak Regulatory Enforcement: Bureau of Indian Standards (BIS)** Eco-Mark certification helps consumers identify eco-friendly products, though its **adoption is not mandatory,** and many products still lack this certification.
    - ❖ **Plastic Waste Management Rules** aim to reduce plastic waste but don't fully tackle greenwashing related to **plastic reduction claims.**
    - ❖ ESG-related requirements are spread across multiple laws and guidelines without a unified compliance framework.
- Absence of strict penalties for false ESG claims reduces deterrence against greenwashing.
  - **Cultural Exploitation:** Some companies in India exploit traditional systems like **Ayurveda or organic farming** to market their products as eco-friendly.
    - ❖ They use labels like **"natural" or "Ayurvedic"** to appeal to consumers, even when their **sourcing or production methods are unsustainable** and environmentally harmful.
  - **CSR and Marketing:** Companies often highlight token CSR activities like tree planting, while continuing environmentally harmful operations, especially in **sectors like fossil fuels or heavy manufacturing.**
- **India's Initiatives Related to Greenwashing:**
  - **Consumer Protection Act, 2019: Central Consumer Protection Authority (CCPA)** regulates misleading environmental claims.
  - **Green Rating Project:** Under the **Centre for Science and Environment (CSE)**, it rates industries on environmental performance.

- **Advertising Standards Council of India Guidelines:** Advertisements with green claims must be specific, accurate, and not misleading.

SabhaSaar AI Tool

Ministry of Panchayati Raj launched the tool to automate the process of generating Minutes of Meeting from Gram Sabha videos and audio recordings. Integrated with **Bhashini**, it offers multilingual transcription and translation in 13 Indian languages.

- **Bhashini (BHASHa Interface for India) (MeitY, 2022)**, is an **AI-powered language translation platform** developed under the **National Language Translation Mission**.

Key Initiatives Related to Gram Panchayats	
Panchayat NIRNAY: Real-time monitoring portal for regular & transparent Gram Sabha meetings.	**eGramSwaraj:** Portal for planning, finances, reporting, and asset tracking.
Gram Manchitra: A **GIS-based tool** to help Panchayats visualize and map village assets and infra for planning and efficient resource allocation.	**Rashtriya Gram Swaraj Abhiyan (RGSA):** Strengthening the governance capabilities of **Panchayati Raj Institutions**.
AuditOnline: Digital audits of Panchayat accounts.	**SVAMITVA Scheme:** Provides legal ownership to rural landholders.

SC Strikes Down Army's Gender-Based Quota for JAG Recruitment

Army reserved 6/9 JAG vacancies for men. SC struck down the policy. Judge Advocate General (JAG) is the Army's legal arm, advising on military law under the Army Act, 1950. JAG officers (commissioned combatants) - can be deployed in combat-support roles during wartime.

SC Directive	Details
Common Merit List	Army must prepare a merit-based, single common list for recruitment
Equal Opportunity in Combat-Support Roles	Excluding women from counterinsurgency or counter-terror roles lacks legal basis, violates equality
Operational Capability	Highlighted examples of women excelling in high-risk roles ■ Flight Lieutenant Shivangi Singh (Pilot of Rafale Jet) ■ Major Gopika Bhatti (Convoy Command in Militant-prone areas) ■ Colonel Anshu Jamwal (UN Peacekeeping Missions in combat zones)

Past Rulings of SC		
Case	**Year**	**Outcome**
Secretary, Ministry of Defence vs. Babita Puniya	2020	Permanent Commission for women in Army
Kush Kalra vs. Union of India	2021	Women allowed to enter NDA

Key Sports-Related Bills Passed by Parliament – 2025

Parliament has passed National Sports Governance Bill, 2025 and National Anti-Doping (Amendment) Bill, 2025.

- Sports is a State subject under 7th Schedule.

National Sports Governance Bill, 2025	
Centre's Role	■ Establishing – National Sports Board (NSB), National Olympic Committee, National Paralympic Committee, National Sports Federations (SFs) for each sport
Role of NSB	■ Recognise/suspend/cancel recognition of sports bodies (incl. BCCI) ■ Conduct inquiries, frame Code of Ethics & Safe Sports Policy ■ Regulate elections via a National Sports Election Panel
Mandate for SFs (affiliated with int'l bodies)	■ Have a General Body, 15-member Executive Committee (incl. 2 outstanding sportspersons & 4 women) ■ Committees for Ethics, Dispute Resolution, and Athletes
National Sports Tribunal	■ 3-members; chairperson – sitting/former SC Judge or HC Chief Justice ■ **Excludes** doping, internal disputes, and international event matters
Other Obligations	■ Recognised bodies receiving govt aid are public authorities (RTI Act, 2005) ■ Must maintain CAG-audited accounts ■ Approval required to use "India" or national insignia

National Anti-Doping (Amendment) Bill, 2025

- Amends the National Anti-Doping Act, 2022 to align with UNESCO Convention against Doping in Sports.
- **National Anti-Doping Agency (NADA)'s role:** Implement anti-doping rules, conduct testing and enforce compliance.
  - Bill establishes a National Board for Anti-Doping in Sports to oversee NADA.

Overseas Citizen of India (OCI) Scheme

The MHA, under Section 7D of the Citizenship Act, 1955, has expanded grounds for cancelling **OCI** cards.

About the Scheme

- Launched - 2005 via amendment to the Citizenship Act, 1955 to allow registration of Persons of Indian Origin.
- **Provides foreign passport holders of Indian origin with:**
  - Multiple-entry, multi-purpose, lifelong visa to India – OCI cards.
  - Exemption from police registration, irrespective of duration of stay.
  - Does not grant dual citizenship.
- Largest OCI cardholders currently in US, UK, Australia, Canada.
- **Eligibility:** Citizens of India on/after 26 Jan 1950 or eligible for citizenship on that date, their descendants, and spouses (married ≥2 years).
  - Exclusions: Present or former citizens of Pakistan or Bangladesh.
- **Restrictions on OCI Cardholders:** No political rights: cannot vote, contest elections, or hold constitutional posts.
  - No public employment rights (Article 16), except if specially notified.
  - Special permits required for: Research, missionary/ journalistic work, mountaineering or visiting protected/ restricted areas.
- **Grounds for Revocation:** Fraud or misrepresentation in obtaining OCI.
  - Actions or statements made against the Constitution.
  - Wartime aid to the enemy.
  - Prejudicial acts against sovereignty, integrity, security, foreign relations, or public interest.
- **Serious criminal offences (recently added):**
  - Conviction with ≥2 years imprisonment.
  - Chargesheeted for offences punishable with ≥7 years imprisonment

Point of Difference	OCI Cardholder	NRI
Legal Status	Person registered under Section 7A, Citizenship Act 1955 as OCI cardholder	Indian citizen residing abroad (>182 days in a FY)
Visa Requirement	OCI card serves the purpose	Not required (holds Indian passport)
Political Rights	No	Yes but must be physically present in constituency to cast a vote
Scope of Activities	All except restricted ones (provided above) without prior approval	All activities

Cess and its Role in Union Finance

CAG flagged a Rs. **3.69 lakh crore shortfall in transferring cess collections** to their designated funds, highlighting lapses in utilisation of such levies.

Aspect	Tax	Cess	Surcharge
Constitutional Basis	Article 265 + entries in Union/State/Concurrent Lists (e.g., Entry 82, 54, 97)	Article 270	Article 271
Purpose & Usage	General revenue; used for general govt. Expenditure	Levied for a specific purpose; must be used only for that	Additional revenue for Union; no earmarking
Levied On	Income, production, etc.	On existing taxes/duties (add-on)	On tax amount (add-on)
Credited To	Consolidated Fund of India (CFI)	CFI	CFI
State Sharing (Divisible Pool)	✓ Shared with States	✗ Not shared	✗ Not shared
Examples	Income Tax, GST, Corporate Tax	Education Cess, Swachh Bharat Cess, Krishi Kalyan Cess	Income Surcharge (on income > ₹50 lakh)

National Crisis Management Committee

The government of India has given **statutory backing** to the **NCMC** under the amended **Disaster Management Act, 2025,** making it the **apex decision-making body** for national disaster response coordination.

Key Facts About the National Crisis Management Committee (NCMC)

- **Constitution:** Formally constituted by the **Ministry of Home Affairs** under Section 8A(2) of the **Disaster Management Act, 2005.**

- **Composition:** Headed by the **Cabinet Secretary.** Its members include the Union home secretary, defence secretary, secretary (co-ordination), Cabinet Secretariat and member and head of department, the **(NDMA)**.
  - The chairperson of the NCMC can co-opt experts or officers from central/state governments or any organisation, **based on the nature of the crisis.**
- **Key Functions:** Assesses the country's disaster preparedness and issues directions to strengthen it.
  - Coordinates and monitors the response efforts of central and state governments, **NDMA**, and other agencies.

Disaster Management Act, 2025

- Aims to bring clarity and convergence among the various disaster management authorities and committees at national and state levels.
- Statutory status to key pre-existing bodies like the **NCMC** and the **High Level Committee.**
- Empowers NDMA and SDMAs to directly prepare national and state disaster plans.
- Setting up **Urban Disaster Management Authorities** (**UDMAs**) in state capitals and large municipal cities and enables states to constitute their own **State Disaster Response Forces** (**SDRFs**), addressing rising urban disaster vulnerabilities.

Bills to Modernise India's Maritime Laws

Parliament has passed Merchant Shipping Bill, 2025, Carriage of Goods by Sea Bill, 2025, and Coastal Shipping Bill, 2025 to modernise the maritime legal framework and replace the outdated colonial-era laws.

Bill	Act Replaced/Amended	Objective	Important Provisions
Coastal Shipping Bill, 2025	Merchant Shipping Act, 1958	■ Raise coastal cargo to 230 million tonnes by 2030; simpler licensing and regulation of foreign vessels. ■ Reduce foreign dependence, enhance supply security, and create jobs.	■ Aligns with global cabotage norms. ■ Mandates a National Coastal and Inland Shipping Strategic Plan and a National Database for better planning and transparency.
Merchant Shipping Bill, 2025	Merchant Shipping Act, 1958	■ Enhance sea safety, emergency response, environmental protection, and seafarer welfare.	■ Aligns India's laws with IMO conventions. ■ Central govt authorised to detain vessels with no nationality or legal flag in Indian waters.
Carriage of Goods by Sea Bill, 2025	Indian Carriage of Goods by Sea Act, 1925	■ Regulates Bills of Lading for enhanced transparency and efficiency in shipping.	■ Adopts the Hague-Visby Rules (1924) for carriage of goods by sea. ■ Centre empowered to amend rules on Bills of Lading.

State of India's Maritime Sector

- 16th Largest Maritime Nation
- 90% of Global Trade by Volume
- Cargo Capacity (major ports) ↑ by 87% (2014–24)
- Ranked 38th in World Bank Logistics Performance Index (2023)
- 3rd Largest Ship Recycler
- 70% of Global Trade by Value
- 12 Major Ports; 200 Minor Ports
- 100% FDI under Automatic Route (ports and harbours - construction/maintenance)

Mines and Minerals (Amendment) Bill, 2025

Parliament passed the **MMDR Amendment Bill, 2025** to boost **critical mineral** production and advance the **National Critical Mineral Mission (NCMM)** via sustainable, zero-waste mining.

MMDR Bill: Key Provisions

- **Critical Minerals Push:** Amends the **1957 MMDR Act** to allow leaseholders to add critical and strategic minerals to existing leases without extra royalty.
- **Institutional Reforms:** Empowers govt to establish mineral exchanges.
  - Renames NMET to NMEDT (National Mineral Exploration and Development Trust ; royalty ↑ from 2% to 3% to fund exploration and mine development.
- **Exploration & Production:** Sustainable, zero-waste, deep-seated, and offshore mining; removed 50% sale cap on captive mines; allowed one-time extension of lease areas for deep-seated minerals.

Critical Minerals and India

- India has identified 30 critical minerals; largely import dependent.
- **Global mineral diplomacy:** Partnership with **IEA**, and countries like Argentina, Australia and Zambia via **KABIL**.

- Authority to auction their mining leases and licences: **Central govt (exclusively)**.

Applications of Critical Minerals		
Solar Panels	**Wind Turbines**	**EV batteries**
Silicon, tellurium, indium, gallium	Dysprosium, neodymium	Lithium, nickel, cobalt

National Critical Mineral Mission (NCMM)

- **Launch:** 2025 (**Ministry of Mines**).
- **Aim: Secure India's critical mineral supply chain**; ensure availability from **domestic and foreign sources**.
- **Key Point: Whole-of-government approach**; **fast-track approvals; development of stockpiles**; **international partnerships**. Also supports startups/**MSMEs** via **PRISM**.

Sl. No.	Critical Mineral	Percentage (2020)	Major Import Sources (2020)
1.	Lithium	100%	Chile, Russia, China, Ireland, Belgium
2.	Cobalt	100%	China, Belgium, Netherlands, US, Japan
3.	Nickel	100%	Sweden, China, Indonesia, Japan, Philippines
4.	Vanadium	100%	Kuwait, Germany, South Africa, Brazil, Thailand
5.	Niobium	100%	Brazil, Australia, Canada, South Africa, Indonesia
6.	Germanium	100%	China, South Africa, Australia, France, US
7.	Rhenium	100%	Russia, UK, Netherlands, South Africa, China
8.	Beryllium	100%	Russia, UK, Netherlands, South Africa, China
9.	Tantalum	100%	Australia, Indonesia, South Africa, Malaysia, US
10.	Strontium	100%	China, US, Russia, Estonia, Slovenia
11.	Zirconium(zircon)	80%	Australia, Indonesia, South Africa, Malaysia, US
12.	Graphite(natural)	60%	China, Madagascar, Mozambique, Vietnam, Tanzania
13.	Manganese	50%	South Africa, Gabon, Australia, Brazil, China
14.	Chromium	2.5%	South Africa, Mozambique, Oman, Switzerland, Turkey
15.	Silicon	<1%	China, Malaysia, Norway, Bhutan, Netherlands

Table.1 The net import reliance for critical minerals of India (2020) (Source: A report on 'Unlocking Australia-India Critical Minerals Partnership Potential' by Australian Trade and Investment Commission, July 2021)

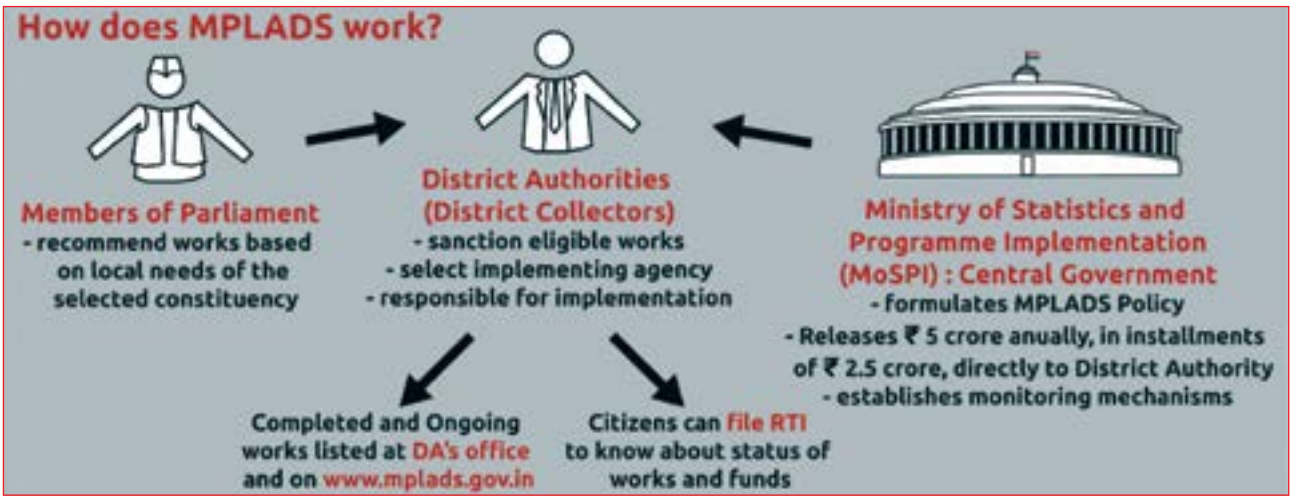
MPLADS

MoSPI has outlined the detailed provisions of **Revised MPLADS Guidelines 2023** to ensure effective utilization of funds.

Member of Parliament Local Area Development Scheme (MPLADS)

- **Description:** Allows MPs to recommend developmental projects in their constituencies, focusing on durable community assets tailored to local needs.
  - **Launched:** 1993
  - **Type:** Central Sector Scheme
- **Recommendation:**
  - Rajya Sabha MPs: Recommend works in any district of their state
  - Nominated MPs: Can choose any district in any one state.
- **Funding Allocation:** Each MP receives Rs 5 crore annually; 2 equal installments; non-lapsable funds

- 15% of funds must be allocated to create assets to benefit SCs and 7.5% for STs.



- **Special Provisions:**
  - MPs can spend up to Rs. 25 lakh annually outside their constituency on national unity projects and up to Rs. 1 crore nationwide for relief after natural disasters.
  - Convergence with other schemes (Swachh Bharat Mission, MGNREGS, or Khelo India)
- **Funds can be Used for Creating:**
  - immovable assets on government land
  - Movable assets for govt-controlled or aided institutions
  - Can be used for Bar Association buildings on court premises (non-recurring expenses)

Reforming India's Justice Delivery System

India's judiciary's backlog of over 5 crore cases across the Supreme Court, High Courts, and District Courts, severely affects governance, citizen trust, and the efficiency of the legal system.

Judicial Pendency: Fact Sheet		
Court Level	**Pending Cases**	**Notable Trends**
District Courts	4.6 crore+ (90% share)	Only 38.7% of civil cases resolved within a year; ~20% remain pending over 5 years
High Courts	63.3 lakh+	Faster disposal - 85.3% of criminal cases disposed within a year
Supreme Court	86,700+	CJI highlighted concerns over delays in bail due to 'fear psychosis' in district courts

Factors Contributing to High Pendency

- **Low Judge-Population Ratio:** 15 judges per 10 lakh population (Law Commission recommended 50 judges).
  - **Women:** 38% in lower judiciary but only 14% in High Courts.
- **Frequent Adjournments = Accumulation of Unresolved Cases:** Adjournments often granted despite existing procedures to limit them; perpetuating "tareek pe tareek" culture.
- **Underutilised ADR Mechanisms:** Lack of centralised and up-to-date data for their performance and efficacy also adds to the problem.
- **Growing Legal Awareness and PILs:** Increases fillings for even trivial cases.
  - ~50% of pending cases involve govt departments.
- **Resource Constraints:** Inadequate courtrooms, staff shortages, poor ICT infrastructure, lack of case management, delayed witnesses/evidence.

Major Judicial Reform Initiatives	
National Mission for Justice Delivery and Legal Reforms (2011)	**Tele-Law** – Remote legal advice for marginalised groups
Fast Track Special Courts	ADR Mechanisms
National Judicial Infrastructure Authority of India (NJIA) (Proposed) – Uniform infrastructure development	**Boost in Judicial Appointments (2014–2024)** – SC: 62 || HC: 976 || District Courts: ~6000
e-Courts Project – Paperless filing, virtual hearings, digital case management	**Nyaya Bandhu (Pro Bono)** – Volunteer lawyers offering free legal aid

Measures to Strengthen India's Judicial System	
■ **Capacity & Appointments:** Raise judge-to-population ratio to 50/ million (**Law Commission, 1987**). ● Transparent collegium reforms, increased retirement age. ● Establish a National Judicial Council – simplified laws, time-bound hearings, enhanced IT use (**2nd ARC Report**).	■ **Infrastructure & Technology:** Establish NJIA for uniform facilities. ● Expand e-Courts by integrating FASTER (Fast and Secured Transmission of Electronic Records).
■ **Strengthening ADR & Legal Aid:** Effective implementation of the **Mediation Act, 2023** and scaling up Lok Adalats (27.5 cr cases solved in 2021–2025) – high potential for out-of court resolution.	■ **Procedural Reforms:** Limit adjournments, introduce summary trials and pre-trial conferences. ● Use AI tools for case clustering, listing, and tracking with fixed timelines.

Jal Jeevan Mission

On 15th August 2025, the 6th anniversary of the Jal Jeevan Mission (JJM) was observed, showcasing its impact on 15 crore households with tap water access.

About JJM

Launched on 15th August 2019, the Jal Jeevan Mission (JJM) aims to provide tap water to every rural household by 2024 (extended till 2028), targeting 55 liters per person per day. It is a Centrally Sponsored Scheme, implemented by the Ministry of Jal Shakti.

Objectives: (Mnemonic: TAP)

- **T – Target Every Rural Household:** Provide Functional Household Tap Connections (FHTC) to all rural households.
- **A – Areas of Priority:** Focus on quality-affected, drought-prone, desert regions, and Sansad Adarsh Gram Yojana (SAGY) villages.
- **P – Public Places:** Ensure taps in schools, Anganwadi centers, gram panchayats, and community buildings.

Features: (Mnemonic: WATER)

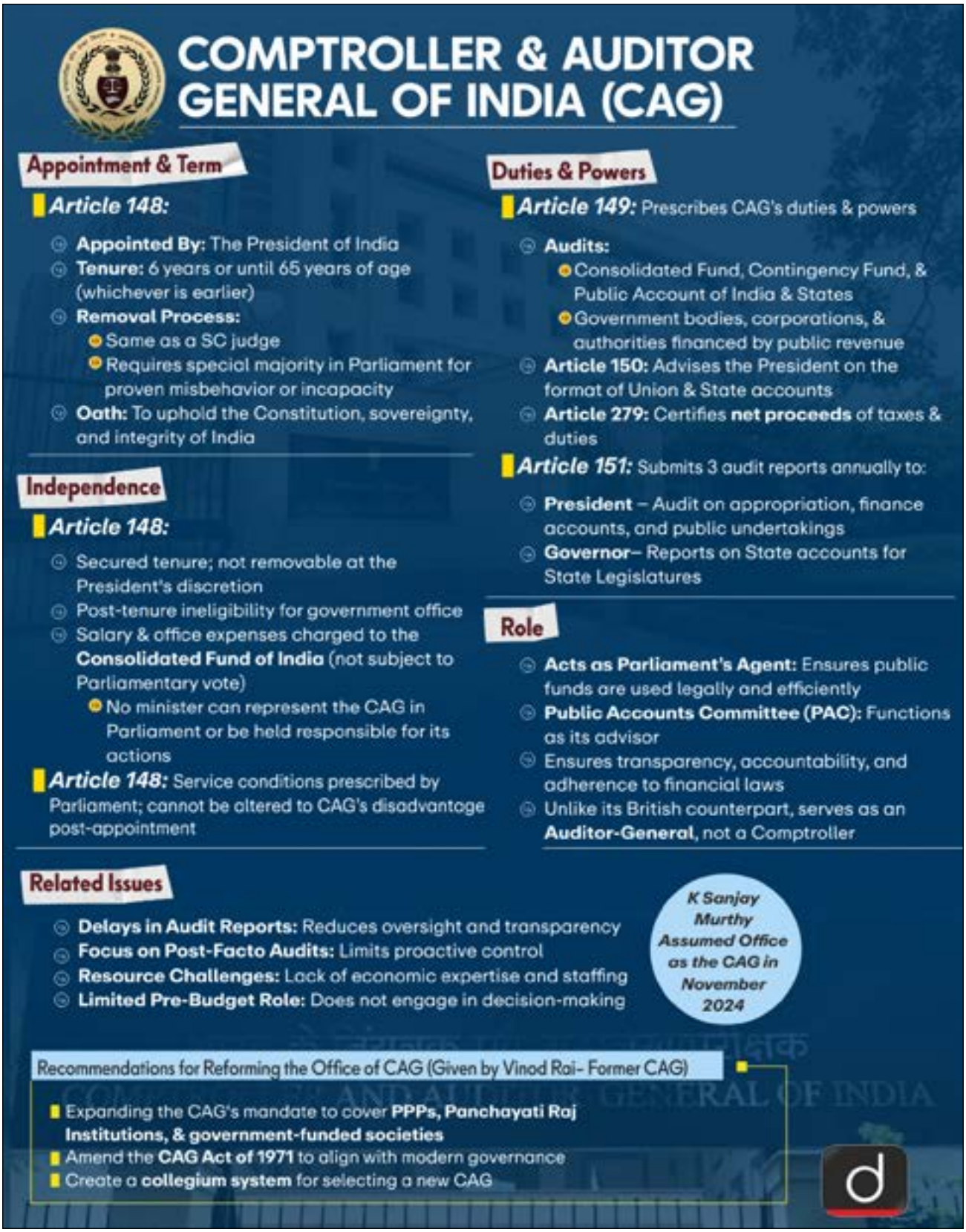
- **W- Women and Weaker Sections:** Ensure 50% representation of women in committees like VWSC (Village Water And Sanitation Committee) and Pani Samitis.
- **A- Awareness and Stakeholder Involvement:** Janandolan for water, encouraging voluntary contributions like shramdaan.
- **T - Technological Interventions:** JJM-IMIS (Integrated Management Information System), real-time Dashboards, IoT-based sensor solutions for water supply.
- **E - Empowerment through Education:** Train 5 individuals, preferably women, per village on water quality testing.
- **R - Rural Focus:** Shift from 'habitations' to 'households' for decentralized, demand-driven, community-managed water supply.

Key Challenges Affecting the Functioning of the JJM (Mnemonic: GAPS)

- **G- Gaps in Data:** Concerns over unreliable data making it difficult to address rural water supply issues. Over 12,000 rural habitations face contamination from iron, nitrate, salinity, and heavy metals.
- **A- Absence of Infrastructure Quality:** A parliamentary standing committee highlighted that post-pipeline public infrastructure restoration is substandard in many States and UTs.
- **P- Poor Maintenance Planning:** Only 20 states have comprehensive repair and maintenance policies by mid-2025.
- **S- Sluggish Execution:** Slow implementation of critical actions and projects, affecting the mission's progress.

Suggestions to Enhance the Functioning of JJM (Mnemonic: REPAIR)

- **R- Revise Infrastructure Quality:** Enforce restoration clauses, link contractor payments to verified quality, and adopt integrated planning. Ensure high-quality infrastructure and accountability in water supply projects.
- **E- Ensure Data Authenticity:** Mandate third-party audits, use geotagging, and create a public dashboard for transparency. Improve data credibility and ensure effective tracking of JJM progress.
- **P- Performance-based Funding:** Deploy task forces in lagging states, link funding to performance. Tie funding to states' progress to enhance accountability and speed up execution.
- **A- Awareness & Testing:** Ensure safe piped water, mandatory testing by gram panchayats, and launch an awareness drive. Raise public awareness on water safety while ensuring regular testing.
- **I- Integrate Financial Reforms:** Revise Rs 12,000 SBM-G incentive and integrate JJM with rainwater harvesting & Atal Bhujal Yojana. Strengthen financial support and integrate water conservation initiatives.
- **R- Repair & Maintenance Planning:** Ensure a nationwide repair and maintenance policy, with regular reviews. Prevent disruptions and ensure long-term sustainability of water systems.


COMPTROLLER & AUDITOR GENERAL OF INDIA (CAG)
Appointment & Term
Article 148:
Appointed By: The President of India
Tenure: 6 years or until 65 years of age (whichever is earlier)
Removal Process:
Same as a SC judge
Requires special majority in Parliament for proven misbehavior or incapacity
Oath: To uphold the Constitution, sovereignty, and integrity of India
Independence
Article 148:
Secured tenure; not removable at the President's discretion
Post-tenure ineligibility for government office
Salary & office expenses charged to the Consolidated Fund of India (not subject to Parliamentary vote)
No minister can represent the CAG in Parliament or be held responsible for its actions
Article 148: Service conditions prescribed by Parliament; cannot be altered to CAG's disadvantage post-appointment
Duties & Powers
Article 149: Prescribes CAG's duties & powers
Audits:
Consolidated Fund, Contingency Fund, & Public Account of India & States
Government bodies, corporations, & authorities financed by public revenue
Article 150: Advises the President on the format of Union & State accounts
Article 279: Certifies net proceeds of taxes & duties
Article 151: Submits 3 audit reports annually to:
President – Audit on appropriation, finance accounts, and public undertakings
Governor– Reports on State accounts for State Legislatures
Role
Acts as Parliament's Agent: Ensures public funds are used legally and efficiently
Public Accounts Committee (PAC): Functions as its advisor
Ensures transparency, accountability, and adherence to financial laws
Unlike its British counterpart, serves as an Auditor-General, not a Comptroller
Related Issues
Delays in Audit Reports: Reduces oversight and transparency
Focus on Post-Facto Audits: Limits proactive control
Resource Challenges: Lack of economic expertise and staffing
Limited Pre-Budget Role: Does not engage in decision-making
K Sanjay Murthy Assumed Office as the CAG in November 2024
Recommendations for Reforming the Office of CAG (Given by Vinod Rai- Former CAG)
Expanding the CAG's mandate to cover PPPs, Panchayati Raj Institutions, & government-funded societies
Amend the CAG Act of 1971 to align with modern governance
Create a collegium system for selecting a new CAG

Nation & States

Nominations to UT Assemblies

The Union Home Ministry states that the **Lieutenant Governor** of J&K can nominate up to five members to the Legislative Assembly (LA) without consulting the Council of Ministers.

- The **J&K Reorganisation Act, 2019 (amended 2023)** allows for 90 elected members and permits the LG to nominate 5 additional members.

Did You Know?

- J&K, Delhi, and Puducherry are only UTs with elected legislatures; hence are represented in the RS.
- Delhi LA: No provision for nominated MLAs (Government of NCT of Delhi Act, 1991).
- Puducherry LA: Union govt allowed to nominate up to 3 members (Government of Union Territories Act, 1963).

Nominated Members	
Constitutional Provisions	**Judicial Precedents**
■ **RS (Article 80):** President can nominate 12 members with certain expertise. Nominated members can participate in debates, introduce bills, but cannot vote in presidential elections. ■ **State LCs (Article 171):** Governor nominates 1/6th of members in State LCs on the advice of the Council of Ministers. ■ **Anglo-Indian Members (Article 331 - LS; Article 333 State LAs):** Provisions were **abolished** by 104th Amendment (2020).	■ **Puducherry Case (2018):** The Madras HC upheld the Union govt's power to nominate MLAs to the Puducherry Assembly without the UT government's advice. The SC set aside this recommendation on appeal. ■ **Delhi Case (2023):** The SC ruled that the LG must follow the Council of Ministers' advice, except on matters beyond the Delhi Assembly's powers.

Parliamentary Panel Highlights Funding Cuts to Rural Bodies

Recently, The Standing Committee on Rural Development and Panchayati Raj has flagged the "steady decline in the allocation of funds to PRIs" and urged the Centre to take "urgent steps" to ensure that adequate, untied, and performance-linked funds are allocated to rural local bodies.

Sources of Funds for Rural Local Bodies (RLBs)

- **Own Source Revenue (OSR):** Generated through taxes (property, vehicle), non-tax revenues (fees, water charges), and other sources (penalties, user charges).
- **Shared/Assigned Revenue:** Funds shared by higher governments, including cesses, surcharges, and mining royalties.
- **Central Finance Commission Grants:** Majority of funds come from central government, including untied and tied grants.
- **State Government Grants:** Grants-in-aid based on population, area, and Finance Commission recommendations.
- **Funds under Schemes:** Government schemes like MGNREGS, PMAY-G, and Swachh Bharat Mission routed through panchayats.
- **Special Grants:** Funds from MPLADS, MLA/MLC schemes, and Backward Regions Grant Fund (BRGF).

Issues	Solutions/ Steps Needed
Decline in PRI Fund Allocation	**Performance-Linked Resources:** Allocate untied, performance-linked funds, promote transparency, and encourage local revenue generation through state support for tax collection.
Limited Social Audits & Poor Gram Sabha Participation	**Ensuring Transparency:** Establish mechanisms for fund safeguarding, promote regular audits, RTI disclosures, and improve financial accountability through transparent procurement.
State Finance Commission (SFC) Constitution Delays	**State Finance Commissions (SFCs):** Encourage timely constitution of SFCs, improve compliance, and ensure regular submission of reports and Action Taken Reports (ATRs).
Inability to Address Local Needs	**Fund Allocation:** Ensure consistent, untied financial support, regular fiscal transfers, and prevent ad-hoc grants to address local needs sustainably.
Institutional Flaws (Rotating Reserved Seats, Poor Training)	**Digital Infrastructure:** Enhance Panchayat digital infrastructure for better governance, provide training in governance, budgeting, and planning.

Status of PRI Funding

- **Revenue Composition:** PRIs generate only 1% of their revenue through taxes, with 95% coming from Central and State government grants.
- **Revenue Per Panchayat:** Each Panchayat earns Rs 21,000 from own taxes and Rs 73,000 from non-tax sources. Central grants average Rs 17 lakh, and State grants average Rs 3.25 lakh per Panchayat, indicating high reliance on external support.

- **Low Revenue Expenditure:**
  - Panchayat revenue expenditure is less than 0.6% of nominal GSDP, with a range from 0.001% in Bihar to 0.56% in Odisha.
- **Inter-State Disparities:**
  - Kerala and West Bengal report the highest average revenues (Rs 60 lakh+ and Rs 57 lakh+), while Andhra Pradesh and Punjab have much lower revenues (under Rs 6 lakh).

Polavaram- Banakacherla Project Dispute

The Centre will set up a high-level committee to resolve the AP–Telangana dispute over the Polavaram–Banakacherla Link Project and Krishna-Godavari water sharing.

Key Challenges of the Project

- Telangana alleges AP bypassed the Andhra Pradesh Reorganisation Act requirement for Apex Council, KRMB, and CWC approvals for inter-state river projects.
- Telangana contests AP's claim of 200 TMC surplus Godavari waters, saying no authority or tribunal has approved it.
- Despite a 2005 clearance, EAC calls for fresh review and CWC consultation due to submergence disputes with Odisha and Chhattisgarh.
- Telangana opposes Godavari-to-Krishna diversion without consent, fearing reduced water for its projects.
- AP's unilateral steps seen as undermining consensus-based management of shared river resources.

Mechanism for Inter-State River Water Dispute Resolution in India

Constitutional Provisions	Statutory Provisions	Judicial Role
Parliament empowered to adjudicate inter-state river disputes and bar court jurisdiction (Article 262).	Centre is allowed to set up River Boards (River Boards Act, 1956)	SC jurisdiction barred under Art. 262(2) but can interpret/ implement awards (e.g., Mahadayi dispute, 2018).
States control water-related subjects (Entry 17, State List)	Negotiation → Tribunal (final, binding award). (Inter-State Water Disputes Act, 1956)	
Centre can regulate inter-state rivers in public interest (Entry 56, Union List)		

Enhancing Northeast Connectivity for Act East Policy

India's Act East Policy seeks to transform the Northeast into a gateway to Southeast Asia, with the commissioning of the 51.38-km Bairabi–Sairang rail line in Mizoram as a crucial step toward achieving this goal.

Northeast India's Infrastructure Revolution (2014-2025)

- **Infrastructure Transformation:** Significant development in roads, railways, airports, and digital networks through initiatives like the Act East Policy and NESIDS.
- **Rail Connectivity:** Advances in Arunachal Pradesh, Mizoram, Manipur, and Nagaland, with Mizoram receiving its first passenger train. Key projects like the Bairabi–Sairang Rail Project aim to boost connectivity, overcoming terrain challenges with 48 tunnels and 142 bridges.
- **Inland Waterways:** Revival of Ro-Ro ferry services on the Brahmaputra to enhance cargo transport and economic activity.
- **Digital Connectivity:** Expansion of digital infrastructure via BharatNet and 4G, connecting remote areas and bridging the digital divide.
- **NESIDS Projects:** 90 projects to improve healthcare, education, water, and infrastructure, with 30 already completed.
- **Economic Growth and Regional Integration:** Enhanced connectivity has improved living standards, attracted investment, and integrated the region economically, making it a vital gateway for national and regional development.

India's Act East Policy

Aspect	Details
About	Launched in November 2014, upgrading the Look East Policy to strengthen ties with Asia-Pacific and Indo-Pacific regions, especially Southeast Asia.
Objective	Develop deeper ties with Indo-Pacific countries, boost economic development in Northeast India, and position it as a gateway to Southeast Asia.
Key Features	Focuses on connectivity, trade, defence, and people-to-people ties through multi-level engagement and proactive diplomacy with ASEAN and Indo-Pacific nations.

Alignment of Regional Connectivity Improvement in Northeast India with India's Act East Policy

- **Diplomatic & Security Ties:** Projects like the Kaladan Multi-Modal Transit and IMT Trilateral Highway enhance trade and connectivity with ASEAN, Myanmar, and Bangladesh, supporting India's strategic goals.
- **Transhipment Hub:** The Sairang railhead will become a key transit point for goods from Myanmar's Sittwe Port, boosting regional economic integration.

- **Socio-Economic Upliftment:** Enhanced rail connectivity promotes job creation, reduces isolation, and improves access to education, healthcare, and disaster response, bridging developmental gaps between Northeast India and the rest of the country.

India's Initiatives Promoting NE Connectivity

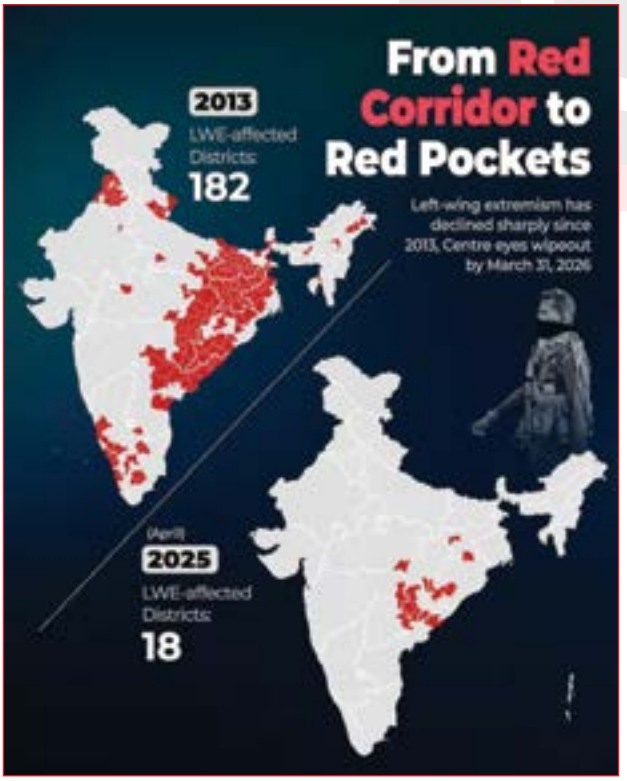
- PM Gati Shakti National Master Plan
- Act East Policy
- Special Accelerated Road Development Programme for NE (SARDP-NE)
- North East Special Infrastructure Development Scheme (NESIDS)

Dismantling the Roots of Left Wing Extremism

The **Red Corridor has contracted from 180 districts at its peak (late 2000s) to just 18 districts** due to targeted development, sustained security operations, and erosion of grassroots support.

Key Points

- **Drop in LWE Incidents:** ↓ **by over 50%** between **2004-14** and **2014-23**.
- **Target:** India aims to **eliminate Naxalism by March 2026.**
- **Example of Recent Operation: Karreguttalu Hill operation** (**Chhattisgarh 2025**) led to elimination of key Maoist operatives.
- **Recent Initiatives:** Dharti Aaba Janjatiya Gram Utkarsh Abhiyan (Centre - 2024), New Maoist Rehabilitation Policy by Chhattisgarh



9th Foundation Day of GeM

The **Government e-Marketplace (GeM)** marked its **9th Foundation Day** with the theme **"Ease, Access and Inclusion."**

- **Launched in 2016** by the Ministry of Commerce, GeM is a government-owned online platform for procurement of goods and services by Central & State Ministries, PSUs, and other bodies. The Ministry of Finance has made purchases through GeM mandatory for government purchases under the General Financial Rules, 2017.
- **Managed by GeM Special Purpose Vehicle (SPV),** a 100% government-owned, not-for-profit entity.
- **Independent assessments**, including the **World Bank**, have noted average government savings of nearly 10% through GeM.
- **Introduction of GeMAI:** India's first generative AI-powered public sector chatbot, with voice and text support in 10 Indian languages.

NOTE: Public procurement refers to the process by which governments and state-owned enterprises purchase goods and services from the private sector.

Public procurement amounts to 20-22% of a India's GDP and therefore an efficiently run public procurement process is critical to our nation's economy.

Economic Scenario

RBI's FREE-AI Committee Report

The **Reserve Bank of India (RBI)** has released the **Framework for Responsible and Ethical Enablement of Artificial Intelligence (FREE-AI) Committee Report**. It calls for **7 guiding sutras** to promote responsible AI use in the financial sector while balancing innovation and risk mitigation.

RBI's 7 Sutras for AI adoption under FREE-AI

- **Trust is the Foundation:** Trust is non-negotiable and should remain uncompromised. Build **Artificial Intelligence (AI)** systems that are reliable, transparent, and inspire public confidence.
- **People First:** AI should support human decision-making but defer to human judgment and citizen interest, prioritising welfare, dignity, and inclusion.
- **Innovation over Restraint**: Encourage responsible innovation while avoiding unnecessary restrictions.
- **Fairness and Equity**: AI outcomes should be fair and non-discriminatory.
- **Accountability**: Accountability rests with the entities deploying AI and clearly define responsibilities for AI decisions and their impacts.
- **Understandable by Design**: Make AI systems and their decisions interpretable for users and regulators.
- **Safety, Resilience, and Sustainability**: Develop AI that is secure, adaptable, and sustainable in the long term.

Significance of AI in Finance

- **Revenue Growth**: AI is projected to drive significant revenue growth, with investments in financial services expected to reach **Rs 8 lakh crore by 2027.**
- **Efficiency and Personalization**: AI can streamline **repetitive and time-consuming tasks**, enabling financial institutions to process large volumes of **data more quickly** and accurately, such as in **loan application processing**.
- **Financial Inclusion**: AI **uses alternative data** (like utility bills, GST filings) to assess **creditworthiness,** enabling loans to "**thin-file or new borrowers"** excluded from traditional systems.
- **Innovation in Digital Infrastructure**: AI enhances **India's digital public infrastructure** (e.g., **Aadhaar**, **Unified Payments Interface)** to provide personalized, adaptive financial services.
- **Better Risk Management**: AI helps in fraud detection, early risk warnings, and improved decision-making, optimizing risk management processes.
    - J.P. Morgan's AI payment validation cut fraud, lowering account rejection rates by 15–20%.
- **Synergies with Emerging Tech**: AI's integration with quantum computing and privacy technologies promises enhanced performance and security in finance.

Challenges of AI in Finance

- **Model Bias and Risk**: AI models can inherit biases from training data, leading to unfair decisions. The **"black box"** nature makes them hard to audit.
- **Third-Party Risks**: Heavy reliance on a few vendors or cloud providers can cause service disruptions, software issues, and cyber vulnerabilities.
- **Regulatory and Liability Concerns**: The lack of transparency in AI models complicates **liability allocation in case of errors or biased outcomes.**
- **Cybersecurity Threats**: While AI can improve security, it also opens new attack routes like data poisoning, adversarial inputs, and deepfakes.
- **Ethical and Consumer Protection Issues**: Algorithmic bias, privacy violations, and lack of transparency can **undermine consumer trust and exclude vulnerable groups.**

- **Risk of Non-Adoption:** Not using AI can hurt competitiveness, reduce efficiency, slow financial inclusion, and leave systems exposed to AI-powered threats.

India's Policy Developments on AI in Finance

- The RBI has introduced **MuleHunter AI**, developed by **RBI Innovation Hub** to help banks quickly detect mule accounts and curb digital frauds.
  - **RBI's digital lending rules** require auditable AI credit assessments with **human oversight** and robust grievance redressal for AI-driven decisions.
- **Securities and Exchange Board of India (SEBI) consultation paper** in 2025 provides guidelines for responsible AI use in Indian securities markets.
- **IndiaAI Mission** aims to foster AI innovation, enhance research, and improve access to computer infrastructure.

RBI's Recommendations for AI in Finance

- **Innovation Enablement:** Establish **high-quality financial sector data infrastructure** as part of digital public infrastructure, integrated with AI Kosh.
  - Create an AI Innovation Sandbox like **GenAI Digital Sandbox**, a secure test environment for financial institutions to trial AI models using anonymised data, with tools to detect **bias or errors and ensure compliance** with AML, KYC, and consumer protection norms.
- **Consumer Protection & Security:** Organizations should conduct proportionate AI red teaming through periodic and trigger-based tests and implement incident reporting frameworks with good-faith disclosure to manage AI risks effectively.
- **Capacity Building within REs:** Develop structured training programs for AI governance and risk mitigation at all levels within institutions.
  - Establish frameworks for exchanging AI use cases and best practices across the financial sector.
- **AI Incident Reporting:** Create an AI incident reporting framework for timely detection and disclosure of AI-related issues.

Banking Laws (Amendment) Act, 2025

The Banking Laws (Amendment) Act, 2025 has been enacted to strengthen banking governance, improve audit transparency, enhance depositor protection, and introduce a more robust regulatory framework for cooperative banks.

Key Provisions of the Act

- It aims to modernize and strengthen the legal, regulatory, and governance framework of India's banking sector.
- **Key amendments:** It introduced 19 amendments across following 5 core banking legislations:
  - Reserve Bank of India Act, 1934,
  - Banking Regulation Act, 1949,
  - State Bank of India Act, 1955,
  - Banking Companies (Acquisition and Transfer of Undertakings) Act, 1970 & 1980.
- **Key Reforms Include:**
  - The 'substantial interest' threshold has been increased from Rs. 5 lakh to Rs. 2 crore (unchanged since 1968), aligning with current economic realities.
  - Director tenures in cooperative banks have been extended from 8 to 10 years (excluding chairpersons and whole-time directors), aligning with the 97th Constitutional Amendment Act, 2011, to promote governance continuity.
  - Public sector banks (PSBs) can now transfer unclaimed shares, interests, and bonds to the Investor Education and Protection Fund (IEPF), in line with the Companies Act, 2013, to enhance transparency and depositor awareness.
  - PSBs are now authorized to determine and provide remuneration to statutory auditors with the aim to improve audit standards and foster financial transparency in public sector banking.

NOTE: By the 97th CAA, 2011 the right to form cooperative societies is now included as a Right to Freedom under Article 19(1) of the Constitution.

Tourism as India's Growth Engine

Following the **50% US tariffs imposed on Indian goods,** experts suggest that tourism, being free from tariff barriers, could help offset potential losses by attracting high-value tourists.

India's Tourism Sector: Fact Sheet	
Contribution	5% to India's GDP in FY23, creating 7.6 crore jobs.
Foreign Tourist Arrivals	9.95 million arrivals in 2024.
Foreign Exchange Earnings (FEEs)	10% ↑ in 2024 compared to 2023.
Global Standing	India ranks 8th among the tourism economies (USD 231.6 bn) [**WTTC** 2024-25 report].
Source Markets	US, Bangladesh, UK, Australia, Canada, Malaysia, Sri Lanka, Germany, and France (2020-24).
Growth Scenario	Contribute ~Rs 42 trillion to India's economy by 2035 (support 64 mn jobs) [WTTC]. By 2047, India to become a USD 3 trillion tourism economy, creating 200 mn tourism-related jobs.

Challenges Hindering Tourism Growth

- **Visa Hurdles:** Complex visa processes and limited visa-free access → lesser arrivals. Only few countries' citizens can travel visa-free to India (China allows 70, Thailand 90).
- **Poor Infras and Safety:** Limited hotel rooms, inadequate transportation, inadequate security and emergency services in remote areas.
- **Cleanliness Issues:** Inadequate waste management and unclean public areas = poor first impressions.
- **Weak Global Promotion:** No major tourism promotion global campaign run in the last decade; underutilization of cultural assets; weak global branding despite 44 UNESCO WHS.

Reforming Tourism Sector

- **Simplify Entry and Travel:** Expanding e-Tourist Visa and visa-on-arrival to more countries, while making them faster and cheaper, can boost arrivals.
- **Promote Unique, Premium Experiences:** Focus on niche tourism (e.g., Ayurveda retreats, luxury wildlife safaris, spiritual wellness tours). Leverage sustainable tourism practices in Lakshadweep to turn it into a premium destination.
- **Destination Diversity:** Create premium circuits like the **Buddhist Circuit and Himalayan wellness circuit** for multi-day immersive journeys.
- **Enhance Service Quality:** More focus on training manpower in hospitality (chefs, guides, service staff) is key. Encourage global-standard hotels, boutique stays etc.
- **Wellness Tourism: Heal in India initiative**, blending modern medicine with Ayurveda, Yoga, and wellness can attract affluent patients seeking holistic, high-quality care.

PM Jan Dhan Yojana (PMJDY)

As per the **Finance Ministry,** ~23% **PM Jan Dhan Yojana (PMJDY)** accounts are inoperative, raising concerns about financial inclusion and account usage.

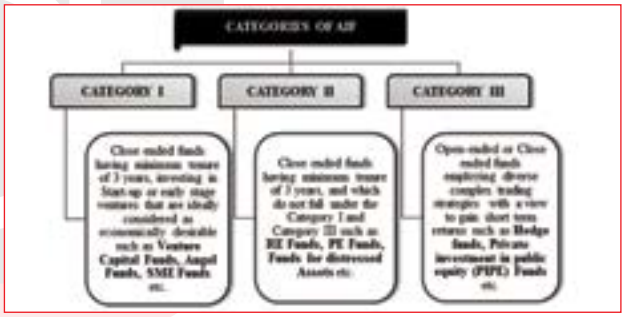
PMJDY

- **Objective:** Provide zero-balance accounts to every unbanked adult without opening or maintenance charges.
- **Benefit to Account Holders:** RuPay debit card, Rs 2 lakh accident insurance and an overdraft facility of up to Rs 10,000 for emergencies.
- **Key Platform for DBT and Subsidies:** Integration with the JAM trinity ensures efficient delivery of welfare schemes.
- **Achievements:** Women owning bank accounts ↑ from 53% (2015-16) to 79% (2019-21).
  - Access to **Mudra loans** ↑; recording a CAGR of **9.8%** between (2019-24).
- **Inoperative Accounts (no transactions for >2 years)**
  - 13.04 crore of 56.04 crore PMJDY accounts inoperative.
  - Highest no. of inactive accounts in UP followed by Bihar and MP.

RBI Tightens Investment Norms in AIFs

The RBI has new norms to limit investment by regulated entities (REs) in Alternative Investment Fund (AIF) schemes to prevent evergreening, reduce concentration risk, and improve financial risk management.

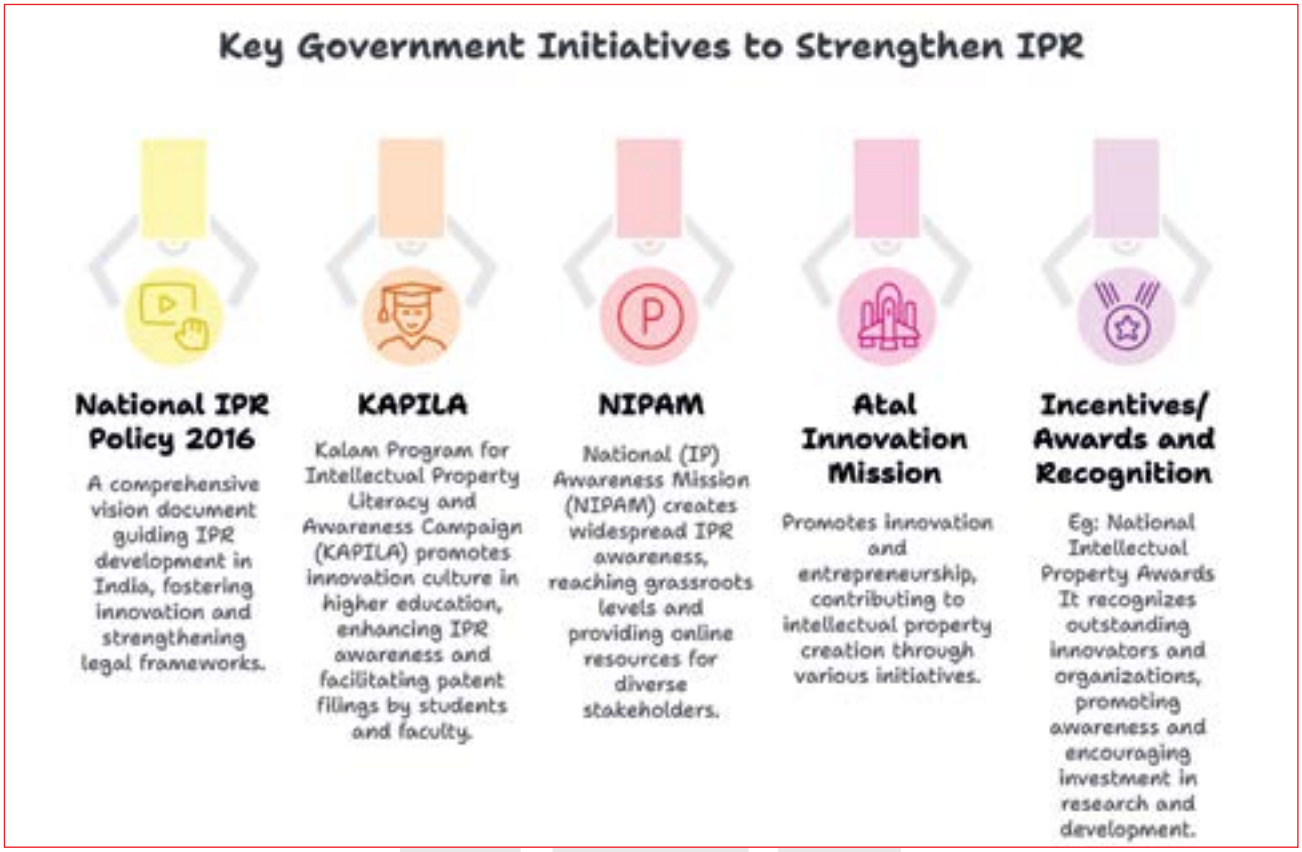
- **Investment Cap:** Total RE investment in an AIF is limited to 20% of corpus; no RE can exceed 10%. Investments >5% in AIFs with downstream exposure require setting aside full loan amount.
- **REs Covered:** Commercial banks, RRBs, urban/co-operative banks, all-India FIs, NBFCs (including HFCs).
- **Alignment with SEBI:** RBI norms now match SEBI standards for due diligence and investment practices.
- **AIF:** Privately pooled investment vehicle for sophisticated Indian/foreign investors; excludes SEBI-regulated mutual funds, CIS, family/employee trusts, and certain holding companies.



India's Patent Ecosystem

India's Make in India ambition is closely tied to innovation, and a robust patent ecosystem is essential for this.

India's Patent Landscape: Key Trends	
Patent Filings	■ India ranked 6th in global patent filings in 2023. ■ >1 lakh patents granted in FY24 – 17-fold increase since 2015. ■ In last five years, India saw a 44% rise in total IP filings – patents, trademarks, designs, and GIs.
Role of Universities	■ Educational institutions like IIT Madras are boosting the patent ecosystem, with IIT-M doubling its patents in 2022-2023.
Growth in Trademarks	■ India ranked 4th globally in trademarks (WIPO 2024), with applications growing from 2 lakh (2016-17) to 4.8 lakh (2023-24).



CLOG — Challenges in India's Patent Pipeline

- **C** — Concentrated on Foreign Filings: 74% of patents granted in India are to foreign entities, overshadowing Indian innovation.
- **L** — Low R&D Investment: India spends just 0.67% of GDP on R&D, limiting the creation of high-quality patents.
- **O** — Overburdened & Outdated Processes: Patent approval in India takes an average of 58 months, far longer than 20 months in China and 21 months in the US.
- **G** — Gaps in Enforcement: Inadequate IP protection, slow judicial processes, and rising digital piracy hinders safeguarding of creators' rights in India.

REFORM — Strategy to Transform the Patent Ecosystem

- **R** — Regulatory & Legal Reforms: Establish dedicated IP courts and review outdated laws (Patents Act, 1970) to facilitate the patenting of emerging technologies like AI.
- **E** — Ecosystem Building: Foster partnerships between academia, industry, and govt to establish innovation hubs and incubators that promote research and patent filings.
- **F** — Fuel R&D Investment: Robust tax incentives and venture capital funding to boost private sector investment in R&D.
- **O** — Optimize Processes: Modernize the patent office with digital portals and use AI for prior-art searches to streamline the patenting process.
- **R** — Resource Mobilization: Expand the number of skilled examiners and upgrade patent offices with AI-enabled tools for faster processing.
- **M** — Mobilize Global Partnerships: Engage in int'l collaborations like with WIPO for cross-border filings and attracting foreign investment.

Pradhan Mantri Viksit Bharat Rozgar Yojana (PMVBRY)

Launched on 79th Independence Day to **formalize workforce** and provide **social security**. **Target:** Create **3.5 crore jobs by 2027** through incentives (DBT).

Part A – First-Time Employees	Part B – Employers
■ **Eligibility:** EPFO-registered, earning ≤ ₹1 lakh/month ■ **Support:** EPF wage support **up to Rs. 15,000** in 2 installments (part of incentive to be locked in **savings/fixed account** for a specific period)	■ **Incentive:** Employers get ₹3,000/month/employee (salary ≤ ₹1 lakh) for 2 years; job must last ≥ 6 months ■ **Manufacturing sector:** Incentives Extended to **3rd & 4th years**

Inland Water Transport in India

National Waterway-57 (Kopili River) in Assam has been operationalised, boosting **Inland Water Transport (IWT)** under **Maritime India Vision 2030** and **PM Gati Shakti.** Total 4 NWs are fully operational in Assam now.

India's Inland Waterways (IW): Fact Sheet	
■ **Criteria for IWs** ● Must support vessels with carrying capacity ≥50 tonnes when fully loaded.	■ **Legislative Framework** ● **Inland Waterways Authority of India Act, 1985** ● **National Waterways Act, 2016** ■ National Waterways Regulations, 2025
■ **Regulation and Jurisdiction** ● Regulation for shipping and navigation: IWAI ● Jurisdiction NW: Central govt ● Other IWs: State govt	■ **Growth Scenario** ● NWs grew 767% from 3 (2014-15) to 29 (2024-25). ● Achieve 500+ MMT of cargo movement via IWs by 2047(**Maritime Amrit Kaal Vision**).

Benefits of Inland Waterways for MIV 2030

- **Lesser CO_2 emissions;** negligible noise and water pollution; supports **Panchamrit** climate commitments.
- **Seamless integration** with rail, road, and sea transport → decongested transport systems → faster cargo movement.
- Most **cost-effective** (₹0.25-0.30/ton-km against ₹1.0 by rail ₹1.5 by road), highly **fuel-efficient** when compared to rail and road (moving 105 ton-km/litre against 85 by rail and 24 by road).
- Can cut logistics cost to 9% of GDP, saving ~USD 50 bn annually; supporting **India's goal of being among top 25 performers by 2030.**
- Minimal land acquisition; **last-mile access** to remote/eco-sensitive areas; aids security and disaster resilience.

Challenges in Optimum Utilisation of India's IWs

- Non-perennial rivers with depth fluctuations limit year-round navigation.
- Infrastructure gaps (lack of jetties, terminals, vessels etc.); high capital costs; poor financing access. Only 3.5% of trade moves via waterways (China - 47%, Europe - 40%, and Bangladesh -35%) highlights underutilisation.
- **High Siltation & Environmental Concerns** – Frequent siltation increases maintenance costs and harms aquatic ecosystems.
- Limited First/Last-Mile Connectivity pushes industries towards road/rail transport.

Measures to Improve the IWT

- Enhanced multimodal connectivity by **integrating IWT with rail, road, and coastal networks** under PM Gati Shakti and Sagarmala.
- **Revival of dormant waterways** in states like Bihar, Odisha, and West Bengal with sustainable dredging, EIA compliance.
- Promote **PPPs in vessel manufacturing**, terminals, and cargo handling with **tax benefits.**
- **Innovation in logistics** through e-platforms, River Information Systems (RIS), and GPS tracking. Sustainable dredging with **EIA compliance**; promoting use of **green vessels**.

Mission for Cotton Productivity

The Government has launched the 'Mission for Cotton Productivity' in line with the Vision 2030 for the textile industry.

- Launched in Budget 2025-26 to boost cotton production and farmer income. **Aligns with 5F Vision:** Farm → Fibre → Factory → Fashion → Foreign
- **Objectives:** Improve productivity via climate-smart, pest-resistant, high-yield varieties, especially Extra Long Staple (ELS) cotton. Use biotech and advanced breeding to enhance fibre quality
- **Implementing Bodies:** Department of Agricultural Research & Education (DARE) (Nodal Agency)
- **Need:**
  - **Low Yield:** India has 40% of global cotton area but ranks 39th in productivity (447 kg/ha).
  - **Rising Imports:** Imports doubled in 2024–25; exports declined.
  - **Tech Stagnation:** No new GM cotton approved since 2006 despite initial Bt success.
  - **Pest Resistance:** Pink bollworm has developed resistance to Bt cotton.
  - **Losing Global Share:** Nations like US and Brazil are outpacing India via biotech adoption.
- **Textile Vision 2030:** Aims at positioning India as a global textiles manufacturing hub by building a USD 250 billion textile industry and achieving USD 100 billion in global textile exports by 2030.
- **India's Position in Cotton Cultivation:** 1st in acreage (40%); 2nd in production (23.83%); 2nd largest global consumer (22.24%); Imports <10% and 39th in yield globally.

International Relations

WTO and the Future of Multilateral Trade

The increasing use of unilateral tariff measures by the US has renewed global concerns over the efficacy of the WTO and the role of multilateral trading system in ensuring fair competition and settling trade disputes.

Global Trade Dynamics – Role of WTO

- Facilitates multilateral global trade agreements (e.g., Trade Facilitation Agreement, 2013)
- Promotes tariff reduction and **MFN** principle → rules-based global trading environment
- Trade Policy Reviews and mandatory notifications of subsidies, tariffs, and regulations
- Sustainable Trade via alignment with SDGs (e.g., fisheries subsidies and SDG 14)

Challenges Undermining WTO's Role

- **Dispute Settlement Paralysis: WTO's Appellate Body** non-functional since 2019 due to US' opposition to the appointment of new judges.
- **Stalled Negotiations: Doha Development Round (2001)** collapsed over agriculture and subsidies; exposing deep **North–South divide**.
- **Rise of FTAs & Regional Blocs:** (e.g., EU, ASEAN, RCEP) Weakens WTO multilateral vision
- **Limited Relevance in New Trade Areas:** WTO struggles to address digital trade, e-commerce, climate-linked trade barriers, and green technologies; declined relevance in multilateral trade governance.
- **Issue with Special and Differential Treatment (S&DT):** "Developing countries" allowed trade flexibility. However, no clear definition of the term → self-designation by rather advanced economies → Disputes.

Suggestions for Reforms

- Revive Appellate Body with US concerns addressed; set time-bound rulings
- Strengthen Trade Policy Review Mechanism (TPRM) and encourage members to share data and undertake joint impact assessments
- Enhance cooperation with IMF, WB, UNCTAD and climate bodies to integrate trade with finance, development, and sustainability goals.
- Establishing a permanent WTO Reform Council with rotating leadership for sustained reform momentum.
- WTO to update trade rules to address digital trade, data flows, industrial policy, green subsidies.

India's Role in Multilateral Trade Governance	
Voice of Global South→	Advocate food security, subsidy protections for developing countries
Advocate Calibrated Liberalisation→	Liberalisation that respects developmental needs, resists unilateral tariff hikes and protectionist tendencies
Lead Sustainable Trade →	Link trade to SDGs; push against green protectionism (e.g., EU CBAM)
Exemplify Balancing Development with Integration→	Showcase PLI, digital public infrastructure (UPI), and service sector strength

India- China Relations

India's External Affairs Minister held a **ministerial-level meeting with China**'s Foreign Minister in Delhi, the first since the LAC disengagement in November 2024. The discussions focused on consolidating peace, advancing economic cooperation, and addressing strategic challenges.

Key Takeaways from the Meeting

- **De-escalation & Stability:** India reiterated its 3Ds approach: disengagement, de-escalation, and de-induction.
- **↑ Economic & Trade Links:** China agreed to supply fertilizers, rare earths, and tunnel-boring machines. Resumption of border trade via Lipulekh, Shipki La, and Nathu La + Visa facilitation for tourists, businesses, and media.
- **Cultural & People-to-People Ties:** Resumed the Kailash Mansarovar Yatra, restored tourist visas.
- **Security and Global Engagement**: India raised concerns about Pakistan-backed terrorism in J&K. ↑ Cooperation via SCO, BRICS, and bilateral platforms.

Key Areas of Cooperation

- **Cultural, Educational & People-to-People Ties:** Shared civilizational links (Xuanzang; Bodhidharma), academic collaborations, and China's growing interest in Ayurveda, Yoga, and Indian classical arts.
- **Capital Flows and Technology Sharing:** Chinese investments in Indian Unicorns and China's expertise in infrastructure and high-speed rail benefit India's growth.
- **Multilateral Cooperation:** Collaboration via **BRICS, SCO, G20, AIIB** & **NDB**, promoting Global South solidarity and climate diplomacy. China also supports India's **ISA**.

- **Climate Justice and South-South Cooperation:** Joint stance on climate justice and opposition to EU's Carbon Border Tax at COP29.

Key Challenges in India-China Relations

- **Border Disputes:** The LAC remains undefined, with ongoing incursions. China occupies Aksai Chin and claims Arunachal Pradesh as South Tibet. Doklam and Galwan clashes highlight the persistent volatility along the border.
- **Economic Asymmetry:** India faces a trade deficit of USD 85 billion with China (2023-24), relying on Chinese imports in sensitive sectors like APIs, electronics, and solar panels. Low-value exports but high-value imports.
- **Strategic & Security Concerns:** CPEC through PoK and Pak-China military ties threaten India's security. China hinders India's NSG membership and UNSC permanent seat aspirations.
- **Hydrological & Environmental Concerns:** China's upstream control of rivers (Brahmaputra, Sutlej) and Medog and Zangmu dam projects threaten India's water security.
- **Competition for Regional Leadership:** China's Maritime Silk Road and presence in key ports (Hambantota and Kyaukpyu) challenge India's regional influence.

Measures to Strengthen Bilateral Engagement

- **Deepening Strategic Dialogue:** Continue talks under Special Representatives (SR) and WMCC to resolve border tensions, enhance Confidence Building Measures, and establish demilitarized buffer zones.
- **Economic & Trade Rebalancing:** India to pursue selective economic engagement, expanding imports of capital goods, while reducing over-dependence on strategic sectors.
- **Managing Water & Environmental Concerns:** Resume hydrological data-sharing; long-term water-sharing frameworks; oint mechanism for sustainable dam management, flood forecasting etc.
- **Leveraging Multilateral Cooperation:** Collaborate on global issues – financial reforms, South-South cooperation, and sustainable development financing.
- **Long-Term Trust Building:** Initiatives in pandemic preparedness, disaster relief cooperation, and student exchanges can act as low-cost, high-impact trust multipliers – small, verifiable steps to gradually expand trust.

India-EFTA Trade and Economic Partnership Agreement

The Union Minister of Commerce and Industry of India announced that the Trade and Economic Partnership Agreement (TEPA) between India and the European Free Trade Association (EFTA) countries will take effect on 1st October 2025.

- **Trade and Economic Partnership Agreement (TEPA):** Signed on 10th March 2024 between India and the European Free Trade Association (EFTA) countries (Iceland, Liechtenstein, Norway, Switzerland) after 21 rounds of negotiations since 2008.
- It aims to boost trade, attract investment, and create jobs by reducing tariffs and non-tariff barriers, ensuring fair, transparent, and predictable market access for service providers and investors.

India-EFTA Trade Relations

- India is the 5th-largest trading partner of the European Free Trade Association (EFTA), following the EU, US, UK, and China, with total two-way trade reaching USD 24.4 billion in 2024–25.
- Switzerland is India's largest trading partner within EFTA, while trade with Iceland, Liechtenstein, and Norway remains relatively limited.
- To strengthen economic ties and facilitate investments under TEPA, India and EFTA launched the India-EFTA Desk.
- This is a dedicated investment facilitation mechanism established by Invest India, providing a single-window platform for businesses from EFTA nations to invest in India.

Key Challenges in India-EFTA Relations

- **Persistent Trade Deficit**: India faces a significant trade deficit with EFTA, primarily driven by gold imports from Switzerland.
- **Data Exclusivity & Public Health**: EFTA's demand for data exclusivity in pharmaceuticals could hinder India's ability to produce generic drugs. India opposes this to safeguard public health and protect its domestic industry.
- **IPR Concerns under TEPA**: The IPR provisions in TEPA could weaken India's patent safeguards, impacting pre-grant opposition and local manufacturing requirements. This raises concerns about transparency and access to affordable medicines.

Way Forward

- **Mitigate Trade Deficit:** Promote value-added exports and diversify trade to reduce reliance on gold imports and narrow the trade deficit.
- **Capacity Building & Sustainability:** Leverage EFTA's expertise in sustainability and clean technologies to support India's green transition and skilling initiatives.
- **Balanced IPR Framework:** Ensure IPR provisions protect innovation without compromising public health, especially India's generic drug sector.

- **Leverage India–EU FTA Momentum:** Use ongoing India–EU FTA negotiations to enhance regulatory alignment, address Non-Tariff Barriers (NTBs), and strengthen global supply chains.

European Free Trade Association (EFTA)

- EFTA is an intergovernmental organisation comprising Iceland, Liechtenstein, Norway, and Switzerland (all 4 are not a part of the European Union).
- It was established in 1960 under the Stockholm Convention to promote free trade and economic integration among member states and global partners.

India-Philippines Relations Elevated to Strategic Partnership

In 2025, India and the Philippines elevated their relationship to a Strategic Partnership during the Philippines President's state visit to India.

- The visit reaffirmed the 1952 Treaty of Friendship and aims to enhance cooperation in defense, trade, maritime security, technology, and people-to-people ties.

Key Outcomes the Visit

- India and the Philippines officially established a Strategic Partnership, and a detailed Plan of Action (2025-2029) strengthening cooperation in defense, trade, technology, maritime security, and people-to-people ties.
- **Visa and Legal Cooperation:** Visa-free access for Indian tourists to the Philippines.
  - Gratis e-tourist visas for Filipino nationals (valid for one year from August 2025).
  - Finalized Mutual Legal Assistance Treaty (MLAT) and Treaty on Transfer of Sentenced Persons.
- **Infrastructure & Investment Cooperation:** India was invited to participate in large infrastructure projects.
  - India to support Sovereign Data Cloud infrastructure in the Philippines and invited them to join the Information Fusion Centre for maritime cooperation.

Evolution of India-Philippines Relations

- Diplomatic ties since 1949, the bilateral trade grew from USD 2.03 billion in 2020-21 to USD 3.53 billion during 2023-24. India exports pharmaceuticals, engineering goods, and auto parts, while importing semiconductors and copper.
- Philippines is the ASEAN-India Dialogue Coordinator for 2024-27. It supports India's UN Security Council ambitions, while India backs the Philippines' 2027–28 candidacy.
- India supplies BrahMos missiles to the Philippine Navy and held their first joint naval exercises in the South China Sea in 2025.

Significance of India-Philippines Relations

- Philippines is vital for Indo-Pacific security and maintaining a rules-based maritime order, particularly in the South China Sea.
- Strengthens India's presence in Southeast Asia, key for its Act East Policy.
- India offers investment opportunities in IT, pharma, fintech, and infrastructure.
- India is exploring the Philippines' expertise in seaweed cultivation for nutritional purposes.

Challenges	Steps to Strengthen Relations
China's Sensitivities: India's growing naval ties with the Philippines in the South China Sea could lead to friction with China.	**Expand Defense Capacity-Building:** Focus on naval cooperation tailored to Philippine needs.
Limited Economic Integration: Slow Preferential Trade Agreement (PTA) negotiations, low investment, and weak connectivity.	**Accelerate PTA Negotiations:** Speed up negotiations, particularly in pharma, electronics, digital services, and processed food.
Implementation Gaps: Differing priorities, capacity gaps, and regional instability could hinder progress.	**Expand People-to-People Links:** Offer scholarships for Filipino students, especially in STEM and medicine, to enhance soft power and foster deeper ties.

Philippines

- Philippines, an archipelago in **Southeast Asia**, has 7,641 islands bordered by the **Philippine Sea (east), South China Sea (west), and Celebes Sea (south).**
  - Luzon and Mindanao are the largest islands, with Manila as the capital.
  - Mount Apo (2,954 m) on Mindanao is the highest peak and an active volcano.
- The Philippines is located in the **Pacific Ring of Fire.** The country has a tropical climate and is among the world's top biodiversity hotspots.

US Tariff on Indian Imports

US raised additional tariffs on India due to continued **Russian oil purchases**. India, alongside Brazil, is now the highest tariffed country by the US.

- India defends its **energy policy** as a national security issue, criticizing US and EU double standards on Russian imports.

Factors that Led to the US Imposing Tariff on India

- **High Tariffs & Barriers**: US concerns over India's high tariffs in **pharmaceuticals**, **electronics**, and **agriculture** affecting market access.
- **Russian Oil & Defense Purchases**: US objections to India's continued purchase of Russian oil and military equipment.
- **US Trade Deficit with India**: Persistent **$45 billion trade deficit** leading to tariff consideration.
- **Stalled Trade Negotiations**: Lack of agreement due to India's cautious approach to liberalizing **sensitive sectors** like agriculture.

Key Highlights of India-US Trade Relations

- **US is India's largest trading partner** (2024-25), bilateral trade: **$131.84 billion**.
- **Agricultural imports** from the US rose **49.1%** in 2025.
- **FDI inflows** from the US to India were **$4.99 billion** in FY 2023-24.
- **MoU on SMEs** signed in 2024 to promote cooperation.

Implications of the US Tariff on India

- **Oil Imports**: India imports **88%** of crude oil, **35% from Russia**, impacting tariffs.
- **Exports & Key Sectors**: US tariff affects **10% of India's exports**, notably in **electronics**, **pharmaceuticals**, **textiles**, **gems**, and **automobile components**.
- **Pressure on Economic Growth**: Negative impact on GDP growth (**6.5%** forecast for FY 2025-26), potential job losses in export sectors.
- **Loss of Competitiveness**: Higher tariffs make India less competitive compared to other Asian countries (e.g., **Vietnam**).
- **Disruption to Trade Relations**: Strained diplomatic ties and potential delays in securing preferential treatment.
- **Market & Business Impact**: **Indian stock market** negatively impacted; export-focused companies facing losses.

Ways to Reduce the Impact of US Tariff on India

- **Accelerate Negotiations**: India deepening **trade talks** with the US for a **fair and balanced agreement**.
- **Diversify Export Markets**: Expand trade with **EU**, **Gulf nations**, **EFTA**, and **East Asia** to reduce US dependency.
- **Enhance Domestic Competitiveness**: Focus on **structural reforms**, productivity, and value chain improvements.
- **Support Vulnerable Sectors**: Targeted **subsidies**, export credit, and marketing assistance for key sectors like **textiles**, **auto components**, and **MSMEs**.
- **Strategic Diversification**: Reduce reliance on **Russian crude oil** and diversify imports from the **Middle East** and **Africa**.

Reset in India-Maldives Relations

India's PM participated as the **guest of honour** at the **60th Independence Day celebrations** of the **Maldives**. India-Maldives ties have been **strained** under the current Maldivian President due to his **India Out campaign** and **derogatory social media remarks**.

Key Outcomes of the Visit

- **Strategic Partnership:** Reviewed 2024 Economic & Maritime Partnership; reaffirmed *Neighbourhood First* and *MAHASAGAR*.
- **Economic & Digital Cooperation:** Push for FTA and Bilateral Treaty; agreements on UPI, RuPay, and local currency trade.
- **Financial Support:** India extended USD 550 mn credit and cut Maldives' debt by 40%.
- **Infrastructure & Social Projects:** Inaugurated roads, housing, and community projects.
- **Healthcare & Disaster Aid:** Donated Aarogya Maitri Health Cubes for emergency response.

Reasons for Maldives to Recalibrate its Ties with India

- **Severe Economic Crisis:** Reserves down to USD 440 mn; Moody's downgrade; USD 150 mn tourism loss.

- **Economic Dependence:** Reliance on Indian tourists, food, medicines, and construction materials.
- **India's Strategic Role:** Historical first responder in crises (2014 water shortage, Covid-19, Operation Cactus).
- **Geopolitical Balancing:** Pragmatic shift to balance ties with both India and China.
- **Political Realism:** Recognition of India's crucial economic and security role.

Importance of Reset in India-Maldives Relations

- **Significance of Maldives for India**
  - **Strategic Location:** Controls shipping lanes carrying 50% of trade and 80% of energy imports.
  - **Countering China:** Maldives as a regional ally against Chinese influence.
  - **Indian Ocean Focus:** Key partner for maritime stability.
- **Significance of India for Maldives**
  - **Security Cooperation:** Operations and joint exercises like Cactus, Ekuverin, Dosti.
  - **Tourism Contribution:** India as top tourist source (11.2% in 2023).
  - **Education Partnership:** Scholarships and higher education in India.
  - **Climate & Disaster Relief:** Support during tsunamis, water shortages, and pandemics.

Ways to Further Strengthen India-Maldives Relations

- **Economic & Developmental Cooperation:** Fast-track FTA, boost Indian investments, complete GMCP, enhance digital links.
- **Security & Strategic Collaboration:** Joint patrols, EEZ monitoring, donation of patrol vessels & drones, Colombo Conclave cooperation.
- **People-to-People Ties:** Engage youth, support media, promote cultural and film collaborations.
- **Diplomatic & Political Outreach:** Frequent visits, Track-II exchanges, sensitive handling of sovereignty issues.

India-Oman CEPA Negotiations Concluded

India concluded negotiations for the Comprehensive Economic Partnership Agreement (CEPA) with Oman, aimed at boosting trade and investment.

CEPA vs FTA

- EPA is more comprehensive and ambitious than traditional FTAs.
- FTA focuses mainly on goods, while CEPA covers a wide range of areas like services, investment, competition, government procurement, and dispute resolution. CEPA goes deeper into regulatory aspects of trade compared to an FTA.

India-Oman Relations

- **Strategic Partnership:** Diplomatic ties since **1955**, upgraded to **strategic partnership** in **2008**.
- **Multilateral Cooperation:** Oman is key in the **GCC**, **Arab League**, and **IORA** (Indian Ocean Rim Association).
- **Trade & Economic Relations**:
  - Oman **India's 3rd largest export destination in the GCC** after UAE and Saudi Arabia.
  - **India's exports**: Light oils, rice, machinery, metals.
  - **India's imports**: Crude oil, LNG, fertilizers, chemicals.

Forging a New Era of India-ASEAN Relations

Amid China's assertiveness and US shifts, ASEAN is key to India's Act East Policy and Indo-Pacific vision, for promoting a free and resilient Indo-Pacific.

Opportunities ASEAN Offers India

Economy & Trade	Security Engagement	Connectivity & Infrastructure	Cultural & People Ties
■ **ASEAN's Market:** 650 million people, $3.2 trillion GDP ■ **Bilateral Trade:** 11% of India's Global Trade ■ **Singapore:** Largest ASEAN partner, key FDI source ■ Full use of **ASEAN-India FTA**, finalize **AITIGA** (Trade in Goods)	■ **Defence Cooperation:** Sale of BrahMos to Philippines ■ **Multilateral Platforms:** East Asia Summit (EAS), ASEAN Regional Forum (ARF) ■ Rules-based regional order aligned with **India's SAGAR doctrine**	■ **Key Projects:** IMT Trilateral Highway, Kaladan Multi-Modal Transport ■ ASEAN-India **S&T Development Fund** ■ **Cooperation** in energy resources, solar and clean technology, and semiconductors	■ **Shared Heritage:** Ramayana Ballet (Indonesia), Ayutthaya (Thailand) ■ **2025:** ASEAN-India Year of Tourism ■ Counter **China's Belt and Road Initiative**

Areas of Friction	Strategies to Strengthen Ties
■ **Economic** ● **India's trade deficit with ASEAN** grew from $9.66B (2016-17) to $45.2B (2024-25). ● **India withdrew from RCEP** in 2019 to protect against Chinese goods.	■ **Sustainability, Resilience & Development Partnerships** ● Launch **Supply Chain Diversification** initiatives in critical technologies and co-develop **green energy corridors**. ● Launch a **Regional Satellite for Sustainability** to monitor **crops**, **marine pollution**, and provide **disaster alerts**.
■ **Connectivity** ● **IMT Trilateral Highway**, **KMMT Project** face security, and bureaucratic delays.	■ **Digital Connectivity** ● Expand **India-Singapore UPI linkage** to create a regional **digital payment network**.
■ **Defence** ● **ASEAN's economic dependence on China** limits defence cooperation. ● **Vietnam** supports India's Indo-Pacific vision, but **Cambodia** prefers neutrality (diverging security priorities) ● India's stance on **Myanmar** differs from ASEAN's diplomatic approach.	■ **Maritime Security & Blue Economy** ● Enhance underwater domain awareness, logistics, **MRO support**, and tackle non-traditional threats like terrorism ● Focus on offshore renewable energy, sustainable fisheries, and marine tech.
■ Data Governance	■ **Institutional & People-Centric Engagement** ● Leverage platforms like **EAS**, **ARF** and **ADMM-Plus** for strategic dialogues. Integrate **Quad-ASEAN cooperation**, institutionalize **Track-1.5 dialogues**, and strengthen people-to-people ties.

Armenia - Azerbaijan Peace Agreement

Brokered by the US, this peace agreement signed by the two countries marks a significant step toward resolving the longstanding **Nagorno-Karabakh conflict**.

Nagorno-Karabakh Region

- Mountainous, landlocked region in **South Caucasus** (between **Black and Caspian Seas**; spanning **Russia, Georgia, Azerbaijan, and Armenia**).
- **The Conflict**
  - **Russian Empire's collapse (1917):** Armenia and Azerbaijan both claimed Nagorno-Karabakh, causing lasting tensions.
  - **1994 Ceasefire:** Though internationally recognised as part of Azerbaijan, the region remained under Armenian-backed control.
  - **Azerbaijan reclaimed** the region by military offensive (2023).
- **'Trump Route for International Peace and Prosperity' Corridor:** With this peace deal, the US gained the exclusive right to develop this corridor in the South Caucasus.
- **India's Reason for Supporting the Deal**
  - Both Armenia and Azerbaijan are key parts of **INSTC**.

India has a Friendship and Cooperation Treaty with Armenia (1995)

Biochar-Led Carbon Drawdown for Sustainable Growth

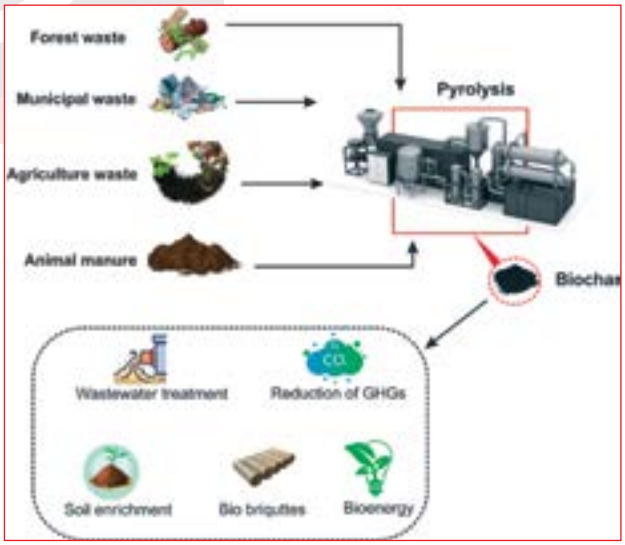
With the **Indian carbon market** set to be launched in **2026, CO_2 removal technologies** such as **biochar** are poised to play a pivotal role in **reducing emissions** and ensuring **sustainable growth.**

Key Statistics Related to India's CO_2 Emissions

- **Total Emissions:** India contributes only **4% of global cumulative GHG emissions (1850–2019),** with **per capita emissions at about one-third of the world average**.
  - India reduced its **GDP emission intensity by 36% (2005–2020)**.
  - India is the **3rd largest emitter of greenhouse gases after China and the USA.**
- **Emission Hotspots:**
  - **India's power sector,** dominated by coal-based thermal plants, is the **largest source of CO_2 emissions**, contributing about **50% of the country's fuel-related emissions.**
  - The **transport sector, especially road transport**, accounts for around **12% of India's energy-related CO_2 emissions.**
- These sectoral trends underscore the **urgency of advancing scalable CO_2 removal pathways, with solutions like biochar** offering significant potential to offset emissions and support India's low-carbon transition.

Potential Applications of Biochar

- **About: Biochar** is a **carbon-rich charcoal** produced through **pyrolysis of agricultural residue and organic municipal waste**.
  - India produces over 600 million tonnes of agricultural residue and 60 million tonnes of municipal waste yearly. Much of this is burned or dumped, causing air pollution and greenhouse gas emissions.
  - Utilizing **30-50% of this waste for biochar** could remove around 0.1 gigatonnes of CO_2-equivalent each year.
- **Potential Applications of Biochar:**
  - **Carbon Capture:** Biochar's **stable structure** enables it to **sequester carbon** in soil for **100 to 1,000 years**, making it an effective **long-term carbon sink** that also enhances **soil organic carbon** and aids in the **restoration of degraded soils**.
    - Modified biochar can **adsorb CO_2** from **industrial exhaust gases**, but its **efficiency** is currently lower than **conventional carbon capture technologies**.
  - **Power Generation: Biochar production** through **pyrolysis** in India can generate approximately **20–30 million tonnes of syngas** and **24–40 million tonnes of bio-oil** as **valuable byproducts.**
    - **Syngas** can produce **8–13 Terawatt-hour (TWh) of electricity** annually.
    - **Bio-oil** can substitute **12–19 million tonnes of diesel or kerosene**, helping reduce **crude oil imports** and cutting **fossil fuel emissions** by over **2%**.
  - **Agriculture:** Applying **biochar** improves **water retention**, especially in **semi-dry** and **nutrient-depleted soils**. This leads to a **30-50% reduction in nitrous oxide emissions**, a potent **greenhouse gas** with **273 times** the warming potential of **CO_2**, making its mitigation critical for climate action.
  - **Construction Sector:** Incorporating **2-5% biochar** into concrete improves **mechanical strength**, increases **heat resistance by 20%**, and captures approximately **115 kg of CO_2 per cubic metre**.
  - **Wastewater Treatment:** Biochar is a **cost-effective** way to clean polluted water. India produces over **70 billion litres** of wastewater daily, but **72% remains untreated**.



Other Key Technologies for CO_2 Removal

- **Bio-based Solutions:**
  - **Afforestation & Reforestation**: **Large-scale tree planting** to absorb atmospheric CO_2.

- **Agroforestry:** Integrating trees with crops/livestock for **carbon sequestration** and livelihood benefits.
- **Soil Carbon Sequestration:** Practices like **conservation tillage** and **cover cropping** to enhance soil organic carbon.

- **Ocean-based Solutions:**
  - **Artificial Upwelling/Downwelling:** Moving nutrient-rich waters to surface or transporting CO_2-rich surface waters to depths.
  - **Seaweed Cultivation & Sinking:** Farming fast-growing **seaweeds** for carbon storage via **harvest or sinking.**
- **Bioenergy with Carbon Capture and Storage (BECCS):** It **combines biomass energy with CO_2 capture** and **geological storage,** enabling **renewable power** with net negative emissions.
- **Direct Air Capture (DAC):** It involves **chemical processes extracting CO_2 directly** from air for underground storage or product use.
  - **Eg**: Climeworks (Switzerland), Carbon Engineering (Canada).
- **Carbon Capture, Utilisation, and Storage (CCUS): CCUS captures CO_2 from industrial emissions** for reuse (synthetic fuels, building materials) or storage.

Slums in Floodplains

A Nature Cities study finds that India has the world's largest number of slum clusters situated in flood-prone areas.

- According to UN-HABITAT slums are defined as settlements lacking one or more of these conditions: durable housing, sufficient living area, access to clean water, access to proper sanitation and secure tenure.

Global Trends in Flood Risk and Slum Settlements

- India leads globally with over 158 million slum dwellers in flood-prone areas, especially in the naturally flood-prone Ganga delta. 40% of Indian slum dwellers live in urban/suburban areas with high flood risk due to overcrowding and poor infrastructure.
- Globally, slum dwellers are 32% more likely to live in floodplains, often due to low land value.
- Mumbai and Jakarta show strong links between high slum density and flood risk.
- 33% of informal settlements in low/middle-income countries lie in flood-exposed areas; other hotspots include Rwanda, northern Morocco, and coastal Rio de Janeiro.
- Floods cause job loss, displacement, and reduced access to healthcare/education; low education and lack of insurance worsen vulnerability.

Factors Responsible for Flooding in India

- **Riverine Floods:** From heavy rain, snowmelt, or dam failure; frequent in Brahmaputra, Ganga, and Krishna basins; Himalayan slopes increase risk.
- **Urban Expansion:** Encroachment into floodplains (e.g., Bengaluru, Mumbai); India ranked 3rd globally (1985–2015) for growth in flood-prone areas.
- **Flash Flood Surge:** Incidents rose from 132 (2020) to 184 (2022); 75% caused by extreme rain plus saturated soil.
- **Climate Change:** Extreme rainfall events doubled (1981–2020); monsoon rains up 56%, heightening flood risk.
- **Poor Drainage:** Outdated/clogged systems in major cities cause waterlogging.
- **Weak Oversight:** Encroachments and waste block drains (e.g., Chennai 2015).
- **Lack of Local Strategies:** Inadequate region-specific risk assessments hinder planning and flood control.

Measures for Sustainable Slum & Flood Management

- Plan flood strategies based on local topography and soil; strengthen early warning and preparedness (NDMP).
- Enforce zoning laws (Smart Cities Mission) and develop flood-resilient infrastructure.
- Install permeable pavements, rain gardens, and green spaces for better stormwater management.
- Under PMAY, improve housing elevation, drainage, and basic infrastructure in slums.
- Use NRSC and IMD data with systems like IFLOWS-Mumbai and CFLOWS-Chennai for flood risk tracking and forecasting.
- Adopt natural and engineered solutions (green roofs, permeable surfaces) to absorb rainwater; practiced in Shanghai, now in Mumbai.
- Integrate resilience into urban plans and restore lakes/wetlands (e.g., Jakkur Lake, Bengaluru) for flood mitigation.

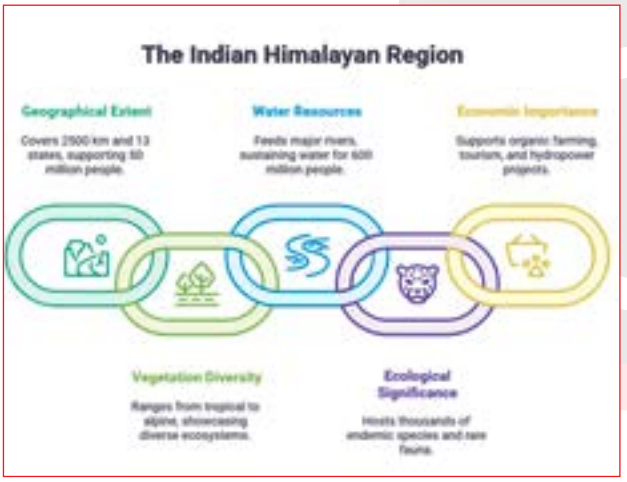
Status of Slums in India

- **Pranab Sen Committee (2010):** Compact settlement of atleast 20 households, poorly built, overcrowded, lacking sanitation/water, often unhygienic.
- **Highest populations:** In Maharashtra, Andhra Pradesh, Uttar Pradesh, and West Bengal; Mumbai and Kolkata most affected.
- **Regulation:** 'Land' and 'Colonisation' under State List; slum rehabilitation led by States/UTs. Slum Areas (Improvement and Clearance) Act, 1956 for selected UTs; protects tenants from eviction.
- **Schemes:** PMAY-U (Pucca houses with basic amenities), AMRUT & Smart Cities Mission (Infrastructure upgrades in urban poor areas), SBM-U 2.0 (Targeting garbage-free cities).

Towards Resilient Indian Himalayan Region

The Supreme Court of India has expressed concern over the unchecked infrastructure growth, unregulated tourism, and environmental degradation in Himachal Pradesh. It emphasized the urgent need for sustainable governance and climate-resilient development models to protect the future of the Indian Himalayan region.

Threats	Measures to Develop Sustainable Himalyan Region
■ Between 2019 and 2021, the Himalayan states lost 1,072 sq km of forest cover, heightening the risk of landslides, biodiversity loss, and soil erosion.	■ Enforce scientific slope cutting and tunneling techniques to prevent landslides. Promote green buildings using local materials and energy-efficient designs.
■ Nearly 50% of natural springs across the Indian Himalayan Region are drying up (NITI Aayog), leading to water scarcity and impacting local communities.	■ Restore and maintain springs, natural aquifers, and catchments under programs like Jal Shakti Abhiyan.
■ Himalayan glaciers are retreating rapidly, increasing the risk of Glacial Lake Outburst Floods (GLOFs). For instance, Arunachal Pradesh alone has lost 110 glaciers over the past 32 years.	■ Shift from mass tourism to eco-tourism and homestays, with strict carrying capacity norms. ■ Train local youth as nature guides, biodiversity monitors, and in handicraft-based livelihoods.
■ Increased land use for development have made certain Himalayan states (e.g., Himachal Pradesh) highly landslide-prone, often triggered or worsened by heavy rainfall and infrastructural development.	■ Promote community-based forest management (e.g., Van Panchayats in Uttarakhand). ■ Promote plantation of indigenous tree species to reduce slope erosion and enhance carbon sequestration.



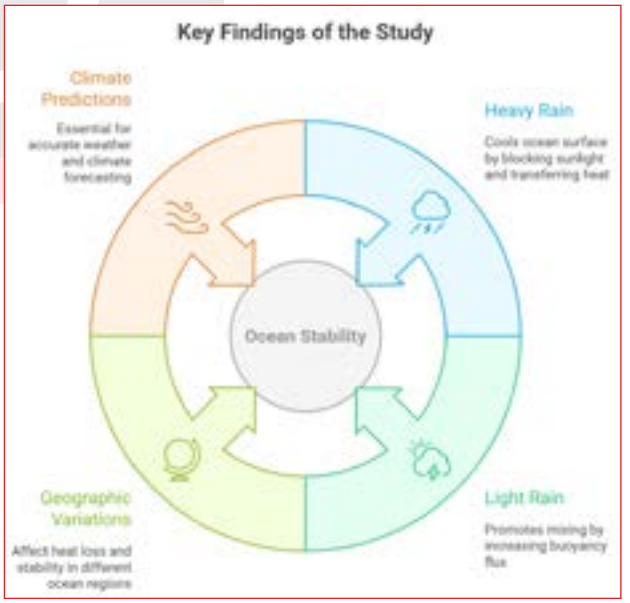
First Hydrogen-Powered Coach

Indian Railways successfully tested its first hydrogen-powered coach as part of the "Hydrogen for Heritage" initiative.

- **Location:** Integral Coach Factory (ICF), Chennai
- **Design and Testing Handling Agency:** Research Designs and Standards Organisation (RDSO)

Tropical Rain Affects Ocean Stability

A new study challenges the common belief that tropical rain always increases the buoyancy of the ocean surface, despite freshwater being less dense than seawater. It shows that rain can, at times, enhance surface stability rather than promote mixing.



Beetle-Fungus Threat to Rubber Trees

Kerala's rubber plantations are facing a significant threat from the ambrosia beetle (Euplatypus parallelus) and its associated fungi, Fusarium ambrosia and Fusarium solani.

Key Facts

- Ambrosia beetles block water flow, leaf drop, trunk drying, reduced latex yield, and tree death. This damage also slows tissue healing.
- Ambrosia beetles threaten over 80 broadleaf species, including cashew, teak, coconut, and coffee.
- The fungus also poses health risks to humans, animals, and plants, particularly those with weakened immunity.
- Mitigation measures includes using beetle traps, removing infected plant parts, applying antifungal treatments, employing biocontrol methods, such as antagonistic fungi, microbial consortia etc.

Saltwater Crocodile in Sundarbans

The population of **saltwater crocodiles** in the **Sundarban Biosphere Reserve (SBR)** has increased [State Forest Department's survey].

- **Saltwater Crocodiles:**
  - **Hypercarnivorous apex predators** feeding on carcasses in water bodies
  - Prefer creeks and rivers with high tide widths <180m.
  - Can tolerate a **wide range of water salinity during winter**.
- **Sundarbans:**
  - World's largest mangrove forest lies 40% in India and the rest in Bangladesh (Ganga-Brahmaputra-Meghna delta).
  - Recognition: **UNESCO WHS** in 1987 (India) and 1997 (Bangladesh), and **Ramsar site** (2019).

Flood Risk Management

Flood risk management is becoming essential due to the growing impact of climate change. Global best practices combine engineering, nature-based solutions, and advanced technologies to tackle flooding.

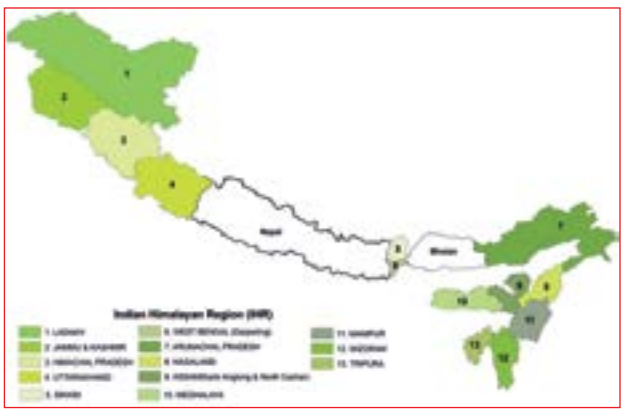
Global Practices	Description
Tanzania's Msimbazi Basin Development Project	World Bank-funded project in Dar es Salaam; focused on dredging, drainage, infrastructure upgrades, relocating vulnerable residents, and creating green flood-resilient areas
Netherlands's Floating Homes	Flood-resistant homes built with concrete and glass; solar panels and heat exchangers provide continuous power
Vienna's Flood Protection System (Austria)	A 21 km flood relief channel parallel to the Danube River absorbs excess floodwater; activates only when needed
China's Sponge Cities	Utilizes nature-based solutions like permeable surfaces and wetlands to absorb and store rainwater
Denmark's Green Climate Screen	Channels rainwater from gutters to mineral wool behind willow panels, absorbing moisture naturally
Texas' AI and Satellite Imagery (US)	Uses AI and satellite data to create detailed flood maps and 7-day forecasts (flood preparedness)

Did You Know?

- Over 40 mn Ha (out of 329 mn Ha) are flood-prone in India
  - Floods cause 63% of annual economic losses
  - 5.4 mn internal displacements in 2024 due to disasters; the highest in 12 years
- Flood control is a State subject

Strengthening Disaster Resilience in Indian Himalayan Region

The recent flash flood in Uttarkashi highlights the increasing threat of disasters caused by extreme weather events in the **Indian Himalayan Region (IHR)**.



Disaster Factor in IHR	Mitigation Measures
■ **Tectonic Activity & Earthquake Risk:** Active seismic region due to the Indian-Eurasian plate collision. ● **Example:** 2005 Kashmir Earthquake of magnitude 7.6.	■ **Region-Specific Environmental Impact Assessment (EIA):** A customized EIA framework considering its unique geology, climate variability, and hydrology.
■ **Fragile Geology**: Geologically young mountains made of sedimentary rocks, which are loose and easily eroded.	■ **Climate-Resilient Infrastructure:** Build resilient infrastructure, integrate disaster risk reduction as per the Sendai Framework and integrate climate adaptation
■ **Glacial & Snow-Related Hazards**: Melting glaciers due to climate change create expanding glacial lakes, causing Glacial Lake Outburst Floods (GLOFs). ● **Example:** 2023 GLOF from South Lhonak Lake destroyed the Teesta III Dam at Chungthang, Sikkim.	■ Early Warning Systems: Install solar -powered automated sensors at high-risk glacial lakes for real-time alerts.
■ **Extreme Rainfall & Cloudbursts:** Intense rainfall from orographic lift triggers flash floods and landslides. ● **Example:** Cloudbursts in Chamoli (2021).	■ **Engineering and Geo-Technical Interventions:** Structural measures like check dams, spillways, controlled drainage channels, and catchment dams must be implemented.
■ **River Dynamics & Flash Floods:** Rivers prone to blockages due to landslides or glacial melt, creating natural dams. When these dams break, sudden flash floods occur.	■ **River Basin Management:** Stabilize riverbanks, restore wetlands, and regulate river flows.
■ **Deforestation & Land Use Changes**: Deforestation for roads, projects, and agriculture weakens slopes, increasing erosion, landslides, and runoff during heavy rains. ● **Example:** In Joshimath (2023), land subsidence was linked to unregulated construction and hydropower tunnelling in fragile hill slopes.	■ **Land Use Management:** Reforestation and adopting Green Tourism Framework. ■ **Urban Planning:** Revise National Building Code for disaster resilience, restrict construction in prone zones.

Committees and their Recommendations

- **Mishra Committee (1976)**:
  - Set up to investigate the **sinking of Joshimath.**
  - Recommended halting construction in **slip zones** until proper investigations confirm stability.
  - Advised against tree cutting or removing boulders in landslide-prone areas.
- **J.C. Pant Committee (1999)**:
  - Classified 31 types of disasters into five categories: water and climate-related, geological, chemical/ industrial/nuclear, accident-related, and biological.
  - Suggested incorporating **disaster management** in the Constitution's Schedule 7.
  - Recommended creating a **Ministry of Disaster Management,** creation of a **Cabinet Committee on Disaster Management,** the institutionalization of a **National Council under the Prime Minister.**
  - Establishing the National Centre for Calamity Management and the National Institute for Disaster Management for capacity building. Proposed the reconstitution of the **Calamity Relief Fund**.

First Auction for Green Ammonia by SECI

Solar Energy Corporation of India (SECI) conducted its first-ever auction for **Green Ammonia** procurement under the **SIGHT Scheme**.

- **SIGHT Scheme:**
  - A flagship initiative under
    - ❖ **National Green Hydrogen Mission (NGHM)**
  - **Aim:** Financially incentivise
    - ❖ manufacturers to strengthen **green hydrogen** supply.
  - **SECI's Role:** Nodal implementing
    - ❖ body of the scheme under MNRE.

Elephant Conservation in India

On **12th August**, the **Ministry of Environment, Forest and Climate Change (MoEF&CC)** celebrated **World Elephant Day** in Coimbatore, focusing on **human-elephant conflict**.

Elephants : Fact Sheet

- **Species**: African Savannah, African Forest, and Asian elephants.
- **Largest Land Animal**: African Savanna elephant
- **Population Decline**: 90% decline in African elephants over the past century; Asian elephant populations are down by 50%.
- **Population**: India hosts over 60% of the world's Asian elephants.
- **Protected Status (Asian Elephants)**: **IUCN Red List** (Endangered), **Wildlife Protection Act, 1972** (Schedule I), and **CITES** (Appendix I).
- **Related Initiatives:**
  - **Project Elephant**: A centrally sponsored scheme, launched in 1992 under MoEFCC. From FY 2023-24 it is known as **Project Tiger and Elephant.**
  - **Project RE-HAB (Reducing Elephant-Human Attacks using Bees)**: Initiative by KVIC.
  - **Monitoring the Illegal Killing of Elephants (MIKE) programme**:- led initiative.
- **Success**: Wild elephant population increased from 27,669 (2007) to 29,964 (2017).
- **Elephant Reserves**: 33 reserves across 14 states, overlapping with Tiger Reserves and sanctuaries.

Challenges in Elephant Conservation

- **Habitat Loss and Fragmentation**: Expanding settlements and infrastructure block elephant corridors.
- **Human-Elephant Conflict**: Shrinking habitats and climate change push elephants into crop fields and villages, causing livelihood damage and leading to **400-500 human deaths and over 60 elephant deaths annually.**
- **Poaching**: Ivory and body parts targeted, particularly in Northeast India.
- **Infrastructure threats** like low-hanging power lines and crude bombs, along with accidental elephant deaths from falling into open wells or pits.
- **Limited resources** in remote elephant habitats, like **Similipal (Odisha)** with few staff and poor roads.
- **Train Collisions**: **186 elephants** died in train collisions between **2009-10 and 2024**, with **77 high-risk stretches** identified across India, especially in **Assam**, **West Bengal**, **Odisha**, **Kerala**, and **Uttarakhand**.

Measures Needed for Elephant Conservation

- **Chili Powder Fences & Beehives**: Use as deterrents for crop-raiding elephants.
- **Banana Trap Crops**: Plant fodder crops like bananas along forest edges to divert elephants from main crops.
- **Strengthen Habitat Protection**: Reconnect fragmented habitats through land acquisition, Gram Sabha-led consent, and voluntary relocation, as recommended by the Elephant Task Force (2010).
- **Technological Interventions**: Use **GPS collar tracking** to monitor movement and predict conflict hotspots.
- **Capacity Building**: Equip forest staff with better tools, veterinary units, and non-lethal conflict training.
- **Community Participation**: Expand **Gaj Yatra** and **Gaj Shilpi** initiatives to raise awareness.
- **Mitigation of Elephant- Train Collision:** B building ramps, underpasses, overpasses, and installing Intrusion Detection Systems (IDS) to monitor and alert train operators about elephant movements.

World Lion Day 2025

World Lion Day is celebrated annually on 10th August. It was declared so in 2013 by Big Cat Rescue (world's largest accredited sanctuary dedicated to big cats).

Asiatic Lions: Fact Sheet

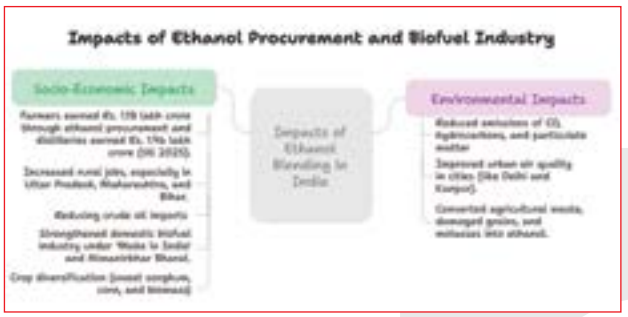
- **Size:** Slightly smaller with mane less prominent than African counterparts.
- **Unique Feature:** Longitudinal skin fold along the belly, absent in African lions.
- **Habitat:** Grasslands, savannas, dense scrub, and open woodlands.
- **16th Lion Census (2025)**: Numbers grew from 523 in 2015 to 891 by 2025.
  - Found in India at Gir Forest, **Barda Wildlife Sanctuary,** and a few zoological parks.
- **Conservation Status:** IUCN Red List: Vulnerable || CITES: Appendix I || WPA, 1972: Schedule I

Conservation Efforts

- **Project Lion (2020):** 10 year-duration, implemented by the Gujarat State Government.
  - Supported under **Centrally Sponsored Scheme-Development of Wildlife Habitat.**
- **International Big Cats Alliance (IBCA) (2023):** Foster global cooperation among 97 big cat range countries.
- **Greater Gir Concept:** Expands lion habitats beyond Gir National Park to Girnar, Pania, and Mitiyala Sanctuaries.
- **Technological Innovations:** GPS & GIS based real-time monitoring of lions and surveillance. Use of automated, magnetic and infrared sensors to track wildlife activity.

India Achieves 20% Ethanol Blending in Petrol

India has achieved 20% ethanol blending in petrol in 2025 under the Ethanol Blending Programme (EBP).



Challenges	Suggestions / Strategy Measures
Feedstock Concerns & Food Security	Diversify feedstock with non-food crops like sorghum. Promote 3G ethanol from algae under PM JI-VAN.
Water Scarcity & Pollution from Distilleries	Mandate effluent treatment, recycled water use, and water budgeting in ethanol-producing states.
Climate Sensitivity & Land Use Changes	Encourage drought-resilient crops and climate-adaptive agriculture to reduce mono-cropping impacts.
Industrial Pollution Risks	Reinstate public hearings, enforce environmental audits, and regulate distillery location and emissions.
Infrastructure & Logistics Gaps	Build pipelines, terminals, and ensure green logistics under the National Logistics Policy (NLP 2022).
Vehicle Compatibility & Blending Challenges	Mandate FFV production, offer PLI schemes, reduce GST for automakers, and scale up ETHANOL100 stations.
Underdeveloped 2G & 3G Technology	Support advanced ethanol tech (2G/3G) with R&D investments and viability gap funding.

Rhisotope Project

The Rhisotope Project is a joint initiative between a South African University and the **IAEA**, aimed at combating rhino poaching using radioactive isotopes.

5 Main Species of Rhino			
Species	**Found in**	**IUCN Red List Status**	**Habitat**
African White	Africa	NT	Long/short grass Savannah
African Black	Africa	CE	Semi-Desert Savannah
Greater one-horned	Asia	Vu (CITES - Appendix I, WPA - Schedule I	Tropical grassland
Javan	Asia	CE	Tropical, subtropical forests
Sumatran	Asia	CE	Same as Javan

Radioisotopes

- These are isotopes with unstable atomic nuclei that emit radiation **(α, β or γ)** to achieve stability.
  - Example: **Carbon-14 (C-14), Tritium (H-3).**
- The emitted energy can be detected with devices such as a Geiger counter or photographic film.
- **Applications:** Medicine (Thyroid diagnostics (I-131)), industry, power generation and archaeology (carbon dating (C-14)).

Did You Know?

Parthenium (Congress grass) is an invasive species, threatening Assam's Pobitora Wildlife Sanctuary, which hosts the world's highest density of one-horned rhinos. It outcompetes their native food plants, limiting the available range.

India's Groundwater Contamination Crisis

The 2024 Annual Groundwater Quality Report by the Central Ground Water Board (CGWB) reveals widespread contamination, impacting 600 million+ Indians, highlighting a serious public health crisis.

Groundwater Contamination: Causes

- **Industrial Pollution:**
  - Unregulated discharge of toxic chemicals and heavy metals (lead, cadmium, chromium, mercury) in areas like Kanpur and Vapi creating "death zones".
- **Excessive Fertilizer Use:**
  - Nitrogen-rich fertilizers → nitrate pollution, Phosphate fertilizers → uranium contamination.
- **Improper Sanitation:**
  - Leakage from septic tanks and sewage systems.
- **Natural Contamination:**
  - Fluoride, arsenic, and uranium in regions like Rajasthan, Bihar, and West Bengal.
- **Regulatory Gaps:**
  - **Water (Prevention and Control of Pollution) Act, 1974**, largely overlooks groundwater. CGWB **lacks statutory authority**, and State Pollution Control Boards (SPCBs) are **resource-and-tech-constrained.**

Key Bodies in Groundwater Management			
Central Ground Water Authority	Central Ground Water Board	Central Water Commission	CPCB
Regulates groundwater (EPA 1986)	Monitors groundwater resources	Coordinates water resources management	Implements pollution control laws

Health Impacts	
Fluoride	Skeletal fluorosis, joint pain, bone deformities, stunted growth
Arsenic	Skin lesions, respiratory issues, cancers
Nitrate	"Blue baby syndrome" (methemoglobinemia) in infants
Uranium	Chronic organ damage, kidney toxicity
Heavy metals	Developmental delays, anemia, neurological and immune damage
Pathogenic contamination	Cholera, dysentery, hepatitis A and E

Addressing the Groundwater Crisis

- Establish a National Groundwater Pollution Control Framework (NGPCF) to define roles and empower CGWB.
- Upgrade ground water monitoring with real-time sensors, remote sensing, **National Aquifer Mapping and Management Programme,** and open data platforms.
- Expand community water purification plants (arsenic and fluoride removal plants) under **Jal Jeevan Mission (JJM)**.
- Promote organic farming through **Paramparagat Krishi Vikas Yojana (PKVY)** and reduce chemical fertilizer overuse.
- Community-centric governance including local bodies, water user groups, and schools. Along these lines, **Atal Bhujal Yojana (ATAL JAL)** is a step in the right direction.

Indian Government Initiatives

- Cotton Development Programme Under the National Food Security Mission (NFSM)
- PM MITRA Scheme
- Cotton Corporation of India (CCI)
- MSP for Cotton
- The Kasturi Cotton Bharat programme
- Cott-Ally Mobile App

India's Resolution on the Wise Use of Wetlands Adopted at Ramsar COP15

At the 15th Conference of the Contracting Parties (COP15) to the Ramsar Convention on Wetlands, held in Victoria Falls, Zimbabwe, India's resolution o'Promoting Sustainable Lifestyles for the Wise Use of Wetlands' was officially adopted.

India's Resolution

- Built on UN Environment Assembly Resolution 6/8 (2024) on 'Promoting Sustainable Lifestyles', it advocates a whole-of-society approach for wetlands conservation.
- Encourages voluntary incorporation of sustainable lifestyle interventions into wetland plans, programmes, and investments.
- **Alignment with Global Frameworks:**
  - **Resolution XIV.8 (COP14, Ramsar):** Communication, Education, Participation, and Awareness (CEPA) approach.
  - **10-Year Framework on Sustainable Consumption and Production (10YFP, Rio+20, 2012):** Supports global shift toward sustainable consumption and production (SCP) patterns.
- **Mission LiFE Linkage:** Reinforces India's Lifestyle for Environment movement (COP26), promoting conscious consumption, waste reduction, and reduced environmental degradation.
- The Ramsar Convention (1971) defines wise use of wetlands as "the maintenance of their ecological character, achieved through the implementation of ecosystem approaches, within the context of sustainable development".

Key Outcomes of Ramsar COP15

- **Victoria Falls Declaration:** Emphasises political commitment, resource mobilisation, and investment in wetland management.
- **13 Resolutions Adopted:** Strengthen flyway conservation for migratory birds, establish global waterbird estimates partnership, protect key species (e.g., river dolphins), develop national policies for restoring degraded freshwater ecosystems, refine criteria for Wetlands of International Importance, integrating IUCN Red List data, and recognise indigenous knowledge and local communities in sustainable wetland management.
- **5th Ramsar Strategic Plan:** Adopted with 4 goals and 18 targets, monitored by the Scientific and Technical Review Panel (STRP).

Hot Springs & Origin of Life

In Puga Valley hot springs, Ladakh, travertine (calcium carbonate) deposits capable of trapping organic molecules like amino acids, fatty acids, and formamide discovered.

- This supports theories that life may have originated in geothermal environments, similar to early Earth or Mars.
- Techniques like GC-MS-MS, Raman Spectroscopy, X-ray Diffraction (XRD), Infrared Spectroscopy (IR), Stable Isotope Geochemistry and microscopy used.
- It challenges earlier silica-based origin theories by showing calcium carbonate can preserve biosignatures, acting as a prebiotic reactor. Can aid ISRO's astrobiological missions by guiding biosignature detection on Mars-like terrains.

Hot Springs	Geysers
■ In a hot spring the heated water flows out continuously without any eruptive activity. ■ Such hot springs are common in Yellowstone Park US; Badrinath and Manikaran in India. ■ These hot springs are very healthy for bathing.	■ In a geyser, hot water and steam are thrown out at intervals in the form of a fountain. ■ There is an Old Faithful geyser which erupts out exactly in one hour intervals; these are about 100 geysers.

Marine Heatwaves

It is found that the marine heatwaves (MHWs) affected 96% of the ocean surface in 2023, raising fears of a permanent temperature shift that could disrupt life in oceans and on land.

Contextual Reference

MHW: Extreme event with sea surface temperatures 3–4°C above average for ≥5 days; can last weeks to years.

Effects of Marine Heatwaves on Oceans and Climate

- **Climatic Impacts**: Fuel extreme weather (tropical storms, hurricanes), disrupt water cycle, increase floods, droughts, wildfires (e.g., Hurricane Ian, Florida).
- **Economic Impact:** Harm fisheries/aquaculture; species migrate, affecting livelihoods (lobster, snow crab, scallops).
- **Ecological Consequences:** Mass invertebrate mortality, food web disruption, invasive species spread; kelp, seagrass, coral reefs highly vulnerable (e.g., 2011 Western Australia MHW).
- **Compounding Environmental Stressors:** Coincide with ocean acidification, deoxygenation, overfishing → worsen habitat destruction.

Causes of MHWs	Prevention / Mitigation Measures
■ **Global Warming:** Rising CO_2, oceans absorbing 90% of excess heat	■ **Reduce GHGs:** Transition to renewables, carbon pricing, sustainable transport & industries
■ **El Nino & PDO:** Warming upper layers, weakened upwelling, Pacific temperature shifts	■ **Strengthen Ocean Monitoring:** Expand marine tracking, climate modelling, accurate prediction of MHWs
■ **Reduced Cloud Cover:** More sunlight reaches oceans, rapid surface warming	■ **Protect & Restore Ecosystems:** Conserve coral reefs, mangroves, seagrasses, wetlands to absorb CO_2 and stabilize temperature
■ **Changing Ocean Currents:** Gulf Stream weakening, regional warming	■ **Reduce Local Stressors:** Pollution control (UN Plastic Treaty), sustainable farming, reflective infrastructure, artificial upwelling
■ **Human-Induced Feedbacks:** Arctic ice melt, coral die-offs accelerating warming	■ **Global Cooperation:** Paris Agreement, climate finance, UN ocean governance (UNCLOS, UN Decade of Ocean Science)
■ **Compounding Environmental Stressors:** Ocean acidification, deoxygenation, overfishing	■ **Sustainable Fishing & Aquaculture:** Climate-resilient species, sustainable feed, early warning systems for fishing communities

Central Empowered Committee Report on CAMPA

The SC-mandated CEC assessed India's compensatory afforestation initiatives, finding that while 85% of the target has been met, only 67.5% of the CAMPA funds have been utilized.

Compensatory Afforestation Fund Management and Planning Authority (CAMPA)

- **About:** Statutory body under CAF Act, 2016 (centre & states/UTs). It manages funds for compensatory afforestation when forest land is diverted for non-forest purposes.
- **Background:** Established by SC (2002) via T.N. Godavarman vs Union of India (1995) to monitor Compensatory Afforestation (CA).
- **Forest (Conservation) Act, 1980:**
  - User agency diverting forest land must:
    - ❖ Provide alternative non-forest land for afforestation.
    - ❖ Bear all afforestation costs.
    - ❖ If non-forest land unavailable, afforest **twice the degraded forest area**.
- **CAF Act, 2016:** Came into force in 2018 with CAF Rules, 2018 institutionalizing afforestation fund management.

- **Dedicated Funds Created:** Funds are **interest-bearing** and **non-lapsable**
  - **National CAF (NCAF):** Managed by National CAMPA (MoEFCC), Public Account of India.
  - **State CAF (SCAF):** Managed by State CAMPA Authorities, Public Accounts of States/UTs.
- **Fund Management:**
  - **90%** of CAMPA funds allocated to States/UTs for afforestation.
  - **10%** retained by Centre for oversight & capacity-building.
  - Funds accrue annual interest; audited annually by **CAG**.

Challenges	Measures
Land Availability Constraints: Afforestation land must be adjacent/ contiguous to diverted forest; often unavailable or unsuitable, especially in smaller/heavily forested states.	**Ecologically Viable Land Bank**: Create central land bank of non-forest/ degraded forest lands near existing forests to enhance connectivity, reduce edge effects, improve survival rates.
Diversion and Underutilisation of Funds: CAMPA funds underutilised pre-2016; diversion to other schemes (e.g., Green India Mission) reduces focus on compensatory afforestation.	**Fund Utilisation and Transparency**: Ensure timely fund release, adhere to annual plans with clear timelines, strengthen audits, mandate third-party monitoring and public disclosure.
Ecological Limitations and Monoculture: Monoculture plantations reduce biodiversity, disrupt ecological corridors, and weaken ecosystem integrity.	**Biodiverse, Community-Led Approach**: Shift to native multi-species plantations; involve tribals and forest dwellers (Forest Rights Act, 2006) to enhance biodiversity and socio-ecological justice.
Greenwashing and Rights Violations: Replacing rich forests with commercial plantations; unilateral fund control sidelines forest-dependent communities.	**Biodiverse, Community-Led Approach**: Same as above—ensure local community involvement, prevent greenwashing, maintain ecosystem services.
Policy and Institutional Gaps: Delays in plan submissions, fund release, lack of dedicated CAMPA offices; bureaucratic processes; no timelines.	**Legal and Policy Reforms:** Amend CAF Act for time-bound targets, mandate ecological equivalence, enforce penalties; link forest clearances to ecosystem restoration; align with IPCC, India's NDCs, Paris Agreement.

Environment Protection (Management of Contaminated Sites) Rules, 2025

The MoEFCC has notified the Environment Protection (Management of Contaminated Sites) Rules, 2025 under the Environment Protection Act (EPA), 1986 that legally codify the procedure for identifying, assessing, and remediating chemically contaminated sites.

Key Provisions of the Environment Protection (Management of Contaminated Sites) Rules, 2025

- **Definition of Contaminated Sites:** Locations with historical hazardous waste dumping causing soil, groundwater, and surface water contamination.
  - **Examples:** old landfills, spill sites, chemical waste dumps.
- **Identification and Reporting Mechanism:** District Administration submits half-yearly reports on suspected sites to State Pollution Control Board or designated authority.
  - SPCBs/expert bodies conduct preliminary assessment within 90 days, detailed investigation in next 90 days.
  - Sites with any of 189 hazardous chemicals (2016 Hazardous Waste Rules) above safe limits are officially declared contaminated.
  - Names/details of contaminated sites publicised; access restrictions imposed.
- **Remediation Planning:**
  - Reference organisation/expert body drafts site-specific remediation plan.
- **Liability and Cost Recovery:**
  - Polluters bear clean-up costs (Polluter Pays Principle).
  - If polluters are untraceable or unable to pay, costs shared between Centre and States.
- **Criminal Liability:**
  - Loss of life or environmental damage attracts penalties under Bharatiya Nyaya Sanhita, 2023.
- **Exclusions:** Radioactive waste, mining operations, marine oil pollution, and solid waste dumps excluded (covered under separate laws).

Contextual Reference

- **Environment (Protection) Act, 1986:** Enacted post-Bhopal Gas Tragedy under Article 253, empowers the Centre to prevent, control, and respond to environmental pollution, set standards, regulate emissions, and manage polluting industries.
- Supports Article 48A and Article 51A, fulfilling international commitments from the 1972 Stockholm Conference.

Science & Technology

Bharatiya Antariksh Station

The Indian government is planning to establish a fully operational **Bharatiya Antariksh Station (BAS) by 2035** and launch an **Indian crewed mission** to the **Moon by 2040**, ahead of the vision of **'Viksit Bharat' by 2047**.

Bharatiya Antariksh Station (BAS)

- **About:** Planned similar to the **International Space Station (ISS)**, BAS will orbit **400–450 km above Earth** and support **scientific research**.
- **Components:** It will consist of **5 modules built in phases**, with the **Base Module scheduled for 2028** and the station becoming **fully operational by 2035**.
- **Significance:**
  - **Elevate India's global space stature**, enable **microgravity research** and **international collaborations** in **biotechnology** and **materials science**.
  - Support **long-duration human space missions**, enhance **Earth observation** for **disaster monitoring**, and strengthen the **space economy** while inspiring **STEM talent**.

International Space Station (ISS)

- The ISS, the **largest habitable satellite in LEO,** serves as a **global space laboratory** for research and cooperation.
- A joint venture of **15 countries** led by **NASA, Roscosmos, European Space Agency, JAXA, and Canadian Space Agency**, it hosts **3,000+ experiments from 108+ coun.**

Rare Earth Magnet

China has lifted restrictions on rare earth magnet exports to India, benefiting sectors like automobiles, renewable energy, defense, and healthcare.

- Rare earth magnets, **made from elements like neodymium and dysprosium**, are known for their strength and resistance to demagnetisation.
- **China dominates the global market**, producing 70% of **rare earth metals** and 90% of magnets.
- **India is working to develop domestic production in 3–5 years** while importing short-term supplies from countries like Vietnam and Brazil.

India Cuts Zero-dose Children by 43%

India has reduced the number of **zero-dose children** from 1.6 million in 2023 to 0.9 million in 2024, playing a key role in **South Asia's highest-ever immunization coverage**, as reported by **WHO** and **UNICEF.**

- Zero-dose children are those **who haven't received even the first dose of the DTP (diphtheria, tetanus, pertussis) vaccine**.

- In 2024, 92% of **South Asian infants** received the **third DTP dose highest ever,** up 2% from 2023. Still, over 2.9 million children remain un- or under-vaccinated.
- **India's Immunization Drive:** India received the **Measles and Rubella Champion Award** in 2024.
  - The **Zero Dose Implementation Plan 2024** aims to vaccinate unvaccinated children. The share of zero-dose children in India dropped from 0.11% in 2023 to 0.06% in 2024.
  - **Mission Indradhanush** has vaccinated 5.46 crore children and 1.32 crore pregnant women previously unreached or under-vaccinated.
  - Through **National Vaccination Day** (16th March), India has maintained polio-free status since 2014.

Semiconductor Industry in India

The Union Cabinet has approved **4 new semiconductor projects** in **Odisha, Punjab, and Andhra Pradesh** under the **India Semiconductor Mission (ISM)**, raising the total to **10 projects across 6 states**.

India's Semiconductor Market: Trends & Opportunities	
Parameter	**Details**
Consumption Size	USD **52 bn** (2024-25) → USD **103.4 bn by 2030** at **13% CAGR**
Major Demand Segments	Mobile handsets, IT & industrial electronics (~70% revenue)
Import Dependence	FY16–24: Imports surged — ICs (**+2,000%**), memory chips (**+4,500%**), amplifiers (**+4,800%**); **China supplies** ~⅓
India's Edge	■ **2nd largest 5G smartphone market** (13% global share) ■ **Strong demand**: 5G, AI, digital devices ■ **Global partnerships** with US, Japan ■ Boost from **Semicon India programme**
Global Dominance	Taiwan, South Korea, Japan, China, US

India Semiconductor Mission (ISM)

- **Launched (2021)** under **MeitY**, to reduce import dependence & integrate India in global value chains.
- **Objectives:**
  - Set up **fabs**, **packaging & testing (ATMP/OSAT)** units
  - Promote **chip design startups** & indigenous IP
  - Train engineers & attract global investments
- **Key Schemes under ISM:**
  - **Semiconductor Fabs Scheme** – Up to **50% support** for fabs
  - **Display Fabs Scheme** – Up to **50% support** for AMOLED/LCD fabs
  - **Compound Semiconductors & ATMP/OSAT Scheme** – 50% support for MEMS, sensors, photonics, packaging
  - **Design Linked Incentive (DLI) Scheme** – Offers ₹15 crore support per firm for design startups and MSMEs.

Related Challenges	Way Forward
Infrastructure & Innovation: High fab costs, weak research, dependence on imported components & IP	**Boost R&D & indigenous IP**, support startups & product design
Skilled Workforce Gap: Shortfall of 2.5–3.5 lakh professionals by 2027	**Specialized training programs**, build skilled workforce
Global Competition: Dominance of Taiwan, South Korea	**Chip diplomacy**, focus on niche tech like MEMS & sensors
Environmental & Regulatory: Hazardous chemicals, high energy use, complex regulations & policy uncertainty	**Incentives & policy support**, encourage private sector participation

NASA's Lunar Nuclear Reactor

NASA is fast-tracking its efforts to develop a nuclear reactor on the Moon by 2030, aiming to support a sustainable human presence on the lunar surface, in alignment with the Artemis Accords.

- **Rationale**: The reactor is expected to generate **100 KW of power**. Nuclear reactors are considered for the Moon as solar power is unreliable due to extended darkness, while nuclear energy ensures consistent power for habitats, rovers, and missions, especially in shadowed craters.
- **Global Competition**: NASA's plans follow similar efforts by China and Russia, aiming for lunar nuclear power stations by 2035. India and Japan are also exploring lunar exploration and human settlement.
- **UN Guidelines:** The UN's 1992 Principles Relevant to the Use of Nuclear Power Sources in Outer Space recognize nuclear energy as essential for deep-space missions when solar power is insufficient.
- **Legal Framework:** The 1967 Outer Space Treaty permits peaceful use of nuclear power in space.
  - The Artemis Accords (non-binding) promote international cooperation and responsible use of space resources.

Global Energy Status

The **International Energy Agency's Electricity Mid-Year Update 2025** highlights increasing power demand driven by heatwaves, air conditioners, data centers, and electric vehicles. Meanwhile, solar, wind, and nuclear energy are rapidly transforming the global electricity mix.

Key Highlights of the IEA's Electricity Mid-Year Update 2025

- **Global Electricity Demand:** Projected growth of 3.3% in 2025 and 3.7% in 2026, with India and China contributing 60% of global demand growth. India's demand growth: 4% in 2025, 6.6% in 2026.
- **Coal & Renewable Energy:** Solar and wind set to surpass coal by 2025-2026, growing from 15% to 20% of global generation. Coal's share will drop below 33%.
- **Nuclear Power Growth:** Nuclear power generation will reach a record high in 2025, growing by 2% due to new reactors and plant restarts in several countries.
- **Electricity Security:** Blackouts in Chile and Spain/Portugal highlight the need for robust grid infrastructure and flexible resources.
- **Emissions:** Global emissions rose by 1.2% in 2024, with renewables and nuclear offsetting fossil fuel use.

India's Energy Landscape

- **Installed Electricity Capacity:** Total capacity is 484.82 GW, with 49.92% from thermal, 38.08% from renewables, and 10.19% from large hydro.
- **Renewable Energy:** Solar leads renewable capacity at 47.06%, followed by wind (21.78%), hydro (20.35%), and bio power (4.92%).
- **Oil, Gas & Bioenergy:** LPG connections grew to 33 crore; ethanol blending in petrol reached 20%; biopower and CBG capacity expanded.
- **Electricity Security:** Power shortages reduced from 4.2% (2013-14) to 0.1% (2024-25), with per capita consumption increasing by 45.8%. 100% village electrification achieved in 2018.

Scheme	Objective
PM-KUSUM	Promotes solar energy use in agriculture.
PM-Surya Ghar	Provides rooftop solar for 1 crore homes.
Solar Parks & PLI Scheme	Develops infrastructure for solar projects and boosts domestic photovoltaic manufacturing.
National Bioenergy Programme & PM JANMAN	Focuses on waste-to-energy, biomass, and solar electrification for tribal households.
National Green Hydrogen Mission	Aims to make India a global hub for green hydrogen production.

India Electric Mobility Index and EVs in India

NITI Aayog launched the India Electric Mobility Index (IEMI) along with its report titled 'Unlocking a 200 Billion Dollar Opportunity: Electric Vehicles in India'.

India Electric Mobility Index (IEMI)

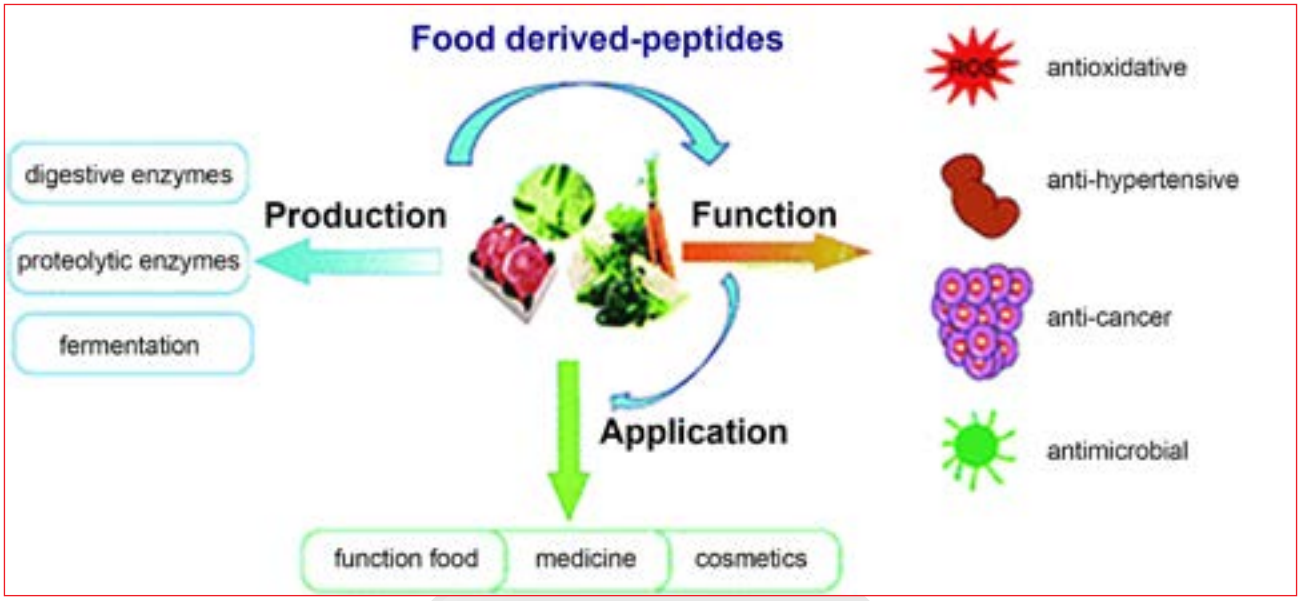
- **About:**
  - The IEMI tracks the progress of Indian states and UTs in achieving electric mobility goals, using 16 indicators across three themes: transport electrification, charging infrastructure, and EV research & innovation.
- **IEMI Score:** States are ranked on a 0-100 scale. In 2024:
  - **Frontrunners (Score: 65-99):** Delhi, Maharashtra, Chandigarh.
  - **Performers (Score: 50-64):** Karnataka, Tamil Nadu, Haryana.
  - **Aspirants (Score: 0-49):** States like Odisha, Rajasthan, Uttar Pradesh, and others require targeted interventions.
- **Impact on Policy:**
  - The IEMI promotes healthy competition and evidence-based policymaking, helping states tailor electric mobility strategies using data and best practices.

Aspect	Details
EV Penetration	India's EV share increased from 0.23% in 2016 to 7.6% in 2024, with a target of 30% by 2030 (EV30@30 campaign).
Manufacturing Growth	The PLI Scheme and National Programme on Advanced Chemistry Cell Battery Storage have boosted manufacturing capacity.
Government Initiatives	FAME-II, PM E-DRIVE, and the Electric Mobility Promotion Scheme support EV adoption and infrastructure.
Challenges	Issues include financing for electric buses and trucks, inadequate charging infrastructure, low utilization of public charging, and lack of awareness.
Recommendations	Focus on ZEV adoption timelines, expand CAFE norms, prioritize EV saturation in key cities, create a pooled fund for e-buses/e-trucks, and promote battery leasing.

Bioactive Peptides

A study reveals that **bioactive peptides (BAPs) from fermented foods can provide personalized health benefits** in India.

- **Short chains of 2-20 amino acids**; released when parent proteins are broken down during digestion, fermentation, or processing; impacting body functions.
- BAPs' **effects differ based on genetics**, gut microbiota, diet, and overall health, highlighting the **scope for personalized nutrition.**



Harnessing AI for India's IT Leadership

India's USD 280 billion IT sector, employing 5.8 million people, is being transformed by AI, which is reshaping service delivery and business operations.

- This disruption, however, is resulting in halt of experienced hiring and layoffs, raising concerns about the future of the workforce and IT employment.

Key Applications of AI in the IT Sector

- **Productivity & Automation:** AI tools like GitHub Copilot boost software development productivity.
  - AI automates routine tasks, improving efficiency (e.g., UiPath for robotic process automation).
  - Between 2030–2060, generative AI could automate 50% of global work. [McKinsey]
- **Cybersecurity:**
  - AI algorithms help detect real-time threats and prevent cyber-attacks.
- **Data Management:**
  - Automated data collection, storage, and analysis → better Customer Relationship Management (CRM) → Business growth.
- **Predictive Maintenance:**
  - Historical data analysis predicts hardware and software failures → Enables proactive maintenance → Increased lifespan of IT Infra.

AI Adoption in IT Sector	
Key Challenges	**Way Forward**
■ **Skill Gap & Workforce Displacement:** AI adoption has created a skill gap, requiring urgent retraining in AI, data science, etc. ● Routine jobs face automation risks (**WEF** predicts 85 million jobs displaced by 2025).	■ **Nationwide AI Skilling Missions:** ● For AI, ML, and advanced software development for better alignment with industry needs and global standards.
■ **Regulatory & Ethical Concerns:** ● Ensuring transparent, unbiased and foreign regulations (GDPR)-compliant AI systems adds complexity. ● Data privacy concern due to AI's use of sensitive data (ambiguity about **DPDP Act**'s applicability to AI model training).	■ **Ethical & Explainable AI (XAI):** ● Developing robust AI ethics, standards for data privacy and bias mitigation. ● Promoting XAI to build trust with clients and regulators.
■ **Outdated Legacy Infrastructure:** ● Complicates AI integration, requiring costly and time-consuming overhauls of existing systems.	■ **Government-Industry Collab:** Building AI computing infrastructure, (high-performance GPU data centers). ● Access to high-quality datasets for AI training (e.g., AIKosh under IndiaAI Mission).

Contd...

AI Adoption in IT Sector	
Key Challenges	**Way Forward**
■ **External Threats:** ● Global competitors (Philippines, Vietnam, etc,) in AI threaten India's cost advantage in IT. ● Limited high-performance AI infra increases reliance on foreign cloud services, raising **data sovereignty issues.**	■ **Encourage PPPs for AI R&D:** ● Support deep-tech AI startups with funding (e.g., Rs 10,000 crore allocated under Fund of Funds scheme). ● Encourage IT firms to become global strategic AI solution partners.

Sustainable Aviation Fuel (SAF)

Indian Oil Corporation (IOC) will begin commercial production of SAF from **used cooking oil**, following International Sustainability & Carbon Certification (ISSC) for CORSIA, marking India's first SAF plant.

Overview of SAF

■ SAF is a biofuel produced from sustainable feedstocks, chemically similar to conventional aviation fuel. It can be used in existing aircraft engines and infrastructure without modification (drop-in fuel).

Significance	Challenges
■ ↓ GHG emissions by ~80%, ↑ Energy security ■ Contributes >60% to aviation decarbonisation ■ Supports 50% fuel blends	■ High costs (2-3x conventional fuel) ■ Infrastructure gaps ■ Scattered and seasonal feedstock supply

ISCC for CORSIA

■ Ensures compliance with **ICAO's Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA).**

■ Starting **2027 (mandatory)**, int'l airlines must offset emissions above 2020 levels (via carbon offsetting, credits, and SAF).

India's SAF Roadmap – Aligning with Net Zero by 2070:

■ **Int'l Flights:** 1% SAF blending by 2027, 2% by 2028.

■ **Domestic:** Mandate Post-2027, domestic SAF mandate will be implemented.

Escherichia Coli Bacteria

Researchers have **genetically engineered *E. coli* bacteria (gram negative)** into self-powered chemical sensors.

■ **Unlike fragile, costly enzyme-based biosensors**, this whole cell biosensor is cheaper, robust, self-repairing, and functions well in complex environments.

■ **Applications:** Can detect water toxins, monitor pollution, assess health risks, integrate with portable electronics, and advance bioelectronics.

Most E. coli strains are harmless, but **Shiga toxin-producing E. coli (STEC)** can cause severe illness, transmitted through contaminated meat, milk, and vegetables.

WHO Classified Hepatitis D as Carcinogenic

The **WHO** has reclassified **Hepatitis D Virus** as **carcinogenic.**

■ Hepatitis is characterised by liver inflammation caused from viral infections, autoimmune disorders, alcohol/drug toxicity. Later symptoms - **fever**, **fatigue**, **loss of appetite**, **dark urine**, **pale stools**, **joint pain**, **jaundice**.

■ **Hepatitis D** is a defective virus that depends on the Hepatitis B Virus (HBV) for infection and replication. **Prevalence is underreported** in India, especially among **intravenous drug users** and **chronic HBV patients**.

■ Key Initiatives for Hepatitis Prevention:
- **WHO's 2022–2030 Strategy: Reduce new infections by 90%, deaths by 65%** from 2015 levels**.**
- **National Viral Hepatitis Control Program**: Eliminate from India **by 2030.**
- **India's Universal Immunization Programme (UIP).**

Type	Transmission	Vaccine	Treatment
A	Contaminated food/water	✓	None
B	Blood/body fluids	✓	Alpha interferon, peginterferon
C	Blood-to-blood	×	Direct-acting antivirals
D	Infected blood (only with HBV)	✓ (vaccine for HBV)	Interferon
E	Contaminated food/water	✓	None

Satellite Internet

Starlink has received a Unified Licence to provide satellite internet services in India.

Contextual Reference: Commercial satellite internet services are not yet operational in India.

- Satellite internet uses orbiting satellites (or mega-constellations) to transmit data between user terminals on Earth and space-based infrastructure. Satellites deployed in 3 mains orbits:

Orbit	Altitude	Latency	Coverage	Examples
Geostationary (GEO)	~35,786 km above equator	High	~1/3rd of Earth's surface	Viasat Global Xpress
Medium Earth Orbit (MEO)	2,000–35,786 km	Lower than GEO	Requires constellations for global coverage	O3b MEO
Low Earth Orbit (LEO)	> 2,000 km	Very low	Smaller coverage per satellite	Starlink

Key Potential Applications

- **Connectivity & Communications:** Provides internet in remote areas via compact user terminals.
- **Transport & Logistics:** Enhances navigation, supports autonomous vehicles, improves logistics, early warning systems, and coordinated disaster response.
- **Healthcare & Agriculture:** Facilitates telemedicine, remote monitoring, precision farming, and optimized resource use.
- **Strategic & Environmental Uses:** Aids defense operations, energy exploration, and environmental monitoring.

Key Satellite Internet Projects

- Starlink – SpaceX (LEO)
- Qianfan or G60 Starlink Constellation – China (Planned, LEO)
- OneWeb – Eutelsat, France (2nd largest satellite constellation)
- Project Kuiper – Amazon (LEO)

ISRO Space Analog Mission 'HOPE'

ISRO launched the **Himalayan Outpost for Planetary Exploration (HOPE)** mission at **Tso Kar Valley**, Ladakh.

- **HOPE:** Part of Indian Human Spaceflight Programme, simulates space conditions to prepare for future missions to the Moon and Mars.
  - *Objective:* Study physiological, psychological, and operational challenges astronauts may face.
- **Reason for Tso Kar Valley - Mars-like Environment**
  - High UV radiation, low pressure, salty frozen ground, and cold temperatures
  - Low oxygen levels (only **40% of sea level)**
  - Soil resemblance to Martian **soil** (rocky, sandy)
- **Significance:**
  - Crucial for future crewed missions to **Low Earth Orbit (LEO)** - **Gaganyaan**, **Indian lunar landing by 2040**
  - Generates **vital data**, strengthens **technological readiness** and **health protocols**
  - **Atmanirbhar** space research through **public-private collaboration**

Other Analog Missions

- **India:**
  - Ladakh Human Analog Mission (2024) was ISRO's first such mission.
  - Anugami (2025) experiment conducted Gaganyaan Analog Experiment.
- NASA - Desert RATS, NEEMO
- International MoonBase Alliance - HI-SEAS

Seabuckthorn and Himalayan Tartary Buckwheat

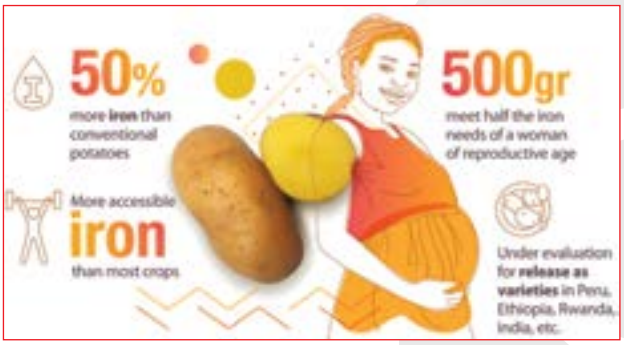
Seeds of seabuckthorn and Himalayan Tartary Buckwheat from Ladakh have been sent to the **International Space Station (ISS)** by **NASA's Crew-11 mission** as part of the **"Emerging Space Nations' Space for Agriculture & Agriculture for Space"** payload.

- The seeds will return to Earth with **NASA's Crew-10 mission**. The experiment aims to develop **resilient crops for space and Earth,** blending science with traditional agricultural knowledge.
- **Sea buckthorn (Hippophae rhamnoides L.):** Also known as the "Wonder plant" or "Ladakh gold," is a **hardy, drought-resistant shrub** found across **Europe and Asia,** including the **cold deserts of the Himalayas.**
  - It tolerates extreme temperatures (–43°C to +40°C), fixes **atmospheric nitrogen,** and helps **prevent soil erosion and prevents desertification.**
  - Traditionally, all parts of the plant (fruit, leaves, roots, thorns) are used for medicine, nutrition, fuel, and fencing.
- **Himalayan Tartary Buckwheat:** Cultivated in China, Bhutan, northern India, Nepal, and central Europe, is known for its **greater cold and drought resistance**. It offers health benefits due to its content of **resistant starch, proteins, minerals, and phenolic substances,** which help prevent chronic diseases like **hypertension, obesity, and cardiovascular issues.**

Biofortified Potatoes

The International Potato Center (CIP), based in Peru, will introduce iron-rich biofortified potatoes in India to address iron deficiency anemia. CIP will also set up its South Asia Regional Centre in Agra, located in the **world's largest potato-producing region - Indo-Gangetic Plains.**

- **Biofortified Potatoes:** Higher levels of micronutrients like iron, zinc, and vitamin C.
- **Biofortified Sweet Potatoes:** Enriched with Vitamin A (beta-carotene).
  - **Cultivation:** Odisha, West Bengal, Karnataka, and Assam.
  - **Significance:** Prevent **night blindness** and **boost immunity** and growth in children.
  - **ICAR-CTCRI's New Variety:** SP-95/4 – a beta-carotene-rich variety with high yields, improving nutrition for tribal communities.

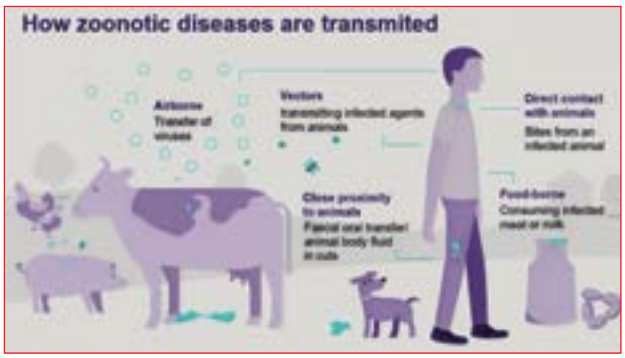


Nutrients	Used to Fortify
Iron	Rice, beans, sweet potato, cassava, legumes
Zinc	Wheat, rice, beans, sweet potato, maize
Provitamin A	Sweet potato, maize, cassava
Protein/Amino acid	Sorghum, cassava

Zoonotic Diseases

A recent study revealed that over 9% of the Earth's land faces a high risk of zoonotic diseases and introduced an epidemic risk index combining zoonotic risk with countries' preparedness.

- **Zoonotic Diseases:** Can be caused by bacteria, viruses, parasites, or fungi. Examples include **anthrax, influenza (H1N1 and H5N1), Nipah, Covid-19, brucellosis, tuberculosis, Ebola** and **SARS**.
- **Disease Burden:** Responsible for 2.5 bn cases and 2.7 mn deaths annually.
  - Latin America (27%), Oceania (18.6%), Asia (7%), and Africa (5%) have significant regional vulnerabilities.



Global Initiative	India's Initiatives
■ **ZODIAC (Zoonotic Disease Integrated Action):** Launched by IAEA in 2020 to support early detection and response ■ **World Zoonoses Day:** 6th July, honors Louis Pasteur for the first rabies vaccine ■ **G20 Pandemic Fund:** Covers pandemics and zoonotic diseases	■ National One Health Programme for Prevention and Control of Zoonoses (NOHP-PCZ) 2013 ■ **National Animal Disease Control Programme**: Eliminating Foot & Mouth Disease (FMD) and Brucellosis through mass vaccination ■ **Rabies Vaccination** under **Assistance to States for Control of Animal Diseases (ASCAD)**

India's First Private Test Facility for Heavy Water

TEMA India (Mumbai-based firm) has India's first private heavy water testing facility, enhancing public-private collaboration in India's nuclear sector. Testing was earlier done solely by Bhabha Atomic Research Centre (BARC).

Heavy Water (D_2O) (or Deuterium oxide)

- Consists of two deuterium atoms and one oxygen atom
- Not-radioactive
- Nuclear reactors use heavy water during construction and refueling.
- Acts as both coolant and moderator in nuclear fission and must be 99.9% pure.
- **Deuterium:** A heavier stable isotope of hydrogen that is present in hydrogen and hydrogen bearing compounds like water, hydrocarbons, etc.
- **Use & Upgrading**
  - Heavy water gets depleted during reactor operations
  - Restored to required purity through distillation
  - Upgrading ensures safe and efficient nuclear fission

ISRO to Launch LVM3 with Semi-Cryogenic Stage

The **ISRO** has set the target for the first quarter of **2027** for the inaugural flight of **its LVM3 launch vehicle** equipped with a **semi-cryogenic propulsion stage.**

LVM3(Geosynchronous Satellite Launch Vehicle Mk III)

Vehicle Specifications

Height	: 43.5 m
Vehicle Diameter	: 4.0 m
Heat Shield (Payload Fairing) Diameter	: 5.0 m
Number of Stages	: 3
Lift Off Mass	: 640 tonnes

Technical Specification

Payload to GTO: 4,000 kg

LVM3 will be capable of placing the 4 tonne class satellites of the GSAT series into Geosynchronous Transfer Orbits.

Payload to LEO (Low Earth Orbit) : 8,000 kg

The powerful cryogenic stage of LVM3 enables it to place heavy payloads into Low Earth Orbits of 600 km altitude.

Cryogenic Upper Stage : C25

The C25 is powered by CE-20, India's largest cryogenic engine, designed and developed by the Liquid Propulsion Systems Centre.

Cryo Stage Height	: 13.5 m
Cryo Stage Diameter	: 4.0 m
Engine	: CE-20
Fuel	: 28 tonnes of LOX + LH2

Solid Rocket Boosters : S200

LVM3 uses two S200 solid rocket boosters to provide the huge amount of thrust required for lift off. The S200 was developed at Vikram Sarabhai Space Centre.

Booster Height	: 25 m
Booster Diameter	: 3.2 m
Fuel	: 205 tonnes of HTPB (nominal)

Core Stage : L110 Liquid Stage

The L110 liquid stage is powered by two Vikas engines designed and developed at the Liquid Propulsion Systems Centre.

Stage Height	: 21 m
Stage Diameter	: 4 m
Engine	: 2 x Vikas
Fuel	: 115 tonnes of UDMH + H2O

Cryogenic vs Semi-Cryogenic Engines: Key Differences

Feature	Cryogenic Engine	Semi-Cryogenic Engine
Fuel	Liquid Hydrogen (LH_2) + Liquid Oxygen (LOX)	Refined Kerosene (RP-1) + Liquid Oxygen (LOX)
Fuel Temperature	LH_2 at −253°C, LOX −183°C	−183°C, Kerosene stored at ambient temperature
Complexity	High (due to handling ultra-cold LH_2, insulation challgengs)	Lower (kerosene is stable at room temperature)
Cost	Expensive (LH_2 production/storage costs, complex infrast-	Cheaper (kerosene is cost-effective, simpler logistics)
Thrust	Lower thrust but higher specific impulse (efficiency in vacuum)	Higher thrust (ideal for heavy-lift boosters)
Advantages	- High efficiency (specific impulse -450 sec) - Clean exhaust (water vapor)	- Higher thrust-to-weight ratio– Higher density impulse (more fuel storage) - Cost-effective

LVM3 Launch Vehicle

- **About:**
  - **LVM3** is **ISRO's most powerful, heavy-lift, 3-stage launch vehicle,** formerly known as the **Geosynchronous Satellite Launch Vehicle Mk III (GSLV Mk III)**.
  - It had its **first experimental flight in December 2014** and is capable of **launching payloads up to 4000 kg to Geosynchronous Transfer Orbit (GTO)**.
- **3 Stages:**
  - **First Stage**: Two **S200 solid strap-on boosters** attached to the sides of the core, using **hydroxyl-terminated polybutadiene (HTPB)** as the solid propellant.
  - **Second Stage (Core Stage)**: The **L110 liquid stage** powered by **twin Vikas engines**, which burn a combination of **unsymmetrical dimethylhydrazine (UDMH)** and **nitrogen tetroxide (N_2O_4)**.
  - **Third Stage (Upper Stage)**: The **C25 cryogenic stage** powered by the **CE20 engine**, using **liquid hydrogen (LH_2)** and **liquid oxygen (LOX)** as propellants.
- **Key Upgrades in LVM3 Launch Vehicle:**
  - **The LVM3 upgrade** replaces the L110 liquid stage with the **SC120 semi-cryogenic stage** powered by the **SE2000 engine** (200-tonne thrust), using **refined kerosene (RP-1) and LOX**.
  - It also increased the C25 cryogenic stage capacity to **32 tonnes**. This enhances **GTO payload capacity to around 5,200 kg**, reduces launch costs by **around 25%**, and improves environmental safety.
  - The upgrade boosts **India's heavy-lift capability** for future satellite missions and aligns with ISRO's next-gen launch plans.

Key Missions Launched by ISRO's LVM3 Rocket

Mission Name	Launched In	Payload / Objective	Remarks
LVM-3/CARE Mission	2014	Crew Module Atmospheric Re-entry Experiment (CARE)	Experimental suborbital flight, tested re-entry
LVM3-D1 / GSAT-19 Mission	2017	GSAT-19 communication satellite	First orbital test launch
LVM3-D2 / GSAT-29 Mission	2018	**GSAT-29 Mission** communication satellite	Demonstrated heavy communication satellite launch
LVM3-M1 / Chandrayaan-2	2019	Chandrayaan-2 lunar orbiter, lander, and rover	Chandrayaan-2 Mission
LVM3-M2 / OneWeb India-1	2022	36 OneWeb Gen-1 satellites (Low Earth Orbit, LEO)	OneWeb India-1 Mission
LVM3-M3 / OneWeb India-2	2023	36 OneWeb Gen-1 satellites (LEO)	OneWeb India-2 Mission
LVM3-M4 / Chandrayaan-3	2023	**Chandrayaan-3** lunar lander and rover	India's 3rd lunar mission

SPUN Atlas Highlights Gaps in Mycorrhizal Fungi Conservation

The Society for the Protection of Underground Networks (SPUN) has launched the Underground Atlas, which shows that over 90% of mycorrhizal fungi hotspots lie outside protected areas.

- **Significance of Mycorrhizal Fungi:**
  - Form symbiotic relationships with over 80% of plants, aiding nutrient absorption like phosphorus
  - Carbon sequestration by utilizing CO_2 from plant roots.
  - Store one-third of global fossil fuel emissions
- **Types of Mycorrhizal fungi:**
  - **AM (Arbuscular Mycorrhizal) Fungi:** They penetrate root cells, common in crops and grasses. **Hotspots:** Brazilian Cerrado, Southeast Asia, West Africa
  - **EcM (Ectomycorrhizal) Fungi:** They wrap around roots, common in forest trees like oak and pine. **Hotspots:** Canada, Siberia, Central Europe, Western US.
  - **Global Initiative:** FAO launched the Global Soil Biodiversity Observatory (GLOBSOB) at COP15 of the Convention on Biological Diversity in Canada.

History, Art & Culture

1,000 Years of Rajendra Chola I's Maritime Expedition

During his recent visit to Gangaikonda Cholapuram (during Aadi Thiruvathirai Festival) and Brihadisvara Temple in Tamil Nadu, the Prime Minister highlighted the Chola Empire's democratic traditions and released a coin marking 1000 years of Rajendra Chola I's Gangetic expedition.

- **Rajendra Chola I (1014–1044 AD)**
  - Son of Rajaraja Chola I
  - First Indian king to lead overseas military expeditions

Quit India Movement Day

India celebrates **Quit India Movement** Day (August Kranti Diwas) on 8th August every year.

Key Points

- **Launch:** Launched by **Mahatma Gandhi** at Bombay Session (1942) of Congress following Cripps Mission failure.
- **Slogan and Symbolism:** Gandhiji gave 'Do or Die'; Yusuf Meherally coined 'Quit India'.
- **New Leaders:** Aruna Asaf Ali, Dr. Ram Manohar Lohia, Jayaprakash Narayan, Matangini Hazra, Sucheta Kripalani.
- **Nature:** Distinct from earlier peaceful protests (NCM and civil disobedience) - violence in self-defense; sabotage and guerrilla attacks against British properties.
- **Participation**: Students and youth spearheaded; Muslim League largely absent, revealing communal divides.
- **Events Leading to QIM:**
  - **WWII Impact (1929-45):** Britain's unilateral involvement of India in the war sparked resentment.
  - **Cripps Mission Failure (1942):** Dominion status post-war rejected as inadequate by Gandhi ("post-dated cheque").
  - **Economic Hardships:** Wartime exploitation and Bengal Famine of 1943.
  - **Fall of Burma:** Japanese advance increased urgency for British withdrawal.
  - **Influence of INA:** Subhas Chandra Bose's efforts intensified nationalist fervour.
- **Outcomes:**
  - Arrest of leaders, harsh suppression of protests, yet British authority weakened locally.
  - Local parallel governments emerged in Ballia (UP), Tamluk (WB), and Satara (MH).
  - Muslim League staying away from QIM highlighted its widened rift with Congress.
  - Proved British rule unsustainable, paving way for 1947 independence.

The Quit India Movement occupies a special place in the history of India's independence. It conclusively demonstrated that foreign domination was no longer sustainable. The movement unleashed an unstoppable wave of courage, sacrifice, and unity, igniting hope and pride among ordinary Indians. Remembering Quit India is to recall not only the legacy of a great movement but also the values of resilience, determination, and the universal right to self-determination that it so proudly embodied.

Sarnath Nominated for UNESCO World Heritage

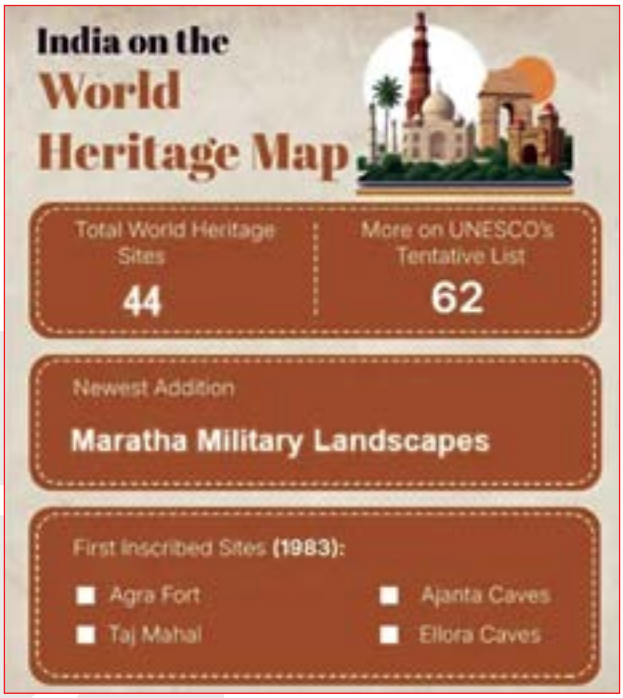
India has officially nominated **Sarnath** for the **UNESCO World Heritage List** under the **2025–26 nomination cycle**. Sarnath has been on **UNESCO's "tentative list"** since **1998**.

Key Facts Related to Sarnath

- **Location:** Sarnath, near **Varanasi, Uttar Pradesh**, is a major Buddhist pilgrimage site where **Gautama Buddha delivered his first sermon** (Dhammachakkappavattana) after enlightenment.

- **Historical and Religious Significance:** Also known as **Rishipatana, Mrigadava**, and **Mrigadaya**; modern name derived from **Saranganatha** (Lord of the Deer).
  - One of the **4 key pilgrimage sites** in Buddhism: **Lumbini (birth), Bodh Gaya (enlightenment), Sarnath (first sermon), Kushinagar (death)**.
  - **Buddha's ashes** enshrined in stupas at these locations.
- **Architecture:** Reflects evolution from **Mauryan to Kushan, Gupta, and Gahadavala periods**.
  - **Group A**: **Chaukhandi Stupa**: 5th century AD, octagonal tower added in **1588** to mark Humayun's visit.

  - **Group B**:
    - **Dhamek Stupa**: Built ~500 CE, marks spot of Buddha's first sermon.
    - **Dharmarajika Stupa**: Built by **Emperor Ashoka** (3rd century BCE) to house Buddha's relics.
    - **Ashokan Pillar**: Bears Ashoka's edict, originally crowned by **Lion Capital** (now India's national emblem).
    - Ancient monasteries, temples, and votive stupas from the 3rd century BCE to 12th century CE.
- **Restoration and Invasions: Emperor Ashoka** promoted Buddhism post-Kalinga War and built stupas and monasteries at Sarnath.
  - Flourished under **Kushans, Guptas, and Harshavardhana**, who restored structures after **Huna invasions**.
  - Guptas added **artistic features** to Dhamek Stupa (stone-carved floral designs).
  - **Mahmud of Ghazni** destroyed the site in the 11th century, restored by **Mahipala (Pala dynasty)**.
  - **Dharmachakra Jina Vihara** built in 11th century by **Kumaradevi** (Gahadavala dynasty).
- **Excavations and Museums: First scientific excavation** by **Sir Alexander Cunningham** (1834–36).
  - **Ashokan Lion Capital** and pillar base excavated by **Friedrich Oscar Oertel** (1904–05); adopted as **India's State Emblem** in 1950.
  - **Sarnath Archaeological Museum** houses the original **Lion Capital** and key artefacts.
  - **Mulagandha Kuti Vihar** (built by Mahabodhi Society) features vibrant **frescoes** narrating Buddha's life.



UNESCO World Heritage Sites

- **About: UNESCO World Heritage Sites**: Locations of exceptional **cultural or natural significance**, designated under the **World Heritage Convention, 1972** for their value to humanity.
  - **India** ratified the Convention in **1977**, joining 195 countries in the global commitment.
- **World Heritage Convention, 1972**
  - Each **State Party** can nominate only **one site per year** for inscription.
  - India ranks **6th globally** and **2nd in the Asia-Pacific** for the number of **UNESCO World Heritage Sites**, with **62 sites** on the **Tentative List**.
- **Nodal Agency: ASI (Archaeological Survey of India)** is the nodal agency for **World Heritage matters** in India.

100 Years of the Kakori Train Action

9 August 2025 marks 100 years since the Kakori Train Action.

- **What Happened:** On 9 August 1925, Indian revolutionaries looted British treasury money from the Number 8 Down

train (Shahjahanpur to Lucknow) near Kakori, to fund the freedom movement.

- **Background:** After Jallianwala Bagh (1919) and the Non-Cooperation withdrawal (1922), young nationalists formed the **HRA** (1924) to fund revolution through British treasury loot.
- **Main Revolutionaries:** Ram Prasad Bismil, Ashfaqullah Khan, Rajendra Lahiri, Keshav Chakraborty, Mukundi Lal, Banwari Lal, Chandrashekhar Azad.
- **British Response:** 17 jailed, 4 transported for life, 4 hanged (Bismil, Ashfaqullah, Rajendra Lahiri, Roshan Singh). Chandrashekhar Azad escaped arrest.

HRA → HSRA

- HRA was founded in October 1924 in Kanpur by Ramprasad Bismil, Jogesh Chandra Chatterjee, and Sachin Sanyal.
- **Renamed HSRA (Hindustan Socialist Republican Association) in 1928** under Chandrashekhar Azad; key members included Bhagat Singh, Sukhdev, Bhagwati Charan Vohra, Bejoy Kumar Sinha, Shiv Verma, and Jaidev Kapur.
- **Major actions:** Simon Commission protest (1927), JP Saunders assassination (1928), Viceroy Irwin train bombing (1929).
- By early 1930s, British repression led to its fragmentation.

Iron-Age Settlement Discovered in Topra Kalan

Archaeological investigations at Topra Kalan village in Haryana have uncovered evidence of human settlements dating back to around 1500 BC; the period marked the transition from the Bronze Age (IVC) to the Iron Age.

Contextual Reference – Topra Kalan

Original site of Delhi-Topra Ashokan Pillar – bearing Ashoka's edicts; later relocated to Delhi (14th century by Firoz Shah Tughlaq).

Key Archaeological Findings

- **Artifacts:** Painted Grey Ware (PGW), stamped pottery, moulded bricks, beads, and various pottery types like Black-and-Red Ware.
- **Structural Remains:** Walls, platforms, and room-like enclosures, alongside a dome-like construction believed to be a Buddhist stupa.

Iron Age:

- **Key Feature:** Widespread use of iron for tools, weapons, etc. Iron making involved collecting ore, melting it, and shaping it into tools.
- **Iron in India:**
  - *Rigveda* mentions *ayas* referring to copper/alloys but not iron.
  - Atharvaveda mentions metals like **rajata** (silver), **trapu** (tin), **sisa** (lead) and *ayas/karshnyas* referring to iron metals.
  - Buddhist texts and Kautilya's Arthashastra also mentioned ironworking.

Part of India	Associated Culture	Key Features	Correlation to Iron Age
North	Painted Grey Ware (PGW) (pottery)	Black interiors, red exteriors, inverted firing technique	Iron artifacts found at PGW sites – Ganga valley
	Northern Black Polished Ware (NBPW) (pottery)	Fine, wheel-made, highly polished black pottery	Widespread use of iron (Second Urbanisation)
South	Megalithic culture	Iron-smelting furnaces (Vidarbha); iron slag (TN)	Prominent representative of Iron Age in the region
Malwa (central)	Iron Age sites	Time period: 750–500 BCE	Important sites: Nagda, Eran, and Ahar
Middle and Lower Ganga Valley	Iron Age sites	Post-Chalcolithic pre-NBPW sites (750–700 BCE)	Sites: Pandu Rajar Dhibi, Mahisdal, Chirand, and Sonpur

Paithani Sarees

- The Prime Minister of India highlighted the cultural significance and traditional craftsmanship of Paithani sarees (known as Mahavastra of the state of Maharashtra).
- Handwoven silk sarees with rich zari (gold or silver thread) work, known for vibrant pallus and motifs like peacocks and lotuses, inspired by Ajanta and Ellora caves art and mythology.
- **Origin of Saree:** Paithan, Chhatrapati Sambhajinagar (Maharashtra) around the 6th century BC.
- Granted Geographical Indication (GI) tag in 2010
- **Legacy of Craft:** 2000-year-old legacy dating back to the Satavahana era, when Paithan was a silk export hub to the Roman Empire.
- **Other GI-tagged Saree from Maharashtra:** Karvathi Kati Tussar Silk Saree, handwoven exclusively in the Vidarbha region. Inspired by Ramtek temple architecture, these sarees feature temple-like borders (like the Vimana).

Social Issues

5 Years of NEP 2020

The Union Education Minister inaugurated the Akhil Bharatiya Shiksha Samagam (ABSS) 2025 to mark the 5th anniversary of the National Education Policy (NEP) 2020.

Key Achievements of NEP 2020

- **About:** Addresses quality, equity, access, affordability; replaces NEP 1986; based on Kasturirangan Committee recommendations.
- **Key Initiatives:** PM SHRI Schools, NIPUN Bharat, PARAKH, NISHTHA.
- **Mother Tongue-Based Education & Curriculum Reform:** 5+3+3+4 structure, NCF-SE; experiential, competency-based learning; early years in mother tongue.
- **Inclusivity:** 1.15 lakh SEDG students, 7.58 lakh girls in residential schools; PRASHAST App for disability screening.
- **Foundational Literacy & Numeracy (FLN):** NIPUN Bharat & Vidya Pravesh reached 4.2 crore students, 8.9 lakh schools.
- **Teacher Training:** 4 lakh+ teachers trained via NISHTHA, DIKSHA, PM e-Vidya.
- **Multidisciplinary & Holistic Higher Education:** MERUs, Academic Bank of Credits (ABC), multiple entry/exit systems.
- **Digital Access & EdTech Initiatives:** 72% schools with internet; Vidyanjali, DIKSHA, PM e-Vidya, AI tools (e-Jaadui Pitara, Katha Sakhi, Teacher Tara)
- **Common Testing:** CUET (2022) as key gateway for UG admissions.

Key Challenges Related to NEP 2020

- **Lack of Consensus:** Implementation varies; opposition from Tamil Nadu, West Bengal over three-language formula, mother tongue instruction, common entrance tests.
- **Infrastructure & Financial Constraints:** Teacher shortages, poor digital/Anganwadi infrastructure; public spending <6% GDP target.
- **Regulatory & Linguistic Barriers:** Delays in HECI, NCF for Teacher Education; content translation & regionally fluent teacher shortage.
- **Resistance & Weak Monitoring:** Institutional resistance, over-centralisation concerns (CUET), weak data systems, uneven implementation.

Steps Needed to Strengthen NEP 2020 Implementation

- **Enhance Research & Innovation:** Invest in technology-pedagogy research, evidence-based, context-specific innovations.
- **Digital Infrastructure Gap:** Only 57.2% schools with functional computers, 53.9% with internet (UDISE+ 2023–24); urgent ICT upgrades needed.
- **Teacher Training:** Build capacity for tech integration, creativity, critical thinking, ethical reasoning.
- **Interdisciplinary Collaboration:** Cooperation among educators, technologists, social scientists, policymakers for future-ready learning ecosystems.

Direct Benefit Transfer for LPG (DBTL) Scheme

India's DBTL, also known as the Pratyaksh Hastantarit Labh (PAHAL) scheme, has led to the blocking, suspension, or deactivation of over 4.08 crore duplicate, fake, or inactive LPG connections.

Direct Benefit Transfer for LPG (DBTL)

- **About: DBTL** launched in **2015** by the Ministry of Petroleum and Natural Gas to **directly transfer LPG subsidies** to consumers' bank accounts, ensuring **transparency** and reducing leakage.
  - **LPG cylinders** sold at non-subsidised rates, with subsidies transferred post-delivery.
- **Key Features**
  - **Direct Benefit**: Subsidy credited automatically via **Aadhaar Transfer Compliant (ATC)** or **Bank Transfer Compliant (BTC)**, preventing diversion/fake connections.
  - **Consumer Empowerment**: Consumers can opt-in/out based on eligibility.
  - **Efficient Delivery**: Increases transparency and streamlines LPG supply.
- **Eligibility**
  - Must be a **registered LPG consumer**.
  - Combined taxable income of applicant & spouse should not exceed Rs. 10,00,000 in the previous year (as per Income Tax Act, 1961).
- **Achievements**
  - **30.19 crore LPG consumers** enrolled in PAHAL scheme as of **July 2024**.
  - **194 crore refills** delivered in 2024–25, with just **0.08% complaints**.

- **92.44%** of active LPG consumers have **Aadhaar-seeded** accounts.
- **86.78%** of DBTL consumers are **Aadhaar-transfer compliant**.
- **Third-party evaluation** by **RDI** found **90% satisfaction** with PAHAL's subsidy system, recommending better targeting, grievance redressal, and safety awareness.

Improvement in India's Welfare Delivery through its DBT System

- **DBT and Curbing Leakages: DBT system** saved Rs. 3.48 lakh crore by reducing leakages.
  - Subsidies reduced from **16%** to **9%** of India's total spending (2009–2024).
- **Beneficiary Coverage:** Beneficiaries increased **16-fold** (from **11 crore to 176 crore** from 2014–2024). Driven by **JAM Trinity** (Jan Dhan, Aadhaar, Mobile).
  - DBT includes **cash transfers** (e.g., **PM-KISAN**, pensions, scholarships) and **in-kind support** (food, fertilizers).
- **Correlations**
  - **Positive correlation (0.71)** between beneficiary coverage and DBT savings, showing that as coverage expanded, savings increased.
  - **Negative correlation (-0.74)** between subsidy expenditure and welfare efficiency, reflecting reduced waste and leakages.
- **Welfare Efficiency Index (WEI): WEI** (from **BlueKraft Digital Foundation**) measures DBT success:
  - 50% weight to **DBT savings**, 30% to **subsidy reduction**, 20% to **beneficiary growth**.
  - WEI rose from **0.32** (2014) to **0.91** (2023), indicating improved efficiency and inclusion.

Stray Dog Management in India: Balancing Public Safety and Animal Welfare

The Supreme Court's suo motu directive to remove stray dogs in the NCR has sparked widespread discussions around the legal and ethical aspects of balancing public safety with animal welfare.

Stray Dog Management – Ethical Concerns

- **Human Safety vs. Animal Rights:** Rising dog-bite cases, rabies deaths, high incidence of attacks on children lead to concerns about public safety.
  - Animals deserve protection and humane treatment; removal or abandonment of strays is a violation of their fundamental right to life.
- **Ethical Dilemmas in Control Methods:** Practices like culling, poisoning stray dogs or cruel relocation go against compassion and humane treatment.
- **Corruption and Mismanagement:** Funds allocated for sterilization, vaccination and welfare programs are often misused, leading to ineffective results.

Constitutional/Legal Frameworks	
Articles 243(W) & 246	Local bodies are responsible for controlling the stray dog population.
Article 51A(g)	Citizens' fundamental duty to show compassion for all living beings.
Article 21	SC Ruling extended Right to life to animals (Jallikattu case - Animal Welfare Board v. Nagaraja, 2014).
Prevention of Cruelty to Animals Act, 1960	Prohibits cruelty and mandates humane treatment.
Animal Birth Control (ABC) Rules, 2023	Focus on sterilization, vaccination, and releasing dogs back to their habitats.
National Rabies Control Program (NRCP)	Aims for rabies elimination by 2030 through vaccination, sterilization, and surveillance.

Measures to Balance Public Safety and Animal Welfare

- **Service Roles for Dogs:** Promote the positive social roles of dogs (e.g., drug detection, therapy animals) to improve public perception of dogs.
- **Policy Implementation:** Governments and civil society to work together to enhance sterilization, vaccination, and prevent pet abandonment. National policies should address the human-dog conflict.
- **Dedicated Facilities:** Set up feeding stations, vet-care, and animal welfare organizations to manage stray dog populations effectively.
- **Public Awareness & Education:** Educate the public on responsible pet ownership, the importance of sterilization, and safe interaction with animals to prevent bites and reduce abandonment.

Cases of Best Practices	
Bengaluru: Street dog population 10% ↓ (2019-2023); neutering rate 20% ↑ via ABC program.	**Istanbul:** Comprehensive TNVR programs (Trap, Neuter, Vaccinate, Return) ↓ stray dog populations and nearly eliminated rabies.
Netherlands: Stray dog-free status via CNVR (Collect, Neuter, Vaccinate, Return), emphasizing adoption.	**Bangkok:** TNVR replaced mass culling, halting rabies outbreaks.

Honour Killings in India

Honour killings are increasing in India, reinforcing caste hierarchies, with recent incidents highlighting the role of families and communities in legitimizing such violence.

Role of Law in Addressing Honour Killings

- **Constitutional Safeguards**: Articles 14 (Equality), 15 (Non-discrimination), 19 (Freedom), & 21 (Right to Life)
- **BNS**: Honour killings are classified as murder
- **Laws Supporting Inter-caste Marriages**: Special Marriage Act (1954), Hindu Marriage Act (1955)
- **Supreme Court Rulings**:
  - **Lata Singh vs. State of U.P. (2006)**: Legalized inter-caste marriages; mandated police protection
  - **Arumugam Servai vs. State of Tamil Nadu (2011)**: Declared Khap Panchayats illegal; rejected decrees against inter-caste marriages
  - **Vikas Yadav vs. State of U.P. (2016)**: Affirmed women's right to choose partners
  - **Shakti Vahini vs. Union of India (2018)**: Expanded honour crimes definition, upheld individual choice as dignity, and directed safe houses and monitoring
  - **Shafin Jahan vs. Asokan K.M. (2018)**: Upheld the right to marry a person of choice under Article 21

Factor Driving Honour Killings	Explanation	Corresponding Measure to Combat	Explanation
C - Community Enforcement	Local bodies like Khap Panchayats enforce caste norms and may condone violence	**A** - Act for Abolition	Create a separate law for honour killings
A - Attitudes (Internalized Caste Norms)	People grow up with caste boundaries, shaping their view of "honour" and marriage	**C** - Community Awareness	Educate communities about the dangers of honour-based violence
S - Social Pressure	Peer and family pressure to follow caste rules often leads to violence for defying them	**T** - Training & Sensitization	Equip authorities (police and judges) with the skills to handle caste-based and honour violence
T - Tension Between Public and Private Attitudes	Public opposition to caste violence may exist, but private attitudes and digital platforms often glorify caste-based control	**O** - Outreach via Digital Platforms	Use social media to spread positive messages about equality and inter-caste unions
E - Empowerment of Marginalized Groups	As Dalits and marginalized groups gain power, inter-caste relationships challenge caste hierarchies, leading to violence	**N** - National Shelter Homes	Establish shelters for victims, especially in rural areas

Towards Drug Free India

Nasha Mukt Bharat Abhiyaan, launched to address the drug abuse crisis in India, has now completed 5 years of implementation.

Nasha Mukt Bharat Abhiyaan

- **Launch:** 2020 (Ministry of Social Justice & Empowerment).
- **Aim:** Raise awareness on substance use in educational institutions; strengthen counseling and treatment facilities.
- **Target:** Dependent populations – all districts in India.
- **3-Pronged Strategy**: Supply Control, Demand Reduction, and Medical Treatment.
- **Key Achievements**
  - Mass Sensitisation - reached 18.10+ crore people, 4.85+ lakh institutions.
  - Engaged 1.67+ crore students.
  - 20,000+ Master Volunteers involved.
  - MoUs with several spiritual/social organisations like ISKCON.

Drug Abuse Prevalence in India

- ~10 crore people affected by narcotics (NCB data)
- UP, Maharashtra, Punjab: Highest FIRs recorded under the **NDPS Act, 1985** (2019–21)
- Major Consumed Drugs (age 10-75): Alcohol (14.6%), Cannabis – (2.8%) [**National Survey on Extent and Pattern of Substance Use (2019)**]
- India – a vulnerable transit and consumption zone due to Golden Crescent and Golden Triangle

DOPE – Key Challenges to Drug Control India		
D	Dark Net & New Substances	Rise of new psychoactive substances and illicit online trade using darknet and cryptocurrency.
O	Organizational & Infrastructure Gaps	Lack of trained personnel, forensic labs, rehab centers, and specialized facilities.
P	Poor Awareness & Prevention	Inadequate education, weak community-level awareness, especially in rural and youth populations.
E	Exclusion & Stigma in Addiction Treatment	Social stigma and high demand discourage rehabilitation, limiting control efforts.

SAFE – Suggestive Measures to Eradicate Drug Abuse		
S	Strengthen Law Enforcement	Strengthen NDPS Act & **PITNDPS Act, 1988** implementation with resources, training, modern equipment, surveillance, and inter-agency coordination.
A	Awareness and Prevention	Expand treatment and rehabilitation facilities, strictly following **National Action Plan for Drug Demand Reduction** (**NAPDDR**)
F	Focus on Supply Reduction	**Enhanced border control** via AI, Big Data, drones, satellites; support alternative livelihoods for illicit crop farmers and disrupt supply chains.
E	Enhance Int'l Cooperation	Collaborate with neighboring countries, UNODC, **Interpol** to track and prevent drug trafficking.

REPORTS & INDICES

State of Food Security and Nutrition in the World 2025

- The State of Food Security and Nutrition in the World (SOFI) 2025, report reveals a decline in global hunger to 673 million, yet India continues to have the highest number of wasted children under five.
- SOFI is jointly produced by Food and Agriculture Organisation (FAO), the International Fund for Agricultural Development (IFAD), the United Nations International Children's Emergency Fund (UNICEF), the UN World Food Programme and World Health Organisation.

Current State of Global Hunger and Food Insecurity as Highlighted in SOFI 2025

- **Global:**
  - **Hunger Trends (2024):** 8.2% of the global population (673 million) experienced hunger, down from 8.5% in 2023.
    - ❖ Hunger levels still exceed pre-COVID-19 levels, showing incomplete recovery.
    - ❖ By 2030, 512 million people may remain chronically undernourished, with 60% in Africa.
    - ❖ Achieving SDG 2 (Zero Hunger) requires major shifts in policy, funding, and food systems.
  - **Food Insecurity:** 2.3 billion people globally are moderately or severely food insecure.
    - ❖ The pandemic and Ukraine war worsened global food price inflation, making healthy diets more expensive.
    - ❖ The number of people unable to afford a healthy diet dropped from 2.76 billion in 2019 to 2.60 billion in 2024.
  - **Regional Breakdown:** Asia: 323 million undernourished people.
    - ❖ Africa: 307 million undernourished people.
    - ❖ Latin America & the Caribbean: 34 million undernourished people.

India' s Nutritional Paradox

- **Undernourishment and Diet Affordability:** 12% of India's population (172 million) is undernourished, an improvement from 243 million in 2006, but India ranks 48th globally and 7th in Asia.
  - 42.9% of people can't afford a healthy diet, with food costs rising from USD 2.77 (2017) to USD 4.07 (2024) in PPP terms.
- **Double Burden of Malnutrition:** Overweight children increased from 2.7 million (2012) to 4.2 million (2024).
  - Adult obesity doubled from 33.6 million to 71.4 million, reflecting rising overnutrition alongside undernutrition.
- **Child Wasting and Stunting:** India has the world's highest child wasting rate (18.7%) with over 21 million children affected.
  - 37.4 million children under five are stunted, indicating chronic undernutrition.
- **Anaemia in Women:** 53.7% of women aged 15–49 suffer from anaemia, totaling 203 million, with India ranking 4th globally in anaemia prevalence.

NHAI Sustainability Report 2023-24

- The NHAI released its second Sustainability Report for FY 2023–24, detailing achievements in integrating Environmental, Social, and Governance (ESG) principles into its operations that aligns with India's Mission LiFE, and the principles of a circular economy.

- **Major Environmental Sustainability Initiatives Undertaken by NHAI**
  - **Decoupling Growth from Emissions:** 20% increase in National Highway construction; GHG intensity reduced from 1.0 → 0.8 $MTCO_2e$/km.
  - **Promoting Circular Economy:** 631 lakh MT recycled/reused materials (fly ash, plastic, reclaimed asphalt), reducing construction waste and enhancing efficiency.
  - **Water Body Rejuvenation:** Developed 467 water bodies under Amrit Sarovar Mission.
    - ❖ Recovered 2.4 crore m^3 soil; estimated ₹16,690 crore savings in construction material.
- **Reduced Water Use Intensity:** 74% reduction in water use intensity in water-stressed regions.

DEFENSE & SECURITY

Pralay Missile

- The Defence Research & Development Organisation (DRDO) conducted two consecutive successful test flights of the Pralay missile.
- **Location:** Dr APJ Abdul Kalam Island off Odisha's coast
- **Key Features:**
  - Indigenously developed solid propellant quasi-ballistic missile with advanced guidance and navigation systems for pinpoint accuracy.
  - Short-range surface-to-surface missile with a payload capacity of 500 to 1,000 kg to carry multiple types of warheads and strike varied targets.
  - **Range:** 150 to 500 km
- **Developed by:** Research Centre Imarat (Hyderabad), supported from Pune-based DRDO labs.

DAC Approved Multi-Domain Capability Upgrades for Armed Forces

The Defence Acquisition Council (DAC) has approved ₹67,000 crore worth of acquisitions to enhance the combat readiness of the Indian Army, Navy, and Air Force. Key upgrades include:

- **MALE RPAs (Medium Altitude Long Endurance Remotely Piloted Aircraft):** Approved for Army, Navy, and Air Force for 24x7 surveillance and combat missions.
- **IAF Upgrades:**
  - Maintenance for C-130J Super Hercules and C-17 Globemaster III (US origin).
  - **S-400 Missile System** Annual Maintenance Contract (AMC) (Russia).
  - SPYDER/SAKSHAM system upgrade for improved air defense (India-Israel).
- **Indian Navy:**
  - Autonomous Surface Craft for anti-submarine warfare.
  - **BrahMos** Fire Control Systems and Launchers.
  - BARAK-1 Missile System upgrade for enhanced shipborne defense.

DAC: Chair - Defence Minister; Approves major defense acquisitions, monitors progress, and grants acquisition proposals' approval; Established post-Kargil War for national security reforms.

Project 17A Frigate Himgiri

- **Himgiri (Yard 3022)**, 3rd **Nilgiri Class (P17A) frigate**, delivered by **GRSE Kolkata**, advancing India's **self-reliance in warship construction**.
  - Modernized from the decommissioned **INS Himgiri (Leander-class)**; equipped with **BrahMos** and **Barak 8** missiles for enhanced **strike and defense**.
- **Project 17A** frigates feature **advanced weapons, sensors, stealth, and multi-mission capabilities**, surpassing P17 (Shivalik) class.
  - Powered by **Combined Diesel or Gas system**, **CPP shafts**, and **Integrated Platform Management System (IPMS)**, ensuring superior **combat readiness**.

SUMMITS & CONFERENCES

US-Russia Alaska Summit

The **summit ended without a final agreement**, leaving the **Russia-Ukraine conflict** unresolved. The potential impacts of the failure of this summit include:

- **Geopolitical Impact:** Complicates global diplomatic efforts and prolongs the uncertainty around the Russia-Ukraine conflict, with concerns over security guarantees, territorial concessions, and the **NATO**'s role.
- **Disruption in India-US Trade Ties:** The US is targeting countries like India (which imports 35-40% of its oil from Russia) to reduce Russia's oil revenue (US imposed a 50% tariff on Indian exports).
  - A proposed 500% tariff bill in the US Congress could target nations aiding Russia's war economy.

MS Swaminathan Centenary Conference

The PM inaugurated the **MS Swaminathan Centenary International Conference at New Delhi** celebrating the legacy of the **father of India's Green Revolution**.

- **Theme**: *Evergreen Revolution: The Pathway to Biohappiness*.
- Contribution of MS Swaminathan:
  - Introduced high-yielding crops, boosting India's food security.
  - Collaborated with Norman Borlaug on semi-dwarf wheat for increasing wheat production.

- Revolutionised mangrove restoration and sustainable farming.
- Promoted **evergreen revolution** - eco-friendly agricultural growth.
- **Recognition: Bharat Ratna** in 2024 (posthumous) || Honoured **Father of Economic Ecology** by **UNEP**

India Hosts 2nd BIMSTEC Ports Conclave

- **Location:** Visakhapatnam
- **Aim:** Strengthen maritime connectivity and sustainable development in the region.
- **Theme 2025:** "Navigating the Future: Blue Economy, Innovation and Sustainable Partnerships"
- **Key Outcomes**
  - Call to implement the BIMSTEC Agreement on Maritime Transport Cooperation (AMTC), signed during the 6th BIMSTEC Summit (2025, Bangkok), to boost port-led growth, trade, tourism, and skill development.
  - The Kaladan Multi-Modal Transit Transport Project (KMTTP) was recognized as a strategic corridor linking India's Northeast via Myanmar, bypassing the Siliguri Corridor (or "Chicken's Neck"), to cut costs and time.
  - BIMSTEC Sustainable Maritime Transport Centre (Mumbai) will be launched under the Indian Ocean Centre of Excellence for Sustainable Maritime Transport (IOCE-SMarT) for policy harmonisation, green transition, and digital innovation in the maritime sector.
  - Emphasised eco-sensitive cruise routes, and Public-Private Partnerships (PPPs) led cruise terminals to position the Bay of Bengal as a premier sustainable tourism corridor.

IMPORTANT DAYS

International Day for Conservation of Mangrove Ecosystem

- The International Day for Conservation of Mangrove Ecosystem (July 26) highlights the alarming loss of mangroves, vanishing 3-5 times faster than global forests. Since 1985, global mangrove cover has halved, according to UNESCO and IUCN.
- **About Mangroves:**
  - Mangroves are coastal ecosystems of salt-tolerant trees and shrubs thriving in tropical and subtropical intertidal zones.
  - They are specially adapted to survive in saline, low-oxygen environments with slow-moving waters and fine sediments.
  - Common mangrove species like Red Mangrove, Grey Mangrove, and Rhizophora are vital for coastal protection, carbon sequestration, and biodiversity conservation.
  - According to the ISFR 2023, India's mangrove cover spans 4,992 sq. km, or 0.15% of the country's area. West Bengal leads in mangrove cover, followed by Gujarat.

International Tiger Day 2025 (Global Tiger Day)

- Observed on 29th July
- **Aim:** Promote awareness about tiger (*Panthera tigris*) conservation,
- **Focus Species:** Amur tiger (*Panthera tigris altaica*)—world's largest wild cat.
- **Origin:** Instituted at the 2010 Saint Petersburg Tiger Summit, Russia, where 13 tiger-range countries (including India) launched the Tx2 initiative to double wild tiger numbers by 2022.
- **India's Conservation Efforts:** Project Tiger (1973) - to protect Bengal tigers (*Panthera tigris tigris*) and their habitats.

PLACES IN NEWS

Gulf of Mannar

- Gulf of Mannar, **impacted** by **coral bleaching**, has used **artificial reef restoration** with triangular and perforated trapezoidal modules placed underwater by divers.
- **About Gulf of Mannar:**
  - Located between southeast India and northwest Sri Lanka, part of the Laccadive Sea.
  - Encompasses 21 islands, bounded by Rameswaram, Adam's Bridge, and Mannar Island.
  - Rivers like **Tamraparni (India) and Malvathu Oya (Sri Lanka)** flow into it.
  - Hosts the **Tuticorin port** and is known for **pearl banks and sacred chank.**
  - **Gulf of Mannar Biosphere Reserve** (estd in 1989) **recognized by UNESCO** in 2001.
    - ❖ First Marine BR in South and Southeast Asia; also encompasses the Marine National Park (estd in 1982).

Digital Literacy in India

- Only 38% of India households are digitally literate (61% in urban areas and 25% in rural areas) [**Central Board for Workers Education**].
- **Initiatives Promoting Digital Literacy**
  - GoI implemented 2 schemes, **National Digital Literacy Mission (NDLM) and Digital Saksharta Abhiyan (DISHA)** – 52.50 lakh targeted beneficiaries (one person from every eligible household). Both discontinued now.
  - **PM Gramin Digital Saksharta Abhiyan (PMGDISHA):** 6.39 cr individuals trained nationwide (March 2024).

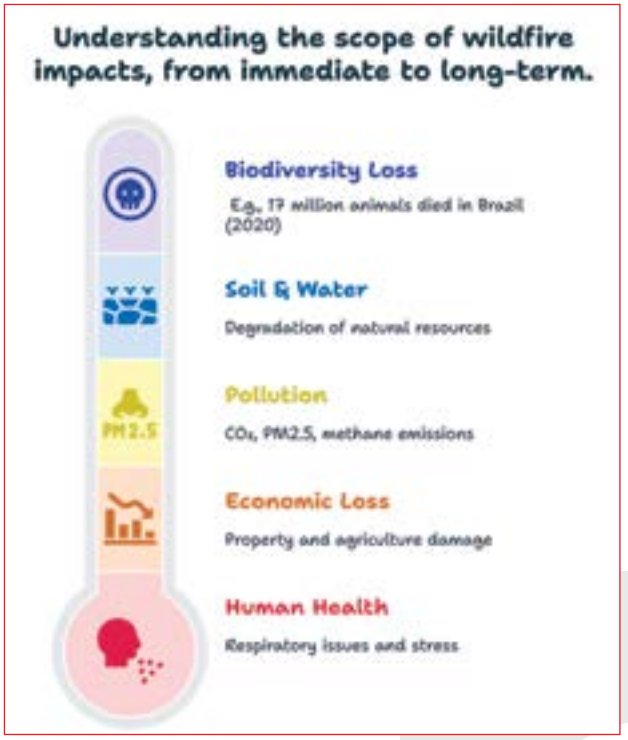
Wildfires in Southern Europe

- Wildfires hit **Albania, Greece, Italy, Portugal, Spain**, and **Turkey**, causing deaths and mass evacuations.

- **Wildfires** = Unplanned, unwanted wild land fire (including unauthorized human-caused fires).

Control Tool	Details
Pink Fire Retardant	Ammonium phosphate slurry; contains toxic metals like **chromium, cadmium**
Bambi Bucket	Helicopter-mounted container for targeted water drops in inaccessible areas

Category	Causes	Possible Solutions
Climatic & Geographic	■ Hot, dry Mediterranean climate with low humidity and dry winds (e.g. Sirocco) highly vulnerable ■ Climate change: dry spells, heat waves, erratic monsoon, El Niño	■ Climate-resilient forestry ■ Fuel load reduction ■ Green firebreaks
Anthropogenic Drivers	■ Slash-and-burn practices ■ Agricultural expansion, tourism, infrastructure projects ■ Waste mismanagement	■ Prescribed burning ■ Community & tribal participation with training and incentives ■ Eco-sensitive development and enforcement of no-go zones
Weak Systems & Technology Gaps	■ Inadequate surveillance ■ Outdated response systems ■ Lack of AI-based prediction and poor weather forecasting	■ Satellite monitoring & drones ■ Real-time alerts for rapid containment ■ AI predictive models



According to ISFR 2021, over **36**% of India's forest cover is fire-prone, with **2.81**% extremely and **7.85**% very highly fire-prone, while ISFR 2023 reports a sharp surge in incidents in **Himachal Pradesh** (**1,339**%), **Jammu & Kashmir** (**2,822**%), and **Uttarakhand** (**293**%).

Lipulekh Pass

- India rejected Nepal's objections to the resumption of India-China border trade through the Lipulekh Pass which Nepal claims as part of its territory.
- **Location:** Kumaon region, Uttarakhand; trijunction of India, Nepal, and China.
- **Historical Importance:** Ancient trade route connecting the Indian subcontinent with the Tibetan plateau.
- **Border Trade:** First Indian border post opened for trade with China in 1992 (Shipki La in 1994; Nathu La in 2006).

Dardanelles Strait

- With **forest fires** ravaging north-western Turkey, the Strait has been temporarily closed to maritime traffic.
- **Location:** Separates the Gallipoli Peninsula in Europe from the Asian mainland
  - Connects the Aegean Sea to the Sea of Marmara, facilitating passage to the Black Sea via the Bosporus Strait.
- **Historical Significance:** A site of Persian invasion (480 BCE) and the **Gallipoli Campaign (WW-I)**.

The Preah Vihear and Prasat Ta Muen Thom

- Thailand and Cambodia have agreed to a ceasefire following clashes near Preah Vihear and Prasat Ta Muen Thom
- **Location:** Southeast Asian Emerald Triangle (Thailand, Cambodia, and Laos)
- **Cause:** Long-standing dispute due to colonial-era borders and cultural claims.

- **Preah Vihear:** Hindu shrine built in 11th century by Khmer kings Suryavarman I and II
  - Dedicated to Lord Shiva
  - **Location:** Dangrek Mountains, Cambodia (near Thailand border)
  - **Status:** UNESCO World Heritage Site.
  - **Legal Dispute:** The International Court of Justice (ICJ) ruled in 1962 (reaffirmed in 2013) that the temple belongs to Cambodia, but Thailand rejected the ruling, keeping tensions unresolved.
- **Prasat Ta Muen Thom:**
  - Temple built in 12th century by Khmer kings Udayadityavarman II and Jayavarman VII
  - Dedicated to Lord Shiva, later adapted for Buddhist use
  - Part of a temple group that includes Prasat Ta Muen (a pilgrim rest house) and Prasat Ta Muen Tot (a hospital shrine) Reflects Angkorian architecture.

Tuvalu

- Under the **Falepili Union Treaty (2023), Tuvalu** will relocate its population to Australia marking the **world's first planned migration** due to climate change-induced sea-level rise.
- Starting in 2025, Australia will accept 280 Tuvaluans annually as permanent residents (ballot-based "climate visa") and grant them equal rights to healthcare, education, housing, and jobs.
- **Threat to Tuvalu's Existence:**
  - Average elevation = 2 meters above sea level; vulnerable to floods, storms, and coastal erosion.
  - NASA predicts submergence of most of its land by 2050.

- **Key Facts about Tuvalu:**
  - **Location:** Lies between Australia and Hawaii (South Pacific Ocean)
  - **Capital:** Funafuti
  - **Independence:** from UK (1978)
  - **Tuvalu Trust Fund:** A financial support mechanism funded by Australia, New Zealand, UK, Japan, and S. Korea.

Dibru-Saikhowa National Park

DSNP is witnessing ecological changes due to native (*simalu, ajar)* and invasive plant species (*Chromolaena odorata, Parthenium,* etc.).

Location	**Assam**, bounded by **Brahmaputra** and **Lohit Rivers** (north), **Dibru River** (south).
Vegetation & Climate	Semi-evergreen, deciduous, **largest Salix swamp forest** in northeast India. Tropical monsoon climate.
Key Species	**Only habitat of feral horses** in India, Bengal florican (critically endangered), hog deer (endangered), and swamp grass babbler (endangered)
Protected Status	**Biosphere Reserve** (1997), **Important Bird Area** (**IBA**) 

Maratha Military Landscapes

- The Maratha Military Landscapes, including 12 forts - mainly in Maharashtra and one in Tamil Nadu, have been added to the **UNESCO World Heritage List** - as a cultural heritage site, at the 47th session of the World Heritage Committee.
- This inscription marks India's 44th entry to the WHS List following the 2024 inscription of the **Moidams of Charaideo, Assam**.
- **India and UNESCO:** India joined the 1972 World Heritage Convention in 1977 and has become a member of the WH Committee for 2021-25 period.
- Ranks 6th globally and 2nd in the Asia-Pacific region for World Heritage Sites.

Kerala: India's 'First' Digitally Literate State

Kerala's declaration as the **first fully digitally literate state in India**, marks a milestone in bridging the digital divide through the **Digi Keralam Project.**

Digi Keralam Project	Akshaya Project
■ Targeted senior citizens, homemakers, and digitally excluded groups; Leveraged Youth volunteers. ■ **K-SMART (Kerala Solutions for Managing Administrative Reformation and Transformation) platform:** Online access services, boosting inclusion and governance.	■ Launched in 2002 by former President A.P.J. Abdul Kalam in Kerala, to **make one family member digitally literate**, promoting IT access and citizen service delivery across the state.

Mount Lewotobi Laki Laki

- One of Indonesia's most active volcanoes, Mount Lewotobi, erupted, sending ash up to 18 km high and covering nearby villages with volcanic debris.
- **About Mount Lewotobi:**
  - Located on the Indonesian island of Flores, Mount Lewotobi is part of the Pacific "Ring of Fire," known for frequent seismic activity.
  - The Lewotobi volcano features a twin-peaked system, comprising Lewotobi Lakilaki (man) and Lewotobi Perempuan (woman) stratovolcanoes. Their summit craters are less than 2 km apart.

Amazon Rainforest

- World's largest tropical rainforest, spanning 6.7 million km^2 across 9 countries.
  - **60% of area lies in Brazil**, remaining shared among Bolivia, Colombia, Ecuador, Guyana, Peru, Suriname, Venezuela, and French Guiana
  - Covers >50% **of world's rainforest volume**, crucial for **biodiversity, carbon sequestration, and climate regulation**.
    - ❖ Sustains **around 10% of global wildlife**, including >70% of world's jaguars.

Amazon

Ecuador and Peru's indigenous communities oppose a new oil deal, citing risks of deforestation, pollution, and biodiversity loss in the **Amazon rainforests**.

PERSON IN NEWS

Aurobindo Ghose

Born	15th August 1872, Calcutta
Died	5th December 1950, Pondicherry
Revolutionary Career	Advocated radical nationalism; Criticized Congress' moderate approach in *New Lamps for Old*; Arrested in the **Alipore Bomb Case (1908) - defended by Chittaranjan Das**
Spiritual Contributions	Founded **Sri Aurobindo Ashram (1926)**, collaborated with **The Mother (Mirra Alfassa)** to establish **Auroville**
Literary Works	*The Life Divine, Savitri, Essays on the Gita, The Synthesis of Yoga, Defense of Indian Culture*

Contd...

Journals & Movements	Contributed to **Bande Mataram**, **Jugantar**, **Karmayogi**; Associated with **Anushilan Samiti**
Legacy	Early proponent of India as a Vishwa Guru, emphasizing spiritual leadership, decolonization, and pride in Indian civilization

MISCELLANEOUS

Golden Dome Missile Defense System

The **US has finalized the design of the Golden Dome**, an **advanced multilayered missile defense system** that uses **satellite-based sensors** and interceptors to **intercept missiles during the boost phase.**

Global Missile Defence Systems		
System	**Range (km)**	**Features**
Iron Dome (Israel)	70	Intercepts rockets and drones targeting populated areas; **radar-based detection**
S-400 Triumph (Russia)	400	**Multi-missile system**; engages stealth aircraft, cruise missiles, and multiple targets
Barak-8 (Israel/ India)	70–100	Land and naval system; **360° protection** against aircraft, missiles, and UAVs
HQ-9 (China)	125	Inspired by S-300; intercepts **UAVs**, aircraft, ballistic and cruise missiles

Actions to Enhance Functioning – REPAIR

- **Revise Infrastructure Quality:** Ensure high-quality, accountable infrastructure (link contractor payments to verified quality).
- **Ensure Data Authenticity:** Third-party audits, geotagging, public dashboards.
- **Performance-based Funding:** Link funding to state progress.
- **Awareness & Testing:** Ensure safe water and mandatory testing.
- **Integrate Financial Reforms:** Link JJM with other water initiatives (SBM-G, ABY).
- **Repair & Maintenance Planning:** Nationwide repair policy for sustainability.

MERITE Scheme

The Union Cabinet has approved the proposal for implementation of the **Multidisciplinary Education and Research Improvement in Technical Education (MERITE) Scheme** to enhance the quality across 275 institutions nationwide, aligning with the **National Education Policy 2020.**

Funding: Central Sector Scheme

- Total Budget: Rs. 4200 crore including Rs. 2100 crore **World Bank loan** assistance.
- Implementation Period: 2025-26 to 2029-30
- Target: **engineering institutions and polytechnics**, including NITs, State Engineering Institutions, and Affiliating Technical Universities.
- **Nodal Ministry:** Ministry of Education
- **Focus Areas:** Digitalise education, develop multidisciplinary programs, boost students' learning and employability and support future academic leaders, especially women.