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# MONTHLY CURRENT AFFAIRS

## FOR UPSC CIVIL SERVICE EXAMINATION

## JULY 2025







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# Chola Legacy as a Blueprint for Modern India

**What's the News?**
**India has recently added six new sites to UNESCO's Tentative List, a key step before they can be nominated as World Heritage Sites.**

Aadi Thiruvathirai Festival:
- Tamil Shaiva festival celebrating devotion through Nayanmar hymns.
- This year coincided with Rajendra Chola's birth star (July 23).

Key Highlights:
- PM praised Chola governance, culture, and naval strength as a model for modern India.
- Announced statues of Rajaraja Chola & Rajendra Chola I in Tamil Nadu.
- Issued commemorative coin for Rajendra Chola I.
- Stressed artefact repatriation (600 since 2014, 36 from TN).

About the Cholas:
- One of the three major dynasties of ancient Tamilakam, mentioned in Sangam literature and Ashoka's edicts.
- Empire revived in the 9th century under Vijayalaya Chola.

Notable Rulers:
- Vijayalaya Chola (848–871 AD): Founded the empire, captured Thanjavur, built temples.
- Rajaraja I (985–1014 AD): Expanded to Sri Lanka, Maldives; built Brihadesvara Temple; promoted cultural diplomacy.
- Rajendra I (1014–1044 AD): Reached Ganges, built Gangaikonda Cholapuram; led naval expeditions to Southeast Asia; boosted trade.
- Kulottunga I (1070–1122 AD): Unified Eastern Chalukyas; introduced revenue reforms; supported multiple faiths.

Why the Chola Legacy Matters:

- Maritime Strength: Early assertion of India's naval power; linked to modern defence initiatives.
- Administrative Innovation: Kudavolai system—local self-governance.
- Water Management: Advanced irrigation like Cholagangam lake.
- Cultural Diplomacy: Trade & cultural links across Asia; influence seen in Angkor Wat, Borobudur.
- Unity & Heritage: Reflected in modern events like Kashi Tamil Sangamam; emphasis on Shaivite philosophy and "Ek Bharat, Shreshtha Bharat" vision.

# Maratha Military Landscapes in UNESCO World Heritage List

Context:

- At the 47th World Heritage Committee session in Paris, the Maratha Military Landscapes of India were added to the UNESCO World Heritage List — India's 44th such site.

India's UNESCO Heritage Status:

- Total Sites: 44 (36 Cultural, 7 Natural, 1 Mixed – Khangchendzonga National Park).
- Recent Additions:
  - 41st (2023): Santiniketan, West Bengal.
  - 42nd (2023): Sacred Ensembles of the Hoysala.
  - 43rd (2024): Mound-Burial System of Ahom Dynasty.
- Global Rank: 6th worldwide, 2nd in Asia-Pacific (Italy leads with 60 sites; China has 59).
- Nodal Body: Archaeological Survey of India (ASI).

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About the Maratha Military Landscapes:

- Origin: Developed under Chhatrapati Shivaji Maharaj (1670 CE) and used until 1818.

- Composition: 12 forts from 17th–19th centuries.
  - Maharashtra (11 forts): Salher, Shivneri, Lohgad, Khanderi, Raigad, Rajgad, Pratapgad, Suvarnadurg, Panhala, Vijaydurg, Sindhudurg.
  - Tamil Nadu (1 fort): Gingee Fort.
- Protection:
  - ASI-protected: Shivneri, Lohgad, Raigad, Suvarnadurg, Panhala, Vijaydurg, Sindhudurg, Gingee.
  - Maharashtra Govt.: Salher, Rajgad, Khanderi, Pratapgad.
- Significance:
  - Strategic Warfare: Forts showcase mastery in using terrain for guerrilla tactics — countering Mughals on land and European powers at sea.
  - Military Legacy: Unique example of indigenous military architecture and defence planning.
- About UNESCO:
  - UN agency founded in 1945, HQ in Paris.
  - Works to promote peace through education, science, and culture.
  - 194 member states; India is a founding member.
- Nomination Criteria:
  - Two categories: Cultural (i–vi) & Natural (vii–x).
  - Maratha Military Landscapes fall under Cultural criteria.

# Three-Language Policy in NEP 2020

Context:

- Maharashtra recently withdrew two resolutions that introduced Hindi as the third language after political backlash, highlighting ongoing debates over the Three-Language Formula.


Background & Evolution:

- 1950s – Munshi-Ayyangar Formula: Compromise to retain English with Hindi as the official language, avoiding imposition on non-Hindi states.
- Kothari Commission (1964–66): Proposed Three-Language Formula —
  - First language: Mother tongue/regional language.
  - Second: For Hindi states – another Indian language or English; for non-Hindi states – Hindi or English.
  - Third: For Hindi states – English or another Indian language; for non-Hindi states – English or another Indian language.
- NPE 1968: Adopted the formula officially.
- NEP 2020: Retains the formula but allows flexibility — any two Indian languages + one foreign language; no imposition. Encourages mother tongue till at least Grade 5.

Significance:

- Promotes national integration while respecting linguistic diversity.
- Strengthens federalism by giving states choice.
- Improves educational equity for competitive exams.
- Preserves minority & classical languages (e.g., Sanskrit, Tamil).
- Prevents linguistic dominance of a single language.

Challenges:

- Resistance in non-Hindi states (e.g., Tamil Nadu's two-language policy).
- North–South divide in language preferences.
- Uneven implementation and limited actual choices in schools.
- Infrastructure gaps – shortage of trained teachers & materials.
- Linguistic inequality favouring Hindi & English in jobs/governance.
- Perceived threat to state autonomy in education policy.

Way Forward:

- Build consensus with states before policy rollout.
- Allow regional flexibility in language selection.
- Invest in teacher recruitment & textbooks for all Scheduled and tribal languages.
- Prioritise mother tongue/regional medium in early schooling.
- Create a Language Diversity Index to monitor usage.
- Promote reciprocal learning (e.g., Hindi states learning Southern languages).
- Increase public awareness on linguistic equality.

Conclusion:
The Three-Language Policy aims to unite India's diverse linguistic landscape, but success depends on flexible, resource-backed, and consensus-driven implementation that balances unity with cultural autonomy.

# TALASH Initiative

Context:

- The National Education Society for Tribal Students (NESTS), in collaboration with UNICEF India, launched TALASH (Tribal Aptitude, Life Skills and Self-Esteem Hub) to support holistic development in Eklavya Model Residential Schools (EMRSs).

About NESTS:

- Autonomous body under Ministry of Tribal Affairs (est. 2019).
- Manages EMRSs for tribal students.

About TALASH:

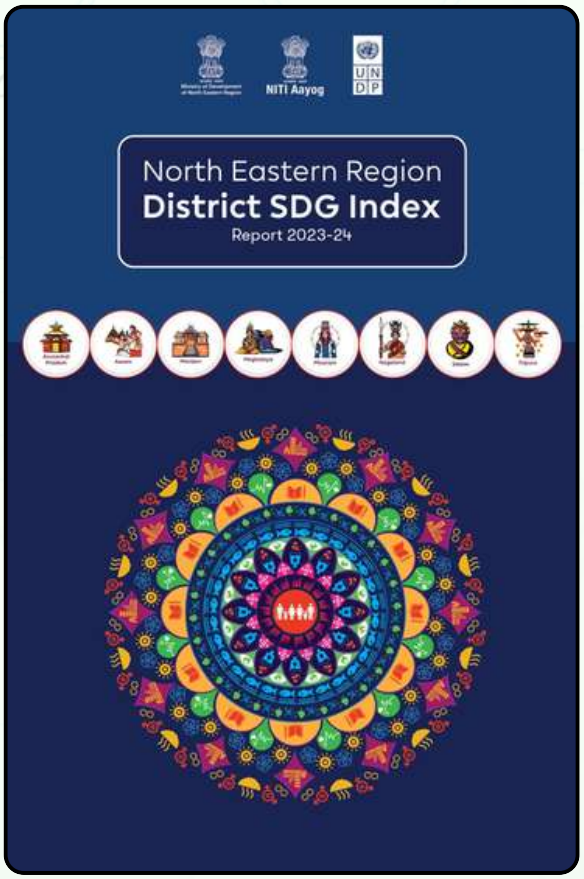
- Aim: Enhance education, personal growth, self-awareness, and career clarity among tribal youth.
- Target: 1.38+ lakh students across 28 states & 8 UTs.
- Vision:
  - Foster self-discovery & career planning.
  - Build self-confidence, resilience, and life-readiness.
  - Aligns with NEP 2020 focus on holistic, inclusive education.

Key Components:

1. Psychometric Assessments – Based on NCERT's Tamanna; identifies strengths & aptitudes; generates personalised career cards.
2. Career Counselling – Aligns goals with abilities; guides education & career choices.
3. Life Skills & Self-Esteem Modules – Trains in problem-solving, emotional regulation, communication; builds resilience & self-worth.
4. E-Learning for Teachers – Digital portal with training and mentoring tools to support students' academic and emotional growth.

# North Eastern Region (NER) SDG Index 2023–24

Context:
NITI Aayog, with the Ministry of Development of North Eastern Region (MoDoNER) and UNDP, released the NER District SDG Index 2023–24, tracking progress of 121 districts across 8 states on 15 of 17 Sustainable Development Goals (SDGs).



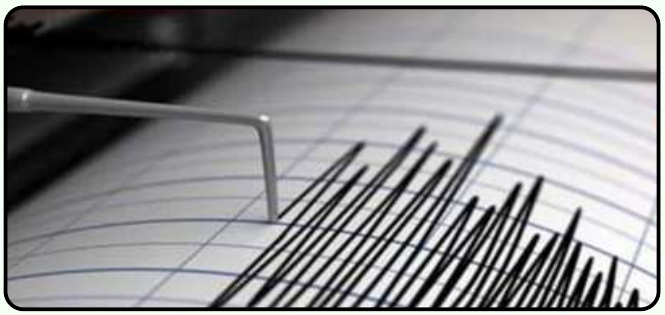

Key Findings (NER 2023–24):

- All districts in Mizoram, Sikkim, and Tripura: Front Runner status.
- Top District: Hnahthial (Mizoram).
- Share of Front Runner districts rose from 62% (2021–22) to 85% (2023–24).
- Strong gains in: No Poverty, Zero Hunger, Good Health, Quality Education, Gender Equality, Clean Water & Sanitation.
- National flagship schemes (Jal Jeevan Mission, Swachh Bharat Mission, Aspirational Districts Programme) boosted performance.

About SDG India Index:

- Developed by NITI Aayog to measure India's progress toward UN SDGs.
- Helps states align policies with SDG targets and identify gaps for action by 2030.

# India's Seismic Resilience



Context:

A 4.4 magnitude earthquake near Delhi in July 2025 revealed serious gaps in infrastructure safety, underlining India's high earthquake risk due to its seismic geography and limited preparedness.

About Earthquakes:

- Sudden release of energy in Earth's crust, producing seismic waves.
- Causes:
  - Plate Tectonics – e.g., Turkey–Syria 2023 quake.
  - Volcanic Activity – magma movement causes tremors.
  - Human Activity – fluid injection, oil/gas extraction.
  - Reservoir-induced – water level changes affect crust.
  - Glacial Rebound – glacier movement triggers quakes.

India's Preparedness Measures:

- Agencies: NDMA (guidelines, homeowner safety codes), NCS (monitoring), IMD & INCOIS (advanced networks), NDRF (drills).
- Policies: NDMP 2019, BhooKamp app, National Earthquake Risk Mitigation Project (NERMP), geo-targeted alerts under Common Alerting Protocol, Earthquake Disaster Risk Index (EDRI).
- State Initiatives: School safety drills, retrofitting hospitals/schools, NIDM training for engineers & planners.
- International Collaboration: BIMSTEC, SCO, Japan.

Challenges:

- Weak enforcement of building codes.
- Public unawareness of safety measures.
- High casualty and economic loss risks from structural collapse, landslides, tsunamis, dam failures, and hazardous leaks.

Way Forward:

- Stricter Laws: Enforce IS 1893:2016 seismic code, independent inspections, regular updates.
- Tech & Data: Expand sensors, early warning systems, AI-based prediction, GIS mapping.
- Public Awareness: Multi-language campaigns, mock drills, citizen reporting of unsafe structures, community disaster teams, promote traditional quake-resistant designs.

# NITI Aayog Report – India's Data Imperative: The Pivot Towards Quality


**Context:**
NITI Aayog's latest report stresses the urgent need to improve data quality for better governance, public trust, and service delivery.

**Key Points:**
- Data Quality = Accuracy, consistency, completeness, timeliness, and reliability.
- High-quality data is crucial for effective decision-making and policy formulation.

**Why It Matters:**
- Fiscal Efficiency: Poor data leads to waste — e.g., removing 17.1 million ineligible PM-Kisan names saved ₹90,000 crore.
- Policy Precision: Inconsistent data delays aid (e.g., crop-loss compensation).
- Public Trust: Errors in Aadhaar or beneficiary records block welfare benefits.
- AI & Governance: Bad data can cause AI errors or "hallucinations."
- Service Delivery: Poor records delay schemes and increase costs.

**Challenges:**
- System flaws prioritizing speed over accuracy.
- Data stored in silos, incompatible across departments.
- Outdated technology without validation or audit trails.
- Lack of accountability for errors.
- Low expectations—80% accuracy considered "good enough."

**Government Measures:**
- National Data Governance Framework Policy (2022) – Improve data governance.
- Open Data Initiative (data.gov.in) – Transparency and standardization.
- National Data Analytics Platform (NDAP) – Improve access to datasets.
- Chief Data Officers in ministries – Oversee quality and stewardship.

**Way Forward:**
- Assign data custodians at all levels for accountability.
- Incentivize accuracy over speed; use data scorecards.
- Ensure interoperability with common formats.
- Use real-time validation to prevent entry errors.
- Promote a data stewardship culture in governance.
- Maintain security & privacy as per global best practices.
- Conduct regular audits of high-value datasets like Aadhaar.

# National Cooperation Policy 2025

**Context: The Union Home and Cooperation Minister launched the National Cooperation Policy 2025 to boost inclusive rural development, aligning with the UN's International Year of Cooperatives 2025 and the theme — "Cooperatives: Driving Inclusive and Sustainable Solutions for a Better World".**

About the Policy:

- Vision: Based on PM Modi's 'Sahkar Se Samriddhi' (prosperity through cooperation), it aims to create a tech-driven, inclusive cooperative sector to support Viksit Bharat by 2047.
- Targets:
  - Expand cooperatives by 30% and triple their GDP contribution.
  - Integrate 50 crore active members by 2034.
  - Have one cooperative in every panchayat.
- Key Provisions:
  - Model Cooperative Villages: 5 in each tehsil, starting with Gandhinagar (NABARD-led).
  - Sector Expansion: Tourism, taxi services (Sahkar Taxi), insurance, green energy.
  - Employment & Youth: One cooperative per village to generate jobs and involve youth.
  - Technology: Computerisation & transparent management in PACS.
  - Inclusivity: Focus on rural women, Dalits, tribals.
  - Education: Tribhuvan Sahkari University for skill-building.
  - Exports: National Cooperative Exports Limited for global market access.
- Implementation: 83 intervention points; 58 completed; legal updates every 10 years.

Constitutional Backing:

- 97th Amendment: Added Part IXB on Cooperative Societies; recognised the right to form cooperatives (Art. 19(1)) and added Art. 43B on promotion of cooperatives.
- MSCS (Amendment) Act 2023: Strengthens governance, transparency, accountability, and reforms electoral processes.

# Anti-Sacrilege Bill in Punjab

Context: The Punjab Cabinet has cleared the Punjab Prevention of Offences Against Holy Scripture(s) Bill, 2025 to curb sacrilege and protect communal harmony.

Key Points:

- Objective: Criminalises sacrilege against sacred religious texts.
- Scope: Covers Sri Guru Granth Sahib, Bhagavad Gita, Holy Bible, Quran Sharif, and other revered scriptures.
- Punishment:
  - Sacrilege: 10 years to life imprisonment
  - Attempt: 3–5 years imprisonment
  - Abetment: Same as main offence
- Purpose: Fills legal gaps by penalising sacrilege across all faiths.

What is Sacrilege?

- Meaning: Deliberate violation or disrespect of sacred religious texts, objects, or places.
- Impact: Can trigger violence, disturb public order, and fuel communal tensions.
- BNS Provisions:
  - Sec 298: Injuring/defiling a place of worship to insult a religion.
  - Sec 299: Deliberate acts to outrage religious feelings (blasphemy).

Sacrilege vs Blasphemy:

- Sacrilege - Tangible acts — damaging holy books, defiling temples, etc. | Intangible acts — insulting religion through speech/writing |
- Blasphemy - Applies across religions; focuses on sacred symbols/places | Speech/publication targeting beliefs, deities, or prophets |

# Polygamy in the Hatti Tribe

Context - A recent case in Himachal Pradesh's Trans-Giri region saw a Hatti tribal woman marry two brothers under the traditional polyandrous practice of Jodidaran, sparking debate on the legality of such customs.

About Polygamy

- Having more than one spouse.
  - Polygyny: One man, multiple wives
  - Polyandry: One woman, multiple husbands

Prevalence (NFHS-5, 2019-20)

- Christians: 2.1%, Muslims: 1.9%, Hindus: 1.3%, Others: 1.6%
- Highest in Northeastern tribal states.

Legal Status

- Banned under Hindu Marriage Act, 1955; Special Marriage Act; and criminalised in Bharatiya Nyaya Sanhita.
- Exemption: Scheduled Tribes are exempt unless notified by the Centre.
- Customs are legally valid only if long-practised, reasonable, certain, and not against public policy or fundamental rights like equality and dignity.

# Vice-President of India Resigns

Context: Vice-President Jagdeep Dhankhar resigned due to medical reasons, also stepping down as Rajya Sabha Chairman. He is the third Vice-President to quit before completing his term, after V.V. Giri and R. Venkataraman, who resigned to contest presidential polls.

Key Facts about the Vice-President

- Position: Second-highest constitutional office after the President.
- Election: Indirectly elected by both Houses of Parliament (elected + nominated MPs) through proportional representation and secret ballot.
- Term: 5 years; eligible for re-election; can resign to the President.
- Removal: By Rajya Sabha resolution (effective majority) agreed by Lok Sabha (simple majority); no formal impeachment.
- Role:
  - Ex-officio Chairman of Rajya Sabha.
  - No real executive powers.

Constitutional Provisions

- Articles 63–68: Cover VP's post, election, term, and vacancy rules.
- Eligibility:
  - Citizen of India, 35+ years old.
  - Qualified for Rajya Sabha membership.
  - Not holding an office of profit (exceptions: President, VP, Governors, Ministers).

Key Differences from President's Election

- Includes nominated MPs, excludes state MLAs.
- President's election excludes nominated MPs, includes state MLAs.

In case of vacancy: Deputy Chairman of Rajya Sabha presides over the House.

# ECI to Delist 345 Political Parties


Context: The Election Commission of India (ECI) is moving to remove 345 Registered Unrecognised Political Parties (RUPPs) that haven't contested elections in the last 6 years.

What are RUPPs?

- Registered under Section 29A of the Representation of the People Act, 1951.
- Do not meet criteria to be recognised as State or National parties.
- No benefits like reserved symbol, free electoral rolls, free Doordarshan/Akashvani slots, subsidised land, or 40 star campaigners.

Benefits RUPPs Still Enjoy

- Tax exemption under Section 13A of Income Tax Act.
- Can choose from free symbols (submit 10 preferences).
- Can nominate 20 star campaigners.

Transparency Rules

- Disclose donors contributing ₹20,000+ annually.
- Donations above ₹2,000 must be via cheque/bank transfer.
- Non-compliance leads to loss of tax exemption.

Registered Political Parties – Basics

- Must submit constitution to ECI within 30 days of formation.
- Must pledge to uphold the Constitution, socialism, secularism, democracy, and national unity.
- Internal democracy mandatory (e.g., periodic elections).
- Post-approval, become RUPPs until they qualify as recognised parties.

Recognition Criteria

State Party:

- 6% valid votes in Assembly election + 2 MLAs, or
- 3% Assembly seats (or minimum 3 seats), or
- 1 MP per 25 Lok Sabha seats from state, or
- 8% valid votes in state Assembly/Lok Sabha polls.

National Party:

- Recognised in 4 or more states, or
- 6% valid votes in Lok Sabha/Assembly in 4+ states + 4 LS seats, or
- 2% Lok Sabha seats from at least 3 states.

# Nomination of Members to Rajya Sabha

Context: The President of India has nominated four distinguished individuals to the Rajya Sabha.



Constitutional Provisions

- Source: Idea taken from the Irish Constitution.
- Article 80(1): Rajya Sabha can have max 250 members – 12 nominated by the President.
- Article 80(3): Nominees must have special knowledge/experience in literature, science, art, or social service.
  - Example: Rakesh Sinha (Literature), Ilaiyaraaja (Arts).
- Tenure: 6 years; 1/3rd retire every 2 years.
- Rights: Equal to elected members – can debate, vote on bills, join committees.
  - Can join a political party within 6 months.
  - Cannot vote in Presidential election, but can vote for Vice-President.

Election of Rajya Sabha Members

- Permanent House – never dissolved; 1/3rd members retire every 2 years (Article 83(1)).
- Total seats: 245 (233 elected by State/UT Assemblies, 12 nominated).
- Seat Allocation: As per Fourth Schedule, based on population.
- Election Method: Indirect – MLAs elect members through proportional representation using Single Transferable Vote (STV) system.

# Department of Official Language

Context: Celebrated its 50th anniversary; key role in promoting Indian languages in governance.

About the Department

- Established: 1975, under Union Home Ministry.
- Objective: Promote use of Hindi and other Indian languages in official work, reflecting India's linguistic diversity.
- Function: Implements language policies for administration at national and state levels.

Official Language – Key Facts

- Meaning: Language(s) used by government for administration, communication, and public documents.
- Constitutional Provisions:
  - Article 343: Hindi – official language of India.
  - Official Languages Act, 1963: Allows continued use of English alongside Hindi.

# 17th BRICS Summit 2025 – Rio de Janeiro, Brazil

Context: Held on 6–7 July 2025 in Rio de Janeiro. Concluded with the Rio de Janeiro Declaration, reaffirming Global South cooperation and inclusive global governance.


Key Details

- Theme: Strengthening Global South Cooperation for a More Inclusive and Sustainable Governance
- New Members: Indonesia (full member) + 10 Partner Countries (Belarus, Bolivia, Kazakhstan, Nigeria, Malaysia, Thailand, Cuba, Vietnam, Uganda, Uzbekistan)
- Support: Backed India's 2026 Chairship
- Notable Absences: Saudi Arabia (membership pending), Argentina opted out

PM of India's Highlights

- Condemned Pahalgam terror attack; called for united action against terrorism
- Urged UNSC reform; more representation for Asia, Africa, Latin America
- Advocated inclusive multilateralism, peace, and Gaza ceasefire
- Emphasised values of Buddha & Gandhi – dialogue, peace, non-violence

Major Outcomes

1. Global Governance Reform – Support for UNSC expansion, IMF & World Bank reforms, rules-based WTO
2. Sustainable Development – Leaders' Framework on Climate Finance, BRICS Carbon Markets Partnership
3. Peace & Security – African-led solutions, Gaza ceasefire, anti-terror cooperation
4. Financial Cooperation – Cross-Border Payments Initiative, NDB expansion, BRICS Multilateral Guarantees
5. Technology & Digital Economy – Global AI Governance statement, Data Economy framework, BRICS Space Council
6. Health & Social Development – Partnership to eliminate socially determined diseases (e.g., TB)

Challenges

- Divergent interests (India–China, Saudi–Iran)
- Economic disparities & sanctions on members
- Low intra-BRICS trade (~2.2% of global trade)
- Institutional gaps – no permanent secretariat, weak project follow-up
- Slow reform pace in UNSC/WTO
- Weak financial alternatives – NDB's limited reach
- Consensus-based paralysis slowing decision-making
- Anti-West perception post-Ukraine

Way Forward

- Define shared vision; set up permanent BRICS Secretariat
- Strengthen NDB and BRICS-Pay; expand Global South partnerships
- Promote responsible AI governance; implement "AI for All" in key sectors
- Clear membership criteria; balance Chinese influence with Indian diplomacy
- Boost intra-BRICS trade via local currency trade & connectivity projects

Conclusion: BRICS remains a crucial platform for promoting a multipolar, equitable, and sustainable global order, amplifying the voice of the Global South and advancing the 2030 SDG Agenda.

# India–UK Comprehensive Economic and Trade Agreement (CETA)

Context: Signed in July 2025; aims to double bilateral trade by 2030 and aligns with the new India–UK Vision 2035 for a revitalised partnership.

- Marks India's 16th FTA and most comprehensive with a G7 nation; supports India's export target of USD 2 trillion by 2030.

Key Features

- Tariff Elimination: 99% tariff removal for Indian exports; sensitive sectors (dairy, apples, oats, edible oils) protected.
- Market Access: Covers goods, services, investments, NTB reduction.
- MSME & Innovation: GI protection, digital export portals, R&D collaboration.
- Professional Mobility: 3-year Double Contribution Convention (DCC) exemption from UK social security for Indian workers.

Sectoral Gains

- Agriculture & Marine: 95% agri-lines at zero duty (fruits, spices, basmati rice, shrimp, tuna). Key states: Maharashtra, Gujarat, Punjab, Kerala, NE.
- Textiles & Engineering: 1,100+ textile categories duty-free; engineering goods (0% duty from 18%); electronics & IT services get preferential access.
- Pharma & Chemicals: 0% duty for generics, medical devices.
- Others: Plastics, sports goods, gems & jewellery, leather – all benefit from duty cuts.

Challenges

- Tariff Imbalance: UK liberalises 100%, India 90%.
- MSME Standards: Compliance with strict UK SPS/TBT measures costly.
- Job Risks: Lower tariffs on UK whisky/cars may hurt domestic sectors.
- Geopolitical Risks: UK economic uncertainty; China factor in trade strategy.
- Implementation Gaps: Delays in tariff cuts, visas, SPS approvals; weak dispute resolution.

Way Forward

- Protect Sensitive Sectors: Dairy, automotive via subsidies, PLI, PM-Kisan.
- Tackle NTBs: Mutual recognition of standards; strengthen SPS Committee.
- Boost MSMEs: Subsidies for certifications; skill training for UK market.
- Ensure Mobility: Visa taskforce; DCC clarity.
- Geostrategy: Balance China factor; leverage Indo-Pacific partnerships.
- Execution: Set clear timelines; create CETA dispute panel.

Conclusion: CETA + Vision 2035 can transform India–UK trade and strategic ties if implementation is timely, MSMEs are supported, and sensitive sectors protected. The pact could serve as a model for future FTAs, including with the EU.

# India–Maldives Relations

Context: PM Modi visited Maldives (July 26, 2025) as Guest of Honour for its 60th Independence Day, on invitation from President Mohamed Muizzu. This was his 3rd visit and the first by any leader during Muizzu's presidency.

Key Outcomes of Visit

1. Economic Cooperation
   - ₹4,850 crore LoC for development projects; annual debt repayment eased.
   - Talks on India–Maldives FTA & Bilateral Investment Treaty.
   - MoUs on digital transformation & other sectors.
2. Defence & Security
   - Continued Indian support for Maldivian defence; 72 vehicles handed over.
   - Mutual trust in maritime and security collaboration.
3. Health & Tech
   - 2 BHISHM Health Cubes (portable hospitals) donated.
   - Maldives recognised Indian Pharmacopoeia (boosts Indian drug exports).
4. Climate, Fisheries & Science
   - MoU on sustainable fishing & aquaculture.
   - Weather monitoring cooperation (IITM & Maldives Meteorological Services).
   - Joint tree plantation under "Ek Ped Maa Ke Naam" & Maldives' 5M Tree Pledge.

Why Maldives Matters to India

- Economic: Supplies essential imports; ~2 lakh Indian tourists annually; infra aid (e.g., $500M Greater Malé Connectivity Project).
- Security: Defence training, patrol vessels, coastal radar integration; quick aid in crises (Operation Neer, 2014).
- Diplomacy: Part of Neighbourhood First; debt restructuring softer than Chinese terms.
- Cultural: Scholarships, medical visas, Indian community (~25,000 professionals).
- Environment: Solar projects, ISA partnership.

Challenges

- China Factor: Rising Chinese investments via BRI.
- Political Strains: "India Out" campaign (2023) & military personnel issue.
- Economic Dependence: Balancing loans from India & China.
- Tourism Tensions: Boycott Maldives campaign; Lakshadweep tourism seen as competitor.
- Extremism Risks: Radicalisation, piracy, trafficking.

Way Forward

1. Maritime Security: Boost anti-piracy, counter-terrorism, and domain awareness.
2. Economic Diversification: Speed up FTA, boost tourism, fisheries, infra.
3. Geostrategic Balance: Offer alternatives to Chinese funding.
4. Climate Action: Expand solar and disaster-resilience projects.
5. People Ties: More scholarships, cultural exchanges, capacity-building.
6. Regional Platforms: Work together in SAARC, BIMSTEC, IORA.
7. Respect Sovereignty: Maintain trust without overreach.

Conclusion: Despite political and geopolitical challenges, India–Maldives ties remain a cornerstone of Indian Ocean security and development, strengthened by high-level visits and sustained cooperation.

# Carbon Border Adjustment Mechanism (CBAM)

**Context: BRICS nations have criticised the European Union's CBAM.**

What is CBAM?

- An import tax by the EU (introduced in 2023, fully effective from 2026) on goods whose production emits more carbon than EU standards allow.
- Purpose:
  - Prevent carbon leakage (shifting production to countries with weaker climate rules).
  - Ensure fair competition by taxing high-emission imports.
- Works like a carbon tax, discouraging pollution and promoting clean energy.

Impact on India:

- May hurt exports to the EU, especially in iron, steel, aluminium, cement, fertilisers.
- Iron & steel face the biggest risk (76% of CBAM-affected exports).
- Compliance will raise costs, reducing global competitiveness.

Why BRICS Opposes CBAM:

- Unilateral & Protectionist — against trade rules and Paris Agreement provisions.
- Ignores climate equity (historical responsibility of developed nations).
- Undermines multilateral climate cooperation by bypassing consensus.

# US Withdrawal from UNESCO

**Context: UNESCO's Director-General has expressed regret over the US decision to exit the organisation.**


About the Withdrawal:

- US President Donald Trump announced a second withdrawal, effective Dec 2026 (first withdrawal was in 2017).
- Reason: US claims UNESCO promotes divisive agendas that conflict with its national interests.
- The stance remains the same as in 2017, despite reduced tensions and organisational reforms.

About UNESCO:

- Founded: 1945, to promote peace via cooperation in education, science, culture, and communication.
- Members: 194 + 12 Associate Members.
- HQ: Paris, France.
- Funding: Member contributions, voluntary donations, fundraising.
- Global Work:
  - Manages 2,000+ World Heritage Sites, Biosphere Reserves, Geoparks.
  - Coordinates 13,000+ schools, research bodies, and academic chairs worldwide.

# Measuring Inequality in India

Context:

- World Bank report ranks India 4th most equal society globally (Gini Index 25.5), indicating broad-based economic growth.

Highlights:

- Ranks after Slovak Republic (24.1), Slovenia (24.3), Belarus (24.4).
- More equal than G7 & G20 nations like China (35.7), USA (41.8), UK (34.4).
- 171 million lifted out of extreme poverty (poverty rate fell from 16.2% in 2011–12 to 2.3% in 2022–23; revised poverty line → $3/day shows 5.3%).

Key Drivers of Equality:

- Financial Inclusion: PM Jan Dhan Yojana (55.69 cr accounts).
- Digital Identity: Aadhaar enabled targeted delivery.
- Direct Benefit Transfer (DBT): Saved ₹3.48 lakh crore.
- Social Security & Welfare: Ayushman Bharat, MGNREGA, PMAY, APY, PMJJBY, PMSBY.
- Women Empowerment: Beti Bachao Beti Padhao, Matru Vandana Yojana.
- Sustainable Growth: Climate & agriculture missions.

Gini Index – Income vs Consumption:

- Income-based: Measures earnings; volatile; used in developed nations; generally higher.
- Consumption-based: Measures spending; stable; used in developing nations like India; generally lower.

Challenges to India's Claim:

- Data Gaps: Govt uses consumption-based Gini; global comparisons use income-based.
- Rising Income Inequality: Income-based Gini rose from 52 (2004) to 62 (2023); top 10% earn 13× bottom 10%.
- Survey Limitations: Richest often excluded.
- Gini Limitations: Less sensitive to extremes; experts prefer Palma Ratio.

Way Forward:

- Shift to income-based data; integrate tax records with surveys.
- Use multiple metrics (Palma Ratio, multidimensional indices).
- Ensure transparent global comparisons.
- Strengthen redistributive policies (progressive tax, universal services).
- Build NSO & NITI Aayog's statistical capacity.

Conclusion:
Low consumption-based Gini doesn't guarantee real equality. Accurate data and targeted policies are key to addressing rising wealth concentration.

# India's Chemical Industry – NITI Aayog Report

Context:
NITI Aayog released "Chemical Industry: Powering India's Participation in Global Value Chains", highlighting the sector's role in India's economic and export growth.

About:

- Chemicals: Substances with fixed composition & properties.
- Petrochemicals: Products from petroleum, coal, gas, or renewables (e.g., maize, palm).
- Major hubs: Gujarat, Maharashtra, Odisha, Tamil Nadu, Andhra Pradesh, UP, West Bengal.

Key Segments:

1. Petrochemicals – polymers, synthetic fibers, performance plastics.
2. Specialty chemicals – agrochemicals, paints, surfactants (high-value, low volume).
3. Inorganic chemicals – ammonia, caustic soda, industrial-use chemicals.
4. Others – fertilizers, pharmaceuticals, personal care products.

Challenges:

- Import Dependence – $31 bn trade deficit (2023); low domestic feedstock availability.
- Infrastructure gaps – poor storage, transport, ports.
- Regulatory delays – slow environmental clearances.
- Skilled labor shortage – 30% gap in emerging fields like green chemistry.
- Low R&D spend – 0.7% of revenue vs 2.3% global avg.
- Outdated technology – high reliance on foreign tech.

Opportunities:

- Domestic demand growth – $1.5 trillion consumption rise by 2030; 140M new households.
- Export potential – specialty chemical exports may hit $45 bn by 2030.
- Shift to value-added products – green chemicals, biodegradable plastics.
- Global supply chain diversification – post-pandemic & China+1 opportunities.
- Skill development – vocational training for advanced chemistry.
- Infrastructure upgrades – chemical hubs with shared facilities.

Government Initiatives:

- Chemical Promotion Development Scheme (CPDS, 1997) – studies, seminars, awards.
- New Scheme of Petrochemicals – Centres of Excellence, Plastic Parks.
- PCPIR Policy (2007) – cluster-based industrial development for petrochemicals.

Way Forward:

- Boost R&D & innovation in specialty & green chemicals.
- Develop integrated chemical hubs with modern infrastructure.
- Improve feedstock supply & reduce import dependence.
- Expand skill training in niche areas.
- Promote sustainable, eco-friendly manufacturing.
- Streamline regulations for faster clearances.
- Tap FTAs & global demand for export growth.

# National Turmeric Board

Context: Union Home & Cooperation Minister inaugurated the headquarters of the National Turmeric Board in Nizamabad, Telangana.

- Target: $1 billion turmeric exports by 2030.

About the Board:

- Objective: Promote growth, value addition & exports of turmeric.
- HQ: Nizamabad, Telangana.
- Members:
  - Central ministries: AYUSH, Pharmaceuticals, Agriculture, Commerce.
  - States: Maharashtra, Telangana, Meghalaya (Lakadong turmeric) – on rotation.
  - Exporters, producer bodies & farmers.
- Functions:
  - R&D for new turmeric products.
  - Value addition for exports.
  - Awareness on medicinal & nutritional benefits.
  - Boost yield, logistics & supply chain.
  - Ensure quality & safety standards.

About Turmeric:

- Botanical Name: Curcuma longa | Family: Zingiberaceae (ginger family).
- Native to: Indian subcontinent & Southeast Asia.
- India:
  - World's largest producer, consumer & exporter (30+ varieties).
  - Largest producer: Maharashtra; highest acreage: Telangana.
  - GI tags:
    - Manjal/Turmeric (Erode, TN)
    - Lakadong (Meghalaya)
    - Sangli & Waigaon (Maharashtra)
- Medicinal value: Anti-viral, anti-cancer, anti-inflammatory.

# 75 Years of National Sample Survey

**Context: On June 29, the Ministry of Statistics and Programme Implementation (MoSPI) celebrated the 19th Statistics Day, marking the birth anniversary of Prof. P.C. Mahalanobis.**
**Theme: "75 Years of National Sample Survey" – highlighting NSS's role in providing reliable data for evidence-based policymaking.**


About NSS:

- Started in 1950–51 to study land use, wages, etc.
- Since 1972, conducted under MoSPI.
- Covers socio-economic surveys, Annual Survey of Industries, rural & urban price data, and crop statistics in coordination with states.

About P.C. Mahalanobis:

- Father of statistical science in India.
- Founded Indian Statistical Institute (1931) and set up CSO & NSS.
- Developed the Mahalanobis Model for the Second Five Year Plan, focusing on industrialisation.

# Sulphur Dioxide ($SO_2$) Emission & India's FGD Exemption

**Context: The Environment Ministry has exempted 80% of coal-based thermal power plants from installing Flue Gas Desulphurisation (FGD) units, which cut $SO_2$ emissions.**

Why the Exemption?

- Low sulphur coal: Indian coal has only 0.3–0.5% sulphur.
- Health impact low: $SO_2$ levels mostly within safe limits.
- High cost: ₹1.2 crore/MW; ~₹1.16 lakh crore for new capacity.
- Tariff hike: Adds up to ₹0.72/kWh (mostly fixed cost).
- Vendor shortage: Delays in meeting past deadlines.
- Climate trade-off: FGDs raise $CO_2$ emissions (69 MT by 2030).
- Focus shift: Prioritising particulate matter (PM) control via electrostatic precipitators (ESPs).

About FGD:

- Removes up to 95% of $SO_2$ from flue gas using limestone or other absorbents.
- $SO_2$ causes acid rain, respiratory issues, but also has a short-term cooling effect by reflecting sunlight.
- Reducing $SO_2$ without cutting $CO_2$ may cause net warming.

Expert Committee Recommendations:

- Install FGDs only in plants near major cities (population >1 million), NCR, or critically polluted zones by 2027–28.
- Other plants can skip FGDs, focusing on PM control.

Way Forward:

- Expand ESPs for PM2.5 control.
- Shift to low-sulphur coal/natural gas.
- Invest in renewable energy.
- Combine technologies (ESP + sorbent injection) for targeted control.
- Strengthen rules in high-risk areas and boost domestic FGD capacity.

Conclusion: The move balances cost and environmental concerns, but long-term health and sustainability demand cleaner fuels, renewables, and targeted pollution control.

## Amendments to Plant Treaty

Context: India has opposed proposed changes to the International Treaty on Plant Genetic Resources for Food and Agriculture (Plant Treaty) at a meeting in Peru.

About the Treaty:

- Legally binding pact under FAO, adopted in 2001, in force since 2004.
- Aims to conserve plant genetic resources, promote sustainable use, ensure fair benefit-sharing, and recognise farmers' contributions.
- India ratified in 2002.
- Covers 64 crops (35 food + 29 forage) in Annex 1 under a Multilateral System (MLS).
- MLS allows global access to crop diversity through a Standard Material Transfer Agreement (SMTA).

Proposed Amendment:

- Expand Annex 1 to include all plant genetic resources for food & agriculture.

India's Concerns:

- Would be obliged to share all plant germplasm under GB-decided terms, not India's own.
- Could erode national and farmers' rights.
- May bypass State Biodiversity Boards, despite agriculture being a State subject.
- Current specific crop list would become irrelevant.

Impact: Such expansion could weaken India's control over valuable plant resources and limit its ability to set access conditions.

## Secondary Pollutants

Context: A study by the Centre for Research on Energy and Clean Air (CREA) shows that secondary pollutants, especially ammonium sulphate, are major contributors to PM2.5 pollution in India.

Primary vs Secondary Pollutants:

- Primary pollutants – emitted directly (e.g., CO, $SO_2$, $NO_x$) from vehicles, coal plants, biomass burning.
- Secondary pollutants – form when primary pollutants react with water vapour, sunlight, etc. (e.g., ammonium sulphate, ozone, ammonium nitrate).

Key Findings:

- Secondary pollutants contribute 34% of India's PM2.5 pollution.
- Average ammonium sulphate level: 11.9 µg/m³.
- In 114 of 130 NCAP cities, ammonium sulphate forms >30% of PM2.5.
- Ammonium nitrate can contribute up to 50% in some cases.

National Clean Air Programme (NCAP):

- Launched Jan 2019 by MoEFCC.
- Goal: Reduce PM10 & PM2.5 by 20% in 131 cities by 2024-25 (baseline: 2017).
- Target revised to 40% PM10 reduction.

## 50 Years of CITES

Context: The Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) marks 50 years since its enforcement in 1975, aimed at preventing trade-driven wildlife extinction.

About CITES:

- International agreement to ensure global wildlife trade does not threaten species survival.
- Drafted in 1963 (IUCN meeting); entered into force 1 July 1975.
- 185 Parties (countries/regions); India joined in 1976.
- Legally binding, but does not replace national laws.
- Species Listings:
  - Appendix I: Threatened with extinction; trade only in exceptional cases.
  - Examples: Gorillas, sea turtles, giant pandas.
  - Appendix II: Not yet endangered but trade must be controlled.
  - Examples: Lions, mahogany, American alligators. Requires permits.
  - Appendix III: Protected in at least one country seeking CITES help.
  - Examples: Map turtles, walruses. Trade allowed with proper permits.

Administration:

- Managed by UNEP in Geneva, Switzerland.
- IUCN provides scientific and technical support.
- UNEP: Founded June 5, 1972 (World Environment Day), HQ in Nairobi, Kenya; leads global environmental action.

# Kaziranga National Park – Grassland Bird Census

Context: The first grassland bird census in Assam's Kaziranga National Park and Tiger Reserve (KNPTR) recorded 43 species, underlining its rich grassland bird diversity.

About Kaziranga:

- Location: Between Brahmaputra River and Karbi (Mikir) Hills, Assam.
- Designation: National Park (1974), Tiger Reserve (2007), UNESCO World Heritage Site (1985), Important Bird Area (IBA).
- Wildlife Highlights:
  - Holds 2,613 Indian one-horned rhinoceroses (2022) – two-thirds of global population.
  - Famous "Big Four": One-horned rhino, Royal Bengal tiger, Elephant, Asiatic water buffalo.
  - Other species: Swamp deer, Hog deer, Gaur, Leopard, Fishing cat, Western hoolock gibbon.
  - Around 478 bird species; key site for migratory birds along the Australasia–Indo-Asian flyway.
  - Habitat for critically endangered Bengal florican.
- Flora: Dominated by tall elephant grass, wetlands, swamplands, and aquatic plants like water lilies and lotus.

# Prasat Ta Muen Thom & Prasat Preah Vihear Temples – Border Dispute

**Context: Thailand and Cambodia recently clashed along their disputed border near two historic Khmer Hindu temples.**

Prasat Ta Muen Thom (Thailand):

- Location: Border of Thailand's Surin province and Cambodia's Oddar Meanchey province.
- Built: 12th century by King Udayadityavarman II.
- Dedication: Lord Shiva; features a Shivling formed from natural rock.
- Significance: Part of the ancient Khmer highway linking Angkor (Cambodia) to Phimai (Thailand).

Prasat Preah Vihear (Cambodia):

- Location: Plateau overlooking Cambodia's plains; UNESCO World Heritage Site.
- Built: Mainly early 11th century, with origins from the 9th century.
- Significance: Noted for exceptional Khmer architecture, blending temple design with natural landscapes.


# 2,000-year-old Buddhist Site Found in Haryana

**Context: IIT Kanpur has discovered possible ancient Buddhist stupas and structures in Yamuna Nagar, Haryana, using Ground Penetrating Radar (GPR).**

About GPR:

- A non-invasive geophysical tool using radar pulses to detect underground objects and structures — like an X-ray for the earth.

Key Highlights:

- Evidence: GPR detected circular structures, old walls, and rooms 6–7 ft deep — likely a 2,000-year-old Buddhist site.

Main Sites:

- Topra Kalan – Signals of a buried semi-circular structure (possible stupa) near an ancient temple.
- Jarasandha ka Qila – Mound indicating another stupa-like circular structure.
- Historical Link: May date to the Buddhist era or even the Mahabharata period, based on local traditions.
- Significance: Offers clues about ancient trade routes, religious networks, and cultural exchanges in the region.

## C-FLOOD – Unified Inundation Forecasting System

Context: The Union Minister of Jal Shakti inaugurated C-FLOOD, a unified system for flood forecasting.

About C-FLOOD:

- Type: Web-based platform providing 2-day advance inundation forecasts up to the village level.
- Features: Delivers flood inundation maps and water level predictions.

Developed by:

- Centre for Development of Advanced Computing (C-DAC), Pune
- Central Water Commission (CWC)
- National Remote Sensing Centre (NRSC)
- Under: National Hydrology Project (NHP) and executed through the National Supercomputing Mission (NSM).
- Current Coverage: Mahanadi, Godavari, and Tapi river basins (with more to be added).

## Typhoon Wipha

Context: Recently struck Hong Kong, causing over 200 flight cancellations.

About:

- Type: Tropical cyclone (forms over warm tropical waters with a closed low-level circulation).
- Origin: Philippine Sea.
- Strength: Evolved from a tropical storm to Category 1 typhoon (winds ~120 km/h).
- Impact: Made landfall at Taishan, Guangdong (China), later weakened over Vietnam.
- Regions affected: Philippines, China, Vietnam.

Cyclone Naming by Region:

- Typhoon: China Sea & Pacific Ocean
- Hurricane: Caribbean Sea & Atlantic Ocean
- Tornado: West Africa, southern USA
- Willy-willies: North-western Australia
- Tropical Cyclone: Indian Ocean Region

# Furlough & Parole – Delhi HC Ruling

Context: Delhi High Court clarified that both furlough and parole can be granted even if a convict's appeal is pending before the Supreme Court.

Furlough:

- Temporary release without suspending the sentence.
- Purpose: Reduce psychological stress of long-term imprisonment & maintain social ties.
- Governed by Prisons Act, 1894 and state prison rules.
- Granted at prison authorities' discretion (usually DIG Prisons) to long-term convicts with good conduct.
- No specific reason needed; can be denied in public interest.

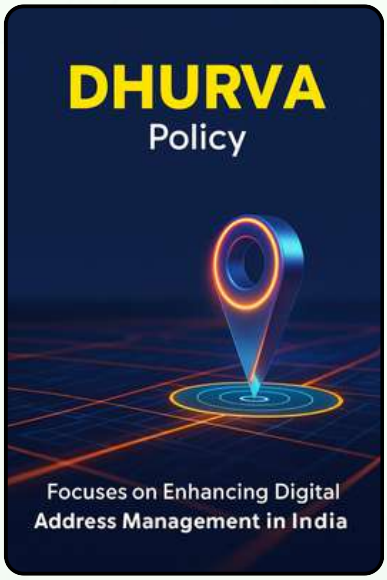
Difference from Parole:

- Furlough: For breaking jail monotony; counted as remission of sentence.
- Parole: For specific emergencies (illness, death, court appearance); involves suspension of sentence.
- Both are privileges, not rights, but parole is more readily granted in urgent cases.



# Dhruva Policy – Digital Address Modernisation

Context: Govt launched the Dhruva Policy to modernize India's address system using geospatial technology.




About DHRUVA (Digital Hub for Reference and Unique Virtual Address):

- Creates a national-level Digital Address as public infrastructure.
- Based on Address-as-a-Service (AaaS) – secure, efficient address data management for govt, citizens & businesses.
- Aim: Seamless address integration across public & private sectors.

Key Features:

- DIGIPIN: Open-source, geo-coded addressing system dividing India into 4m × 4m grids, each with a unique 10-character alphanumeric code.
- Interoperable: Works across govt, citizens & private players.
- Privacy-focused: Consent-based, secure data sharing.
- Indigenous: Built on domestic open-source tech to support innovation.

## India's Commitment to "Pact for the Future"

At the 2025 UN informal dialogue, India reaffirmed its support for the "Pact for the Future," aimed at reforming global governance to address modern challenges.

About the Pact

- Adopted at the Summit of the Future (22 Sept 2024) by consensus at the UNGA.
- Outcome of multi-year talks to make the UN more effective, inclusive, and legitimate.
- Focus areas: Climate change, inequality, conflicts, digital governance, and youth inclusion.
- Goals: Accelerate SDG progress, strengthen disarmament, and enhance global peace & security.

## Ottawa Convention

Ukraine has recently withdrawn from the Anti-Personnel Landmines Convention, 1997 (Ottawa Convention).

About the Convention

- Aims to ban the use, production, stockpiling, and transfer of anti-personnel landmines.
- Adopted in Sept 1997 (Oslo, Norway); 166 parties as of June 2025.
- Obligation: Destroy all landmine stockpiles within 4 years of joining.
- Anti-personnel mines: Hidden explosives that detonate on contact or proximity.
- 2025: Poland, Lithuania, Latvia, Estonia, Finland, and Ukraine exited the treaty.
- Non-parties include India, US, Russia, China, and Pakistan.

# IBAT Alliance

**The Integrated Biodiversity Assessment Tool (IBAT) Alliance—a partnership of four major conservation bodies—invested $2.5 million in biodiversity data in 2024 (up from $1.2 million in 2023).**

About IBAT

- Collaboration between BirdLife International, Conservation International, IUCN, and UNEP-WCMC.
- HQ: Cambridge, UK.
- Purpose: Tracks progress on global biodiversity goals, including the Kunming-Montreal Global Biodiversity Framework and UN SDGs.

# 2025 Global Wetland Outlook

**Released by the Ramsar Convention Secretariat, this report assesses global wetland health and trends.**

Key Points

- Wetlands cover 1,425–1,800 million ha (~6% of Earth's surface).
- Since 1970, 411 million ha (22%) lost due to unplanned urbanisation, industrial growth, and infrastructure.
- Regional threats: drought (Europe), invasive species (North America & Oceania).
- African wetlands, worth $825.7 billion, are in poorer condition than global average.

Wetland Degradation – Decline in wetland health due to human/natural pressures, causing biodiversity loss, poor water quality, and reduced ecosystem services.


# National Biobank

**Union Minister Dr. Jitendra Singh inaugurated the National Biobank under the Phenome India Project at CSIR-IGIB, New Delhi.**

About Biobank

- Repository for biological samples (blood, DNA, tissues, organs) used in disease research and precision medicine.
- India has 19 registered biobanks, including cancer cell lines and tissues.

Scope

- Supports a nationwide study of 10,000 individuals, collecting genomic, lifestyle, and clinical data.
- Modeled on the UK Biobank, adapted for India's diverse geography and population.

Key Initiatives

- PRaGeD Mission – Identifies genes for rare childhood genetic disorders to develop targeted therapies.
- Phenome India Project – India's first large-scale health study on cardio-metabolic diseases, involving 10,000 participants from 17 states and 24 cities.

Objective – Build India-specific disease risk prediction models for diabetes, liver, and heart diseases, considering unique ethnic and lifestyle factors.

## CRISPR-edited Japonica Rice

Scientists at the National Institute of Plant Genome Research (NIPGR) have developed a CRISPR-edited Japonica rice variety that uses phosphate more efficiently.

Highlights

- Yield boost: +20% with normal fertilizer use, +40% under low-phosphate conditions.
- Uses CRISPR-Cas9 to modify the OsPHO1;2 gene, which moves phosphate from root to shoot.
- Addresses low phosphate absorption—only 15–20% of fertilizer is used by plants, the rest is lost.

About Japonica Rice

- Short-grain, high-starch rice grown mainly in East Asia.
- Known for sticky texture, short-to-intermediate plant height, and dark green leaves.
- Stable for breeding experiments and genetic research.

Significance

- Phosphorus is vital for crops, but India relies heavily on phosphate fertilizer imports (~4.5 million tonnes/year).
- This variety can reduce fertilizer use, cut costs, and promote sustainable farming.

# Modified CRISPR Tool – dCas9

Context: Indian scientists have developed a modified CRISPR tool called dCas9 to help plants respond smartly to heat and pathogen stress.

About dCas9:
- Unlike traditional CRISPR (which cuts DNA permanently), dCas9 acts like a gene switch—turning genes on only when needed.
- Energy-efficient: The switch stays off under normal conditions and activates only under stress.

How It Works:
- Uses a tomato protein segment (TM domain from NACMTF3) to keep genes off normally.
- During stress (heat or disease), the TM domain releases the switch → activates defense genes.

Genes Activated:
- Disease (e.g., Pseudomonas syringae) → CBP60g, SARD1
- Heat stress → NAC2, HSFA6b

Significance:
- Precision: Activates genes only under stress → better survival during heatwaves or pathogen attacks.
- Energy-saving: Avoids constant activation, reducing metabolic load.
- Smart Agriculture: Can be applied to crops like eggplant, chilies; supports climate-resilient farming.

About CRISPR-Cas9:
- A precise gene-editing tool with:
  - Cas9 enzyme → molecular scissors
  - Guide RNA → directs Cas9 to target DNA site for modification.

# Gujarat's Genome Sequencing Project

Context: Gujarat has launched India's first genome sequencing project focusing on its tribal population.

Key Diseases Covered:
- Sickle Cell Disease: Inherited disorder affecting haemoglobin in red blood cells.
- Thalassemia: Inherited disorder affecting the body's ability to produce haemoglobin.

About the Project:

- Name: Creation of Reference Genome Database for Tribal Population in Gujarat (announced in 2025–26 Budget)
- Aim: Sequence genomes of 2,000 individuals from tribal communities across 17 districts to study hereditary diseases like sickle cell anemia and thalassemia.
- Implementing Agency: Gujarat Biotechnology Research Center (GBRC) with support from the Department of Science & Technology and Tribal Development Department.
- Facilities: Sample collection, genome sequencing, genetic data interpretation.

Significance:

- Acts as a bridge between science and tradition.
- Helps identify genetic markers for immunity, cancer, and hereditary diseases.
- Links tribal health profiles with primary health services for targeted treatment.
- Designed as a long-term health improvement campaign.

Genome Sequencing:

- Determines the complete DNA sequence of an organism, including both genes and non-coding regions.
- Identifies the exact order of nucleotide bases (A, C, G, T) in DNA.

Genome India Project (GIP):

- Launched in 2020 by the Department of Biotechnology (DBT).
- Led by the Centre for Brain Research, IISc Bengaluru, with 20+ partner institutions.
- Objective: Create an "Indian reference genome" representing the country's genetic diversity.
- Goal: Develop a catalogue of genetic variations specific to Indian populations.

## Redefining the 'Second'

A global study comparing optical atomic clocks is set to redefine the SI unit of time — the second — by 2030.

Current Definition (Since 1967):

- Based on 9,192,631,770 cycles of microwave radiation from the caesium-133 atom.
- Accuracy: Loses 1 second every 300 million years.

Why Change?

- Increasing demand for ultra-precise time in GPS, astronomy, and climate monitoring.
- Optical clocks (using strontium & ytterbium atoms) have frequencies 10,000× higher than caesium clocks.
- Precision: Up to 18 decimal places, losing only 1 second in 15 billion years.

Key Shift:

- Old: Microwave radiation (Cs-133) → New: Optical radiation (strontium, ytterbium).
- Expected to become the global standard by 2030.

# AdFalciVax: Indigenous Malaria Vaccine

The ICMR has developed AdFalciVax, a dual-stage recombinant vaccine against Plasmodium falciparum, the deadliest malaria parasite.


Key Features:

- Targets Two Stages:
  - Pre-erythrocytic (liver) stage
  - Transmission (sexual) stage
- Aims to both prevent infection and block transmission via mosquitoes.
- Developed by ICMR's RMRC-Bhubaneswar & NIMR, with DBT-NII.
- Uses Lactococcus lactis (safe food-grade bacterium) as production platform.

Advantages:

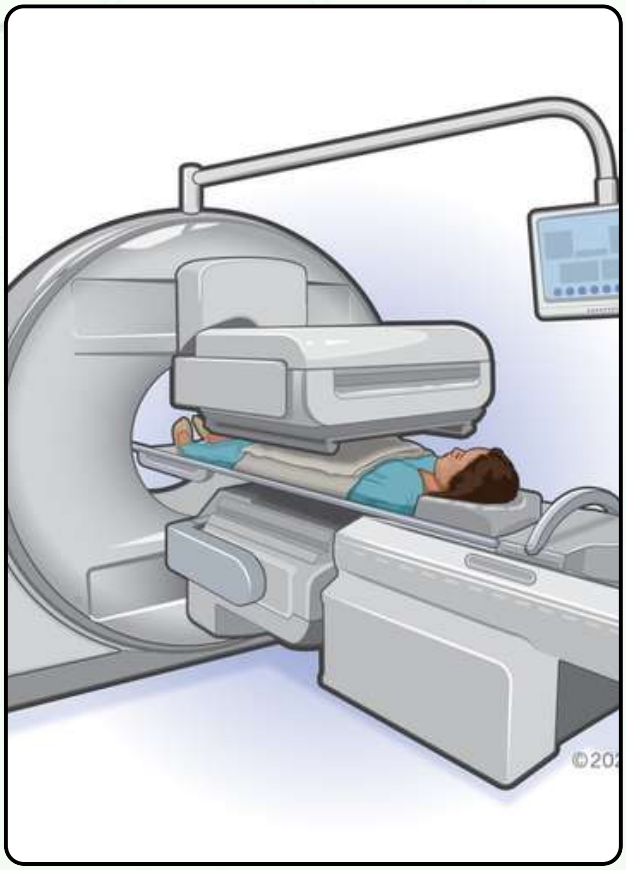
- Broad immune protection & reduced immune evasion.
- Potential long-term immunity (preclinical trials).
- Room-temperature stability for 9+ months, aiding transport to remote areas.

# Nuclear Medicine

A safe, precise method for diagnosing and treating diseases, especially thyroid disorders and some cancers.

What is it?

- Uses small amounts of radioactive materials (radiotracers) to image and treat diseases.
- Helps assess both structure and function of organs.



How it Works:

1. Radiotracer is swallowed, injected, or inhaled.
2. It travels to target organ/tissue.
3. Gamma camera detects radiation and creates internal images.

Common Radionuclides: Technetium-99m, iodine, gallium, thallium, xenon.

Types of Scans:

- Kidney Scan – Function & blood flow
- Thyroid Scan – Activity & nodules
- Bone Scan – Fractures, cancer, infection

# INS Udaygiri – Stealth Frigate

**Context: Indian Navy received INS Udaygiri, the 2nd stealth frigate of Project 17A, delivered in 37 months.**

About Project 17A:

- Successor to Project 17 (Shivalik Class); launched in 2019.
- Builds stealth guided-missile frigates with advanced weapons, sensors & platform management systems.
- Builders: Mazagon Dock Shipbuilders Ltd. (4 ships) & Garden Reach Shipbuilders & Engineers (3 ships).
- 1st ship: INS Nilgiri (2019).

INS Udaygiri – Highlights:

- Modern avatar of decommissioned INS Udaygiri (2007).
- Stealth Features: Reduced radar, thermal & acoustic signatures.
- Systems: Advanced weapons & sensors for modern warfare.
- Role: Multi-mission capability against conventional & non-conventional threats.

# Akash Prime – Air Defence System

**Context: Indian Army successfully tested Akash Prime in high-altitude Ladakh.**

About Akash Prime:

- Upgraded version of Akash air defence system.
- Key Feature: Indigenous active RF seeker → high precision in all weather & terrain.
- Role: Protects mobile, semi-mobile & static military assets from aerial threats.
- Deployment: Operates at heights up to 4,500 m; range 25–30 km.
- Developed by: DRDO with BDL & BEL.

Akash Missile System (Base Version):

- Type: Medium-range (4.5–25 km), surface-to-air missile; altitude up to 18 km.
- Targets: Helicopters, fighter aircraft, UAVs.
- Features: Cross-country mobility, multi-sensor tracking, simultaneous multi-target engagement from any direction.

## Prithvi-II & Agni-I Ballistic Missiles

Context: Both successfully test-fired from Chandipur, Odisha.

Prithvi-II:

- Type: Short-range, single-stage, liquid-fuelled surface-to-surface missile.
- Developer: DRDO under IGMDP.
- Range: ~250–350 km.
- Payload: 500–1000 kg (conventional or nuclear).

Agni-I:

- Type: Short-to-medium range, single-stage, solid-fuelled ballistic missile.
- Developer: DRDO; designed to bridge gap between Prithvi-II & longer-range Agni missiles (post-Kargil).
- Range: 700–1200 km (max with lighter payload).
- Payload: ~1000 kg (conventional or nuclear).
- Mobility: Road & rail mobile → higher survivability.

## Ethical Considerations in Animal Testing

Context: In 2025, the Delhi HC banned Palamur Biosciences Pvt. Ltd. (Telangana) from procuring/housing animals after PETA alleged cruelty and regulatory violations; CCSEA inspection confirmed lapses.

Animal Testing: Use of non-human animals to study biological processes, test products, and assess safety/efficacy (e.g., drugs, chemicals, cosmetics, vaccines).

- Common animals: Rodents, monkeys, dogs, rabbits, guinea pigs.

Arguments For:

- Life-saving treatments (e.g., insulin, polio vaccine).
- No complete alternatives for complex biology.
- Safer than direct human testing.
- Regulatory requirement (FDA, EMA, etc.).
- Genetic similarity aids disease modelling.
- Time- and cost-effective (shorter lifecycles).

Ethical Concerns:

- Severe suffering & stress.
- No consent despite sentience.
- Unreliable extrapolation (92% drug failure in humans).
- Inhumane lab conditions.
- Moral contradiction & speciesism.

Alternatives:

- In vitro models (cell cultures, organs-on-chip).
- Tissue engineering & regenerative medicine.
- In silico simulations.
- Human-based trials (microdosing, volunteer studies).
- 3D bioprinting of tissues/organs.
- Personalized medicine (iPSCs).

International Standards:

- OECD-approved alternatives (e.g., EpiDerm).
- EU: Cosmetic animal testing ban (2013), ethical reviews, phase-out plans.

Way Forward:

- Amend PCA Act (1960) → mandate non-animal alternatives.
- Increase funding for humane tech.
- Harmonize global standards.
- Integrate human-centred models.
- Raise public awareness.
- Multi-stakeholder collaboration.

Conclusion: Moving from animal testing to humane, reliable alternatives needs legal reform, tech adoption, and global cooperation.

## BHARAT Study

The Indian Institute of Science (IISc) has launched the BHARAT project under its Longevity India Program to study aging in Indians.

About

- BHARAT = Biomarkers of Healthy Aging, Resilience, Adversity, and Transitions.
- Biomarkers are measurable indicators of what is happening in a cell or organism at a given moment.
- Aim: Map physiological, molecular, and environmental factors affecting aging in Indians.
- Goal: Create the Bharat Baseline – a reference for what is normal in the Indian population.

Focus Areas

- Genomic: DNA changes linked to disease risk.
- Proteomic & Metabolic: Indicators of body functions.
- Environmental & Lifestyle: Contextual influences on health.
- Identify early signs of organ decline before disease appears (e.g., biologically older liver than actual age).

## Ham Radio Communication

During the Axiom-4 mission, Indian astronaut Shubhanshu Shukla spoke with Indian students from the ISS via ham radio.

What is Ham Radio?

- Amateur, licensed, non-commercial radio service using different radio waves for communication.
- First space-based use: 1983 on a space shuttle.
- Purposes: Education, emergency communication, and knowledge exchange.
- Range: Local, global, or even space-based, using a transceiver, antenna, and set frequencies.
- In India: Anyone over 12 can operate with a license from the Ministry of Electronics & IT.

## Terbium

IISc Bengaluru scientists have created a glowing paper sensor to detect liver cancer.

- The sensor works by detecting β-glucuronidase, an enzyme, using the fluorescence of terbium, a rare earth metal.

About Terbium

- Silvery-white, hard metal; stable in air due to a protective oxide layer.
- Reacts with diluted acids but resists hydrofluoric acid.
- Found in rare-earth minerals (bastnasite, ion-exchange clays) and nuclear waste.
- Among the rarest rare earth metals, similar in rarity to thallium.
- Main use: Producing green light in fluorescent lamps, TVs, and monitors.

# INS Tamal

The Indian Navy has commissioned INS Tamal (F71), its last foreign-built warship, at Yantar Shipyard, Russia.

- A multi-role stealth guided missile frigate, it is the 8th in the Talwar-class and 2nd Tushil-class frigate.

Key Highlights

- Multi-dimensional warfare: Capable of air, surface, sub-surface, and electronic warfare operations.
- Weapons: Equipped with BrahMos supersonic missiles, surface-to-air missiles, CIWS, anti-submarine rockets, and heavyweight torpedoes.
- Indigenous tech: 26% systems made in India, including BrahMos missiles and HUMSA-NG sonar.
- Defence systems: Features NBC protection, centralised damage control, and automated firefighting.


# INS Nistar

India has handed over its first indigenously built Diving Support Vessel (DSV), INS Nistar, to the Navy. The name means liberation/rescue in Sanskrit and it is built for complex underwater rescue and diving missions.

Highlights

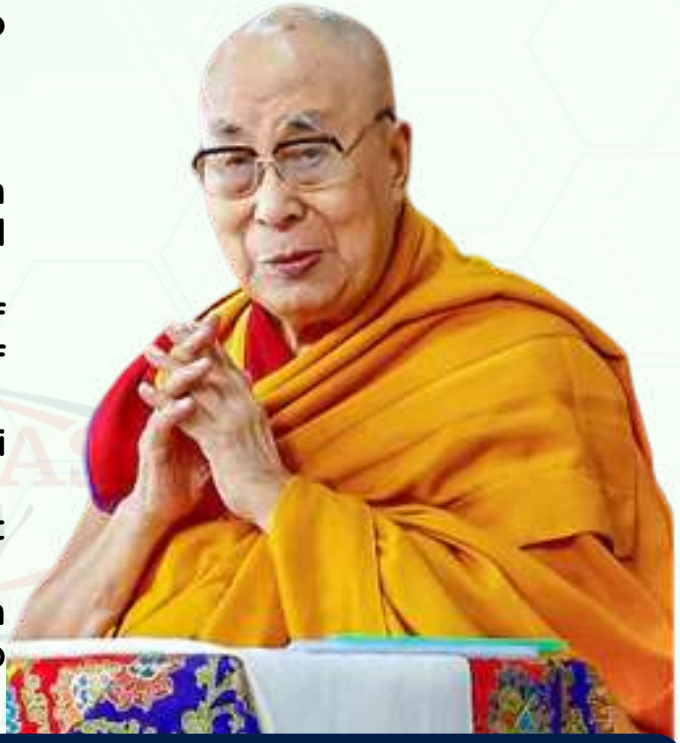
- Builder: Hindustan Shipyard Limited (HSL) under IRS norms.
- Role: Serves as a mother ship for the Deep Submergence Rescue Vessel (DSRV).
- Features: Equipped with Remotely Operated Vehicles (ROVs) for operations up to 1,000 m depth.
- Sister Ship: INS Nipun, launched in 2022, will join service soon.

# Dalai Lama – Turning 90 in 2025

**The 14th Dalai Lama, Tenzin Gyatso, will mark his 90th birthday on July 6, 2025, bringing renewed focus on the future of the Dalai Lama institution.**

About the 14th Dalai Lama

- Identified as the reincarnation of the 13th Dalai Lama in 1939; enthroned in 1940.
- Escaped to India in 1959 after the Tibetan uprising; lives in Dharamshala.
- Relinquished political authority in 2011 to an elected Tibetan leadership in exile.



The Dalai Lama Institution

- Based on the tulku tradition in Tibetan Buddhism—spiritual masters are believed to reincarnate to continue their teachings.
- Dalai Lamas are seen as manifestations of Avalokiteshvara, the Bodhisattva of Compassion.
- Title first given in 1578 to the 3rd Dalai Lama by Altan Khan of Mongolia.
- Belongs to the Gelug school, dominant since the 17th century.
- Reincarnation was formalized by the 5th Dalai Lama to ensure leadership continuity.

# Lokmanya Bal Gangadhar Tilak – 169th Birth Anniversary

**Prime Minister Narendra Modi paid tribute to Lokmanya Tilak, a towering nationalist leader, on his 169th birth anniversary.**

About Bal Gangadhar Tilak

- Born in Ratnagiri, Maharashtra into a Chitpavan Brahmin family.
- Known as Lokmanya ("accepted by the people") and hailed as the Father of Indian Unrest by the British.
- Part of the Lal-Bal-Pal trio of assertive nationalists.

Political Strategy

- Advocated Swaraj as a birthright.
- Promoted Swadeshi, boycott of British goods, and mass protests.
- Co-founded the All India Home Rule League (1916) with Annie Besant; membership crossed 32,000 by 1917.

Ideology & Social Work

- Revived Ganesh Chaturthi (1893) and Shivaji Jayanti to foster unity.
- Co-founded Deccan Education Society (1884) and helped establish Fergusson College (1885).
- Championed education in Indian languages for national awakening.

Journalism & Writings

- Founded Kesari (Marathi) and The Mahratta (English).
- Faced sedition trials, defending free speech.
- Authored Gita Rahasya and The Arctic Home in the Vedas.

## Dr. Syama Prasad Mookerjee – 124th Birth Anniversary

On July 6, 2025, Prime Minister Narendra Modi paid tribute to Dr. Syama Prasad Mookerjee, remembering his sacrifice and vision for a self-reliant India.

About Dr. Mookerjee

- Born July 6, 1901 in Kolkata, West Bengal, into a prominent Bengali family.
- Earned degrees in English, Bengali, and Law from Calcutta University.
- Founded the Bengali journal Bang Wani (1922).
- Became a barrister in 1926 at Lincoln's Inn, London.

Role in Politics & Freedom Struggle

- Opposed the Quit India Movement (1942), citing wartime risks.
- Joined the Hindu Mahasabha to protect Hindu rights, especially in Bengal.
- Resigned from Nehru's cabinet (1950) over the Liaquat–Nehru Pact, fearing it endangered Hindus in East Bengal.

Legacy & Contributions

- First Industry and Supply Minister of independent India.
- Opposed Article 370, insisting "one nation cannot have two constitutions, heads, or flags."
- Died on June 23, 1953, under controversial circumstances while protesting J&K's special status.
- Authored Leaves from a Diary, a record of his parliamentary and personal reflections.

# PM Dhan-Dhaanya Krishi Yojana

The Union Cabinet approved the Prime Minister Dhan-Dhaanya Krishi Yojana (PM-DDKY) for six years (2025–31), covering 100 districts with low farm productivity, cropping intensity, and credit access.

Key Details

- Annual Outlay: ₹24,000 crore.
- Inspired by NITI Aayog's Aspirational District Programme.
- Implemented by merging 36 schemes from 11 Central Departments, along with State schemes and private sector partnerships.

Objectives:

- Boost agricultural productivity.
- Promote crop diversification & sustainable farming.
- Improve irrigation and post-harvest storage (panchayat/block level).
- Increase access to both short-term and long-term farm credit.

District Selection: Based on low productivity, low cropping intensity, and low credit disbursement. At least one district from every State/UT will be included.

# PM Professorships Scheme

The Anusandhan National Research Foundation (ANRF) has launched the Prime Minister Professorship Scheme to boost research in emerging institutions by leveraging the expertise of retired scientists, industry leaders, and Professors of Practice.

Key Points

- Administered by: ANRF (replacing SERB).
- Aim: Mentor and strengthen research in State universities and new institutions.
- Benefits:
  - Fellowship: ₹30 lakh/year
  - Research Grant: ₹24 lakh/year
  - Institutional Overhead: ₹1 lakh/year
- Tenure: Up to 5 years (performance-based).
- Eligibility:
  - Retired scientists from reputed institutes.
  - Industry professionals & Professors of Practice with strong research records.
  - NRIs, PIOs, OCIs eligible.
- Conditions: Full-time relocation to host university, no dual honorarium.
- Replaces: SERB Distinguished Fellowship (lower benefits earlier).
- Part of: ANRF's PAIR Programme (hub-and-spoke model linking top institutions with emerging ones).

# Sanchar Mitra Scheme

The Department of Telecommunications (DoT) has launched the Sanchar Mitra Scheme to train student volunteers as Digital Ambassadors for spreading telecom awareness and digital literacy.

Key Points

- Objective: Educate citizens on telecom services, cybersecurity, digital frauds, EMF radiation, and responsible mobile use.
- Nodal Body: DoT, with training from National Communications Academy–Technology (NCA-T) and DoT's Media Wing.
- Target Group: Students in telecom, electronics, computer science, and cybersecurity, nominated by institutions.
- Core Approach: Connect, Educate, Innovate – linking communities with the telecom ecosystem.

# ADEETIE Scheme

The Ministry of Power, in partnership with the Bureau of Energy Efficiency (BEE), has launched the Assistance in Deploying Energy Efficient Technologies in Industries & Establishments (ADEETIE) scheme to help MSMEs adopt clean, energy-efficient technologies.

Key Points

- Aim: Reduce carbon footprint and boost productivity in MSMEs.
- Budget & Duration: ₹1000 crore (FY 2025–26 to FY 2027–28) — ₹875 crore for interest subvention, ₹50 crore for audits, ₹75 crore for handholding.
- Support Provided: Energy audits, DPR preparation, technology selection, and monitoring of implemented projects.

# Research Development and Innovation (RDI) Scheme

The Union Cabinet has approved the RDI Scheme with a ₹1 lakh crore corpus to boost private sector participation in advanced research, innovation, and technology.

Key Objectives

- Promote R&D in sunrise sectors and areas of strategic importance.
- Fund high-TRL projects and acquire critical technologies.
- Establish a Deep-Tech Fund of Funds.

Implementation

- Governing Board: ANRF, chaired by the PM.
- Nodal Department: Department of Science & Technology (DST).

Funding Structure

- A Special Purpose Fund (SPF) under ANRF will manage funds.
- Support through long-term concessional loans and equity financing for startups.

## Employment Linked Incentive (ELI) Scheme

The Union Cabinet has approved the ₹99,446 crore ELI Scheme to boost formal job creation and support first-time employees.

Objectives

- Tackle low formal workforce participation and slow manufacturing job growth.
- Support first-time employees and incentivise employers to create and sustain jobs.

Components

- Part A – First-Time Employee Incentives
  - For those registering with EPFO for the first time.
  - Salary eligibility: Up to ₹1 lakh/month.
  - One-time benefit: 1 month's EPF wage (max ₹15,000) in two instalments.

Part B – Employer Incentives

- For hiring & retaining new employees (min 6 months).
- Eligibility:
  - Firms with <50 workers → hire ≥2 new employees.
  - Firms with ≥50 workers → hire ≥5 new employees.
- Incentive: Up to ₹3,000/month for 2 years (4 years for manufacturing).

## RECLAIM – Community Engagement & Development Framework

The Ministry of Coal will launch RECLAIM, a national framework to support communities during and after mine closures.

Purpose

- Tackle social, economic, and environmental challenges from mine shutdowns.
- Ensure a just and inclusive transition for affected communities.
- Formalise community participation in closure and post-closure phases.

Key Details

- Nodal Ministry: Ministry of Coal
- Partners: Coal Controller Organisation & Heartfulness Institute

## SASCI Scheme – Tourism Development

The Government of India has launched the Special Assistance to States for Capital Investment (SASCI) scheme to develop selected tourist destinations into global-scale iconic centres.

Launched: July 2025

Nodal Ministry: Ministry of Tourism

Key Features

- End-to-End Tourist Experience: Covers infrastructure, branding, sustainability, service delivery, and operations.
- Sustainability & Expertise: Focus on high-quality design, eco-friendly operations, and local community participation.
- Funding & Timeline:
  - Fully funded by the Centre till 31 March 2026
  - Executed by state governments
  - Completion target: within 2 years