2025 NOVEMBER

CURRENT AFFAIRS MAGAZINE

Institute of Basic Education (IBE)

Ganga Market, Near V Mart, Itanagar | Contact: 7481987707, 9856469076


INSTITUTE OF BASIC EDUCATION
IBE
Way to a Bright Future

November-2025

Current Affairs

Contents

Contents **Pg. No.**

HISTORY & CULTURE **1-5**

- Nobel Prize in Physics 2025
- Nobel Prize in Literature 2025
- UNESCO launches the World's First Virtual Museum of Stolen Cultural Objects
- Kotada Bhadli – Harappan Site
- First-Ever Air Shipment of GI Tagged Indi and Puliyankudi Limes
- Sardar Vallabhbhai Patel

POLITY **6-21**

- UPSC at 100: Guardian of Meritocracy and Nation-Building
- Rashtriya Swayamsevak Sangh
- New Definition of Pandemic Emergency
- RTI at 20: Transparency on Decline
- China Files WTO Complaint Against India Over Unfair EV and Battery Subsidies
- Emergency Care Needs to Be Prioritised
- Rural Education and Youth Migration
- The Contours of Constitutional Morality
- Lokpal
- Urban Planning in India
- Bharat Taxi – India's First Cooperative Cab Service
- Special Intensive Revision 2025
- Agriculture in the Age of Inequality

GEOGRAPHY **22-28**

- India's Second Mineral Exploration Contract
- Cyclone Shakhti
- Atacama Desert
- Durand Line
- South Atlantic Anomaly (SAA) – Magnetic Weak Spots
- Hurricane Melissa
- Cloud Seeding in Delhi
- Nauradehi Sanctuary to Become 3rd Home for Cheetahs

ENVIRONMENT **29-39**

- Environmental surveillance
- Southeast Asia's First Coral Larvae Cryobank
- IUCN World Heritage Outlook 2025
- Graded Response Action Plan (GRAP)

- Green Crackers
- Central Asian Mammals Initiative (CAMI)
- Sanjay Gandhi National Park (SGNP)
- CRYODIL
- AmazonFACE Experiment
- UNEP Adaptation Gap Report 2025
- Saranda Wildlife Sanctuary

SCIENCE & TECHNOLOGY **40-48**

- Environmental surveillance
- Southeast Asia's First Coral Larvae Cryobank
- AI in Robotics — Transforming India's Healthcare, Agriculture, and Industry
- Crew Escape System (CES)
- Project Trinetra: AI Predictive Policing
- Chandra's Atmospheric Composition Explorer-2 (CHACE-2) Payload
- GSAT-7R Satellite
- Benzene
- Powering the Intelligence Revolution: How Small Modular Reactors Can Fuel India's AI Data Centre Boom

ECONOMY **49-64**

- India-European Free Trade Association Trade and Economic Partnership Agreement (TEPA)
- External Commercial Borrowings (ECBs)
- Safeguarding India's Digital Economy
- NHAI: QR Code Sign Boards on Highways
- Stable Coin
- Towards a Unified National Employment Framework
- Transformation of India's Logistics Sector 54
- India–Afghanistan Relations Amid Taliban Diplomacy
- Nine Years of Insolvency and Bankruptcy Code (IBC)
- Restoring Fiscal Space for the States
- The 8th Central Pay Commission
- Employability in Crisis
- Reimagining Manufacturing

PIB **65-79**

- International Civil Aviation Organization (ICAO)
- National Pulses Mission
- Presumptive Taxation
- Exercise in News
- DRAVYA Portal
- Mission for Aatmanirbharta in Pulses (2025–26 to 2030–31)
- The Military Combat Parachute System (MCPS)
- UDAN Scheme
- Blue Flag Beaches
- Amoebic meningoencephalitis
- '23for23' Initiative
- Defence Procurement Manual (DPM) 2025
- Maha MedTech Mission
- Cyclone Montha
- Elderly in India

- KOYLA SHAKTI Dashboard
- Model Youth Gram Sabha Initiative
- Nutrient Based Subsidy Scheme (NBS)
- Military Exercises in News

INTERNATIONAL RELATION 80-89

- India and the Multipolar West: Challenges and Opportunities
- India–Afghanistan Relations Amid Taliban Diplomacy
- MERCOSUR (Southern Common Market)
- The New Arc of India–Australia Collaboration
- India's Evolving Role in UN Peacekeeping 85
- The UN at 80: A Symbol of Possibility and Imperfect Hope
- United Nations (UN)

SOCIAL ISSUES 90-94

- The Transformation of Girls' Education
- Compressive asphyxia
- EPF New Withdrawal Rules 2025
- Dopamine Overdose — Modern Lifestyles Are Rewiring Our Brains
- Garbage Café

DEFENCE 95-98

- The Battlefield and Change
- Assam-Nagaland Border Dispute
- International Maritime Organization (IMO)
- JAI Strategy

YOJANA NOVEMBER 2025 99-107

- 1. Multidisciplinary Approach to careers
- 2. Education for the Visually impaired
- 3. Cultivating Creativity and Enterprise
- 4. Teenagers & a Cybersafe World
- 5. Skill Based Education
- 6. Indian Knowledge system in Education

KURUKSHETRA NOVEMBER 2025 108-114

- 1. Rashtriya Poshan Maah: Social Behaviour Communication Change (SBCC)
- 2. Nourishing India's Future
- 3. ECCE Initiatives under Mission Saksham Anganwadi and Poshan
- 4. Advancing Nutrition Literacy to Tackle Obesity
- 5. Nourishing the Roots: Nutritional Justice for Adivasi Communities
- 6. Nourishing Families Together

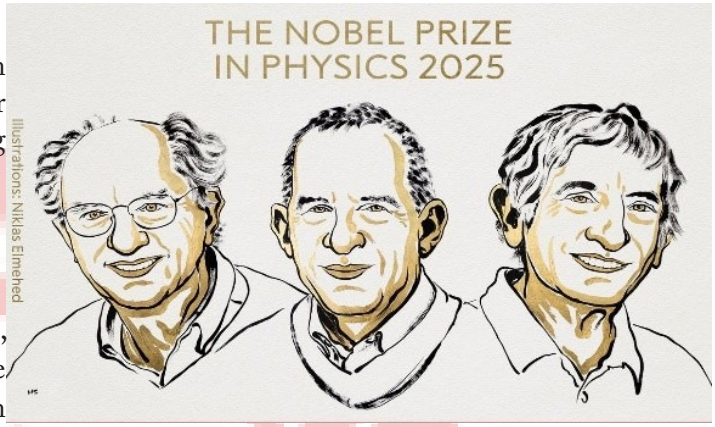
Chapter-
1

HISTORY & CULTURE

Nobel Prize in Physics 2025

Context:

The 2025 Nobel Prize in Physics was awarded to John Clarke, Michel H. Devoret, and John Martinis for their pioneering discovery of macroscopic quantum tunnelling and energy quantisation in electric circuits.



About Nobel Prize in Physics 2025:

What It Is?

- The Nobel Prize in Physics, instituted in 1901, honours groundbreaking contributions in the field of physical sciences that advance human understanding of the universe.
- Awarded annually by the Royal Swedish Academy of Sciences, it carries global prestige and a monetary prize of 11 million SEK (approx. 8.5 crore).

Winners:

- John Clarke – Professor at University of California, Berkeley (USA).
- Michel H. Devoret – Professor at Yale University (USA).
- John Martinis – Researcher at the University of California, Santa Barbara (USA).

About Quantum Tunnelling:

What It Is?

- Quantum tunnelling means tiny particles (like electrons) can pass through barriers that, in normal physics, they shouldn't be able to cross.
- Imagine rolling a ball up a hill — in classical physics, if it doesn't have enough energy, it rolls back. But in the quantum world, the ball can magically appear on the other side.
- This happens because particles act like waves, and a small part of that wave can "leak" through the barrier and continue on the other side.

How It Works?

- When an electron hits a wall of energy, some part of its wave passes through — it's as if the particle "sneaks" through the wall.
- In superconductors, two paired electrons (called Cooper pairs) can move through an insulating layer — creating an electric current even though the barrier should block it.
- The Nobel-winning scientists Clarke, Devoret, and Martinis showed that not just single particles, but entire electrical circuits can do this — they can jump between different energy levels as if tunnelling through invisible walls.

Key Features:

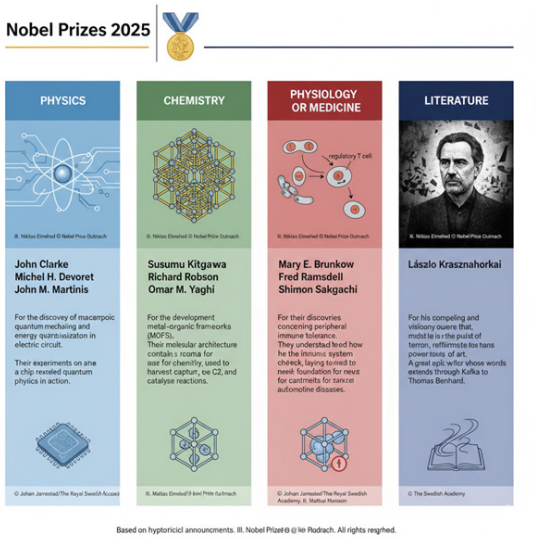
- Not normal physics: It breaks everyday rules — you never see a football pass through a wall, but at the atomic level, it happens!
- Fixed energy steps: The system can only have specific energy values, not anything in between — like a staircase, not a ramp.
- Easily disturbed: Even tiny vibrations or heat can stop the tunnelling effect, so it needs very controlled conditions (like ultra-cold temperatures).

- Big scale discovery: For the first time, scientists saw this strange quantum trick happening in large circuits made of billions of atoms, not just in single particles.

Nobel Prize in Literature 2025

Context:

Hungarian author László Krasznahorkai has been awarded the Nobel Prize in Literature 2025 by the Swedish Academy.



About Nobel Prize in Literature 2025:

What It Is?

- The Nobel Prize in Literature, instituted by Alfred Nobel's will (1895), is awarded annually by the Swedish Academy to an author who has produced "the most outstanding work in an ideal direction."
- The prize carries a cash award of 11 million Swedish crowns (≈ $1.2 million) and international recognition as the world's highest literary honour.

Winner – László Krasznahorkai:

- Born in 1954 in Gyula, Hungary, Krasznahorkai is known for his dense, philosophical, and apocalyptic prose, deeply rooted in the Central European literary tradition of Kafka and Thomas Bernhard.
- His writing is often marked by absurdism, existential dread, and grotesque realism, exploring chaos, faith, and human resilience amid decay.

Notable Works:

- 'Satantango' (1985): His debut novel — a dark, surreal portrayal of a collapsing village — became a modern classic and was adapted into a seven-hour film by Béla Tarr.
- 'The Melancholy of Resistance' (1989): Explores moral collapse and authoritarianism in a small Hungarian town.
- 'War and War' (1999): A meditation on violence, history, and transcendence through the eyes of an archivist.
- 'Herscht 07769' (2018): A recent work depicting German social unrest with precision and empathy, hailed as a "great contemporary German novel."

Literary Legacy:

- Krasznahorkai's fiction bridges metaphysical inquiry and social critique, positioning him among the most formidable European voices of the postmodern era.
- His long, rhythmic sentences and intense imagery evoke both spiritual despair and artistic redemption, defining his unique literary style.

UNESCO launches the World's First Virtual Museum of Stolen Cultural Objects

Context:

UNESCO has recently launched the world's first Virtual Museum of Stolen Cultural Objects at the MONDIACULT 2025 Conference in Barcelona, Spain.

About UNESCO launches the World's First Virtual Museum of Stolen Cultural Objects :

What is the Virtual Museum of Stolen Cultural Objects?

- It is a first-of-its-kind global digital museum created by UNESCO to display, document, and trace stolen or trafficked cultural objects from around the world.
- The museum acts as a virtual platform for education, restitution, and heritage protection, symbolically reuniting nations with their displaced artifacts.

- Launched at: World Conference on Cultural Policies and Sustainable Development (MONDIACULT 2025).
- Organized by: UNESCO (United Nations Educational, Scientific and Cultural Organization)

Aim:

- Combat Illicit Trafficking: Create a global platform to track and raise awareness of stolen and looted cultural heritage.
- Cultural Reconnection: Digitally reconnect communities with their lost heritage.
- Educational Mission: Strengthen heritage education and ethical museum practices through storytelling and testimonies.

Key Features of the Virtual Museum:

- Digital Platform: Uses 3D modelling, artificial intelligence, and virtual reality (VR) to recreate over 240 missing artifacts from 46 countries.

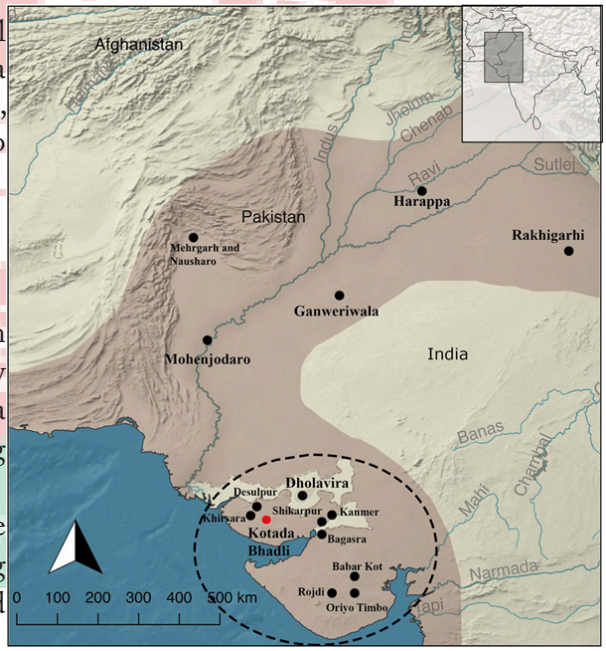
Interactive "Rooms":

- Stolen Cultural Objects Gallery: Displays digital reconstructions of stolen items.
- Auditorium: Hosts discussions, expert talks, and awareness programs.
- Return and Restitution Room: Showcases successful recovery cases.
- AI Recreation: For items lacking visual records, AI-generated models allow virtual rotation and study.
- Educational Content: Provides historical context, restoration practices, and anti-trafficking awareness tools.
- India's Representation: Features two 9th-century sandstone sculptures from Mahadev Temple, Pali (Chhattisgarh) — a Nataraja and Brahma figure — stolen during colonial-era looting.

Kotada Bhadli – Harappan Site

Context:

A new study by Deccan College, Symbiosis School for Liberal Arts, and the ASI has identified the Harappan site of Kotada Bhadli in Kutch, Gujarat, as the earliest known caravanserai, indicating a well-organised trade infrastructure dating back to 2300–1900 BCE.



About Kotada Bhadli – Harappan Site:

What it is?

- Kotada Bhadli is an ancient Harappan settlement from the Mature Harappan phase (2300–1900 BCE), now recognised as the earliest known caravanserai — a fortified stopover for traders and pack animals during long-distance trade.
- Located in: Situated in the Kutch district of Gujarat, the site lies strategically along inland trade routes connecting major Harappan cities such as Dholavira, Lothal, and Shikarpur.
- Nature of Site: It functioned as a rural logistical hub, offering shelter, food, and security to Bronze Age traders and their caravans — designed for short halts rather than permanent habitation.

Structural Evidence:

- Excavations revealed a multi-roomed central complex, fortified walls with bastions, and large open courtyards likely used for storing goods and housing animals.
- These features match caravanserai-style layouts known from later historical periods.
- Ground-penetrating radar, isotopic analysis, and satellite mapping confirmed the site's structural design and functional zoning.

Trade Implication:

- Kotada Bhadli provides the earliest evidence of a structured overland trade network in Harappan civilization.
- It served as a strategic stopover connecting inland and coastal centers like Dholavira, Lothal, and Shikarpur.
- Indicates that Harappans maintained logistical hubs and rest stations facilitating long-distance commerce.

Significance:

- Chronological Impact: Pushes back South Asia's organised trade infrastructure by over 2,000 years before the Silk Route.
- Economic Insight: Reveals advanced logistical and administrative planning within the Harappan economy.

First-Ever Air Shipment of GI Tagged Indi and Puliyankudi Limes

Context:

The Agricultural and Processed Food Products Export Development Authority (APEDA) facilitated the first-ever air shipment of GI-tagged Indi Lime (Karnataka) and Puliyankudi Lime (Tamil Nadu) to the United Kingdom.

About First-Ever Air Shipment of GI Tagged Indi and Puliyankudi Limes:

What is GI Tag?

- A Geographical Indication (GI) is a form of Intellectual Property Right (IPR) that identifies goods as originating from a specific geographical region, where their quality, reputation, or other characteristics are essentially linked to that origin.
- GI tags are registered under the Geographical Indications of Goods (Registration and Protection) Act, 1999.
- Issued by: the Geographical Indication Registry, Chennai, under the Department for Promotion of Industry and Internal Trade (DPIIT), Ministry of Commerce and Industry.
- Aim: To protect regional products, promote authenticity, enhance market value, and ensure economic benefits for local producers by preventing unauthorised use of registered names.

About Indi Lime (Karnataka):

- Region: Cultivated mainly in Vijayapura district, Karnataka.
- Distinct Features: Known for high juice yield, zesty aroma, and balanced acidity.
- Special Attributes: Valued in culinary, traditional medicine, and cultural practices, reflecting Karnataka's deep-rooted agrarian heritage.

About Puliyankudi Lime (Tamil Nadu):

- Region: Grown extensively in Tenkasi district, known as the "Lemon City of Tamil Nadu."
- Variety: Especially the Kadayam Lime, prized for its thin peel, strong acidity, and high juice content (≈55%).
- Nutritional Value: Contains 34.3 mg/100g of ascorbic acid, rich in Vitamin C and antioxidants, aiding immunity and digestion.
- Recognition: Received GI tag in April 2025, acknowledging its regional uniqueness and superior quality.

Sardar Vallabhbhai Patel

Context:

The Ministry of Culture is organizing grand cultural performances on Rashtriya Ekta Diwas (31 October 2025) to commemorate the 150th birth anniversary of Sardar Vallabhbhai Patel, with Prime Minister of India as Chief Guest.

About Sardar Vallabhbhai Patel:

- Early Life and Birth: Born on 31 October 1875 in Nadiad, Gujarat, Sardar Vallabhbhai Patel began his career as a successful lawyer before dedicating his life to India's freedom struggle.
- Entry into Public Life: His association with Mahatma Gandhi during the Kheda Satyagraha (1918) transformed him from a lawyer to a nationalist leader advocating for farmers' rights and social justice.

Role in Freedom Movement:

- Led the Bardoli Satyagraha (1928), where his leadership earned him the title "Sardar" (leader).
- Served as President of the Indian National Congress (1931, Karachi Session), where he guided the party during turbulent times following Bhagat Singh's execution.
- Worked closely with leaders like Gandhi, Nehru, and Rajendra Prasad in shaping India's freedom trajectory.

Architect of National Integration:

- As India's first Deputy Prime Minister and Home Minister (1947–50), Patel led the integration of 565 princely states into the Indian Union using diplomacy, persuasion, and firmness.
- Successfully handled complex accessions like Hyderabad (Operation Polo, 1948), Junagadh, Travancore, and Kashmir (Instrument of Accession, 1947).
- Established the All-India Services, calling them the "Steel Frame of India" to ensure administrative unity and integrity.

Vision and Legacy:

- Advocated for a strong, united, and self-reliant India, rooted in discipline and national integration.
- His vision culminated in later milestones — merger of Goa (1961), Sikkim's accession (1975), and the abrogation of Article 370 (2019), fulfilling his dream of complete unity.
- The 'Statue of Unity', inaugurated in 2018 at Kevadia, Gujarat, stands as the world's tallest statue (182 metres), symbolizing his enduring legacy.

Unique Facts:

- Popularly known as the "Iron Man of India" for his grit and administrative strength.
- Personally led sanitation drives in Ahmedabad as Municipal President (1924), setting an example of ethical leadership.

UPSC at 100: Guardian of Meritocracy and Nation-Building

Context:

The Union Public Service Commission (UPSC) marked its centenary on 1 October 2025, completing 100 years since its establishment in 1926.

- It celebrates its legacy as the guardian of meritocracy and impartial civil service recruitment in India.

About UPSC at 100: Guardian of Meritocracy and Nation-Building

Historical Evolution of UPSC:

- Colonial Origins: The Government of India Act, 1919 first proposed a central recruitment body, and in 1926, the Public Service Commission was set up under the Lee Commission (1924) to ensure impartiality.
  Eg: Sir Ross Barker became the first Chairman.
- Federal Public Service Commission (1935): The Government of India Act, 1935 elevated it, granting Indians greater authority in administrative recruitment under colonial rule.
- Post-Independence Transition (1950): Articles 315–323 of the Constitution transformed it into the Union Public Service Commission, giving it constitutional autonomy for impartial selection.
- Present Role: Now UPSC conducts a wide range of exams for civil, engineering, medical, forest, defence, and statistical services, shaping the backbone of Indian governance.

Core Principles of UPSC:

- Meritocracy: Selection is based solely on ability and performance, eliminating privilege and patronage.
  Eg: Success stories like Ira Singhal (2014 topper) from small-town India showcase inclusivity.
- Fairness: Equal access is provided across caste, gender, and language, making UPSC exams socially equitable.
  Eg: Candidates may write Mains in any of the 22 scheduled languages, ensuring linguistic justice.
- Integrity: The Commission maintains independence from politics, ensures confidentiality, and resists malpractice.
  Eg: Anonymous evaluation of scripts across 48 subjects safeguards neutrality.
- Efficiency in Complexity: UPSC handles 10–12 lakh prelim applicants annually across 2,500+ centres with smooth logistics and strict timelines.

Contributions to Nation-Building:

- Ensuring Administrative Continuity: UPSC officers have led governance during wars, reforms, disasters, and pandemic crises, ensuring institutional stability.
- Inclusivity in Governance: Recruitment now spans rural, semi-urban, and marginalised groups, strengthening social representation.
  Eg: DoPT data shows over 60% of recent successful candidate's hail from rural backgrounds.
- Professionalising Civil Services: UPSC inculcates neutrality, probity, and efficiency, crucial for effective democratic governance.
- Reinforcing Federalism: By selecting for All-India Services (IAS, IPS, IFoS), UPSC ensures Union–State administrative balance.

Recent Reforms:

- Technological Integration: Introduced online portals and biometric/face-recognition tools to reduce impersonation and fraud.
- PRATIBHA Setu: Connects interview-qualified candidates with alternate career opportunities, reducing wasted human capital.
- AI-enabled Recruitment: Plans to use Artificial Intelligence for efficient screening, evaluation, and fraud detection.
- Digital Inclusivity: Special arrangements for differently-abled candidates make exams more accessible and fairer.

Challenges Ahead:

- Changing Skill Demands: Future governance requires officers skilled in AI, cybersecurity, data, and climate governance, beyond traditional administration.
- Equity Concerns: High coaching costs and urban bias may erode the level playing field intended by UPSC.
- Exam Overload: With a 1:1000 selection ratio, aspirants face intense financial, psychological, and social pressure.
- Evolving Public Expectations: Citizens now expect faster, tech-enabled, transparent governance, demanding upgraded skills.

Way Forward:

- Curricular Updates: Civil service training must include digital governance, climate change, and global affairs for relevance.
- Inclusive Support: Expand rural outreach, financial scholarships, and digital learning to ensure equal opportunity.
- Continuous Training: Strengthen Mid-Career Training Programmes (MCTPs) to reskill officers in emerging challenges.
- Strengthening Ethics: Deepen integration of values like empathy, integrity, and accountability into training and service culture.

Conclusion:

The UPSC at 100 is more than an exam body — it is the guardian of India's meritocracy. By nurturing competent, diverse, and ethical officers, it has steered the nation through wars, reforms, and crises. As India moves toward Viksit Bharat 2047, UPSC must adapt while upholding its core values of fairness, integrity, and trust.

Rashtriya Swayamsevak Sangh

Context:

The Rashtriya Swayamsevak Sangh (RSS), the ideological parent of the BJP, is celebrating its centenary year in 2025.

About Rashtriya Swayamsevak Sangh:

What it is?

- A socio-cultural organisation promoting the idea of a Hindu Rashtra.
- Known as the ideological fount of the Sangh Parivar.
- Established in: Founded on 27 September 1925 by K.B. Hedgewar, a physician from Nagpur.
- Headquarters: Nagpur, Maharashtra.

Aims:

- Foster unity among Hindus by transcending caste, regional and sectarian divides.
- Promote discipline, service, and cultural revival.
- Reclaim the idea of Akhand Bharat and establish India as a Vishwa Guru (global leader).

Key Contributions to India's Freedom Movement:

- Civil Disobedience Movement (1930): Hedgewar and several swayamsevaks joined the Jungle Satyagraha against British forest laws in Central Provinces, though RSS officially stayed away.
- Poorna Swaraj Day (1930): All RSS shakhas observed 26 January 1930 as Independence Day, hoisting the saffron flag instead of the Congress tricolour.
- Relief during Partition (1947): RSS organised refugee camps in Punjab, Delhi, and Bengal to shelter and rehabilitate displaced Hindus.
- Dialogue with Gandhi (Sept 1947): Gandhi praised RSS discipline, simplicity, and service spirit while cautioning against its exclusivist Hindu-only nationalism.
- Post-Independence Transition (1948–51): After Gandhi's assassination (by Nathuram Godse, linked to RSS/Hindu Mahasabha), the RSS was banned. To channel political aspirations, Golwalkar supported the creation of Bharatiya Jana Sangh (1951) under Syama Prasad Mookerjee.

New Definition of Pandemic Emergency

Context:

The amended International Health Regulations (IHR) entered into force, bringing in a new legal category — pandemic emergency.

About New Definition of Pandemic Emergency:

What it is?

- A pandemic emergency is a newly defined sub-category under IHR that applies to public health emergencies of international concern (PHEIC) but with a heightened threshold — when a communicable disease has broad geographic spread, strains health systems, causes major social and economic disruption, and requires rapid, coordinated global action.

2024 Amendments & Changes Made:

- Adopted by consensus at the 77th World Health Assembly through Resolution WHA77.17 in June 2024.
- Entry into force was set for 19 September 2025 for States Parties that accept the amendments.

The amendments introduced new legal obligations:

1. The Director-General (DG) of WHO may decide if a PHEIC amounts to a pandemic emergency (via Article 12).
2. National IHR Authorities must be designated in each country to coordinate implementation across ministries.
3. Introduction of a Coordinating Financial Mechanism to assist developing nations in pandemic preparedness.
4. Establishment of a States Parties Committee to facilitate implementation (non-punitive oversight).

Key Features:

- Tiered Alert System: Pandemic emergency is a higher tier beyond PHEIC, but built on top of it — the event must already meet PHEIC criteria.
- Broader Triggers: Requires wide geographic spread, health system overload, socioeconomic disruption, and need for whole-of-society/whole-of-government response.
- Equity & Solidarity: Emphasis on fairness in access to medical products, financing support, and collaborative global response.
- No New Authority Over Sovereignty: The amendments clarify that WHO cannot mandate domestic policies (lockdowns, etc.) — countries retain legislative control.
- Seamless Integration: It does not replace PHEIC but enriches it; avoids duplicative procedures by integrating decision-making.

Significance:

- Legal Certainty: Provides a clearer legal framework for when and how a global pandemic can be declared.

- Faster Response: Enables earlier mobilization of global resources and coordinated interventions.
- Support for Developing Nations: The financial mechanism and obligations facilitate equity in capacity building.

RTI at 20: Transparency on Decline

Context:

The Right to Information (RTI) Act, 2005 has completed 20 years, but investigative reports and activists warn that it stands hollowed out by institutional capture, vacant posts, and the new Digital Personal Data Protection Act (DPDPA, 2023).

About RTI at 20: Transparency on Decline

About RTI Act:

- Enacted under the UPA government in June 2005, the Right to Information Act empowers every Indian citizen to seek information from public authorities for a nominal fee of ₹10, ensuring transparency, accountability, and participatory democracy.

Key Features:

- Three-tier structure: Establishes a clear hierarchy — Public Information Officers (PIOs) at departments, First Appellate Authorities for appeals, and Central & State Information Commissions (CIC/SIC) for oversight, ensuring checks at every level.
- Mandatory disclosure: Section 4 mandates proactive publication of budgets, decision-making processes, and expenditure details to prevent information hoarding and reduce RTI burden.
- Time-bound response: Information must be provided within 30 days (or 48 hours for urgent life or liberty matters), making RTI a time-sensitive accountability tool.
- Penalty provision: Section 20 empowers Commissions to levy up to ₹25,000 fines for unjustified denial or delay, designed as the Act's chief deterrent against bureaucratic evasion.
- Citizen–Legislator parity: Unique clause ensures no information denied to Parliament can be denied to citizens, symbolizing the equality of democratic participation.

Performance of RTI So Far:

Successes:

- Empowerment of citizens: The RTI Act has democratized information by allowing ordinary citizens to question public authorities. Over 2.5 crore RTI applications have been filed since 2005, strengthening grassroots democracy.
- Exposing corruption: It has unveiled major scandals like the 2G Spectrum scam, Commonwealth Games scam, Adarsh Housing scam, and irregularities in MNREGA and PDS, enhancing public accountability.
- Strengthening governance: RTI applications have forced transparency in administrative decisions, tendering, and fund utilization—leading to better compliance with service delivery standards.
- Landmark CIC rulings: Orders bringing political parties, the PMO, RBI, and even the CJI's office under RTI set global precedents for transparency in democratic institutions.
- Public participation: The law fostered citizen–bureaucracy engagement and empowered marginalized communities to access entitlements like pensions, ration cards, and housing benefits.

Challenges to RTI in India:

- Institutional paralysis: Chronic vacancies, especially at CIC/SIC levels, have made hearings stretch into decades (Telangana's backlog = 29 years), defeating the Act's purpose.
- Political interference: Appointments increasingly serve as post-retirement sinecures, making Commissioners reluctant to challenge the executive.

- Non-enforcement of penalties: With barely 1.2% penal actions, officials ignore deadlines and denials without consequence, normalizing opacity.
- Legal dilution: The RTI (Amendment) Act, 2019 removed fixed tenure and salary parity with Election Commissioners, letting the Centre control pay and tenure, weakening autonomy.
- DPDPA, 2023 impact: Its Section 44(3) amends RTI's Section 8(1)(j), imposing a blanket ban on "personal information" disclosure—erasing the citizen's right to hold officials accountable.
- Executive opacity: Key datasets—on unemployment, COVID deaths, and crime—are routinely withheld, earning India the label "No Data Available government" (SNS, 2025).
- Judicial deference: Courts increasingly "nudge" instead of direct the government, reflecting a softened stance that undermines RTI enforcement.

Way Ahead:

1. Immediate appointments: All vacancies in CIC/SICs must be filled within fixed timelines as per SC's 2019 judgment, ensuring continuity and credibility.
2. Institutional autonomy: Restore fixed tenure and pay parity, so Commissioners function without fear or favour, similar to Election Commissioners.
3. Balance privacy & transparency: Revisit DPDPA's Section 44(3) through wide consultation to safeguard the constitutional right to know while respecting genuine privacy.
4. Digital integration: Implement nationwide RTI portals for e-filing, online hearings, and public dashboards to reduce pendency and promote accessibility.
5. Public vigilance & judicial assertiveness: Civil society, media, and the judiciary must collectively defend RTI's independence as a core democratic value.

Conclusion:

At 20, the RTI stands as a litmus test of India's democracy—alive but weakened by neglect and capture. Its revival demands not new laws but renewed commitment to citizen empowerment, institutional autonomy, and the moral right to question power—the true essence of a participatory republic.

China Files WTO Complaint Against India Over Unfair EV and Battery Subsidies

Context:

China filed a formal complaint with the World Trade Organization (WTO) against India, alleging that India's electric vehicle (EV) and battery subsidies grant its domestic industries an unfair competitive advantage, violating global trade rules.

About China Files WTO Complaint Against India Over 'Unfair' EV and Battery Subsidies:

What It Is?

- China has initiated a dispute settlement process at the WTO, claiming that India's EV subsidy policies — including tax rebates, incentives under the PM e-Drive and PLI schemes — distort fair competition by favouring Indian manufacturers over foreign producers.

Parties Involved:

- Complainant: People's Republic of China (Ministry of Commerce)
- Respondent: Republic of India (Government of India)
- Arbitrating Body: World Trade Organization (WTO), Geneva

Reason for Complaint:

- China argues that India's EV incentives — including reduced GST, road tax exemptions, and PLI-linked support — give local automakers such as Tata Motors and Mahindra Electric an unfair edge in both domestic and export markets.
- India's subsidies for EVs amount to ~46% of vehicle cost, among the highest globally, compared to 10–26% in other major economies.

- China claims this violates WTO's Agreement on Subsidies and Countervailing Measures (SCM) by discriminating against foreign producers and distorting international trade.

Process of Resolving the Complaint in WTO:

Consultation (Diplomatic Stage):

- The process begins when China formally requests consultations with India under WTO rules.
- Both countries are required to engage in discussions within 30 days of the request and have up to 60 days to find a mutually acceptable solution.
- This stage is confidential and aims to resolve the issue diplomatically before escalation.

Panel Establishment (Adjudication Stage):

- If consultations fail, China can request the formation of a dispute settlement panel under the WTO Dispute Settlement Body (DSB).
- The panel, typically composed of three independent trade experts, examines the evidence and determines whether India's EV subsidies violate WTO's Subsidy and Countervailing Measures (SCM) Agreement.
- The panel's findings are presented in a formal report.

Appellate Review (Appeal Stage):

- Either country can appeal the panel's decision to the WTO Appellate Body, which reviews the panel's legal interpretations.
- However, since the Appellate Body has been non-functional since 2019, disputes may instead be reviewed under the Multi-Party Interim Appeal Arbitration Arrangement (MPIA).
- This stage ensures legal accuracy and procedural fairness.

Implementation and Enforcement (Compliance Stage):

- If the WTO panel (or appeal) finds India in violation, it must withdraw or amend the subsidy measures within a "reasonable period of time."
- If India fails to comply, China can request authorization to impose retaliatory trade measures, such as tariffs, equal in value to the trade loss suffered.
- This serves as WTO's ultimate enforcement mechanism to ensure compliance.

Emergency Care Needs to Be Prioritised

Context:

The recent stampede in Karur, Tamil Nadu, highlighted gaps in India's emergency response system, sparking renewed calls to treat emergency medical care not merely as a service, but as a constitutional duty ensuring every citizen's right to life.

About Emergency Care Needs to Be Prioritised:

Evolution of Emergency Care:

- Modern emergency medicine evolved from wartime trauma management during the World Wars, where organised triage and rapid evacuation became critical.
- The industrial revolution and advances in trauma and cardiovascular medicine led to structured ambulance systems with life-support capability.
- Over time, the focus expanded from mere transport to on-site stabilisation, giving rise to paramedic-led and doctor-led mobile emergency units.
- India's 108 Emergency Response System, introduced under the National Health Mission (NHM), institutionalised public access to emergency transport.
- The concept evolved globally into the "Golden Hour" and later the "Platinum Ten Minutes", emphasising response speed as a determinant of survival.

Constitutional Imperative:

- The Right to Life under Article 21 of the Indian Constitution inherently guarantees access to timely emergency medical care.
- The State is ethically bound to ensure unobstructed emergency access during mass gatherings and disasters.

Science of Timely Intervention:

- Acute illnesses and trauma cause rapid circulatory collapse; immediate diagnosis and treatment can reverse these life-threatening disturbances.
- The "Golden Hour" represents the crucial 60 minutes post-injury when intervention can prevent irreversible organ damage.
- The evolved "Platinum Ten Minutes" standard stresses that medical help—not just transport—should reach the victim within 10 minutes.
- Modern ambulances act as mobile ICUs, equipped with oxygen supply, defibrillators, ECG, airway management tools, and telemedicine links.
- Timely, skilled intervention transforms outcomes, reducing preventable deaths from strokes, heart attacks, and trauma.

Existing Initiatives:

- The 108 Ambulance Service, a public-private partnership, operates over 10,000 ambulances, serving 7–9 million patients annually.
- Tamil Nadu leads with an average response time of 10 minutes 14 seconds, close to the Platinum Ten benchmark.
- The National Ambulance Code (AIS-125) sets standards for design, safety, and equipment across vehicle categories.
- The Motor Vehicles (Amendment) Act, 2019, mandates right of way for ambulances and penalises obstruction.
- NHM support enables State-level flexibility in managing emergency systems and training first responders.

Challenges in Emergency Systems:

- Fragmented services: Wide disparities exist between States and private providers, leading to uneven quality.
- Skill shortage: Lack of certified emergency medical technicians and high attrition rates weaken continuity.
- Infrastructure gaps: Many ambulances lack advanced life support systems and telemedicine integration.
- Poor coordination: Weak linkages between call centres, hospitals, and ambulance teams delay response.
- Accountability vacuum: Absence of a National Emergency Regulatory Authority results in inconsistent standards and oversight.

Policy Reforms and Recommendations:

- Constitute a National Emergency Services Regulatory Authority to standardise training, operations, and equipment across States.
- Integrate technology through AI-based dispatch systems, GPS tracking, and real-time data sharing with hospitals.
- Introduce national certification and pay parity for paramedics to improve retention and professionalism.
- Expand air and drone ambulances for remote access and organ transport logistics.
- Mandate emergency access protocols for public gatherings and urban infrastructure planning.
- Promote PPP models for integrated emergency networks linking urban and rural areas.

Conclusion:

A nation capable of robotic surgeries and organ transplants must not lose lives to delayed ambulances or disorganised response systems. Emergency medical care must evolve from fragmented services into a right-based, standardised national mission. Recognising it as a constitutional and moral duty is essential to ensure that every citizen receives help when every second counts.

Rural Education and Youth Migration

Context:

A recent analysis explores whether reimagining rural education and local job ecosystems can reduce India's accelerating youth migration to urban areas, which now poses both rural economic drain and urban sustainability challenges.

About Rural Education and Youth Migration:

Current Migration Status in India:

- Scale of Migration: Nearly 29% of India's population are migrants, and 89% originate from rural areas, indicating high dependency on urban economies.
- Youth-Centric Migration: Over half of all migrants are aged 15–25, reflecting loss of India's most productive human capital to cities.
- Gender Divide: While 86.8% of women migrate for marriage, men move for work, showing how social customs drive unequal mobility.
- Economic Profile: Migration is higher among low MPCE, SC, and OBC groups, highlighting poverty-induced displacement.
- Pandemic-Induced Reverse Migration: The 2020 lockdown saw 40 million workers return home, exposing the fragility of informal urban employment.

Causes of Youth Migration:

- Rural Job Deficit: Scarce non-farm jobs push youth into insecure city work; 49% are daily wagers, 39% short-term industrial workers.
- Education–Employment Mismatch: Degrees lack practical linkage with job markets; graduate unemployment exceeds 15% (CMIE 2024).
- Income Inequality: Poor households migrate out of compulsion, as farming and local labour fail to sustain minimum livelihoods.
- Weak Infrastructure: Inadequate transport, credit, and digital access limit local enterprise and job diversification.
- Urban Pull: Cities promise higher incomes and mobility, yet expose migrants to unsafe housing and exploitative work.

Socio-Economic Consequences of Migration:

- Urban Overcrowding: Megacities like Delhi and Mumbai struggle with congestion, slums, and pollution from inflow pressures.
- Informalisation of Labour: Around 88% of migrant workers lack job security or social safety nets, increasing vulnerability.
- Rural Depopulation: Migration drains villages of youth, weakening agriculture and local governance capacity.
- Gendered Loss: Women migrants rarely join the workforce, worsening gender gaps and economic dependency.
- Psychosocial Impact: Separation from family induces loneliness, anxiety, and financial insecurity among dependents.

Initiatives Taken So Far:

- Rural Livelihood Programs: MGNREGA ensures wage support during off-season, discouraging distress migration.
- Skill Development Missions: DDU-GKY and PMKVY provide vocational training to rural youth for sustainable jobs.
- Entrepreneurship Promotion: PM-Mudra, Start-Up India, and SVEP nurture small rural enterprises and self-employment.

- Agriculture and FPO Support: The 10,000-FPO initiative (2025 target) enhances collective farming and value-chain linkages.
- Digital and Infrastructure Push: BharatNet, PMGSY, and rural BPOs expand connectivity and access to digital markets.

Way Ahead:

- Education–Job Integration: Embed agri-tech, digital, and vocational skills in rural curricula to align with job demand.
- Diversify Non-Farm Sectors: Promote handicrafts, logistics, renewables, and agri-tourism to absorb rural youth.
- Rural Digital Ecosystems: Invest in 5G, e-commerce, and tele-work hubs to create tech-enabled employment.
- Promote Reverse Migration Models: Highlight local entrepreneurs like Raigad's Balaram Bandagale to inspire village-based enterprise.
- Social Protection Portability: Ensure universal portability of PDS, pensions, and health insurance for migrant workers.

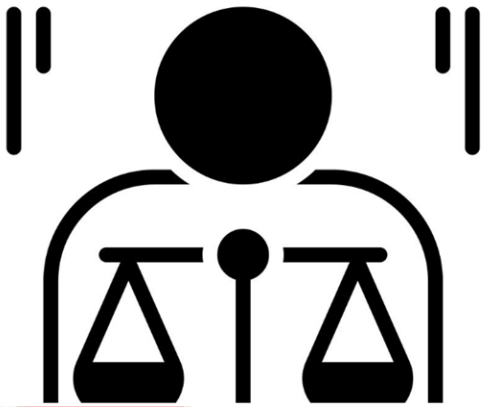
Conclusion:

Migration in India must evolve from compulsion to choice. By linking rural education to employability, decentralising industries, and investing in youth-centric innovation, India can curb distress migration and revitalise its villages. A balanced rural–urban development model is key to inclusive and sustainable growth.

The Contours of Constitutional Morality

Context:

The concept of constitutional morality has resurfaced in debates on democratic conduct and judicial propriety, with recent judgments and political actions testing the balance between constitutional conventions and popular morality.



About The Contours of Constitutional Morality:

What it is?

- Constitutional morality refers to the ethical compass that guides the functioning of constitutional institutions and actors, ensuring that power is exercised with restraint, fairness, and fidelity to constitutional values rather than personal or political gain.

Features:

- Adherence to Rule of Law: All authority must operate within constitutional boundaries and principles of legality.
- Institutional Propriety: Public officials must follow conventions that preserve institutional dignity and independence.
- Respect for Dissent: Encourages tolerance and debate as democratic virtues.
- Accountability: Every exercise of power must be morally and legally justifiable.
- Spirit over Text: It demands fidelity not just to constitutional provisions but to their ethical intent.

Evolution of the Idea:

- Ancient Roots: In Indian philosophy, Dharma integrated law and morality, reflected in works like the Tirukkural emphasizing Aram (virtue).
- Western Origin: Historian George Grote (1846) coined "constitutional morality" as reverence for constitutional forms amid political contest.
- Ambedkar's Vision: Borrowing from Grote, Ambedkar asserted that democracy requires cultivated morality, not mere legal compliance — "Democracy in India is only a top-dressing on an undemocratic soil."
- Judicial Revival: Supreme Court judgments like Manoj Narula (2014), Sabarimala (2018), and Navtej Johar (2018) elevated it as a moral standard for governance and rights adjudication.

Dimensions of Constitutional Morality:

- Institutional Dimension: Ensures that organs of state — legislature, executive, and judiciary — act within their constitutional roles with mutual respect and restraint.
- Judicial Dimension: Judges interpret laws not merely by textual fidelity but by moral reasoning rooted in constitutional ethos.
- Legislative Dimension: Lawmakers must prioritize deliberation, accountability, and inclusivity over populism.
- Citizen Dimension: Civic morality — respect for diversity, rule of law, and rational debate — is vital for a living constitution.

Challenges to Constitutional Morality:

- Majoritarian Populism: Societal morality often overrides constitutional ethics, threatening minority rights.
- Erosion of Conventions: Political disregard for norms weakens institutional balance.
- Judicial Overreach: Excessive moral interpretation risks undermining separation of powers.
- Public Ignorance: Lack of civic constitutional education prevents moral internalization.
- Partisan Bureaucracy: Executive loyalty often drifts from the Constitution to political masters.

Way Forward:

- Civic Constitutionalism: Integrate constitutional literacy into education and public discourse.
- Ethical Leadership: Political parties must institutionalize integrity in appointments and decision-making.
- Institutional Ethics Committees: Regularly monitor adherence to conventions across constitutional offices.
- Judicial Sensitivity: Courts should maintain moral guidance without usurping legislative prerogatives.
- Citizen Engagement: Encourage participatory democracy anchored in equality, empathy, and dialogue.

Conclusion:

Constitutional morality is the soul of the Republic, transforming a legal text into a moral covenant. As Ambedkar envisioned, democracy survives not by law alone but by the moral discipline of its citizens and leaders. When law aligns with conscience, the Constitution becomes not a parchment promise but a living testament to justice and equality.

Lokpal

Context:

The Lokpal of India, the nation's apex anti-corruption ombudsman, is under scrutiny after data revealed a sharp fall in complaints—from 2,469 in 2022-23 to only 233 in 2025—even as it faced criticism for issuing a tender to procure seven BMW cars.

About Lokpal:

What it is?

- The Lokpal of India is an independent statutory body established under the Lokpal and Lokayuktas Act, 2013, to inquire into allegations of corruption against public functionaries, including the Prime Minister, Ministers, MPs, and government officials.

History:

- Conceived after public movements like India Against Corruption (2011) led by Anna Hazare.
- The Act came into force on 16 January 2014, institutionalising a national-level ombudsman after decades of demand for a central anti-corruption authority.
- The first Lokpal was constituted in March 2019, marking a major step in India's fight for transparent governance.

Members and Composition:

- Chairperson: Former Supreme Court Judge Justice A.M. Khanwilkar (as of 2025).
- Members (7 total): Includes four judicial and three non-judicial members such as former Chief Justices and senior administrators.
- Appointment: Made by the President of India, on the recommendation of a Selection Committee comprising the Prime Minister, Speaker of Lok Sabha, Leader of Opposition, Chief Justice of India, and an eminent jurist.

Functions and Powers:

- Inquiry and Investigation: Lokpal can independently investigate corruption cases under the Prevention of Corruption Act, 1988, ensuring accountability of even the highest offices of governance through impartial inquiries.
- Jurisdiction: Its authority extends to the Prime Minister, Union Ministers, MPs, and officials (Groups A–D), including bodies funded or aided by the government, ensuring that no public servant is beyond scrutiny.
- Supervisory Role: Lokpal exercises superintendence over the CBI in referred cases, empowering it to direct investigations and maintain oversight over central agencies for impartiality.
- Prosecution Powers: It can sanction prosecutions, order asset attachments, and recommend suspensions or transfers, ensuring tangible punitive action against corruption.
- Quasi-Judicial Authority: Armed with civil court powers, it can summon witnesses, demand documents, and issue orders—granting it judicial credibility in its anti-corruption mandate.

Success of Lokpal So Far:

- Complaint Record: Since its inception, Lokpal received 6,955 complaints, but only 289 led to preliminary inquiries, reflecting underutilization and procedural inefficiency.
- Prosecution Progress: Only seven cases have reached the prosecution stage, indicating a severe gap between complaint registration and actionable justice.
- Institutional Growth: Creation of a Prosecution Wing in 2025 finally operationalized a crucial arm for independent legal action, marking an overdue but vital reform.
- Transparency Deficit: Non-publication of annual reports since 2021–22 reveals weak accountability and institutional inertia in maintaining public trust.

Challenges to Lokpal:

- Low Public Engagement: The steep drop in complaints from 2,469 (2022–23) to 233 (2025) highlights public disillusionment and declining credibility.
- Institutional Delays: A 12-year delay in setting up the prosecution wing exposes bureaucratic apathy and lack of political urgency in empowering Lokpal.
- Procedural Rigidities: Overly technical complaint formats lead to dismissals on formality grounds, deterring genuine whistleblowers and victims of corruption.
- Transparency Deficit: Failure to disclose outcomes or publish reports weakens citizen oversight and makes Lokpal appear opaque and unaccountable.
- Perception of Extravagance: The BMW car procurement controversy contradicts its ethos of ethical austerity and public accountability, eroding moral legitimacy.

Way Ahead:

- Digital Transparency: Develop a real-time complaint dashboard to enable citizens to track case status, enhancing accountability and data openness.
- Ethical Prudence: Adopt frugal institutional conduct—eschewing luxury spending—to restore public trust in its moral and ethical authority.
- Institutional Strengthening: Ensure autonomy and adequate staffing of inquiry and prosecution wings, enforcing strict time-bound investigation norms.
- Public Awareness: Simplify complaint procedures and integrate anti-corruption literacy into public campaigns to boost citizen participation.

- Legislative Review: Amend the law to mandate annual reporting and parliamentary oversight, strengthening institutional independence and transparency.

Conclusion:

Lokpal was envisioned as the moral sentinel of India's democracy, guarding citizens from abuse of power. Yet, its current inertia reflects lost public faith and institutional drift. Reviving Lokpal requires both ethical restraint and systemic reform—so that justice is not just promised but visibly pursued.

Urban Planning in India

Context:

There is an urgent need to rethink India's urban planning framework, which remains restricted to land-use regulation, arguing that cities must be transformed into economic growth hubs to achieve Viksit Bharat @2047.

About Urban Planning in India:

Data and Statistics on Urban India:

- As of Census 2011, 31% of India's population lived in urban areas — expected to rise to 50% by 2047.
- Urban areas contribute nearly 63% of India's GDP today, projected to reach 75% by 2047 (NITI Aayog, 2023).
- India has over 4,000 statutory towns and 53 metropolitan cities (Census 2011), yet most remain poorly planned.
- The World Bank (2024) estimates that India needs $840 billion in urban infrastructure investment over the next 15 years to sustain growth.

Current Approach to Urban Planning

- Land-Use Centric Model: India's urban planning remains limited to zoning and physical layouts, a colonial legacy of sanitary reforms rather than modern economic design.
- Master Plan Limitations: Current Master and Development Plans rely on population projections and infrastructure needs but ignore economic growth, environment, and social equity.
- Restricted Jurisdiction: Planning is confined to municipal boundaries, neglecting regional linkages, peri-urban areas, and urban–rural economic integration essential for holistic growth.

Weaknesses Identified:

- Absence of Economic Vision: Cities lack long-term strategies linking urban form to industrial, service, and employment generation goals.
- Reactive, Not Strategic: Plans merely respond to unplanned expansion rather than proactively directing urban growth and investments.
- Resource Myopia: There is no systematic budgeting or management for finite resources like water, energy, and waste, making cities ecologically unsustainable.
- Climate Blindness: Planning frameworks omit climate adaptation and emission reduction, despite rising risks of heatwaves, floods, and pollution.
- Administrative Fragmentation: Weak coordination among local bodies, development authorities, and state agencies hampers integrated implementation.

Need for Economic Vision–Based Urban Planning

- Economic Blueprint First: Every city must begin planning from an economic base, identifying core growth sectors like manufacturing, innovation, and logistics.
- Evidence-Driven Projections: Population, housing, and land demand should stem from realistic economic and employment forecasts, not outdated demographic trends.
- Cities as Growth Hubs: Urban areas must evolve into "economic engines" driving competitiveness, entrepreneurship, and sustainable livelihoods.
- Integrated Planning Approach: Climate action, mobility, and resource management should form core pillars of every city's master and regional plans.

Way Forward:

- Integrate Economic & Spatial Planning: Merge urban land-use and economic strategies to ensure cities align with regional industrial and service growth goals.
- Adopt Climate-Resilient Frameworks: Embed low-carbon mobility, energy efficiency, and disaster preparedness into planning blueprints.
- Strengthen Urban Governance: Grant greater fiscal and functional autonomy to ULBs and improve vertical coordination with state agencies.
- Reform Laws & Education: Modernize outdated Town Planning Acts and train planners in multi-disciplinary fields like economics, environment, and digital design.
- Promote Regional & Tier-2 City Growth: Prioritize industrial corridors, satellite towns, and smaller urban centers to decongest metros and ensure balanced growth.

Conclusion:

India's urban planning must evolve from land-use control to economic and environmental strategy. Cities are not just habitats but growth engines and climate battlegrounds. A visionary, integrated planning approach is essential to build resilient, inclusive, and globally competitive cities for Viksit Bharat 2047.

Bharat Taxi – India's First Cooperative Cab Service

Context:

India is set to launch 'Bharat Taxi', the country's first cooperative cab service, in November 2025 in Delhi under the aegis of the Ministry of Cooperation and National e-Governance Division (NeGD)

About Bharat Taxi – India's First Cooperative Cab Service:

What it is?

- Bharat Taxi is a government-backed cooperative ride-hailing platform that empowers cab drivers as members and shareholders, ensuring collective ownership, transparency, and equitable income distribution — a departure from the corporate aggregator model.

Ministry:

- Implemented by the Union Ministry of Cooperation in collaboration with the National e-Governance Division (NeGD).

Aim:

- To establish a fair, transparent, and sustainable cab ecosystem that ensures driver welfare, eliminates exploitative commissions, provides affordable rides for passengers, and integrates seamlessly with India's digital governance ecosystem.

Key Features:

- Cooperative Model: Managed by Sahakar Taxi Cooperative Ltd. with an initial capital of 300 crore and backed by cooperatives like Amul, IFFCO, NAFED, KRIBHCO, NABARD, and NCDC.
- Driver Ownership: Drivers, called "Saarthis", are shareholders rather than contract workers, retaining 100% of fare earnings.
- Digital Integration: Linked with DigiLocker, UMANG, and API Setu for secure identity verification and service access.
- No Surge Pricing or Hidden Costs: Fares are regulated and transparent, ensuring affordability for commuters.
- Phased Rollout: Launch with 650 driver-owners in Delhi (Nov 2025); expansion to 20 cities by 2026 and 1 lakh cabs nationwide by 2030.

Significance:

- Promotes the cooperative entrepreneurship model in India's digital economy.

- Ensures income security and dignity for drivers while addressing urban mobility challenges.
- Reduces dependence on private aggregators, encouraging fair competition and local ownership.

Special Intensive Revision 2025

Context:

The Election Commission of India (ECI) will launch the Special Intensive Revision (SIR) 2025, requiring voters across 12 States and Union Territories.

About Special Intensive Revision 2025:

What it is?

- The Special Intensive Revision (SIR) 2025 is a large-scale, document-based voter verification exercise conducted by the Election Commission of India to update, authenticate, and purify electoral rolls after nearly two decades.
- It ensures that only eligible Indian citizens remain registered voters, aligning with the provisions of the Representation of the People Act, 1950.

Organisation:

- The drive is implemented by the Election Commission of India (ECI) under the supervision of Chief Election Commissioner Gyanesh Kumar.

Aim:

- To ensure a clean, error-free, and verified electoral roll before upcoming elections.
- To verify citizenship, age, and address details of voters through linkage with historic rolls or supporting documents.
- To enhance transparency, inclusivity, and credibility in India's electoral process.

Key Functionaries Involved in SIR:

Booth Level Officer (BLO):

- The person responsible for one polling booth (around 1,000 voters).
- Distributes and collects the Enumeration Form (EF) from each voter's household.
- Helps link each voter's name with past voter lists and identifies shifted or deceased voters.
- District Magistrate (DM): Hears first appeals if anyone disagrees with the ERO's decision.
- Chief Electoral Officer (CEO): Hears second appeals and oversees the process at the state or UT level.

Booth Level Agents (BLAs):

- Representatives of recognised political parties trained by ECI.
- They help collect forms and verify voters to ensure transparency.

Key Processes of the Special Intensive Revision

Preparation of Enumeration Forms (EFs):

- Each voter will get a pre-printed form with their details (name, EPIC number, address, etc.) based on the current list.
- Forms are generated from the EC's database as of 27 October 2025.

Distribution by BLOs:

- BLOs will visit every home up to three times to deliver and collect the forms.
- Voters can also fill the form online on voters.eci.gov.in.

Linking with Past Electoral Rolls:

- Every voter must trace their or a relative's name in the old 2002–2004 rolls (available online).
- This helps the EC confirm that the voter (or family) existed in earlier verified lists.

Filling and Submission of Forms:

- Voters fill in missing details (like parents' names, date of birth, Aadhaar, etc.) and submit to BLO or online.
- No supporting document is needed initially.

Verification by ERO/AERO:

- Forms are checked. If a voter couldn't find a link to old rolls, they'll later need to show documents proving age and citizenship.

Appeals:

- If your name is wrongly deleted, you can appeal first to the DM, then to the CEO of your state.

Agriculture in the Age of Inequality

Context:

The article exposes the systemic erosion of India's farm economy due to corporate capture, predatory commercialization, and decades of neoliberal policies.

About Agriculture in the Age of Inequality:

Data and Statistics on Agriculture:

- Farmer Suicides: Over 4,00,000 farmers have died by suicide since 1995; NCRB (2022) reported 11,290 deaths, indicating that over one farmer dies every hour due to indebtedness and market distress.
- Income Decline: The NSS 77th Round (2018–19) reveals that average farm household income is 10,218/ month, marking a 10% decline from 2012–13, reflecting stagnation amid rising costs.
- Employment Exodus: Between 1991 and 2011, India lost nearly 15 million full-time cultivators, with 2,000 farmers quitting agriculture every day, signalling a collapse in rural viability.
- Inequality Ratio: The 217 Indian billionaires' wealth (US trillion) equals 58× the agriculture budget, exposing a stark contrast between rural poverty and elite accumulation.
- Falling Terms of Trade: Cotton's purchasing power plunged—farmers who once bought 12 gm of gold per quintal in the 1970s can't buy 1 gm today, showing the widening gap between input inflation and stagnant output prices.

Importance of Agriculture in India:

- Economic Backbone: Agriculture sustains 45% of India's workforce and contributes ~18% of GDP, serving as the foundation of livelihood and national growth.
- Food Security Anchor: It ensures self-sufficiency in food grains, stabilizes prices, and cushions inflation shocks, making it the cornerstone of nutritional security.
- Social Stability: Acts as a shock absorber during unemployment and pandemics (e.g., COVID-19 reverse migration), highlighting its role as a rural safety net.
- Cultural Identity: Embodies India's civilizational ethos of dharti-mata, symbolizing harmony between humans, soil, and seasons—a moral rhythm of sustenance.
- Intersectoral Linkages: Fuels MSMEs, transport, and food industries, generating demand chains that stimulate rural-urban economic interdependence.

Inequality and Its Link to Agriculture:

- Policy Bias: Post-1991 liberalization favoured capital-intensive corporates, reducing public investment, subsidies, and credit flow to smallholders.
- Corporate Penetration: Agribusiness giants now dominate seeds, logistics, and markets, eroding farmer autonomy and traditional cooperatives.
    - o Eg: Bayer-Monsanto's seed-pricing disputes in India show how monopoly control depresses farmer margins.

- Market Distortions: Weak MSP enforcement and mandi deregulation have shifted price control to traders, worsening income asymmetry.
  - Eg: In 2023-24, paddy farmers in Bihar earned 1,850/qtl— 250 below MSP—while corporate buyers cornered procurement through contract channels.
- Rural Deprivation: Cuts in irrigation, insurance, and research widened regional disparities, trapping farmers in debt cycles and uncertainty.
  - Eg: Vidarbha and Bundelkhand, with low irrigation coverage (< 15%), account for over a quarter of India's farm suicides.
- Wealth Concentration: Fiscal "incentives" for corporates and tax leniency transferred vast public resources away from small cultivators.
  - Eg: By 2024, the top 10 agribusinesses received loans worth 1.3 lakh cr—five times more than all small and marginal farmers combined—reflecting a systemic transfer of resources upward.

Implications of Agrarian Inequality:

- Rural Exodus: Widespread distress forces millions to migrate to cities, swelling informal labour and urban poverty belts.
- Nutritional Crisis: Families now sell milk and cereals once meant for home use, worsening child malnutrition and food insecurity.
- Erosion of Democracy: Corporate capture of policy space weakens panchayati raj institutions and grassroots accountability.
- Social Discontent: The Delhi Farmers' Protest (2020–21) symbolized democratic assertion against policy centralization and inequality.
- Ecological Stress: Monocropping, chemical-intensive farming, and climate shocks are accelerating soil depletion and biodiversity loss.

Way Ahead:

- Reinvest in Public Agriculture: Expand rural infrastructure, irrigation, and R&D while guaranteeing fair MSP and public procurement mechanisms.
- Rebalance Policy Priorities: Redirect subsidies, credit, and insurance toward small farmers, FPOs, and agro-cooperative ecosystems.
- Empower Local Governance: Strengthen panchayats, SHGs, and producer groups to ensure decentralized, participatory planning.
- Diversify Livelihoods: Encourage agro-ecological and allied sectors (dairy, fisheries, food processing) to create rural non-farm employment.
- Social Safety and Ethics: Revitalize MGNREGS, crop insurance, and grievance systems with transparency and ethical oversight to uphold dignity.

Conclusion:

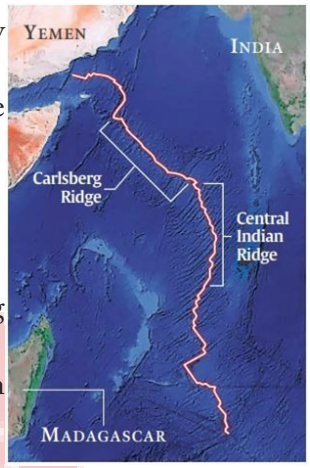
India's agrarian decline mirrors a deeper moral imbalance between profit and people. The solution lies not in abandoning agriculture but in re-humanizing it through justice, dignity, and sustainability. Reviving the countryside is thus not charity—it is the reclamation of India's collective conscience.

India's Second Mineral Exploration Contract

Context:

India has secured a second exploration contract from the International Seabed Authority (ISA) for Polymetallic Sulphides (PMS) in the Carlsberg Ridge, Indian Ocean.

- This makes India the first country with two PMS contracts, commanding the largest allocated area for PMS exploration globally.



About India's Second Mineral Exploration Contract:

What it is?

- Signed with ISA under UNCLOS framework for a 10,000 sq. km area in Carlsberg Ridge.
- Exploration will be carried out by the National Centre for Polar and Ocean Research (NCPOR) from 2026.

Aim:

- To secure strategic minerals critical for India's energy transition, high-tech manufacturing, and resource security.
- To strengthen India's role in the Blue Economy and Deep Ocean Mission.

Features:

- Builds on India's first PMS contract (2016) in Central & Southwest Indian Ridge.

Exploration plan:

1. Reconnaissance surveys (ship-mounted tools).
2. Near-seabed surveys (AUVs, ROVs).
3. Resource evaluation of deposits.
   - Supported by India's Samudrayaan mission and deep-sea technology development.

About Carlsberg Ridge:

What it is?

- A major mid-ocean ridge system in the Indian Ocean formed by seafloor spreading.

Located in:

- Extends from the triple junction of African, Indian & Australian plates (near 2°N, 66°E) towards the Gulf of Aden.
- Separates Arabian Sea (NE) from Somali Basin (SW).

Features:

- Formed ~40 million years ago, with a spreading rate of 2.4–3.3 cm/year.
- Depth: 1,800–3,600 m below sea surface.
- Has median valley, rugged topography, typical of slow-spreading ridges.
- Known for hydrothermal vent systems, rich in PMS deposits.
- Closer to India (~2°N) than earlier exploration sites (~26°S).
- Lies in a seismically active zone, linked to the East African Rift System.

About Polymetallic Sulphides (PMS):

What it is?

- Mineral deposits formed on ocean floors near hydrothermal vents.
- Created when cold seawater interacts with magma, ejects hot mineral-rich fluids, depositing solids on seabed.
- Found in: Along mid-ocean ridges and hydrothermal vent fields at depths of 2,000–5,000 m.
- Composition: Rich in copper, zinc, lead, silver, gold, and trace amounts of rare/precious metals.

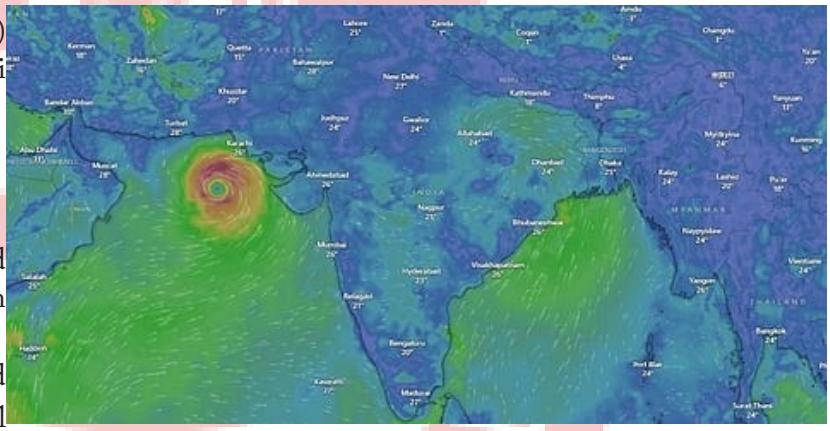
Applications:

- Electronics & high-tech industries (copper, rare metals).
- Green energy systems (zinc, silver for solar & batteries).
- Strategic use in aerospace, defence, and clean-tech manufacturing.

Cyclone Shakhti

Context:

The India Meteorological Department (IMD) confirmed the formation of Cyclone Shakhti over the northeast Arabian Sea.



About Cyclone Shakhti:

What it is?

- A tropical cyclonic storm that developed in the northeast Arabian Sea, ~340 km west of Dwarka (Gujarat).
- Named "Shakhti" under the World Meteorological Organisation's regional naming system.

Origin:

- Formed due to low-pressure development over warm Arabian Sea waters in early October 2025.
- The system strengthened into a cyclonic storm (CS) on October 3 and is forecast to become a severe cyclonic storm (SCS) as it tracks west-southwestwards.

Features:

- Brings strong winds, high sea waves, and heavy rainfall potential along coastal belts.
- Part of a trend of increasing Arabian Sea cyclones due to rising sea surface temperatures.

Why Bay of Bengal Gets More Cyclones than Arabian Sea

1. Warmer Waters:

- Bay of Bengal is semi-enclosed and landlocked, retaining warm water (29–30°C year-round).
- Arabian Sea remains cooler due to stronger winds and evaporation.

2. Moisture Availability:

- Bay receives abundant moist air from rivers and monsoon flows.
- Arabian Sea is influenced by dry winds from Oman and Yemen, limiting cyclone intensity.

3. External Triggers (Pulses):

- Typhoons from the Pacific often enter Bay of Bengal as low-pressure systems, which then intensify.
- Arabian Sea does not get such external inputs.

Atacama Desert

Context:

Unusual winter rains in Chile's Atacama Desert, one of the driest places on Earth, have triggered a rare mass bloom of fuchsia-coloured wildflowers, transforming the arid landscape into a spectacular floral carpet visible even from space.

About Atacama Desert:

What It Is?

- The Atacama Desert is the driest non-polar desert in the world, often used by scientists as an Earth analog for Martian landscapes due to its extreme aridity and mineral-rich terrain.

Location:

- Located in northern Chile, the desert stretches 600–700 miles (1,000–1,100 km) from north to south, between the Pacific Ocean and the Andes Mountains.
- Bordered by Peru to the north, it extends into the Loa River basin.

Key Physical Features:

- Average rainfall: ~2 mm per year — some areas have recorded no rain for decades.
- Elevation: Varies from sea level to over 13,000 feet (4,000 m) at the Atacama Plateau.
- Terrain includes salt flats (salares), volcanic cones, sand dunes, and alluvial plains.
- Temperature: Mild due to the cold Humboldt Current, with summer averages around 18–19°C.
- Frequent fog formations (camanchaca) from Pacific upwelling provide limited moisture for some vegetation.

About the Fuchsia Flower Bloom:

What It Is?

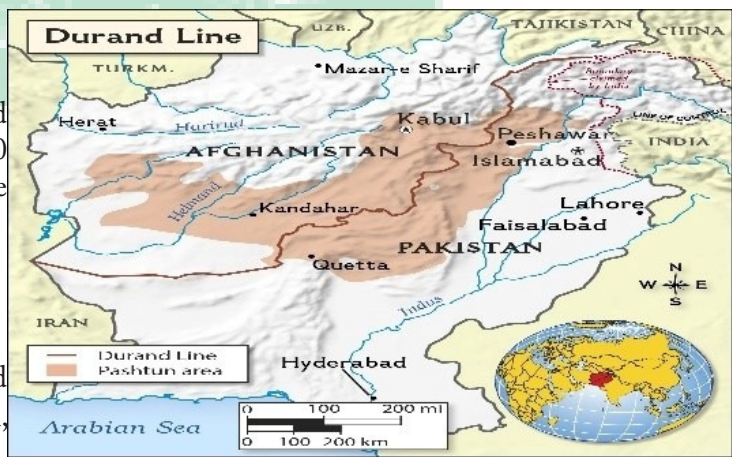
- The bloom features the Cistanthe longiscapa, locally known as "pata de guanaco", a small, resilient flowering plant that produces vivid fuchsia, pink, and purple blossoms after rare rainfall events.
- Habitat: Native to the Atacama Desert's arid soils, it lies dormant for years as seeds beneath the surface, waiting for moisture to germinate.

Key Features:

- A drought-tolerant plant that can change how it breathes and makes food.
- Blooms create the "Desierto Florido" (Flowering Desert) phenomenon, turning arid land into a sea of colour for weeks.
- Plays a crucial role in soil regeneration and biodiversity, supporting insects and small fauna during the brief bloom.

Durand Line

Context:



Fresh cross-border clashes between Afghanistan and Pakistan along the Durand Line have killed over 80 soldiers on both sides, reigniting tensions over the disputed frontier.

About Durand Line:

What it is?

- The Durand Line is the international land border between Afghanistan and Pakistan, stretching for about 2,600 km (1,600 miles).
- It demarcates the limits of influence agreed upon between British India and the Emirate of Afghanistan in 1893, but Afghanistan has never officially recognized it.

Location:

- Extends from the Karakoram Range in the northeast (near China) to the Registan Desert in the southwest (near Iran).
- Passes through key geographic and strategic features like the Khyber Pass and Spīn Ghar (White Mountains).
- Cuts across 12 Afghan provinces and 3 Pakistani provinces — Khyber Pakhtunkhwa, Balochistan, and Gilgit-Baltistan.

Historical Background:

- Anglo-Afghan Context: Established in 1893 through an agreement between Sir Henry Mortimer Durand (Foreign Secretary, British India) and Emir Abdur Rahman Khan to define spheres of influence.
- Post-Independence Legacy: After Pakistan's creation in 1947, it inherited the line; however, Afghanistan rejected its legality, voting against Pakistan's UN membership.
- Pashtunistan Movement: The border divided the Pashtun tribes, fueling demands for an independent Pashtunistan and persistent cross-border tribal unrest.

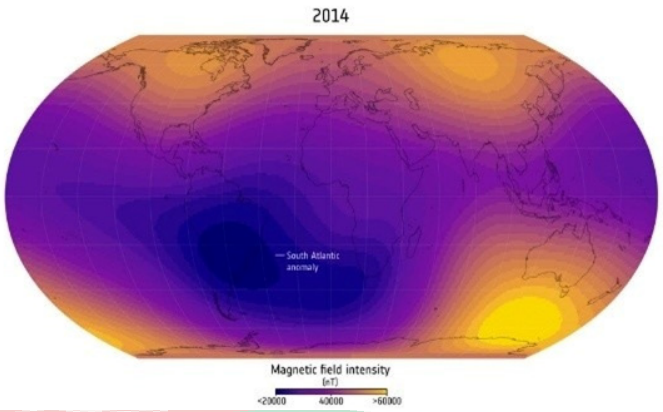
Physical Features:

- Traverse's diverse terrains — high-altitude ranges in the east (Karakoram, Hindu Kush, Spīn Ghar) to deserts and plains in the west (Registan, Baloch Plateau).
- Includes strategic passes like Khyber Pass (trade and invasion route) and Wakhan Corridor, a narrow strip separating Pakistan and Tajikistan.
- The region is ethnically Pashtun-dominated, with deep tribal, cultural, and kinship ties spanning both sides.

South Atlantic Anomaly (SAA) – Magnetic Weak Spots

Context:

Recent findings from the European Space Agency's (ESA) Swarm mission reveal that the South Atlantic Anomaly (SAA) — the region of weakest intensity in Earth's magnetic field — has expanded by nearly 0.9% since 2014.



About The South Atlantic Anomaly (SAA):

What It Is?

- The South Atlantic Anomaly is a weak magnetic field zone located over South America and the southern Atlantic Ocean, where Earth's magnetic field intensity is significantly lower than the global average.
- Identified By: First noted in the 19th century, the anomaly has been continuously mapped and analysed using ESA's Swarm satellites launched in 2013.

Reason for the Anomaly:

- The SAA occurs because of irregular flow of molten iron and nickel in Earth's outer core, disrupting the geo-dynamo — the mechanism that generates the magnetic field.
- Beneath the South Atlantic, reverse flux patches are observed — regions where the magnetic field lines re-enter the Earth instead of exiting it, weakening local magnetic strength.
- These complex core–mantle interactions create spatial variations in magnetic intensity, forming the SAA.

Features:

- Location: Covers parts of South America, southern Atlantic Ocean, and southwest of Africa.
- Expansion: Has grown by 0.9% since 2014 and continues to move westward.
- Dual Cell Structure: Since 2020, the SAA has split into two weaker sub-cells, one toward South America and another near southwest Africa.

What Are Magnetic Weak Spots?

Definition:

- Magnetic weak spots are localized regions of diminished geomagnetic intensity on Earth's surface caused by uneven distribution of magnetic flux within the planet's outer core.

Why They Form:

- Uneven Core Flow: The molten metals in Earth's outer core do not circulate uniformly, causing some regions to produce weaker magnetic fields.
- Reverse Magnetic Flux: In certain zones like the SAA, magnetic field lines loop backward into the core, lowering the surface magnetic strength.
- Core Dynamics: Constant fluid motion, convection currents, and thermal variations in the liquid outer core lead to periodic reorganisation of magnetic strength zones.

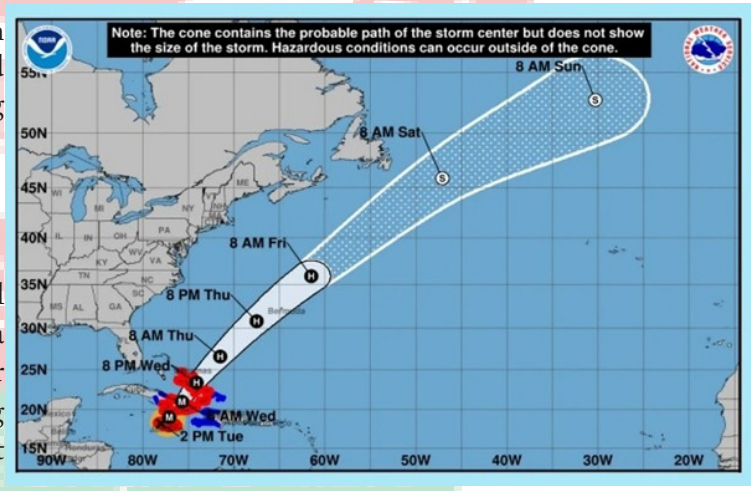
Impacts of Magnetic Weak Spots

- Satellite & Spacecraft Vulnerability: Satellites passing through the SAA encounter increased radiation exposure, risking hardware damage, data corruption, or blackouts in instruments.
- Navigation Challenges: Variations in field strength can affect magnetic navigation and calibration systems, especially in low-Earth orbits.
- Space Weather Sensitivity: The weakened shield allows charged solar particles to dip closer to Earth's surface, heightening space weather hazards.
- Regional Variation Effects: The SAA's westward drift and expansion increase the risk zone for orbiting satellites, especially Earth-observing and communication systems.

Hurricane Melissa

Context:

Hurricane Melissa, Jamaica's strongest-ever storm and a Category 5 hurricane, has battered the island with winds up to 185 mph (295 km/h) before turning toward Cuba's Santiago province.



About Hurricane Melissa:

What it is?

- Hurricane Melissa is a powerful tropical cyclone that formed over the Caribbean Sea and became the strongest hurricane ever recorded in Jamaica's history, surpassing previous major storms like Hurricane Gilbert (1988).

Origin:

- It originated as a tropical depression over the eastern Caribbean, gradually strengthening due to unusually warm ocean waters and favorable atmospheric conditions, evolving into a Category 5 hurricane on the Saffir-Simpson scale.

Formation Process:

- Trigger: Low-pressure disturbance developed over the central Caribbean Sea.
- Intensification: Warm sea surface temperatures and high humidity fueled rapid intensification.
- Trajectory: Moved westward across Jamaica, then curved northeast toward Cuba and the Bahamas.
- Impact: Winds up to 185 mph, extensive flooding, agricultural loss, infrastructure damage, and displacement of over 1.5 million people in Jamaica.

About the Saffir–Simpson Hurricane Wind Scale:

What it is?

- The Saffir–Simpson Hurricane Wind Scale (SSHWS) is a 1–5 rating system used to classify hurricanes based on their maximum sustained wind speeds. It estimates potential property damage and impact severity, though it does not account for rainfall or storm surge.

Categories and Features:

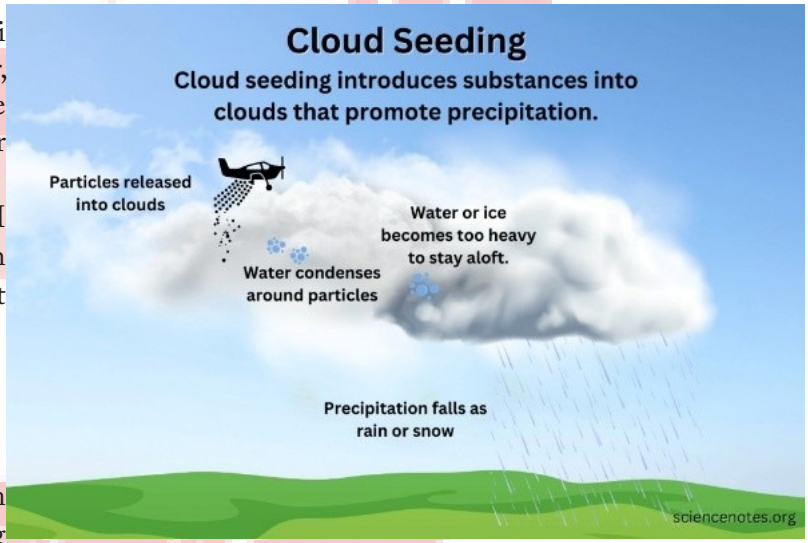
- Category 1 (74–95 mph): Causes minor roof and tree damage; localized power outages for a few days.
- Category 2 (96–110 mph): Major roof and siding damage; widespread power failures lasting several days to weeks.
- Category 3 (111–129 mph) – Major Hurricane: Devastating structural damage; electricity and water unavailable for days to weeks.
- Category 4 (130–156 mph) – Major Hurricane: Catastrophic damage with severe structural failures; areas uninhabitable for weeks.
- Category 5 (≥157 mph) – Major Hurricane: Near-total destruction of homes; long-term power and water outages; mass displacement.

Cloud Seeding in Delhi

Context:

For the first time in over five decades, the Delhi government, in collaboration with IIT-Kanpur, has conducted a cloud seeding trial to induce artificial rain and combat the city's severe air pollution.

- The experiment involved a Cessna 206H aircraft dispersing flares loaded with seeding material over north and east Delhi.



About Cloud Seeding in Delhi:

What it is?

- Cloud seeding is a weather modification technique aimed at artificially inducing rainfall by dispersing certain chemicals into clouds to enhance precipitation. It is being tested in Delhi as a scientific measure to reduce air pollution by settling suspended pollutants through rainfall.
- Organizations Involved: The project is a joint initiative between the Delhi Government and the Indian Institute of Technology (IIT) Kanpur.

Chemicals Used:

- Silver iodide (AgI)
- Potassium iodide (KI)
- Sodium chloride (NaCl)

These act as "seed particles" or condensation nuclei around which water vapour condenses to form raindrops.

How Cloud Seeding Works?

- Identification of Suitable Clouds: Meteorologists first monitor weather conditions using radar and satellite data to identify clouds with sufficient moisture content and depth. Only these clouds can sustain the process of artificial rain formation.
- Deployment of Aircraft/Drones: A small aircraft or drone (in Delhi's case, a Cessna 206H) carries seeding flares containing specific chemical agents such as silver iodide, potassium iodide, or sodium chloride.
- Release of Seeding Agents: Once the aircraft reaches the targeted altitude, flares are ignited and released into the base or interior of the clouds. Each flare, weighing around 2–2.5 kg, contains fine particles that act as condensation or ice nuclei.

- Nucleation and Condensation Process: The released particles attract surrounding water vapour. In warm clouds, water droplets form and grow around the salt particles; in cold clouds, ice crystals form around silver iodide. These microphysical processes increase droplet size and density.
- Droplet Growth and Coalescence: As more droplets collide and merge, they become heavier and larger, accelerating their downward fall due to gravity. This process eventually results in precipitation—either rain or snow, depending on temperature.
- Artificial Rainfall and Pollution Washout: The induced rainfall helps settle airborne pollutants such as PM2.5, PM10, and dust particles, temporarily improving air quality and visibility.
- In Delhi's case, eight flares (2–2.5 kg each) were fired into clouds with 15–20% humidity, targeting areas such as Burari, Karol Bagh, and Mayur Vihar.
- Result: Attempts to induce rain through cloud seeding in parts of Delhi on Tuesday were "not completely successful" because the moisture content in the clouds was low.

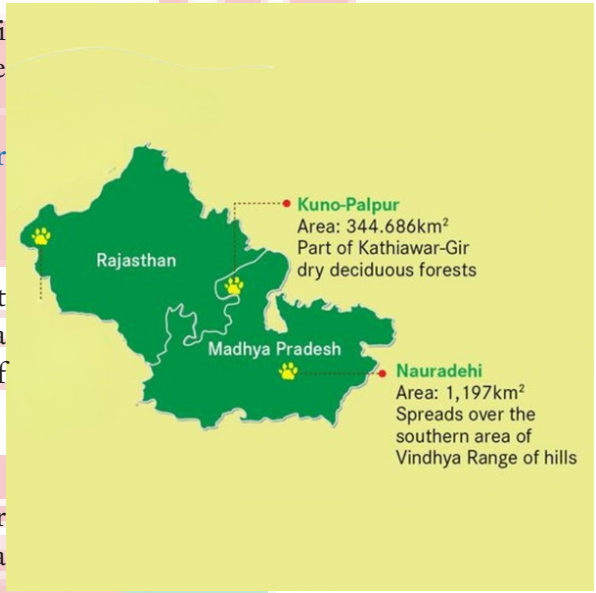
Limitations:

- Dependence on weather: Requires sufficient cloud cover and moisture, which are often lacking in Delhi's dry winter months.
- Short-term relief: Even if successful, rainfall offers only temporary pollution reduction, without addressing root causes like emissions and stubble burning.
- Environmental concerns: Residual silver iodide may pose toxicity risks to soil and water ecosystems.

Nauradehi Sanctuary to Become 3rd Home for Cheetahs

Context:

Madhya Pradesh Chief Minister announced that Nauradehi Wildlife Sanctuary will become the third home for cheetahs in the state after Kuno National Park and Gandhi Sagar Sanctuary.



About Nauradehi Sanctuary to Become 3rd Home for Cheetahs:

What it is?

- Nauradehi Wildlife Sanctuary is one of India's largest sanctuaries, spread over 1,197 sq. km, and serves as a crucial wildlife corridor in the upper Vindhyan range of Madhya Pradesh.

Located in:

- The sanctuary lies across Sagar, Damoh, and Narsinghpur districts of Madhya Pradesh, situated between the Yamuna and Narmada River basins.
- Major rivers like Bamner, Kopra, and Bearma flow through it.

History and Ecology:

- Declared a sanctuary to conserve central Indian fauna, Nauradehi has mixed deciduous forests, Vindhyan sandstone formations, and diverse soil types (red, black, and alluvial).
- It supports over 250 animal species, including tiger, leopard, sloth bear, wild dog, chinkara, sambhar, and blackbuck, along with 170+ bird species such as storks, vultures, and pheasants.

Features:

- Altitude: 400–600 metres above sea level.
- Rainfall: Around 1,200 mm annually.
- Rich in grasses, herbs, shrubs, and bamboo, making it ideal for herbivores and potential cheetah prey base.

Cheetah Conservation in India:

- The Asiatic cheetah became extinct in India in 1952 due to hunting and habitat loss.
- The Government of India launched Project Cheetah, reintroducing African cheetahs from Namibia at Kuno National Park (2022) and later at Gandhi Sagar Sanctuary (2024).
- Nauradehi will now serve as the third site, ensuring species expansion, genetic diversification, and ecosystem restoration in central India.

Environmental surveillance

Context:

ICMR announced a plan to start wastewater surveillance for 10 viruses across 50 Indian cities, expanding India's disease monitoring system.

About Environmental surveillance:

What It Is?

- Environmental surveillance is the monitoring of pathogens (viruses, bacteria, parasites) in environmental samples like sewage, wastewater, soil, and air.
- It supplements traditional clinical case detection by identifying hidden and asymptomatic infections in communities.

How It Works?

- Sample Collection: Samples are drawn from sewage plants, hospitals, airports, and public spaces, ensuring wide coverage of community health indicators.
- Pathogen Detection: Tests identify viruses, bacteria, and parasites shed in stools, urine, or respiratory secretions, revealing hidden infections.
- Genome Sequencing: Whole-genome sequencing helps track mutations and emerging variants, crucial for pandemic preparedness.
- Comparison Over Time: Daily pathogen load analysis provides trends of spread, offering advance notice of rising infections in populations.

Features:

- Non-invasive: Monitors entire communities without testing individuals, ensuring privacy and broad inclusivity.
- Cost-effective: Single wastewater tests reflect thousands of people's health status, making it low-cost and scalable.
- Time-sensitive: Detects infection surges 7–10 days before clinical cases rise, enabling early interventions.
- Scalable: Applicable to multiple diseases — from cholera and polio to COVID-19, enhancing surveillance reach.
- Tech-enabled: AI/ML tools analyse patterns, and smart sensors/cough-audio monitoring extend surveillance beyond wastewater.

Significance:

- Early Warning System: Allows governments to prepare healthcare response in advance.
- Better Public Health Planning: Helps allocate vaccines, medicines, and hospital capacity.

Southeast Asia's First Coral Larvae Cryobank

Context:

The Philippines has launched Southeast Asia's first coral larvae cryobank, a pioneering initiative to freeze and preserve coral "seeds" to protect marine biodiversity and revive damaged reefs.

About Southeast Asia's First Coral Larvae Cryobank:

What it is?

- A scientific facility that freezes and stores coral larvae at ultra-low temperatures to preserve their genetic material for future use in reef restoration or research.

- Functions as a "genetic seed vault" for corals, helping safeguard biodiversity that could be lost due to climate change and coral bleaching.

Nations Involved:

- The project is part of a regional network under the Coral Research & Development Accelerator Platform.
- Participating countries include the Philippines, Taiwan, Indonesia, Malaysia, and Thailand.

How It Works?

- Collection of Coral Larvae: Coral larvae — the free-swimming reproductive stage — are collected during spawning events.
- Cryoprotection: The larvae are exposed to cryoprotective solutions that prevent ice crystal formation during freezing.
- Vitrification Process: Using a rapid freezing technique, larvae are plunged into liquid nitrogen at –196°C, turning them into a glass-like state without crystallisation.
- Revival Process: When needed, laser-based rapid warming thaws the samples within seconds, preventing cell damage.
- Rehydration & Growth: Revived larvae are rehydrated in seawater, monitored for movement and settling, then transferred to controlled tanks for coral regrowth.

Features:

- Preserves Coral Genetic Diversity: Maintains coral genotypes for decades, even if species vanish in the wild.
- Climate-Resilient Restoration: Enables reef revival using cryopreserved material, supporting adaptive restoration in warming oceans.
- Research Resource: Provides a long-term data bank for studying coral evolution, reproduction, and stress resistance.
- Collaborative Network: Integrates regional expertise to create a Coral Triangle Cryobank Network, ensuring shared protocols and data.
- Model Species Approach: Begins with hardy corals like Pocillopora, Acropora, and Galaxsia before expanding to endangered ones.

Limitations:

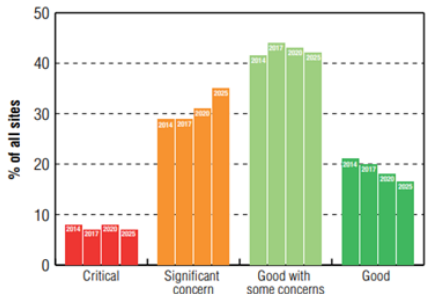
- Technical Complexity: Coral larvae are large, lipid-rich, and heat-sensitive, making vitrification challenging.
- Species-Specific Protocols: Each coral species requires different freezing and revival parameters.
- Low Survival Rates: Not all thawed larvae survive or successfully recolonise reefs.
- Infrastructure and Cost: Requires specialised labs, liquid nitrogen systems, and expert training, limiting scalability in developing nations.

IUCN World Heritage Outlook 2025

Context:

The IUCN World Heritage Outlook 4 is launched at the IUCN World Conservation Congress in Abu Dhabi in October 2025, assessing the conservation status of all natural and mixed UNESCO World Heritage Sites.

Figure 2. Conservation outlook of sites in 2014, 2017, 2020 and 2025, for the 228 sites for which four datasets are now available.



About IUCN World Heritage Outlook 4:

What it is?

- The IUCN World Heritage Outlook is a global assessment system that evaluates the state of conservation of all UNESCO natural and mixed World Heritage Sites every 3–5 years.
- Published By: Released by the International Union for Conservation of Nature (IUCN) through its World Heritage Programme and the World Commission on Protected Areas (WCPA).

Launched In:

- The 4th Edition (Outlook 4) will be launched at the IUCN World Conservation Congress 2025 (Abu Dhabi).
- Previous editions were published in 2014, 2017, and 2020.

Aim:

- Track Conservation Health: Monitor how effectively natural World Heritage sites are managed and conserved.
- Recognize Best Practices: Showcase exemplary management and promote knowledge sharing between sites.
- Identify Threats: Provide early warning signals for sites facing degradation, climate threats, or governance gaps.

Key Summary of the IUCN World Heritage Outlook 4:

1. Global Trend: Nearly two-thirds (≈65%) of World Heritage sites show a stable or improving conservation outlook since 2020, reflecting enhanced site governance and restoration efforts.
    - Eg: Improved status of Galápagos Islands and Yellowstone National Park through ecosystem-based management.
1. Climate Threats: Over 80% of natural sites face direct climate risks like coral bleaching, glacier melt, and wildfires, posing severe ecological and cultural challenges.
    - Eg: Great Barrier Reef (Australia) continues to experience bleaching events despite management upgrades.
1. Biodiversity Pressure: Around 60% of sites are under stress from invasive species, habitat loss, and overexploitation, particularly in tropical ecosystems.
    - Eg: Invasive plants in Hawaiian Volcanoes National Park threaten endemic flora and fauna.
1. Positive Cases: Marine parks like Komodo (Indonesia) and Aldabra Atoll (Seychelles) show notable improvement due to strict regulation, sustainable tourism, and science-based monitoring.
2. Technological Innovation: Increasing reliance on AI-based monitoring, satellite mapping, and eDNA sampling improved conservation forecasting accuracy.
    - Eg: UNESCO–IUCN's AI pilot in the Okavango Delta enhances wildlife migration tracking.
3. Socio-Economic Linkages: The report underscores that well-managed heritage sites contribute to livelihoods, disaster mitigation, and global carbon sequestration.
    - Eg: Natural sites globally store ≈10% of terrestrial carbon, reinforcing climate regulation functions.
1. Warning Signal: Around 15 sites were added to the "World Heritage in Danger" list, reflecting a rise in conflict-linked habitat loss and pollution in fragile ecosystems.

Trends in India:

1. Total Sites: India has 7 natural and mixed World Heritage sites, covering ecosystems from Himalayan peaks to coastal wetlands, representing over 1.5% of global natural heritage area.
2. Improved Sites: Kaziranga and Manas show enhanced ecological health through anti-poaching patrols, habitat restoration, and eco-tourism regulation, backed by local community involvement.
3. At-Risk Sites: Sundarbans exhibit declining mangrove health due to salinity, cyclones, and sea-level rise, while Western Ghats face mining, construction, and land-use conflicts.
4. Emerging Concern: Nanda Devi and Great Himalayan National Park face glacial retreat and invasive species, with potential long-term hydrological impacts on the Ganga basin.
5. Policy Integration: The Wildlife (Protection) Amendment Act, 2022 and the LiFE (Lifestyle for Environment) Mission are recognized as strong national commitments aligning with KM-GBF 2030 goals.
6. Funding and Data Gaps: The report notes that India's protected areas require 30–40% more recurring funds for effective monitoring, particularly in marine and transboundary zones.

Challenges:

1. Climate Change Impact: Rising global temperatures are accelerating coral bleaching, glacier melt, and desertification, directly threatening ecosystem stability and species survival.
2. Unsustainable Development: Expansion of mining, tourism infrastructure, and hydropower projects near protected sites is fragmenting habitats and disrupting ecological connectivity.
3. Funding Deficits: Nearly 40% of heritage sites lack adequate financial and human resources, hampering restoration, anti-poaching, and monitoring initiatives.

4. Weak Governance: Overlapping institutional mandates, poor coordination, and weak law enforcement lead to ineffective management of protected areas.
5. Biodiversity Data Gaps: Incomplete or outdated ecological data limits real-time monitoring and adaptive policy response, affecting site evaluation accuracy.

Recommendations:

1. Climate-Resilient Planning: Embed heritage site protection in national climate adaptation strategies, promoting ecosystem-based mitigation.
    - Eg: India's LiFE Mission and National Adaptation Fund can integrate heritage resilience targets.
1. Green Financing: Develop public–private green funds, carbon credits, and eco-investment instruments to sustain site management.
    - Eg: The UNDP–GEF Biofin Initiative mobilizes biodiversity finance in developing countries.
1. Community Partnerships: Involve Indigenous and local communities as active custodians in decision-making, monitoring, and benefit-sharing.
    - Eg: Eco-Development Committees in Manas and Periyar improved livelihood-linked conservation.
1. Technology Integration: Leverage AI, satellite imaging, eDNA analysis, and drones for accurate mapping, patrolling, and real-time threat detection.
    - Eg: IUCN's Global Ecosystem Atlas uses remote sensing for cross-site tracking.
1. Global Collaboration: Foster joint research, transboundary conservation corridors, and heritage diplomacy under UNESCO–IUCN partnerships.
    - Eg: The India–Nepal Terai Arc Landscape exemplifies regional biodiversity cooperation.

Conclusion:

The IUCN World Heritage Outlook 4 reaffirms the urgent need for collective global action to safeguard natural heritage amid intensifying climate and developmental pressures. India's active participation in heritage monitoring highlights its commitment to biodiversity-led development. Strengthening science, finance, and community linkages will be pivotal in shaping a sustainable, heritage-secure planet.

Graded Response Action Plan (GRAP)

Context:

The Commission for Air Quality Management (CAQM) invoked Stage II of the Graded Response Action Plan (GRAP) across Delhi-NCR as the city's Air Quality Index (AQI) crossed 300 ("very poor").

About Graded Response Action Plan (GRAP):

What it is?

- The Graded Response Action Plan (GRAP) is a statutory framework that specifies stage-wise measures to be implemented to combat deteriorating air quality in the National Capital Region. It provides predefined actions based on the severity of pollution.
- Established in: GRAP was first introduced in 2017 under the directives of the Supreme Court of India and the Environment (Protection) Act, 1986.
- Later revised by the CAQM in December 2024 to include predictive action based on IMD and IITM forecasts.

Aim:

- The plan aims to create a graded and preemptive response system for air quality management by identifying specific interventions to be taken as the AQI worsens in Delhi-NCR.

Criteria / Stages: GRAP classifies air quality into four categories based on AQI levels and corresponding actions:

Stage	Category	AQI Range	Actions
Stage I	Poor	201–300	Dust control, waste removal, enforcement of vehicle norms
Stage II	Very Poor	301–400	Mechanical sweeping, C&D monitoring, DG set regulations
Stage III	Severe	401–450	Restrictions on BS-III/IV vehicles, construction limits
Stage IV	Severe+	Above 450	Ban on truck entry, WFH orders, halting C&D projects

Key Features of GRAP:

- Dynamic implementation: Actions are activated dynamically based on real-time AQI data and IMD/IITM forecasts, allowing authorities to respond before pollution peaks.
- Cumulative approach: Each higher stage includes all measures from lower stages, ensuring progressive tightening of restrictions as air quality worsens.
- Inter-agency coordination: Implementation involves coordinated efforts among CAQM, CPCB, SPCBs, Urban Local Bodies (ULBs), and Traffic Police, ensuring accountability at every level.
- Predictive enforcement: Measures are invoked in advance when forecasts show a likely rise in AQI, promoting preventive rather than reactive air quality management.

Green Crackers

Context:

As Diwali approaches, discussions around the environmental impact of fireworks have resurfaced, with experts highlighting that green crackers—though less polluting—are not entirely clean.

About Green Crackers:

What it is?

- Green crackers are eco-modified firecrackers developed by CSIR–NEERI to reduce emissions of particulate matter, toxic gases, and noise levels compared to conventional fireworks. They aim to provide a safer alternative that maintains festivity while minimizing pollution.
- Chemical Components: They are formulated without barium nitrate, a major toxic component, and instead use safer substitutes like potassium nitrate, strontium salts, zeolite, and iron oxide. These additives help capture soot and reduce metallic residues such as aluminium and copper in emissions.

How it works?

- The redesigned chemical composition enables controlled oxidation and reduced combustion temperature, producing light and sound with 30–40% lower $PM_{2.5}$, SO_2, and NO emissions.
- Compounds like zeolite act as absorbents for dust and gaseous by-products, limiting pollutant release.

Features:

- Developed under the CSIR–NEERI certification system with a QR code for authenticity.
- Include variants such as SWAS (Safe Water Releaser), STAR (Safe Thermite Cracker), and SAFAL (Safe Minimal Aluminium).
- Reduce harmful metal oxides and heavy metal toxicity.
- Comply with Supreme Court-mandated emission limits and Pollution Control Board norms.
- Designed to maintain traditional colours and brightness with safer chemistry.

Significance:

- Green crackers represent a transitional innovation toward sustainable celebrations, reducing air, soil, and noise pollution during festivals.
- They align with India's net-zero and clean air goals, making the country the only nation with a formal government-backed programme

Central Asian Mammals Initiative (CAMI)

Context:

Central Asian nations, including India, have endorsed a six-year transboundary conservation plan under the Central Asian Mammals Initiative (CAMI) to protect 17 migratory mammal species.

About Central Asian Mammals Initiative (CAMI):

What it is?

- The Central Asian Mammals Initiative (CAMI) is a collaborative conservation framework under the Convention on the Conservation of Migratory Species of Wild Animals (CMS), aimed at protecting migratory and nomadic mammals across Central Asia's vast steppe, desert, and mountain ecosystems.
- Established in: Launched in 2014 during COP11 of CMS held in Quito, Ecuador, and later revised at COP13 (Gandhinagar, India, 2020).

Aim:

To preserve migratory connectivity, combat threats such as habitat fragmentation, poaching, and climate change, and enhance cross-border cooperation among Central Asian nations for shared species conservation.

Key Features:

- Covers 17 flagship species, including Saiga antelope, Snow leopard, Wild camel, Urial, Argali sheep, Bukhara deer, and Persian leopard.
- Encourages regional coordination through national action plans, data sharing, and removal of physical migration barriers.
- Promotes ecosystem-level management rather than isolated species protection.
- Engages governments, NGOs, IUCN, and local communities in a multi-stakeholder approach.

Significance:

- Preserves the "Serengeti of the North", one of the world's largest remaining landscapes for long-distance ungulate migrations.
- Enhances transboundary ecological connectivity vital for species adapting to climate change.

Sanjay Gandhi National Park (SGNP)

Context:

The Bombay High Court has constituted a high-powered committee led by former Allahabad HC Chief Justice to protect and preserve the Sanjay Gandhi National Park (SGNP) from encroachments.

About Sanjay Gandhi National Park (SGNP):

What it is?

- SGNP is a protected forest and national park spread over 104 sq. km within Mumbai and Thane, Maharashtra — one of the world's few national parks located inside a metropolitan city. It serves as a vital ecological buffer for the Mumbai Metropolitan Region.
- Location: Situated in the northern suburbs of Mumbai, the park spans areas such as Borivali, Malad, Kandivali, Bhandup, and Mulund, extending up to Thane city.

Key Features:

- Established in 1996 (renamed after Sanjay Gandhi).
- Houses the ancient Kanheri Caves (1st century BCE) — a significant Buddhist heritage site carved into basalt rock.
- Acts as Mumbai's "green lung", absorbing carbon emissions and replenishing groundwater.
- Serves as a crucial urban biodiversity hotspot sustaining microclimatic balance.

Flora:

- Over 1,000 plant species, including Teak, Bamboo, Karvi (Strobilanthes callosus), and diverse grassland vegetation.
- Periodic mass flowering of Karvi every eight years attracts botanists and tourists.

Fauna:

- Home to 40 mammal species, including leopards, bonnet macaques, deer, and wild boars.
- Over 250 bird species, including hornbills, drongos, peacocks, and migratory flycatchers.

CRYODIL

Context:

Scientists at the ICAR–National Institute of Animal Nutrition and Physiology (NIANP), Bengaluru, have developed CRYODIL, India's first egg yolk-free semen preservation solution for buffalo breeding, capable of extending semen shelf life to 18 months.

About CRYODIL:

What it is?

- CRYODIL is a ready-to-use, egg yolk-free semen extender designed to preserve buffalo semen for long durations while maintaining fertility and motility.

Developed by:

- Developed by scientists at the National Institute of Animal Nutrition and Physiology (NIANP) under the Indian Council of Agricultural Research (ICAR), Bengaluru.

Aim:

- To provide a safe, efficient, and affordable alternative to traditional egg-yolk-based semen extenders and enhance buffalo breeding efficiency in India.

Features:

- Long Shelf Life: Preserves semen for up to 18 months without contamination or loss of motility.
- Microbe-Free Solution: Eliminates risk of microbial contamination associated with egg yolks.
- Stable Composition: Uses purified whey proteins instead of egg yolk, ensuring consistent semen quality.
- Cost-Effective: Cheaper and easier to produce compared to imported commercial extenders.
- Field-Tested Innovation: Successfully tested on 24 buffalo bulls, showing higher post-thaw sperm movement and fertility potential.

Significance:

- Boosts Buffalo Breeding: Enhances success rate of artificial insemination, crucial for India's dairy productivity.
- Promotes Atmanirbhar Bharat: Reduces dependence on costly foreign extenders, fostering indigenous innovation.
- Improves Dairy Economics: Increases milk yield potential by improving breeding efficiency.

AmazonFACE Experiment

Context:

Scientists in Brazil have launched the AmazonFACE "climate time machine" experiment near Manaus to study how the Amazon rainforest will respond to future levels of atmospheric carbon dioxide.

About AmazonFACE Experiment:

What It Is?

- AmazonFACE (Free-Air CO_2 Enrichment) is a large-scale climate simulation project designed to assess how tropical rainforests—especially the Amazon—will react to elevated CO_2 levels expected by 2050–2060. It is the first experiment of its kind in tropical forests.

How It Works?

- Six steels tower rings are installed around groups of 50–70 mature trees.
- In three rings, trees are fumigated with CO_2 concentrations matching future climate forecasts, while the remaining serve as control plots.
- Continuous sensors record data on photosynthesis, oxygen release, and water vapor exchange every 10 minutes.
- The goal is to recreate the "atmosphere of the future" and observe ecosystem-level responses.

Key Features:

- Location: Conducted near Manaus, Brazil, supported by INPA (National Institute for Amazon Research) and Universidade Estadual de Campinas, with collaboration from the UK government.
- Scientific Innovation: First large-scale FACE experiment in a natural tropical forest, extending earlier FACE trials in temperate regions like the U.S.
- Continuous Monitoring: Real-time environmental data tracking rain, storms, CO_2 absorption, and respiration.
- Climate Modelling Application: Helps predict changes in forest carbon storage, biodiversity, and resilience under future atmospheric conditions.
- Policy Linkage: Provides crucial input for climate policy deliberations at COP30, especially regarding rainforest conservation and carbon budgeting.

Significance:

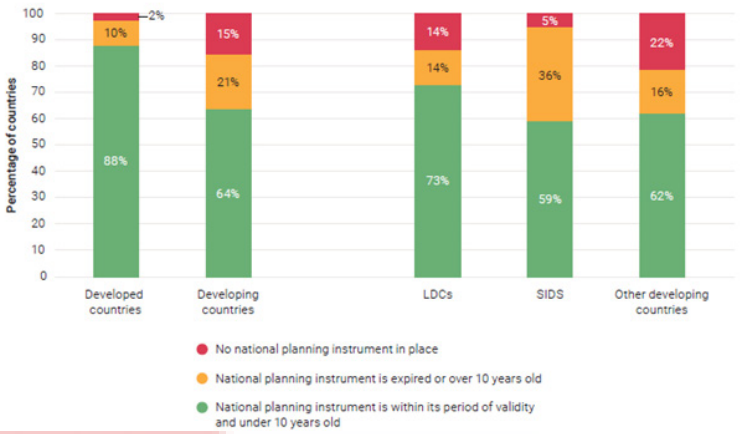
- Climate Adaptation Insight: Helps predict how the Amazon rainforest will respond to rising CO_2 levels, guiding global climate adaptation strategies.
- Scientific Breakthrough: Marks the world's first large-scale CO_2 enrichment experiment in a tropical rainforest ecosystem, expanding the scope of climate modeling.
- Policy Relevance: Provides critical data for COP30 negotiations and strengthens Brazil's leadership in global climate science and carbon sequestration research.

UNEP Adaptation Gap Report 2025

Context:

The UN Environment Programme (UNEP) released the Adaptation Gap Report 2025: "Running on Empty", warning that the global finance gap for climate adaptation in developing countries has widened drastically.

Figure 2.2 Status of national adaptation planning instruments across different country classifications commonly used under the UNFCCC



About UNEP Adaptation Gap Report 2025:

What It Is?

- An annual flagship publication of the United Nations Environment Programme (UNEP) that tracks global progress on climate adaptation planning, implementation, and finance, assessing how far the world is from achieving climate resilience goals.
- Published By: UNEP–Copenhagen Climate Centre with contributions from multiple global institutions and experts.
- Aim: To evaluate whether nations—especially developing ones—are adapting fast enough to climate impacts, and to quantify the adaptation finance gap to support global negotiations under the UNFCCC and COP30

Key Trends and Summary:

- Massive Finance Gap: Developing countries require US$310–365 billion annually by 2035, while current adaptation finance stands at only US$26 billion (2023) — 12–14 times lower than the need.
- Falling Commitments: Adaptation finance declined from US$28 billion (2022), meaning the Glasgow Climate Pact target of doubling finance by 2025 will be missed.
- Rising Debt Concerns: 58% of adaptation finance is loan-based, including non-concessional debt, deepening inequality for vulnerable countries.
- Uneven Planning Progress: 172 countries have at least one national adaptation plan (NAP), but 36 are outdated, limiting real impact.
- Implementation Gaps: Over 1,600 adaptation actions were reported globally, mostly in biodiversity, agriculture, water, and infrastructure, yet few measure tangible outcomes.
- Private Sector Underperformance: The private sector contributes only ~US$5 billion, but could potentially invest up to US$50 billion annually with policy support.
- Baku–Belém Roadmap (2024): Envisions US$1.3 trillion per year by 2035 in total climate finance; calls for grants and non-debt instruments to prevent debt traps.
- COP30 Context: The report stresses a "global collective effort (mutirão global)" led by Brazil's presidency to align climate finance, transparency, and adaptation goals.

India and the Adaptation Gap Report:

- India's Significance: As a major developing nation, India's NAPCC and State Action Plans align with UNEP's call for mainstreamed adaptation in agriculture, water, and infrastructure.
- Regional Vulnerability: Frequent heatwaves, floods, and glacial melts highlight the urgency for adaptive investments.
- Leadership Role: India's initiatives under the International Solar Alliance, LiFE Mission, and G20 Presidency (2023) demonstrate global leadership in climate adaptation diplomacy.
- Finance Dependence: India also faces adaptation investment constraints, needing stronger global partnerships and concessional funding.

Success So Far:

- Widespread Policy Adoption: 172 countries now have at least one national adaptation framework, marking near-universal policy recognition of climate resilience as a development imperative.

- Enhanced Multilateral Funding: Climate funds under the UNFCCC — including GCF, GEF, and the Adaptation Fund — collectively disbursed US$920 million in 2024, reflecting an 86% rise over the previous five-year average.
- Mainstreaming Progress: Adaptation is increasingly integrated into national development and fiscal plans, especially across Small Island Developing States (SIDS) and Least Developed Countries (LDCs), aligning adaptation with poverty reduction and sustainability goals.

Limitations:

- Severe Finance Shortfall: The available adaptation finance—around US$26 billion annually—covers only one-twelfth of the actual requirement, creating a massive financial stress for developing nations.
- Debt-heavy Mechanisms: Over half of adaptation finance is in the form of loans, raising the danger of "adaptation debt traps" for already vulnerable economies.
- Low Private Sector Role: The private sector's adaptation investment remains negligible, owing to high-risk perception and lack of blended-finance mechanisms to de-risk participation.
- Weak Tracking Systems: Many nations lack reliable Monitoring, Evaluation, and Learning (MEL) frameworks, preventing evidence-based tracking of adaptation results.
- Risk of Maladaptation: Poorly designed or isolated adaptation measures risk increasing vulnerability—especially in rural and low-income communities—rather than reducing it.

Recommended Way Ahead:

- Expand Grant-based Support: Shift from debt to grant-based or concessional finance, ensuring equitable access for developing nations through global climate funds.
- Mobilise Private Sector: Encourage blended finance, guarantees, and public-private partnerships to unlock up to US$50 billion annually in adaptation funding.
- Integrate Resilience Metrics: Embed climate resilience indicators within banking, insurance, and credit systems, incentivising risk-sensitive investment decisions.
- Update NAPs Regularly: Ensure national and sectoral adaptation plans are periodically updated to reflect new scientific evidence and climate realities.
- Strengthen Regional Cooperation: Foster South–South partnerships and technology transfers via initiatives like ISA and CDRI to enhance collective adaptation capacity

Conclusion:

The Adaptation Gap Report 2025 is a stark reminder that climate resilience cannot run on empty promises. Bridging the financial and policy divide is not charity but a strategic investment in collective survival. Only through equitable finance, innovation, and global solidarity can adaptation outpace acceleration of climate risk.

Saranda Wildlife Sanctuary

Context:

The Supreme Court of India has reserved its verdict on the Jharkhand government's plea to reduce the proposed Saranda Wildlife Sanctuary area from 310 sq km to 250 sq km, citing the need to protect tribal habitation and community rights.

About Saranda Wildlife Sanctuary:

What It Is?

- The Saranda Sanctuary is a proposed wildlife sanctuary in West Singhbhum district of Jharkhand, located within the Saranda Forest Division, known as one of Asia's largest Sal (Shorea robusta) forests and a key biodiversity hotspot at the Jharkhand–Odisha border.

Location:

- Situated in southern Jharkhand, the Saranda region—meaning "land of seven hundred hills"—covers about 856 sq km, of which 816 sq km is reserved forest.

- It lies within the Singhbhum Elephant Reserve, forming a vital ecological corridor between Jharkhand, Odisha, and Chhattisgarh.

History:

- Declared a game reserve in 1968 under the Bihar Forest Act.
- The National Green Tribunal (2022) directed Jharkhand to notify it as a sanctuary under the Wildlife Protection Act, 1972.

Key Features:

- Flora: Dense cover of Sal, Kusum, Mahua, and rare orchids.
- Fauna: Habitat for Asian elephants, four-horned antelope, sloth bears, flying lizards, and migratory birds.
- Communities: Home to Ho, Munda, Oraon, and PVTGs, reliant on forest produce like mahua and resin.
- Mineral Wealth: Contains nearly 26% of India's iron ore reserves, making it a major mining zone for SAIL and private operators.

Significance:

- Ecological Hotspot: Forms a vital carbon sink and biodiversity reserve in eastern India.
- Elephant Corridors: Maintains wildlife connectivity between Saranda, Similipal, and Sundargarh forests.
- Tribal Livelihood & Rights: Balances conservation with protection of tribal forest rights under FRA, 2006.

Chapter-
5

SCIENCE & TECHNOLOGY

DigiLocker

Context:

The Union Public Service Commission (UPSC) announced that it will verify candidates' caste, income, and disability certificates through DigiLocker to prevent forged submissions.

- As part of its centenary celebrations, UPSC also launched the "My UPSC Interview" anecdote portal for serving and retired officers.

About DigiLocker:

What it is?

- A flagship initiative under Digital India providing citizens with a secure cloud-based platform to access and share authentic digital documents.
- Ministry: Developed by the Ministry of Electronics and Information Technology (MeitY).
- Aim: To achieve digital empowerment, paperless governance, and faster service delivery by ensuring access to legally valid digital documents.

Key Features:

1. Digital Document Wallet: Stores Aadhaar, PAN, driving license, educational and caste certificates securely in digital form.
2. Legally Recognised: Documents are considered equivalent to originals under Rule 9A of IT Rules, 2016.
3. Citizen-Centric: Provides access to documents anytime, anywhere with user consent for sharing.
4. Efficiency: Enables real-time verification directly from issuing authorities, cutting delays and reducing fraud.
5. Paperless Governance: Lowers administrative overheads and promotes sustainable, eco-friendly record-keeping.

About My UPSC Interview Portal:

What it is?

- A new initiative launched during UPSC's centenary year inviting serving and retired civil servants to share their interview experiences.
- Aim: To build a repository of real-life anecdotes for aspirants, enhance transparency in recruitment, and preserve institutional memory. Selected entries will be published in 2026 as part of the centenary celebrations.

Cost of Convenience: Health Hazards of Digital Tools

Context:

India generated 2.2 million tonnes of e-waste in 2025, becoming the third-largest generator globally after China and the US. Despite formal recycling capacity, more than half of the waste is still processed informally.

About Cost of Convenience: Health Hazards of Digital Tools

India and E-waste Burden:

- India's e-waste surged 150% since 2017–18, from 0.71 MT to 2.2 MT in 2025.

- 65 cities produce 60% of total e-waste, with hotspots like Seelampur (Delhi), Moradabad (UP), Bhiwandi (Maharashtra).
- Though 322 formal units can process 2.2 MT annually, >50% remains in informal chains of kabadiwalas and scrap dealers.

Health Hazards of E-Waste

Respiratory Illnesses:

- Open-air burning and acid treatment release fine particulate matter.
  - Eg: 2025 MDPI study found 76–80% of Indian informal e-waste workers suffered chronic bronchitis and asthma.

Neurological Damage:

- Heavy metals like lead and mercury impair brain development in children.
- Eg: A 2023 review in Frontiers in Public Health linked blood lead levels ≥5 μg/dL with cognitive decline and behavioral disorders.

Skin and Ocular Disorders:

- Direct contact causes rashes, burns, dermatitis, and eye irritation.
- Eg: A 2024 review reported skin issues in up to 100% of informal recyclers in certain clusters.

Genetic and Systemic Impacts:

- DNA damage, oxidative stress, and endocrine disruption are increasingly documented.
  - Eg: WHO notes 18 million children worldwide live or work in e-waste zones, many in India.
- Syndemic Impact:
- Hazards intersect with poverty, malnutrition, and poor housing, worsening outcomes for urban poor.
- Eg: Informal recycling hubs report higher miscarriages and preterm births (Guiyu, China as global parallel).

Policy Response:

- Strengthened EPR norms – The 2022 Rules tightened Extended Producer Responsibility, making producers accountable for collection and recycling.
- Mandatory registration – Dismantlers and recyclers must be registered to curb illegal, unsafe practices and improve accountability.
- Incentives for formalisation – Policies encourage transition from informal to formal units by offering compliance-linked incentives.
- Persistent gaps – Only 43% of e-waste was formally processed (2023–24); disputes over capped EPR credits hinder effective enforcement.

Way Ahead:

- Formalise informal sector – Train kabadiwalas, provide PPE, healthcare and social security so that livelihoods are protected while ensuring safe recycling practices.
- Strengthen enforcement – Introduce digital tracking, periodic audits and empower Pollution Control Boards to crack down on unsafe, unregistered recycling units.
- Medical surveillance – Organise regular health camps, baseline studies and long-term monitoring in e-waste hotspots to safeguard vulnerable workers and children.
- Promote innovation – Support R&D for affordable, local recycling technologies and create decentralised hubs to reduce transport costs and increase efficiency.
- Awareness building – Integrate e-waste education in school curricula and launch public campaigns to promote responsible disposal among citizens.

Conclusion

India's digital leap cannot be allowed to create a toxic legacy of disease and degradation. Systemic reforms must combine science, justice, and innovation to safeguard people and ecosystems. Only then can digital empowerment truly align with sustainable and inclusive growth.

AI in Robotics — Transforming India's Healthcare, Agriculture, and Industry

Context:

AI-powered robotics is revolutionizing key sectors like healthcare, agriculture, and manufacturing in India, driving precision, productivity, and sustainable growth under initiatives aligned with 'AI for All' and Digital India.

About AI in Robotics — Transforming India's Healthcare, Agriculture, and Industry:

What AI in Robotics Means?

- Combines artificial intelligence with mechanical automation to enable robots to learn, adapt, and make autonomous decisions instead of following pre-programmed instructions.
- Promotes human–machine collaboration, enhancing creativity, safety, and efficiency across industries.

Key Applications Across Sectors

Healthcare:

- Robotic Surgery for Precision Care: AI-powered robots assist surgeons in performing minimally invasive procedures with micrometric accuracy, reducing human error and post-surgery recovery time.
- AI in Diagnostics: Machine-learning algorithms analyze medical imaging, blood samples, and genomic data, enabling early disease detection and personalized treatment plans.
- Rehabilitation and Assistive Robotics: Intelligent exoskeletons and robotic limbs support patient rehabilitation after injuries or paralysis, improving mobility and recovery outcomes.
- Elderly and Home Care Automation: Service robots equipped with speech recognition and emotion detection assist the elderly in daily tasks, medication reminders, and remote health monitoring.

Agriculture:

- Precision Farming and Soil Analytics: AI-driven drones and agribots conduct soil analysis, crop mapping, and yield prediction, helping farmers optimize resources and reduce wastage.
- Automated Irrigation and Weather Prediction: Smart irrigation systems use real-time AI-based climate and moisture data to regulate water use, improving sustainability in dry regions.
- Disease Detection and Pest Control: Computer vision algorithms identify crop diseases or pest infestations early, enabling timely intervention and reduced chemical dependency.
- Case Study – Saagu Baagu Initiative: Over 7,000 farmers in Telangana adopted AI agritech tools for soil and disease monitoring, resulting in up to 2x yield improvement and higher income.

Industry and Logistics:

- Smart Manufacturing and Predictive Maintenance: AI-integrated robots monitor machine performance and predict failures, reducing downtime and improving production efficiency.
- Collaborative Robots (Cobots): Cobots work alongside human workers, dynamically adjusting speed and precision to ensure safety and efficiency in manufacturing plants.
- Automated Warehousing and Supply Chains: Self-navigating robots streamline inventory management, packaging, and order fulfillment, boosting speed and accuracy in logistics.
- Indian Robotics Startups and Innovation: Startups like GreyOrange, Addverb, and Ati Motors are deploying AI-based warehouse and mobility robots, making India a hub for industrial automation.

Emerging AI Trends in Robotics:

- Conversational GenAI & Voice Interfaces: Enable intuitive communication between humans and robots.
- Domain-specific LLMs: Tailor AI for healthcare, aviation, and defense applications.
- AI Agents & Decision Support Systems: Allow robots to handle complex, real-time operations.
- Composite AI Models: Blend multiple AI techniques for better adaptability and learning.
- Sovereign AI & BharatGPT: Focus on data privacy and indigenous innovation using India-specific datasets.
- Affordable AI Platforms: Democratize automation access for MSMEs and startups through no-code tools.

Significance for India's Development:

- Boosts Efficiency, Sustainability, and Safety: AI-driven robotics enhances industrial productivity, promotes eco-friendly resource use, and ensures worker safety through automation in high-risk environments.
- Encourages Innovation and Job Transformation: Rather than replacing jobs, AI creates new roles in design, maintenance, and data analytics, enabling India's workforce to move toward higher-value digital employment.
- Supports Atmanirbhar Bharat and Local R&D: Indigenous AI models like BharatGPT and IIT-led robotics initiatives foster technological self-reliance, ensuring data sovereignty and domestic innovation.
- Strengthens India's Global Leadership in AI and Robotics: Rapid growth in robotics startups, policy support, and ethical AI frameworks positions India as a key global hub for intelligent automation and responsible innovation.

Conclusion:

AI-powered robotics marks a transformative leap for India—integrating intelligence, precision, and sustainability across key sectors. By blending human creativity with machine efficiency, it is redefining productivity and inclusivity. With ethical governance and indigenous innovation, India stands poised to lead the next global wave of intelligent automation.

Crew Escape System (CES)

Context:

The Indian Space Research Organisation (ISRO) has highlighted the working of the Crew Escape System (CES) — a critical safety mechanism of the Gaganyaan Mission.

About Crew Escape System (CES):

What it is?

- The Crew Escape System is a rapid-acting safety mechanism developed to eject the crew module carrying astronauts away from a malfunctioning launch vehicle during an emergency.
- Developed by: It has been designed and developed by ISRO as part of the Gaganyaan human spaceflight programme.
- Aim: Its objective is to ensure astronaut survival during critical launch phases by separating the crew module to a safe distance within seconds, even before a catastrophic failure.

How it works?

- Positioned at the forward end of the LVM3 rocket, CES uses multiple high-burn solid motors that generate greater acceleration than the rocket.
- In case of a detected anomaly, the Integrated Vehicle Health Management (IVHM) system triggers the CES.
- The crew module is then pulled away rapidly, followed by multi-stage parachute deployment to ensure a controlled sea splashdown.

Types:

- Puller Type (used by ISRO): CES pulls the crew module away using solid motors — adopted in Gaganyaan, Soyuz, and Saturn V missions.
- Pusher Type: Uses liquid-fuel engines to push the module away — employed in SpaceX Falcon 9.

Significance:

- Ensures crew survival even before lift-off or during early ascent, the riskiest flight phase.
- Demonstrates India's human-rated launch capability and adherence to international astronaut safety norms.

Project Trinetra: AI Predictive Policing

Context:

Project Trinetra, launched by the Akola Police in Maharashtra, has drawn national attention for pioneering the use of artificial intelligence (AI) and data analytics in predictive policing.

About Project Trinetra: AI Predictive Policing

What It Is?

- Project Trinetra (Targeted Risk-based Insights for Next-crime Estimation & Tactical Resource Allocation) is India's first AI-driven predictive policing initiative, designed to anticipate repeat crimes using data analytics and machine learning.
- Launched By: Initiated by the Akola Police, under the leadership of Superintendent of Police Archit Chandak.

Aim:

- To predict and prevent repeat crimes through data-based offender risk assessment.
- To shift policing from reactive to preventive, enhancing efficiency in resource deployment.
- To build ethical, transparent, and citizen-centric law enforcement systems aligned with national governance reforms.

Key Features:

- Repeat Offender Risk Scoring (RORS): Uses machine learning to assign probability scores to repeat offenders based on conviction type, crime trajectory, and spatio-temporal proximity.
- Granular Dashboard: Provides real-time station-wise, section-wise, and region-wise risk visualisation for targeted patrolling.

Ethical Safeguards:

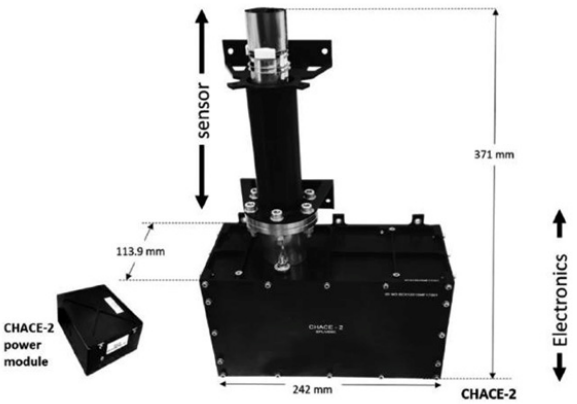
- Focus only on prior offenders — no profiling based on caste, religion, or geography.
- Transparent scoring algorithm, internal audits, and citizen feedback integration (via Project Raksha).
- Human-in-the-loop approach ensures predictions guide action, not replace judgment.

Chandra's Atmospheric Composition Explorer-2 (CHACE-2) Payload

Context:

ISRO announced that the CHACE-2 payload aboard Chandrayaan-2's lunar orbiter has made the first-ever direct observation of the Sun's Coronal Mass Ejection (CME) impact on the Moon.

About Chandra's Atmospheric Composition Explorer-2 (CHACE-2) Payload:



What it is?

- CHACE-2 is a neutral gas mass spectrometer payload onboard the Chandrayaan-2 orbiter, developed by ISRO to study the composition and dynamics of the Moon's extremely thin atmosphere, known as the lunar exosphere.
- Launched in: The payload was launched on July 22, 2019, as part of India's Chandrayaan-2 mission aboard the GSLV Mk-III M1 rocket.

Aim:

- Its primary goal is to analyze the chemical composition, spatial and temporal variations, and density of the lunar exosphere in the mass range of 1–300 amu, along with detecting water vapour and heavier molecules to understand lunar surface–exosphere interactions.

Key Features:

- Successor to CHACE (Chandrayaan-1) and MENCA (Mars Orbiter Mission) instruments.
- Equipped to measure neutral gases and isotopic abundances on the Moon.
- Provides real-time in situ data on exosphere composition and variations.
- Designed to detect noble gases like Argon-40, and study their spatial distribution.
- Helps in modeling lunar surface processes and space weather influences.

Discoveries Made Now:

- Recorded the first-ever evidence of a CME-induced rise in lunar exosphere pressure on May 10, 2024, when solar ejecta struck the Moon.
- Observed a tenfold increase in total number density of neutral atoms, confirming long-predicted theoretical models.
- Provided insights into how solar activity alters lunar atmospheric conditions, crucial for future lunar base planning and space weather prediction.

GSAT-7R Satellite

Context:

The Indian Space Research Organisation (ISRO) is set to launch the CMS-03 (GSAT-7R) communication satellite in November, aboard the Launch Vehicle Mark-3 (LVM-3) from Sriharikota.

About GSAT-7R Satellite:

What it is?

- GSAT-7R, also called CMS-03, is a next-generation military communication satellite developed by ISRO to replace the aging GSAT-7A. It ensures robust, encrypted, and long-range communication links for the Indian Navy, Air Force, and Army.

Developed by: The Indian Space Research Organisation (ISRO).

Aim:

- To provide reliable, real-time communication for naval operations, air defence, and strategic command control across a wide oceanic and terrestrial region. It strengthens India's network-centric warfare and maritime domain awareness.

Key Features:

- Multi-Band Communication: Operates across Ku, Ka, and UHF bands to ensure redundancy and resilience against jamming.
- Wide Coverage: Provides secure communication coverage over the entire Indian Ocean Region, extending to the Eastern coast of Africa and Southeast Asia.
- Heaviest Indian Communication Satellite: Weighing ~4,400 kg, it is the largest ISRO-built satellite launched to Geosynchronous Transfer Orbit (GTO) from Indian soil.
- Advanced Encryption: Features anti-jamming, frequency hopping, and encrypted data links for secure military operations.
- Launch Vehicle: Deployed via LVM-3, India's most powerful operational launch vehicle, previously used in the Chandrayaan-3 mission (2023).

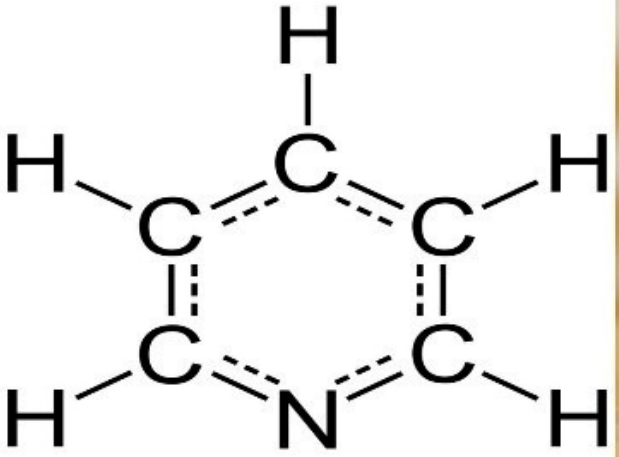
Significance:

- Enhances India's strategic and naval communication network across the Indo-Pacific.
- Supports jointness and interoperability among the three-armed forces under theatre commands.
- Strengthens India's maritime security, crucial amid increasing Indo-Pacific tensions and surveillance needs.
- Reinforces India's self-reliance under Aatmanirbhar Bharat in Space Defence Systems.

Benzene

Context:

Two centuries after its discovery, benzene remains a cornerstone of modern chemistry and industry. Yet, it stands as a double-edged molecule — the foundation of modern materials but also a source of grave environmental and health risks.



About Benzene:

What it is?

- Benzene (C_6H_6) is a colorless, volatile, aromatic hydrocarbon that forms the structural foundation of countless industrial compounds including plastics, dyes, detergents, and pharmaceuticals. Its unique ring structure makes it the cornerstone of aromatic chemistry.

Discovered by:

- It was first isolated in 1825 by Michael Faraday from the oily residue of illuminating gas in London and later structurally explained by August Kekulé (1865), who proposed its cyclic hexagonal ring — a revolutionary concept in organic chemistry.

Characteristics:

- Chemical Stability: Despite being unsaturated (C_6H_6), it exhibits remarkable stability due to delocalized π-electrons — a phenomenon known as aromaticity.
- Physical Properties: Colorless, sweet-smelling, highly flammable liquid; insoluble in water but miscible with organic solvents.
- Industrial Derivatives: Forms the base for styrene, phenol, cyclohexane, nylon, and polystyrene.

Limitations:

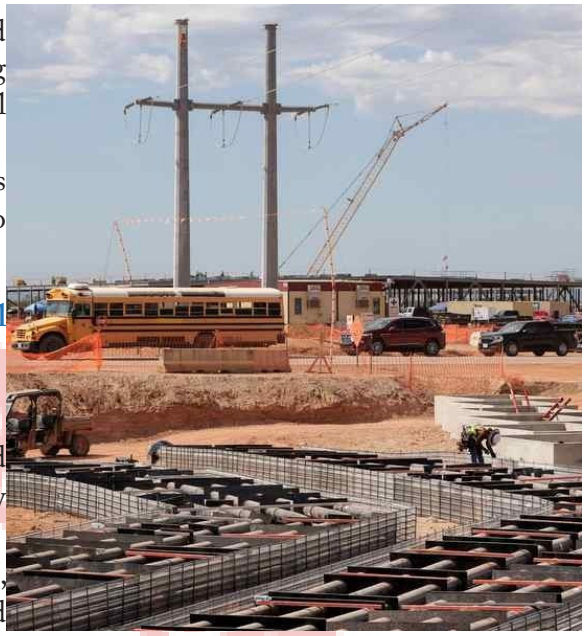
- Toxicity: Benzene is a known carcinogen, causing leukaemia and bone marrow disorders upon prolonged exposure.
- Environmental Persistence: Its volatility and resistance to breakdown contribute to air and groundwater contamination.
- Occupational Hazard: Historically, exposure in refineries and chemical plants led to widespread industrial diseases, prompting global regulation.

Applications:

- Petrochemicals: Key feedstock for BTX compounds (benzene, toluene, xylene) — used in plastics, rubber, and fibers.
- Pharmaceuticals: Base for synthesis of drugs like aspirin, sulfa drugs, and antihistamines.
- Synthetic Materials: Used in making nylon, resins, and polymers — essential for automobiles, textiles, and electronics.
- Dyes and Detergents: Integral to aromatic intermediates for coloring agents and surfactants.
- Modern Electronics: Used in conducting polymers and OLEDs, showcasing its evolving role in nanomaterials and flexible electronics.

Powering the Intelligence Revolution: How Small Modular Reactors Can Fuel India's AI Data Centre Boom

Context:



AI data centres — the digital engines behind Generative AI and cloud services — are driving massive global power demand, forcing countries to explore low-carbon, 24×7 energy sources like Small Modular Reactors (SMRs).

- India, through its Nuclear Energy Mission (2025), has announced plans to deploy indigenously built SMRs to meet rising AI and data infrastructure energy needs.

About Powering the Intelligence Revolution: How Small Modular Reactors Can Fuel India's AI Data Centre Boom

India's Electricity Demand: Data and Trends

- Flat but Rising Curve: India's electricity demand remained steady at ~5% annual growth for two decades, but is now rising with AI, EVs, and green hydrogen.
- Industrial Shift: Energy-intensive sectors like data centres, 5G, and digital manufacturing are adding new base-load demand layers.
- Capacity Challenge: Despite being the third-largest electricity producer, India's grid faces localised shortages and transmission stress.
- Decarbonisation Pressure: India targets 500 GW of renewables by 2030, but intermittency remains a hurdle for 24×7 supply to high-load facilities.

Need for AI Data Centres:

- Digital India Push: Policies like data localisation and Digital India require massive domestic storage and processing infrastructure.
- 5G & IoT Explosion: Rollout of 5G and IoT devices generates exponential data, necessitating high-performance computing hubs.
- AI and Cloud Workloads: Generative AI and LLMs require high-density GPUs, transforming data centres into computational power grids.
- Security & Sovereignty: India's data protection regime demands that sensitive data be processed within national borders.
- Economic Multiplier: The AI data centre ecosystem can generate jobs, attract FDI, and enhance India's role as a global digital hub.

Global and India Scenario:

- Global Growth: Worldwide electricity use by data centres may rise from 460 TWh (2024) to 1,300 TWh by 2035, led by the U.S. and China.
- S. Leadership: The U.S. holds 51% of global capacity, with hubs in Texas, Virginia, and Phoenix, driving 25% grid demand growth.
- India's Expansion: India's current 1.4 GW capacity may reach 7 GW by 2030, with projects by Google, Reliance, AdaniConneX, and Yotta.
- Regional Focus: Key clusters are emerging in Mumbai, Chennai, Bengaluru, Hyderabad, Jamnagar, and Visakhapatnam under the IndiaAI Mission.

Role of Small Modular Reactors (SMRs) in Power Supply:

- Baseload Solution: SMRs provide 24×7 low-carbon baseload power, ideal for continuous AI data centre operations.
- Scalable & Modular: With 1–300 MW range, SMRs can be deployed near consumption hubs, reducing transmission losses.

- Safety by Design: Incorporate passive cooling, smaller cores, and accident-tolerant fuels, enhancing reliability.
- Global Investment: Over billion has been committed globally; India plans to commission five SMRs by 2033.
- Policy Backing: India's 20,000 crore Nuclear Energy Mission aims for 100 GW by 2047, with reforms to attract billion private investment.

Limitations and Concerns of SMRs:

- Regulatory Bottlenecks: Current licensing frameworks are tailored to large reactors, delaying SMR approvals.
- Cost Overruns: Despite modularity, initial capital costs remain high without large-scale deployment.
- Waste Disposal Issues: New fuel types (e.g., HALEU) pose challenges for long-term waste management.
- Transportation Risks: Factory-fabricated units require secure logistics and radiation safeguards.
- Public Acceptance: Despite improved safety, social resistance and nuclear liability concerns persist.

Way Ahead:

- Regulatory Reforms: Develop technology-neutral, streamlined licensing aligned with IAEA's harmonisation frameworks.
- Public-Private Partnerships: Facilitate joint ventures among SMR vendors, AI data centre players, and renewable firms.
- Site Repurposing: Convert retired coal plants and hydrogen hubs into nuclear-ready SMR sites.
- Skilling and Research: Train regulators, re-skill the coal workforce, and promote SMR R&D collaboration with global leaders.
- Integrated Power Strategy: Combine renewables, SMRs, and storage systems to create resilient digital energy ecosystems.

Conclusion:

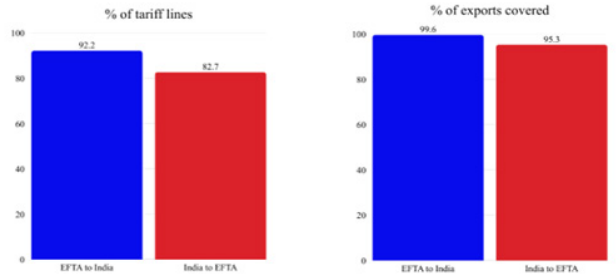
As AI becomes the new industrial engine, energy will be its oxygen. India's leap toward Small Modular Reactors and renewable hybrids offers a pathway to power this intelligence responsibly. The future belongs to nations that can balance computation with clean, continuous, and conscience-driven energy.

India-European Free Trade Association Trade and Economic Partnership Agreement (TEPA)

Context:

India–European Free Trade Association (EFTA) Trade and Economic Partnership Agreement (TEPA) will come into effect on 1st October 2025.

- It is India's first FTA with four developed European nations, promising $100 bn investments and 1 million jobs in 15 years.



EFTA removes duties on 92.2% lines (covering 99.6% of India's exports). India offers 82.7% lines (95.3% of EFTA exports). Gold duty effectively unchanged.

About India-European Free Trade Association Trade and Economic Partnership Agreement (TEPA):

What it is?

- A comprehensive Free Trade Agreement (FTA) between India and the European Free Trade Association (EFTA).
- First Indian FTA linking trade, investment, and job creation commitments.

Signed in:

- Signed on 10th March 2024 at New Delhi.
- To be operational from 1st October 2025.

Nations Involved (EFTA members): Switzerland, Norway, Iceland, Liechtenstein.

- Switzerland is India's largest EFTA trade partner.

Aim:

- Attract $100 bn FDI in 15 years and generate 1 million direct jobs.
- Expand market access for Indian goods and services.
- Promote sustainable development, skills, and technology transfer.

Key Features of TEPA:

1. Investment & Employment:

- $100 bn FDI commitment from EFTA in 15 years.
- Creation of 1 million direct jobs in India's manufacturing & services.

2. Market Access for Goods: EFTA offers zero-duty access on 92.2% tariff lines (99.6% of India's exports).

3. Services & Mobility:

- Commitments in 100+ sub-sectors (IT, education, audio-visual, business services).
- Mutual Recognition Agreements (MRAs) in nursing, architecture, chartered accountancy.
- Facilitates Mode 1 (digital delivery), Mode 3 (commercial presence), Mode 4 (personnel mobility).

4. Intellectual Property Rights:

- TRIPS+ standard with safeguards for generic medicines.
- Prevents patent evergreening while protecting innovation.

5. Sustainable Development:

- Emphasis on green growth, social inclusion, environmental protection.
- Encourages technology collaboration in renewable energy, precision engineering, and health sciences.

External Commercial Borrowings (ECBs)

Context:

The Reserve Bank of India (RBI) will soon release a draft framework to simplify External Commercial Borrowings (ECB) rules, expanding eligibility for borrowers and lenders.

About External Commercial Borrowings (ECBs):

What it is?

- External Commercial Borrowings (ECBs) are commercial loans raised by eligible Indian entities from recognised non-resident entities in foreign currency or INR.
- They are governed under the Foreign Exchange Management Act (FEMA), 1999 and associated RBI regulations.

Organisations Involved:

- RBI – Regulates ECB framework and issues guidelines.
- Borrowers – Indian corporates, PSUs, NBFCs, eligible trusts and institutions.
- Lenders – International banks, multilateral agencies, export credit agencies, foreign equity holders, etc.

Aim of ECBs:

- Provide Indian entities access to foreign capital at competitive rates.
- Diversify funding sources beyond domestic markets.
- Facilitate financing of infrastructure, expansion, and long-term projects.

Key Features of External Commercial Borrowings (ECBs)

Routes:

- Automatic Route – Borrowing is allowed directly if standard conditions are met; approved by authorised banks (AD Category-I).
- Approval Route – If conditions don't fit the automatic route, the proposal goes to RBI for special approval.

Basic Conditions:

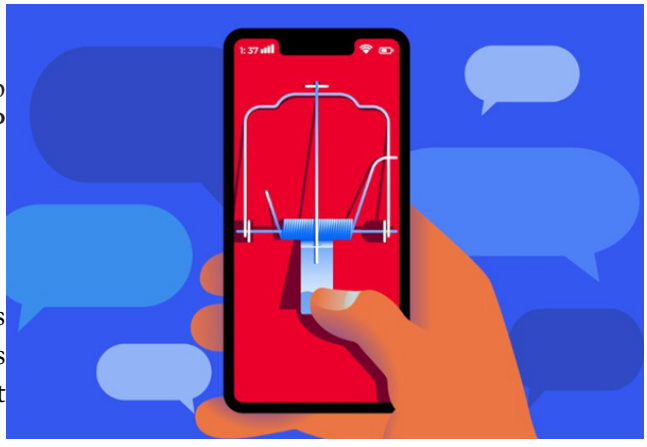
- A minimum maturity period (loans must be for a set number of years).
- A cap on borrowing costs (interest + charges).
- Rules about where the borrowed money can and cannot be used.
- Mandatory reporting to RBI through Loan Registration Number (LRN) and Form ECB.

Permitted Uses:

- To fund capital expenditure, large projects, or infrastructure.
- To refinance existing loans.
- Not allowed for real estate business, share market investment, or speculative activities.

Safeguarding India's Digital Economy

Context:



The Indian digital economy is in the spotlight after a sharp rise in sophisticated cyber frauds such as phishing, UPI/OTP scams, identity theft, and digital arrests.

About Safeguarding India's Digital Economy:

Cybercrime Landscape in India

1. Scale of problem: Over 13.9 lakh cybercrime cases were reported in India in 2023 (NCRB), but experts estimate many go unreported due to stigma or distrust in institutions.

- Eg: In 2025, a 78-year-old banker lost 23 crore through a "digital arrest" scam.

2. Tactics used: Social engineering is at the core—fear, greed, urgency—exploited via phishing, OTP/UPI frauds, loan/job scams, remote access malware, and fake government impersonations.
3. Weakest links:
   - Elderly and rural citizens: digitally illiterate yet financially vulnerable.
   - Banks: often issue generic advisories, fail to detect abnormal transactions, and allow mule accounts with weak KYC.
   - Cyber police: lack manpower, training, and AI-driven tools, reducing their effectiveness.

Constitutional and Institutional Dimensions:

- Right to Privacy (Justice K.S. Puttaswamy vs Union of India, 2017): Citizens' personal and financial data must be protected as a fundamental right under Article 21.
- Article 300A: Protects property; digital financial frauds threaten citizens' legitimate wealth.
- RBI Regulations: Banks are mandated to provide zero liability protection for victims in certain categories of digital fraud.
- CERT-In: Nodal agency under the IT Act for cybersecurity incidents, but lacks proactive capacity for retail-level fraud detection.

Threats to India's Digital Economy:

- Social Engineering Fraud: Exploiting fear, urgency, and trust through phishing, OTP/UPI scams, job/loan frauds, and fake government impersonation.
  - Eg: "Digital arrest" scam siphoned 23 crore from a retired banker in 2025.
- Identity Theft & Data Breach: Misuse of Aadhaar, PAN, or bank details due to data leaks and poor encryption safeguards.
- Mule Accounts & Money Laundering: Weak KYC enables mule accounts, which are used for layering and dispersal of funds, making recovery difficult.
- Institutional Negligence: Banks fail to monitor abnormal high-value transactions; cyber police remain under-equipped in manpower and technology.
- Cross-Border Scams: Fraud networks operate internationally, exploiting jurisdictional loopholes and weak cooperation frameworks.

Initiatives Taken So Far:

Regulatory Safeguards:

- RBI's zero liability policy for certain categories of fraud.
- Digital Personal Data Protection Act, 2023 for secure handling of personal data.

Institutional Mechanisms:

- CERT-In for cybersecurity incident reporting.
- Indian Cyber Crime Coordination Centre (I4C) for inter-agency coordination.
- Awareness Campaigns: RBI's Cyber Jagrookta Abhiyan and RBI Kehta Hai campaigns to spread digital literacy.

Technological Steps:

- Some banks adopting AI-based anomaly detection.
- National Cyber Crime Reporting Portal for grievance redressal.

Recommended Measures:

- Technology & AI Integration: Deploy AI/ML for real-time anomaly detection, personalised transaction profiling, and blockchain for tamper-proof KYC.
- Strengthen Cyber Police: Establish 24/7 cyber rapid response units, expand forensic labs, and train workforce in global best practices.
- Bank Accountability: Strictly enforce KYC compliance, penalise banks failing to freeze mule accounts, and mandate real-time fraud alerts.

- Cross-Institutional Cooperation: Build a National Fraud Intelligence Grid linking banks, telecoms, and enforcement agencies.
- Citizen Empowerment: Launch targeted digital literacy drives for senior citizens, rural communities, and students to counter social engineering.
- Global Coordination: Enhance Interpol, FATF, and bilateral cyber treaties for tracking international fraud networks.

Conclusion:

Safeguarding India's digital economy demands a shift from reactive redressal to proactive prevention through AI-driven monitoring and stronger bank accountability. Empowered cyber police and digitally literate citizens are vital to counter evolving fraud tactics. Only by combining technology, institutions, and trust can India build a truly resilient digital economy.

NHAI: QR Code Sign Boards on Highways

Context:

The National Highways Authority of India (NHAI) has announced plans to install QR code-enabled Project Information Sign Boards across highways.

About NHAI: QR Code Sign Boards on Highways:

What it is?

- Digital information boards with embedded QR codes to give commuters instant access to highway-related details.
- To be installed at toll plazas, rest areas, truck lay-byes, start/end points, and wayside amenities.

Aim:

- To improve transparency in highway construction and maintenance projects.
- To empower commuters with real-time access to safety and facility information.
- To strengthen road safety by linking users with emergency and service providers quickly.

Features:

- QR code access to project details: highway number, chainage, project length, timelines.
- Display of contact information: Highway Patrol, Toll Manager, Project Manager, Resident Engineer, and NHAI field office.
- Prominent mention of Emergency helpline 1033.
- Real-time updates on nearby facilities: hospitals, toilets, petrol pumps, police stations, repair shops, e-charging stations.
- Ensures visibility at strategic locations like toll plazas and rest areas.

Relevance in UPSC Exam Syllabus:

- GS-II (Governance & Transparency): Enhances accountability and citizen-centric governance.
- GS-III (Infrastructure & Road Safety): Links to transport infrastructure, digital governance, and safety innovation.
- Essay/GS-IV (Ethics & Technology in Public Service): Case study on how digital tools improve transparency, efficiency, and public trust.

Stable Coin

Context:

Union Finance Minister stated that nations must "prepare to engage with stablecoins," as innovations in cryptocurrency are reshaping global monetary systems and could force countries to adapt or risk exclusion.

About Stable Coin:

What is a Stablecoin?

- A stablecoin is a type of cryptocurrency that is specifically designed to maintain a stable value relative to a certain underlying asset, such as a basket of currencies or precious metals, but most commonly, a fiat currency like the U.S. Dollar.
- Unlike highly volatile cryptocurrencies (like Bitcoin), stablecoins aim for price stability, making them a more reliable medium of exchange within the blockchain universe and better suited for transactions.

Types of Stablecoins:

Stablecoins generally fall into two main categories:

1. Fully Reserved Stablecoins:

- What it is: These are backed one-to-one by high-quality, liquid assets held in reserve by the issuer.
- How it works: Each coin issued is supported by an equivalent underlying asset, such as fiat currency or short-term government securities. This direct collateralisation helps to stabilize the price, as the holder theoretically has a guaranteed right to redeem the coin for the pegged asset at par value.

2. Algorithmic Stablecoins:

- What it is: These stablecoins are not backed by liquid reserves but are maintained by a set of automated rules.
- How it works: They use smart contracts (computerised algorithms) to respond to supply and demand imbalances.
- If the price trades above its peg, the protocol mints (creates) additional tokens to increase supply and drive the price down.
- If the price trades below its peg, the protocol burns (destroys) tokens to reduce supply and push the price back up.

Key Features:

- Price Stability: They offer the low volatility necessary for commerce, remittances, and serving as a safe harbor for crypto investors.
- Efficiency: They enable fast and cheap transactions, especially for cross-border payments, bypassing traditional, slower, and costlier financial intermediaries.
- Programmability: As digital, on-chain assets, they can be integrated into smart contracts and automated financial systems, accelerating the movement of cash within financial services.
- Digital Fiat: They act as a digital, blockchain-based representation of fiat money, making them highly compatible with the traditional financial system's need for real-time settlement.

Towards a Unified National Employment Framework

Context:

India's employment challenge has re-emerged as a national priority as experts from the Confederation of Indian Industry (CII) called for a unified National Employment Framework to harness the demographic dividend and address the growing job-skill mismatch.

About Towards a Unified National Employment Framework:

Trends in Employment Opportunity:

- Demographic advantage: India will add 133 million workers by 2050, forming nearly 18% of the global workforce.
- Shift to informal and gig sectors: Gig economy jobs could reach 9 crores by 2030, but lack formal protections.
- Urban job distress: Automation and migration pressures have widened rural–urban employment disparities.

- Female participation gap: Female Labour Force Participation Rate remains below 35% (PLFS 2024) despite rising education levels.

Need for a Unified Employment Framework:

- Fragmented approach: Existing skilling, welfare, and job programmes function in silos, weakening coordination and policy outcomes.
- Demographic urgency: With India's workforce set to peak by 2043, delayed reforms may squander the demographic dividend opportunity.
- Economic inclusivity: A unified policy ensures job growth that is regionally balanced, gender-sensitive, and technology-driven.
- Policy coherence: It integrates trade, industrial, and labour policies toward common, measurable employment outcomes.

Initiatives Taken:

- Skill India Mission & PMKVY: Aims to skill 40 crore youth through short-term and industry-linked training programmes.
- National Career Service Portal: Provides a digital bridge between job seekers, employers, and career counsellors.
- Production-Linked Incentive (PLI): Encourages manufacturing-led job creation through performance-based sectoral incentives.
- Labour Codes (2020): Consolidates 29 labour laws to simplify compliance and improve worker protection.
- Gig and Platform Worker Schemes: Expands social security and welfare coverage to informal and gig economy workers.

Challenges Involved:

- Graduate unemployability: Academic curricula remain disconnected from the practical skill needs of modern industries.
- Implementation delays: Labour reforms and skill programmes face uneven execution across states and sectors.
- Regional disparity: Job growth is concentrated in metros, widening economic inequality in backward regions.
- Gender gap: Societal barriers and lack of workplace support systems reduce women's labour participation.
- Weak data systems: Fragmented, outdated employment statistics obstruct evidence-based policymaking.

Way Ahead:

- Integrated National Employment Policy: Combine central and state schemes under one coordinated employment framework.
- Focus on MSMEs and gig workers: Strengthen access to finance, digital tools, and safety nets for these job-rich sectors.
- Skill–industry linkage: Reform higher education and training to align with AI, robotics, and green industry needs.
- Inclusive job creation: Launch targeted programmes like urban employment guarantees and women-centric incentives.
- Real-time data dashboard: Establish a unified labour observatory for timely, transparent workforce insights.

Conclusion:

India stands at a pivotal moment to convert its demographic dividend into a growth engine. A coherent, inclusive, and data-driven employment strategy can bridge inequality and unlock resilience. Making jobs the core of economic policy, not a by-product, is vital for achieving Viksit Bharat by 2047.

Transformation of India's Logistics Sector

Context:

India's logistics sector is undergoing a major transformation driven by initiatives such as the PM Gati Shakti National Master Plan, National Logistics Policy, and Dedicated Freight Corridors, aiming to reduce logistics costs and enhance trade efficiency.

- The survey results highlight cost variation across transport modes (measured as ₹ per tonne per km or PTPK). These costs, for the different modes of transport, are estimated at:

About Transformation of India's Logistics Sector:

Overview of the Indian Logistics Sector:

- India's logistics sector, once fragmented and cost-intensive, is now evolving into a digitally integrated and multimodal network.
- Valued at USD 215 billion in 2021, it connects agriculture, manufacturing, retail, and e-commerce through transportation, warehousing, and supply chain management.
- The government's infrastructure push and digital reforms have made India a rising logistics hub in Asia.
- The sector employs over 22 million people and contributes nearly 14% of GDP, underscoring its central role in economic resilience.

Economic Importance of the Logistics Sector:

- Trade Competitiveness: Efficient logistics can reduce export costs, improving India's position in global value chains.
- GDP Growth Engine: A 1% reduction in logistics costs can potentially boost GDP by 2%.
- Employment Generation: Creates large-scale jobs in transport, warehousing, and IT-enabled supply chain services.
- Regional Development: Enhances rural–urban connectivity, stimulating industrial growth in Tier-II and Tier-III cities.
- Revenue Growth: Improved logistics efficiency increases tax revenues through higher trade and manufacturing activity.

Initiatives Taken So Far:

1. National Logistics Policy (2022): Targets logistics cost reduction from 14–16% to single digits through digital and infrastructure reforms.
2. PM Gati Shakti Master Plan (2021): Integrates 57 ministries and 36 states on a 1,700-layer GIS platform for unified infrastructure planning.
3. Dedicated Freight Corridors: Eastern and Western corridors now 96% operational, decongesting rail routes and cutting transit time.
4. Multimodal Logistics Parks: 35 parks approved across India to promote warehousing and last-mile efficiency.
5. Digital Platforms: Launch of ULIP and Logistics Data Bank for real-time cargo tracking and data integration.
6. Maritime Amrit Kaal Vision 2047: Focuses on port modernisation, hydrogen hubs, and shipbuilding expansion.

Challenges Associated:

- High Logistics Costs: Despite improvement, logistics costs remain around 14–16% in 2024, which is still higher than China (8%) and the US (6–8%), reducing India's export competitiveness.
- Infrastructure Gaps: Poor last-mile connectivity, congested ports, and limited multimodal linkages hinder the seamless movement of goods across transport modes.

- Regulatory Fragmentation: The presence of multiple ministries and regulatory overlaps delays clearances and increases inefficiency in the logistics chain.
- Skill Deficit: Lack of trained manpower in digital supply chain management, automation, and logistics analytics weakens operational efficiency.
- Environmental Concerns: Overreliance on diesel-based freight transport and slow adoption of green fuels raise emissions and undermine sustainability goals.

Way Ahead:

- Integrated Infrastructure: Expand PM Gati Shakti and Multimodal Logistics Parks (MMLPs) to synchronise road, rail, air, and port networks for smoother connectivity.
- Green Logistics: Invest in biofuels, electric and hydrogen-powered trucks, and promote carbon-neutral freight corridors to cut emissions.
- Skill Development: Establish national logistics universities and industry-linked training hubs to prepare a skilled workforce in supply chain technology.
- Digital Innovation: Harness AI, blockchain, IoT, and data analytics to enhance real-time tracking, transparency, and predictive logistics management.
- Public–Private Partnerships (PPP): Foster PPPs for building warehouses, cold chains, and logistics parks, ensuring efficiency and investment-driven growth.

Conclusion:

India's logistics transformation is central to achieving Viksit Bharat @2047 and a $5 trillion economy. By improving infrastructure, embracing sustainability, and reducing costs, India can emerge as a global logistics powerhouse. The next decade must focus on integration, innovation, and inclusivity to ensure logistics becomes a driver of national competitiveness.

India–Afghanistan Relations Amid Taliban Diplomacy

Context:

Afghanistan's Foreign Minister Amir Khan Muttaqi's six-day visit to India marks the first high-level Taliban delegation visit since 2021, signalling cautious diplomatic re-engagement.

About India–Afghanistan Relations Amid Taliban Diplomacy:

Historical Context of India–Afghanistan Relations

- Civilisational Linkages: India and Afghanistan share deep cultural, linguistic, and trade ties dating back to the Silk Route and shared Buddhist heritage.
  - o Eg: The Kabul–Gandhara–Taxila corridor was a conduit for Indo-Greek and Buddhist exchanges.
- Diplomatic Support: Post-1947, Afghanistan was the only country to oppose Pakistan's UN membership, highlighting early political affinity with India.
- Developmental Engagement: India invested over $3 billion in reconstruction after 2001 — building the Salma Dam, Afghan Parliament, and Zaranj–Delaram Highway, cementing goodwill.
- Humanitarian Assistance: Post-2021 Taliban takeover, India maintained "people-centric engagement" — providing 50,000 tonnes of wheat, medicines, vaccines, and scholarships.
- Current Relevance: Despite non-recognition of the Taliban regime, India has adopted a de facto engagement policy through humanitarian channels and regional dialogues (e.g., Moscow Format, Heart of Asia).

India's Strategic Rationale for Engagement:

Regional Stability and Connectivity:

- Afghanistan remains India's gateway to Central Asia's energy markets.
- Eg: Chabahar Port (Iran) and the International North–South Transport Corridor (INSTC) depend on Afghan stability.

Countering Pakistan and China:

- Afghanistan under Taliban has strained ties with Pakistan and joined CPEC dialogues, adding complexity.
- India seeks to neutralise Pakistan's strategic depth and check China's western expansion under BRI.

Counterterrorism Cooperation:

- Groups like LeT, JeM, and ISKP operate from Afghan soil.
- India's engagement enables direct intelligence sharing and crisis management.
- Preventing Radicalisation Spillover: An unstable Afghanistan could fuel cross-border militancy and narcotics trade, impacting India's internal security.
- Humanitarian and Image Diplomacy: India's soft-power approach through aid and education builds moral credibility and global recognition as a responsible regional power.

Policy Dilemmas and Diplomatic Challenges:

- Non-recognition vs. Engagement: India doesn't officially recognise the Taliban but engages pragmatically — a de facto realism to safeguard interests.
- Flag and Protocol Issue: Diplomatic meetings, such as in Dubai (2024) and New Delhi (2025), exclude Taliban flag display to maintain international legitimacy balance.
- Iran–US Sanctions Nexus: The withdrawal of the Chabahar sanctions waiver affects India's Afghan connectivity strategy.
- Influence of External Players: The US re-engagement with Pakistan, Russia–China normalization with Kabul, and Iran's strategic depth complicate India's calculus.
- Security and Human Rights Concerns: India must balance strategic engagement with its principled stance on inclusivity, women's rights, and democratic governance in Afghanistan.

Regional Implications Visit:

Aspect	Implication for India
Strategic	Deepens dialogue on counterterrorism and connectivity, limiting Pakistan's leverage.
Economic	Opens scope for trade corridors via Chabahar, and exploration of Afghanistan's $1–3 trillion mineral reserves.
Diplomatic	Repositions India as a regional stabiliser engaging all stakeholders — Russia, Iran, and Central Asia.
Security	Allows real-time intelligence coordination against extremist spillover.
Symbolic	Projects India's "Strategic Autonomy Doctrine" — engagement without endorsement.

Way Forward:

- Adopt a 'Dual Track' Policy: Continue people-to-people and developmental aid, while maintaining conditional diplomatic engagement with the Taliban.
- Enhance Regional Coordination: Leverage Moscow Format and SCO mechanisms with Russia, Iran, and Central Asia to ensure inclusive regional solutions.
- Strengthen Chabahar Connectivity: Negotiate limited sanctions relief via multilateral platforms for continued India–Afghan trade access.
- Institutionalise Counterterror Dialogue: Create an India–Afghanistan Security Contact Group to share threat intelligence and monitor cross-border militancy.
- Invest in Afghan People: Expand scholarships, online education, and healthcare initiatives for Afghan youth and women to build goodwill beyond regimes.

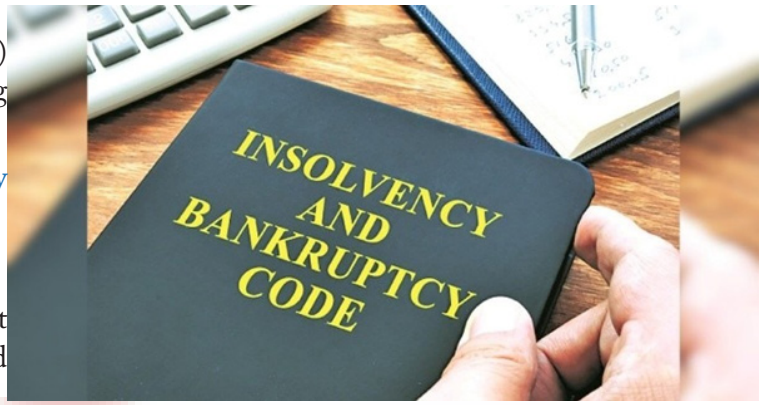
Conclusion:

The Muttaqi visit signifies a turning point — India's shift from cautious observation to strategic pragmatism in Afghanistan. Balancing values with realism, New Delhi's nuanced engagement could make it a stabilising anchor in South–Central Asia. Ultimately, constructive diplomacy—not recognition—remains India's bridge to Kabul and the key to a secure regional future.

Nine Years of Insolvency and Bankruptcy Code (IBC)

Context:

The Insolvency and Bankruptcy Code (IBC) completed nine years of implementation, having resolved debt worth 26 lakh crore.



About Nine Years of Insolvency and Bankruptcy Code (IBC):

Origin and Purpose of IBC (2016)

- Introduced to replace inefficient debt recovery systems like SARFAESI, DRT, and SICA.
- Aims to create a time-bound, creditor-in-control resolution process rather than a debtor-dominated one.
- Establishes corporate discipline, credit culture, and financial market stability.

Major Achievements (2016–2025):

- 26 lakh crore in debt resolved through IBC mechanisms.
- 30,310 cases settled pre-admission (13.78 lakh crore defaults).
- 1,314 cases settled post-admission; 1,919 withdrawn under Section 12A till June 2025.
- NPAs reduced: from 10.9% (FY 2017-18) to 2.3% (FY 2024-25); Net NPAs fell to 0.5%.
- Credit discipline improved: Average loan overdue days fell from 248–344 to 30–87 days.

Corporate Governance and Deterrence Features:

- Section 29A: Bars defaulting promoters from rebidding for their companies.
- Section 32: Denies immunity to offenders for crimes committed before insolvency.
- PUF Transactions: (Preferential, Undervalued, Fraudulent) bring accountability and transparency.
- Promotes corporate ethics, clean accounting, and responsible management behaviour.

Economic Impact:

- Sales Growth (76 percent): Post-resolution companies experienced a strong revival in demand and production, indicating renewed market confidence and consumer trust.
- Capital Expenditure (130 percent increase): Reformed firms attracted new investments as they regained creditworthiness, financial stability, and investor confidence.
- Liquidity (80 percent improvement): Revived enterprises enhanced their cash flow positions and reduced debt burdens, ensuring sustainable financial operations.
- Employment and Wages (50 percent rise): The resolution process safeguarded jobs and created new employment opportunities, particularly in sectors such as steel, power, and infrastructure.
- Market Capitalisation (from 2 lakh crore to 6 lakh crore): The tripling of firm value demonstrates IBC's effectiveness in preserving enterprise assets and strengthening overall economic productivity.

Key Legislative and Regulatory Reforms (2016–2024)

- 2017 Amendment: Introduced Section 29A, disqualifying defaulting promoters from rebidding, thereby enforcing moral accountability.
- 2018 Amendment: Recognized homebuyers as financial creditors, empowering them with voting rights in the Committee of Creditors (CoC).
- 2019 Reform: Fixed a 330-day cap for resolution to ensure speed and predictability in insolvency outcomes.
- 2020 (COVID Relief): Suspended new insolvency filings for defaults post-March 2020, protecting viable firms from pandemic distress.
- 2021 (Pre-pack for MSMEs): Enabled pre-packaged insolvency resolution, allowing small businesses faster, negotiated recovery options.
- 2024 Amendment: Mandated digital filings, stricter admission timelines, and clearer rules on avoidance transactions for efficiency.

Role of NCLT (National Company Law Tribunal):

- Adjudicatory Authority: Serves as the central platform for corporate insolvency, mergers, and restructuring cases under IBC.
- Transparency & Investor Confidence: Ensures time-bound, transparent, and consistent judicial processes, enhancing global investor trust.
- Corporate Revival: Revived 3,763 companies with resolution value exceeding 4 lakh crore, protecting jobs and capital assets.
- Efficiency Reforms: Introduced template-based orders and periodic judicial colloquiums for member training and best practice sharing.

Challenges Identified:

- Infrastructure Deficit: Many NCLT benches lack adequate courtrooms, forcing half-day sittings and case pile-ups.
- Manpower Gap: Overdependence on contractual and deputation officers causes frequent turnover and loss of institutional knowledge.
- Case Backlog: Absence of a dedicated IBC vertical leads to mixing of company law and insolvency matters, slowing adjudication.
- Court Management: Urgent need for a National Court Management System (NCMS) to modernize data handling and workflow efficiency.

Future Recommendations:

- Dedicated IBC Vertical: Establish an exclusive permanent wing for insolvency cases within NCLT to improve specialization and speed.
- Digital & Infrastructure Upgrade: Expand e-courts, paperless filings, and better logistics to enhance accessibility and reduce delays.
- Strengthen MSME Resolution: Expand pre-pack frameworks and simplified procedures for faster turnaround of small enterprises.
- Public–Private Collaboration: Partner with industry bodies, law institutes, and think tanks to enhance insolvency literacy and capacity.
- Expand to Personal Insolvency: Apply IBC principles to individual debt resolution to strengthen financial discipline nationwide.

Conclusion

The IBC has transformed India's financial ecosystem by ensuring corporate accountability, faster debt resolution, and reduced NPAs. With continued reforms, institutional strengthening, and efficient court management, it can serve as a model framework for financial discipline and a key pillar in realizing Viksit Bharat 2047.

Restoring Fiscal Space for the States

Context:

The abolition of the GST compensation cess marks a turning point in Centre–State fiscal relations. Several States have raised concerns over the loss of fiscal autonomy and revenue stability, demanding reforms in India's tax-sharing mechanism to strengthen cooperative federalism.

About Restoring Fiscal Space for the States:

Fiscal Policy Evolution and GST Impact:

- Shift from Origin to Destination-Based Taxation: The 101st Constitutional Amendment (2017) introduced GST, replacing multiple indirect taxes with a destination-based system, reducing States' authority to levy taxes independently.

- Centralised Decision-Making in GST Council: Despite being a joint forum, the Centre holds dominant voting power (33%), giving it a decisive edge in policy formulation.
- End of GST Compensation Era: The cessation of the GST compensation cess (July 2025) leaves resource-poor States vulnerable to revenue shocks.
- Restructuring of Tax Slabs: The latest GST slab restructuring aims to pass 2 lakh crore in benefits to consumers but also shrinks States' fiscal space.
- Erosion of Fiscal Federalism: By merging major tax sources under one umbrella, GST has centralised taxation authority, weakening States' fiscal sovereignty.

Role of the Finance Commission and Fiscal Transfers:

1. Constitutional Mandate: The Finance Commission (Article 280) determines vertical (Centre–State) and horizontal (among States) tax distribution, but its criteria vary, causing perceived unfairness.
    - Eg: The 15th Finance Commission reduced the States' share from 42% to 41% post J&K bifurcation.
1. Rise of Cesses and Surcharges: These account for 4.23 lakh crore in Budget Estimates 2025–26, but are excluded from the divisible pool, reducing actual transfers to States.
    - Eg: The 15th FC noted that 18% of the Centre's tax receipts come from non-shareable cesses.
1. Falling Devolution Ratios: Despite higher recommendations, the actual share of States in Gross Tax Revenue (GTR) has dropped to below 33%, eroding trust in federal finance.
    - Eg: Between FY2018–FY2023, the Centre retained ~ 12 lakh crore extra via non-divisible revenues.
1. Dependency on Central Transfers: States rely on the Centre for nearly 44% of their total revenue receipts, with poorer States like Bihar (72%) and U.P. (61%) showing extreme dependence.
    - Eg: Economically advanced States like Tamil Nadu (31%) get proportionally less.
1. Uneven Grants and Criteria: States allege bias in Centrally Sponsored Schemes (CSS) and grant disbursals, which distort fiscal equity and autonomy.
    - Eg: After the Planning Commission's abolition (2014), CSS allocations became politically influenced.

Growing Fiscal Imbalance between Centre and States:

1. Centralised Resource Control: The Centre collects about 67% of India's total tax revenue, while States collect only 33%, despite handling over 50% of total expenditure.
    - Eg: RBI's "State Finances Report 2025" confirms this persistent mismatch.
1. Higher Expenditure Responsibilities: States manage critical sectors — health, education, law & order, and local governance — which consume over 52% of total national spending.
    - Eg: During COVID-19, States bore 70% of public health expenditure but lacked revenue backing.
1. Political and Fiscal Friction: Opposition-ruled States often cite delays in fund release and conditional grants as tools of fiscal control.
    - Eg: The GST compensation delay of 78,000 crore (FY2021–22) deepened mistrust.
1. Design Asymmetry in Federal Finance: The Centre's power to raise taxes is centralised, while expenditure duties are decentralised, causing vertical fiscal imbalance.
    - Eg: OECD ranks India among the most fiscally centralised federal systems globally.
1. Liquidity and Autonomy Challenges: Overdependence on the Centre forces States to borrow more, straining debt sustainability.
    - Eg: States' debt-to-GSDP ratio rose to 31.2% in FY2024, above FRBM thresholds.

Towards Fiscal Autonomy and Reforms Proposed:

1. 1. Revising Tax-Sharing Principles: Economists suggest a new vertical devolution formula reflecting rising State expenditure and regional disparities.
    - Eg: 16th Finance Commission (2025–30) is expected to revisit the 41% devolution ceiling.
1. Sharing Personal Income Tax (PIT): Proposal to share the 13.57 lakh crore PIT base (BE 2025–26) equally (50:50) between Centre and States.
    - Eg: This could raise effective State devolution by over 7 lakh crore annually.
1. Allowing PIT Top-Ups: States could levy a small surcharge (1–2%) on personal income tax collected within their boundaries.

- Eg: This model mirrors Canadian federal taxation, which grants provinces greater flexibility.

1. Merging Cesses with Divisible Pool: Integrating cess and surcharge revenue into the shared pool will expand fiscal space and transparency.
    - Eg: If merged, States could gain 1.5 lakh crore more annually, per NIPFP estimates (2024).
1. Strengthening Fiscal Federalism: Empowering States improves local accountability and aligns with cooperative federalism principles under the Constitution.
    - Eg: Tamil Nadu's expert committee (2025) recommended incentive-linked fiscal autonomy.

Conclusion:

India's fiscal federalism is at a crossroads. With States shouldering greater welfare and development responsibilities, restoring fiscal autonomy is imperative. Strengthening tax devolution, integrating cesses, and sharing income tax bases can rebuild trust and balance power. True cooperative federalism lies in empowering States—not just administratively, but financially.

The 8th Central Pay Commission

Context:

The Union Cabinet has approved the Terms of Reference (ToR) for the 8th Central Pay Commission (CPC) headed by Justice Ranjana Prakash Desai (Retd.).

About The 8th Central Pay Commission:

Definition:

- The 8th Central Pay Commission (CPC) is a temporary expert body set up by the Union Government to review and recommend revisions in the salary structure, allowances, and pension benefits of Central Government employees.
- Establishment: Announced in January 2025 and formally constituted after Cabinet approval in October 2025 to ensure timely implementation from 2026.

Composition:

- Chairperson: Justice Ranjana Prakash Desai (Retd.)
- Part-time Member: Prof. Pulak Ghosh, IIM Bangalore
- Member-Secretary: Pankaj Jain, Petroleum Secretary
- Tenure: The Commission will submit its final report within 18 months of constitution and may provide interim recommendations on specific issues.
- Coverage: The 8th CPC covers serving and retired employees of the Central Government, defence forces, All India Services, and Union Territories.

Functions and Mandate:

- Pay & Pension Review: Examine and propose changes in pay scales, allowances, and pension structures.
- Fiscal Prudence: Consider the overall economic situation and maintain budgetary discipline while recommending pay revisions.
- Equity Across Sectors: Ensure parity between Central services, PSUs, and private sector employees in terms of emoluments and working conditions.
- State Finances Impact: Evaluate how its recommendations affect State Government finances and ensure coordinated implementation.
- Sustainability of Pensions: Address concerns related to non-contributory pension liabilities and their long-term fiscal implications.
- Expected Implementation: The recommendations are expected to come into effect from January 1, 2026, continuing the decade-long cycle of pay revisions followed since the First CPC (1946).

Employability in Crisis

Context:

India faces an employability crisis, with only 42.6% of graduates deemed job-ready, exposing a widening gap between academic learning and industry needs.

About Employability in Crisis:

Definition:

- Employability refers to a graduate's ability to acquire, apply, and adapt knowledge, skills, and mindset to succeed in dynamic work environments.
- Purpose: It ensures individuals are not only employable but sustainably productive, capable of continuous learning, unlearning, and relearning in fast-changing industries.

Key Features:

- Holistic Skillset: Combines technical expertise with communication, teamwork, and problem-solving.
- Adaptability: Encourages flexibility in new technologies and workplace settings.
- Lifelong Learning: Promotes continuous upgrading of competencies.
- Value Creation: Ensures graduates contribute meaningfully to organizational goals.

Causes of Academia–Industry Divide:

Academic Side:

- Outdated Curriculum: Most colleges teach content that fails to reflect evolving job roles, automation trends, and emerging technologies.
- Theory-Heavy Learning: Classroom teaching remains exam-focused, leaving little scope for hands-on projects or problem-solving exposure.
- Lack of Soft Skills Training: Students possess technical knowledge but lack confidence in communication, teamwork, and adaptability.

Industry Side:

- Expectation Mismatch: Companies demand "plug-and-play" graduates but rarely invest in structured onboarding or mentorship.
- Rapid Technological Shifts: Skill requirements change faster than academic syllabi can adapt, creating a persistent skill lag.
- Weak Engagement: Firms often view academia as outdated, leading to minimal collaboration in research, training, or course design.
- Short-term Focus: Corporates prioritise recruitment drives over long-term partnerships for sustainable skill ecosystem building.

Initiatives Taken:

1. NEP 2020: Promotes flexibility, experiential learning, and stronger academia–industry integration for holistic education reform.
2. AICTE Internship Policy: Mandates industrial exposure to enhance practical understanding and employability of engineering students.
3. Skill India Mission: Strengthens vocational training through sectoral skill councils aligned with market demands.
4. NASSCOM FutureSkills PRIME: Upskills youth in digital domains like AI, cybersecurity, and data analytics through certified programs.

Challenges Associated:

- Curriculum Inertia: Bureaucratic delays prevent quick updates in response to new-age skill requirements.
- Fragmented Ecosystem: Weak coordination between academia, government, and industry limits policy coherence.

- Limited Faculty Training: Educators often lack exposure to corporate trends, new technologies, and pedagogical innovation.
- Urban–Rural Divide: Rural and smaller institutions struggle with poor infrastructure and minimal corporate interface.
- Underinvestment by Industry: Private sector spends little on institutional collaboration or human capital development.

Way Ahead:

- Curriculum Co-Design: Regularly update syllabi with joint input from employers, universities, and policymakers.
- Dual-Learning Model: Integrate apprenticeships and live corporate projects into higher education frameworks.
- Faculty Immersion: Facilitate faculty internships and sabbaticals in industry for updated skill transfer.
- Soft Skills & Ethics Labs: Set up dedicated labs for communication, emotional intelligence, and workplace ethics training.
- Data-Driven Tracking: Monitor alumni career outcomes and skill growth to evaluate employability effectiveness.

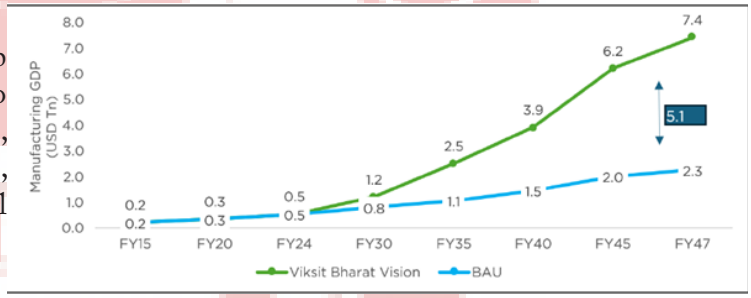
Conclusion:

India's employability challenge is not a crisis of talent but of alignment. Bridging academia and industry through innovation, adaptability, and shared accountability can turn education into an engine of growth. True employability will emerge when learning mirrors life — dynamic, ethical, and ever-evolving.

Reimagining Manufacturing

Context:

NITI Aayog's Frontier Tech Hub released the roadmap "Reimagining Manufacturing: India's Roadmap to Global Leadership in Advanced Manufacturing", outlining how frontier technologies like AI, Robotics, and Digital Twins can make India a top-three global manufacturing hub by 2035



About Reimagining Manufacturing:

- Published by: NITI Aayog's Frontier Tech Hub, in collaboration with CII and Deloitte.
- Purpose: To chart India's strategic pathway to advanced manufacturing leadership through technology integration, sectoral focus, and institutional reforms.
- Scope: Covers 13 high-impact sectors under five clusters and a 10-year roadmap (2026–2035) to integrate frontier technologies into production ecosystems.

Current Status of Manufacturing in India:

- Manufacturing currently contributes 15–17% to GDP, below East Asian peers like China (25%) and South Korea (27%).
- India aims to raise this to 25% by 2035, generating 100+ million skilled jobs and 6.5% global export share.
- Sectors such as automotive, electronics, textiles, pharmaceuticals, and renewable energy remain central to this goal.

Potential of the Manufacturing Sector:

- Global Hub Vision: By leveraging frontier technologies like AI, robotics, and digital twins, India can position itself among the top three global manufacturing hubs by 2035.
- Economic Gains: Advanced manufacturing integration could add $270 billion to GDP by 2035 and $1 trillion by 2047, driving high-value industrial growth.
- Job Creation: Expansion of high-tech clusters can generate over 100 million skilled jobs, fostering inclusive and sustainable employment.
- Export Boost: India's merchandise exports are projected to rise from 2% to 6.5% of global trade, boosting foreign exchange reserves and competitiveness.

- Innovation Drive: Embedding AI, advanced materials, and robotics will enhance production precision, resilience, and global sustainability credentials.

Key Challenges:

- Low R&D Investment: With R&D spending below 1% of GDP, India lags in innovation capacity, patents, and high-tech product development.
- Fragmented Supply Chains: MSMEs face weak integration with global value chains due to limited digital connectivity and logistics bottlenecks.
- Skilling Deficit: A large workforce remains untrained in automation and AI tools, leading to slow adoption of advanced manufacturing processes.
- Infrastructure Gaps: Absence of smart industrial parks, 5G networks, and reliable energy constrains global-scale production.
- Regulatory Lag: Lack of unified data governance and technology standards delays industry-wide digitisation and interoperability.

Initiatives Taken So Far:

1. National Manufacturing Mission (NMM): Coordinates frontier tech adoption, R&D funding, and policy convergence across priority sectors.
2. PLI Schemes: Provide performance-linked incentives to boost domestic manufacturing in sunrise sectors like electronics and semiconductors.
3. Industrial Corridors: Initiatives like Gati Shakti and PM MITRA enhance logistics, connectivity, and cluster-based competitiveness.
4. Make in India & Digital India: Encourage self-reliant production ecosystems and integrate digital tools into manufacturing processes.
5. Skill India & AICTE Initiatives: Drive industry-linked training programs and promote modular skilling aligned with Industry 4.0 needs.

Key Recommendations from the Report:

- Global Frontier Technology Institute (GFTI): Establish a Centre of Excellence for advanced R&D, testing, and certification to promote innovation.
- Plug & Play Frontier Industrial Parks: Develop 20 tech-enabled industrial zones with ready infrastructure, 5G, and simulation facilities.
- Technology Access Platforms: Build shared digital infrastructure to help MSMEs access AI, robotics, and automation tools affordably.
- Champion-Based Model: Large industries should mentor MSMEs through cluster-led innovation and technology demonstration programs.
- Servicification of Manufacturing: Shift focus from product output to integrated service solutions powered by AI and IoT for value creation.
- National Digital Backbone: Create a real-time industrial IoT network for seamless data exchange and predictive efficiency in production.
- Skilling Missions: Launch state-specific frontier tech missions like robotics in Tamil Nadu or green mobility in Maharashtra to localize expertise.

Conclusion:

India stands on the cusp of a manufacturing revolution where technology, talent, and transformation converge. By embracing frontier technologies, India can leap from cost efficiency to global excellence. The roadmap envisions not just "Make in India", but "Innovate in India" — redefining the nation's industrial destiny by 2047.

International Civil Aviation Organization (ICAO)

Context:

India has been re-elected to Part II of the ICAO Council (2025–2028) during the 42nd ICAO Assembly in Montreal.

About International Civil Aviation Organization (ICAO):

What it is?

- A specialized UN agency facilitating global cooperation in civil aviation.
- Provides a framework for safe, secure, and sustainable international air transport.

Established in:

- 1944, under the Chicago Convention on International Civil Aviation.
- Headquarters: Montreal, Canada.
- Membership: 193 States.

Aim:

- Develop and harmonize international civil aviation standards.
- Ensure safety, security, environmental protection, and fair growth of global aviation.
- Promote equitable air connectivity and no country left behind approach.

Functions:

- Standard-Setting: Frames SARPs (Standards and Recommended Practices).
- Governance: ICAO Council (36 members) elected every three years by Assembly.

Strategic Function:

- Standard-Setting: Issues SARPs (Standards and Recommended Practices).
- Safety Oversight: Implements the Global Aviation Safety Plan (GASP).
- Air Navigation Efficiency: Enhances infrastructure and capacity.
- Security & Facilitation: Strengthens aviation and border security.
- Economic Development: Supports harmonised air transport frameworks.
- Environmental Protection: Promotes sustainable aviation fuels and climate-friendly practices.

India and ICAO:

- Founding member (1944) with uninterrupted presence on Council for 81 years.
- Actively contributes to policy, regulation, and aviation standards.
- Reaffirms commitment to safety, security, innovation, and equitable global connectivity.

National Pulses Mission

Context:

The Union Cabinet approved the National Pulses Mission (2025–31) with an outlay of ₹11,440 crore to boost pulse production and reduce import dependency.

About National Pulses Mission:

What it is?

- A six-year central programme (2025–31) under the Ministry of Agriculture & Farmers' Welfare.
- Designed to achieve Aatmanirbharta in pulses, ensuring food and nutritional security.

Aim:

- Raise domestic pulse production from 242 lakh tonnes (2024–25) to 350 lakh tonnes by 2030–31.
- Nodal Ministry: Union Ministry of Agriculture & Farmers' Welfare.
- Term: 2025–26 to 2030–31 (six years).
- Budget allocation: 11,440 crore.

Key Features:

- Production Boost: Expand area to 310 lakh hectares, with yield target of 1,130 kg/ha.
- Seed Security: Distribution of 126 lakh quintals of certified seeds and 88 lakh free seed kits; monitored through SATHI portal.
- Assured Procurement: 100% procurement of Tur, Urad, and Masoor at MSP for four years.
- Infrastructure Support: 1,000 post-harvest processing units with subsidy up to 25 lakh each.
- Research & Innovation: Multi-location trials for climate-resilient and pest-resistant pulse varieties.
- Farmer Training: Capacity-building programmes for adoption of modern techniques.

Significance:

- Food & Nutritional Security: Pulses are a vital protein source in Indian diets.
- Import Reduction: Cuts 15–20% import dependency, saving forex.
- Farmer Welfare: Ensures MSP-based income stability and value-chain strengthening.

Presumptive Taxation

Context:

NITI Aayog, in its first Tax Policy Working Paper (2025), proposed an optional presumptive taxation regime for foreign firms to reduce litigation, simplify compliance, and bring certainty on Permanent Establishment (PE) disputes.

About Presumptive Taxation:

- Concept: Taxation based on a fixed deemed profit percentage of gross receipts, instead of detailed profit attribution through transfer pricing or functional analysis.
- Aim: Provide certainty, reduce litigation, simplify compliance, and secure predictable revenue.
- Existing Usage in India: Already applied in shipping (Sec. 44B), oil & gas services (44BB), airlines (44BBA), and small businesses (44AD/44ADA).

Why Needed in India?

1. Litigation-heavy regime – PE disputes take over a decade to resolve (e.g., Hyatt International 2025).
2. Ambiguity in rules – Broad interpretation of "business connection" and Significant Economic Presence (SEP) deters investment.
3. Retrospective taxation legacy – Vodafone-type cases damaged India's image.

How the Proposed Scheme Works?

- Industry-specific deemed profit rates (e.g., 10% for EPC, 15% for marketing, 20% for services, 30% for digital/e-commerce).
- Optional & rebuttable – Firms can opt in, or opt out and file regular returns if actual profits are lower.
- Safe harbour – If presumptive scheme is chosen, tax authorities will not separately litigate PE existence.

- Administrative simplicity – Reduced need for audits and complex books; compliance burden minimized.
- Treaty compatibility – Optional nature ensures alignment with DTAAs.

Key Features of NITI Proposal:

1. Codify PE and profit attribution principles in domestic law aligned with global norms.
2. Presumptive taxation rates designed per sector, calibrated to historical profit margins.
3. Advance Pricing Agreements (APA) and Mutual Agreement Procedures (MAP) to reduce disputes.
4. Safe harbour for digital economy – special treatment for high-profit, user-intensive platforms.
5. Capacity building of tax officers for consistent application of rules.
6. Public consultation mechanisms to build investor trust.

Expected Benefits:

- Reduced litigation – Faster dispute resolution, less pressure on courts.
- Improved investor confidence – Predictability attracts long-term, sustainable FDI.
- Revenue safeguard – Ensures minimum tax collection, even from low-profit or digital firms.
- Ease of Doing Business – Simpler compliance, alignment with Make in India.

Exercise in News

Context:

The Indian Coast Guard and Indian Navy are conducting two major maritime exercises — NATPOLREX-X (2025) off Chennai and Exercise Konkan-25 off the western coast — to strengthen India's preparedness.

About Exercise in News:

NATPOLREX-X 2025

- Host & Organiser: Conducted by the Indian Coast Guard (ICG) from October 5–6, 2025, off the coast of Chennai, Tamil Nadu.
- Participants: Central ministries, coastal state governments, major ports, oil-handling agencies, maritime organisations, and over 40 foreign observers from 32 countries.
- Aim: To assess and enhance India's national capability to respond to marine oil spills and test inter-agency coordination under the National Oil Spill Disaster Contingency Plan (NOSDCP).

Features:

- Deployment of ships and aircraft equipped with pollution-control technology.
- Demonstration of India's multi-tiered pollution response strategy.
- Focus on sustainable maritime practices and environmental protection.

Exercise KONKAN-25:

- Host & Nations Involved: A bilateral naval exercise between the Indian Navy and the Royal Navy (United Kingdom), conducted from October 5–12, 2025, off India's western coast.
- Aim: To improve interoperability, maritime domain awareness, and joint operational readiness between the two navies.

Features:

- Two phases — harbour and sea phase — including professional exchanges, joint working groups, and complex maritime drills.
- Focus areas: anti-air, anti-surface, and anti-submarine warfare, flying operations, and seamanship evolutions.
- Assets: Indian aircraft carrier INS Vikrant and UK's HMS Prince of Wales (UK Carrier Strike Group 25), along with assets from Norway and Japan.

DRAVYA Portal

Context:

The Ministry of Ayush has launched the "DRAVYA" (Digitised Retrieval Application for Versatile Yardstick of Ayush) portal, developed by CCRAS, to digitally catalogue 100 key medicinal substances in its first phase.

About DRAVYA Portal:

What It Is?

- DRAVYA is an AI-ready digital knowledge repository that consolidates information on Ayush medicinal substances drawn from both classical Ayurvedic texts and modern scientific research.
- It serves as a dynamic, open-access platform designed to make authentic, evidence-based data on Ayurveda and related systems easily searchable and globally accessible.
- Organisation Involved: Developed by the Central Council for Research in Ayurvedic Sciences (CCRAS) under the Ministry of Ayush.

Aim:

- To digitise and unify classical and modern knowledge on Ayush substances for evidence-based research and innovation.
- To promote cross-disciplinary collaboration between Ayurveda, botany, chemistry, and pharmacology.
- To ensure authenticity, accessibility, and scientific validation of traditional medicinal data.

Key Features:

- Comprehensive Catalogue: Covers 100 key medicinal substances in its first phase, expanding continuously.
- AI-ready architecture: Enables data analytics, research mapping, and integration with future digital health tools.
- QR code integration: For use in medicinal plant gardens and drug repositories, ensuring standardised display of verified data.
- Multi-dimensional data: Includes pharmacotherapeutics, botany, chemistry, pharmacy, pharmacology, and safety information.
- User-friendly interface: Facilitates easy search, retrieval, and comparison of data across Ayush systems.
- Interlinking with Ayush Grid: Enhances interoperability with other digital initiatives and research databases.

Mission for Aatmanirbharta in Pulses (2025–26 to 2030–31)

Context:

Prime Minister of India launched the Mission for Aatmanirbharta in Pulses (2025–26 to 2030–31) at the Indian Agricultural Research Institute (IARI), New Delhi.

About Mission for Aatmanirbharta in Pulses (2025–26 to 2030–31):

What it is?

- A national mission to achieve complete self-sufficiency in pulses production and reduce import dependence by December 2027.
- Officially known as the Dalhan Aatmanirbharta Mission, it integrates production, procurement, processing, and marketing strategies to enhance farmers' income and ensure nutritional security.
- Nodal Ministry: Ministry of Agriculture & Farmers' Welfare, Government of India.

Implementation Partners:

- Indian Council of Agricultural Research (ICAR)
- Krishi Vigyan Kendras (KVKs)

- NAFED & NCCF (for procurement)
- NITI Aayog (policy & cluster recommendations)
- National Informatics Centre (NIC) (for digital monitoring via SATHI Portal).
- Implementation Period: 2025–26 to 2030–31
- Total Outlay: 11,440 crore

Aim and Objectives:

- Self-Reliance Goal: Scale up pulses production to 350 lakh tonnes by 2030–31.
- Area Expansion: Expand cultivation to 310 lakh hectares, including 35 lakh ha of rice fallows.
- Procurement Assurance: Ensure 100% MSP procurement for Tur (Arhar), Urad, and Masoor for four years.
- Seed Support: Distribute 88 lakh free seed kits and 126 lakh quintals of certified seeds.
- Farmer Empowerment: Benefit nearly 2 crore farmers through assured prices and value-chain integration.

Key Features:

Technology & Seeds:

- Launch of SATHI (Seed Authentication, Traceability & Holistic Inventory) portal for seed lifecycle monitoring.
- Development of high-yielding, pest-resistant, climate-resilient varieties by ICAR.
- Value Chain & Processing: Establishment of 1,000 processing and packaging units, with 25 lakh subsidy per unit to promote value addition and rural employment.

Institutional Mechanism:

- State-specific rolling five-year seed production plans under ICAR supervision.
- Integration with PM-AASHA for assured procurement and farmer price stability.

Cluster-Based Approach:

- Implementation on "One Block – One Seed Village" model as per NITI Aayog's recommendation.
- Focus on FPO-led clusters for efficient production and distribution.
- Nutrition & Welfare Integration: Inclusion of pulses in PDS, ICDS, and Mid-Day Meal schemes to improve protein intake.

The Military Combat Parachute System (MCPS)

Context:

The Military Combat Parachute System (MCPS), indigenously developed by DRDO, was successfully tested at an altitude of 32,000 feet, marking the first Indian-made parachute system capable of high-altitude deployment above 25,000 feet.

About The Military Combat Parachute System (MCPS):

What It Is?

- The MCPS is an advanced high-altitude military parachute system designed for combat freefall operations by special forces and paratroopers in extreme conditions. It enables safe, controlled, and precise landings from high altitudes during tactical missions.

Developed By: The system has been jointly developed by two DRDO laboratories —

- Aerial Delivery Research and Development Establishment (ADRDE), Agra, and
- Defence Bioengineering and Electromedical Laboratory (DEBEL), Bengaluru.

Aim:

- To create a fully indigenous, high-performance aerial delivery system that enhances India's strategic and operational autonomy by eliminating dependence on imported parachutes for special operations.

Key Features:

- High-Altitude Capability: Operates efficiently above 25,000 ft, tested at 32,000 ft — the highest for any Indian system.
- Enhanced Safety: Features a lower rate of descent and superior steering control, ensuring stable, accurate landings.
- Navigation Compatibility: Integrated with NaVIC (Navigation with Indian Constellation) for precise geolocation without reliance on foreign satellites.
- Operational Flexibility: Allows pre-determined altitude deployment and accurate zone navigation under combat conditions.
- Maintenance Advantage: Quick turnaround and easy repairability, offering higher lifetime utility than imported systems.

Significance:

- Marks a major leap in Atmanirbhar Bharat (self-reliance) in aerial delivery systems.
- Reduces strategic vulnerability by ending dependence on foreign suppliers for airborne combat gear.

UDAN Scheme

Context:

The Ministry of Civil Aviation (MoCA) celebrated the 9th anniversary of the Regional Connectivity Scheme – UDAN, marking a milestone in India's regional aviation growth.

About UDAN Scheme:

What it is?

- UDAN ("Ude Desh ka Aam Nagrik") is the flagship Regional Connectivity Scheme (RCS) launched to make air travel affordable and accessible for the common citizen by linking remote and regional areas to major cities.
- Launched in: Introduced on 21 October 2016 under the National Civil Aviation Policy (NCAP), with the first flight taking off on 27 April 2017 between Shimla and Delhi.

Aim:

- The scheme aims to democratise aviation, enhance regional connectivity, and promote balanced economic development by linking Tier-2 and Tier-3 cities through affordable flights.

Key Features:

- Viability Gap Funding (VGF): Financial support to airlines to keep fares affordable.
- Airfare Cap: Ensures that ticket prices remain within reach of the common citizen.
- Incentivised Framework: Waivers on airport charges and tax concessions on Aviation Turbine Fuel (ATF).
- Multi-Stakeholder Governance: Involves MoCA, State Governments, AAI, and private operators for coordinated implementation.
- UDAN 5.5 & Seaplane Guidelines (2024): Expanded coverage to water aerodromes and heliports, boosting last-mile connectivity.

Success So Far:

- 649 routes operational across 93 airports, 15 heliports, and 2 water aerodromes.
- 1.56 crore passengers served through 3.23 lakh UDAN flights.
- Over 4,300 crore disbursed as VGF and 4,638 crore invested in regional airport development.
- India's airport network doubled from 74 airports (2014) to 159 (2024).
- Initiatives like Krishi UDAN and UDAN Yatri Cafes further promote rural air logistics and inclusivity.

Blue Flag Beaches

Context:

Five beaches in Maharashtra — Shrivardhan, Nagaon, Parnaka, Guhagar, and Ladghar — have been awarded the international Blue Flag certification by the Foundation for Environmental Education (FEE), Denmark

About Blue Flag Beaches:

What it is?

- The Blue Flag is a globally recognised eco-label awarded to beaches, marinas, and sustainable boating tourism operators that meet stringent standards of environmental quality, safety, and management.
- Organisation Involved: The certification is granted by the Foundation for Environmental Education (FEE), Denmark, an international non-profit organisation working to promote sustainable environmental practices through education and certification.
- India Joined In: India officially joined the Blue Flag Programme in 2018.

Aim:

- The Blue Flag programme aims to promote sustainable coastal tourism, protect marine ecosystems, and ensure safe, clean, and eco-friendly recreation spaces for visitors and local communities.

Criteria (Six Key Areas):

- Environmental Education and Engagement: Promotes local ecosystem awareness and community participation.
- Climate Action: Encourages energy-efficient infrastructure and resilience to coastal erosion and sea-level rise.
- Biodiversity Management: Focuses on protecting wildlife habitats and managing coastal vegetation responsibly.
- Pollution and Water Quality: Mandates top-grade water testing, waste segregation, and control of plastic and oil pollution.
- Accessibility: Requires facilities and services to be inclusive and accessible for all, including persons with disabilities.
- Safety and Services: Enforces lifeguards, first-aid, and emergency plans for visitors' safety.

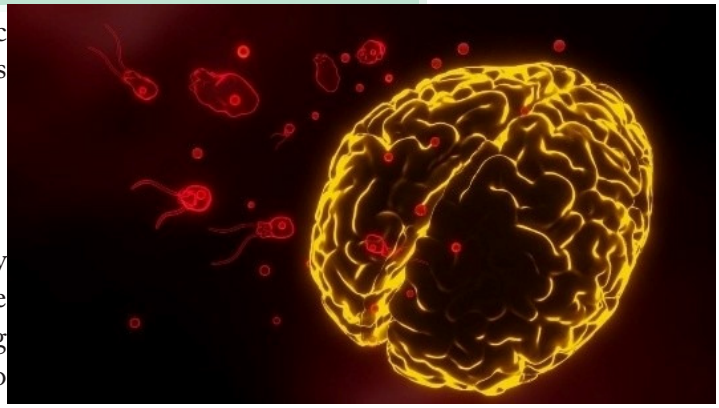
Current India Blue Flag Status (as of 2025):

- Total Certified Beaches: 13 + 5 New (total 18 Beaches) Blue Flag beaches across India.
- Recent Additions: Five beaches from Maharashtra — Shrivardhan, Nagaon, Parnaka, Guhagar, and Ladghar — received certification in 2025.

Amoebic meningoencephalitis

Context:

Kerala has reported another death due to amoebic meningoencephalitis, taking the state's toll to 27 cases in 2025.



About Amoebic meningoencephalitis:

What it is?

- Amoebic meningoencephalitis, or Primary Amebic Meningoencephalitis (PAM), is a rare but fatal brain infection caused by a free-living amoeba that destroys brain tissue, leading to severe inflammation and swelling.
- Causative Agent: It is caused by Naegleria fowleri, commonly known as the "brain-eating amoeba."

Vector and Transmission:

- The disease is not spread person-to-person.
- Infection occurs when contaminated freshwater (from lakes, ponds, or unchlorinated pools) enters the nasal cavity, allowing the amoeba to travel to the brain via the olfactory nerve.
- It thrives in warm freshwater and soil, particularly during summer months.
- Found in: Naegleria fowleri is found in warm freshwater bodies—such as lakes, rivers, hot springs, and poorly maintained swimming pools—especially in tropical and subtropical regions.

Symptoms:

- Early symptoms (1–9 days post-exposure): Headache, fever, nausea, vomiting.
- Advanced symptoms: Stiff neck, confusion, loss of balance, seizures, hallucinations, and coma—leading to death within days if untreated.

Treatment:

- Treatment is challenging; mortality exceeds 95%.
- Some survivors have recovered with early administration of amphotericin B, miltefosine, and supportive care.
- Prevention includes avoiding swimming in untreated freshwater, using nose clips, and maintaining proper chlorination of pools.

'23for23' Initiative

Context:

India celebrated International Snow Leopard Day (October 23, 2025) with the nationwide '#23for23' campaign.

- Government also unveiled the first-ever national Snow Leopard Census, recording 718 individuals across the Indian Himalayas.

About '23for23' Initiative:

What it is?

- A nationwide awareness campaign launched by the Ministry of Environment, Forest and Climate Change (MoEFCC) to engage citizens in snow leopard conservation through community-driven participation.

Aim:

- To raise awareness about snow leopard habitats and conservation challenges.
- To inspire public involvement in protecting India's high-altitude ecosystems under the Global Snow Leopard and Ecosystem Protection Programme (GSLEP).

Key Findings of the Snow Leopard Census in India (2025):

- Total Count: The census recorded 718 individual snow leopards across India's Himalayan landscape — marking the first official nationwide estimate.

Regional Distribution:

- Ladakh: 477 individuals — the highest population in India.
- Himachal Pradesh: 51 individuals.
- Uttarakhand: 71 individuals.
- Arunachal Pradesh & Sikkim: 61 individuals combined.
- Jammu & Kashmir (excluding Ladakh): 58 individuals.
- Collaborating Agencies: Led by MoEFCC, supported by WWF-India, Snow Leopard Trust, and local communities under the Project Snow Leopard

About Snow Leopard:

What it is?

- A medium-sized big cat species native to the high-altitude mountain ranges of Central and South Asia, known for its elusive behavior and crucial ecological role as a keystone species in the Himalayan ecosystem.
- Scientific Name: Panthera uncia
- IUCN Status: Vulnerable
- Habitat (Global): Found across 12 countries including India, Nepal, China, Mongolia, Pakistan, Afghanistan, and Kazakhstan, typically between 3,000–5,000 meters in elevation in cold, arid, and rocky terrains.
- Habitat (India): Distributed across the Himalayan states and UTs — Ladakh, Jammu & Kashmir, Himachal Pradesh, Uttarakhand, Sikkim, and Arunachal Pradesh — covering major high-altitude ecosystems.

Characteristics:

- Height: ~60 cm; Length: 100–130 cm; Weight: 35–55 kg.
- Smoky-grey fur with dark rosettes; excellent camouflage against rocky slopes.
- Solitary and crepuscular (active at dawn and dusk).
- Silent predator — unlike other big cats, snow leopards cannot roar.
- Breeds every two years, giving birth to 1–2 cubs, making population recovery slow.
- Known as the "Ghost of the Mountains" due to its stealth and rarity.

Defence Procurement Manual (DPM) 2025

Context:

Defence Minister released the Defence Procurement Manual (DPM) 2025 in New Delhi. Effective from November 1, 2025, the new manual aims to simplify revenue procurement procedures worth nearly ₹1 lakh crore annually.

About Defence Procurement Manual (DPM) 2025:

What it is?

- The Defence Procurement Manual 2025 is a comprehensive guideline for revenue procurement by the Armed Forces and other MoD establishments, replacing the earlier DPM 2009. It standardises procedures for acquiring goods and services essential for operational preparedness.

Aim:

- To streamline and simplify procurement processes across all defence services.
- To promote ease of doing business and encourage MSMEs and start-ups in defence manufacturing.
- To ensure fairness, accountability, and transparency in procurement operations.

Key Features:

- Ease of Business: Revised procedures to expedite decision-making and minimise bureaucratic delays.
- Relaxed Penalties: Liquidated Damages (LD) capped at 10% for major delays and 0.1% per week for indigenisation projects (earlier 0.5%).
- Long-term Orders: Provision for assured orders up to 5 years and beyond for items developed indigenously.
- No NOC Required: The need for an NOC from the Ordnance Factory Board has been removed, simplifying vendor participation.
- Procurement Thresholds: Limited Tender Enquiry allowed up to ₹50 lakh; beyond that, permissible in exceptional cases.
- Growth Provisions: Upfront 15% growth allowed for ship repairs and aviation overhaul work to ensure platform readiness.
- Structured Format: Divided into two volumes — Volume I (main provisions) and Volume II (forms, appendices, and government orders).

New Chapters Added:

- Promoting Self-Reliance through Innovation and Indigenisation
- Information & Communication Technology Procurement
- Consultancy and Non-Consultancy Services

Significance:

- Strengthens the Aatmanirbhar Bharat vision by promoting indigenous design and technology.
- Enhances uniformity and transparency across all wings of the Armed Forces.
- Facilitates timely and accountable procurement, boosting defence readiness.

Maha MedTech Mission

Context:

The Anusandhan National Research Foundation (ANRF), in collaboration with the ICMR and the Bill & Melinda Gates Foundation, has launched the Maha MedTech Mission to boost India's medical technology ecosystem.

About Maha MedTech Mission:

What it is?

- The Mission for Advancement in High-Impact Areas (MAHA)–MedTech is a national initiative to accelerate innovation, manufacturing, and commercialization of cutting-edge medical technologies in India, enhancing access and affordability in healthcare.

Organisations involved:

- Jointly launched by the Anusandhan National Research Foundation (ANRF), the Indian Council of Medical Research (ICMR), and the Bill & Melinda Gates Foundation.

Aim:

- To reduce India's dependence on high-cost medical imports, strengthen domestic capacity, and ensure equitable access to affordable and high-quality medical devices and diagnostics aligned with national health priorities such as tuberculosis, cancer, and neonatal care.

Key Features:

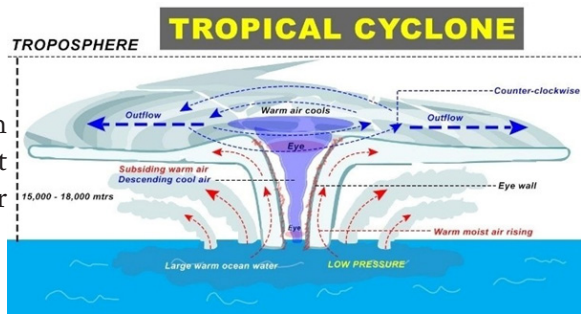
- Funding Support: 5–25 crore per project (up to 50 crore for exceptional cases) for startups, MSMEs, academic, hospital, and industry collaborations.
- Broad Scope: Covers devices, diagnostics, implants, AI/ML-based tools, robotics, and assistive technologies.
- Enabling Frameworks: Includes Patent Mitra for IP protection, MedTech Mitra for regulatory clearances, and a Clinical Trial Network for validation.
- Two-Stage Selection: Concept notes (Sept–Nov 2025) followed by full proposals (from Dec 2025).

Significance:

- Strengthens India's Atmanirbhar Bharat vision in medical technology.
- Promotes industry–academia collaboration and research translation from lab to market.

Cyclone Montha

Context:



The India Meteorological Department (IMD) has issued a high alert for Andhra Pradesh and Odisha as Cyclone Montha is set to make landfall between Machilipatnam and Kalingapatnam near Kakinada.

About Cyclone Montha:

What it is?

- Cyclone Montha is a tropical cyclonic storm forming over the southeast Bay of Bengal, expected to intensify into a Severe Cyclonic Storm (SCS) as it approaches India's east coast, bringing heavy rainfall and strong winds across Andhra Pradesh, Odisha, and adjoining states.

Origin:

- The storm originated as a deep depression over the southeast Bay of Bengal, gaining strength due to warm ocean temperatures, low vertical wind shear, and high humidity, which are conducive conditions for cyclone formation in this region.

How cyclones are formed?

- Low-Pressure Centre: Warm ocean waters (above 26°C) cause air to rise, creating a low-pressure zone.
- Condensation & Energy: As moist air rises, it condenses and releases latent heat, fueling the cyclone.
- Coriolis Effect: The Earth's rotation causes winds to spiral anticlockwise in the Northern Hemisphere and clockwise in the Southern Hemisphere, forming a rotating storm system.
- Development Stages: Disturbance → Depression → Deep Depression → Cyclonic Storm → Severe Cyclone → Super Cyclone (based on wind speed).

Naming of cyclones:

- Responsible Body: Cyclones in the North Indian Ocean are named by countries under the WMO/ESCAP Panel on Tropical Cyclones (PTC) — a joint initiative of the World Meteorological Organization (WMO) and the UN Economic and Social Commission for Asia and the Pacific (ESCAP).
- Member Countries (13 nations): India, Bangladesh, Myanmar, Oman, Pakistan, Sri Lanka, Thailand, Maldives, Iran, Qatar, Saudi Arabia, UAE, and Yemen.

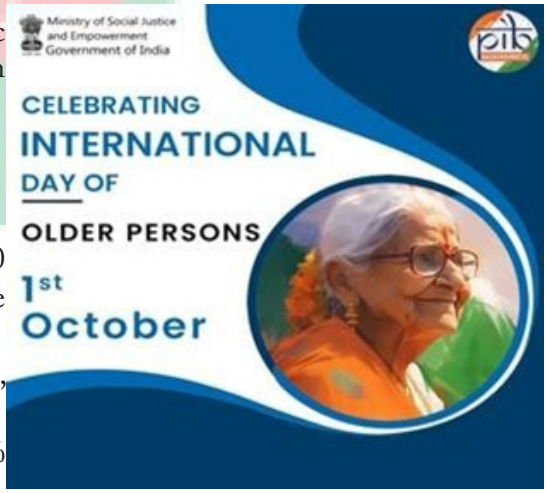
Naming Process:

- Each country submits 13 suggested names to the panel.
- The IMD (India Meteorological Department) maintains the regional list and assigns names sequentially when new cyclones form.
- The current list (released in 2020) contains 169 names in total.
- "Montha" was proposed by Thailand which is one of the 13 member countries from this 2020 list.

Elderly in India

Context:

A recent PIB release, underscored India's accelerating demographic transition towards an ageing population, projected to reach 230 million by 2036.



About Elderly in India:

Current Data and Statistics

- India's elderly population (60+) is expected to rise from 100 million in 2011 to 230 million by 2036, forming 15% of the total population.
- As per LASI 2021, elderly constitute 12% of the population, projected to reach 319 million by 2050.
- Sex ratio among elderly: 1,065 females per 1,000 males; 58% of elderly are women, 54% of whom are widows.
- Kerala will have the highest elderly share (23% by 2036); Uttar Pradesh will see the fastest growth in elderly numbers.
- The dependency ratio stands at 62 dependents per 100 working-age individuals, highlighting rising socio-economic pressure.

Importance of the Elderly in India:

- Social Capital: Elderly hold deep cultural, moral, and familial wisdom, anchoring intergenerational values and traditions.
- Economic Contributors: They drive the emerging "silver economy", creating demand for healthcare, housing, and financial products.
- Knowledge Reservoir: Their experience enriches governance, education, and community leadership roles.
- Demographic Imperative: Addressing ageing is critical for sustainable development, social cohesion, and healthcare equity.
- Moral Obligation: Welfare of elders aligns with Article 41 (Right to work, education, and public assistance) and the Directive Principles of State Policy.

Government Initiatives for the Elderly:

1. Atal Pension Yojana (APY): Provides guaranteed pension (1,000– 5,000/month) to unorganised workers; 8.27 crore subscribers (2025).
2. Atal Vayo Abhyuday Yojana (AVYAY): Umbrella programme ensuring social inclusion, care, and empowerment of senior citizens.
3. Integrated Programme for Senior Citizens (IPSrC): Funds 696 old age homes and mobile medical units nationwide.
4. Rashtriya Vayoshri Yojana (RVY): Provides assistive devices like hearing aids, wheelchairs, and dentures to poor elderly.
5. SAGE & SACRED Portals: Promote elderly care start-ups and re-employment opportunities for citizens aged 60+.
6. National Programme for Health Care of the Elderly (NPHCE): Delivers geriatric healthcare at primary and tertiary levels across 713 districts.
7. Elderline: Helpline for grievance redressal, counselling, and emergency support.
8. Indira Gandhi National Old Age Pension Scheme (IGNOAPS): Monthly pension for BPL elderly aged 60+ and 80+.
9. Maintenance and Welfare of Parents and Senior Citizens Act (2007 & Amendment 2019): Legal obligation on children to maintain elderly parents and ensure a life of dignity.

Challenges Faced by the Elderly:

- Health Insecurity: India faces inadequate geriatric care infrastructure, with rising cases of chronic diseases like diabetes and dementia, and limited mental health support or specialised hospitals for the elderly.
- Economic Vulnerability: Pension coverage remains narrow, forcing many seniors—especially widowed or rural women—to depend on family or informal work for survival amid rising healthcare and living costs.
- Social Isolation: Urban migration and the decline of joint families have eroded traditional caregiving systems, leaving many elderly emotionally neglected and socially disconnected.
- Digital Divide: Limited access to smartphones, internet, and digital literacy excludes older adults from telemedicine, online banking, and government welfare platforms.
- Infrastructure Gaps: Urban spaces remain unsafe and unfriendly to seniors, with poor accessibility in transport, lack of ramps, handrails, and emergency response systems tailored to their needs.

Way Ahead:

- Strengthen Silver Economy: Encourage public–private partnerships for innovation in eldercare technology, insurance models, and retirement homes to convert ageing into an economic opportunity.
- Integrated Policy Framework: Promote coordination among ministries of Health, Social Justice, Finance, and Housing to ensure unified implementation of elderly welfare policies.
- Expand Geriatric Healthcare: Establish geriatric wards in district hospitals and enhance telemedicine under Ayushman Bharat for affordable and accessible senior healthcare.
- Enhance Social Security: Universalise pension schemes and expand formal caregiver training through the National Institute of Social Defence to professionalise elderly care.

- Promote Digital Inclusion: Launch nationwide programs for senior citizens to learn e-governance tools, digital payments, and telehealth services, bridging the digital literacy gap.
- Community Engagement: Foster intergenerational initiatives like Naitik Patam in schools and communities to cultivate empathy, family bonding, and respect for the elderly.

Conclusion:

India's ageing population marks both a social responsibility and an economic opportunity. Empowering the elderly through care, inclusion, and dignity will define the nation's moral and developmental maturity. A future-ready India must treat its seniors not as dependents—but as active partners in the journey to Viksit Bharat 2047.

KOYLA SHAKTI Dashboard

Context:

The Union Minister of Coal and Mines, launched two major digital platforms — the KOYLA SHAKTI Dashboard and the Coal Land Acquisition, Management, and Payment (CLAMP) Portal.

About KOYLA SHAKTI Dashboard:

What it is?

- A Smart Coal Analytics Dashboard (SCAD) developed by the Ministry of Coal as a unified digital platform integrating the entire coal value chain — from mine to market.
- Organisation: Developed and maintained by the Ministry of Coal.

Aim:

- To act as the digital backbone of India's coal ecosystem by enabling real-time monitoring, data integration, and evidence-based policy formulation for improved operational efficiency.

Key Features:

- Unified Visibility: Integrates data from coal production, logistics, and consumption into a single interface.
- Real-Time Monitoring: Tracks coal movement through rail, road, and multimodal systems with live analytics.
- Data-Driven Governance: Enables predictive analytics for demand forecasting and resource allocation.
- Incident Response System: Provides alerts for operational disruptions and supports rapid redressal.
- Transparency & Accountability: Displays KPIs for all stakeholders to ensure open and fair monitoring.

About CLAMP Portal:

What it is?

- The Coal Land Acquisition, Management, and Payment (CLAMP) Portal is a centralized digital solution for managing land acquisition, compensation, and R&R processes in coal-bearing areas.

Aim:

- To ensure time-bound, transparent, and equitable land management by digitizing records, payments, and inter-agency coordination.

Key Features:

- End-to-End Digital Workflow: From uploading land records to final compensation payment.
- Central Repository: Maintains updated land ownership and compensation details.
- Transparency & Accountability: Reduces human discretion and procedural delays.
- Integration Across PSUs: Links coal PSUs, State departments, and district authorities.
- Citizen-Centric Governance: Ensures fair and prompt rehabilitation and resettlement.

Model Youth Gram Sabha Initiative

Context:

The Ministry of Panchayati Raj, in collaboration with the Ministry of Education and Ministry of Tribal Affairs, launched the Model Youth Gram Sabha (MYGS) Initiative in New Delhi to foster democratic leadership.

About Model Youth Gram Sabha Initiative:

What it is?

- The Model Youth Gram Sabha (MYGS) is a nationwide initiative aimed at providing students hands-on experience in grassroots democracy by simulating the functioning of real Gram Sabhas. It encourages civic awareness, leadership, and participatory governance among youth.

Organisation:

- Jointly launched by the Ministry of Panchayati Raj, Ministry of Education (Department of School Education & Literacy), and the Ministry of Tribal Affairs.
- Supported by Jawahar Navodaya Vidyalayas (JNVs), Eklavya Model Residential Schools (EMRSs), and State Government Schools.

Aim:

- To nurture democratic leadership among students through experiential and activity-based learning.
- To align with the National Education Policy (NEP) 2020 in fostering responsible, participative, and community-oriented citizens.

Key Features:

- Implementation across 1,000+ schools nationwide.
- Integration of training modules and a dedicated MYGS digital portal.
- Promotes learning by doing, teamwork, transparency, and decision-making through mock Gram Sabha sessions.
- Plans to extend the model to urban areas through Model Ward Sabhas for city students.

Significance:

- Connects education with governance, making students active participants in democracy.
- Strengthens grassroots awareness and civic responsibility in youth.

Nutrient Based Subsidy Scheme (NBS)

Context:

The Union Cabinet, chaired by Prime Minister, has approved the Nutrient Based Subsidy (NBS) rates for Rabi 2025–26 on Phosphatic and Potassic (P&K) fertilizers to ensure their smooth availability to farmers at affordable prices.

About Nutrient Based Subsidy Scheme (NBS):

Definition:

- The Nutrient Based Subsidy (NBS) is a centrally sponsored scheme under the Department of Fertilizers, which provides a fixed subsidy per kg of nutrient content (N, P, K, S) in Phosphatic and Potassic (P&K) fertilizers, ensuring affordable access for farmers.
- Launch: Introduced on 1st April 2010, replacing the earlier product-based subsidy system for non-urea fertilizers.
- Implementing Organization: Administered by the Department of Fertilizers, Ministry of Chemicals and Fertilizers, Government of India.

Aim:

- To make fertilizers available at reasonable prices to farmers.

- To promote balanced fertilizer use based on soil and crop requirements.
- To encourage the fertilizer industry to adopt efficiency, cost-effectiveness, and competition.

Key Features:

- Subsidy based on nutrient content: Fixed subsidy (/kg) for N, P, K, and S nutrients instead of per-product subsidy.
- Freedom in MRP fixation: Fertilizer companies can set Maximum Retail Prices (MRPs) reasonably, monitored by the government.
- Coverage: Applies to 28 grades of P&K fertilizers, including Di-Ammonium Phosphate (DAP) and NPKS grades.
- Special Support: Government may announce special packages (e.g., for DAP) over and above NBS rates to stabilize prices amid global volatility.
- Urea exception: Urea remains under statutory price control, with a fixed MRP of 242 per 45-kg bag since March 2018.

Significance:

- Affordable Fertilizers: Ensures continuous supply of essential P&K fertilizers at subsidized prices to farmers.
- Nutrient Balance: Promotes judicious and soil-specific fertilizer use, avoiding over-reliance on nitrogenous fertilizers.
- Fiscal Efficiency: Provides transparent and predictable subsidy disbursement to fertilizer companies.

Military Exercises in News

Context:

India and South Korea conducted the inaugural edition of their bilateral naval exercise at Busan Naval Harbour marking a major milestone in Indo-Pacific maritime cooperation.

- Simultaneously, India also began AUSTRAHIND 2025 with Australia and INDRA 2025 with Russia, showcasing its expanding defence partnerships.

About Military Exercises in News:

India–Republic of Korea Navy Bilateral Exercise:

- Nations Involved: India and South Korea
- Host Place: Busan Naval Harbour, South Korea
- Aim: To enhance naval interoperability, strengthen maritime partnership, and promote regional stability in the Indo-Pacific.

Key Features:

1. Conducted in two phases—harbour phase (cross-deck visits, training) and sea phase (joint operations between INS Sahyadri and ROKS Gyeongnam).
2. Focus on mutual learning, operational synergy, and maritime security cooperation under India's Act East Policy.

Military Exercise 'AUSTRAHIND 2025':

- Nations Involved: India and Australia
- Host Place: Perth, Australia
- Aim: To enhance military cooperation and interoperability in sub-conventional warfare and urban operations.

Key Features:

1. Joint company-level tactical drills in open and semi-desert terrains.
2. Emphasis on integration of emerging technologies and combined operations between the two armies.

Military Exercise 'INDRA 2025':

- Nations Involved: India and Russia
- Host Place: Mahajan Field Firing Range, Bikaner, Rajasthan
- Aim: To improve counter-terrorism coordination and operational readiness between the Indian and Russian forces.

Key Features:

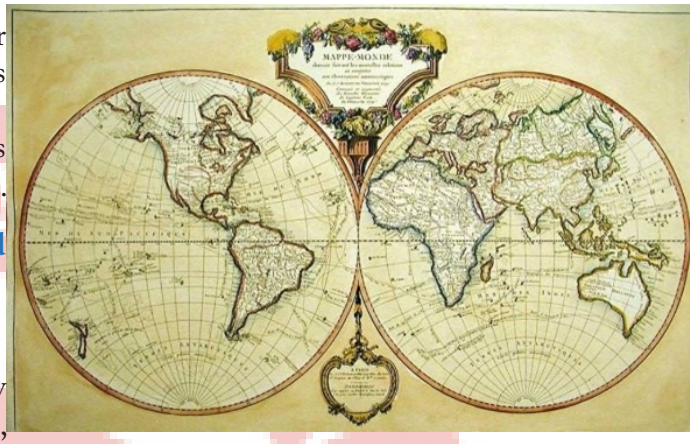
1. Includes live-fire exercises, UAV reconnaissance, and precision strikes under desert conditions.
2. Focus on hostage-rescue missions, artillery coordination, and joint tactical planning for modern conflict scenarios.

Chapter-
8

INTERNATIONAL RELATION

India and the Multipolar West: Challenges and Opportunities

Context:



India's foreign policy is adapting to the evolving "multipolar West," marked by internal divisions among Western powers and Europe's pursuit of strategic autonomy.

- This shifting balance offers India new opportunities for global engagement and diversified partnerships.

About India and the Multipolar West: Challenges and Opportunities

Trends in a Changing West:

- Rise of Strategic Autonomy: Europe, led by Macron and von der Leyen, is pursuing defence, technological, and economic independence from the US.
- Pluralisation of Power: Western unity is giving way to multiple centres—US, EU, UK, Japan—each asserting distinct global roles.
- Re-emergence of Middle Powers: Nations like India, South Korea, and Australia are increasingly partnering with Europe on trade, tech, and security.

Causes of Internal Division Among the West:

- US Nationalism: Donald Trump's America First policy eroded trust, questioning NATO, trade pacts, and global commitments.
- Divergent Threat Perceptions: Europe prioritises Russia; the US and its Asian allies focus on containing China.
- Economic and Technological Rivalries: Disputes over data sovereignty, industrial subsidies, and AI regulations deepen trans-Atlantic rifts.
- Cultural and Ideological Polarisation: The American right's export of culture wars and waning faith in liberal norms unsettle European partners.

Implications of a Multipolar West:

- Opportunities for India: A fragmented West lets India build diverse partnerships with the EU, UK, and US simultaneously.
- Weakening Collective Response: Disunity could blunt Western resolve against authoritarian powers like China and Russia.
- Rise of Regional Balancing: Europe's self-reliance and Indo-Pacific outreach reshape global alignments and trade corridors.
- Demand for Indian Agility: To benefit from Western pluralism, India must reform internally—modernising its economy and diplomacy alike.

India's Expanding Role:

- From Non-Alignment to Multi-Alignment: India has shifted from neutrality to building flexible coalitions with diverse global powers to safeguard strategic autonomy.
- Central to Europe's Indo-Pacific Vision: The EU's 2025 Joint Communication identifies India as a pivotal Indo-Pacific partner in maintaining regional stability and open trade.
- Deepening Economic Links: New trade agreements with EFTA, the UK, and the EU reflect India's growing integration with European and Western markets.

- Technological and Digital Collaboration: Joint work on digital public infrastructure, green tech, and AI governance strengthens India's role in setting global standards.
- Defence and Connectivity Cooperation: Partnerships under the Global Gateway initiative enhance joint defence production, resilient supply chains, and maritime connectivity.

Opportunities and Risks for India:

Opportunities:

- Diplomatic Flexibility: A multipolar West allows India to engage bilaterally with several Western powers without aligning exclusively with any one bloc.
- Strategic Bridging Role: India can act as a stabiliser between the US, Europe, and the Global South, enhancing its voice in global governance.
- Economic Leverage: Expanding Western diversification away from China creates new trade, investment, and technology opportunities for India.
- Enhanced Global Visibility: India's participation in multiple forums (G20, Quad, EU-India dialogues) boosts its reputation as a responsible middle power.

Risks:

- Fragmented Western Unity: Divisions among Western powers could reduce coordinated action on global challenges, weakening collective deterrence.
- Geopolitical Overstretch: Managing simultaneous engagement with the US, EU, and Russia may strain India's diplomatic bandwidth.
- Domestic Readiness Gap: Institutional delays, slow economic reforms, and bureaucratic inertia could prevent India from maximising external openings.

Key Takeaway:

- Era of Opportunity: A multipolar West provides India a rare moment to expand influence across trade, technology, and strategic domains.
- Need for Internal Reform: Success abroad must be matched by administrative efficiency, innovation, and institutional agility at home.
- Pragmatic Diplomacy: India's engagement strategy should remain flexible—partnership-driven, not alliance-bound.
- Strategic Equilibrium: Balancing ties with the US, Europe, and Global South is essential for preserving India's autonomy and credibility.
- Vision Ahead: By coupling external dynamism with internal modernisation, India can emerge as a balancing power shaping the future of global order.

Conclusion:

India's rise in a multipolar West hinge on balancing agility abroad with reform at home. By aligning strategic diplomacy with internal modernisation, India can transform this geopolitical flux into a lasting moment of global leadership.

India–Afghanistan Relations Amid Taliban Diplomacy

Context:

Afghanistan's Foreign Minister Amir Khan Muttaqi's six-day visit to India marks the first high-level Taliban delegation visit since 2021, signalling cautious diplomatic re-engagement.

About India–Afghanistan Relations Amid Taliban Diplomacy:

Historical Context of India–Afghanistan Relations

- Civilisational Linkages: India and Afghanistan share deep cultural, linguistic, and trade ties dating back to the Silk Route and shared Buddhist heritage.

- Eg: The Kabul–Gandhara–Taxila corridor was a conduit for Indo-Greek and Buddhist exchanges.
- Diplomatic Support: Post-1947, Afghanistan was the only country to oppose Pakistan's UN membership, highlighting early political affinity with India.
- Developmental Engagement: India invested over $3 billion in reconstruction after 2001 — building the Salma Dam, Afghan Parliament, and Zaranj–Delaram Highway, cementing goodwill.
- Humanitarian Assistance: Post-2021 Taliban takeover, India maintained "people-centric engagement" — providing 50,000 tonnes of wheat, medicines, vaccines, and scholarships.
- Current Relevance: Despite non-recognition of the Taliban regime, India has adopted a de facto engagement policy through humanitarian channels and regional dialogues (e.g., Moscow Format, Heart of Asia).

India's Strategic Rationale for Engagement:

Regional Stability and Connectivity:

- Afghanistan remains India's gateway to Central Asia's energy markets.
- Eg: Chabahar Port (Iran) and the International North–South Transport Corridor (INSTC) depend on Afghan stability.

Countering Pakistan and China:

- Afghanistan under Taliban has strained ties with Pakistan and joined CPEC dialogues, adding complexity.
- India seeks to neutralise Pakistan's strategic depth and check China's western expansion under BRI.

Counterterrorism Cooperation:

- Groups like LeT, JeM, and ISKP operate from Afghan soil.
- India's engagement enables direct intelligence sharing and crisis management.
- Preventing Radicalisation Spillover: An unstable Afghanistan could fuel cross-border militancy and narcotics trade, impacting India's internal security.
- Humanitarian and Image Diplomacy: India's soft-power approach through aid and education builds moral credibility and global recognition as a responsible regional power.

Policy Dilemmas and Diplomatic Challenges:

- Non-recognition vs. Engagement: India doesn't officially recognise the Taliban but engages pragmatically — a de facto realism to safeguard interests.
- Flag and Protocol Issue: Diplomatic meetings, such as in Dubai (2024) and New Delhi (2025), exclude Taliban flag display to maintain international legitimacy balance.
- Iran–US Sanctions Nexus: The withdrawal of the Chabahar sanctions waiver affects India's Afghan connectivity strategy.
- Influence of External Players: The US re-engagement with Pakistan, Russia–China normalization with Kabul, and Iran's strategic depth complicate India's calculus.
- Security and Human Rights Concerns: India must balance strategic engagement with its principled stance on inclusivity, women's rights, and democratic governance in Afghanistan.

Regional Implications Visit:

Aspect	Implication for India
Strategic	Deepens dialogue on counterterrorism and connectivity, limiting Pakistan's leverage.
Economic	Opens scope for trade corridors via Chabahar, and exploration of Afghanistan's $1–3 trillion mineral reserves.
Diplomatic	Repositions India as a regional stabiliser engaging all stakeholders — Russia, Iran, and Central Asia.
Security	Allows real-time intelligence coordination against extremist spillover.
Symbolic	Projects India's "Strategic Autonomy Doctrine" — engagement without endorsement.

Way Forward:

- Adopt a 'Dual Track' Policy: Continue people-to-people and developmental aid, while maintaining conditional diplomatic engagement with the Taliban.

- Enhance Regional Coordination: Leverage Moscow Format and SCO mechanisms with Russia, Iran, and Central Asia to ensure inclusive regional solutions.
- Strengthen Chabahar Connectivity: Negotiate limited sanctions relief via multilateral platforms for continued India–Afghan trade access.
- Institutionalise Counterterror Dialogue: Create an India–Afghanistan Security Contact Group to share threat intelligence and monitor cross-border militancy.
- Invest in Afghan People: Expand scholarships, online education, and healthcare initiatives for Afghan youth and women to build goodwill beyond regimes.

Conclusion:

The Muttaqi visit signifies a turning point — India's shift from cautious observation to strategic pragmatism in Afghanistan. Balancing values with realism, New Delhi's nuanced engagement could make it a stabilising anchor in South–Central Asia. Ultimately, constructive diplomacy—not recognition—remains India's bridge to Kabul and the key to a secure regional future.

MERCOSUR (Southern Common Market)

Context:

India and the Southern Common Market (MERCOSUR) agreed to deepen their Preferential Trade Agreement (PTA) to boost trade and investment, with both sides aiming to conclude negotiations within one year.

About MERCOSUR (Southern Common Market):

What It Is?

- MERCOSUR (Mercado Común del Sur) is a regional integration and economic bloc in South America that promotes free trade, customs union, and economic cooperation among member nations. It is one of the most influential trading blocs in the Global South.
- Established In: Formally created on 26 March 1991 through the Treaty of Asunción, later strengthened by the Protocol of Ouro Preto (1994), which gave MERCOSUR a legal personality and institutional framework.

Headquarters: Montevideo, Uruguay.

Nations Involved:

- Founding Members: Argentina, Brazil, Paraguay, Uruguay
- Later Joined: Venezuela (membership currently suspended) and Bolivia (acceded in 2023)
- Associate Members: Chile, Peru, Colombia, Ecuador, Guyana, and Suriname
- Official Languages: Spanish and Portuguese.

Aim:

- To create a common market that facilitates free movement of goods, services, capital, and people, while reducing regional inequalities, enhancing economic competitiveness, and ensuring democratic governance across South America.

History & Evolution:

- The 1991 Treaty of Asunción laid the foundation for economic integration.
- The Protocol of Ouro Preto (1994) institutionalised MERCOSUR's structure and gave it legal status in international law.
- Since 2003, MERCOSUR has pursued external trade agreements with India, the EU, and ASEAN, expanding its global economic presence.
- India–MERCOSUR Framework Agreement (2003) and PTA (2009) provided tariff preferences on select goods, now set for expansion.

Functions and Mechanisms:

- Trade Liberalisation: Gradual removal of tariffs and non-tariff barriers within the bloc.
- Common External Tariff (CET): Uniform tariff policy for non-member imports.
- Institutional Framework: Includes the Common Market Council (CMC), Common Market Group (CMG), and Trade Commission.
- FOCEM (MERCOSUR Structural Convergence Fund): Established in 2005 to fund projects promoting competitiveness, social cohesion, and reducing economic asymmetries among members.
- Social and Cultural Integration: Promotes cooperation in labour, migration, education, and culture, reflecting "human-faced integration" principles.

The New Arc of India–Australia Collaboration

Context:

India and Australia have elevated their defence engagement through the inaugural India–Australia Defence Ministers' Dialogue (2025) in Canberra, signing multiple agreements on maritime security, air refuelling, and submarine rescue cooperation.

About The New Arc of India–Australia Collaboration:

Background and Evolution:

- Strategic Convergence: India and Australia aligned over shared democratic ideals and a free Indo-Pacific, collaborating through the Quad and regular ministerial dialogues to counter regional instability.
- Operational Deepening: Regular joint drills such as Talisman Sabre, logistics pacts, and air-refuelling frameworks improved coordination and interoperability between their armed forces.
- Industrial and Logistics Convergence: The relationship expanded toward joint ship repair, maintenance, and defence manufacturing—turning strategic dialogue into operational outcomes.

Key Agreements and Mechanisms:

- Joint Maritime Security Collaboration Roadmap: Enhances coordinated maritime surveillance, domain awareness, and interoperability across the Indo-Pacific region.
- Mutual Submarine Rescue Support Arrangement: Establishes a structured framework for underwater rescue operations and naval contingency management.
- Air-to-Air Refuelling Agreement (2024): Strengthens tactical endurance and enables longer joint missions through shared aerial refuelling capacity.
- Annual Defence Ministers' Dialogue & Joint Staff Talks: Creates institutional continuity for defence discussions and operational planning across political tenures.
- Defence Industry Roundtables: Encourages industrial linkages, co-production, and maintenance collaboration between Indian and Australian defence sectors.

Drivers of Deepening Partnership:

- Strategic Factors: The Indo-Pacific's shifting power dynamics and China's assertive posturing have propelled India and Australia toward closer military cooperation.
- Pragmatic Concerns: Both seek to diversify security dependencies by building autonomous bilateral capabilities for crisis management.
- Industrial Synergy: India's cost-efficient manufacturing complements Australia's advanced defence technology, creating a balanced industrial partnership.
- Regional Context: India's Indian Ocean presence and Australia's Pacific positioning make them natural anchors for a stable maritime security order.

Strategic and Industrial Significance:

- Maritime Security: Strengthened naval operations improve sea-lane protection and reinforce freedom of navigation across key routes.

- Defence Production Linkages: Joint development of equipment and repair infrastructure boosts regional supply chain resilience.
- Technological Complementarity: Integrates India's scalable production with Australia's innovation-driven R&D base for advanced defence solutions.
- Institutional Strengthening: Annual dialogues and joint forums ensure stable defence engagement irrespective of political change.
- Regional Balance: Enhances Quad cohesion and supports a transparent, rules-based Indo-Pacific architecture.

Way Forward:

- Operationalise logistics and ship-repair pacts: Implement agreed maintenance facilities and naval cooperation mechanisms efficiently.
- Expand information-sharing frameworks: Build secure, classified networks for real-time maritime intelligence and situational awareness.
- Launch joint defence R&D projects: Cooperate in next-generation technologies such as drones, AI warfare, and cyber resilience.
- Integrate with broader Quad initiatives: Align bilateral efforts with collective Indo-Pacific security strategies for synergy.
- Institutionalise defence industry linkages: Foster private-sector partnerships for sustained co-production and long-term industrial depth.

Conclusion:

India–Australia defence cooperation has matured from symbolic diplomacy to operational and industrial partnership, building resilience in the Indo-Pacific. The collaboration now represents a strategic fusion of geography, capability, and shared democratic vision, reinforcing a stable, rules-based maritime order and paving the way for sustained regional security.

India's Evolving Role in UN Peacekeeping

Context:

India hosted the United Nations Troop Contributing Countries (UNTCC) Chiefs' Conclave 2025 in New Delhi from October 14–16, 2025, marking the first time the Indian Army led such a global forum.

About India's Evolving Role in UN Peacekeeping:

UN Peacekeeping Forces and India's Contribution:

- The United Nations Peacekeeping Force (UNPKF) was established in 1948 to help countries torn by conflict transition to peace and stability. It operates under Chapters VI and VII of the UN Charter, focusing on monitoring ceasefires, protecting civilians, and rebuilding institutions.
- India has been one of the largest and most consistent troop contributors, deploying over 3,00,000 personnel across 50 missions. Indian peacekeepers have served in Congo, Lebanon, South Sudan, and Liberia, earning UN medals for valour.
- India also pioneered the first all-women police contingent in Liberia (2007), symbolising its commitment to gender inclusion and humanitarian service.

India's Moral and Strategic Vision:

- India sees peacekeeping as "Seva" (service), grounded in Vasudhaiva Kutumbakam (the world is one family) and Ahimsa (non-violence).
- Its policy of "No National Caveats" ensures impartial action without prioritising national interest.
- Defence Minister Rajnath Singh's "4 Cs"—Consultation, Cooperation, Coordination, and Capacity Building—represent India's model for collective, equitable peace operations.

- Strategically, India advocates for democratisation within the UN, ensuring troop-contributing countries (TCCs) have a decisive say in mission planning.
- The vision merges moral legitimacy with operational realism, positioning India as a reformer, not just a responder.

Role of Technology in Peacekeeping:

- India promotes technology as a moral multiplier, using innovation to save lives, enhance transparency, and reduce casualties.
- Introduced the concept of a UAS/C-UAS doctrine—layered drone systems for reconnaissance, convoy safety, and casualty evacuation.
- Advocates AI-enabled logistics, data analytics, and real-time surveillance for situational awareness.
- The Defence Expo 2025 showcased 41 indigenous systems under Aatmanirbhar Bharat, highlighting India's push for self-reliant yet globally shared security tools.
- Proposed creation of a "BlueSky Peacekeeping Commons"—a shared platform for telemetry data, drone feeds, and TCC interoperability standards.

Limitations of UN Peacekeeping Forces

- Vague Mandates: Missions often suffer from ambiguous goals and political interference, reducing operational clarity.
- Resource Constraints: Many missions face inadequate funding, outdated equipment, and personnel shortages.
- Erosion of Neutrality: Increasing engagement in counterterrorism or political roles undermines traditional neutrality.
- Accountability Gaps: Crimes against peacekeepers and abuse allegations remain weakly prosecuted, eroding credibility.
- Evolving Warfare: Hybrid, cyber, and drone-based threats have outpaced the adaptation of traditional peacekeeping frameworks.

Way Ahead:

- Mandate Realignment: Ensure realistic, context-based goals that prioritise civilian protection and host-nation consent.
- Technological Modernisation: Institutionalise AI, UAS, and cyber-resilience tools with strong ethical frameworks.
- TCC Empowerment: Involve troop contributors like India in decision-making, training, and policy review processes.
- Gender and Regional Inclusivity: Expand the role of women peacekeepers and Global South partnerships for legitimacy.
- Accountability Mechanisms: Establish transparent audit systems, war-crime accountability, and peacekeeper welfare reforms.

Conclusion:

India's approach to UN peacekeeping blends morality with modernity, viewing peace not as dominance but as duty. By promoting democratic reforms, technological ethics, and South-led leadership, India seeks to humanise global security. As the world's conflicts grow complex, India's blueprint shows that credibility, compassion, and capability are the true weapons of peace.

The UN at 80: A Symbol of Possibility and Imperfect Hope

Context:

As the United Nations celebrates 80 years of its establishment (1945–2025), it reflects on its evolution from a post-World War II peacekeeping body to a global institution addressing 21st-century challenges.

UNITED NATIONS

About The UN at 80: A Symbol of Possibility and Imperfect Hope

Evolution of the United Nations

1. Born of tragedy, not triumph: Emerging from the ashes of World War II, the UN was envisioned as a collective security mechanism to prevent future conflicts, promote human rights, and uphold international law.
2. Institutional design: Established on 24 October 1945 with 51 founding members, the UN's framework — especially the Security Council (UNSC) — was shaped by post-war power hierarchies granting veto powers to five permanent members (P5).
3. Evolution through decades:
   - Cold War era: The UN became an arena for ideological rivalry between the U.S. and USSR.
   - Post-Cold War phase: It evolved into a platform for humanitarian interventions and peacekeeping, as seen in Namibia and East Timor.
   - 21st century: The focus expanded to climate action, sustainable development, and digital governance.

India's Case and Role in the UN System:

- Founding Member: India has been part of the UN since its inception, contributing to charter drafting and UN peacekeeping operations in Africa and Asia.
- Advocacy for Reform: India demands UN Security Council (UNSC) expansion to reflect 21st-century realities, representing the Global South and emerging democracies.
- Peace and Development Leadership: As one of the largest troop contributors to UN peacekeeping, India upholds humanitarian principles through its commitment to SDGs, climate diplomacy, and gender equality.
- Strategic Autonomy: India's stance of non-alignment and sovereignty reflects its push for a multipolar, inclusive global order, not dominance by a few powers.
- Soft Power Diplomacy: Through initiatives like International Day of Yoga and Vaccine Maitri, India reinforces the UN's ideals of global cooperation and shared humanity.

Relevance of the UN Today:

- Humanitarian Anchor: Agencies like UNHCR, WFP, and WHO continue to deliver critical aid, food, and health services across conflict and disaster zones.
- Norm-Setting Power: Global frameworks such as the Universal Declaration of Human Rights and Sustainable Development Goals (SDGs) define global moral standards.
- Peacekeeping Role: Despite limitations, UN peacekeepers provide stability and dialogue platforms in conflict-ridden nations.
- Diplomatic Platform: It remains the only global forum where adversaries can negotiate, build consensus, and advance multilateralism in issues like climate change and digital ethics.
- Moral Legitimacy: The UN continues to symbolise collective responsibility, giving small and developing nations a voice in global governance.

Present Challenges:

- Outdated UNSC Structure: Power distribution frozen in 1945 realities, excluding emerging powers like India, Brazil, and South Africa.
- Erosion of Multilateralism: Rising nationalism, populism, and protectionism weaken faith in international cooperation.
- Funding Shortfalls: Delayed or withheld dues by major powers like the U.S. have led to budget crises and operational cutbacks.
- Veto Paralysis: Frequent vetoes by P5 members obstruct collective action on crises such as Ukraine, Gaza, and Syria.
- Institutional Inertia: Bureaucratic rigidity hampers rapid response to global emergencies like pandemics and cyber threats.

Way Forward:

- UNSC Reform: Expand permanent membership to include India, Brazil, Japan, and African representation for legitimacy and balance.

- Financial Stability: Ensure timely contributions, explore innovative funding models, and enhance transparency.
- Digital Transformation: Use AI, big data, and real-time monitoring to improve peacekeeping and humanitarian responses.
- Empower Field Missions: Decentralise decision-making, giving regional offices autonomy to respond swiftly to crises.
- Moral Renewal: Reclaim its ethical authority by upholding justice, human rights, and accountability without political bias.

Conclusion:

At eighty, the United Nations remains flawed but foundational — a mirror of global contradictions and aspirations. Its renewal depends on reform, representation, and political will. In a divided world, the UN endures as humanity's best hope for dialogue over domination and cooperation over chaos.

United Nations (UN)

Context:

Today, October 24, 2025, marks the celebration of United Nations Day and the 80th anniversary of the UN's establishment.

- The day commemorates the entry into force of the UN Charter in 1945, reaffirming global commitment to peace, human rights, and sustainable development

United Nations | Peace, dignity and equality on a healthy planet

About United Nations (UN):

What it is?

- The United Nations (UN) is an intergovernmental organization established to promote peace, security, human rights, and development across the world. It currently comprises 193 member states, making it the most inclusive global body.

History:

- The idea was first conceived during World War II, with the term "United Nations" coined by U.S. President Franklin D. Roosevelt in 1942.
- The UN Charter was signed on June 26, 1945, at the San Francisco Conference by 50 nations and came into force on October 24, 1945.
- The first Secretary-General was Trygve Lie of Norway.
- Established in: 1945, following the devastation of World War II, replacing the failed League of Nations to prevent future conflicts and promote global cooperation.

Aim:

- Maintain international peace and security through dialogue and collective action.
- Foster economic and social development via sustainable development goals (SDGs).
- Uphold human rights and international law.
- Deliver humanitarian assistance in crises.

Functions:

- Peacekeeping and Security: Deploys peacekeeping missions in 11 regions (as of 2024).
- Development Agenda: Implements Sustainable Development Goals (SDGs) to end poverty and protect the planet by 2030.

- Humanitarian Relief: Through agencies like UNICEF, WFP, and UNHCR, provides aid to millions affected by conflict and climate disasters.
- Global Governance: Oversees international treaties, human rights conventions, and environmental protocols.
- Coordination Mechanism: Works through six main organs — General Assembly, Security Council, ECOSOC, ICJ, Secretariat, and Trusteeship Council.

Unique Facts:

- Funding: 72% of its revenue comes from member-state contributions, with the U.S., China, and Japan being top funders.
- India, on the other hand, contributed to 0.2088 per cent of the total UN fundings in 2024-25.
- Official Languages: Arabic, Chinese, English, French, Russian, and Spanish.
- Headquarters: Located in New York City, USA.
- Nobel Peace Laureate: The UN and its agencies have collectively received the Nobel Peace Prize 12 times.
- Recent Member: South Sudan (2011) became the UN's 193rd member.

Chapter-
9

SOCIAL ISSUES

The Transformation of Girls' Education

Context:

The Beti Bachao, Beti Padhao (BBBP) scheme has completed a decade, showing measurable progress in improving the sex ratio at birth and girls' education outcomes across India.

About The Transformation of Girls' Education:

Changing Mindset on Girl Education:

- From Neglect to Aspiration: The shift from "Beti padhegi toh kya karegi?" to valuing education shows society recognising daughters as assets.
- Leadership Influence: Campaigns like Kanya Kelavani and BBBP turned girls' education into a mass movement backed by political will.
- Community Awareness: Awareness drives, village rallies, and women's conferences have normalised girls attending school.
- Symbolic Actions: Leaders auctioning gifts or contributing funds signalled that educating girls is a public priority, not a private burden.
- Cultural Change: Education now equated with dignity, safety, and empowerment, influencing parental choices across rural and urban India.

About Beti Bachao, Beti Padhao (BBBP):

- Objective: To prevent female foeticide and promote education of the girl child through a multi-ministerial effort (WCD, Health, HRD).

Impact:

- Sex ratio at birth improved from 919 (2015–16) to 929 (2019–21).
- 20 out of 30 States/UTs now perform above the national average.
- Enhanced awareness: surveys in MP show 89.5% people aware of BBBP, with 63.2% motivated to send daughters to school.

Societal and Demographic Ripple Effect:

- Fertility Transition: With education, women delay marriage and childbirth, lowering India's TFR to 2.0 (NFHS-5).
- Health Outcomes: Educated women access institutional deliveries and healthcare, reducing IMR from 49 (2014) to 33 (2020).
- Workforce Entry: Higher literacy enables women's participation in STEM, healthcare, and entrepreneurship, diversifying the economy.
- Breaking Patriarchy: Visible success stories—fighter pilots, CEOs, ISRO scientists—reshape gender roles for future generations.
- Demographic Dividend: Female education aligns with demographic stability, creating healthier families and controlled population growth.

Long-Term Transformation & Multiplier Effect:

- Educated Mothers' Advantage: Mothers with schooling ensure better nutrition, learning, and health outcomes for children.

- Generational Change: One educated girl influences her siblings and children, creating an intergenerational cycle of progress.
- Economic Multiplier: Women in the workforce contribute to household income and national GDP growth simultaneously.
- Community Leadership: Educated women take leadership roles in Panchayats, SHGs, and civil society, ensuring inclusive development.
- Positive Feedback Loop: Education → empowerment → healthier families → stronger economy → progressive society ensures sustainable reform.

Conclusion:

The transformation of girls' education marks a deep social reform, going beyond enrolment numbers to reshape mindsets. It drives healthier families, stronger economies, and a more participatory democracy by unlocking women's potential. Truly, educating a girl is educating an entire society, securing a just and progressive future.

Compressive asphyxia

Context:

A stampede at actor-politician Vijay's rally in Karur, Tamil Nadu, killed 41 people including nine children.

- Most deaths occurred due to compressive asphyxia, a dangerous form of oxygen deprivation in overcrowded situations.

About Compressive asphyxia:

What it is?

- Compressive asphyxia is a type of mechanical asphyxiation where external force presses on the chest or abdomen.
- This prevents the lungs and diaphragm from functioning normally, leading to lack of oxygen supply.

How it Occurs?

- Common in stampedes, crowd crushes, or when heavy weight presses the torso.
- In dense crowds (>6–7 persons per square metre), chest compression restricts the diaphragm's ability to expand and contract, blocking normal breathing.

Symptoms:

- Shortness of breath, chest tightness, dizziness, bluish skin or lips (cyanosis).
- Severe cases cause hypoxia (oxygen shortage), hypercapnia (CO_2 build-up), unconsciousness, organ failure, and death.

Treatment:

- Immediate removal from the crushing force/crowd.
- Provide oxygen support, CPR, or advanced airway management in emergencies.
- Hospital care may include ventilation, treatment for organ damage, and monitoring for respiratory complications.

EPF New Withdrawal Rules 2025

Context:

The Employees' Provident Fund Organisation (EPFO) has announced major reforms simplifying withdrawal rules under EPFO 3.0.

About EPF New Withdrawal Rules 2025:

What it is?

- The revised EPF withdrawal framework simplifies and modernises the provident fund system to provide greater flexibility, ease of access, and faster digital claim settlement for over 30 crore subscribers.

Aim:

- To streamline withdrawal procedures, enable members to meet urgent financial needs without lengthy documentation, and balance short-term liquidity with long-term retirement security.

New Features:

- Simplified Categories: 13 withdrawal purposes merged into three core types — Essential Needs (illness, education, marriage), Housing Needs, and Special Circumstances.
- Enhanced Limits: Up to 10 withdrawals for education and 5 for marriage during service, compared to the previous combined limit of 3.
- Minimum Balance Rule: Members must retain 25% of their EPF corpus to preserve compounding benefits and ensure retirement savings.
- Service Tenure Relaxed: Minimum service period reduced to 12 months for housing and 7 years for marriage or education, enhancing accessibility.
- Full Withdrawal Option: Members can now withdraw up to 100% of the eligible balance, including employer and employee shares.
- Digital Transformation (EPFO 3.0): Automated, document-free settlements, cloud-based core banking integration, and multilingual self-service portals introduced for faster processing.
- Vishwas Scheme for Dispute Resolution: Rationalised penal damages and simplified compliance to reduce litigation for delayed PF remittances.

Significance:

- Promotes financial inclusivity and empowers workers to access funds during emergencies.
- Enhances ease of living by reducing bureaucratic hurdles and promoting real-time online claims.
- Encourages a digitally secure and paperless provident fund ecosystem aligned with India's fintech vision.

Dopamine Overdose — Modern Lifestyles Are Rewiring Our Brains

Context:

Neuroscientists and mental health experts are warning of a "dopamine overdose" epidemic as modern lifestyles—dominated by social media, instant gratification, and digital hyper-stimulation—are reshaping the brain's reward system, causing rising anxiety, depression, and attention disorders among youth.

About Dopamine Overdose — Modern Lifestyles Are Rewiring Our Brains

What is Dopamine?

- Dopamine is a neurotransmitter, often called the "feel-good chemical", that transmits signals between nerve cells to regulate pleasure, motivation, learning, and movement.
- It is released during rewarding experiences—like eating, achieving goals, or receiving praise—activating the brain's mesolimbic reward pathway (from the ventral tegmental area to the nucleus accumbens).

Its Role in the Brain:

1. Feel-Good Neurotransmitter: Dopamine, often called the "pleasure chemical," regulates motivation, reward, and mood. It is released when people eat, achieve goals, or experience appreciation.
2. Neural Reward Pathway: It primarily functions through the mesolimbic pathway—from the ventral tegmental area (VTA) to the nucleus accumbens—reinforcing pleasurable actions.
3. Basis of Motivation: Dopamine drives us to repeat behaviours that lead to pleasure, helping humans learn, focus, and build habits.
4. Addiction and Imbalance: Excessive dopamine release—triggered by drugs or artificial stimuli—causes receptor desensitization, pushing individuals toward higher levels of stimulation.
5. Modern Disruption: When dopamine levels are chronically elevated, the brain's baseline satisfaction drops—resulting in boredom, low motivation, and emotional fatigue in everyday life.

Technology as the New Dopamine Driver:

1. Digital Stimulation: Every notification, like, or scroll triggers a micro-release of dopamine, making users crave constant engagement.
    - Eg: MIT research (2023) found average smartphone users check their phones 150 times a day, mirroring compulsive behavioral loops.
1. Algorithmic Manipulation: Social media platforms are designed with intermittent reward systems—the same mechanism used in casinos—to maximize user time and ad revenue.
    - Eg: Former Google ethicist Tristan Harris called this "behavioral engineering for attention addiction."
1. Neural Overlap with Drug Use: fMRI studies show social media use activates the same brain regions as cocaine—notably the nucleus accumbens and ventral striatum.
    - Eg: A 2022 Nature Communications study found similar neural signatures between digital stimuli and substance highs.
1. Rise in Digital Dependency: Prolonged exposure to dopamine-triggering content leads to reduced impulse control and heightened anxiety.
    - Eg: Pew Research (2024) noted that 63% of adults report anxiety when separated from their phones—signs of digital withdrawal.
1. Teenage Vulnerability: Adolescents face greater risks due to neural plasticity and emotional immaturity, leading to long-term changes in attention and mood.
    - Eg: American Psychological Association (2023) found that teens using social media over 3 hours/day had 60% higher rates of depression.

Impact on Youth and Mental Health:

1. Neurochemical Desensitization: Continuous exposure to high dopamine stimuli reduces receptor sensitivity, making real-life pleasures feel dull.
    - Eg: A Stanford Medicine study (2023) confirmed dopamine receptor downregulation in teens with heavy screen exposure.
1. Shorter Attention Spans: Constant digital multitasking fragments focus, leading to attention deficit–like symptoms.
    - Eg: Microsoft's attention study (2023) reported that average attention spans dropped to 8.25 seconds, lower than that of a goldfish.
1. Emotional Instability: Overstimulation from social media fuels mood swings, envy, and emotional exhaustion, lowering emotional intelligence.
    - Eg: UNICEF (2024) found that 43% of adolescents experience mood fluctuations linked to online comparison culture.
1. Rising Anxiety and Depression: High dopamine cycles create withdrawal symptoms when offline, mimicking clinical dependency.
    - Eg: WHO's 2023 Global Health Report recorded a 28% rise in teenage depression attributed to digital overstimulation.
1. Reduced Real-world Motivation: With easy access to artificial rewards, young people increasingly find study, sports, and relationships less stimulating.
    - Eg: A Cambridge University survey (2024) showed that 52% of youth struggle to stay motivated without digital input.

Path to Recovery – Rebalancing the Brain

1. Dopamine Fasting: Taking breaks from digital stimuli helps the brain reset its reward baseline and restore natural pleasure response.
    - Eg: Silicon Valley professionals practice dopamine fasts—disconnecting from tech for 24–48 hours weekly.
1. Mindful Engagement: Activities like yoga, meditation, and journaling release dopamine steadily and reduce dependency on quick highs.

- Eg: Harvard Mind-Body Institute (2022) found 27% stress reduction among participants practicing mindfulness for 15 minutes daily.

1. Physical Movement: Regular exercise triggers natural dopamine and endorphin release, enhancing mood stability.
   - Eg: A Lancet study (2022) found that 45 minutes of daily physical activity lowers depression risk by 30%.
1. Meaningful Human Connection: Real-world interactions—friendships, family time, and empathy—stimulate sustainable dopamine and oxytocin release.
   - Eg: A Yale University neuroscience report (2024) noted that face-to-face interactions outperform digital ones in elevating long-term well-being.
1. Sleep and Nutrition Balance: Adequate rest and nutrient-rich diets stabilize neurotransmitter production and mental equilibrium.
   - Eg: WHO guidelines suggest 7–9 hours of sleep and diets rich in tyrosine (bananas, almonds, dairy) to support dopamine health.

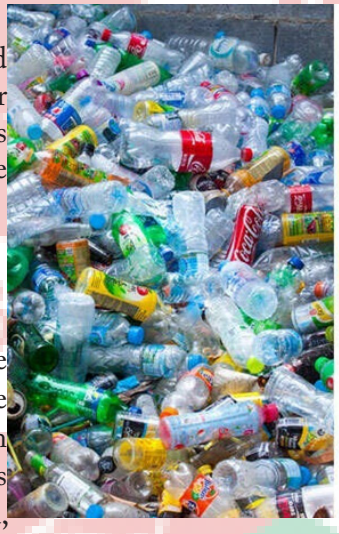
Conclusion:

The modern dopamine economy—driven by algorithms, instant gratification, and digital excess—has turned pleasure into dependence. Restoring balance demands mindful consumption, physical vitality, and human connection. True happiness lies not in chasing endless stimuli but in retraining the brain to value depth over dopamine.

Garbage Café

Context:

Prime Minister of India, in Mann Ki Baat, praised the innovative 'Garbage Café' initiative of Ambikapur Municipal Corporation, Chhattisgarh, which offers meals in exchange for plastic waste — a model combining waste management with social welfare.



About Garbage Café:

What it is?

- The Garbage Café is a unique initiative by the Ambikapur Municipal Corporation under the Swachh Bharat Mission to combat plastic pollution and promote zero-waste living. It encourages citizens to deposit plastic waste in return for food, blending environmental conservation with human welfare.

Features:

- Plastic-for-Food Model: Individuals depositing 1 kg of plastic waste receive a free meal; 0.5 kg earns them a snack.
- Urban Sustainability: The collected plastic is recycled or used in road construction, reducing landfill pressure.
- Community Inclusion: Run with support from women self-help groups, promoting employment and civic participation.
- Swachh Bharat Synergy: Reinforces circular economy goals through behavioural change and citizen engagement.
- Replication Potential: Ambikapur's success has inspired replication in states like Kerala and Madhya Pradesh.

Significance:

- Promotes waste-to-wealth innovation and urban sustainability.
- Empowers marginalized groups by linking cleanliness with nutrition.
- Demonstrates grassroots implementation of SDG 12 (Responsible Consumption and Production) and SDG 11 (Sustainable Cities).

10 DEFENCE

The Battlefield and Change

Context:

At the Combined Commanders' Conference 2025 in Kolkata, Prime Minister emphasised moving from service silos to integrated theatre commands to prepare India's armed forces for future multi-domain wars.

About The Battlefield and Change:

Changing nature of warfare:

- AI and Automation – Artificial intelligence enables faster decision-making and autonomous systems, but increases risks of cyber sabotage and ethical dilemmas.
- Drones and Precision Weapons – Low-cost drones and precision-guided munitions make attacks more lethal and accessible, altering traditional battlefield calculations.
- Cyber & Information Warfare – Wars now extend to digital and psychological domains, where misinformation and hacking can cripple critical infrastructure without a shot fired.
- Two-Front Threat – India must be combat-ready for simultaneous pressure from China and Pakistan, demanding jointness, structural reforms, and tech-driven preparedness.

From coordination to command:

- Theatre commands push – PM of India in 2025 urged shifting from service silos to integrated theatre commands for unified operational command.
- Inter-Services Rules 2025 – Empower commanders with administrative and disciplinary authority to ensure true jointness in field operations.
- Tri-service agencies raised – Cyber, space and special operations wings under HQ IDS boost integrated defence preparedness.
- New modular groups – Units like "Rudra" & "Bhairav" merge infantry, armour, artillery and surveillance for rapid mission-specific deployment.
- Amphibious doctrine – Framework created for land-air-sea synergy, but India still lags China's mature integrated commands.

Doctrinal and technological evolution:

- Joint doctrines – The 2017 and 2018 doctrines laid basic principles of synergy, now needing modernisation for multi-domain wars.
- Ran Samvad seminar – Stressed building "hybrid warriors" who combine tactical skills with coding, cyber, and information warfare.
- MQ-9B drones – Provide persistent ISR and precision strike, strengthening tri-service employment across borders and seas.
- Rafale-M jets – Enhance carrier aviation, giving Navy strong maritime strike and fleet air defence capacity.
- Akashteer AI network – Integrates Army's air defence with IAF's command system, enabling faster and automated responses.

Creating a modern force:

- Integrated Battle Groups – "Rudra" brigades designed to deploy within 12–48 hrs with multi-domain assets for fast response.

- Pralay missile trials – Quasi-ballistic missiles expand India's land-based theatre strike capability against hardened targets.
- Carrier-centric Navy – Rafale-M stabilises near-term air wings while Navy charts 15-year roadmap for manned & unmanned dominance.
- Civil-military fusion – Strong integration of DRDO, PSUs, private firms and universities into PME will fast-track innovation.

Way forward:

- Gradual theatre commands – Start with limited mandates and expand, balancing inter-service differences with operational needs.
- Standardised systems – Unified data and interface protocols will ensure seamless communication and interoperability.
- Technologist-commanders – PME must embed AI, cyber, coding and tech training into leadership to create adaptive warriors.
- Industrial ecosystem – Rapid prototyping, repeated field trials, and discarding outdated systems will keep the military agile.

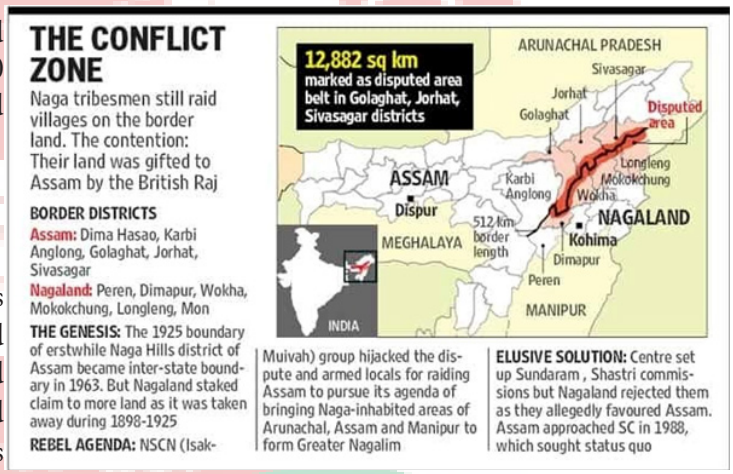
Conclusion:

The battlefield of the future will be multi-domain where speed, information, and adaptability matter as much as firepower. For India, achieving true jointness, civil-military fusion, and technological integration is essential to face evolving threats and remain operationally decisive.

Assam-Nagaland Border Dispute

Context:

The Assam–Nagaland border flared up after armed miscreants allegedly from Nagaland torched nearly 100 houses in a minority-dominated village in the disputed B Sector of Golaghat district, Assam.



About Assam–Nagaland Border Dispute:

What it is?

- The Assam–Nagaland border dispute revolves around territorial claims made by Nagaland over parts of Assam's Golaghat, Jorhat, and Sivasagar districts, especially in the Disputed Area Belt (DAB)—a stretch of reserved forests and forest land.
- Both states claim ownership, while the CRPF has been deployed as a neutral force since 1979.

Historical Background:

1. Colonial demarcations (1826–1925): Post-Treaty of Yandabo (1826), British created Naga Hills District (1866). Subsequent notifications redefined boundaries without consulting Nagas.
2. Post-Independence tensions (1947–1963): Nagas declared independence in 1947; later, the Naga Hills–Tuensang Area Act (1957) and Nagaland State Act (1962) formalized Nagaland's statehood but without a clear boundary settlement.
3. Commissions & Agreements:
   - Sundaram Commission (1972): led to four Interim Agreements to maintain status quo.
   - Shastri Commission (1985), J.K. Pillai Commission (1997), Variava & Chatterjee Commissions (2006) attempted boundary resolution but failed.

About Disputed Area Belt:

The border dispute centers on the territorial claims of Nagaland over significant tracts of land that legally fall within the administrative boundaries of Assam.

- Disputed Area Belt (DAB): The conflict is concentrated in the Disputed Area Belt (DAB)—forest land (Reserved Forests) that runs along the 512.1 km inter-state boundary, primarily spanning Assam's Golaghat, Jorhat, Sivasagar, and Karbi Anglong districts.

The Claim:

- Assam maintains the constitutional boundary as defined at the time of Nagaland's statehood in 1963.
- Nagaland, however, insists on a boundary based on historical pre-colonial or colonial agreements (like the 16-Point Agreement of 1960), which would involve the "restoration" of Naga ancestral territories transferred out of the Naga Hills district by the British for administrative convenience.
- Assam alleges that Nagaland has encroached upon over 60,000 hectares of its territory in the DAB.

International Maritime Organization (IMO)

Context:

At the International Maritime Organization (IMO) meeting in London, 57 nations voted to delay the adoption of a framework for carbon-free global shipping by one year after U.S. opposition.

About International Maritime Organization (IMO):

What it is?

- The IMO is a specialized agency of the United Nations responsible for regulating international shipping safety, security, and environmental performance, ensuring uniform global maritime standards.
- Established in: Created by a UN convention in 1948, the IMO came into force in 1958 and held its first meeting in 1959, marking the start of global cooperation on maritime governance.
- Headquarters: The organization is headquartered in London, United Kingdom.

Aim:

- Its primary aim is to promote safe, secure, efficient, and environmentally responsible shipping and to ensure that no country gains an unfair economic advantage by neglecting safety or environmental standards.

Functions:

- Formulates and updates global maritime conventions such as SOLAS (Safety of Life at Sea) and MARPOL (Prevention of Pollution from Ships).
- Regulates ship design, construction, operation, and disposal for safety and pollution control.
- Develops rules to prevent marine and air pollution caused by ships.
- Oversees seafarer training, certification, and management standards.
- Supports UN Sustainable Development Goals (SDGs), especially SDG-14 (Life Below Water), by promoting sustainable maritime transport.

About Framework for Carbon-Free Shipping:

What it is?

- The carbon-free shipping framework is a strategic plan under the IMO's 2023 Greenhouse Gas (GHG) Strategy aimed at transitioning global maritime transport toward net-zero carbon emissions by 2050.

Aim:

- To introduce a global fuel standard and carbon pricing mechanism for ships, reducing carbon intensity by at least 40% by 2030 and achieving full decarbonisation of the shipping sector by mid-century.

Features:

- Establishes a new fuel standard mandating gradual replacement of fossil fuels with low- and zero-emission alternatives such as green hydrogen and ammonia.

- Introduces a global carbon-pricing mechanism to incentivize cleaner technologies and penalize heavy emitters.
- Implements measures from 2027 onwards, aligning with the Paris Agreement targets.
- Encourages technological innovation and R&D in maritime fuel efficiency.
- Promotes equity in implementation, allowing developing nations access to finance and green technologies for compliance.

JAI Strategy

Context:

The Southern Command of the Indian Army has initiated the implementation of the Prime Minister's "JAI Strategy" — Jointness, Atmanirbharta, and Innovation, aligning defence preparedness with the upcoming Tri-Services Exercise 'Ex-Trishul'.

About JAI Strategy:

What It Is?

- The JAI Strategy stands for Jointness, Atmanirbharta, and Innovation — a visionary framework introduced by Prime Minister to transform India's defence ecosystem into a cohesive, self-reliant, and future-ready force.

Aim:

- To integrate all three branches of the Armed Forces for seamless operational synergy, strengthen indigenous defence production, and embed innovation and technology into India's military doctrine.

Importance:

- Promotes tri-services coordination for faster decision-making and combined warfare readiness.
- Encourages Atmanirbharta (self-reliance) by increasing the use of indigenous weapons, systems, and technologies.
- Stimulates innovation-led transformation, blending AI, cyber, and ISR (Intelligence-Surveillance-Reconnaissance) capabilities for next-gen warfare.
- Aligns India's defence posture with emerging global threats and the changing character of modern conflict.

1. Multidisciplinary Approach to careers

Context:

Education is fundamental for achieving full human potential, developing an equitable and just society, promoting national development and catering for the needs of 21st century, the multidisciplinary approach of education at all levels of schooling gains paramount significance. The NEP 2020 policy very well emphasises the need to move towards a multidisciplinary approach of teaching and learning in education.

Holistic Learning

- The multidisciplinary approach in education encourages the integration of subjects and the adoption of a more holistic and well-rounded curriculum. It is an academic approach that assimilates content and teaching methods from multiple disciplines or fields of study.
- In a multidisciplinary education programme, students are exposed to knowledge, perspectives and methodologies from various subject areas rather than focusing on a single discipline or a limited area of study that restricts wider understanding. This includes integration of disciplines, interconnected learning and collaborative knowledge.
- The multidisciplinary approach in education can do away with rigid and traditional stream-based structure and assist the students to follow the passion with guidance to excel as per their future goals. It promotes the culture of skilling, reskilling and upskilling among the students, a pivotal necessity in the new era of knowledge economy.
- NEP 2020 reflects the true essence of Swami Vivekananda's 'Man-making Education', Sri Aurobindo's 'Integral Education' and Mahatma Gandhi's 'Basic Education'.
- It recognises soft skills such as communication, adaptability, integrity, cooperation,teamwork, leadership, accountability, compassion, empathy, resilience, etc. as 'life skills' while mastery and proficiency in the field of knowledge as 'hard skills'.
- The combination of the two creates a proficient balance between knowledge and interpersonal attributes.
- The Gurukul education system was considered a source of knowledge, traditions and practices that guided and encouraged expertise and elements of humanity. Students in Gurukuls were trained in fine arts, medicine, mathematics, astronomy, law, politics and the art of warfare along with other vocational and professional skills.
- Emphasis was also laid on values such as humility, truthfulness, discipline, self-reliance and all other aspects of life. Multidisciplinary learning was not just an educational philosophy but a substantial way of understanding the world.
- Multidisciplinary education shall help Indian educational institutions to shape critical thinkers who can think out of the box to solve new age issues by utilising the breadth and depth of learning from their education.
- It focuses on value-based education and Global Citizenship Education (GCED) to make the students globally aware, increase the employability and create independent-thinking ethical citizens.

Career and Employability

- Obtaining the stability of a job and conformity to a profession has been the hallmark of traditional career trajectory in India. The changing world scenario and emerging needs of the 21st century demand for different skill sets and priorities than ever before.
- Skills and proficiency in jobs are changing, so the approach to jobs should also change accordingly. Career mapping, career choices and career counselling have been recognised as major headway to link the learners with job market and practical aspects of life.
- If the multidisciplinary approach of education can be well linked with career mapping and choices, it can turn India into a thriving knowledge society and a global superpower in human capital.

Integrated Curriculum

- The NEP 2020 aims to introduce new-age courses with flexible combinations and durations in IITs, IIMs, NITs, and universities. These courses emphasise multidisciplinary learning, vocational skills and research-oriented programmes. Universities have also started offering on-demand courses aligned with the NEP 2020.
- A student of literature taking computer and artificial intelligence (AI) has been unheard of in the traditional Indian education landscape. A course on 'Hindi literature' combined with computer skills and digital literacy shall be helpful for students in many ways, particularly in translation-related areas.

Multiple Entry and Exit Options

- NEP 2020 allows for multiple entry and exit options enabling a more flexible learning path and alignment with international standards. The Indian academics ecosystem is gearing up to introduce such facilities in their courses.
- Credit-based learning will enable learners to take up any course based on their choices and demand of the industry. Mixing academics with hands-on job experience will perfectly blend the career choices and competency of the learners with the requirements of the job market.

Multidisciplinary Courses

- Environmental Studies and Sustainability: Courses in environmental science, environmental management, climate change and sustainable development are being integrated with law, data management, ecology, policy and social sciences. Courses on waste management, disaster management, smart buildings, social entrepreneurship can provide various career choices to the youth.
- Arts and Humanities: Programmes in Social Sciences, art, literature are intertwined with knowledge of technology, environment, creative writing, media, International relation, soft skills and law to make them employable.
- Knowledge of Technology: Fields like AI, machine learning, data science, cyber-security, and robotics are offered as specialised multidisciplinary programmes with public administration, economics, social science and all traditional engineering courses.
- Health, Medical, Psychology and Allied Sciences: Courses in health psychology, community health can be integrated with social work, environmental, biotechnology, occupational health, herbal nutrition, knowledge of AYUSH (Ayurveda, Yoga & Naturopathy, Unani, Siddha, and Homeopathy) and technology.
- Economics and Business: Multidisciplinary approaches can be seen in subjects like entrepreneurship, e-commerce, and financial literacy, often combining economics, business administration, public policy, ecology and technology.
- Computer Science and Entrepreneurial Leadership: It combines knowledge of computers with skills important to the creation and leadership of start-ups and entrepreneurship.
- Holistic Development: NEP 2020 emphasises the holistic development of the student including their physical, emotional, cognitive and social well-being. It aims to develop a well-rounded person who can handle various situations and problems with confidence and competence.
- Digital Learning: NEP 2020 emphasises digital education in all spheres of life and working. Use of technology in education will equip students with the necessary digital skills and prepare them better for the digital age.

Conclusion:

NEP 2020 prioritises a holistic and multidisciplinary approach, aims to foster unique capabilities and identify the learning trajectory along with cultivation of critical thinking, problem-solving, adaptability and a lifelong love of learning. Through a strong foundation in core foundational skills, a flexible and diverse curriculum and innovative pedagogical approaches, NEP 2020 has the potential to nurture well-rounded individuals who can contribute meaningfully to society. While there are challenges in its implementation, the multidisciplinary approach has immense potential benefits to career options.

2. Education for the Visually impaired

Context:

The National Education Policy (NEP) 2020 reinforces this vision by emphasising education as key to unlocking human potential and building an equitable society. It aligns with the Rights of Persons with Disabilities (RPwD) Act, 2016, which guarantees equal legal capacity, prohibits discrimination, and mandates inclusive practices. Inclusive education initiatives across the country are working to remove barriers and promote meaningful participation.

Learning their Needs:

The RPwD Act 2016 recognises visual impairment (including both low vision and blindness) as a distinct category. With over five million visually impaired individuals in India, ensuring their access to education is both a constitutional duty and a moral imperative. Persons with visual impairment have distinct learning needs that require thoughtful consideration of some of their unique learning needs and vital interventions.

Legal and Policy Framework

- Rights of Persons with Disabilities (RPwD) Act, 2016: This landmark act mandates inclusive education for children with disabilities, requiring educational institutions to offer accessible learning environments, reasonable accommodations, and assistive technologies. Sections 16 and 17 specifically address the duties of educational institutions and outline measures like educator training and curriculum adaptation.
- National Education Policy (NEP), 2020:The NEP 2020 reinforces the commitment to inclusive education, advocating for barrier-free access, curriculum adjustments, and comprehensive teacher training to support students with visual impairments.\
- Rehabilitation Council of India Act, 1992: This act is crucial for the training and certification of professionals working with persons with disabilities, including special educators and counselors who are vital in supporting visually impaired students.

National Programmes and Schemes

- Samagra Shiksha Abhiyan: This integrated scheme for school education from pre-primary to Class XII focuses on inclusive education by identifying and assessing
- Children with Special Needs (CWSN), providing necessary aids and appliances, and deploying special educators.
- Scheme for Implementation of the Rights of Persons with Disabilities Act (SIPDA): This central initiative aims to promote accessibility and inclusion by providing financial assistance to State Governments, autonomous bodies and institutions for creating barrier-free environments in public spaces, educational institutions and transport systems. S1PDA supports infrastructure development, skill training, and assistive technologies.
- Deendayal Disabled Rehabilitation Scheme (DDRS): Through funding to NGOs, DDRS supports special schools and community-based rehabilitation programs. It supports institutions working with visually impaired children across India.
- National Scholarships for Persons with Disabilities: Ministry of Social Justice and Empowerment offers scholarships for students with benchmark disabilities pursuing post-matric and professional courses, easing the financial burden of higher education.
- Assistance to Disabled Persons for Purchase/ Fitting of Aids and Appliances Scheme (ADIP Scheme): This scheme provides modern, certified assistive devices to persons with disabilities to enhance their independence and mobility.
- National Action Plan for Skill Development of Persons with Disabilities (NAP-SDP): This plan focuses on providing quality vocational training to persons with disabilities to improve their employability and independence. It includes curriculum design, mentorship, and placement support. Implemented by
- Department of Empowerment of Persons with Disabilities (DEPwD) in collaboration with Ministry of Skill Development and Entrepreneurship, the plan targets skilling 2.5 million PwDs through certified training partners.

Institutional Support

- National Institute for the Empowerment of Persons with Visual Disabilities (Divyangjan)

- NIEPVD: Located in Dehradun, NIEPVD is a premier autonomous organisation that offers academic programs, teacher training courses (M.Ed., B.Ed., D.Ed. in Spl Ed. (VI)), and vocational training. It is also actively involved in research, Braille production, and capacity-building initiatives. Through its multifaceted services, NIEPVD contributes significantly to the empowerment and inclusion of persons with visual disabilities.
- National Council of Educational Research and Training (NCERT): NCERT, New Delhi, has launched several inclusive initiatives to support learners with visual impairment. Through platforms like DIKSHA and PM e-Vidya, NCERT provides DAISY (Digital Accessible Information System)-format textbooks and accessible digital content. The Barkha reading series promotes universal design with tactile visuals. NCERT also develops audio books, and teacher training materials.

Key Enablers

Accessible Learning Materials

Standard printed materials are often inaccessible to persons with visual impairment, limiting their ability to engage with traditional educational content. To ensure inclusive learning, resources must be available in accessible formats like Braille books, tactile diagrams, audio content, and digital tools. These formats empower learners with visual impairment to read, write, and learn effectively, fostering academic success and personal growth. The RPwD Act, 2016, and NEP, 2020, affirm accessible education as a legal right.

Legal and Institutional Support

Legal and institutional support is crucial for ensuring inclusive education for persons with visual impairment. The Rights of Persons with Disabilities Act, 2016, mandates inclusive education and reasonable accommodations in schools and universities. These legal and institutional frameworks empower students with visual impairment to pursue education on equal terms, fostering independence, skill development, and social inclusion.

In addition to the above, the following are the major developments in the last 10 years which are significant for the empowerment of persons with visual disabilities:

- The RPwD Act 2026 was enacted, which comprehensively covers the education of persons with visual disabilities.
- Unicode-mapped Braille codes were released by DEPwD, Government of India, which further gives a road for more technological inclusion for Braille.
- The scheme for free-of-cost Braille book production and distribution (now the DALM Project) was introduced in 2014-15 and modified in November 2023 by including more accessible formats in addition to Braille and catering all stages of education.
- Promotion and facilitation of science stream education. Science courses at the senior secondary level were also introduced at Model School, NIEPVD, in 2024.
- Training on orientation and mobility support to persons with visual impairment, orientation and mobility (O&M). The RCI is strengthening the O&M training programmes.
- Skill development courses were recently redesigned, and many new courses are being introduced for persons with visual impairment.
- Schemes for free coaching were introduced for facilitating higher education and securing jobs.
- More flexible assessment guidelines were introduced to accommodate more preferences by persons with visual impairment.

Conclusion:

Despite notable progress, challenges persist, including limited regional resources, inadequate teacher training, and social stigma. Addressing these gaps requires sustained investment, innovation, and awareness. By ensuring that every visually impaired child receives equitable educational opportunities, India moves closer to a society where empowerment is not just a possibility but a lived reality for all.

3. Cultivating Creativity and Enterprise

Context:

The world is evolving swiftly with AI, robotics, and machine learning. To prepare our students for the evolving future, it becomes essential that we align our education system with emerging industry demands. The nature of

institutions/universities in 2047 is expected to be progressive and dynamic, emphasising the need for innovation. We must equip our students not just with knowledge but with the skills and mindset needed to thrive in the coming age of Industry 5.0—the next evolutionary leap beyond Industry 4.0.

Building Innovation Ecosystems

Aligned with the vision, the All India Council for Technical Education (AICTE) is actively encouraging innovation and entrepreneurship at the grassroots level through its initiatives, including Smart India Hackathon, KAPILA—Kalam Program for IP Literacy and Awareness,
Institution's Innovation Councils (IICs), School Innovation Ambassador Training Program (SIATPJ, School Innovation Councils (SICs), AICTE Productisation Fellowship, and the AICTE Industrial Fellowship Program.

Empowering Mentors and Students

- Our tremendous success in higher educational institutions prompted us to initiate similar steps even in schools. Our 'National Policy for Promoting Innovations in Schools' is a big step in this direction.
- This policy focuses on inculcating innovation, entrepreneurial abilities, and problem-solving skills among school students.
- The policy guides schools on creating an enabling environment to promote creative ideation and innovation in classrooms, wherein students are encouraged to work on real-world problems. With over 1.5 million schools and 250 million students in our schooling system, we expect to reach out to each and every student in the country.
- The School Innovation Ambassador Training Program (SIATP) was jointly launched by the Department of School Education & Literacy (DoSEL), the Ministry of Education's Innovation Cell (MIC), and CBSE. Through this 72-hour intensive training programme, teachers are trained across five crucial domains:
  1. Design Thinking and Innovation
  2. Idea Generation and Handholding
  3. Entrepreneurship and Prototype/Product Development
  4. Intellectual Property Rights
  5. Finance, Sales, and Human Resource Management

Innovation Design and Entrepreneurship (IDE):

This is another significant initiative worth highlighting. The IDE Bootcamp, launched by AICTE and MIC for Higher Education and by DoSEL in collaboration with MIC for schools, was carefully designed to provide hands-on exposure to both teachers and students in the field of innovation and entrepreneurship. Already, it has benefitted 9,692 participants across 48 locations in 21 States/UTs for schools and over 10,000 participants across 46locationsin 23 States/UTs for higher education, creating a ripple effect that is transforming classrooms into hubs of creativity. Eminent experts from industry, incubation centres, and startups have come forward as mentors, sharing their practical insights and guiding participants in adopting human-centric approaches to problem-solving. The bootcamp equips them with the ability to master design thinking tools, build customer-centric solutions, and understand the entrepreneurial journey from idea to market.

Conclusion:

The seeds of innovation we are planting today will bloom into solutions, startups, and enterprises that will shape the destiny of our nation, l.et us all work hand in hand to ensure that by 2047, when India celebrates 100 years of independence, we stand tall as a nation that has not only achieved self-reliance but has also become a global hub of innovation, knowledge, and progress.

4. Teenagers & a Cybersafe World

To keep teenagers safe from the imminent dangers of the cyber world and to keep the screen use to minimum, multiple methods are tried. Teenagers are instructed, cajoled, and threatened. The screens are either not given at all or are snatched away.
They are constantly reminded or reprimanded to keep the phone away. They are warned with dire consequences in case they do not listen. A bleak future is threateningly dangled in front of them. Alas, all of this falls on deaf ears.

Intriguing Teenage Brain

When we understand the developmental stage of teenagers, the reasons for futility of these interventions become

apparent. The adolescents are in the process of becoming independent and responsible adults. To facilitate this transition, the human brain goes through some significant reorganisation. The nervous system forges a lot of new connections between its neurons.

It also reinforces the frequently used pathways, and does away with the less used. The emotional brain is in its peak form. The frontal lobe of the brain, which can control the thoughts and emotions, is yet to catch up. Also, the way they think is mainly in 'black and white', which means they take decisions based on immediate rewards, and fail to extend their thinking to long term consequences. This essentially results in a situation akin to a car without brakes. Consequently, teenagers are curious, experimentative, and are risk takers. They have a mind of their own. They think differently and they wish to take their own decisions. Warnings about the future have little meaning to them. They look down upon advice and rebel against orders. Since they love experimenting, every prohibited thing irresistibly becomes a must have. The usual parental techniques fail because of all these reasons. The best way to reach out to teenagers is to involve them in the process.

Cybersecurity Education

- Online safety: A lot has been said about online safety. Frequent change of passwords, not sharing the passwords with anyone (not even trusted friends), caution before posting messages and photos and videos, and refraining from explicit personal information are some of the ways. Teenagers spend an extensive amount of time on social media.
- Hence, they face a lot of online bullying. They should be taught proper ways to handle bullying. Adults should reassure them of help. Appropriate cyber-cell numbers should be prominently displayed in schools and at home. The National Cyber Crime helpline number is 1930.
- Respecting other's online space: Trolling is very common as people can opt to be anonymous. It affects both the perpetrator as well as the target negatively. Minding respectful boundaries is an important skill teenagers need to learn.
- Using the digital space for activism: Digital space can be used for creating awareness about various problems or diseases, promoting good work done by individuals, environment conservation etc.
- Using digital space for knowledge gain and learning: Many teenagers prefer attending online lectures instead of offline ones. One college going youngster once told me that he prefers this because he finds the actual lecture too slow, and he can speed it up to double speed online. But online learning should be used in tandem with in-person learning as we don't wish that the teenager is deprived of the socialisation.
- Digital literacy: It is of extreme importance to educate teenagers about how to use their critical judgement while taking in online information, while consuming entertainment programs and while playing online games.
- Balance between reel and real life: It is alarming how easily the fine line between reality and virtual reality blurs. Internet addiction is considered a real disease now. In person meetings, outdoor games, helping others, participation in community work and contributing to home chores are some ways of keeping today's teenagers grounded.

Approaches to Digital Media Literacy

- Good communication: Without a doubt, effective communication is the most precious tool that helps us reach out to teenagers. It acts as a bridge that facilitates transfer of intent and knowledge. We communicate our love and empathy via this bridge. A dialogue that is respectful, empathetic, honest and unprejudiced is the most desired one.
- Active teaching: As the name suggests, this is not the conventional way of teaching. It involves two-way communication, active participation of teenagers in discussions, decision making and consequences. Teenagers come up with different options as they have the advantage of a fresh perspective. Also, this type of interaction leaves a lasting impression with desired results.
- Anticipatory guidance: There is no use crying over spilt milk! It is better to make sure that the milk is not spilt in the first place. Some baseline rules for the individual and the family should be in place right from the time the mobile phone is handed over; including the dos and don'ts, different ways to handle possible online situations, the time limit of usage, the consequences of not following the rules etc.
- Life skills education: Teenagers can be empowered with life skills so they learn effective strategies to resist the overwhelming temptation to go to the make-believe world. Life skills are the abilities of adaptive

behaviour that empower an individual to handle day to day situations effectively and gracefully. A seemingly ordinary situation such as planning a menu can be a great opportunity to impart skills such as creative thinking, critical thinking, decision making, planning and time management. These skills can be provided in a non-threatening way in schools where there is a unique advantage of a captive audience.

- Love and empathy: There is no doubt that the parents and teachers love the teenagers; but somehow, that love does not find its way to them, it is lost somewhere in the flood of anxiety and concern. Let us find ways to express love as much as, if not more, we express concern or anger towards teenagers.
- Peer education: Peers understand each other well because they are going through the same phase of life and they speak the same language. We can train peers to support and educate other teenagers.
- Law and apps: Law gives us a guideline, saves us from frauds, and it also can be used as a deterrent. It has been proven that discussing the laws with teenagers helps them in responsible decision making. A general law-abiding atmosphere at home makes it easier to implement these.
- Role modelling: For the parents who are still struggling with technology, being a role model can be quite challenging. They need to be mindful of how they make use of the digital space, how they balance the real and virtual world and the way they handle the Information overload. A healthy acceptance of the new, and a respectful adherence to tradition is vital. Teenagers can learn this by observing the adults.

Conclusion:

Let us come together to empower our teenagers to be good cyber citizens and to make their world cybersafe.

5. Skill Based Education

Context:

National Education Policy 2020 brings vocational learning into the heart of school education by integrating it into the mainstream curriculum, ensuring that every student has the opportunity to develop practical skills and explore diverse career pathways. It advocates for early integration of vocational education from Grade 6 onwards, aiming to make it a foundational part of every child's learning journey. Specifically, students in
Grades 6 to 8 engage in short-term, hands-on experiences such as a 10-day 'bagless' internship with local artisans - potters, carpenters, artists, and others - designed to build curiosity and exposure. This differs from the vocational education model in Grades 9 to 12, which focuses on more structured skill acquisition, often in collaboration with ITIs, polytechnics, and industry partners, and may lead to certification or pathways into technical/higher education or employment.

Key Objectives:

- The policy's intent is practical and multi-layered: to bridge the gap between education and employability, to reduce the academic-vocational hierarchy, and to equip students with market-relevant, community-aligned, and adaptable skills.
- Key interventions include the development of a new National Curriculum Framework integrating vocational components, the creation of skill labs through a hub-and-spoke model, and the use of digital platforms like SWAYAM for virtual vocational learning.
- The policy aims to ensure that every child learns at least one vocation and is exposed to several others - blending traditional knowledge systems like Lok Vidya with emerging fields such as AI, robotics, and IoT.
- Taken together, NEP 2020 positions vocational education not just as a career track but as a core element of holistic, future-oriented learning.

NEP 2020's Vocational Trajectory

As we mark five years since the launch of NEP 2020, the vision for vocational education - rooted in early integration, inclusivity, and relevance
-continues to guide reforms across the education system. This is an opportune moment to take stock of how this vision is unfolding on the ground.

Challenges

- However, despite progress and a robust policy framework, there are certain gaps. The dropout rates at the secondary level remain high, hovering around 14.1 per cent in 2023-24.
- With students dropping out of school, they not only lose access to education but also meaningful and diverse vocational pathways.

- This may be due to family constraints, student disengagement, particularly among those who don't see traditional academics as aligned with their futures, or other reasons.
- Updating the vocational education curriculum remains a pressing challenge. Several stakeholders have noted that existing vocational curricula do not reflect the pace of change in fast-evolving sectors like digital services, electronics, or green energy.
- Keeping vocational education aligned with industry-relevant skills is essential to its long-term credibility, but this requires continuous inputs from industry bodies -something still missing in many states.
- At the heart of the issue, however, lie deep-rooted societal perceptions. The hard separation between academic and vocational streams has created a lasting social hierarchy - where academic education is seen as prestigious, and vocational learning as a fallback. This not only affects uptake but also influences gender participation.
- Boys continue to dominate vocational courses, while girls = even when enrolled - are often steered into traditionally 'safe' stereotypical fields such as beauty services or tailoring. These choices are driven by social expectations around domestic responsibilities rather than by student interest or market demand.

Way Forward:

The early momentum in vocational education, rising enrolment, improved infrastructure in some states, and greater student interest is promising. However, to move from scattered successes to systemic transformation, we must address the structural gaps that continue to limit the promise of the NEP's vocational vision.

Shift Societal Perceptions

Vocational tracks are still seen as second-best -suitable only for students perceived as 'weak' in academics. We must challenge the academic-vocational divide. Public campaigns, employer engagement, and alumni showcases should celebrate vocational success. Teacher sensitisation, parent workshops, and aspiration mapping for students can help shift mindsets and elevate the status of skill-based learning.

Strengthen Infrastructure

Governments may incentivise resource pooling through cluster models and better use of existing institutions like ITIs. Aligning with the 6 per cent of GDP education expenditure goal is essential to bridge any deficits. Public-private partnerships can support lab setup, equipment provision, and skill centre development.

Skilled Vocational Educators

Availability and quality of trainers remain a bottleneck. It is essential to establish state-level vocational educator cadres with clear recruitment, certification, and growth pathways. Trainers must undergo continuous professional development, industry immersion, and be trained in modern pedagogy — not just technical content. Partnerships with Sector Skill Councils and industry bodies can support this.

Update Curricula

Curriculum must be dynamic and co-designed with industry representatives, academic experts, and vocational educators. A standing curriculum advisory board at the national and state levels can ensure relevance and periodic reviews while embedding core skills like problem-solving, digital fluency, and adaptability.

Facilitating Informed Career Decisions

Without structured guidance, students—especially girls—are often pushed into stereotypical courses or career paths. Every school must offer year-on-year counselling, interest-based aspiration mapping, and exposure to diverse career options. Career Pathway Modules, digital exploration tools, and parent engagement must become standard practice. Girls in particular should be supported to explore non- traditional, aspirational fields — from IT to automotive repair.

Design for Inclusion

Divyangjan may often remain excluded from mainstream vocational programmes, due to infrastructure gaps and lack of tailored curricula. Inclusive vocational education must go beyond enrolment to ensure CwSN can learn and transition into employment. This requires accessible labs, a flexible curriculum, trained special educators, and employer sensitisation to enable workplace integration.

School-to-Work Transition

Internships may be institutionalised through clear policies, funding, and partnerships. States can mandate short-

term placements in collaboration with local industries, self-employed professionals, or government schemes like e-Mitra. School coordinators should be appointed to map students to relevant opportunities.

Leveraging Technology

Platforms like DIKSHA and SWAYAM must be localised and integrated into school learning. Investments in rural connectivity and digital infrastructure are critical. Data systems must track vocational participation disaggregated by gender, disability, location, and employment outcomes—using integrations between UDISE+ and household surveys.

Conclusion:

This concerted effort by the government not only aims to bridge the persistent skill gap but also to foster a culture of dignity of labour, ultimately making vocational education a powerful engine for economic growth and social mobility across the nation.

6. Indian Knowledge system in Education

Context:

The National Education Policy (NEP) 2020 constitutes a landmark reform initiative in Indian education and serves as the country's first major policy intervention in the 21st century. Its primary objective is to address the nation's shifting developmental priorities by comprehensively transforming the structure and functioning of the education system. The policy calls for reimagining curricula, pedagogy, regulatory mechanisms, and governance frameworks to create an inclusive, flexible, and future-ready learning ecosystem.

Highlighting the aspects:

- A significant aspect of NEP 2020 is its emphasis on integrating Indian Knowledge Systems (IKS) into the curriculum at all levels, thereby reconnecting learners with India's intellectual and cultural heritage.
- This inclusion is intended to foster critical thinking, innovation, and a sense of rootedness among students.
- NEP 2020 aligns with global objectives such as Sustainable Development Goal 4 (SDG 4), which advocates for equitable and quality education, while simultaneously drawing upon India's traditions and value systems as guiding principles for educational reform.

Understanding Indian Knowledge Systems

- Indian Knowledge Systems (IKS] is an umbrella term that encompasses the entire spectrum of India's intellectual and cultural heritage. For a civilisation with over five millennia of recorded history and a vast collection of cultural artefacts, archaeological findings, literature, and social practices, defining the exact scope of IKS is an immense task.
- It includes literary sources, cultural traditions, social customs, historical records, and other repositories of knowledge preserved across diverse Indian languages, dialects, and regions. Knowledge in any society evolves continuously, and hence, the intellectual contributions of India from prehistoric times to the present day collectively form what is considered IKS.

Pedagogical Approaches and Implementation

- The National Council of Educational Research and Training (NCERT) is an autonomous organisation established by the Government of India in 1961 to improve the quality of school education across the country.
- NCERT plays a vital role in designing curricula, developing and publishing textbooks, creating teaching-learning materials, conducting educational research, and providing training to teachers. Its textbooks are widely used in CBSE schools and adopted by many state boards.
- Apart from publishing textbooks, NCERT also develops digital resources such as e-Pathshala and DIKSHA, ensuring access to quality education in both print and digital formats.

Conclusion:

Revitalising education through the Indian Knowledge System is not just about preserving tradition but about reimagining learning in a holistic, sustainable, and globally significant way. By blending ancient wisdom with modern innovation, India can create an education system that nurtures intellectual growth, cultural pride, and ethical values, preparing students to become responsible citizens of the world.

1. Rashtriya Poshan Maah: Social Behaviour Communication Change (SBCC)

Context:

Malnutrition is not just a social or health issue, rather it is an economic crisis. It reduces productivity, burdens healthcare systems, and hinders human capital development. Globally, malnutrition is estimated to cost the economy up to US$3.5 trillion per year, or about US$500 per person. Thus for any nation, addressing malnutrition becomes an economic necessity.

Poshan Maah as the SBCC Engine of Poshan Abhiyaan

- The national SBCC strategy deliberately uses a mix of mass-, mid- and interpersonal-media and community-based events (CBEs) to reach different audiences and influences like mothers, fathers, mothers-in-law, teachers, local elected leaders and religious/community figures.
- Materials range from TV and radio spots, mobile videos and flipbooks for frontline workers, to wall-painting prototypes, folk media (nukkadnatak), and digital content for social platforms. Poshan Maah operationalises this strategy by coordinating:
  1. Mass media campaigns for broad exposure.
  2. Mid-media tools (street plays, school activities, local radio) for community penetration.
  3. Intensified interpersonal counselling (home visits guided by the POSHAN Tracker) for households requiring tailored support.
- Rashtriya Poshan Maah, launched in 2018 as part of the Poshan Abhiyaan, has over the years grown into one of India's largest people-led movements for nutrition. Conceived as a Jan Andolan, it sets out to mobilise communities across the country to tackle malnutrition through awareness, behavioural change, and local action.
- The first Poshan Maah in 2018 witnessed modest beginnings. The early efforts largely focused on spreading awareness in schools, communities, and anganwadi centres, and they laid the foundation for what would soon become a nationwide movement engaging citizens at lease scale.
- In 2019, the campaign gathered momentum with the theme Poshan Tyohar Se Vyavahar, highlighting the importance of translating festive celebrations into healthy nutrition practices in daily life.
- In 2021, the campaign adopted a more structured approach with weekly thematic activities, coinciding with the celebrations of Azadi Ka Amrit Mahotsav. These themes ranged from plantation drives and yoga-based nutrition awareness to distribution of region- specific nutrition kits and the identification and management of malnourished children.

Conclusion:

Poshan Maah is the focal point of a year-round SBCC and service delivery architecture. When Poshan Maah is used strategically, it becomes a potent instrument in the larger journey to a Suposhit Bharat. Poshan Maah exemplifies how a carefully sequenced SBCC strategy, backed by frontline systems and local governance, can convert policy ambition into household practice. If India s long-term goal is a generation free of malnutrition, the month of Poshan Maah must continue to be the calendar moment when the nation not only reaffirms its commitment, but also measures, learns and strengthens the machinery of change.

2. Nourishing India's Future

Context:

- Eighth Poshan Maah also focuses on the importance of addressing obesity by reducing sugar and oil consumption, encouraging men's active involvement in nutrition and caregiving, Vocal for Local- for Grassroots Empowerment and Self Reliance; and Convergent Actions & Digitisation.

About: Infant & Young Child Feeding

- Among these, IYCF (Infant & Young Child Feeding) stands out as the bedrock of nutrition security. How we feed our youngest citizens in the first 1,000 days of life- beginning from conception to two years of age— shapes not just their growth and health, but the very foundations of their learning, productivity, and future potential.

The Power of Early Nutrition: Why Superfood (Breast milk) Matters

- Evidence from across the world, including India, shows that the window between birth and six months is critical. Indicators of child malnutrition such as stunting and wasting begin to manifest within these very first months of life.
- Exclusive breastfeeding for the first six months is not only cultural wisdom but also scientifically proven to guard babies from infections, build stronger immunity, promote healthy growth, and reduce infant deaths.

Complementary Feeding: Building Brains and Bodies

- From six months of age, a child's nutritional needs extend beyond breastmilk. The care, nutrition, and stimulation provided in these early years form the foundation for healthy growth and cognitive development.
- Scientific research shows that the brain develops most rapidly in the first 1,000 days of life, especially Up to the age of two, and the quantity and quality of food between 6 to 23 months has the greatest impact 0n their growth patterns.
- This makes complementary feeding absolutely critical. The WHO recommends introducing complementary foods at six months, alongside continued breastfeeding. From 6 to 8 months, children need two to three small meals in addition to breastfeeding. Between 9 and 24 months, this should increase to three to four meals a day, with one or two healthy snacks for toddlers between 12 and 24 months.
- Dietary Diversity is Key. These foods must be nutrient-rich, limited in sugar, salt, and unhealthy fats, and should draw from all major food groups-cereals and pulses, milk products, eggs, meat or fish, along with fruits and vegetables. An important consideration is to spread awareness about avoiding junk foods and sugar- sweetened beverages at this age, which can have long-term implications for a child's health.

Responsive Feeding and Shared Responsibility

- Feeding is not only about food-it is about holistic care. An important consideration is to promote responsive feeding, which is about creating a two way, nurturing interaction between the caregiver and child.
- It not only encourages children to eat but also helps them develop healthy food preferences and gradually learn to eat independently.
- Research shows that responsive feeding— when caregivers interact warmly with children at mealtimes and pay attention to signs of hunger and satiety-helps establish healthy food preferences, reduces risks of undernutrition and obesity and fosters both emotional and cognitive growth.

From Policy to Ground Action

- The Ministry of Women and child Development is committed to translating science-based feeding practices into real change— moving from research to policy, and from policy to practice at the community level.
- Through Anganwadi services, home-based counselling, community events, we are working to ensure that every family has access to the right knowledge at the right time and create a Jan Andolan people's movement).
- Policies and programmes can only succeed when families and communities embrace them. By adopting and promoting IYCF practices— exclusive breastfeeding for six months, timely and diverse complementary feeding, and responsive caregiving— we can reduce malnutrition and place our children on a path to health, learning, and productivity.

Conclusion:

As we mark Poshan Maah, let us remember nourished children mean a nourished nation. Together, let us pledge to make every home and every community a champion of child nutrition.

3. ECCE Initiatives under Mission Saksham Anganwadi and Poshan

Introduction:

- Early Childhood Care and Education (ECCE) is the first foundation of human capital. It refers to the holistic development of children from birth to six years, encompassing their physical and motor development, cognitive development, the development of communication, early language, literacy, and numeracy.

Key highlights:

- It consists of flexible, activity-based, and inquiry-based learning, comprising of alphabets, languages, numbers, colours, and shapes.
- Global evidence establishes that nearly 90% of brain growth completed by the age of six and the first 1000 days from gestation to age two represents a critical window of opportunity for holistic development of a child.
- ECCE is not limited to early literacy and numeracy. Truly holistic development includes character development, including understanding the self and other (socio-emotional skills) and cultural and aesthetic development.

ECCE Interventions for Children below six years

- The Constitution of India, under the Directive Principles of State Policy (Article forty-five) directs the State to "endeavor to provide early childhood care and education for all children until they complete the age of six years," thereby recognising Early Childhood Care and Education (ECCE).
- The Right of Children to Free and Compulsory Education (RTE) Act in 2009, mandated free and compulsory education to children from six to fourteen years.
- However, Section eleven of the RTE Act mandated the appropriate governments to make necessary arrangements for provision of free pre-school education, with a view to prepare children above the age of three years and to provide ECCE for all children until they complete the age of six years.

At the programmatic level, the Anganwadi System is the world's largest integrated early childhood development programme, with 14 lakh Anganwadis (1.4 million public childcare centres) across India.
The program provides free, universal childcare and pre-primary education, reaching over 46% of India's children under the age of six). Originally targeted at Below Poverty Line households, Anganwadi became universal in 2009 to ensure no child is excluded.

Community engagement and Social and Behaviour Change Communication

- Community engagement and Social and Behaviour Change Communication (SBCC) are central to this cause.
- Fixed monthly ECCE Days, like Sports Day, Annual Day, Creativity Day are organised at AWCs to engage families and communities.
- Large-scale advocacy is undertaken during Poshan Maah in September and Poshan Pakhwada in March. These campaigns have facilitated awareness activities nationwide, focusing on ECCE, nutrition, and early stimulation including Shiksha Chaupal, play-based learning demonstrations, DIY toy fairs, and special home visits.
- We must reach every parent through every possible touch point, to encourage positive caregiving behaviours, and highlighting that fundamentally- play is learning. This will transform the parenting paradigm, and help a generation of young learners approach the future with confidence, skill and joy.

Conclusion:

Recognising human capital as the cornerstone of economic growth, innovation, and social progress, a holistic vision for early learning in India calls for integrated and sustained investments in health, nutrition, education, and skills. By building a unified and future-ready ecosystem that empowers every individual from birth to adulthood, India can position itself as a global knowledge superpower and realise the aspiration of Viksit Bharat by 2047.

4. Advancing Nutrition Literacy to Tackle Obesity

Context:

As India comes together to celebrate its 8th Poshan Maah this month, it is important to spotlight obesity, a growing public health challenge affecting all age groups, from children to adolescents to adults.

Key highlights:

- All around us, it can be noticed that inexpensive and readily available foods like chips, burgers, fries, sugary drinks and instant snacks are increasingly replacing wholesome, home-cooked meals of dal, roti, rice and vegetables.
- More and more children and adolescents are prioritising taste over nutrition. Irregular sleep patterns and late-night screen use disrupt the body's metabolism. Large portion sizes, frequent snacking and the daily intake of sugary beverages such as sodas and packaged juices further add to the problem.
- The growing culture of eating out and fast-food dependency, with meals delivered to our doorsteps within minutes, has allowed convenience to take precedence over nutrition. This also affects the family food environment, where children often mirror the eating habits of adults.
- This shift is compounded by a lifestyle where young people spend longer hours on television and mobile screens instead of playgrounds, while adults, pressed by long workdays, find little time for exercise. Together, these patterns are fuelling the steady rise of obesity as a major public health challenge.
- The recent Household Consumption Expenditure Survey (HCES) data shows that beverages and processed food are now the largest components of food expenditure in both rural and urban areas, with the trend only increasing over the years.

Obesity affects both mental and physical health.

- For children, it is more than just the burden of carrying 'extra weight,' it makes them more vulnerable to teasing, lowers their self-confidence and increases the risk of early-onset conditions such as diabetes and cardiac the likelihood of chronic non-communicable diseases.
- Obesity has far-reaching consequences that extend well beyond appearance. It can cause joint pain, back problems and reduced mobility, making even routine activities difficult.
- Hormonal imbalances such as polycystic ovary syndrome (PCOS), infertility and early puberty are closely linked to excess weight.
- Obesity also increases the risk of several cancers, including colon, breast and liver. Its impact on the mind is equally concerning as reduced concentration, poor academic performance and cognitive decline are often observed.

Measures need to be adopted:

- Good nutrition and health begin with regular monitoring of weight and height— regularly monitor your weight to know your nutritional status.
- Maintaining balance requires limiting salt, sugar, sweets, oil and fried foods, and reducing junk food— choose nutritious meals from locally available options.
- Eating mindfully, reading food labels carefully and ensuring adequate sleep supports well-being-practice these habits diligently.
- Daily physical activity or yoga for at least 60 minutes, along with taking breaks from sedentary work, keeps the body active— make time to stay fit.

Way ahead:

The Ministry of Women and Child Development is also raising awareness on overweight and obesity by introducing oil and sugar boards in Anganwadi centres. These displays are designed to initiate conversations, encourage reflection and guide families toward healthier food choices. Their true impact, however, depends on the collective efforts of Anganwadi workers, parents, teachers and community leaders who can use them as active educational tools and implement them in daily life.

Conclusion:

Adopting healthier habits may seem simple, but it requires commitment and the will to change. If millions of families across India take these small steps together, we can create a powerful wave of transformation. As our nation moves towards the vision of Viksit Bharat, building a culture of good nutrition will help us secure the health and future of generations to come.

5. Nourishing the Roots: Nutritional Justice for Adivasi Communities

Context:

India's tribal or Adivasi communities have long sustained themselves on diets rooted in forest biodiversity, traditional crops, and locally available wild foods. Their food systems were not merely about sustenance, but about culture, ecological balance, ancestral land rights, and intergenerational knowledge transfer. Yet, over the past few decades, structural economic changes, conservation policies, weak implementation of land rights, climate pressures, and health burdens have altered their diets and inflicted deep nutritional harm.

Conservation and Forest Governance Pressures:

- Legal restrictions on forest access, whether through tiger reserve/wildlife protection laws, wildlife conservation policies, or regulation of forest produce, have diminished Adivasis' ability to forage or hunt. There are widespread instances of forest laws restricting access to forests, which in turn have impacted the food habits of tribal communities.

Economic Commercialisation and Monocultures:

- Hybrid seed programmes, cash crops, chemical inputs, and state-promoted commercial agriculture have replaced climate-resilient indigenous crops. Wild foods and varieties are diminishing.

Food subsidies and Public Distribution System (PDS) dependence:

- Staple rice or wheat rations from PDS, often cheaper and more easily processed, have displaced millets and more nutritious multi- diet food choices and other multi-source tribal foods.

Migration and Remittances:

- As forest degradation, land loss, and lack of employment push Adivasis into seasonal or longer-term migration, remittance incomes, market dependencies, and more processed or convenience foods become part of diets.

Cultural Change and Generational Loss:

- Younger people often do not learn the traditional crop recipes or the foraging knowledge. Elders report declining appetite for wild plants among youth, loss of processing skills (for millets, etc.), and perception of millets as "poor man's grain."

Weak Implementation of Legal Rights to Land and Forests:

- The Forest Rights Act (FRA) 2006 promises rights over minor forest produce and habitat, yet in many areas, Adivasis' ownership over ancestral lands or access to forest resources remains contested or constrained. Without secure land, they cannot maintain the cultivation of traditional crops or foraging rights.

Climate Change: Disproportionate Impact on Adivasi Food Security Forest Degradation:

- Mining, plantations of non-native trees (e.g. eucalyptus), dams, unsustainable agricultural expansion, all reduce biodiversity, forest cover, and hence wild food options.
- In Thuamul Rampur, Odisha, forests once rich in tubers, berries, and leaves are being degraded by dam projects, eucalyptus plantations, and monocultures.
- These climate pressures amplify the damage from the loss of traditional food systems, lifting stress on already vulnerable populations, the Adivasi children, pregnant/ lactating women in particular.

Protein,Anaemia,Sickle Cell Disease, and Malnutrition: The Health Burden

- Traditionally, many Adivasi economies have included hunting, small livestock, poultry, fishing, and gathering insects, among other activities. These provided good-quality protein, essential amino acids, and micronutrients, such as vitamin B12 and haeme- iron.
- As access to forests or wild fauna is reduced, and as diets shift to plant staples (millets, pulses, rice), the quality of protein often drops. Pulses are helpful but usually consumed in limited quantities, and complementary feeding (mixing pulses, millets, wild foods) declines.
- Millets, though more nutritious, are sometimes processed or de-husked in ways that reduce nutrient content. Additionally, market pulses may be expensive and therefore inaccessible, despite their nutritional quality, to many Adivasi communities.

Measures need to be taken by the Government:

- Strengthen Implementation of FRA: Ensure that Adivasi claims over forests and lands are recognised in timely and non-adversarial ways; protect minor forest produce and customary rights to hunting/ foraging. Without land and forest, traditional diets cannot be restored.
- Promote Millets, Wild Foods and local Varieties of Crops: Several states have announced millet for this purpose. Seed banks, community seed centres, and long-term programmatic support for agroecological farming practices, as well as the integration of local foods into Anganwadi, PDS, and maternity & child health programmes, will facilitate better acceptance by communities and improve nutritional outcomes.
- Intersectoral Approaches: Nutrition is not only about health. Agriculture, forestry, land rights, conservation, education, and women's empowerment all matter. Policies, and more importantly, the implementation of these policies at the district and panchayat levels, must be coordinated across various departments, including Tribal Affairs, Health & Family Welfare, Agriculture, Environment & Forests, Rural Development & Panchayati Raj, etc.
- Invest in ECD Services tailored to tribal settings, including creches that utilise culturally relevant feeding practices and incorporate local foods. Support parents, particularly mothers, in active community participation, and provide flexible service delivery to address remoteness. Additionally, integrate ECD into Anganwadi, maternal health, and child growth monitoring.
- Conservation with Justice: Tiger reserve, wildlife sanctuary and reserve forests policies need to balance ecological protection with human nutritional needs. They need to ensure participatory conservation, include benefit sharing of such conservation with local communities and must prioritise the rootedness of communities within their own areas.
- Monitoring, Data & Research to Fill Gaps — More context-specific data in tribal areas (especially in southern India, Northeast), evaluation of interventions, tracking of nutritional outcomes, malnutrition, anaemia, and SCD outcomes.

Conclusion:

The nutrition and tribal life, sustainable and nutritious food systems must be rooted in justice, equity, and participation. Government policies, civil society efforts, and researchers must treat early childhood nutrition among Adivasis not merely as public health issues, but as matters of social justice and nation-building.

6. Nourishing Families Together

Context:

- Research from India and other developing nations shows that children benefit significantly when both parents, not just mothers, are involved in their upbringing:
- Children whose fathers are actively engaged show better nutritional outcomes, higher immunisation rates, and lower stunting.
- Fathers' involvement in early learning and play promotes school readiness and stronger language skills.
- A nurturing father figure also helps build emotional security and self-esteem in both girls and boys.

For women's empowerment and mental health Engaged fathers and husbands relieve women of the full burden of caregiving, which can:

- Reduce maternal stress, postpartum depression, and feelings of isolation.
- Enable women to pursue education, employment, or skill-building.
- Lead to shared decision-making and less domestic violence.

For men's own growth

Men, too, benefit profoundly from active caregiving:

- They report a greater sense of purpose and strong emotional bonding with their children.
- Fathers who engage in caregiving tend to drink less, have fewer accidents, and live healthier lives.
- Caregiving provides a space for men to express emotions, challenge toxic masculinity, and build deeper relationships.

What keeps Indian men away from caregiving?

- Patriarchal conditioning: From early childhood, boys are told that cooking, feeding, cleaning, or emotional expression are 'feminine' traits. Many grow up never seeing their fathers perform domestic roles.
- Peer and community pressure: Men who break the norm - like carrying their baby or feeding their child in public, are often ridiculed by peers or even their own families.

Policy and structural barriers

India's policy landscape, especially in labour laws and welfare schemes, does not actively encourage male caregiving. For instance, most private sector jobs offer no paternity leave.

Lack of knowledge and support

Many men express a willingness to help but feel unequipped. They were never taught how to hold a newborn, cook a balanced meal, or understand child milestones.

Real stories of male engagement in nutrition & caregiving

- Joint education for couples improves communication and shared responsibilities.
- Visual tools (e.g. food calendars, meal planners) boost men's participation.
- Programmes framing care as family progress (health, finance) engage men effectively.
- Male participation improves dietary diversity, feeding practices, and maternal well-being.
- Social norms remain a barrier, but peer examples and community role models help.

Key Roles of Indian Men is Caregiving

- In the Indian context, where caregiving responsibilities have been traditionally assigned to women, there is a growing need to redefine and normalise the participation of men in caregiving and nutrition-related activities.
- Male engagement in these roles is not merely about helping but about assuming shared responsibility for the well-being of children, women, and the family as a whole. Below is a comprehensive breakdown of the specific, impactful roles Indian men can play across various stages of the family life cycle.

During Pregnancy: Partners in Prenatal Care

The prenatal stage is one of the most critical periods for ensuring the health and nutrition of both the mother and the developing child. Men can actively participate in this phase by:

- Accompanying their Spouse to Antenatal Check-ups: Their presence not only provides emotional support but also ensures they are informed about the mother's and baby's health.
- Helping with Nutrition Planning: Men can ensure their pregnant partners consume a balanced, iron- and protein-rich diet. In many Indian households, men control grocery budgets-this can be leveraged to prioritise healthy foods.
- Reminding and Supporting Supplement Intake: Reminders for folic acid, iron tablets, and calcium supplements, and helping in obtaining these from government or private clinics.
- Minimising Physical Strain for Pregnant Women: By helping with chores, lifting loads, or reducing travel, men can reduce risk factors like anaemia, preterm labour, or low birth weight.

Early learning and Play: Fathers as Educators

Child development is about more than nutrition— it includes stimulation, emotional bonding, and learning. Fathers can:

- Read to their Children from picture books or tell stories in local languages to improve vocabulary.
- Engage in Playful Parenting: Outdoor games, singing, building blocks, or pretend play help in developing motor and social skills.
- Teach by Example: Children model behaviours they see. Fathers who cook, clean, or resolve conflicts peacefully shape gender-equitable, emotionally intelligent adults.
- Monitor Screen Time: With growing exposure to mobile phones and TV, men must help set boundaries and offer healthy alternatives.

Advocating for Healthcare and Nutrition Services

Men often control transport, finances, and access to outside services. They must:

- Support Institutional Deliveries: Many home births in India occur due to lack of male support for hospital travel.


INSTITUTE OF BASIC EDUCATION
IBE
Way to a Bright Future