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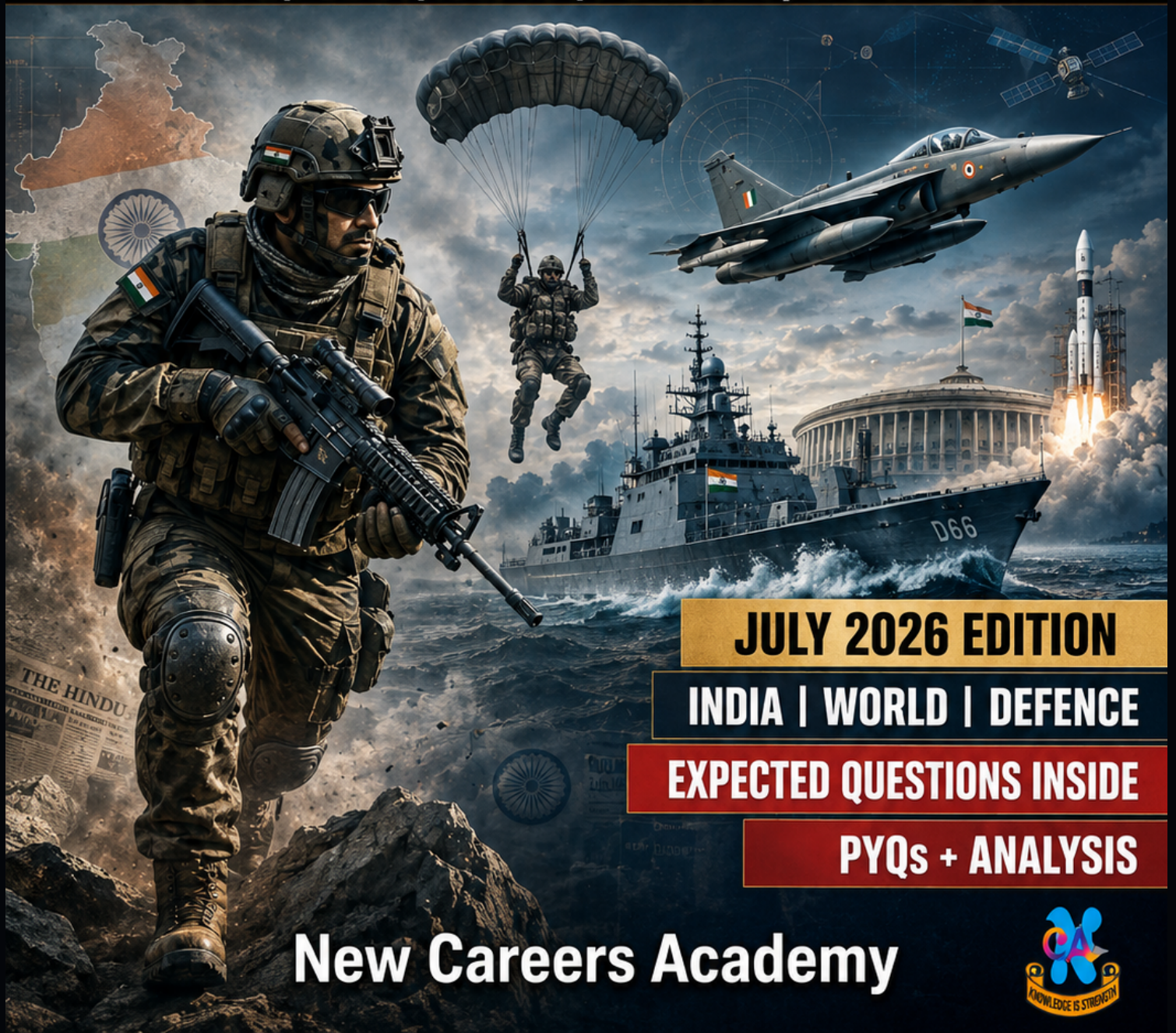
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JULY 2026 EDITION

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New Careers Academy



**DHALIWAL'S
NEW CAREERS ACADEMY**

घातक



GHATAK SERIES

JULY 2026

Comprehensive Current Affairs Compilation
for NDA • CDS • AFCAT • CAPF • SSB • TA • ACC • INET

Coverage: 25th June 2026 – 24th July 2026

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DIRECTOR'S MESSAGE

Dear Aspirants,

It gives me immense pride to present the GHATAK SERIES — July 2026 edition, our monthly current affairs compilation built specifically for defence and civil services aspirants preparing for NDA, CDS, AFCAT, CAPF, SSB, TA, ACC and INET examinations.

DHALIWAL'S NEW CAREERS ACADEMY (NCA) has, for 59 years, stood as a beacon for aspirants across the region. What began in 1967 as the vision of our founder, Late Lt. Col. Hardit Singh Dhaliwal, was carried forward with dedication by Capt. Nirmal Dhaliwal, and today I am privileged to carry this legacy into its third generation — an institution that has guided over 39,000 officer selections.

This edition distills the entire Drishti IAS Saraansh compilation for the period 25th June to 24th July 2026 into an exam-focused, NCA-branded resource — covering Polity & Governance, Nation & States, Economic Scenario, International Relations, Environment & Ecology, Science & Technology, History, Art & Culture, Social Issues, and a dedicated Facts for UPSC section for rapid revision.

As the builder of Hardit AI — our in-house student performance tracking platform, named in tribute to our founder — I remain committed to combining technology with disciplined preparation to help each one of you succeed.

Study with focus. Revise with discipline. Serve with pride.

Jai Hind!

— Hartaj Dhaliwal

Director, DHALIWAL'S NEW CAREERS ACADEMY

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POLITY & GOVERNANCE

► National Anti-Doping (Amendment) Act, 2025

Two athletes lost their spots for the Commonwealth Games 2026 after failing anti-doping checks, putting the spotlight on India's medal chances just as the National Anti-Doping Act, 2022 and its 2025 Amendment come into force to tighten clean-sport rules.

- India topped the list of doping offenders in the 2024 annual report of the World Anti-Doping Agency (WADA), with a positivity ratio of 3.6%, among the highest globally.

Key Features of the National Anti-Doping (Amendment) Act, 2025

- **About:** Amends the National Anti-Doping Act, 2022 to strengthen India's anti-doping framework and promote clean sport.
 - Aligns with the World Anti-Doping Code and UNESCO International Convention against Doping in Sport.
- **Institutional Framework:** Establishes National Anti-Doping Agency (NADA) for implementing anti-doping rules.
 - Establishes National Board for Anti-Doping in Sports to oversee NADA and advise the government.
- **Key Provisions:** Provides statutory backing for testing, results management, education, intelligence, and investigations.
 - Empowers the National Board to obtain information from Disciplinary Panel and Appeal Panel.
 - Defines anti-doping rule violations and related circumstances.
- **Significance:** Enhances transparency, accountability, and due process.
 - Improves institutional autonomy and aligns India with international best practices.
 - Promotes fair play and equal opportunities for athletes.

NADA

- **About:** India's autonomous body established in 2005 for promoting and monitoring anti-doping in sports.
- **Functions:** Plans, implements, and coordinates India's anti-doping activities.
 - Follows World Anti-Doping Agency (WADA) Code and regulations.
- **Initiatives:** Implements Anti-Doping Program and #PlayTrue Campaign to educate athletes and promote clean sport.

World Anti-Doping Agency (WADA)

- **About:** Established in 1999 by the International Olympic Committee (IOC) as the global authority against doping in sports.
- **Governance Model:** Based on equal partnership and funding between Sports Movement and Governments.
- **Core Document:** World Anti-Doping Code harmonises anti-doping rules globally.
- **Key Standard:** Publishes WADA Prohibited List of banned substances and methods, updated annually.

- **Operational Scope:** Applies to in-competition, out-of-competition, and sport-specific scenarios.

► Assam Floods and Flood Management in India

Assam is battling its worst floods in six decades, with more than 8 lakh people affected and over 30 lives lost.

Why is Assam Highly Prone to Floods?

- **Geographical vulnerability:** Assam lies in the Brahmaputra and Barak river basins with 50+ tributaries; its floodplain location makes it naturally flood-prone.
 - The Brahmaputra deposits heavy sediments in Assam's plains, raising riverbeds and increasing flood risk.
- **Heavy monsoon rainfall:** Intense southwest monsoon and upstream discharge from Arunachal Pradesh and Meghalaya trigger floods.
- **Riverbank erosion:** Frequent channel shifts, embankment breaches and erosion have affected around 4.27 lakh hectares since 1950.
- **Deforestation and soil erosion:** Increase sediment inflow, reducing river capacity and worsening floods.
- **Climate change:** Rising extreme rainfall events and higher flood peaks are increasing flood intensity.
- **Embankment limitations:** Many embankments have exceeded their design life and cannot manage the dynamic Brahmaputra system.
- **High exposure:** Around 39.58% of Assam's area is flood-prone, nearly four times the national average.

Causes of Floods in India

- India has over 40 million hectares of flood-prone area out of 329 million hectares geographical area.
- Floods affect around 75 lakh hectares annually, causing about 1,600 deaths on average.

Natural Causes

- **Concentrated Monsoonal Rainfall:** Around 75–80% of annual rainfall occurs during the Southwest Monsoon; intense rainfall often exceeds river and drainage capacity.
- **Siltation and Riverbed Aggradation:** Himalayan rivers like Ganga and Brahmaputra carry heavy sediments, reducing channel capacity and increasing floods.
- **River Meandering:** Sediment-rich rivers frequently change courses; e.g., Kosi River (Sorrow of Bihar) causing repeated floods in Bihar.
- **Glacial Lake Outburst Floods (GLOFs):** Climate-induced glacier retreat increases glacial lakes and sudden flood risks (e.g., 2023 Sikkim GLOF).
- **Cyclones and Storm Surges:** Bay of Bengal cyclones cause coastal flooding and restrict river discharge into the sea.

Anthropogenic Causes

- **Deforestation and Catchment Degradation:** Increase runoff, soil erosion and sediment deposition.
- **Embankment Trap:** India has built 34,000+ km embankments since 1954; failures can cause severe floods.

- **Dam Mismanagement:** Sudden reservoir releases and poor rule-curve management worsen downstream flooding like Kerala floods (2018).
- **Floodplain and Wetland Encroachment:** Reduces natural water storage capacity; degradation of wetlands like Assam's Beels increases flood intensity.
- **Unscientific Sand Mining:** Alters river morphology and destabilises riverbanks.

Urban Flooding

- **Unplanned Urbanisation:** Concretisation reduces water absorption and increases runoff.
- **Loss of Water Bodies:** Encroachment of lakes, wetlands and drainage channels reduces flood-buffering capacity as seen in Bengaluru and Chennai.
- **Poor Storm-Water Drainage:** Blocked and inadequate drainage systems restrict water evacuation.
- **Climate-Induced Extreme Rainfall:** Short-duration intense rainfall overwhelms urban drainage, causing flash floods.

Measures Taken by India for Flood Management

- **Structural Measures**
 - **Embankments and Drainage Works:** Over 34,000 km of embankments constructed along with drainage channels, flood protection works and raised villages.
 - **Dam Safety Act, 2021:** Provides framework for surveillance, inspection, operation and maintenance of specified dams.
 - **Reservoir Management:** Uses Rule Curves to maintain flood cushions and regulate monsoon water storage.
 - **Inter-Basin Water Transfer (IBWT):** National Perspective Plan (1980) aims to transfer surplus floodwaters to water-deficit regions.
- **Non-Structural Measures**
 - **Flood Plain Zoning:** CWC Model Flood Plain Zoning Bill (1975) regulates development in flood-prone areas.
 - **Flood Forecasting and Early Warning:** CWC uses real-time telemetry, hydrological modelling and inundation forecasting.
 - **Catchment Area Treatment (CAT):** Promotes afforestation, watershed management and soil conservation to reduce runoff and sedimentation.
 - **Community-Based Preparedness:** Includes awareness programmes, mock drills and local disaster management plans.
- **Institutional and Policy Measures**
 - **Disaster Management Act, 2005:** Provides framework through NDMA, SDMA, DDMA, NDRF and SDRFs for disaster preparedness and response.
 - **Flood Management and Border Areas Programme (FMBAP):** Ministry of Jal Shakti scheme supporting flood control, anti-erosion, drainage and anti-sea erosion works.

- **National Water Policy, 2012:** Promotes integrated river basin management, flood moderation and restoration of natural drainage.
- **IMD:** Provides weather forecasts and impact-based warnings for evacuation and preparedness.

Concerns Regarding India's Flood Management

- **Constitutional and Federal Gridlock:**
 - States control water, drainage, embankments (Entry 17, State List) while Centre controls inter-state rivers (Entry 56, Union List), causing poor coordination.
 - **River Boards Act, 1956:** Empowered River Basin Organizations remain non-functional, hindering integrated basin-level management.
- **Fiscal and Project Execution Failures:** CAG audits show delays in DPR approvals, fund release issues, diversion and poor utilization of funds, leaving flood-control and anti-erosion projects incomplete.
- **Deficient Flood Forecasting and Telemetry:** Many CWC telemetry stations and water-level sensors are non-functional due to poor maintenance and vandalism.
 - Delayed or unreliable hydrological data reduces forecasting accuracy and evacuation lead time.
- **Transboundary Water Governance Gaps:** Indus Waters Treaty (1960) and seasonal MoUs with China do not cover climate change, glacial melt, or flood management, limiting transparency and early-warning capacity.
- **Weak Dam Safety and Reservoir Operations:** Non-adherence to Rule Curves and inadequate Emergency Action Plans (EAPs) convert natural floods into man-made disasters.
 - Sudden large-scale releases from dams exacerbate downstream flooding despite Dam Safety Act, 2021.
- **Weak Grassroots Disaster Preparedness:** SDRFs and district administrations are underfunded and under-equipped, making states heavily dependent on NDRF, with poor community resilience and early-warning dissemination.
- **Northeast-Specific Concerns:** Fragile Himalayan ecology, transboundary rivers from China and Bhutan, weak hydrological cooperation, inadequate forecasting infrastructure, and poor connectivity hinder integrated river basin management and disaster response.
 - Results in recurring loss of lives, livelihoods, biodiversity, and critical infrastructure.

Measures to Strengthen India's Flood Management

- **Shift Towards Flood Resilience:** Follow Rashtriya Barh Ayog (National Flood Commission), 1980 recommendations: reduce indiscriminate embankments, promote floodplain management, raised settlements and flood-resilient agriculture.
 - **R. Rangachari Committee (2003):** Shift from flood control to flood management through Integrated River Basin Management (IRBM), zoning, forecasting and community participation.
- **Improve Reservoir and Flood Forecasting:** Maintain dynamic flood cushion through revised Rule Curves.

- Develop National Water Model (NWM) and Decision Support System (DSS) for real-time forecasting.
- Modernise hydro-meteorological networks as recommended by NITI Aayog Committee on Flood Management (2021).
- **Strengthen Disaster Risk Reduction:** Move from relief-based response to risk reduction through resilient infrastructure, early warnings and Build Back Better approach under Sendai Framework (2015–2030).
- **Regulate Floodplain Development:** Implement floodplain zoning laws based on Model Flood Plain Zoning Bill, 1975.
 - Restrict construction on floodplains, wetlands and natural drainage channels.
- **Promote Basin-Level Governance:** Establish River Basin Organizations (RBOs) for coordinated planning, reservoir management, sediment control and interstate data sharing.
- **Use Advanced Technology:** Expand AI-based Early Warning Systems, IoT-based monitoring, satellite flood mapping and strengthen the CWC National Flood Forecasting Network.
- **Adopt Nature-Based Solutions:** Promote “Room for the River” and Sponge City approaches through wetland restoration, floodplain reconnection and increasing permeable surfaces.
- **Interlinking of Rivers (ILR):** Can reduce flood peaks by storing excess monsoon water in multipurpose reservoirs (e.g., Kosi and Mahanadi).
 - Requires integration with floodplain zoning, embankments and early warning systems as it cannot completely eliminate floods.

Floods in India are increasingly becoming governance failures rather than purely natural disasters. Examine.

► Internet Shutdowns in India

Mobile internet services were recently suspended in parts of Central Delhi during a protest.

Internet Shutdown

- **Definition:** An intentional disruption of internet or electronic communication services, making them inaccessible or unusable for a population or location.
- **Forms:** Complete shutdowns, internet throttling and blocking of specific platforms/services.
- **Purpose:** Used to control information flow during protests, political events, religious gatherings and public unrest.
- **Nature:** May be preventive or imposed during ongoing incidents.
- **Impact:** Affects journalists, media organisations and public access to verified information.
 - Reduces transparency and can increase the spread of unverified information.

Global Scenario

- **Growing Global Trend:** UNESCO reported at least 300 shutdowns across 54+ countries in the last two years.
 - 2024 was the worst year for shutdowns since 2016, with increasing use during protests and elections.
- **India's Position:** India remains among the countries with the highest number of shutdowns.

- **Access Now (2025):** Recorded 65 shutdowns across 12 States/UTs.
- **2026:** Around 24 shutdowns recorded till July 22.
- **SFLC Tracker:** Highest shutdowns in Jammu & Kashmir (449 since 2012), followed by Rajasthan (115) and Manipur (62).
- **UNESCO's Position:** Calls for promoting internet accessibility rather than excessive restrictions.
 - Recognises internet access as important for freedom of expression, education, association, assembly and participation in public life.

Legal Framework for Internet Shutdowns in India

- **Governing Law:** Regulated by the Telecommunications (Temporary Suspension of Services) Rules, 2024 under the Telecommunications Act, 2023.
 - Replaced the earlier 2017 Temporary Suspension Rules.
- **Grounds for Suspension:** Under Section 20(2)(b) of the Telecommunications Act, 2023, suspension is allowed only for Public emergency & Public safety.
 - Reasons must be recorded in writing.
 - A protest alone is not a lawful ground for internet suspension.
- **Principles and Safeguards**
 - Orders must satisfy necessity and proportionality.
 - Must be reasoned, published, limited in area and duration, and consider less restrictive alternatives.
- **Authority to Issue Orders**
 - **Union Home Secretary:** National-level shutdowns.
 - **State Home Secretary:** State-level shutdowns.
 - In urgent cases, authorised Joint Secretary-level officers may issue orders, subject to confirmation within 24 hours.
- **Judicial Review:** Orders can be challenged under Article 226 (High Courts) & Article 32 (Supreme Court).
 - Courts examine legality, necessity, proportionality and limits of the shutdown order.

Judicial Position on Internet Shutdowns

- **Right to Internet Access:** In Anuradha Bhasin v. Union of India (2020), the SC held that internet access is linked with Article 19(1)(a) - Freedom of speech and expression & Article 19(1)(g) - Freedom of trade and profession.
- **Principles for Shutdowns:** Any shutdown must:
 - Have legal backing and a legitimate objective.
 - Follow necessity and proportionality.
 - Use the least restrictive measure.
 - Be limited in scope and duration, with reasons published.
- **Indefinite Shutdowns:** The SC held that indefinite internet suspension is impermissible; orders require review by a multi-member Review Committee within 5 working days.

- **Least Restrictive Approach:** Complete suspension of telecom services is a drastic measure and should be used only when unavoidable after considering alternatives.
- **Calcutta HC (2022):** In *Ashlesh Biradar v. State of West Bengal*, the Court stayed an internet suspension order for lacking legal authority, adequate reasons and consideration of alternatives.

Concerns Regarding Internet Shutdowns

- **Violation of rights:** Shutdowns restrict Article 19(1)(a) freedom of speech and affect internet access linked with Article 21.
- **Limited oversight:** Despite the Telecommunications Act, 2023 and 2024 Rules, lack of independent oversight may enable arbitrary implementation.
- **Bypassing safeguards:** Some States continue using the Indian Telegraph Act, 1885 and 2017 Rules, raising concerns over procedural compliance.
- **Lack of transparency:** Despite the SC mandate in *Anuradha Bhasin (2020)*, many shutdown orders and review records are not publicly available.
- **Economic and social impact:** Disrupts businesses, digital services, education, banking, healthcare and communication; India reportedly lost around USD 255.2 million due to shutdowns in 2023.
- **Digital governance concerns:** Frequent shutdowns may conflict with India's goals in AI, digital governance and technological innovation.
- **Duration concerns:** Although 2024 Rules limit shutdowns to 15 days, weak review and publication practices remain a concern.

Measures to Address Internet Shutdown Concerns

- **Strengthen oversight:** Create independent review mechanisms or parliamentary scrutiny to examine shutdown orders and prevent arbitrary use.
- **Ensure legal compliance:** Follow the Telecommunications Act, 2023 and 2024 Rules, allowing shutdowns only for public emergency or public safety with proper justification and review.
- **Apply necessity and proportionality:** Treat shutdowns as a last resort, with limits on duration, area and scope.
- **Use targeted alternatives:** Prefer content regulation, fact-checking, misinformation monitoring and cybersecurity measures over blanket shutdowns.
- **Improve transparency:** Publish shutdown orders, reasons, duration and review decisions to protect freedom of expression and access to information.
- **Promote digital literacy:** Strengthen awareness programmes and align policies with UN principles on internet access, human rights and open connectivity.

Internet shutdowns in India raise complex questions of public order, fundamental rights and proportionality. Discuss.

► SC Sets Aside Death Sentence and Upholds Fair Trial

Hearing *Abdul Hameed v. State of Rajasthan*, the Supreme Court overturned a death sentence handed down in the 1996 Samleti Bus

Bomb Blast case, ruling that the accused had been denied effective legal representation and thereby the right to a fair trial.

- SC ordered a fresh (de novo) trial to be completed within one year.

SC Observations on Right to Fair Trial

- **Fair trial is non-negotiable:** The SC held that fair trial guarantees cannot be sacrificed for convenience; criminal justice requires a fair, just and reasonable procedure.
 - A co-accused's confession is not substantive evidence and can only support conclusions based on independent admissible evidence.
- **Due process over retribution:** Justice depends on procedural fairness and restraint, not merely swift punishment; reaffirmed the principle that it is better for guilty persons to escape than for an innocent person to be punished.
- **Fresh trial ordered:** Instead of acquittal, the Court directed a de novo trial within one year with effective legal representation.
- **Procedural safeguards:** Even in serious offences like terrorism, the State must uphold constitutional safeguards; trial courts must ensure competent legal representation before evidence examination or sentencing.

Legal Aid and Fair Trial Provisions in India

- **Constitutional Provisions**
 - **Article 21:** Includes the Right to Fair Trial and Right to Free Legal Aid as part of a just, fair and reasonable procedure.
 - **Article 22(1):** Guarantees the right of an arrested person to consult and be defended by a legal practitioner of choice.
 - **Article 39A:** Directs the State to provide free legal aid to ensure equal access to justice, inserted by the 42nd Constitutional Amendment Act, 1976.
- **Statutory Provisions**
 - **BNSS, 2023 (Section 341):** Courts must provide a state-funded advocate if an accused cannot afford legal representation.
 - **Legal Services Authorities Act, 1987:** Established NALSA (headed by CJI), SLSAs, DLSAs to provide free legal services to weaker sections.

Eligible groups: SCs/STs, women, children, persons with disabilities, victims of trafficking, violence or disasters, industrial workers, persons in custody and low-income individuals. Impact: Over 44.22 lakh people received legal aid/ advice during 2022-23 to 2024-25. Lok Adalats Recognised under the Legal Services Authorities Act, 1987 for speedy settlement of disputes. Settled over 23.5 crore cases (2022-23 to 2024-25), reducing judicial burden and litigation costs.

- **Landmark Judgments**
 - **Hussainara Khatoon v. State of Bihar (1979):** Free legal aid is part of the fair, reasonable and just procedure under Article 21.
 - **Khatri v. State of Bihar (1981):** State must provide legal aid from the stage of first production before a magistrate, not only during trial.

Initiatives and Institutions Supporting Legal Aid

- Key Initiatives
 - **Legal Aid Defense Counsel System (LADCS):** NALSA initiative providing free legal defence in criminal cases under the Legal Services Authorities Act, 1987.
 - **DISHA (2021–26):** Department of Justice scheme promoting access to justice through Tele-Law, Nyaya Bandhu (Pro Bono Legal Services), legal literacy and awareness programmes; benefited over 2.10 crore people (February 2025).
- Institutions Supporting Accessible Justice
 - **Fast-Track Courts (FTCs):** Ensure speedy trials of heinous offences and sensitive cases; 865 FTCs functional (June 2025).
 - **Fast-Track Special Courts (FTSCs):** Established in 2019 for rape and POCSO cases; 725 courts functional, including 392 exclusive POCSO courts.
 - **Gram Nyayalayas:** Rural courts under the Gram Nyayalayas Act, 2008 for affordable justice; 488 functional (March 2025).
 - **Nari Adalats:** Under Mission Shakti (Sambal), resolve domestic and gender-based disputes through mediation at Gram Panchayat level.
 - **Exclusive Special Courts (SC/ST Act):** Established under the SC/ST (Prevention of Atrocities) Act, 1989 for speedy trial of offences against SCs/STs. "A fair trial is the cornerstone of the rule of law." Discuss how far has it succeeded in ensuring access to justice?

► National Commission for Minorities (NCM)

Harjit Singh Grewal has taken over as Chairman of the NCM after the previous chairperson's term lapsed in April 2025.

NCM

- **About:** NCM is a statutory body established under the National Commission for Minorities Act, 1992.
- **Composition:** Consists of 1 Chairperson, 1 Vice-Chairperson and 5 Members.
 - Members are nominated by the Central Government from persons of eminence, ability and integrity.
 - At least 5 members, including the Chairperson, must belong to notified minority communities.
- **Mandate & Functions:** Reviews development progress of minorities under the Union and States.
 - Monitors constitutional and legal safeguards for minorities. Examines complaints regarding deprivation of minority rights.
 - Conducts studies and research on socio-economic and educational development of minorities.
- **Powers:** Has powers of a Civil Court during investigations, including:
 - Summoning witnesses.
 - Requiring documents.
 - Receiving evidence through affidavits.

- Tenure and Removal
 - **Tenure:** Chairperson and Members hold office for 3 years.
 - **Resignation:** Submitted in writing to the Central Government.
 - **Removal grounds:** Insolvency, conviction involving moral turpitude, unsound mind, inability to act, absence from 3 consecutive meetings, or abuse of office.
 - Removal for abuse of office requires a reasonable opportunity of being heard.

Concerns Regarding the NCM

- **Limited powers:** NCM's recommendations are advisory and non-binding, unlike constitutional bodies such as NCSC (Article 338) and NCST (Article 338A).
- **Political appointments:** Central Government's nomination power may lead to preference for political affiliates over independent experts.
- **Vacancies and delays:** Prolonged vacancies affect grievance redressal, monitoring and policy advice.
- **Weak accountability:** Delays in submitting reports and Action Taken Memorandum (ATM) to Parliament reduce transparency.
- **Minority determination issue:** Conflict between national notification under the NCM Act, 1992 and the Supreme Court's view in T.M.A. Pai Foundation (2002) that states are the unit for determining minorities.
- **Weak state mechanisms:** Several State Minority Commissions face absence, inadequate funding, manpower shortages and limited investigative capacity.

Measures to Strengthen NCM

- **Independent appointments:** Adopt an NHRC-like selection mechanism with a high-powered committee involving the PM, Speaker, Home Minister, Leaders of Opposition and Deputy Chairman of Rajya Sabha to ensure transparency and autonomy.
- **Constitutional status:** Convert NCM into a constitutional body as proposed in the National Commission for Minorities (Repeal) Bill, 2004, giving it greater authority and credibility.
- **Evidence-based policymaking:** Implement Sachar Committee (2006) recommendations by creating an Equal Opportunity Commission (EOC) and National Data Bank (NDB) for reliable minority socio-economic data.
- **Mandatory ATRs:** Set a fixed timeline (e.g., six months) for the government to submit Action Taken Reports to recommendations.

The National Commission for Minorities has often been criticised as a "toothless tiger." Examine the institutional and legal constraints limiting its effectiveness.

► National Investment Policy for Urea-2026

Under Atmanirbhar Bharat, the Cabinet Committee on Economic Affairs has cleared the National Investment Policy for Urea-2026 to encourage new gas-based urea plants, lift domestic output, cut import dependence and shore up fertiliser security.

Key Features of NIPU-2026

- **Capacity addition:** Supports 8–9 new gas-based urea plants, each with about 12.7 lakh tonnes capacity, adding nearly 10 million tonnes overall.
- **Key Reforms:** NIPU-2026 introduces several changes in New Investment Policy (NIP)-2012
 - **Transparent subsidy:** Separates fixed and variable costs in subsidy calculations.
 - **Assured returns:** Provides a 12–16% Return on Equity band.
 - **Forex protection:** Fixed costs will be converted into INR after four years to reduce exchange-rate risk.
 - **Project scope:** Focuses on new gas-based urea manufacturing units.
- **Cost savings:** Expected to save over ₹250 crore per plant compared with NIP-2012 projects.
- **Equal treatment:** Offers identical incentives to private, public and cooperative sectors.

Need for NIPU-2026

- **Demand-supply gap:** Urea's demand growing approx 5% annually. India consumes about 40 million tonnes of urea annually but produces only 30 million tonnes, leaving a 10-million-tonne import gap.
- **Self-sufficiency:** The policy aims to add 10 million tonnes of domestic capacity and reduce import dependence.
- **Policy vacuum:** NIP-2012 expired in October 2019, creating the need for a new investment framework.
- **Geopolitical risks:** Dependence on imported urea and LNG exposes India to supply disruptions and price shocks, threatening fertilizer and food security.

► India's Water Conservation Drive

A month-long nationwide water conservation campaign ran from 4th July to 4th August 2026, launched in response to the Prime Minister's appeal during Mann Ki Baat.

- Focuses on rainwater harvesting, groundwater recharge, restoration of traditional water bodies, plantation and public participation.
- Aims to strengthen and sustain water-conservation efforts across India.

Key Water-Harvesting and Conservation Initiatives *Catch the Rain Campaign*

- **About:** Launched by the National Water Mission with the tagline "Catch the rain, where it falls, when it falls."
- **Activities:** Promotes check dams, rooftop harvesting, desilting of tanks, repair of stepwells and recharge through unused wells and borewells.
- **Rain Centres:** Rain Centres are to be set up in every district for technical guidance.
- **Local Storage:** Encourages local storage of rainwater to improve groundwater, soil moisture and reduce urban flooding.
- **Participation:** Involves district authorities, schools, public bodies and large landholding institutions.

Jal Sanchay Jan Bhagidari: Catch the Rain, 2026

- **About:** Launched on 1 June 2026 by integrating Jal Sanchay Jan Bhagidari with Jal Shakti Abhiyan: Catch the Rain.
- **Objective:** Focuses on rainwater harvesting, groundwater recharge, water storage and community participation.
- **Convergence:** Uses convergence with PMKSY–Per Drop More Crop, MGNREGS-linked rural works, water-body restoration, CAMPA funds, Finance Commission grants and state schemes.
- **Participation:** Mobilises Panchayats, ULBs, women, youth, educational institutions and civil society to strengthen climate resilience.

Jal Shakti Abhiyan: Catch the Rain

- Launched on World Water Day, 2021 with the theme "Catch the Rain, where it falls, when it falls."
- Promotes rainwater harvesting, groundwater recharge, watershed development, water-body rejuvenation and afforestation through a Jan Andolan.
- Builds on Jal Shakti Abhiyan, 2019, which covered 1,592 water-stressed blocks in 256 districts.
- The campaign is conducted annually with changing themes and focus areas.

Jal Shakti Kendras

- Serve as district-level knowledge and facilitation centres for water conservation.
- Provide awareness and technical guidance on rainwater harvesting and groundwater recharge.
- Connect communities, district administrations and government agencies to strengthen Jan Bhagidari.

Water Harvesting System

- **About:** A water harvesting system captures, stores and uses rainwater or surface runoff for domestic use, irrigation and groundwater recharge.
- **Types:**
 - **Rainwater harvesting:** Rooftop collection and storage.
 - **Groundwater recharge:** Recharge wells and pits that allow water infiltration.
 - **Surface-water harvesting:** Ponds and reservoirs for irrigation and other uses.
 - **Urban water harvesting:** Captures rooftop and surface runoff to reduce pressure on municipal systems.
- **Significance:** Provides a reliable water source and improves groundwater availability.
 - Reduces flooding, waterlogging, soil erosion and surface runoff.
 - Helps prevent seawater intrusion in coastal areas.
 - Supports sustainable water management and checks groundwater depletion.

► Draft National Health Research Policy 2026

The Department of Health Research has put out the Draft National Health Research Policy 2026 for public feedback.

- It proposes India's first unified framework covering biomedical research, clinical medicine, public health, epidemiology, digital health, and AI.

Key Highlights of the Policy

- **National Health Research Agenda (NHRA):** Periodically prioritise research based on disease burden, equity, pandemic preparedness, and national interests, in consultation with States, UTs, researchers, & communities.
- **Three-Tier Governance Structure:**
 - **National Health Research Stewardship Committee:** Strategic coordination and oversight.
 - **Department of Health Research (DHR):** Nodal implementing and coordinating agency.
 - **Indian Council of Medical Research (ICMR):** Scientific and technical lead.
- **Outcome-Based Research Evaluation:** Shift from publication- and patent-based assessment to real-world impact. The expanded ICMR-IRIS will evaluate contributions to public policy, clinical practice, health programmes, indigenous technologies, institutional capacity, health equity, and society.
- **Enhanced Funding and Long-Term Targets:** Raise public health research spending from 0.024% of GDP to 0.072% by 2037 and 0.15% by 2047, against 0.27% in high-income nations.
 - Targets are also proposed for research investment, medical science PhDs, and indigenous health technologies.
- **Focus on Emerging Technologies:** Priorities include AI, health data science, cell and gene therapy, precision medicine, and climate-related health research, along with TB, Antimicrobial Resistance, and maternal health.
- **Shared Research Infrastructure:** Publicly funded infrastructure will be treated as a shared national resource to widen institutional access and reduce bottlenecks.
- **Research Ethics and Data Governance:** Emphasises research integrity, ethics, cybersecurity, data governance, and community participation to improve transparency, accountability, and public trust.

Need for National Health Research Policy

- **Fragmented Health Research Governance:** Research is divided among ICMR, DBT, CSIR, AIIMS, and State medical universities, causing duplication, weak coordination, and slow translation into practice and policy.
- **Concentration of Research Capacity:** Research infrastructure, manpower, and innovation remain concentrated in premier institutions, while Tier-II and Tier-III medical colleges have limited capacity.
- **Misalignment with India's Disease Burden:** Research priorities inadequately reflect the simultaneous burden of infectious diseases, NCDs, AMR, maternal and child health challenges, and climate-sensitive diseases.
- **Weak Research-to-Policy Translation:** Publication- and patent-driven evaluation has widened the bench-to-bedside gap, limiting translation into policies, indigenous technologies, and better healthcare delivery.

- **Regulating Digital Health Research:** Regulation has not kept pace with AI, genomics, precision medicine, digital health, and health data systems, while complex approvals delay research and innovation.
- **Global Health Security Vulnerabilities:** India ranked 66th among 195 countries in the Global Health Security Index 2021, highlighting gaps in pandemic preparedness, genomic surveillance, and biosecurity.
- **Ethical Challenges:** Practices such as data fabrication, plagiarism, peer-review fraud, weak ethical oversight, authorship manipulation, excessive self-citation, and poor reproducibility undermine research integrity.

Discuss the significance of the Draft National Health Research Policy 2026 in strengthening India's health research ecosystem and promoting evidence-based public health governance.

► NIPUN Bharat Mission and Foundational Learning

Five years after it was launched in July 2021, the NIPUN Bharat Mission is now being reassessed to lock in learning gains, carry support beyond Grade 3, and shore up foundational literacy and numeracy for Viksit Bharat — an area the NEP 2020 flagged as an urgent priority, given that over 5 crore elementary-level students still lack basic reading and numeracy skills.

Key Features of NIPUN Bharat Mission

- **About:** Launched by the Ministry of Education in July 2021 under NEP 2020 and Samagra Shiksha.
- **Objective:** Ensure every child acquires foundational competencies in reading, writing and numeracy by Grade 3, and not later than Grade 5, by 2026–27.
- **Target Group:** Covers children aged 3–9 years, from Balvatika to Grade 3, with grade-wise learning targets called Lakshyas.
- **Learning Approach:** Promotes child-centred, play-based, activity-based, experiential, toy-based, storytelling, art- and sports-integrated learning suited to children's linguistic and social backgrounds.
- **Core Competencies:**
 - **Literacy:** Oral language, decoding, reading fluency, comprehension and writing, measurement, shapes, spatial understanding and data handling.
- **Teacher Training:** Teachers and school heads are trained through FLN-specific NISHTHA modules, with focus on mother-tongue instruction, peer learning and teaching-learning materials.
- **Learning Resources:** DIKSHA provides worksheets, videos, assessment banks, children's literature and teacher handbooks.
- **Assessment and Monitoring:** Uses continuous, competency-based and stress-free assessments, supported by child-wise tracking, annual surveys and IT-enabled monitoring.
- **Implementation:** Implemented by the Department of School Education and Literacy through a five-tier structure at national, State, district, block/cluster and school levels, with participation of SMCs, parents, local bodies and communities.
- **Expected Outcomes:** Improve learning outcomes, reduce dropouts, strengthen transition to higher classes, promote inclusion and build a foundation for higher-order learning and employability. According to ASER, Grade 3 government-school

students able to read a Grade 2-level text rose only from 16.3% in 2022 to 23.4% in 2024, showing slow progress towards universal FLN by 2026–27.

Role of NIPUN Bharat in Strengthening Foundational Learning

- **Extend to Grade 5:** Continue FLN support beyond Grade 3, as 56% of Grade 5 students cannot read a Grade 2 text and nearly 70% lack basic arithmetic skills.
- **Universalise Balvatika:** Provide nationwide Balvatikas with trained educators, age-appropriate materials and play-based learning, as 57% of children enter school with low readiness.
- **Strengthen Teacher Capacity:** Replace one-time cascade training with continuous hybrid development aligned with National Professional Standards for Teachers (NPST), especially for Multi-Grade Multi-Level (MGML) classrooms, which form nearly 70% of primary schools.
- **Professionalise Mentoring:** Create a dedicated mentor cadre for classroom observation, learning assessment and regular feedback.
- **Reform Assessments:** Align PARAKH Rashtriya Sarvekshan (PRS) and Foundational Learning Study (FLS), introduce competency-based Grade 5 assessments, and improve FLN measurement.
- **Improve Governance:** Publish a district-level NIPUN Index, involve parents through home-reading and community reading activities, and reactivate the National Steering Committee with outcome-based monitoring.

► UDISE+ and Performance Grading Index 2.0 2025-26

The Education Ministry has released the 2025–26 editions of UDISE+ and the Performance Grading Index 2.0, which evaluate States, UTs and districts on educational infrastructure, capacity and outcomes — with the policy lens now moving from mere enrolment numbers to measurable learning progress.

Key Highlights of the UDISE+ 2025-26 Report

- **Dropout Rates:** Secondary-level dropout fell from 8.2% to 7.0%, while preparatory-level dropout declined from 2.3% to 1.8%.
- **State Disparity:** Ladakh, Gujarat, Chhattisgarh and Karnataka recorded the highest secondary-level dropout rates.
- **Enrolment and Retention:** Secondary GER rose from 68.5% to 71.7%, while retention improved from 47.2% to 51.9%.
- **Teacher Strength:** India's teacher count crossed 1 crore, reaching 1.02 crore.
 - **Pupil-Teacher Ratio (PTR):** Remained below the NEP 2020 benchmark of 30:1 at all levels: 10:1 foundational, 12:1 preparatory, 17:1 middle and 21:1 secondary.
- **Transition Rates:** 99.2% from foundational to preparatory, 93.8% from preparatory to middle and 88.3% from middle to secondary.
- **Digital Infrastructure:** 69.9% of schools have computers and 67.4% have internet connectivity.
- **Basic Infrastructure:** 95% have electricity, 99.5% drinking water, 98.5% girls' toilets and 96.9% handwashing facilities.
- **Inclusive Infrastructure:** 90.5% have libraries, but only 58.2% have ramps with handrails.

- **Gender Representation:** Women form 54.9% of teachers, while girls constitute 48.4% of enrolment. UDISE+: Developed by the Ministry of Education; one of the largest Management Information Systems on school education globally.

Key Highlights of PGI 2.0 (2025-26)

- **Top-Grade Deficit:** No State/UT attained Utkarsh, Uttam-1 or Uttam-2.
- **Best Performer:** Chandigarh ranked highest nationally with Uttam-3.
- **Minimum Performance:** No State/UT fell under Akanshi-2 or Akanshi-3, indicating at least moderate performance across all.

PGI 2.0

- **About:** A composite framework of the Department of School Education and Literacy, Ministry of Education, for assessing school education performance across States/ UTs.
- **Evolution:** Introduced in 2017 and revamped as PGI 2.0 in line with NEP 2020.
- **Purpose:** Supports evidence-based policymaking, identifies gaps and enables targeted interventions.
- **Structure:** Uses 73 indicators, grouped into 2 categories and 6 domains (Learning Outcomes & Quality; Access; Infrastructure & Facilities; Equity; Governance Processes; Teacher Education & Training), with a total score of 1,000 points.
- **Data Integration:** Linked with UDISE+, NAS, PM POSHAN and Vidyanjali for automated data collection and verification.
- **Grading:** Uses a 10-level scale from Utkarsh (91–100%) to Akanshi-3 (up to 10%).
- **Focus:** Gives greater weight to learning outcomes, equity and teacher education, shifting emphasis from infrastructure to educational quality.

Major Challenges in India's School Education System

- **Secondary-Stage Drop-Off:** Retention falls from 98.5% at the foundational level to 51.9% at the secondary level, with nearly half of students leaving before completing higher secondary education.
- **Learning Poverty:** Weak reading ability by Grade 3 and poor foundational literacy and numeracy (FLN) make advanced subjects difficult, increasing disinterest and dropout by the secondary stage.
- **One-Teacher Schools:** Over 1 lakh schools operate with a single teacher, increasing teaching and administrative burdens and reducing classroom quality.
- **Poor CWSN Accessibility:** More than 40% of schools lack adequate facilities for Children with Special Needs (CWSN).
- **Quality-Access Gap:** High enrolment and infrastructure expansion have not translated into strong learning outcomes, as no State/UT secured the top three grades in PGI 2.0.
- **Regional and Institutional Disparities:** A 31.4% performance gap exists between Chandigarh and Meghalaya. Weak governance, teacher absenteeism, inefficient fund use and poor functioning of School Management Committees affect outcomes in several States.

- **Resource Constraints:** Lagging Akanshi districts lack funds and administrative capacity to implement NEP 2020 measures such as teacher training and smart classrooms.

Measures to Strengthen School Education in India

- **Structural Reforms:** Merge single-teacher and low-enrolment schools into Composite/Cluster Schools to improve teacher availability and resource use.
- **Governance:** Universalise APAAR for student tracking and strengthen School Management Committees (SMCs) with parental participation for better implementation of the RTE Act, 2009.
- **Foundational Learning:** Accelerate the NIPUN Bharat Mission to achieve foundational literacy and numeracy by Grade 3.
- **Pedagogical and Assessment Reforms:** Use PARAKH for competency-based assessment focused on critical thinking.
- **Medium of Instruction:** Promote mother tongue/regional languages in foundational years, as envisaged under NEP 2020.
- **Teacher Capacity:** Fill vacancies through mission-mode recruitment, implement ITEP, and expand continuous training through DIKSHA.
- **Equity and Retention:** Introduce vocational education from Class VI, improve CwSN infrastructure, and strengthen PM POSHAN.
- **Academic Audits:** Conduct independent, third-party social audits of learning outcomes at the Panchayat level and link them to Samagra Shiksha fund disbursement.

Critically examine the role of data-driven governance through UDISE+ and the Performance Grading Index (PGI) 2.0 in improving school education in India.

► SC Stays Madras HC's Blanket Ban on Cow Slaughter in Tamil Nadu

The Supreme Court has granted an interim stay on the Madras High Court's order imposing a blanket ban on cow and calf slaughter in Tamil Nadu.

- **Tamil Nadu Government's Argument:** HC's order amounted to judicial lawmaking and contradicted the Tamil Nadu Animal Preservation Act, 1958, which permits slaughter of cows above 10 years if certified unfit for work and breeding.
- **Existing Regulation:** The Prevention of Cruelty to Animals Act, 1960 and municipal rules regulate slaughter in designated slaughterhouses but do not impose a complete ban.
- **Madras High Court Order:** The blanket ban was based on Article 48, which directs the State to preserve cattle breeds and prohibit slaughter of cows, calves, and other milch and draught cattle.
- **Significance of SC Stay:** It reinforces the separation of powers, indicating that courts should not override existing statutory provisions. Animal preservation falls under Entry 15 of the State List, Seventh Schedule.

Landmark Judgments on Cow Slaughter

- **Mohd. Hanif Qureshi v. State of Bihar (1958):** Upheld the ban on slaughter of cows and calves, but struck down a total ban on slaughter of economically useless breeding bulls and

working bullocks as an unreasonable restriction under Article 19(1)(g).

- **State of Gujarat v. Mirzapur Moti Kureshi Kassab Jamat (2005):** Upheld Gujarat's complete ban on cow slaughter and held that Article 48 can guide the reasonableness of restrictions under Article 19(6). It also recognised the ecological and agricultural utility of aged cattle.
- **Akhil Bharat Krishi Goseva Sangh v. State of A.P. (2006):** Reaffirmed that cow protection is primarily a legislative policy matter and courts should not override valid State laws, consistent with the separation of powers.
- **Fundamental Rights Interplay:** Cow-slaughter bans involve balancing Article 48 with Article 19(1)(g) and Article 25.

► SC Reinforces Due Process in Citizenship Determination

In *Sabitri Dey @ Swasthi Dey vs Union of India* (2026), the Supreme Court struck down 27 Gauhati High Court rulings that had upheld Foreigners Tribunal orders declaring a number of Assam residents to be foreigners.

- **Ruling:** Citizenship and foreigner status must be decided through a fair, lawful and reasoned process.
- **Direction:** The Court ordered fresh adjudication in accordance with fairness, reasonableness and due process.

SC's Ruling Regarding Citizenship Determination

- **Background of the Case:** In 1997, an Illegal Migrants (Determination) Tribunal (IMDT) declared Sabitri Dey and her husband illegal migrants after they failed to appear. They claimed they had no notice of the proceedings and that the order relied on hearsay evidence.
 - Their 2019 challenge was dismissed by the Gauhati HC in 2020 due to a 23-year delay, after which they approached the Supreme Court alleging denial of a fair hearing and constitutional due process.
- **SC Ruling:** Proceedings under the Foreigners Act, 1946 must be fair, lawful, reasoned and based on proper application of mind, and cannot be mechanical or one-sided.
- **Constitutional Protection:** The guarantees under Article 14 and Article 21 extend to foreigners as well.
- **Burden of Proof:** Under Section 9 of the Foreigners Act, 1946, now the Immigration and Foreigners Act, 2025, the burden of proof lies on the proceegee. However, absence alone cannot justify a mechanical declaration of foreigner status.
- **Duties of Foreigners Tribunals:** Before declaring a person a foreigner, the Tribunal must:
 - independently examine the State's evidence;
 - ensure proper service of notice;
 - disclose the main grounds of reference;
 - provide a fair opportunity of hearing; and
 - record reasoned findings.
- **Significance:** The judgment mandates evidence-based constitutional due process, strengthens the accountability of Foreigners Tribunals, and protects individuals from arbitrary ex parte declarations that may lead to detention, deportation or statelessness. It is expected to significantly affect citizenship disputes, especially in Assam.

Foreigners Tribunals (FTs)

- **About:** Quasi-judicial bodies constituted under the Foreigners (Tribunals) Order, 1964 issued under Section 3 of the Foreigners Act, 1946, to determine whether a person is a foreigner.
- **Functioning:** Though applicable across India, FTs function mainly in Assam, dealing with citizenship disputes related to the NRC and references by competent authorities.
- **Composition:** Headed by a member drawn from judicial officers, advocates or civil servants with judicial experience.
- **Powers:** Possess civil court powers (summoning witnesses, examining on oath, requiring documents).
 - Under the Immigration and Foreigners Order, 2025, they also have the powers of a Judicial Magistrate First Class, including issuing arrest warrants and ordering detention where authorised by law.
- **Procedure:** Issue notice to the proceedee, provide an opportunity to present evidence, and deliver a reasoned opinion. A person declared a foreigner may face detention and deportation, subject to legal remedies.

New Deportation Policy, 2026

- **About:** Introduced by the MHA to create a uniform and time-bound system for detecting, identifying, detaining and deporting illegal migrants, especially from Bangladesh and Myanmar.
- **Coverage:** Applies to:
 - illegal migrants;
 - foreigners overstaying visas; and
 - persons declared foreigners by Foreigners' Tribunals.
- **Implementation:** States and Union Territories must:
 - establish district-level Special Task Forces (STFs);
 - operationalise Holding Centres;
 - use the Foreigners Identification Portal (FIP) for biometric and demographic profiling; and
 - complete nationality verification and deportation within fixed timelines.
- **Verification Timeline:** Nationality verification of suspected Bangladeshi and Myanmar nationals must be completed within 90 days.

Evolution of India's Citizenship Framework from Jus Soli to Jus Sanguinis

- **Constitution, 1950:** Articles 5–11 adopted an inclusive jus soli (right by birth), or citizenship by birth, framework at the commencement of the Constitution.
- **Citizenship Act, 1955:** Provided citizenship through birth, descent, registration, naturalisation and incorporation of territory, largely retaining jus soli.
- **1986 Amendment:** Following the Assam Accord, 1985, citizenship by birth required at least one Indian parent, beginning the shift towards jus sanguinis (citizenship by descent).
- **2003 Amendment:** Required one parent to be an Indian citizen and the other not an illegal migrant. It also introduced:

- the concept of an illegal migrant;
 - Section 14A for the National Register of Indian Citizens; and
 - Overseas Citizen of India (OCI) status.
- **CAA, 2019:** Exempted Hindus, Sikhs, Buddhists, Jains, Parsis and Christians from Pakistan, Bangladesh and Afghanistan from the definition of illegal migrant and reduced their naturalisation requirement from 11 years to 5 years.

Citizenship by Birth Period of Birth Requirement 26 Jan 1950–1 July 1987 Citizen regardless of parents' nationality 1 July 1987–3 Dec 2004 At least one parent must be an Indian citizen One parent must be Indian and the other On or after 3 Dec 2004 must not be an illegal migrant

- **By Descent:** Persons born abroad may acquire citizenship through Indian parentage; births after 3 Dec 2004 require consular registration.
- **Registration and Naturalisation:** Available to eligible PIOs, spouses of citizens and foreign nationals meeting residency conditions, generally 12 years.
- **Citizenship Certificates:** Citizens by birth or descent generally do not receive certificates; formal certificates are issued for citizenship by registration or naturalisation.
- **Dual Citizenship:** India does not permit dual citizenship.

Examine the evolution of India's citizenship framework from jus soli to jus sanguinis.

► Civil Registration System (CRS) Report 2024

The CRS Report 2024 shows that 99.1% of births and 99.4% of deaths were registered, a sharp rise from 56% and 48% respectively in 2000.

Key Highlights of the CRS Report About the Report

- Released by the Office of the Registrar General and Census Commissioner of India, Ministry of Home Affairs.
- CRS continuously and compulsorily records births, deaths, and stillbirths under the Registration of Births and Deaths Act, 1969, amended in 2023.
- Legally operational since 1970.

Key Highlights

- **Births:** 99.1% of estimated births were registered in 2024.
- **Deaths:** Death registration reached 99.4%.
- **States:** 18 States/UTs achieved 100% birth registration and 21 States/UTs achieved 100% death registration.
- **Progress:** Birth and death registration rose from 56% and 48% in 2000 to 86.6% and 72.5% in 2014.
- **Timeliness:** Many events are still not registered within the prescribed 21 days.
- **Infants:** 84.2% of registered infant deaths were urban and only 15.8% rural, indicating possible rural under-registration.
- **Certification:** Many registered deaths lack medical certification of cause, limiting mortality analysis.
- **Estimation:** Death-registration completeness is based on the Sample Registration System, which may undercount events and overstate CRS coverage.

Significance

- **Vital Statistics:** Provides data on births, deaths, fertility, mortality, and sex ratio at birth.
- **Policy Support:** Helps assess health and social policies and track population trends.
- **Decentralised Planning:** Supports district- and sub-district-level planning.
- **Legal Documentation:** Enables access to identity, education, welfare, pensions, insurance, and inheritance.
- **Health Monitoring:** Tracks mortality changes and supports responses during health emergencies.

Provisions Regarding Registration of Births and Deaths

- **Mandatory Registration:** Under the RBD Act, 1969, amended in 2023, all births and deaths must be registered at the place of occurrence.
- **Registration Functionaries:** The RGI supervises registration nationally; Chief Registrars, District Registrars, and Local Registrars manage implementation and issue certificates.
- **Civil Registration System:** From October 2023, registrations must be completed digitally through the CRS.
- **Time Period for Reporting:** Births, deaths, and stillbirths must be reported within 21 days; delayed registration attracts a late fee.
- **Births and Deaths Outside India:** Births abroad are registered under the Citizenship Act, 1955 and relevant rules. Under Section 20 of the RBD Act, returning parents intending to settle in India may register the birth within 60 days of arrival.
 - Deaths abroad registered at Indian consulates are valid under the RBD Act.
- **Penalty for Non-compliance:** Registrar negligence is punishable with a fine of up to ₹1,000.

► States Bear Disproportionate Share of India's Welfare Spending

A new handbook from Azim Premji University, *Realising Rights: A Handbook of Welfare in India*, finds that States are shouldering a disproportionately large share of welfare spending even as their fiscal room shrinks and financial autonomy stays limited — reviving concerns about Centre-State imbalance in funding social welfare.

Evolution of Welfare Regime

- **State-Led Welfare (1950s–1980s):** Welfare focused on planned development and poverty reduction through the Community Development Programme (1952), ICDS (1975), and Minimum Needs Programme (1975).
- **Targeted Welfare (1990s):** After the 1991 reforms, universal subsidies shifted to targeted benefits such as Targeted PDS (1997) based on BPL and APL categories.
- **Rights-Based Welfare (2000s–2014):** Welfare became legally enforceable through the RTI Act, 2005, MGNREGA, RTE Act, 2009, and NFSA, 2013.
- **Technology-Driven Welfare (Present):** JAM Trinity and DBT enabled targeted delivery. Schemes like PM-KISAN marked a shift from rights-holders to beneficiaries (labharthis).
- **Expansion vs. Expenditure Gap:** Anganwadi centres reached 14 lakh and subsidised food grains covered over 81 crore people, but spending remained below policy targets.

- **Social Security Lag:** Union and State welfare spending is about 7% of GDP and 21% of public expenditure, yet India lags in social security spending despite a tax-to-GDP ratio comparable to middle-income countries.

Extent of Centre-State Fiscal Asymmetry in Welfare Spending

- **Disproportionate State Contribution:** Welfare allocations were ₹24.20 lakh crore (6.77% of GDP) in FY 2025-26, while the Union contributed only 1.89% of GDP.
 - Though the 14th and 15th Finance Commissions recommended 42% and 41% tax devolution, effective devolution remained around 29–32% due to cesses and surcharges rising from ~10.4% of Gross Tax Revenue in 2011-12 to over 20% in 2021-22.
- **Rising State-Led Social Spending:** States drive most growth in social spending and fund about 75.2% of school education expenditure, besides major spending on public health and food subsidies.
 - The 16th Finance Commission noted that States spent about ₹4.14 lakh crore on unconditional cash transfers.
- **State Innovations Co-opted by the Centre:** Rythu Bandhu (Telangana) and KALIA (Odisha) influenced PM-KISAN, while Tamil Nadu's Mid-Day Meal Scheme became PM POSHAN. Despite pioneering welfare models, States are penalised for high fiscal deficits.
- **Centrally Sponsored Schemes (CSS):** Schemes such as ICDS and PMMVY follow a 60:40 Centre-State ratio, requiring matching State funds.
 - **MGNREGA, funded roughly in a 90:10 ratio**, is expected to impose a higher State burden under the VB-GRAMG Act, 2025.
 - The Centre also links fund release to reforms or CSS implementation, as under PM SHRI, where States had to sign an MoU, raising concerns over fiscal flexibility and federal autonomy.
- **The Post-GST Revenue Autonomy Deficit:** GST subsumed major State taxes, reducing States' ability to alter tax rates during fiscal stress. Their dependence on the GST Council and central transfers creates a mismatch between expenditure responsibilities and revenue powers.
- **Emergence of a 'Fiscal Dependency Federation':** A shrinking divisible pool, tied CSS transfers, reduced tax autonomy, and borrowing limits may increase State dependence on Union-controlled funds, shifting cooperative federalism towards coercive fiscal federalism.

Measures to Reduce the States' Welfare Burden

- **Restore the Integrity of the Divisible Pool:** Cap and periodically review cesses, restricting them to specific and time-bound purposes.
- **Shift from Tied Transfers to Fiscal Autonomy:** Rationalise CSS through zero-based review, merge smaller schemes, and increase untied grants and flexi-funds.
 - The Punchhi Commission (2010) recommended limiting CSS to matters of national priority to protect State autonomy.

- **Rule-Based Fiscal Coordination:** Article 293(3), Net Borrowing Ceilings, and adjustments for off-budget borrowings can restrict State capital expenditure.
 - Implement the N.K. Singh FRBM Review Committee (2016) recommendation for a statutory Fiscal Council to assess debt sustainability and coordinate borrowing transparently.
- **Protect State Taxation Powers:** Preserve residual State taxation powers after GST. SC judgments in *MADA v. SAIL* (2024) on mineral taxation and *State of UP v. Lalta Prasad Vaish* (2024) on industrial alcohol support protecting State revenue streams.
- **Address Horizontal Fiscal Inequalities:** CSS matching ratios, borrowing ceilings, and fiscal transfers should consider States' revenue capacity, demographic pressures, development deficits, and welfare needs, without weakening revenue mobilisation incentives.
- **Strengthen State Finance Commissions (SFCs):** Ensure their regular constitution and timely implementation of recommendations for predictable transfers to Panchayats and Urban Local Bodies.
- **Expand Own-Source Revenues of Local Governments:** Enable PRIs and ULBs to mobilise property taxes, user charges, and other assigned revenues.
- **Institutionalise Continuous Centre-State Fiscal Dialogue:** Strengthen the Inter-State Council, Finance Commission, and federal forums to resolve disputes and reduce judicialisation.
- **Move towards 'Funds-Follows-Functions' Federalism:** Align revenue powers and transfers with each tier's expenditure responsibilities to address centralised revenues and decentralised welfare obligations.

Centrally Sponsored Schemes promote national welfare priorities but may constrain the fiscal autonomy of States. Critically examine.

► Viksit Bharat Shiksha Adhishthan Bill 2025

The Viksit Bharat Shiksha Adhishthan Bill, 2025 has run into opposition from several States and universities, who cite threats to institutional autonomy, excessive centralisation and regulatory gaps; the Bill is currently before a Joint Parliamentary Committee.

Key Features of the Bill

- **Apex Regulatory Body:** Establishes VBSA as the apex higher-education regulator, replacing UGC, AICTE, and NCTE. It covers technical, teacher-training, and architecture education, but excludes medicine and law.
- **Three-Council Structure:** Creates separate Regulatory, Accreditation, and Standards Councils for regulation, quality assessment, and academic standards.
- **Composition:** The Commission will have a Chairperson and up to 12 members, including Council Presidents, the Union Higher Education Secretary, experts, and State representatives.
- **Council Functions:** The Regulatory Council will set institutional standards and address grievances; the Standards Council will prescribe learning outcomes; and the Accreditation Council will manage accreditation.

- **Appointment and Removal:** The Central Government will appoint the Chairperson. Other members will be selected through a search process and may be removed for specified misconduct or incapacity.
- **Degree-Granting Powers:** Degrees may be awarded only by legally authorised institutions, including those approved by the Regulatory Council with prior Central Government approval.
- **Penalties and Appeals:** Unapproved institutions may face a minimum ₹2 crore penalty and closure. Appeals will lie with the Central Government.

Concerns Regarding the Bill

- **Over-centralisation of Regulation:** A single regulator replacing UGC, AICTE, and NCTE may concentrate powers in the Centre and reduce States' role.
- **Threat to Institutional Autonomy:** IITs, IIMs, IISERs, and other INIs fear restrictions on academics, research, curriculum, online education, and expansion.
- **Legal Ambiguity for Existing Institutions:** Some provisions may override the founding laws of INIs and IoEs, creating uncertainty.
- **One-size-fits-all Regulatory Framework:** A common framework may not suit the diverse needs of research institutions, rural colleges, tribal universities, and new HEIs.
- **Weaknesses in the Accreditation System:** Limited capacity, low coverage, corruption allegations against NAAC, and false accreditation claims may hinder implementation.
- **Disproportionate Penalty Provisions:** Heavy fines and closure may unfairly affect small, rural, and tribal institutions. Stakeholders seek independent adjudication before major penalties.
- **Limited Focus on Systemic Challenges:** The Bill does not adequately address low GER, regional disparities, barriers to new institutions, and public funding below the recommended 1.5% of GDP.

Measures to Overcome these Challenges

- **Protect Institutional Autonomy:** Clearly safeguard the academic, research, administrative, and financial autonomy of HEIs and INIs through statutory exemptions and limits on regulatory intervention.
- **Strengthen Federal Participation:** Give State governments and State Higher Education Councils (SHECs) meaningful representation in the Commission and its Councils.
- **Create an Independent Funding Mechanism:** Establish a separate Higher Education Grants Council (HEGC) for transparent funding and reduction of regional inequalities.
- **Reform Accreditation and Penalties:** Use differentiated accreditation standards for diverse institutions. Major penalties and closure should require independent adjudication.
- **Ensure Regulatory Independence and Accountability:** Appeals should lie before an independent educational tribunal, while the Commission should report to Parliament and follow transparent procedures. The Viksit Bharat Shiksha Adhishthan Bill, 2025 seeks to simplify higher education regulation, but it has raised concerns regarding autonomy and centralisation. Discuss.

► Concerns over the Draft National Food Security (Amendment) Bill, 2026

Proposed changes to Antyodaya Anna Yojana entitlements under the National Food Security Act, 2013 have stirred worry over their impact on vulnerable households and on State-wise allocations.

Key Aspects of the Draft National Food Security (Amendment) Bill, 2026

- **About:** The draft Bill proposes changes to AAY foodgrain entitlements. After public feedback, the Centre will consult States and departments before introducing it in Parliament.
- **Existing Provision:** Every AAY household receives 35 kg of foodgrains per month, regardless of family size.
- **Proposed Entitlement:** Each beneficiary would receive 7 kg per month, capped at 35 kg per household. Only households with five or more members would receive 35 kg.
- **Government's Rationale:** To reduce per-capita disparities among AAY households and align distribution with nutritional needs.
- **Impact on Households:** Families with 1, 2, 3 and 4 members would receive 7 kg, 14 kg, 21 kg and 28 kg, respectively. Families with over five members would remain capped at 35 kg, lowering their per-capita entitlement below 7 kg.

Key Features of the National Food Security Act, 2013

- **About:** Enacted in 2013, the Act made food security a legally enforceable, rights-based entitlement.
- **Coverage:** Covers up to 75% of the rural and 50% of the urban population, nearly two-thirds of India's population.
- **Foodgrain Entitlements:** AAY households receive 35 kg per family per month, while Priority Households receive 5 kg per person per month.
- **Beneficiary Identification:** States and Union Territories identify beneficiaries, issue ration cards and update beneficiary lists.
- **Women's Empowerment:** The eldest woman aged 18 years or above is designated as the household head for ration cards.
- **Life-Cycle Nutrition Support:** Pregnant women, lactating mothers and children aged 6 months–14 years receive nutritional support; pregnant and lactating women get maternity benefits of at least ₹6,000.
- **Food Security Allowance:** States must provide an allowance when entitled foodgrains or meals are not supplied.
- **Centre-State Responsibilities:** The Centre allocates, transports and funds foodgrains; States and Union Territories identify beneficiaries, distribute entitlements and establish grievance-redressal mechanisms.
- **Prices and Reforms:** Initially fixed prices at ₹3/kg for rice, ₹2/kg for wheat and ₹1/kg for coarse grains; also provides tide-over allocation and permits DBT of food subsidy in identified areas.

Major Criticisms of the Proposed NFSA Amendment

- **Reduced Entitlements for Smaller Households:** Replacing 35 kg per household with 7 kg per person would reduce support for one- to four-member AAY households, including elderly couples, widows, persons with disabilities and small families.

- **Disadvantage to Larger Families:** The 35 kg ceiling means households with more than five members would receive less than 7 kg per person.
- **Regional Disparities:** States with smaller family sizes, especially southern States with better population stabilisation, may lose more allocation.
- **Inadequate Nutritional Support:** The proposal covers only cereals and excludes pulses, edible oils and protein-rich foods; 7 kg of cereals may be insufficient for the poorest households.
- **Outdated Beneficiary Coverage:** NFSA coverage remains largely based on the 2011 Census, excluding many eligible people despite population growth.
- **Wider Access Barriers Ignored:** The amendment does not address biometric and e-KYC failures, migrant exclusion, unstable addresses and other PDS access barriers, weakening the NFSA's rights-based character.

Way Forward

- **Protect Existing Entitlements:** Ensure no AAY household receives less than 35 kg, especially elderly persons, widows and persons with disabilities.
- **Remove the Household Ceiling:** If 7 kg per person is adopted, remove the 35 kg cap for families with more than five members.
- **Diversify the Food Basket:** Add pulses, edible oils and protein-rich foods to cereals.
- **Update NFSA Coverage:** Revise beneficiary limits using current population data instead of the 2011 Census.
- **Address Access and Regional Concerns:** Fix biometric and e-KYC failures, provide alternative authentication and consult States, food-rights experts and affected communities.

The proposed amendment to AAY entitlements under the NFSA highlights the tension between rational allocation and welfare protection. Discuss.

► 'Satluj' Takedown: Frameworks Governing Theatrical and OTT Content in India

ZEES's removal of the film Satluj over security concerns has put a spotlight on India's split regulatory setup — theatrical releases governed by the Cinematograph Act, 1952, and OTT content governed separately by the IT Rules, 2021.

- **The Catalyst of the Debate:** Satluj, earlier titled Punjab '95, was released uncut on OTT after the CBFC demanded 127 cuts, bypassing theatrical distribution.
- **Theatrical Regulation Ambit:** Films shown in cinemas require prior CBFC certification under the Cinematograph Act, 1952. The CBFC functions under the Ministry of Information and Broadcasting.
- **Grounds for Restricting Films:** Certification may be denied or changes required on grounds such as India's sovereignty and integrity, State security, foreign relations, public order, decency, morality, defamation and contempt of court, broadly reflecting Article 19(2) restrictions.
 - The Cinematograph (Amendment) Act, 2023 introduced UA 7+, UA 13+ and UA 16+ categories and made film certificates perpetually valid.

- The Film Certification Appellate Tribunal was abolished in 2021. CBFC decisions must now be challenged in High Courts, making appeals costlier and slower.
- **Digital Content Framework:** OTT content is exempt from CBFC certification and regulated under Part III of the IT Rules, 2021.
 - The Rules provide a three-tier grievance redressal mechanism: Level I: Self-regulation by publishers. Level II: Self-regulation by publishers' self-regulating bodies. Level III: Central Government oversight.
- **The Judicial-Executive Friction:** Government oversight provisions under the three-tier mechanism have been stayed by the Bombay and Madras HCs amid constitutional challenges.
- Section 69A of the IT Act, 2000 allows the Central Government to block online content under the Blocking Rules, 2009, subject to written reasons and review.
- In the Satluj case, the Ministry of Information and Broadcasting formed an Inter-Departmental Committee under Rule 14, which may recommend warnings, disclaimers, modification, reclassification, deletion or blocking under Section 69A.

► Sub-Mission on Agricultural Mechanization

SMAM has widened access to farm machinery for small farmers, women, disadvantaged groups, underserved regions and the North-East, channelling ₹9,404.47 crore towards 21.61 lakh machines and ₹52.5 crore towards 40,928 drone demonstrations spanning 40,918 hectares.

- **About:** SMAM was launched in 2014-15 as a Centrally Sponsored Scheme under RKVY to promote farm mechanization.
- **Objective:** It follows "reach the unreachable", targeting small and marginal farmers, women, SCs, STs, FPOs, SHGs and rural entrepreneurs.
- **Custom Hiring Centres:** Supports centres that rent farm machinery and equipment at affordable rates.
- **Machinery and Technology Support:** Promotes machinery distribution and hi-tech/high-value equipment hubs.
- **Regional and Structural Focus:** Prioritizes areas with low farm power and addresses small holdings and high machinery costs through rental services.
- **Financial Support:** During 2014-15 to 2025-26, ₹9,404.47 crore supported 21.61 lakh machines, 27,554 Custom Hiring Centres, 646 Hi-tech Hubs and 25,608 Farm Machinery Banks.
- **Expansion:** Individual machinery beneficiaries rose from 2.07 lakh in 2020-21 to 2.32 lakh in 2024-25.
- **Funding Pattern:** 60:40 for most States, 90:10 for North-Eastern and Himalayan States, and 100% Central funding for Union Territories.
- **Capacity Building:** Includes demonstrations, training and targeted Information, Education and Communication activities.
- **Testing and Certification:** Supports testing and certification to ensure machinery quality, efficiency and suitability.

Strategic Pillars of SMAM for Enhancing Farm Productivity

- **Promotion of Agricultural Mechanization through Training, Testing, Demonstration and Post-Harvest Mechanization:** Expands modern technology access and strengthens processing, storage, value addition and crop-residue management.
- **Financial Assistance for the Procurement of Agricultural Machinery and Equipment:** DBT subsidy covers 40% of machinery cost for general beneficiaries and 50% for SC/ ST, small and marginal farmers and North-Eastern beneficiaries.
 - Small and marginal farmers receive ₹2,000 per hectare for mechanized services, including drones.
- **Establishment of Farm Machinery Banks for Custom Hiring:** Provides 80-90% assistance to SHGs, FPOs and local institutions. CHCs receive 40% of project cost up to ₹250 lakh, while Farm Machinery Banks receive 80% assistance up to ₹30 lakh.
- **Establishment of Hi-Tech and High-Productivity Equipment Hubs:** Supports advanced, high-capacity and crop-specific machinery hubs.
- **Promotion of Agricultural Mechanization in the North-Eastern Region:** Provides up to 100% subsidy for small machinery and 95% support for Farm Machinery Banks.

Role of Farm Mechanization and Drone Technology under SMAM

- **Role of Farm Mechanization:** Uses machinery and modern technologies from land preparation to post-harvest management.
- **Benefits:** Reduces manual and animal labour, enables timely operations, lowers costs and improves farm productivity and quality.
- **Promotion of Drone-Based Farming:** ₹52.50 crore was provided to ICAR for drone demonstrations.
- **Kisan Drone Demonstrations:** During 2023-24 to 2025-26, 40,928 demonstrations covered 40,918 hectares for applying nutrients, fertilizers and agrochemicals.
- **Financial Assistance:** ICAR institutes, KVKs and State Agricultural Universities receive 100% assistance up to ₹10 lakh per drone; FPOs receive up to 75% grants; service agencies receive ₹6,000 per hectare.
- **Support for Women Farmers:** 30% of SMAM funds are earmarked for women farmers.

► SC to Refer Grounds of Arrest Issue to Larger Bench

Citing conflicting precedents, the Supreme Court has signalled that it will refer the question of mandatory written grounds of arrest to a larger Bench.

- **Issue:** Meghalaya HC granted bail after an incorrect BNS provision was mentioned in the arrest memo. The State argued it was a clerical error, while SC noted the need for larger Bench consideration.
- **Conflicting Judgements on Written 'Grounds of Arrest':**
 - **Pankaj Bansal vs Union of India (2023):** SC held that ED must provide written grounds of arrest under PMLA, 2002; oral communication may lead to factual disputes.

- **Prabir Purkayastha Case (2024):** SC extended written grounds of arrest safeguard to UAPA, 1967, linking it with Articles 22(1) and 22(5).
- **Mihir Rajesh Shah vs State of Maharashtra (2025):** SC held that written grounds of arrest must be provided in all cases, including BNS/IPC offences.
- **Dr Rajinder Rajan vs Union of India (2026):** SC upheld the requirement of furnishing written grounds of arrest.
- **Vihaan Kumar vs State of Haryana (2025):** A coordinate Bench held that while communicating grounds of arrest is mandatory, written communication may not be practical in every case; oral communication may suffice.
- **Safeguards Against Arbitrary Arrest**
 - **Article 22(1):** Requires informing the arrested person of grounds of arrest and provides the right to consult and be defended by a legal practitioner.
 - **Section 47, BNSS, 2023:** Mandates immediate communication of offence particulars to a person arrested without warrant. Section 48, BNSS, 2023: Requires informing a relative/friend/nominated person about the arrest and place of detention.
 - Rooted in Article 21, as knowledge of grounds of arrest enables seeking bail and effective legal defence.

► Armed Forces Seek Higher Agniveer Retention

The Indian Armed Forces have pitched for raising the retention rate of Agniveers beyond the current 25% ceiling set under the Agnipath Scheme.

- With the first batch completing its 4-year tenure, the services seek to retain trained personnel and utilise investments made in advanced technology training.

Reasons for the Demand for Higher Agniveer Retention

- **Proposed Retention Requirements**
 - **Navy:** May seek retention of around 75% due to technical nature of operations.
 - **Army and Air Force:** May seek retention of around 50%.
 - Current cap remains at 25% across services.
- **Preventing Manpower Shortfalls:** A strict 25% retention cap may create a temporary manpower gap due to regular retirements.
 - Higher retention would help manage the transition.
- **Lessons from Operation Sindoor:** Agniveers performed effectively, but experienced manpower remains crucial for faster responses during crises.
 - Field experience and training improve operational effectiveness.
- **Technological Shift and Modernization:** Advanced weapon systems and platforms require specialised long-term training.
 - Short four-year tenures may reduce returns on training investments.

- **Technical Requirements of Naval and Air Operations:** Operating warships, submarines and aviation systems requires deep technical expertise developed over longer service periods.

Agnipath Scheme

- **About:** Launched in June 2022, Agnipath Scheme is a pan-India, merit-based recruitment programme for personnel below officer rank (PBOR) in the Army, Navy and Air Force.
- **Rationale**
 - **Youthful Military:** Reduce average age of armed forces personnel from 32 to 26 years to improve agility and combat effectiveness.
 - **Fiscal Sustainability:** Reduce pension burden and enable greater spending on defence modernisation and indigenous production.
 - **Emerging Threats:** Build capabilities against hybrid warfare, cyber threats, terrorism, space and electronic warfare.
 - **Nation Building:** Create a skilled and disciplined youth workforce supporting employment, disaster response and Viksit Bharat@2047.
- **Key Features**
 - **Tenure:** 4 years.
 - **Age Limit:** 17.5–21 years (relaxed to 23 years for the first batch).
 - **Permanent Enrolment:** Up to 25% of each batch selected for regular cadre based on transparent criteria.
 - Selected Agniveers serve an additional minimum 15 years under regular service conditions.
- **Financial Benefits**
 - **Seva Nidhi Package:** Around ₹11.71 lakh (tax-free) for 75% discharged personnel, including contributions and government matching contribution.
 - Skill Certificate after completion of service.
 - Priority in recruitment for CAPFs and state police.
 - **Life Insurance Cover:** ₹48 lakh.
 - **Compensation:** ₹44 lakh for disability; up to ₹1 crore for death during service.

Steps to Reform the Agnipath Scheme

- **Integration with Aatmanirbhar Bharat & Defence Corridors:** Link Agnipath exit pathways with UP and Tamil Nadu Defence Industrial Corridors.
 - Provide transition opportunities for trained Agniveers in private defence manufacturing, R&D startups and aviation maintenance.
- **Preserving the “Naam, Namak, Nishan” Ethos:** Avoid a purely contractual approach that may weaken regimental cohesion and unit identity.
 - Reframe the initial 4 years as an “Extended Probationary Commission” to strengthen integration and military ethos.

- **Evidence-Based Review:** Evaluate the scheme after the first recruitment cycle using:
 - Operational feedback; Manpower trends; Institutional assessments
 - Allow each service to decide retention levels based on operational and technical requirements.
 - Prioritise Agniveers trained in critical technologies and specialised roles.
- **Institutional Oversight and Course Correction:** Introduce biennial review by the Parliamentary Standing Committee on Defence.
 - Ensure assessment of impact on combat readiness, defence expenditure and demographic changes.

Modern warfare requires technologically skilled personnel as much as a young and agile military force. In this context, analyse the challenges posed by short-term military recruitment under the Agnipath Scheme.

► All India Survey on Higher Education Reports for 2022-23 and 2023-24

The Union Education Ministry's newly released AISHE Reports for 2022-23 and 2023-24 point to rising higher-education enrolment, an improving Gross Enrolment Ratio, greater female participation, stronger social inclusion and growth in STEM education.

Key Highlights of AISHE 2022-23 & 2023-24

- **GER:** Increased from 23.7 (2014-15) to 30 (2023-24). Female GER rose to 31.2, SC GER to 27.8, and ST GER to 22.8.
- **Gender Parity Index:** Stood at 1.08 in 2023-24 and remained above 1 for seven consecutive years.
- **Total Enrolment:** Rose by 31.5% to 4.50 crore; female enrolment increased by 42.2% to 2.24 crore.
- **Social Inclusion:** Enrolment reached 69.72 lakh SC, 28.83 lakh ST, and 1.80 crore OBC students.
- **STEM Enrolment:** Increased to 1.02 crore; the female share rose from 38.4% to 44%.
- **Faculty:** Total faculty reached 17.32 lakh, with women constituting 44.9%.

All India Survey on Higher Education (AISHE)

- Launched in 2010-11, AISHE is an annual voluntary survey conducted by the Ministry of Education.
- It collects data on enrolment, faculty, infrastructure, and examination outcomes for policy formulation.
- **Limitation:** Data is self-reported by HEIs, making accuracy dependent on institutional reporting.

Persistent Challenges in Higher Education

- **Employability crisis:** Graduate unemployment is nearly 40% among those below 25, while overall employability is only 54.81%, reflecting a major skills mismatch.
- **Quantity over quality:** India has 128 universities in the THE Asia Rankings 2026, but none in the top 40.
- **Regional inequality:** Limited access to quality institutions, digital infrastructure and secondary schools disadvantages rural students.

- **Faculty shortages:** Around 28% of teaching and 48% of non-teaching posts in central universities remain vacant, increasing reliance on temporary staff.
- **Student mental health:** Competitive examinations, rote learning and academic pressure contribute to anxiety and student suicides.
- **Weak research ecosystem:** India's R&D expenditure remains only 0.6-0.7% of GDP, while research is concentrated in autonomous laboratories rather than universities.
- **Unequal funding:** State universities, which serve most students, face severe financial and infrastructure constraints compared with centrally funded institutions.
- **Privatisation and debt:** Expansion of poorly regulated private institutions has raised concerns over quality, high fees, education loans and loan defaults.
- **Excessive regulation:** Bureaucratic control by bodies such as UGC and AICTE restricts institutional autonomy and slows implementation of NEP 2020.

Measures to Strengthen Higher Education

- **Expand access:** Raise public education spending towards 6% of GDP to achieve the NEP 2020 target of 50% GER by 2035.
- **Promote flexibility:** Fully implement the Academic Bank of Credits, multidisciplinary courses and multiple entry- exit options.
- **Strengthen research:** Enable ANRF to support university- led deep-tech research and startups, including in tier-2 and tier-3 HEIs.
- **Grant autonomy:** Link regulatory freedom to NAAC accreditation and NIRF performance instead of uniform control by UGC and AICTE.
- **Industry integration:** Include industry experts in university governance and introduce micro-credentials, stackable degrees and market-oriented curricula.
- **Address faculty gaps:** Create a National Faculty Exchange involving corporate experts and overseas Indian academics.
- **Use AI for inclusion:** Deploy LLMs through SWAYAM and DIKSHA to provide research and learning content in 22 Indian languages.
- **Build future-ready skills:** Introduce design thinking and computational logic across disciplines.

India's demographic dividend could become a demographic liability unless higher education institutions address the employability crisis. Comment.

► Poshan Tracker: India's Real-Time Nutrition Monitoring Platform

Poshan Tracker, India's real-time nutrition-monitoring platform under Mission Poshan 2.0, now spans 28 States and 8 UTs and had logged over 8.93 crore beneficiaries as of May 2026.

Key Facts About Poshan Tracker

- **About:** Poshan Tracker is a mobile-based governance app and digital backbone of POSHAN Abhiyaan and Mission Poshan 2.0.
 - Launched in March 2021 by the Ministry of Women and Child Development with the National e-

Governance Division, it enables near real-time monitoring of services through Anganwadi Centres.

- **Objective:** Strengthens nutrition governance through technology-based monitoring, beneficiary tracking and evidence-based decisions for children, pregnant women, lactating mothers and adolescent girls.
- **Beneficiary Monitoring:** Tracks beneficiaries across key categories and maintains a live monthly database for over 7.7 crore children using Aadhaar-authenticated data.
- **Growth Monitoring:** Tracks stunting, wasting, underweight, severe acute malnutrition, moderate acute malnutrition, overweight/obesity among children aged 0-5 years. As of May 2026, it monitored over 6.3 crore children, covering nearly 94% of registered beneficiaries.
- **Key Features:** Includes Aadhaar-based verification, Facial Recognition System, IT-enabled home visit scheduler, WHO Child Growth Standards-based Poshan Calculator, and ECCE content for children aged 3-6 years.
- **Support to Anganwadi Workers:** Reduces paperwork and enables digital recording of service delivery, beneficiary details, growth data and home visits. Smartphones, internet support and growth monitoring devices have been provided.
- **Role in Supplementary Nutrition Programme:** Monitors delivery of supplementary nutrition under Anganwadi Services.
 - As of May 2026, over 5.5 crore beneficiaries received nutrition for at least 15 days, and 5.17 crore for at least 21 days.
- **Recognition:** Appreciated by WHO and UNICEF, showcased at G20 Ministerial Conference on Women Empowerment 2023, won National Award for e-Governance Gold Award 2024, and received the PM's Award for Excellence in Public Administration in April 2025.

Mission Poshan 2.0

- **About:** Mission Poshan 2.0 or Mission Saksham Anganwadi and Poshan 2.0 is an integrated nutrition support programme of the Government of India.
- **Formation:** Announced in Budget 2021-22 by merging POSHAN Abhiyaan, Anganwadi Services and Scheme for Adolescent Girls.
- **Nodal Ministry:** Implemented by the Ministry of Women and Child Development.
- **Objective:** Addresses malnutrition and promotes health, wellness and immunity among children, pregnant women, lactating mothers and adolescent girls.
- **Key Components:** Includes nutrition support, Early Childhood Care and Education for children aged 3-6 years, early stimulation for 0-3 years, and strengthening Anganwadi infrastructure.
- **Saksham Anganwadi:** Upgrades Anganwadi Centres with LED screens, water purifiers, smart learning aids, Poshan Vatikas and better infrastructure.

Poshan Abhiyan

- **About:** Flagship initiative of MWCD, launched on 8th March 2018 in Jhunjhunu, Rajasthan, targeting nutrition needs of

adolescent girls, pregnant women, lactating mothers and children aged 0-6 years.

- **Objectives:** Aims to reduce stunting, under-nutrition, anaemia and low birth weight by 2%, 2%, 3% and 2% per annum respectively.
- **Strategic Pillars:** Operates through Quality Services, Cross-Sectoral Convergence, Technology and Jan Andolan.
 - **Quality Services:** Strengthens services via ICDS, NHM and PMMVY, focusing on the first 1,000 days.
 - **Cross-Sectoral Convergence:** Integrates ministries like Water & Sanitation; NITI Aayog-led National Council reviews nutrition convergence quarterly.
 - **Technology:** Uses Poshan Tracker and ICDS-CAS for real-time monitoring and Anganwadi service delivery.
 - **Jan Andolan:** Promotes community-led nutrition awareness and behavioural change.

Poshan Tracker represents a shift from welfare-based nutrition delivery to real-time, evidence-based nutrition governance. Discuss its significance and associated challenges.

► National Academic Depository

The National Academic Depository is pushing India toward a secure, paperless and interoperable system for managing academic records.

Key Facts About the NAD

- **About:** NAD is a nationwide digital framework for storing, issuing, verifying and authenticating academic awards like degrees, diplomas, certificates, marksheets and evaluation reports.
- **Need:** It addresses issues in paper-based records such as loss, damage, forgery, delays and manual verification.
- **Objective:** Provides students and award holders lifelong access to verified digital academic credentials anytime, anywhere.
- **Platform:** Since 2020, NAD operates through DigiLocker for issuing, accessing and sharing academic credentials.
- **Stakeholders:** Covers universities, school boards, Institutions of National Importance, HEIs, students, employers, banks, government bodies and verifying entities.
- **Integration:** Linked with DigiLocker, APAAR, ABC and e-Sanad for secure access, credit mobility, verification, attestation and apostille services.

Key Benefits of NAD

- **Paperless Record Management:** Provides a secure, trusted and paperless framework for academic credentials.
- **Lifelong Access:** Students and award holders can access, retrieve and share digital records throughout life.
- **Instant Verification:** Enables quick credential verification, reducing delays in admissions, recruitment and official processes.
- **Fraud Prevention:** Authenticated digital records reduce fake certificates and forgery risks.
- **Improved Transparency:** Improves transparency and service delivery in academic record management.

- **Global Alignment:** Aligns India with global best practices in digital academic credentials. India has one of the world's largest education systems, with ~14.71 lakh schools, 1,420 universities, 53,583 colleges, 16,795 standalone institutions and 280 R&D institutes.

Functioning of National Academic Depository Governance Structure

- **Parent Ministry:** Ministry of Education is responsible for NAD.
- **Nodal Agency:** UGC implements NAD through DigiLocker.
- **Coordinated Framework:** Institutions issue verified digital academic records; students access or share them securely.
- **Legal Validity:** NAD credentials have the same legal status as physical documents under the Information Technology Act, 2000.

Legal and Regulatory Framework

- **Information Technology Act, 2000:** Gives legal recognition to electronic records and digital signatures.
- **Digital Locker Rules, 2016:** Documents are shared only with explicit user consent.
- **National e-Authentication Framework:** Provides secure identity verification and authentication.

► **Ayushman Bharat Health Accounts (ABHA)**

The Ayushman Bharat Digital Mission has now linked over 104 crore health records to more than 93 crore ABHA IDs, deepening India's digital-health backbone through paperless records, shorter hospital wait times and a unified network connecting patients, hospitals, doctors and insurers.

Key Features of ABHA

- **About:** ABHA is a 14-digit unique health ID under Ayushman Bharat Digital Mission (ABDM), linking individuals with India's digital health ecosystem.
- **Objective:** Creates a portable, paperless and consent- based digital health record system.
- **Key Features:** Links records across hospitals, labs, insurers and health programmes with patient consent; records can be accessed only through revocable and time-bound consent.
- **Interoperability:** Enables seamless portability of health records across providers and locations.
- **Reduction in Waiting Time:** Scan and Share enables QR- based OPD registration, reducing waiting time from nearly 1 hour to 2–5 minutes.
- **Integration with Health Services:** Connects patients, doctors, hospitals, labs, pharmacies, insurers and digital health apps.
- **Support for Insurance Claims:** Integrates with National Health Claims Exchange (NHCE) to streamline insurance claims, reduce discharge delays and improve transparency.
- **Privacy and Consent:** Follows privacy-by-design; records are not stored on a central government server and are shared only with consent.
- **Significance:** Reduces paperwork, avoids duplicate tests, improves continuity of care, speeds service delivery and supports Universal Health Coverage.

Role of ABDM in Transforming India's Healthcare Delivery through Digital Infrastructure

- **Creating an Integrated Health Ecosystem:** ABDM connects patients, doctors, hospitals, laboratories, pharmacies, insurers and health applications through a secure, interoperable network.
- **Building Verified Registries:** Healthcare Professionals Registry (HPR) and Health Facility Registry (HFR) create verified national databases of healthcare professionals and facilities, improving trust, service discovery and access to authentic providers.
- **Reducing Hospital Waiting Time:** Scan and Share enables QR-based OPD registration using ABHA-linked details, reducing paperwork and patient waiting time.
- **Improving Access through UHI:** UHI helps citizens discover providers, book appointments, consult doctors, find blood banks, locate Jan Aushadhi Kendras, search AB-PMJAY hospitals and access ambulance services across platforms.
- **Strengthening Citizen-Centric Health Management:** Aarogya Setu 2.0 acts as a gateway for health records, teleconsultation, appointments, insurance details, blood availability, wellness content, wearable syncing and AI- based health insights.
- **Accelerating Digitisation of Healthcare Facilities:** DHIS incentivises hospitals, labs, pharmacies and digital solution companies to create interoperable records. eSushrut@ Clinic, a lightweight HMIS by C-DAC, helps small clinics digitise registration, billing, reporting and patient records.
- **Streamlining Health Insurance Claims:** NHCE enables faster claims-information exchange among hospitals, insurers, beneficiaries and regulators, reducing discharge delays, improving transparency and allowing patients to track claims in one place.
- **Ensuring Privacy and Consent:** ABDM follows privacy-by-design; records remain with the creating entity and are shared only through revocable and time-bound patient consent.
- **Supporting Public Health Planning and AI:** Anonymised health data supports disease surveillance, targeted health programmes and evidence-based policymaking. Strategy for Artificial Intelligence in Healthcare for India (SAHI) and Benchmarking Open Data Platform for Health Artificial Intelligence (BODH) promote ethical, secure and privacy-preserving use of AI in healthcare.

► **Prime Minister Launches Next Phase of UDAN: Viksit UDAN**

The Prime Minister launched Viksit UDAN from Rajasthan to widen regional air connectivity, build up aviation infrastructure and advance the Viksit Bharat 2047 vision, building on the Modified UDAN Scheme cleared by the Union Cabinet in March 2026.

Key Features of Viksit UDAN

- **About:** Viksit UDAN is the modified phase of Regional Connectivity Scheme–UDAN, launched in Oct 2016 to make air travel affordable, accessible, and inclusive.
- **Scheme Period:** To be implemented for 10 years, from FY 2026–27 to FY 2035–36, with budgetary support of ₹28,840 crore.
- **Objective:** Strengthen last-mile air connectivity in Tier-2 and Tier-3 cities, remote regions, hilly areas, islands, and aspirational districts.
- **Development of Airports:** 100 airports will be developed from existing unserved airstrips with ₹12,159 crore over 8 years.

- **Operation and Maintenance Support:** ₹2,577 crore support for around 441 aerodromes for 3 years, capped at ₹3.06 crore/year/airport and ₹0.90 crore/year/heliport or water aerodrome.
- **Modern Helipads:** 200 modern helipads proposed in hilly, remote, island, and aspirational regions with ₹3,661 crore outlay for healthcare, emergency response, and public services.
- **Viability Gap Funding:** ₹10,043 crore proposed for airline operators over 10 years. Airlines get support for 5 years, tapered from the 3rd year; route exclusivity limited to 3 years.

UDAN Scheme

- **About:** UDAN is a flagship scheme of the Ministry of Civil Aviation to democratise aviation and improve regional connectivity, including remote areas.
 - Launched under National Civil Aviation Policy (NCAP) 2016, it connects Tier-2 and Tier-3 cities through a market-driven, financially supported model, with Airports Authority of India (AAI) as the nodal implementing agency.
- **Core Mechanism & Funding:** Affordable air travel is supported through an airfare cap and VGF from the Centre.
 - It includes waived landing charges and state commitments to reduce VAT on Aviation Turbine Fuel (ATF) to 1% or less.
- **Massive Infrastructure Expansion:** India's airport network grew from 74 airports in 2014 to 159 airports in 2024.
- **Strategic Evolution (UDAN 1.0 to 5.0):** Scope expanded from underserved airports to helipads under UDAN 2.0, tourism routes under UDAN 3.0, focus on hilly regions, North-East, and islands under UDAN 4.0, and seaplane operations under UDAN 5.0 series.
- **Implementation:** UDAN airports to be developed under Challenge Mode for timely completion, quality, innovation, and sustainability.
- Promotes indigenous aviation capacity through proposed procurement of Hindustan Aeronautics Limited Dhruv helicopters and Hindustan Aeronautics Limited Dornier aircraft for regional operations.
- **Impact:** Expected to boost affordable air travel, tourism, trade, investment, emergency services, employment, and regional economic growth.

► Social Media Platforms Under Regulatory Scrutiny

The Indian government has cracked down on Meta, Telegram and Signal over digital fraud, copyright violations and the circulation of Child Sexual Exploitation and Abuse Material (CSEAM).

Concerns Regarding the Growing Power and Functioning of Social Media Platforms

- **Rise in Digital Fraud and Impersonation:** Proposed WhatsApp usernames may enable phishing, name-squatting, identity theft, and digital arrest scams.
 - MeitY raised concerns, while Meta said phone numbers will remain linked at the backend and usernames of verified public figures and government bodies will be reserved.
- **Anonymity vs Traceability:** Features like username-based communication and E2EE protect privacy but complicate law-enforcement investigations.
 - They may facilitate offences under Sections 66C and 66D of the IT Act, 2000.
 - WhatsApp is classified as a Significant Social Media Intermediary under the IT Act, 2000 and IT Rules, 2021, requiring due diligence.
- Internet Freedom Foundation argued that Section 79 gives only conditional safe-harbour protection and does not allow MeitY to approve or withdraw platform features.
- **Inadequacy of Reactive Anti-Piracy Enforcement:** Government identified over 3,100 Telegram channels distributing pirated films and OTT content, showing limits of notice-and-takedown.
 - Copyright infringement is a criminal offence under the Copyright Act, 1957 and Cinematograph Act, 1952.
 - Government asked Telegram to proactively detect, report, and disable pirated audio-visual content, shifting towards preventive due diligence.
 - Telegram was described as a “new dark web” for cybercrime, fraud, and paper leaks; Centre had temporarily blocked it before NEET-UG 2026 re-examination under Section 69A of the IT Act, 2000.
- **Safe Harbour Conundrum:** Section 79 of the IT Act, 2000 gives intermediaries conditional immunity for third-party content.
 - Failure to follow due diligence under IT Rules, 2021, especially on persistent piracy and unlawful content, can lead to loss of safe harbour protection.
- **Algorithmic Facilitation of Child Exploitation:** Allegations that paid Instagram ads promoted access to CSEAM and redirected users to Telegram channels show weaknesses in automated ad approval and moderation.
 - Criminal networks can manipulate algorithms and moderation systems to distribute illegal content despite Meta's zero-tolerance CSAM policy.
- **Online Child Safety and Human Rights:** Circulation and commercialisation of CSAM/CSEAM violate children's dignity and rights, attracting provisions under POCSO Act, 2012 and IT Act, 2000, and undermining UN Convention on the Rights of the Child (UNCRC).
 - Government directed Meta to disable such content and submit an Action Taken Report (ATR).
- **Weaponisation of Synthetically Generated Information (SGI):** AI-generated deepfakes, voice clones, Non-Consensual Intimate Imagery, and synthetic identities threaten dignity, electoral integrity, cybersecurity, and public trust.
- **Algorithmic Amplification of Online Harms:** Platforms act as active curators, with algorithms amplifying misinformation, fraud, piracy, and harmful synthetic media.
 - Viral misinformation and inflammatory content have contributed to communal violence and riots, leading to temporary blocking of platforms or internet services and raising concerns over platform accountability.

- **Cross-Border Enforcement Challenges:** Platforms like WhatsApp, Telegram, and Instagram operate across jurisdictions, complicating investigation, evidence collection, content removal, and prosecution.

Judgments Regarding Digital Regulation & Social Media

- **Shreya Singhal vs. Union of India, 2015:** SC upheld Section 69A, noting safeguards like written reasons and review committee for blocking orders.
- **Tehseen Poonawalla vs. Union of India, 2018:** SC directed governments to stop irresponsible and explosive social media messages causing mob violence and lynching.
- **Anuradha Bhasin vs. Union of India, 2020:** SC held that speech and profession through the Internet are protected under Article 19.
- **Ajit Mohan vs. Delhi Legislative Assembly, 2021:** SC held platforms like Facebook/Meta are “centers of concentrated power” and not merely passive intermediaries.
 - Their algorithms curate content and can influence mass opinion.

Key Challenges in Regulating Social Media Platforms

- **Defining the Scope of Intermediary Liability:** Platforms curate, recommend, and monetise content through algorithms, blurring the line between a neutral intermediary under Section 79 of the IT Act, 2000 and an active publisher.
 - Deciding when safe harbour protection should end remains a key legal challenge.
- **Absence of Ex-Ante Regulation:** India's framework is largely reactive through notice-and-takedown, rather than preventive and risk-based.
 - Labelling of AI-generated/synthetically generated content faces enforcement and detection challenges.
 - Tools like PIB Fact Check Unit counter fake information related to the Union Government, but mostly after content has circulated, showing need for stronger preventive mechanisms.
- **Regulating Proprietary Algorithms:** Recommendation engines, ad systems, and moderation tools work as opaque black-box algorithms, limiting oversight, independent audits, and accountability.
- **Fragmented Regulatory Ecosystem:** Platforms are governed by multiple laws, including IT Act, 2000, DPDP Act, 2023, Copyright Act, 1957, POCSO Act, 2012, Competition Act, 2002, and sectoral rules, causing overlapping jurisdiction.
- **Balancing Fundamental Rights with Platform Regulation:** Regulation must balance privacy under Article 21, free speech under Article 19(1)(a), innovation, and state interests like national security, copyright protection, and child safety.
- **Institutional Capacity Deficit:** Regulators need expertise in AI governance, algorithm audits, digital forensics, cryptography, and platform engineering, which institutions are still developing.
- **Lack of a Comprehensive Digital Platform Law:** Unlike the EU's Digital Services Act (DSA) and Digital Markets Act (DMA), India relies on fragmented statutes, creating regulatory uncertainty and inconsistent compliance obligations.

Measures to Strengthen Digital Platform Regulation in India

- **Statutory Clarity over Executive Discretion:** India needs a dedicated AI and Digital Platforms regulatory framework, as envisioned in the proposed Digital Networking Platforms Bill, 2026, instead of piecemeal amendments to the IT Act.
- **Proportionality in Takedowns:** Takedowns must follow natural justice, with reasoned orders and appeal options to protect artistic expression, satire, and legitimate dissent.
- **Algorithmic Audits:** Regulators should mandate annual public-interest impact assessments for Significant Digital Networking Platforms to assess algorithmic impact on electoral integrity, public health, and social harmony.
- **Develop a Comprehensive AI Governance Framework:** Operationalise the IndiaAI Safety Institute and set standards for AI-generated content, deepfakes, synthetic media, and algorithmic transparency, complementing the IndiaAI Mission.
- **Strengthen Traceability Through Lawful Processes:** Create judicially supervised traceability mechanisms for serious offences like terrorism, child sexual exploitation, and organised cybercrime, without weakening E2EE for ordinary users.
- **Strengthen Child Online Protection:** Mandate Safety-by-Design, age-appropriate design, CSAM detection technologies, and faster takedown compliance under the POCSO Act, 2012 and IT Rules, 2021.

Digital platforms are no longer passive intermediaries but influential gatekeepers of information. Examine the need to redefine intermediary liability in India.

► NITI Aayog's Strategic Roadmap for Making Ayurveda Global

NITI Aayog has put out its 'Strategic Roadmap for Making Ayurveda Global', examining why Ayurveda trails Traditional Chinese Medicine on the world stage and laying out a phased 2025–2047 plan to widen its global footprint.

Current Status of Ayurveda Globally

- **Export Growth:** Ayurveda and herbal product exports doubled from USD 1.09 billion in 2014 to USD 2.16 billion in 2023, reaching nearly 150 countries.
- **Global Recognition:** Ayurveda is formally recognised in nearly 30 countries through licensing models and academic collaborations.
- **Domestic vs. Global Workforce:** India has over 3,55,000 trained Ayurveda practitioners, but 95% are based in India, showing limited global mobility.
- **International Integration:** Ayurveda research spans nearly 70 countries, supported by the WHO Global Traditional Medicine Centre (GTMC) in Jamnagar, Gujarat.
 - **Ayush Academic Chairs:** Ayush Chairs exist at institutions like University of Mauritius and Western Sydney University, but a standard international curriculum is still lacking.
 - **WHO Classification:** WHO integrated Ayurveda, Siddha and Unani (ASU) into ICD-11 through the TM-2 module.

- **Global Coding of Interventions:** WHO began coding ASU interventions under ICHI, enabling global tracking, billing and research.

SWOT Analysis of Ayurveda's Globalisation Potential Strengths

- Preventive and wellness-oriented approach aligns with global focus on holistic healthcare.
- Prakriti-based treatment and plant-based therapies offer individualized healthcare.
- Backed by 5,000+ years of traditional knowledge, global popularity of Yoga and WHO ICD-11 recognition.
- Can complement modern medicine in chronic disease management, preventive care and rehabilitation.

Weaknesses

- Not formally recognized as a medical system in many countries; lacks a uniform international regulatory framework.
- Limited certified practitioners abroad and no standardized global curriculum.
- Personalized protocols make RCT-based evidence difficult, limiting scientific acceptance.
- High compliance costs, inconsistent Good Manufacturing Practices (GMP), quality concerns and limited insurance coverage hinder adoption.

Opportunities

- Ayush Chairs, Ayush Scholarships and Ayush Visa can expand global outreach.
- Greater engagement with GTMC and adoption of ICHI coding can improve acceptance.
- USD 1 trillion global wellness market, rising demand for nutraceuticals, functional foods, preventive healthcare and Medical Value Travel (MVT) offer expansion scope.
- Scientific validation, research collaborations and better communication can improve credibility and market presence.

Threats

- Weak coordination among practitioners, researchers, academia, industry and regulators slows expansion.
- Ayurvedic products are mostly exported as dietary supplements, not regulated medicines, limiting recognition, value and clinical acceptance.
- Strong government-backed expansion of TCM increases competition.
- Balancing classical principles with modern global scientific and regulatory standards remains challenging.

Ayurveda v Parameter Traditional Chinese Medicine (TCM)
34,000+ licensed acupuncturists in the US alone Global Practitioner Base in 47 US states USD 5.4 billion with overseas
WHO-GMP/GMP ma Global Exports units 30+ overseas TCM centres, supported through Global Presence Road Initiative (BRI)
Covered under Medicare (US) and in countries su Insurance Coverage and Germany International Standards Dedicated ISO technical committee for TCM stand NITI Aayog's Strategic Roadmap for Making Ayurveda Global Short Term (up to 2029) - Build the foundation

- **Mission Steering Group:** Set up MSG, chaired by Minister of Ayush, to coordinate research, diplomacy, trade and education.
- **Global Ayurveda Register:** Launch GAR, a WHO-aligned digital credentialing and CPD system for global practitioners, under National Commission for Indian System of Medicine (NCISM).
- **Global Information Portal:** Single-window resource for licensing, visas and country-specific compliance norms.
- **WHO-GMP Certification:** Fast-track WHO-GMP-equivalent certification for major manufacturers; publish certified units directory.
- **Export Edition of Ayurvedic Pharmacopoeia:** Include GACP-based sourcing and contaminant/heavy-metal profiling.
- **Ayurveda Trade Dashboard:** Create real-time dashboard and align products with proper HS codes to leverage FTAs.

Medium Term (up to 2035) - Market integration

- **Registrations:** Pursue registrations under frameworks like EU Traditional Herbal Medicinal Products Directive (THMPD) for key formulations.
- **Insurance Coverage:** Pilot Ayurveda insurance coverage in select OECD countries.
- **Professional Mobility:** Operationalise MRAs with partners like G20, BRICS and ASEAN.
- **Education:** Introduce Ayurveda electives/micro-credentials in international medical schools, linked to Ayush Chairs.
- **MVT Hubs:** Establish international Ayurveda MVT hubs, starting with Mauritius, and offer bundled Ayush Visa packages with diagnostics, treatment and tele-consultation follow-ups.

vs. TCM Ayurveda ne; regulated ~5,000 practitioners abroad, largely driven by the Indian diaspora anufacturing USD 2.16 billion (2023), with production largely concentrated in India the Belt and Presence through the WHO GTMC in Jamnagar, Gujarat and Ayush Information Cells uch as Japan Covered primarily in India, with limited insurance coverage abroad dards No dedicated ISO technical committee for Ayurveda

- **Research and IP:** Scale multi-country trials through WHO Collaborating Centres and modernise Traditional Knowledge Digital Library (TKDL) for strong IP stewardship.

Long Term (up to 2047) — Systemic integration

- Formal recognition/integration of Ayurveda in at least 20 national health systems.
- Insurance coverage for defined indications in at least 10 countries, including chronic low back pain, knee osteoarthritis, IBS-type conditions, stress/sleep disorders, metabolic syndrome and women's health.
- Global network of International Ayurveda Centres of Excellence combining clinical care, education, quality labs and research with public outcomes dashboards.
- Build a trusted, evidence-forward global brand narrative for Ayurveda.

Despite its rich heritage, Ayurveda has lagged behind Traditional Chinese Medicine (TCM) in global acceptance. Examine the reasons and suggest measures for its globalisation.

► INSA Proposes a Unified National Energy Framework

In a policy brief issued in May 2026 through its Centre for Science, Technology, Innovation, and Policy, the Indian National Science Academy has pitched a Unified National Energy Policy Framework to accelerate India's energy transition and back energy self-reliance by 2047 and net-zero by 2070.

Unified National Energy Policy Framework

- **About:** It is a coordinated, system-integrated governance framework that aligns policies across fossil fuels, renewable energy, electricity distribution, green hydrogen and climate commitments.
 - It treats India's power grid and energy supply chain as one holistic ecosystem, instead of viewing different fuels as competing markets.

Need for a Unified Policy Architecture for India's Clean Energy Future

- **Shift From Capacity Addition to System Integration:** India's RE capacity rose from about 40 GW in 2015 to about 260 GW by 2025.
 - Managing this variable capacity needs real-time integration with base-load thermal power, Pumped Storage Hydropower and BESS to prevent frequency collapse.
- **The Silo Conundrum:** Energy governance is split across the Ministry of Coal, Ministry of Power, MoPNG, MNRE and DAE, causing overlapping timelines, regulatory friction and inefficient resource allocation.
 - A unified framework treats coal, gas, biomass and RE as complementary feedstocks.
- **Supply-Demand Asymmetries:** Manufacturing mandates are moving faster than infrastructure and market demand.

National Green Hydrogen Mission and SATAT (compressed biogas) face bottlenecks in evacuation, local pipelines and uniform pricing. Integrated policy links production with commercial demand absorption.

- **Eliminating Data Silos:** Electricity data is scattered across agencies in non-standard formats, affecting planning and real-time decisions. The draft National Electricity Data Sharing Framework, 2026 proposes
 - National Electricity Data Centre (NEDC) for standardised data, AI-based grid management, demand forecasting and integrated planning.
- **Mitigating Fiscal Stress and Import Vulnerabilities:** India imports over 85% crude oil, while energy subsidies consume about 2.3% of GDP.
 - Unified architecture can align PM Surya Ghar and PM-KUSUM with DISCOM reforms, and integrate CCUS for hard-to-abate sectors.

Key Challenges in Implementing a Unified Energy Architecture

- **Institutional Fragmentation:** Centralized planning needs an apex mechanism like a proposed Department of Energy Resources, but this may affect existing bureaucratic jurisdictions.
 - It causes resource-impetus mismatch, with thermal and renewable sectors following conflicting regulatory timelines.

- **Transmission Deficit:** RE projects take 12–18 months, while interstate transmission networks take 18–30 months, causing grid congestion and power curtailment.
 - India's tight grid frequency band of 49.90 Hz to 50.05 Hz struggles with intermittent solar fluctuations or the duck curve, forcing curtailment of clean energy.
- **Massive Energy Storage Gap:** Central Electricity Authority (CEA) projects India needs 60.63 GW of storage by 2030, including 41.65 GW from BESS. As of early 2024, operational capacity was only a fraction, constrained by high capital costs and critical mineral import dependence.
- **DISCOM Financial Distress and Capital Scarcity:** Grid modernization, smart metering and decentralized distribution need huge upfront capital.
 - DISCOMs remain debt-ridden due to high AT&C losses and un-rationalized tariffs, limiting investment in grid flexibility and clean power procurement.
- **Just Transition and Federal Friction:** A top-down national policy may clash with state-level economic realities.
 - Funding local workforce reskilling without weakening state economies is a major political challenge under competitive federalism.

Key Highlights of the Proposed INSA Framework

- **Adequacy:** Ensures reliable and diversified energy supply through conventional and emerging sources, supported by modern infrastructure, grid-scale storage and digital technologies.
- **Access:** Provides reliable and equitable energy services by strengthening last-mile delivery, improving utility services and expanding decentralized solutions where grid connectivity is unviable.
- **Affordability:** Keeps clean energy transition economically viable for households, businesses and industries through innovative financing, market efficiency and consumer safeguards.
- **Appropriate Sustainability:** Promotes India-specific climate solutions, with support for local communities, workforce development and region-specific transition pathways.

Strategic Enablers and Emerging Technologies Highlighted

- **Cross-Cutting Technical Levers:** Circular Economy and CCUS are key tools to complement RE and cut emissions in hard-to-decarbonize industries.
- **Green Hydrogen and Clean Tech:** Prioritizes commercial scaling and infrastructure for green hydrogen and advanced bio-resources.
- **Resource Optimization:** Treats coal, renewables, biomass, natural gas and waste-to-energy as interconnected parts of one national energy system, not competing sectors. Discuss the need for a Unified National Energy Framework in achieving India's energy security and climate goals. Examine the challenges in its implementation.

► Centre Proposes Special Article 371 Framework for Ladakh

Official MHA meeting records point to a breakthrough draft agreement for a tailor-made, Article 371-style self-governance model for Ladakh,

intended to break the political deadlock and address the region's agitations and representation gaps.

Proposed Governance Model for Ladakh

- **Sui Generis Model under Article 371:** Centre proposes a customized Article 371-based framework (similar to protections in Nagaland or Mizoram), instead of the Sixth Schedule, to protect Ladakh's tribal culture, land and local employment.
- **Elected UT-Level Body:** Ladakh will get a democratic Union Territory-level elected body, shifting away from a purely bureaucrat-run UT model.
- **Tripartite Powers:** The elected body will have executive, financial and legislative powers over local subjects, not just an advisory role.
- **Direct Control Over Bureaucracy:** The elected executive will supervise civil servants handling its subjects, including power to review and appraise officials' performance, making bureaucracy accountable to the elected government.
- **Harmonized Local Governance:** The new legislature will work with PRIs.
- **Statehood as Long-Term Goal:** Immediate statehood is not part of the package due to financial constraints (mainly the burden of govt. salaries), but the Centre acknowledged it as Ladakh's long-term aspiration.

Demand for Constitutional Safeguards in Ladakh

- **Reorganisation of J&K (2019):** After Article 370 abrogation and the Jammu and Kashmir Reorganisation Act, 2019, Ladakh became a separate UT without legislature.
- **Representation Deficit:** Ladakh earlier had 4 MLAs in the J&K Assembly; as a UT, control shifted to the Centre- appointed Lieutenant Governor, while Ladakh Autonomous Hill Development Councils (LAHDCs) of Leh and Kargil had limited powers.
- **Agitations (2021-26):** Civil groups led protests, shutdowns and fasts, fearing demographic change and loss of land rights; notably led by Sonam Wangchuk.
- **The Four-Point Demand:**
 - Full statehood for Ladakh.
 - Sixth Schedule safeguards.
 - Separate Ladakh Public Service Commission (LPSC) for job reservations.
 - Two Parliamentary seats for Leh and Kargil.

Article 371

- **About:** Article 371, under Part XXI, provides special provisions to States for unique historical, cultural, social and regional needs.
- **Constitutional Position:** Article 371 has existed since 26th Jan 1950; Articles 371A to 371J were added later through constitutional amendments under Article 368.
- **Key Features:** Unlike the Sixth Schedule with Autonomous Councils, Article 371 empowers the State Legislature/Governor to protect local customs, religious practices, customary laws and restrict land transfer to non-residents (e.g., Article 371A for Nagaland).

- Article 371 provides for separate Development Boards in Maharashtra and Gujarat for balanced regional development.

- Includes 371A Nagaland, 371B Assam, 371C Manipur, 371D & 371E Andhra Pradesh and Telangana, 371F Sikkim, 371G Mizoram, 371H Arunachal Pradesh, 371I Goa and 371J Kalyana Karnataka.

- **Proposed Fix:** Centre argues a customized Article 371 framework can protect Ladakh's land, culture and jobs without Sixth Schedule's administrative complexities.

► Ease of Living: Key Government Initiatives and Outcomes

Between 2014 and 2026, India's inclusive-growth push has centred on making everyday life easier — through wider access to housing, clean fuel, drinking water, sanitation, electricity, financial inclusion, transport links, urban infrastructure and digital governance.

Key Initiatives to Improve Ease of Living in India Housing and Basic Amenities

- PMAY-U
 - Launched in 2015 for pucca houses to eligible urban households.
 - PMAY-U 2.0 (2024) gives up to ₹2.5 lakh assistance; female ownership/co-ownership required.
 - Over 1.25 crore houses sanctioned; 98 lakh+ completed.
- PMAY-G
 - Launched in 2016 for rural housing.
 - **Assistance:** ₹1.20 lakh in plains, ₹1.30 lakh in hilly/difficult areas.
 - 3.91 crore sanctioned, 3.05 crore completed; around 75% owned/jointly owned by women.
 - Linked with toilets, drinking water and electricity.
- AMRUT
 - Launched in 2015 for urban services in 500 cities.
 - **Focus:** water supply, sewerage, green spaces, urban transport.
 - AMRUT 2.0 (2021) covers 4,800 statutory towns with ₹2.99 lakh crore outlay.
 - Projects worth ₹2.79 lakh crore sanctioned.

Universal Access to Essentials

- PMUY
 - Launched in 2016 for LPG connections to reduce biomass dependence.
 - Over 10.57 crore LPG connections provided.
 - LPG coverage rose from 55.9% in 2014 to 107.2% in 2026.
- Jal Jeevan Mission
 - Launched in 2019 for Har Ghar Jal.
 - Rural tap water access rose from 3.23 crore to 15.86 crore households by June 2026.
 - Over 9 crore women were freed from fetching water.

- 1.81 lakh villages certified as Har Ghar Jal.
- JJM 2.0 extended till December 2028 with ₹8.69 lakh crore outlay.
- SBM-G
 - Launched in 2014; rural sanitation coverage rose from 39% to 100% by 2019.
 - Over 12.14 crore household toilets and 2.76 lakh community sanitary complexes completed.
 - 5.69 lakh+ villages declared ODF Plus.
- SBM-U
 - Built 63 lakh+ household toilets and 6 lakh community toilets.
 - Urban waste processing rose from 16% to 82%.
 - Door-to-door waste collection rose from 43% to 98%.
 - All ULBs in 35 States/UTs declared ODF in 2019.

Power for All

- Power Capacity
 - Installed power capacity rose from 248 GW in FY 2014 to 532 GW+ by March 2026.
 - Renewable capacity rose from 76.38 GW to 274.69 GW.
 - Solar capacity rose from 2.82 GW to 150.26 GW.
- Power Supply
 - Rural power supply rose from 12.5 hours to 22.6 hours daily.
 - Urban areas receive up to 23.4 hours daily.
 - Energy shortage fell from 4.2% to 0.03%.
- SAUBHAGYA
 - Launched in 2017 for last-mile electricity connections.
 - Around 2.86 crore households electrified by March 2022.
- PM Surya Ghar Muft Bijli Yojana
 - Launched in 2024 for rooftop solar.
 - Subsidy up to ₹78,000 and up to 300 free units/month.
 - Over 40 lakh households installed rooftop solar by May 2026.
- UJALA
 - 37 crore LED bulbs distributed.
 - **Annual household savings:** ₹19,153 crore.

Financial Inclusion and Empowerment

- PM Jan Dhan Yojana
 - Launched in 2014 as part of JAM trinity.
 - Accounts rose from 14.72 crore in 2015 to 58 crore+ by June 2026.
 - Deposits crossed ₹3 lakh crore.
- Direct Benefit Transfer

- In FY 2024–25, ₹6.9 lakh crore credited through DBT under 327 schemes.
- Helped reduce leakages and improve transparency.

- RuPay Cards
 - 40.60 crore RuPay debit cards issued with accident insurance cover.
- PM MUDRA Yojana
 - Launched in 2015 for collateral-free loans to micro/small entrepreneurs.
 - 57.7 crore+ loans worth ₹40 lakh crore sanctioned.
 - Around 66% loans went to women.
 - Nearly half of beneficiaries were from SC/ST/OBC communities.
 - Tarun Plus raised loan limit to ₹20 lakh in FY 2024–25.

Key Outcomes of Governance and Infrastructure Reforms Transport and Connectivity

- Roads and Highways
 - Road network reached 63.73 lakh km, 2nd largest globally.
 - National highways increased from 91,287 km in FY 2014 to 1,46,572 km by March 2026.
 - Four-lane and above highways increased from 18,371 km to 45,516 km.
- Expressways and Landmark Projects
 - 3,644 km access-controlled high-speed corridors operational.
 - 22,590 km roads completed under Bharatmala.
 - **Key projects:** Atal Tunnel, Dhola-Sadiya Bridge, Sudarshan Setu, Delhi-Dehradun Economic Corridor, Dwarka Expressway.
- Rural Connectivity
 - PMGSY connected about 99.6% eligible habitations.
 - Completed rural roads rose to 4.11 lakh km during 2014–2026.
- Railway Modernisation
 - Railway electrification reached 99.6% by March 2026.
 - Covered 69,873 route km.
 - Train accidents declined from 135 in 2014–15 to 16 in 2025–26.
 - Safety improved through systems like Kavach.
- New Rail Services and Stations
 - Vande Bharat expanded to 162 services by March 2026.
 - Amrit Bharat trains improved affordable long-distance travel.
 - 1,338 stations identified under Amrit Bharat Station Scheme; 208 upgraded by April 2026.
- Civil Aviation and UDAN

- UDAN operationalised 665 routes across 95 airports/ heliports/water aerodromes.
- Airports increased from 74 in 2014 to 165 by April 2026.
- UDAN carried over 1.64 crore passengers.
- Metro and Regional Transit
 - Metro network expanded from 248 km in 5 cities to 1,155 km in 26 cities by March 2026.
 - India became the 3rd largest metro network globally.
 - Namo Bharat Delhi-Meerut RRTS became fully operational in February 2026.

Governance Reforms

- Jan Vishwas Act
 - Jan Vishwas Act, 2023 reduced compliance burden by shifting minor defaults from criminal penalties to civil remedies.
 - Jan Vishwas Act, 2026 covered 784 provisions across 79 central Acts.
 - It decriminalised 717 provisions and amended 67 citizen-facing provisions.
- Fairer Compliance System: Imprisonment clauses replaced with monetary penalties, warnings and advisory notices.
 - Adjudicating Officers and Appellate Authorities enabled faster resolution.
- CPGRAMS
 - Strengthened grievance redressal and accountability.
 - Around 6 lakh grievances resolved between Jan 2025 and Feb 2026.
 - 69.8% were rated satisfactory.
- MyGov
 - Launched in 2014 for participatory governance.
 - Over 60 million registered users.
 - State-level instances in 28 States/UTs.
- PM GatiShakti National Master Plan
 - Launched in 2021 for integrated infrastructure planning.
 - Onboarded 58 Ministries/Departments.
 - Uses 3,204 GIS-based data layers for coordinated infrastructure development. India's Ease of Living journey reflects the transition from welfare delivery to citizen-centric governance. Discuss.

► Viksit Bharat – Guarantee for Rozgar and Aajeevika Mission (Gramin) Act, 2025

The VB-GRAMG Act, 2025 took effect across rural India from 1st July 2026, taking over from the MGNREGA, 2005.

VB-GRAMG Act, 2025

- **About:** The VB-GRAMG Act, 2025 gives a statutory guarantee of wage employment to eligible rural households and aims to

support Viksit Bharat @2047 through livelihood generation and durable rural assets.

- **Earlier Rural Employment Programmes:** Rural Manpower Programme (1960s), Crash Scheme for Rural Employment (1971), Jawahar Rozgar Yojana (1993), and Sampoorna Grameen Rozgar Yojana (1999).
 - Maharashtra Employment Guarantee Act, 1977 - first to introduce statutory right to work.
- **Focus Areas:** Gram Panchayats as the center of rural transformation, emphasizing durable asset creation, natural resource management, water conservation, and women's empowerment.
- **Features of Act, 2025:**
 - **Guaranteed work:** Increased from 100 days to 125 days per financial year
 - **Wage floor:** Minimum wage of ₹300/day nationwide
 - **Wage payment:** Weekly payment; maximum delay allowed is 14 days
 - **No-work period:** 60-day pause during peak sowing/harvesting seasons
 - **Worker ID:** Gramin Rozgar Guarantee Cards; existing e-KYC job cards valid during transition
 - **Funding ratio:** 60:40 Centre:State for normal states; 90% Centre for NE/Himalayan states and UTs with legislatures; 100% Centre for UTs without legislatures
 - **Funding model:** Replaces demand-driven model with normative allocation based on 16th Finance Commission recommendations
 - **Local planning:** Through Viksit Gram Panchayat Plans, linked with PM Gati Shakti
 - **Asset tracking:** Assets mapped on Viksit Bharat National Rural Infrastructure Stack
- Four Priority Verticals
 - **Water security:** conservation and management works.
 - **Core rural infrastructure:** basic village-level infrastructure.
 - **Livelihood infrastructure:** assets supporting rural income generation.
 - **Climate resilience:** special works against extreme weather events.

Concerns with VB-GRAMG Act, 2025

- **Higher state burden:** 60:40 funding may raise states' financial burden by up to six times, pressuring state finances.
- **Allocation equity issue:** Normative allocation based on 16th Finance Commission formula may reduce funds for states with better demographic performance.
 - Spending beyond the Centre's limit must be borne fully by the State.
- **Weakening right to work:** Pre-set budget ceilings may dilute the legal right to work into a budget-limited scheme.

- **60-day work pause:** Suspension during sowing/harvesting may hurt workers during droughts, crop failure, or irregular monsoons.
- **Centralisation:** More Union control over planning and finances may weaken Gram Sabha autonomy and the 73rd Amendment spirit.
- **Lower accountability:** Centralised grievance redressal and weaker social audits may reduce transparency.
- **Uneven wage impact:** ₹300/day floor benefits (15%) low-wage states like UP, Bihar, Assam, but gives minimal hikes to southern states (3% or less).
 - Sikkim holds a special highest rate of Rs 450 in certain panchayats.
- **Pending dues:** Over ₹17,000 crore in unpaid MGNREGA dues remain unresolved.

Way Forward

- **Strengthen cooperative federalism:** Adopt a graded transition to the new funding model and create a Fiscal Compensation Mechanism for high-demand, well-performing states (preventing a “North-South” funding asymmetry).
- **Reduce states’ fiscal burden:** Retain 100% Central funding for wages/admin costs and share material costs in a 75:25 Centre-State ratio.
- **Expand convergence:** Allow convergence with State-funded housing schemes and empower states to approve eligible schemes without prior Union notification.
- **Decentralise 60-day pause:** Let Gram Sabhas and District Collectors decide the blackout period based on local agro-climatic conditions.
- **Protect right to work:** Create a National Contingency Buffer Fund for demand spikes during economic shocks or climate disasters.
- **Prevent digital exclusion:** Permit offline authentication, manual muster rolls, and Panchayat verification where e-KYC/biometrics fail.
- **Empower PRIs:** Ensure Gram Panchayats retain powers to select, design, and execute assets under Viksit Gram Panchayat Plans.
- **Improve accountability:** Codify an Independent Social Audit Directorate for bottom-up monitoring and transparency. The VB-GRAMG Act, 2025 marks a paradigm shift in India’s rural employment policy from welfare-centric employment generation to infrastructure-led rural development. Discuss.

► Pradhan Mantri Krishi Sinchayee Yojana

The Pradhan Mantri Krishi Sinchayee Yojana has now crossed a decade of driving irrigation-led change in Indian agriculture.

PMKSY

- **Launch:** Launched in 2015
- **Nature:** Centrally Sponsored Scheme, classified as a Core Scheme
- **Objective:** Expand assured irrigation, improve water-use efficiency, and promote water conservation
- **Funding Pattern:** 60:40 for most States, 90:10 for North-Eastern and Himalayan States, 100% Central funding for UTs

- **Continuation Outlay:** Approved for 2021–26 with ₹93,068.56 crore
- **Budget Allocation:** ₹6,587 crore allocated in Union Budget 2026–27
- **Formulation:** Formulated by merging:
 - Accelerated Irrigation Benefit Programme under Ministry of Jal Shakti
 - Integrated Watershed Management Programme under Department of Land Resources
 - On-Farm Water Management under Department of Agriculture and Cooperation
- **Core Approach:** Focuses on Jal Sanchay for rainwater storage and Jal Sinchan for efficient water application.
- **Implementation:** Implemented through State Irrigation Plans and District Irrigation Plans for decentralized, location-specific irrigation planning.

Major Components of PMKSY PMKSY covers the irrigation value chain through irrigation efficient water use.

Component Focus Completion of major and medium irrigation AIBP Since projects Appro M-CADWM Last-mile water delivery press 3,462 Har Khet Ko Pani New water sources and assured irrigation create Watershed Development Rainfed and degraded land improvement Since Under Per Drop More Crop Micro-irrigation and water-use efficiency lakh h Micro-Irrigation Support

- Micro Irrigation Fund set up under NABARD.
- **Financial assistance:** 55% for small and marginal farmers, 45% for other farmers.
- Promotes drip and sprinkler irrigation to reduce wastage and improve productivity.

► Strengthening Food Safety in India

A spate of large-scale food poisoning incidents has exposed gaps in enforcing the Food Safety and Standards Act, 2006, and stoked concern over rising food-poisoning deaths.

Concerns Regarding Food Safety in India

- **Food Poisoning:**
 - **ADSI Report 2024:** 1,122 deaths in India due to food poisoning.
 - **WHO Estimates 2026:** Unsafe food causes 866 million illnesses and 1.5 million deaths globally.
 - Children under 5 years bear nearly 30% of the disease burden.
 - India ranks 15th globally in YLL due to foodborne diseases.
- **State Food Safety Index:** FSSAI assesses states on HR, compliance, testing, surveillance, training, capacity building, and consumer empowerment.
 - In 2023–24, nearly 75% States/UTs scored below 50/100.
 - **Poor performers:** Jharkhand: 26.5, Uttar Pradesh: 44.25.
- **Gaps in Inspection and Sampling:** FSS Act, 2006 mandates registration/licensing of FBOs, inspections, and lab testing.

n expansion, last-mile delivery, watershed management, and Key Facts 2016–17, received ₹21,023 crore; benefited 17.30 million farmers over 2016–17, received ₹12,432.09 crore; benefited 1.34 million farmers under PMKSY till 2021–22; under PM-RKVY from 2022–23; covered 110.92 ha under micro-irrigation

- 2026 Amendment Regulations introduced risk-based inspection based on risk profile and compliance history.
- Maharashtra collected only ~21,000 samples in 2024–25 despite 1.8 lakh+ registered FBOs.
- **Institutional and Manpower Deficits:** FSSAI has nearly 40% central vacancies.
 - Over 1,200 FSO posts were vacant across India by early 2026.
 - Maharashtra needs 1,100 FSOs, but only 130 are on field.
- **Chemical Hazards and Heavy Metals:** Rising contamination from arsenic in rice/groundwater and lead in spices, cereals, and cookware.
 - Linked to chronic diseases and cognitive impairment in children.
 - Antibiotic misuse in livestock/dairy farming is accelerating AMR.
 - Pesticide residues increase risks of cancer and endocrine disorders.
- **Food Adulteration:** Has become a parallel economy, especially in dairy and edible oils.
 - Risks include ethylene glycol-contaminated milk, synthetic milk, and fake paneer.
- **Misleading Marketing:** Some FBOs use deceptive labels and false health claims.
 - FSSAI acted in 2025–26 against misuse of claims like “100% Natural” and disease-curing claims.
- **Temperature Anomalies:** Heatwaves accelerate bacterial growth and food spoilage.
 - Risk is higher where cold-chain networks are weak.
- **Hygiene Bottlenecks:** Poor clean water, waste disposal, and food-handling training increase spread of Salmonella and E. coli.

Measures to Strengthen Food Safety in India

- **Turnover-linked penalties:** Link fines to annual turnover of offending FBOs to create real deterrence.
 - Set up district-level food safety tribunals for faster disposal of food safety cases.
- **IoT-enabled cold chains:** Mandate temperature and humidity sensors in organized cold storage and transport vehicles.
- **Incentivised compliance:** Link FSSAI compliance with digital credit schemes like PM SVANidhi; trained vendors can get lower interest or digital benefits.

- **Farm-to-fork dashboard:** Create an inter-ministerial digital ledger involving FSSAI and Ministry of Agriculture to track pesticide and antibiotic use.
- **Ban health-washing:** Mandate clear Front-of-Pack warning labels using visible red/amber/green indicators.
- **Citizen vigilance:** Launch a mobile-based Food Watch app for geo-tagged complaints and automatic inspection triggers. Food safety has emerged as a critical governance challenge in India. Examine the institutional and regulatory gaps in ensuring safe food for all.

► Delhi Electric Vehicle Policy 2.0

The Delhi government has notified its new Electric Vehicle Policy 2.0, effective 1st July 2026 to 31st March 2030.

- **Aim:** Make Delhi an EV hub, focusing on 2Ws, 3Ws, goods vehicles, school buses, aggregator and government fleets.
- **Target:** Achieve 30% fleet electrification by 31st March 2030; EV penetration was around 14% by 2025.
- **Registration Mandates:** From 2027, only electric 3Ws and N1 trucks; from 2028, only electric 2Ws.
- **School Buses:** 10% EV conversion within 2 years, and 30% by 2030.
- **Funding:** ₹7,000 crore allocation; ₹15,000 crore overall investment plan.
- **Incentives:** Purchase subsidy, road tax exemption and registration fee waiver; up to ₹30,000 for 2Ws, ₹50,000 for 3Ws and ₹1 lakh for N1 trucks.
- **Scrapping Support:** Incentives for below BS-IV vehicles, including 2Ws, 3Ws, 4Ws, N1 trucks and Gramin Seva units.
- **Charging Infra:** Over 30,000 public charging points planned; ₹1,000 crore for charging infrastructure.
- **Implementation:** Transport Department as nodal agency; Delhi Transco to develop charging network.
- **N2 Truck Exemption:** First 1,000 electric N2 trucks get 10-year No Entry timing exemption.
- **No Hybrid Subsidy:** Benefits restricted to pure EVs only.

► Anemia Mukta Bharat Abhiyaan Operational Guidelines

The Union Health Minister has released the Operational Guidelines for the Anemia Mukta Bharat Abhiyaan, marking eight years since the initiative began.

Anemia Mukta Bharat Guidelines

- **Paradigm Shift:** Moves from prophylactic (preventive) care to therapeutic (active) anemia treatment through testing, tracking and case-based protocols.
- **7x7x7 Framework:** Upgrades the earlier 6x6x6 strategy by adding:
 - **7th Beneficiary:** Low Birth Weight babies 0–6 months.
 - **7th Intervention:** Eating Right approach for diversified, iron-rich diets.
 - **7th Mechanism:** Digitally integrated Monitoring & Evaluation framework.
- **T4 Strategy:** Expands T3 — Test, Treat, Talk to T4 — Test, Treat, Talk and Track, ensuring referral and follow-up.

- **Advanced Clinical Care:** Institutionalises Ferric Carboxymaltose (FCM) and Iron Sucrose IV therapy for severe/non-responsive anemia in pregnant and lactating women.
- **Unified Digital Architecture:** Central AMB portal integrates JANANI, RBSK and U-WIN portals for real-time data convergence.
- **Governance & Community Mobilisation:** Uses Whole-of-Government, Jan Bhagidari and Jan Chetna campaigns to de-normalise anemia.
- **Targeted Outcomes:** Aims to reduce IMR and MMR and improve maternal-child lifecycle health.

Anemia Mukht Bharat (AMB)

- **About:** Launched in 2018 under NHM to address nutritional and non-nutritional causes of anemia through a life-cycle approach.
- **Crucial AMB Interventions:**
 - **IFA Supplementation:** Colour-coded IFA doses for infants, children, adolescents, non-pregnant women and pregnant women.
 - **Deworming:** Biannual deworming on 10th February and 10th August under NDD for ages 1–19; pregnant women in 2nd trimester via ANC.
 - **Food Fortification:** Use of IFA-fortified foods in government health programmes.
 - **Non-Nutritional Causes:** Screening/treatment of malaria, haemoglobinopathies like Sickle Cell Disease, and fluorosis.
 - **Digital Integration:** Point-of-care testing and digital treatment tracking.

India NFHS-5: 67.1% under-5 children, 59.1% adolescent girls, 57% women, and 52.2% pregnant women are anaemic.

► NCERT Introduces Emergency in Class 9 Textbook

NCERT has added a chapter on the 1975 Emergency to the Class 9 textbook Understanding Society: India and Beyond.

- **Emergency:** Declared on 25 June 1975 on grounds of internal disturbance and continued until March 1977.

National Emergency

- **About:** Article 352 empowers the President to proclaim National Emergency when India's security or a part of it is threatened by War, External Aggression, or Armed Rebellion.
 - **38th Amendment Act, 1975:** Allowed multiple proclamations on grounds of war, external aggression, internal disturbance, or imminent danger.
 - **44th Amendment Act, 1978:** Replaced "internal disturbance" with "armed rebellion" to remove ambiguity.
- **Territorial Extent:** Can apply to the whole country or a specific part. 42nd Amendment Act, 1976: Enabled limiting Emergency to a particular area.
- **Parliamentary Approval:** Must be approved by both Houses of Parliament within 1 month by special majority under the 44th Amendment Act, 1978.

- If Lok Sabha is dissolved, Rajya Sabha approval continues, but the reconstituted Lok Sabha must approve it within 30 days of its first sitting.

- **Duration:** Continues for 6 months and can be extended indefinitely with Parliamentary approval every 6 months (44th Amendment Act, 1978).
- **Revocation:** Can be revoked anytime by the President without Parliamentary approval.
 - Lok Sabha can disapprove continuation through a simple majority resolution.
 - If 1/10th members submit notice, a special sitting must be held within 14 days.
- **Judicial Review:** 38th Amendment Act, 1975: Made Emergency proclamation immune from judicial review.
 - **44th Amendment Act, 1978:** Restored judicial review.
 - **Minerva Mills Case (1980):** SC held Emergency can be challenged if it is mala fide, based on irrelevant facts, or perverse.

► Criminalisation of Politics in India

A report by ADR–National Election Watch finds that 31% of sitting Rajya Sabha MPs have declared pending criminal cases, with 16% facing serious charges — reviving the debate on criminalisation of politics.

Key Findings of the ADR Report

- **Prevalence of Criminal Cases:** Of 226 sitting Rajya Sabha MPs, 31% declared criminal cases; 16% face serious charges.
- **State-Wise Concentration:** Highest shares: Telangana (71%), Delhi (67%), Maharashtra (53%).
- **Concentration of Wealth:** ~14% MPs are billionaires; average assets are Rs 120.69 crore.
- **Implications for Indian Polity:** Shows criminal-politician-business nexus (issue formally recognized 3 decades ago by the Vohra Committee (1993)); money and muscle power weaken Rajya Sabha's role in state representation and legislative review.

Criminalisation of Politics

- **About:** Entry of persons with criminal backgrounds, pending charges, or convictions into elections and public office in Parliament and State Legislatures
 - It replaces rule of law with money and muscle power, weakening democratic institutions.
- **Causes of Increasing Criminalisation:**
 - **The "Winnability" Factor:** Candidates with criminal records have higher success rate, about 15%, than candidates with clean backgrounds, about 4%; they can self-finance campaigns.
 - **Money and Muscle Power:** FPTP and high election costs push parties towards candidates with black money and muscle power.
 - **Governance Deficit:** Weak institutions and poor services make voters prefer strongmen offering quick extra-legal solutions.
 - **Legal Loopholes and Slow Justice:** Section 8, RPA 1951 disqualifies only after conviction of 2+ years;

pending cases do not bar contesting. Backlog exceeds 5.6 crore cases.

- **Identity Politics and Vote Banks:** Voters prioritise caste, religion, or language over criminal records; strongmen (perceived as “Robin Hood” figures) are seen as protectors.
- **Lack of Inner-Party Democracy:** Opaque ticket distribution favours wealthy, winnable candidates over grassroots workers.
- **Ethical Implications of Criminalisation of Politics:** Undermines non-partisanship, accountability, and constitutional morality.
 - It erodes public trust, distorts free elections, weakens women's empowerment, and compromises rule of law, transparency, institutional integrity, and inclusive development.
- **SC Judgements:**
 - **Union of India v. Association for Democratic Reforms (2002):** Voters have right to know candidates' criminal, financial, educational background under Article 19(1) (a).
 - **PUCL v. Union of India (2004):** Struck down Section 33B, RPA 1951; reaffirmed voters' right to know candidates' antecedents is a fundamental right.
 - **K. Prabhakaran v. P. Jayarajan (2005):** Section 8(3), RPA 1951 aims to prevent criminalisation of politics, observing that “those who break the law should not make the law.”
 - **Lily Thomas v. Union of India (2013):** Immediate disqualification of MPs/MLAs convicted for 2+ years.
 - **Manoj Narula v. Union of India (2014):** Persons with serious criminal charges should ideally not be ministers.
 - **Public Interest Foundation v. Union of India (2018):** Only Parliament can bar candidates at charge-framing stage; parties must publicise criminal records.
 - **Rambabu Singh Thakur v. Sunil Arora (2020):** ECI must monitor disclosure compliance and report violations.

The Constitution (130th Amendment) Bill, 2025: Seeks to amend Articles 75 (Union), 164 (States), and 239AA (Delhi) to remove PM/ CMs/Ministers detained for 30 days for offences punishable with 5+ years imprisonment.

Reforms to Decriminalise Indian Politics

- **N.N. Vohra Committee, 1993:** Proposed Nodal Agency under MHA to track criminal-politician-business nexus.
- **Dinesh Goswami Committee, 1990 & Indrajit Gupta Committee, 1998:** Suggested partial in-kind state funding of elections to reduce black money dependence.
- **Second ARC, 2008:** Recommended amending Section 8, RPA to disqualify those facing trial for serious offences.
- **244th Law Commission Report, 2014:** Suggested disqualification after framing of charges for offences punishable with 5+ years, if framed 1 year before nomination scrutiny.

- Also proposed stricter penalties for false affidavits and fast-track courts.

- **Law Commission 255th Report, 2015:** Recommended full donation disclosure and independent audits of party accounts.
- **Election Commission's Core Proposals:** Sought lifetime ban on convicted politicians instead of current 6-year disqualification after release.
- **Enhancing Voter Awareness:** ECI and civil society should spread candidate-background awareness; NOTA can pressure parties to field cleaner candidates. “Money power and muscle power continue to undermine the integrity of Indian elections.” Discuss.

► Passport is Not Proof of Citizenship

Amid the ongoing debate over the Special Intensive Revision of electoral rolls, the MEA has clarified that an Indian passport functions mainly as a travel document and is not conclusive proof of citizenship.

- **Legal Status of a Passport:** Passport is strong evidence of nationality (supported by the Maneka Gandhi v. Union of India, 1978 judgment) but not definitive proof in citizenship disputes.
 - Under Section 20, Passports Act, 1967, passports can be issued to non-citizens in public interest (e.g., the 2023 Madras HC ruling permitting a stateless Sri Lankan refugee to apply for a passport).
- **Electoral Rolls and Identity Cards:** Lal Babu Hussein v.

Electoral Registration Officer (1995) – electoral roll inclusion gives a presumption of citizenship, removable only by due legal procedure.

- Association for Democratic Reforms & Ors. v Election Commission of India, May 2026: SC upheld ECI's SIR under Article 324 and Section 21(3), RPA 1950.
- SC held voter deletion does not remove citizenship; suspected cases must go to MHA for adjudication under Citizenship Act, 1955.
- **No Universal Proof:** India has no single citizenship document; citizenship is under Citizenship Act, 1955, proven through birth, parentage, and nationality documents.
 - **SC in Sarbananda Sonowal v. Union of India (2005):** Burden of proving Indian citizenship lies on the claimant.
- **Modes of Acquiring Citizenship (Citizenship Act, 1955):** Birth/descent citizens get no certificate; certificate only for registration/naturalisation.
 - **By Birth (Shift from Jus Soli to Jus Sanguinis):** 26th Jan 1950–1st July 1987: Citizen by birth. 1st July 1987–3rd Dec 2004: One parent Indian. On/after 3rd Dec 2004: One parent Indian and other not illegal migrant.
 - **By Descent:** Born outside India to Indian parent(s); consular registration needed after 3rd Dec 2004.
- **By Registration & Naturalisation:** For PIOs, spouses, eligible foreign nationals; residency generally 12 years. No dual citizenship.

- **Key Amendments:** 2003 Amendment barred illegal migrants from citizenship. CAA 2019 reduced residency for specified minorities (Hindu, Sikh, Buddhist, Jain, Parsi, and Christian) from Pakistan, Bangladesh, Afghanistan entering by 31st Dec 2014.

NATION & STATES

► Global Terrorism Index 2026

The 13th Global Terrorism Index, brought out by the Institute for Economics & Peace, shows global terrorism declined in 2025.

- Terrorism-related deaths fell by 28%, while incidents declined by 22%. However, terrorism is becoming more concentrated, adaptive and digitally driven.
- IEP is an independent, non-profit think tank based in Sydney, Australia.

Emerging Trends in Global Terrorism

- **Geographical concentration:** Nearly 70% of terrorism deaths occurred in Pakistan, Burkina Faso, Nigeria, Niger and the DRC; the Sahel accounted for over half of global fatalities.
 - Pakistan was the most terrorism-affected country; India ranked 13th.
- **Conflict linkage:** Around 99% of terrorism deaths occurred in conflict-affected or politically unstable countries.
- **Digital and decentralised attacks:** Growing use of lone actors, small cells and online radicalisation is making detection harder.
- **Border hotspots:** Over 60% of attacks occurred within 100 km of international borders.
- **Adaptive networks:** Terror groups are fragmenting, exploiting local grievances and adjusting to counter-terrorism measures.
- **Major groups:** Key actors include IS, JNIM, TTP, LeT and Al-Shabaab.
- **Geopolitical conflicts:** Ongoing wars and tensions, especially in West Asia, continue to fuel extremism.

Why the Decline Does Not Mean a Safer World

- **Complacency risk:** Terrorism is concentrated in fragile states, where rising violence receives limited global attention.
- **Lone-actor threat:** Decentralised attacks are harder to predict; 93% of fatal attacks in the West over the past five years involved lone actors.
- **Digital radicalisation:** Social media, encrypted platforms and AI-enabled algorithms accelerate recruitment and self-radicalisation.
- **Conflict-governance nexus:** Weak governance, armed conflict and institutional collapse create security vacuums for extremist groups.
- **Adaptive networks:** Localised terror cells exploit ethnic, political and religious grievances and quickly adjust to counter-terrorism measures.

Terrorism and India's Internal Security

- **Cross-border terrorism:** Pakistan-backed groups such as LeT and JeM continue proxy attacks, radicalisation and separatist mobilisation; the China-Pakistan nexus adds a hybrid-warfare dimension.

- **Urban terrorism:** Major cities remain vulnerable to mass-casualty attacks (26/11), lone actors, improvised explosives and attacks on public places (2025 blast near Delhi's Red Fort).
- **Internal insurgencies:** Militancy in Jammu & Kashmir, the Northeast and LWE-affected regions exploits local grievances and external support.
- **Cyber terrorism:** Terror groups use social media, encrypted platforms, cryptocurrencies and the dark web for recruitment, propaganda, financing and planning.
- **Terror financing:** Drug trafficking, hawala, counterfeit currency, arms smuggling and proximity to the Golden Crescent and Golden Triangle sustain terrorist networks.
- **Maritime threats:** India's 7,500-km coastline remains vulnerable to infiltration, arms smuggling and maritime terrorism.

India's Counterterrorism Doctrine

- **Zero-Tolerance Policy:** India follows a zero-tolerance, intelligence-led and pre-emptive approach to terrorism, holding both terrorists and their sponsors accountable.
- **Proactive response:** Emphasises preventive intelligence, precision operations and calibrated retaliation, as seen in the 2016 Surgical Strikes, 2019 Balakot Air Strike and Operation Sindoor, 2025.
- **PRAHAAR Framework:** Seeks to shift internal security from reactive containment to pre-emptive deterrence, while separating terrorism from religion or ethnicity.

Four Pillars of Counter-Terror Policy Pillar 1. Legislative Empowerment

- **UAPA Amendment Act, 2019:** Allows individuals to be designated as terrorists and expands the NIA's investigative powers.
- **NIA Amendment Act, 2019:** Extends jurisdiction to offences committed abroad and strengthens property attachment powers.
- **PMLA amendments:** Enable tracing and confiscation of terror-financing assets, including hawala and cryptocurrency funds.
- **Bharatiya Nyaya Sanhita, 2023:** Defines terrorism and criminalises recruitment, training, harbouring and financing.
- **Arms Amendment Act, 2019:** Tightens penalties and improves firearm traceability.

Pillar 2. Institutional Strengthening

- **NIA:** Supported by 53 Special Courts, regional offices and the National Terror Database Fusion and Analysis Centre; conviction rate reported at 92.7%.
- **Multi-Agency Centre:** Connects 28 agencies for intelligence sharing; its cyber wing monitors digital threats.
- **NATGRID:** Integrates immigration, banking, telecom and travel databases.
- **CCTNS 2.0:** Enables AI-assisted sharing of crime and terrorism data.
- **Police modernisation:** Over ₹6,300 crore allocated during 2021-26 for surveillance, forensics, weapons and secure communications.

Pillar 3. Cross-Border Operations

- **Surgical Strikes, 2016:** Targeted terrorist launch pads across the Line of Control after the Uri attack.
- **Balakot Air Strike, 2019:** Targeted a JeM training facility after the Pulwama attack.
- **Operation Sindoor, 2025:** Targeted terrorist infrastructure in Pakistan and Pakistan-occupied Jammu and Kashmir.

Pillar 4. Multilateral and Diplomatic Action

- Uses the FATF, No Money for Terror Conference and bilateral counter-terror groups to combat terror financing.
- India proposed the Comprehensive Convention on International Terrorism at the UN.
- Secured the UN designation of Masood Azhar as a global terrorist in 2019.
- BHARATPOL, 2025 connects Indian agencies with INTERPOL.
- The Delhi Declaration, 2022 addresses terrorist misuse of drones, social media, digital technologies and online finance.

Major Outcomes

- Terrorist-initiated incidents in Jammu and Kashmir reportedly fell from 228 in 2018 to 12 in 2025.
- Civilian and security-force casualties, stone-pelting and shutdowns declined.
- Better intelligence and inter-agency coordination improved prevention of terror plots.
- Improved security supported tourism, investment, infrastructure and employment in Jammu and Kashmir.

► AI-Driven Warfare: Preparing India for Future Combat Readiness

The global strategic-military landscape is being called a 'Manhattan Project' moment, with software deployed at speed and AI, military autonomy and algorithmic warfare reshaping how wars are fought and deterred — pushing India's defence establishment to adapt for future combat readiness and strategic sovereignty.

AI and Modern Warfare

- **Algorithmic Warfare and the "Kill Web":** AI compresses the military sensor-to-shooter cycle, reducing decision time from hours to minutes.
 - AI platforms like Ukraine's Delta fuse data from radar, imagery, and open-source intelligence into a real-time stream.
 - This replaces linear command chains with digital "kill webs", helping commanders quickly match drone inventories to targets for precise neutralization.
 - The US Project Maven, launched in 2017, uses AI, satellite images, sensors, and intelligence data to analyse drone and surveillance footage, identify targets, and speed up the kill chain.
- **The Rise of Autonomous Systems:** Autonomous systems are taking over high-risk combat, reconnaissance, and logistical roles across land, sea, and air.
 - AI-powered platforms like YFQ-44A Fury by Anduril for the US Air Force show a shift toward man-machine collaborative airpower and agile tech startups.

- Future naval vessels may be captained by autonomous software systems instead of human officers, replacing human roles in direct combat.

- **The Impact of Mass Drone Warfare:** Drone warfare has altered battlefield mobility, seen in the 35-km "death zone" along the Russia-Ukraine frontier.

- In this surveilled corridor, tanks and artillery have become largely ineffective as FPV drones and surveillance quickly identify and eliminate infantry and moving targets.
- Ukraine's defence industry developed capacity to produce over 8 million FPV drones annually by early 2026, showing the shift away from human-centric warfare.

- **Advanced Intelligence and Electronic Warfare:** Unmanned systems and HAPS enable continuous monitoring of enemy territories without risking manned assets.

- During Operation Absolute Resolve, 2026, the US reportedly used Anthropic's Claude AI to analyse data, track Nicolás Maduro's movements, and assist in planning his capture in Caracas.
- AI also powers cognitive electronic warfare and directed energy weapons, making high-energy lasers effective against mass drone swarms.

- **Cyber, Logistics, and the Software Edge:** The digital arms race is driving strategic cyber-weapons like "Mythos" virtual cyber-nuke and hardware advances such as Huawei's 1.4-nanometer chips.

- AI gives a logistical edge by managing supply chains, predicting equipment failures, and forecasting natural disasters in difficult terrains.

India's Initiatives in Military AI

- **Project Sanjay & Trinetra:** Indian Army integrated AI-powered TRINETRA with Project SANJAY to create a unified real-time battlefield picture.
 - TRINETRA provides C4I capabilities across land, air, and sea, while SANJAY fuses ground and aerial sensor data into a Common Surveillance Picture through Army data and satellite networks for faster decision-making.
- **ETAI Framework:** Launched in 2024 by DRDO and Chief of Defence Staff, the Evaluating Trustworthy Artificial Intelligence Framework ensures military AI remains reliable, robust, transparent, and resilient to adversarial attacks.
- **Innovations for Defence Excellence (iDEX) & ADITI Scheme:** ADITI supports deep-tech defence capabilities, funding cognitive electronic warfare systems, sovereign quantum radar, and AI modules for unmanned aerial systems.
- **Operational AI Deployments:** At AI Impact Summit 2026, Army showcased AI systems like Driver Fatigue Detection for high-altitude convoys and Prakshepan, which forecasts avalanches and floods up to a week in advance.
- **Specialized Formations:** Army raised 'Baaz' Battalions for long-range drone surveillance and precision strikes, along with acquisition of Fixed-Wing HAPS and jet-powered loitering munitions.

Key Challenges for India in Modern AI Warfare

- **Asymmetric AI-Military Gap with China:** China's PLA is moving towards "System Destruction Warfare", integrating AI, cyber, EW, satellites, and autonomous platforms to paralyse enemy C4ISR.
 - India must build comparable capabilities despite tighter technological and fiscal constraints.
- **Fragmented Military Networks:** Future warfare needs sensor-to-shooter interoperability.
 - India's fragmented command structures, service-specific networks, and incomplete theatre command reforms restrict a joint multi-domain combat network.
- **The Tactical Bandwidth Deficit:** AI warfare produces huge sensor, satellite, and HD video data.
 - Limited tactical bandwidth, contested electromagnetic environments, and Himalayan connectivity gaps restrict real-time AI analytics, autonomous swarms, and distributed kill webs along the LAC.
- **Battlefield Data Sovereignty Deficit:** Military AI needs reliable, labelled, terrain-specific data.
 - Imported or commercial algorithms may face Out-of-Distribution (OOD) failures in Ladakh and Siachen due to snow reflectivity, extreme weather, and mountainous terrain.
 - India needs sovereign battlefield datasets and indigenous military AI models.
- **Electronic Warfare and PNT Vulnerability:** Autonomous platforms rely on PNT systems, which are vulnerable to jamming and spoofing.
 - Developing NavIC-based, vision-aided, and anti-jamming navigation within SWaP constraints of small drones remains a major challenge.
- **Hardware-Centric Procurement in a Software-Defined Battlefield:** India's long defence acquisition cycles are unsuitable for AI warfare, where algorithms, EW libraries, and autonomous systems need upgrades within weeks.
 - MoD must shift from platform procurement to an agile software-driven defence ecosystem.
- **Foreign Technology and Algorithmic Dependence:** Dependence on imported GPUs, semiconductors, sensors, AI models, and electronic components creates risks of supply-chain disruption, embedded backdoors, data poisoning, and algorithmic manipulation.
 - Technological sovereignty is becoming essential for national security.
- **Human-in-the-Loop Dilemma:** Human oversight may slow autonomous warfare, while full autonomy raises concerns over accountability, civilian harm, and IHL, especially without a clear Indian regulatory framework.
- **AI-Enabled Grey-Zone Warfare:** Deepfakes, cyberattacks, and algorithmic propaganda allow adversaries to alter ground realities below the war threshold, creating a deterrence dilemma for India.

- **Innovation-Absorption Gap:** India faces a lab-to-battlefield gap in rapidly testing, procuring, and deploying indigenous technologies at scale.

Measures to Strengthen India's Preparedness for AI-Driven Warfare

- **Establish Border "Kill Webs":** Deploy counter-drone systems like laser and microwave weapons with drone-hunting teams to create AI-enabled kill webs along the LoC and LAC.
- **Transition to Offensive ISR:** Crowd Low-Earth Orbit (LEO) with space assets to move from persistent surveillance to offensive ISR.
- **Establish a Sovereign Military Data Cloud:** Create a National Secure Data Set to train military algorithms indigenously, ensure reliability, and protect against data poisoning.
- **Deploy Unified Tri-Service Data Clouds:** Integrate Project SANJAY and Akashteer into a secure tri-service operational cloud for cross-domain algorithmic targeting.
- **Transition to the ARADO Framework:** Shift to ARADO under the proposed MITRA doctrine for interoperability across land, air, sea, space, and cyber domains.
- **Reallocate Modernization Budgets:** Defence budgets should prioritise software velocity, with up to 40% of capital acquisition funds for deep-tech software, cyber-resilience, and AI payloads over conventional kinetic platforms.

Algorithmic warfare is transforming traditional linear kill chains into interconnected kill webs. Discuss the implications of this transition for India's military preparedness.

► A Decade of Defence Reforms in India

India has built up its defence capability through bigger investment, reform, innovation and global partnerships, moving from import dependence toward a self-reliant defence-manufacturing base aligned with Viksit Bharat 2047.

India's Defence Capability Transformation

- **Rising Defence Budgets:** Defence budget rose from ₹2.53 lakh crore in FY 2013–14 to ₹7.85 lakh crore in FY 2026–27.
 - Capital expenditure increased from ₹94,587.95 crore to ₹2.19 lakh crore, strengthening modernisation.
- **R&D, Innovation and Partnerships:** Defence R&D allocation rose from ₹13,716.14 crore to ₹29,100.25 crore.
 - 25% defence R&D funding opened to industry, startups and academia.
 - DRDO opened facilities in 24 labs for private industry.
- **iDEX:** Promotes defence innovation through startups, MSMEs, innovators and academia.
 - **Outlay:** ₹498.78 crore for iDEX and ₹750 crore for ADITI.
 - By March 2026, engaged 676 startups/MSMEs/innovators and signed 551 contracts.
- **DcPP Model:** DRDO-industry model for development and production of defence technologies.
 - Ecosystem includes 2,200+ industries.

- By March 2026, 134 companies engaged; 2,180 technology transfer agreements signed.
- **Technology Development Fund:** MoD-DRDO initiative for indigenous defence technologies.
 - Provides grants up to ₹50 crore.
 - As of June 2026, 80 projects worth ₹334 crore under implementation.
- **DIA-CoE:** 15 DRDO Industry-Academia Centres of Excellence set up.
 - Focus on 82 research verticals for future defence technologies.
- **Defence Acquisition Reforms:** DAP 2020 prioritises domestic manufacturing and higher indigenous content.
 - DAC granted AoN worth ₹6 lakh crore+ for indigenous systems.
 - **Major acquisitions:** 97 Tejas Mk-1A, 156 LCH Prachand, 26 Rafale Marine aircraft.
- **Human Capability:** 5 DRDO Young Scientists Labs set up; 6th planned in 2026.
 - DRDO streamlined into 36 focused labs.
- **Agnipath Scheme:** Launched on 15 June 2022 to recruit Agniveers for 4 years.
 - Aims to create a young, tech-savvy and combat-ready force with training, skills and post-service pathways.

Expansion of India's Defence Industrial Ecosystem

- **Defence Procurement:** 193 contracts worth ₹2.09 lakh crore signed in FY 2024-25; contracts worth ₹1.82 lakh crore concluded in FY 2025-26.
- **Defence Production:** Reached ₹1.78 lakh crore in 2025-26, with 15.6% annual growth (110% increase since FY 2020-21).
- **Sectoral Share:** DPSUs: 76%, private sector: 24% in 2025-26.
- **Defence Exports:** Rose from ₹686 crore in 2013-14 to ₹38,424 crore in 2025-26.
- **Global Reach:** Indian defence products exported to 80+ countries by 145 firms.
- **Export Target:** Government aims for ₹50,000 crore defence exports by 2029.
- **Industrial Base:** Includes 16 DPSUs, around 500 licensed firms and 17,000 MSMEs.
- **OFB Reform:** 41 ordnance factories reorganised into 7 DPSUs in 2021.
- **Ease of Doing Business:** Defence licences rose from 258 in 2015 to 834 in 2026.
- **Defence Corridors:** Investments: ₹42,057 crore in UP and ₹32,699 crore in Tamil Nadu.

Key Defence Sector Reforms under Aatmanirbhar Bharat

- Defence Exim Portal
- Srijan Defence Portal
- Positive Indigenisation Lists
- Srijan DEEP Platform

- **FDI Reform:** 74% automatic route and 100% government route.

Major Defence Achievements in the Last Decade

- **India-US:** Defence ties strengthened through LEMOA, COMCASA, BECA, ICET, TRUST and 10-year defence partnership, covering AI, semiconductors, space and Indo-Pacific security.
- **India-Russia:** Cooperation continues on S-400, Su-30MKI upgrades, Exercise INDRA, MRO and co-production.
- **India-EU:** Security and Defence Partnership (2026) covers maritime security, cyber defence, counterterrorism and space.
- **India-France:** Ties deepened through Rafale, Scorpene submarines, Rafale-M and defence industrial cooperation.
- **India-Japan:** Cooperation through ACSA, JIMEX and Indo-Pacific maritime security.
- **India-UAE:** Focus on defence industry, counterterrorism and special operations.
- **India-Australia:** Expanded cooperation in MDA, defence exercises and Indo-Pacific stability.
- **SCO:** India promotes counterterrorism, terror financing control and WMD threat reduction.
- **ASEAN/ADMM-Plus:** Focus on freedom of navigation, maritime stability, capacity building and BrahMos cooperation.
- **QUAD:** Strengthened through Malabar and Quad-at-Sea Mission, focusing on maritime security and Indo-Pacific stability.
- **Indo-Pacific:** SAGAR and MAHASAGAR position India as a net security provider in the IOR.

India's defence sector has undergone a major structural transformation in the last decade. Discuss its impact on self-reliance, industrial growth, and strategic autonomy.

► Tungabhadra River Dispute

With Karnataka, Andhra Pradesh and Telangana now largely in agreement, the Union Government has proposed a High-Level Committee to settle the long-running Tungabhadra water-sharing dispute.

- **River Origin & Course:** The Tungabhadra, a 531-km perennial right-bank tributary of the Krishna, is formed by the Tunga and Bhadra rivers originating in Karnataka's Western Ghats and meeting at Kudli near Shivamogga.
 - It flows through Karnataka, forms parts of the Karnataka-Andhra Pradesh and Andhra Pradesh-Telangana borders, and joins the Krishna at Sangameswaram, Andhra Pradesh. The Krishna enters the Bay of Bengal at Hamsaladeevi.
- **The Tungabhadra Reservoir Project:** Commissioned in the 1950s near Hosapete, Vijayanagara district, the inter-state dam irrigates over 16.38 lakh acres across Karnataka, Andhra Pradesh, and Telangana.
- **Historical Adjudication:** KWDT-I, 1969, headed by Justice R.S. Bachawat, allocated water in a 65:35 ratio between Karnataka and undivided Andhra Pradesh. The system is managed by the Tungabhadra Board.

- **Current Allocations:** After the 2014 bifurcation, Telangana received an entitlement of 15.9 TMC.
- **Siltation Crisis:** Heavy siltation has reduced the dam's original 134 TMC capacity, causing downstream shortages.

Decay in the Rajolibanda Diversion Scheme (RDS) limits Telangana's utilisation to only 5–6 TMC.

- The RDS is an inter-state irrigation project of Karnataka and Telangana across the Tungabhadra. Its 143-km canal irrigates drought-prone areas in Karnataka, Telangana, and Andhra Pradesh.
- **Upper Bhadra Project Conflict:** Andhra Pradesh filed an original suit in the Supreme Court in 2023 against Karnataka's Upper Bhadra lift irrigation scheme, claiming it may reduce downstream flows to reservoirs such as Srisaillam.
- **Constitutional Distribution:** Water is under the State List, Entry 17, while regulation and development of inter-state rivers fall under the Union List, Entry 56.
- **Dispute Resolution Framework:** Article 262 empowers Parliament to adjudicate inter-state river disputes and exclude SC jurisdiction through the Inter-State River Water Disputes Act, 1956.
- **Landmark Precedent:** In the Cauvery Judgment, 2018, SC held that inter-state rivers are national assets and must be shared through equitable apportionment.

ECONOMIC SCENARIO

► **Polymer Currency Notes**

The RBI is reconsidering its plan to roll out polymer currency notes, with its subsidiary BRBNMPL inviting a global Expression of Interest for BOPP-based polymer substrate.

Polymer Currency Notes

- **About:** Polymer notes are made from BOPP (Biaxially Oriented Polypropylene), unlike Indian paper currency made from cotton-pulp paper.
 - They are durable, water-resistant, tear-resistant and harder to counterfeit due to features like transparent windows and embedded security elements.
 - Used in 60+ countries; Australia introduced the first full polymer series in 1988.
 - Last around 2.5–4 times longer than paper notes.
- **Need for Polymer Notes**
 - India spends nearly ₹5,000 crore annually replacing damaged currency.
 - Around 20–24 billion soiled notes are destroyed annually under RBI's Clean Note Policy.
 - Low denominations like ₹10 and ₹20 deteriorate quickly due to frequent circulation.
 - Longer lifespan can reduce replacement costs and improve security.
 - **TERI study:** Despite higher initial carbon footprint, polymer notes have lower lifecycle emissions due to fewer replacements.
- **Timeline in India**

- **2009:** RBI proposed 100 crore ₹10 polymer notes.
- **2012:** Pilot project approved for Kochi, Mysuru, Jaipur, Bhubaneswar and Shimla; later shelved.
- **2026:** BRBNMPL invited bids for polymer substrates, reviving the proposal.

● **Concerns**

- **Economic:** Polymer notes cost 30–60% more to produce; depend on polypropylene, exposing costs to crude oil fluctuations and import dependence.
- **Infrastructure:** Requires recalibration of ATMs, vending machines, sorting and processing equipment.
- **Environmental:** Raises concerns regarding plastic waste and recycling facilities.
- **Digital payments:** Growth of UPI does not eliminate cash demand; currency in circulation exceeded ₹41 lakh crore (2025–26).
- **Need for balance:** Cash remains important for informal sectors, rural areas, small merchants and emergencies; digital and physical currency need to coexist.

RBI's Clean Note Policy

- **About:** Launched by RBI in 1999 to maintain circulation of clean, good-quality notes and coins by withdrawing soiled and mutilated currency.
- **Objectives**
 - Improve currency quality and lifespan.
 - Enhance public convenience and confidence in the currency system.
- **Key Measures:** Banks must issue only clean notes and avoid recirculating soiled notes.
 - Soiled and mutilated notes can be exchanged at currency chest branches, including by non-customers.
 - Stapling of note packets was replaced with paper/polythene banding to reduce damage.
 - RBI uses Currency Verification and Processing Systems (CVPS) for sorting, verification, shredding and briquetting of unfit notes.
 - Banks are encouraged to ensure adequate coin availability and currency exchange facilities, especially in rural and semi-urban areas.

Currency Management in India

- **Constitutional and Legal Framework**
 - Currency, coinage, legal tender and foreign exchange are under the Union List of the Constitution.
 - **RBI Act, 1934:** Provides the legal framework for issuance and management of banknotes.
 - **Coinage Act, 2011:** Governs design, production and circulation of coins.
- **Role of RBI**

- Has exclusive authority to issue banknotes, estimate currency demand and maintain adequate note supply.
- Ensures circulation of clean and good-quality currency.
- Distributes coins supplied by the Government of India.
- Role of Government of India
 - Issues the ₹1 note.
 - Designs and mints coins.
 - Approves banknote design and material based on recommendations of the RBI Central Board.
 - Provides sovereign guarantee for all RBI-issued banknotes.

► India's Rising Inflation

India's WPI inflation has climbed to nearly 10% — its steepest rise in more than a decade outside the Covid-19 period.

Current Inflation Status in India

- **CPI inflation:** Rose to an 18-month high of 4.38% in June 2026, but remained within the RBI's 2–6% target band.
- **WPI inflation:** Increased to 9.87%, driven mainly by fuel and power (27.41%), minerals and manufactured products.
- **Food inflation:** Remains volatile (crossing the 5–6% threshold), especially due to cereals, pulses and vegetables.
- **Core inflation:** Persistently high in services such as transport, health and education, limiting the RBI's maneuverability.
- **Inflation trend:** The narrowing WPI–CPI gap, inflation is mainly cost-push and structural, with higher input and logistics costs passing from wholesale to retail prices.
 - Sticky core inflation keeps price pressures persistent and limits the RBI's policy flexibility.

Key Drivers of Inflationary Pressures

- **Energy shock:** India imports nearly 90% of crude oil; high global prices and West Asian disruptions raise import, transport and production costs.
- **Rupee depreciation:** A weaker rupee makes imported fuel, fertilizers, electronics and raw materials costlier.
- **Food inflation:** With 36.75% weight in CPI, monsoon variability and El Niño sharply affect cereal, pulse and vegetable prices.
 - This structural vulnerability leads to the classic cobweb phenomenon in agricultural pricing and driving the CPI upward.
- **Precious metals:** To manage the CAD, the government raised import duties on gold and silver from 6% to 15%.
 - However, such duties were passed to consumers & driving up 'personal care and miscellaneous' inflation.
- **Fuel tax rigidity:** High central and state taxes prevent a significant fall in petrol and diesel prices.
- **Policy limitation:** Repo-rate hikes are less effective against supply-driven and cost-push inflation.

Impact of Rising Inflation

- **Real income erosion:** Rising prices reduce purchasing power, especially when wages do not rise proportionately.
- **Burden on the poor:** High food and fuel (45% of CPI basket) costs disproportionately affect low-income, rural and informal-sector households.
- **Monetary tightening:** Persistent inflation limits the RBI's scope to cut policy rates.
- **Higher borrowing costs:** Elevated interest rates weaken consumption, credit growth and private investment.
- **Fiscal pressure:** Greater spending on food, fertilizer and welfare subsidies complicates fiscal consolidation under the FRBM Act, 2003.
- **External vulnerability:** Costlier crude widens the trade deficit and CAD, weakens the rupee and fuels imported inflation.

Challenges in Curbing Inflation

- **Stagflation risk:** Tight monetary policy may suppress investment, growth and jobs, while supply-side constraints keep prices high.
- **Growth–inflation dilemma:** Under the FIT target of $4\% \pm 2\%$, the MPC must control inflation without excessively raising capital costs or weakening credit and private CapEx.
- **Imported inflation trap:** If the RBI avoids tightening, capital outflows may weaken the rupee and raise import costs of crude oil, fertilizers, edible oils and industrial inputs.
- **Fiscal constraints:** Cuts in excise duty and VAT on fuels may ease inflation but reduce Centre–State revenues and weaken fiscal consolidation.
- **Monsoon dependence:** Heavy agricultural dependence on rainfall leaves food output and prices vulnerable to weather shocks.
- **Supply-chain bottlenecks:** Fragmented markets, inadequate cold chains and post-harvest losses can convert local shortages into nationwide food inflation.
- **External dependence:** India's 85–90% crude import dependence, along with imports of fertilizers, edible oils and electronics, limits the ability of domestic policy to fully control inflation.

Measures Needed to Curb Inflation Short-Term Measures

- **N.K. Singh Committee, 2017:** Adopt a countercyclical fiscal framework to address inflationary shocks while maintaining fiscal discipline.
- **Shanta Kumar Committee, 2015:** Reform FCI, rationalise procurement and promote decentralised foodgrain procurement.
- Use the Price Stabilisation Fund (PSF), Open Market Sale Scheme (OMSS) and calibrated trade policies to contain food inflation.

Medium-Term Supply-Side Reforms

- **Dalwai Committee, 2018:** Expand micro-irrigation, FPOs, cold chains, value addition and market linkages to reduce post-harvest losses.
- **M.S. Swaminathan Commission:** Increase investment in irrigation, watershed development, agricultural R&D and extension services to reduce monsoon dependence.

Long-Term Structural Reforms

- National Green Hydrogen Mission and National Electricity Plan: Reduce imported energy inflation through renewable energy and green hydrogen.
- **National Critical Mineral Mission:** Boost domestic production and secure global supply chains for critical minerals.
- **National Logistics Policy and PM Gati Shakti:** Improve multimodal logistics, warehousing and supply chains to reduce transport and structural costs.

India's 2026 inflationary episode is primarily supply-driven rather than demand-driven. Examine the causes and suggest a comprehensive policy response.

► Index of Core Industries with Base Year 2022-23

The Office of the Economic Adviser under the DPIIT, Ministry of Commerce and Industry, has released the first provisional Index of Core Industries using 2022-23 as the new base year.

- The new series replaces the 2011-12 base year and applies retrospectively from April 2023.

Index of Core Industries (ICI)

- **About:**
 - The ICI measures the monthly production performance of India's key industrial sectors.
 - The provisional index is generally released on the 20th of the following month or the next working day.
- **Connection to IIP:** Difference between Basis ICI Scope Tracks production of 9 core infrastructure industries.

Compiling Agency OEA, DPIIT, Ministry of Commerce and Industry Coverage 9 core industries Relationship A subset and leading indicator of the IIP. Utility Assesses core-sector health and supply-side bottlenecks.

► NITI Aayog's Investment Friendliness Index 2026

NITI Aayog has released the first Investment Friendliness Index (IFI) 2026 to gauge how ready States are to attract domestic and foreign investment, backing the Viksit Bharat @2047 goal by encouraging investment-friendly reforms.

- **Genesis and Mandate:** Conceived after the 9th NITI Aayog Go Budget 2025-26 as a reform instrument.
 - Under the 2022-23 base year, core industries carry a 32.88% weight in the IIP, compared with 40.27% under the 2011-12 series.

Key Changes in the 2022-23 Series

- Iron Ore has been added, increasing the number of core industries from eight to nine.
 - The sectors are Coal, Crude Oil, Natural Gas, Refinery Products, Fertilizers, Steel, Cement, Electricity and Iron Ore.
- The Steel Index now uses gross production data instead of net production data.
- Only Raw Coal is retained; Coal Middling and Washed Coal are excluded to avoid double counting.
- Sectoral weights are aligned with the revised IIP and normalized to 100.

- Electricity has the highest weight (30.93%), followed by Refinery Products (22.57%), Steel (17.58%), Crude Oil (7.43%), Coal (5.59%), Iron Ore (4.90%), Cement (4.41%), Natural Gas (3.84%), and Fertilizers (2.73%).

- **Linking Factor:** A linking factor ensures comparability between the old and new series.

- The overall ICI linking factor is 1.47.

ICI Performance: June 2026

- ICI grew by 5.0% year-on-year, up from 3.2% in May 2026.
- Positive growth was recorded in Iron Ore (43.9%), Electricity (9.8%), Cement (9.8%), Steel (4.6%) & Coal (1.4%).
- Natural Gas, Crude Oil, Refinery Products and Fertilizers contracted.
- Iron Ore and Electricity were the main growth drivers.
- Cumulative ICI growth during April-June 2026 was 3.6%, compared with 1.0% in the same period last year. ICI and IIP Tracks overall industrial production.

NSO, MoSPI Mining, Manufacturing and Electricity sectors A broader measure of India's industrial performance. Supports assessment of industrial growth & monetary & fiscal policymaking. States and UTs are to attract, facilitate, and retain domestic moting competitive and cooperative federalism. overning Council Meeting, 2024 and announced in the Union

- **Methodological Shift:** Replaces the discontinued World Bank Ease of Doing Business framework with a homegrown methodology using 84 objective indicators and investor perception surveys.
- **The Eight Pillars of Evaluation:** Assesses 28 States and 8 UTs through a 100-point composite score based on eight pillars:
 - **Infrastructure:** Logistics, power reliability and digital connectivity.
 - **Business Climate:** Single-window clearances and operational continuity.
 - **Resources:** Industrial land, skilled labour and raw materials.
 - **Government Policy:** Policy predictability and stability.
 - **Regulatory Ease:** Lower bureaucratic and compliance burden.
 - **Institutional Environment:** Capacity, transparency and responsiveness.
 - **Financial Health:** Fiscal prudence and macroeconomic indicators.
 - **Environmental Resilience:** Sustainability and ecological compliance.

- **Performance Stratification:** Category Score Top Performers Above 50 Frontrunners 45-50 Emerging Performers 40-45 Aspiring States Below 40 Key Findings of the Report

- **Top Performers:** Gujarat (56.6) ranked first, followed by Maharashtra (53.7), Tamil Nadu (53.3), Goa (53.1) and Odisha (52.4).

- **Category-Specific Toppers:** Category Leading States/UTs Large States Gujarat, Maharashtra, Tamil Nadu Uttarakhand,

Assam, Himachal Hilly and North-Eastern States Pradesh UTs and City States Delhi, Chandigarh

● **Drivers of Success:**

- **Gujarat:** Efficient ports, reliable power, around 31% of India's merchandise exports and the lowest fiscal deficit-to-GSDP ratio of 2.81% in FY 2024.
- **Maharashtra:** Best business climate, 35% of national private equity/venture capital (PE/VC) investment and the highest number of Atal Tinkering Labs.
- **Tamil Nadu:** Strong infrastructure, exports and near- 100% MoU conversion.
- **Goa:** Leads in resources and regulatory ease among city states/UTs, supported by skilling, healthcare spending and renewable power.

Challenges in Attracting Investments Across States Macro-Level Challenges

- **Sharp Regional FDI Divergence:** Maharashtra, Karnataka, Gujarat, Delhi and Tamil Nadu receive nearly 85% of India's FDI inflows. The score gap between Gujarat (56.6) and Lakshadweep (24.5) exceeds 32 points.
- **Persistent Investor Pain Points:** Long approval timelines, difficult land access and skilled-labour shortages, especially in high-value manufacturing.
- **Incentives Alone Are Not Enough:** Sustained investment requires a transparent, predictable and stable regulatory environment, not merely fiscal incentives.
- **Even Top Performers Have Scope for Reform:** No State scored above 60/100; the highest score was 56.6, indicating gaps across all investment ecosystems.

Recurring Issues Identified in State Profiles

- **Human Capital Constraints:** Skilled-labour shortages and talent migration affect J&K, Chhattisgarh, Rajasthan, Tripura, Nagaland and Kanpur.
- **Weak Single-Window Clearance Mechanisms:** In J&K, manual complaint registration continues despite an online system.
- **Safety and Law-and-Order Concerns:** In Bihar, security concerns and weak air connectivity to Tier-II/III cities reduce investor confidence.
- **Fiscal Stress:** Bihar's liabilities-to-GSDP ratio is nearly 500 basis points above the national average. In J&K, fiscal deficit is around 9% of GSDP and interest payments are 7.13% of GSDP.
- **Digital Infrastructure Gaps:** J&K's 4G/5G penetration is low, with Base Transceiver Station (BTS) density of only 0.82 per sq. km; several states also face weak last-mile connectivity.
- **Environmental Risks:** Industrial clusters in Noida, Ghaziabad and Muzaffarnagar record AQI levels of 200– 600 for much of the year. Flood risks and poor drainage also affect productivity and livability.
- **Logistics Bottlenecks:** Poor roads, weak industrial park connectivity, and inadequate warehousing and cold- storage remain major constraints.
- **Airport Connectivity Gaps:** Limited Tier-II/III connectivity in Bihar, need for an operational airport in Sikkim, congestion at

Chennai Airport, and weak airport infrastructure in Odisha and Chandigarh hinder investment.

- **Slow Incentive Disbursement:** Andhra Pradesh and Telangana face delayed incentive payments and weak inter-departmental coordination.

Measures to Improve Investment Competitiveness

- **Accelerate Land and Labour Reforms:** Simplify land allotment, improve labour flexibility and align skilling with industry needs through Skill India Mission and PMKVY.
- **Operationalise Genuine Single-Window Systems:** Fully integrate clearances under National Single Window System (NSWS), remove manual approvals and reduce approval time from 6–18 months to 30–60 days.
- **Adopt Targeted Industrial Policies:** Use sector-specific incentives under the PLI Scheme, following models such as Gujarat's Semiconductor Policy and Tamil Nadu's EV Policy.
- **Follow an Infrastructure-First Strategy:** Expand industrial ecosystems through PM Gati Shakti, NICDP, GIFT City, Samruddhi Corridor and the Chennai-Bengaluru Industrial Corridor.
- **Strengthen the Business Climate:** Reduce compliance burdens, simplify approvals and improve industry-relevant skilling.
- **Enhance Fiscal Sustainability:** Lower debt, diversify revenue and create fiscal space for infrastructure and incentives.
- **Bridge Infrastructure Gaps:** Improve power supply through Revamped Distribution Sector Scheme (RDSS), digital connectivity through BharatNet, and logistics and warehousing under PM Gati Shakti.
- **Strengthen Institutional Governance:** Ensure policy stability, transparent land allotment, faster environmental clearances and effective grievance redressal.
- **Build Climate-Resilient Infrastructure:** Promote sustainable industrial growth through NAPCC and climate-resilient planning.
- **Institutionalise the State-Level Investment Index:** Use it regularly for benchmarking, peer learning, evidence-based policymaking and tracking reforms.

Despite policy reforms, investment remains concentrated in a few Indian states. Analyse the structural challenges responsible for regional investment disparities.

► **Strengthening Rural Credit for Inclusive Growth in India**

India's rural credit landscape has grown into a varied institutional web spanning banks, NABARD, cooperatives, SHGs, digital platforms and financial-inclusion schemes, underpinning agriculture, rural enterprise, household resilience and inclusive growth.

Current Rural Credit Landscape in India

- **About:** India's rural credit system has shifted from informal lending to a diversified, technology-enabled institutional framework.
- **Scope of Credit:** Supports agriculture, allied activities, rural enterprises, and household needs through short-, medium-, and long-term credit.
- **Developmental Role:** Promotes income, employment, asset creation, consumption, and household resilience.

- **Institutional Network:** Includes Scheduled Commercial Banks, Regional Rural Banks, Cooperative Banks, Small Finance Banks, NABARD, and non-institutional sources.
- **Role of NABARD:** Provides refinance, funds rural infrastructure, promotes institutional development, and supervises Cooperative Banks and Regional Rural Banks.
- **Expanding Formal Access:** As of May 2026, around 51% of rural households used only formal credit, while over 27% used both formal and informal sources.
- **Rural Economic Conditions:** ~77.2% of rural households reported higher consumption.
- **Policy Support:** Priority Sector Lending, ground-level credit targets, and the Modified Interest Subvention Scheme improve access to affordable institutional credit.
- **Digital and Financial Inclusion:** Digital platforms and financial-inclusion measures have improved credit reach, speed, and efficiency while reducing dependence on moneylenders.

Evolution of Rural Credit System

- **Rural Banking Push (1955):** Creation of the National Agricultural Credit (Long-term Operations) Fund and establishment of SBI expanded rural banking and agricultural finance.
- **Bank Nationalisation (1969):** Nationalisation of 14 major banks redirected credit towards priority sectors, especially small farmers and rural borrowers.
- **Establishment of NABARD (1982):** NABARD became the apex rural development institution, providing finance, supervision, district credit planning, and financial inclusion support.
- **SHG-Bank Linkage (1992):** Expanded formal credit access, particularly for women and low-income rural households.
- **Kisan Credit Card (1998):** Improved timely and affordable farm and allied-sector credit.
- **PMJDY (2014):** Expanded universal banking and strengthened the JAM Trinity, enabling transparent delivery of credit, insurance, and DBT.
- **MUDRA Scheme (2015):** Provided collateral-free loans to non-corporate, non-farm micro and small enterprises, promoting rural entrepreneurship.
- **Digital Credit Delivery (2022 Onwards):** Platforms such as Jan Samarth Portal and e-KCC made rural credit more accessible and technology-driven.

Institutional Architecture of Rural Credit in India

- **Strong Institutional Network:** Rural credit is delivered through Scheduled Commercial Banks, Regional Rural Banks, Cooperative Banks, Small Finance Banks, and NABARD.
- **Scheduled Commercial Banks:** SCBs, listed in the Second Schedule of the RBI Act, 1934, provide rural banking through branches, Business Correspondents, digital platforms, PMJDY, and DBT.
- **SCB Rural Expansion:** Rural SCB branches increased from 41,464 in 2014 to 56,193 by July 2025.
- **Regional Rural Banks:** Established under the RRB Act, 1976, they serve small and marginal farmers, labourers, artisans, and rural entrepreneurs. 28 RRBs operate through over 22,000 branches in around 700 districts.

- **Co-operative Banks:** Extend institutional credit to poor and remote communities through 1,458 Urban Cooperative Banks, 34 State Cooperative Banks, and 352 District Central Cooperative Banks.
- **Small Finance Banks:** RBI-licensed banks serving underserved groups, including small businesses, farmers, micro-industries, and unorganised-sector entities through low-cost, technology-driven operations. India has 11 operational Small Finance Banks.

Policy Framework for Rural Credit in India

- **Priority Sector Lending Framework:** RBI mandates banks to direct credit towards critical and underserved sectors.
- **Agriculture Credit Target:** At least 18% of Adjusted Net Bank Credit or equivalent off-balance sheet exposure must go to agriculture.
- **Farmer Sub-Targets:** 14% for non-corporate farmers and 10% for small and marginal farmers.
- **Ground Level Credit:** Annual targets cover crop and term loans for agriculture and allied sectors.
- **Rising Credit Flow:** Agricultural credit grew by over 13% annually during FY15–FY24. The FY 2025–26 target is ₹32.50 lakh crore.
- **Allied Sector Focus:** ₹5 lakh crore is targeted for animal husbandry, dairying, and fisheries.
- **SHG-Bank Linkage:** NABARD's SHG-BLP connects rural SHGs with banks, especially benefiting women.
- **Strengthening SHG-Bank Linkage:** DAY-NRLM promotes women-led SHGs. Over 10.05 crore women were organised into more than 90.90 lakh SHGs by July 2025.
- **Bank Sakhis:** Around 50,548 Bank Sakhis assist SHGs with accounts, loans, repayment, and credit linkage.
- **Primary Agricultural Credit Societies:** PACS provide short-term credit and support input distribution and agricultural marketing.
- **PACS Expansion:** The Government approved 2 lakh new multipurpose PACS, dairy, and fishery cooperatives over five years.
- **PACS Digitisation:** Of 79,630 approved PACS, 61,842 migrated to the common ERP software by March 2026.
- **Modified Interest Subvention Scheme:** Crop loans through KCC are available at 7% interest, reduced to 4% on prompt repayment.
- **Enhanced KCC Limits:** The MISS loan limit increased from ₹3 lakh to ₹5 lakh; for fisheries and allied activities, from ₹2 lakh to ₹5 lakh.
- **Collateral-Free Credit:** The limit for collateral-free short-term agricultural loans rose from ₹1.6 lakh to ₹2 lakh per borrower from January 2025.
- **PM Dhan Dhanya Krishi Yojana:** Approved in July 2025, it targets 100 low-performing agricultural districts through convergence of 36 Central schemes across 11 Ministries.
- **Objectives:** Improve productivity, crop diversification, sustainable farming, irrigation, post-harvest storage, and access to farm credit. Rural credit is a key instrument for inclusive growth and agricultural transformation in India.

Discuss the role of financial inclusion schemes in strengthening India's rural economy.

► Mobile Phone Manufacturing Scheme (MPMS)

The Union Cabinet has cleared the ₹62,500 crore Mobile Phone Manufacturing Scheme to strengthen India's mobile-manufacturing base.

MPMS

- **About:** MPMS aims to expand mobile phone production, increase domestic value addition, strengthen supply chains, and improve global competitiveness.
- **Scheme Tenure:** Operates for five years, from FY 2026–27 to FY 2030–31.
- **Incentive Support:** Provides 2.25%–5% incentive on eligible sales of mobile phones manufactured in India.
 - Offers up to 1.5% additional incentive for domestic sourcing of key components.
 - Indian brands receive an additional 3% incentive for product design and R&D.

Objectives of MPMS

- **Scale Up Production:** Expand manufacturing capacity and strengthen India's global position.
- **Deepen Domestic Value Addition:** Increase local sourcing and reduce import dependence.
- **Strengthen Supply Chains:** Build resilient and globally competitive electronics supply chains.
- **Build Indian Brands:** Promote domestic brands, design, patents, and R&D.
- **Promote Technological Sovereignty:** Encourage domestic innovation and intellectual property creation.

Expected Outcomes

- **Production Target:** Around ₹39 lakh crore in cumulative production.
- **Export Expansion:** Higher mobile phone exports and stronger participation in global value chains.
- **Employment Generation:** Around 60,000 direct jobs.
- **Global Manufacturing Hub:** Strengthen India's position in mobile manufacturing and exports.

Current Status of India's Electronics Manufacturing Growth

- **Policy Background:** MPMS succeeds the Production Linked Incentive Scheme for Large Scale Electronics Manufacturing (PLI-LSEM), which ended on 31st March 2026 after strengthening mobile manufacturing and exports.
- **Electronics Production Growth:** Production rose nearly seven-fold, from ₹1.90 lakh crore in 2014–15 to an estimated ₹13.11 lakh crore in 2025–26.
- **Electronics Export Growth:** Exports increased eleven-fold, from ₹38,263 crore to ₹4.24 lakh crore.
- **Export Significance:** Electronics became India's third-largest export category, reaching USD 47.96 billion in FY 2025–26.
- **Domestic Value Addition:** Increased from 15% to 23%, indicating greater localisation.

- **Component Ecosystem:** Over 40 major component manufacturers established or expanded operations, supported by Tier-2, Tier-3, and Tier-4 suppliers.

Mobile Manufacturing as Growth Anchor

- **About:** Mobile phones are the main driver of India's electronics production and export growth.
- **India's Global Position:** India is the world's second-largest mobile phone manufacturer by volume.
 - 99.2% of mobile phones used domestically are manufactured in India.
- **Mobile Phone Production:** Increased 33-fold, from ₹18,900 crore in 2014–15 to ₹6.27 lakh crore in 2025–26.
- **Mobile Phone Exports:** Rose 165-fold, from ₹1,566 crore to ₹2.60 lakh crore.
- **Largest Export Product:** Mobile phones rose from India's 153rd-largest export item in 2014–15 to the largest export product in 2025–26.
- **Smartphone Export Success:** Smartphones became India's single-largest exported product category in 2025, surpassing diesel fuel and cut diamonds.
- Women constitute nearly 30% of the electronics manufacturing workforce.
- In mobile phone manufacturing, they account for nearly 70% of the direct workforce.

► Empowering India's Skill Ecosystem

The government is building up India's skilling ecosystem through education reforms, vocational training, AI-focused skilling, apprenticeships, entrepreneurship support and women-centric programmes.

- The India Skills Report 2026 shows employability rising from 46% in 2020 to 56.4% in 2026, supporting the goal of 100% skilled labour with meaningful employment by 2047.

Importance of Skill Development in India

- **Strengthening AI Readiness:** India scored 49.3 on the IMF AI Preparedness Index, above the 42.1 average for emerging and developing economies.
- **Harnessing the Demographic Dividend:** Over 54% of India's population is below 25 years, while more than 62% is in the 15–59 years working-age group.
 - This advantage is expected to continue until around 2040.
- **Meeting Global Talent Demand:** India may have a surplus of 45 million skilled professionals by 2030, while global shortages could reach 85 million. Major Skill Building Initiative from an Early Age in India
- **Samagra Shiksha:** Supports education from pre-school to Class XII and promotes skill education aligned with SDG-4.
 - By Dec 2025, 138 job roles were approved across 25,140 schools, benefiting over 35.5 lakh students.
 - **Hub and Spoke Model:** Enables nearby schools to use skill-training infrastructure available in hub schools. Around 975 spoke schools are covered.

- **Vocational Skill Labs:** MSDE established 1,200 labs in 400 Jawahar Navodaya Vidyalayas and 200 Eklavya Model Residential Schools.
- **PM SHRI Schools:** Launched in 2022 to implement NEP 2020 and develop 21st-century skills.
 - By June 2026, 13,092 schools were developed across 776 districts against a target of 14,500.
- **Atal Tinkering Laboratories:** Over 10,000 laboratories established in 722 districts, engaging more than 1.1 crore students.
- **Skilling for AI Readiness (SOAR):** Provides AI training to Classes VI–XII students and educators with Microsoft, HCL Technologies, and NASSCOM.
 - 2.30 lakh students were enrolled by Feb 2026.
- **National Skills Qualifications Framework (NSQF):** An eight-level, competency-based framework integrating academic, vocational, and skill education.
 - Enables credit-based progression, lifelong learning, and career mobility.
- **YUVA AI for ALL:** A free 4.5-hour AI course launched under the IndiaAI Mission in November 2025. Enrolment reached 85.27 lakh by 8th July 2026.
- **Vidyanjali Programme:** Connects schools with volunteers, professionals, NGOs, and CSR partners for mentoring and skill support.
 - By June 2026, 8,44,925 schools, 5,62,296 volunteers, and 2,705 organisations were onboarded, benefiting over 2.04 crore students.

Major Upskilling and Re-Skilling Initiative in India

- **Skill India Mission:** Launched in 2015, it provides NSQF-aligned skilling, upskilling, and reskilling through Rozgar Melas, Skill India Digital Hub, and Skill Development Centres.
 - Major schemes include PMKVY, Jan Shikshan Sansthan, NAPS, and Craftsman Training Scheme.
- **PMKVY 4.0:** Demand-driven short-term skilling programme.
 - By 30th June 2026, 28.17 lakh candidates were trained across 36 sectors, 36 States, and 738 districts.
- **Jan Shikshan Sansthan:** Provides government-funded, community-based training to neo-literates and school dropouts through NGOs.
 - Since 2018, it trained 36.52 lakh beneficiaries, including 4.8 lakh tribal beneficiaries; women formed over 82%.
 - Offers locally relevant courses, while UdyamKart supports product marketing.
- **National Apprenticeship Promotion Scheme:** Promotes industry-led apprenticeship under the Earn While You Learn model.
 - Under NAPS 2.0, the government pays 25% of the stipend, up to ₹1,500 per month.
 - Over 54.41 lakh apprentices have been engaged since 2016.

- During 2025–26, ₹562.75 crore was transferred through 40.10 lakh DBT transactions.
- **Craftsman Training Scheme:** Offers 169 long-term vocational courses through 13,888 ITIs.
 - In three years, 14 new courses were introduced and 22 revised.
 - ITI enrolment rose from 12.51 lakh in 2022–23 to 14.70 lakh in 2025–26.
- **PM-SETU:** Launched in 2025 to modernise 1,000 Government ITIs.
 - Includes 200 Hub ITIs, 800 Spoke ITIs, and 5 National Centres of Excellence for Skilling.
 - Targets training 20 lakh youth in five years.
 - By May 2026, 32 States and UTs had formed steering committees; Andhra Pradesh first operationalised it through the Visakhapatnam ITI Cluster.
- **FutureSkills Pillar:** Under the IndiaAI Mission, it promotes AI education, fellowships, and practical training.
 - Plans 570 AI and Data Labs in Tier-2 and Tier-3 cities.
 - **FutureSkills Prime:** A NASSCOM-MeitY initiative providing online training in emerging technologies.
- **Pradhan Mantri Viksit Bharat Rozgar Yojana:** Launched in 2025, it gives first-time EPFO-registered employees up to ₹15,000.
 - Employers receive up to ₹3,000 per month for two years for eligible additional employees.
 - By 19th June 2026, it supported 15 lakh employment opportunities with ₹2,400 crore disbursed.

Initiatives Related to Nurturing Entrepreneurship in India

- **PM Vishwakarma:** Provides traditional artisans and craftspeople with skill training, toolkit incentives, credit support, and market linkages.
 - Prioritises women, SCs, STs, OBCs, persons with disabilities, transgender persons, and artisans from the North East, islands, and hilly regions.
 - Beneficiaries receive a training stipend of ₹500 per day.
 - By June 2026, over 24.50 lakh applicants completed basic training and loans worth ₹5,165.84 crore were sanctioned.
- **Startup India Courses:** Offers free online courses in programming, security, accounting, finance, management, and entrepreneurship to strengthen startup capabilities.
- **Entrepreneurship Development Programmes:** Implemented by MSDE through NIESBUD, Noida, and IIE, Guwahati.
 - Provide training, mentorship, handholding, management support, and incubation.
- **MSME Entrepreneurship Skill Development Programme:** Encourages youth to pursue self-employment and entrepreneurship through technical and business training.
 - Focuses on SCs, STs, women, persons with disabilities, ex-servicemen, and BPL beneficiaries.

Initiatives Related to Empowering Women through Skilling

- **AI Careers for Women:** A 320-hour programme launched in 2025 to equip women in rural undergraduate colleges with AI skills.
 - Operates through 25 AI Centres of Excellence under a hub-and-spoke model.
 - Reached over 10,000 students, including 2,500+ in Hub Colleges and 7,500+ in Spoke Colleges.
- **Swavalambini Programme:** Launched in Feb 2025 by MSDE with NITI Aayog's Women Entrepreneurship Platform.
 - Promotes entrepreneurship through awareness and development programmes across Assam, Meghalaya, Mizoram, Uttar Pradesh, and Telangana.
 - In 2025–26, it trained 82 faculty members, reached 1,200 awareness participants, and conducted development programmes for 602 women.
- **NAVYA Scheme:** Launched in June 2025 by MSDE and the Ministry of Women and Child Development.
 - Trains girls aged 16–18 years in aspirational districts for socio-economic independence.
 - Covers 27 districts across 19 States and targets 3,850 girls under PMKVY 4.0.
 - Focuses on digital marketing, cybersecurity, AI-enabled services, green jobs, life skills, financial literacy, and digital competencies.
 - **Gender-Inclusive Skilling:** Promotes women's employability, self-employment, entrepreneurship, and skill access in rural and underserved areas.

Skill development is central to India's demographic dividend and Viksit Bharat 2047 vision. Discuss the role of women-centric initiatives in building a future-ready workforce.

► Weaving Sustainability into India's Textile Future

India's textile sector is moving toward circular, sustainable production — leaning on organic fibres, safer chemicals, recycling, eco-labelling, traceability, cleaner technology and responsible sourcing to boost resource efficiency and global competitiveness.

Current Status of India's Textile Sector

- **Economic Role:** Contributes about ~2% of GDP and ~11% of manufacturing GVA.
- **Exports and Employment:** India is the sixth-largest textile and apparel exporter, with around 4% of global exports, and the sector employs over 45 million people.
- **Need for Sustainability:** Environmentally responsible production is essential for maintaining global competitiveness.
- **Shift towards Circularity:** Circular production is growing due to India's resource-conscious practices and rising demand for low-impact products.
- **Value-Chain Approach:** Sustainability affects raw materials, manufacturing, quality standards and market access.

Circularity in the Textile Sector

- **About:** Keeps fibres, fabrics and garments in use through reuse, repair, recycling, upcycling and recovery, reducing dependence on virgin materials.
- **Environmental Importance:** Reduces waste, emissions, landfill pressure and the use of water, energy and chemicals.
- **Waste Recovery:** India generates nearly 7.8 million tonnes of textile waste annually; over 90% comes from domestic sources.
- **Recycling Performance:** Over 70% of textile waste is recovered, while nearly 95% of pre-consumer waste is collected and reused.
- **Closed-Loop Production:** Almost all spinning waste is reintegrated into production.
- **Post-Consumer Circularity:** Around 55% of discarded consumer textiles are diverted from landfills.
- **Livelihoods:** Textile recovery supports nearly 40–45 lakh livelihoods, especially for women and marginalised communities.

Promotion of Sustainability at the Input Stage of the Textile Value Chain

- **Sustainable Raw Materials:** Policies promote organic fibres, new-age natural fibres and safer inputs to reduce the value chain's environmental footprint.
- **Organic Fibre Certification:** National Programme for Organic Production (NPOP) sets standards, accredits certification bodies and supports products such as organic cotton; its standards are recognised by the European Commission and Switzerland for unprocessed plant products.
- **Soil Sustainability:** Organic cultivation promotes soil fertility, proper plant nutrition and sustainable farming practices.
- **Jute-ICARE:** Provides certified seeds, retting accelerators and improved agronomic practices. Coverage expanded from 130 blocks in 7 states to 289 blocks in 10 states, and from 1.11 lakh hectares to 2.15 lakh hectares in 2024–25.
- **New-Age Fibres:** Mini-Mission III under the Mission for Cotton Productivity promotes climate-smart cultivation, mechanisation and fibres such as ramie, sisal and flax.
- **Fibre Self-Reliance:** The National Fibre Scheme increases domestic fibre availability, reduces import dependence and promotes innovation.

Reduction in the Use of Hazardous Chemicals in the Textile Supply Chain

- **Regulatory Measures:** India has restricted benzidine-based dyes, prohibited 70 azo dyes and ratified the Stockholm Convention in 2006 to control POPs.
- **Sustainable Production Pilots:** Projects promote safer chemicals, eco-friendly textiles, organic production and awareness of global sustainability practices.
- **Chemical Reduction Project:** Covers 400 factories, 8 textile clusters and 4 fashion houses.
- **Expected Gains:** Seeks to reduce hazardous chemical use by 10,530 tonnes and emissions by about 1.47 lakh tonnes of CO₂-equivalent.

Promotion of Sustainability at the Production Stage of the Textile Value Chain

- **Cleaner Manufacturing:** Policies promote resource efficiency, waste reduction, cleaner infrastructure and lower emissions.
- **PM MITRA Parks:** Integrated textile hubs based on the 5F vision: Farm to Fibre to Factory to Fashion to Foreign.
- **Sustainable Infrastructure:** Include Common Effluent Treatment Plants (CETPs), wastewater recycling, scientific waste management, shared utilities and end-to-end manufacturing.
- **Scale and Investment:** 7 parks approved with an outlay of ₹4,445 crore up to 2027-28; MoUs worth over ₹27,434 crore signed by December 2025.
- **MSME Support:** The RAMP Programme supports the green transition of MSMEs, which account for over 80% of textile and apparel production capacity.
- **Green Incentives:** Micro and Small Enterprises-Green Investment and Financing for Transformation (MSE-GIFT) offers interest subvention and credit guarantees for clean technologies, while MSE-SPICE (Scheme for Promotion and Investment in Circular Economy) provides a 25% capital subsidy for eligible circular-economy investments.

Promotion of Circularity at the Post-Production and Market-Support Stages

- **Post-Production Circularity:** Promotes collection, segregation, recycling, upcycling and reintegration of textile waste to reduce landfilling.
- **Solid Waste Management Rules, 2026:** Effective from 1 April 2026, the rules strengthen producer responsibility, waste segregation and circular waste management under the Environment (Protection) Act, 1986.
- **RDF Use:** Solid-fuel industries must raise Refuse Derived Fuel use from 5% to 15% in six years; RDF may include non-recyclable textile waste.
- **Textile-Waste Mapping:** The Mapping of Textile Waste Value Chain in India, 2026 provides data and a roadmap for recycling, upcycling and resource recovery.
- **Eco-Labeling:** The Eco-Mark Scheme, 2024 covers textiles under 13 Indian Standards relating to resource use, emissions, waste and hazardous substances.
- **Traceability:** Kasturi Cotton and Silk Mark improve product identity, responsible sourcing and supply-chain transparency.
- **Public Procurement:** A 2024 MoU among the Textiles Committee, GeM and SCOPE promotes government procurement of upcycled products.
- **Market Support:** Certification, traceability and public procurement create demand for sustainable and resource-efficient textiles.

Circular economy in the textile sector can strengthen India's export competitiveness while reducing environmental stress. Discuss.

► **Cabinet Approves Additional Investment in NIIF**

The Union Cabinet has cleared a fresh ₹30,000 crore government investment commitment in the National Investment and Infrastructure Fund, taking the Centre's total commitment to ₹60,000 crore.

- A major portion of the additional commitment will support NIIF Infrastructure Fund II, which is proposed to have a target

corpus of about ₹30,000 crore and will invest in transportation, energy, digital infrastructure, urban infrastructure and e-mobility.

NIIF

- **About:** Established in 2015, NIIF was created as India's sovereign-anchored investment platform to attract global institutional investors and mobilise long-term capital for infrastructure development and other nationally important sectors.
- **Structure:** NIIF is professionally managed by NIIF Limited, with the Government holding a 49% stake and the remaining 51% mobilised from large global institutional investors.
 - It currently manages capital commitments of around ₹40,000 crore and has returned nearly ₹12,000 crore to investors through major portfolio exits.
- **Investor Participation:** NIIF has attracted investments from leading sovereign wealth funds, pension funds, multilateral development institutions and domestic financial institutions from countries including Australia, Canada, Japan, Singapore, the UAE and the United States.
 - Australia's largest pension fund, AustralianSuper, has recently announced an additional investment of A\$500 million (about US\$346 million) in India's NIIF, over and above its earlier commitment of A\$240 million made in 2019.
- **Role:** NIIF's investments are aligned with major national initiatives such as PM Gati Shakti, Digital India, Make in India, FAME, PM E-DRIVE, India's climate commitments and Atmanirbhar Bharat. It also advises government bodies on public-private partnerships, asset monetisation and strategic investment frameworks.
- **Significance:** The additional commitment is expected to attract further institutional and private capital, accelerate infrastructure creation, generate direct and indirect employment, strengthen sectors of national importance and support India's goal of becoming a Viksit Bharat by 2047.

► **Strengthening India's Toy Ecosystem**

India's toy industry is shaping up as a sunrise sector, riding growth in domestic manufacturing, exports and jobs, alongside rising demand for indigenous, educational and sustainable toys.

Current Status of India's Toy Industry

- **Exports:** Rose by 151.9%, from US\$152.7 million (2017-18) to US\$384.7 million (2025-26).
- **Toy exports:** Electronic and non-electronic toy exports increased nearly 160% to US\$200.89 million.
- **Major market:** The United States remained the largest destination, followed by the UK, Germany, Poland and the Netherlands.
- **Gaming exports:** Nearly tripled to US\$46.75 million.
- **Festive articles:** Exports grew about 130% to US\$137.03 million.
- **Import reduction:** Imports of traditional and educational toys declined by 66%, supporting domestic manufacturing.
- **Trade balance:** India shifted from a US\$213.01 million deficit in 2017-18 to a US\$152 million surplus in 2025-26.

- **Employment:** More than doubled from 8,685 workers in 2018-19 to 17,693 in 2023-24.

Major Government Initiatives for the Toy Ecosystem

- **National Action Plan for Toys, 2020:** Promotes Indian-themed design, indigenous clusters, manufacturing, quality and innovation.
- **Toys Quality Control Order, 2020:** Makes BIS certification mandatory and enforces safety standards for domestic and imported toys.
- **Tariff protection:** Basic Customs Duty increased from 20% to 60% in 2020 and 70% in 2023 to curb imports.
- **Toycathon and e-Toycathon:** Encourage culturally rooted, educational and electronic toy innovation.
- **e-Toys Lab:** MeitY-C-DAC, Noida supports training, prototyping and testing of electronic toys.
- **Toy Biz and Manak Manthan:** Promote buyer linkages, exports and awareness of toy-safety standards.
- **ODOP and GI-tagged toys:** Support branding, market access and artisan livelihoods for products such as Channapatna toys, Indore leather toys and Thanjavur dolls.
- **GST reduction:** Tax on toys reduced from 12% to 5%, improving affordability and demand.
- **Trade and export support:** FTAs and the Districts as Export Hubs initiative expand global market access; over 10 districts have been identified for toy and doll exports.

India's toy industry represents a convergence of cultural heritage, MSME-led manufacturing and export competitiveness. Discuss.

► India's Insurance Sector: A Pillar of Sovereign Fiscal Stability

India's life insurance industry holds close to 25% of outstanding Central Government dated securities, turning household premiums into long-term patient capital that supports both household protection and fiscal stability.

Insurance Sector Act as "Patient Capital"

- **Asset-Liability Matching:** Life insurers issue policies of 20-40 years and invest pooled retail premiums in G-Secs, which offer sovereign guarantee, negligible default risk and predictable returns, matching long-term liabilities.
- **Counter-Cyclical Stability:** Life insurers act as structural "buy and hold" investors, unlike FPIs. Their steady reinvestment reduces debt rollover risk and tempers borrowing costs.
- **Yield Curve Management:** By absorbing 30-40 year bonds, insurers help the RBI maintain a stable sovereign yield curve and moderate state borrowing costs. Sabka Bima Sabki Raksha (Amendment of Insurance Laws) Act, 2025
- The Act aims at Insurance for All by 2047 and amends the Insurance Act, 1938, LIC Act, 1956, and IRDAI Act, 1999.
- Raises FDI limit in insurance companies from 74% to 100%.
- Provides perpetual registration for intermediaries and raises IRDAI approval threshold for share transfers from 1% to 5%.
- Establishes Policyholders' Education and Protection Fund.
- Expands IRDAI's supervisory, investigative and corrective powers.
- Allows LIC more operational flexibility, including opening zonal offices without prior government approval.

- **The LIC Anchor:** LIC holds about 19% of India's outstanding Central Government Securities and is classified by Insurance Regulatory and Development Authority of India (IRDAI) as a Domestic Systemically Important Insurer (D-SII) due to its macroeconomic importance.

- Private life insurers hold less government debt as they focus more on shorter-tenure, market-linked Unit-Linked Insurance Plans (ULIPs), which invest more in equities and corporate bonds than long-term G-Secs.

Major Challenges Facing India's Insurance Sector

- **Low Insurance Penetration:** India's insurance penetration is 3.7% of GDP, nearly half the global average of 7.3%. Life insurance is 2.7%, while non-life is only 1%, showing gaps in health, motor and property insurance.
- **The Missing Middle:** Over 40 crore Indians, including gig workers and MSME employees, remain outside government schemes and cannot afford comprehensive private coverage.
- **Affordability Constraints:** Rising healthcare costs and high premiums make adequate coverage difficult, especially for lower-income households and senior citizens.
- **Trust Deficit and Mis-selling:** Mis-selling of ULIPs, hidden exclusions, claim rejections and complex policy documents weaken consumer trust.
- **Climate Protection Gap:** Extreme weather events expose low coverage against agricultural, property and catastrophe risks, creating need for parametric and climate-risk insurance.
- **Cybersecurity and Data Risks:** Digitalisation increases exposure to cyberattacks, data breaches and misuse of financial and health data.
- **Regulatory Uncertainty:** Frequent policy and regulatory changes create uncertainty for insurers and investors, affecting planning and investment decisions.
- **Trust Deficit and Low Financial Awareness:** Despite insurers paying nearly `1 lakh crore in claims annually, distrust and low insurance literacy hinder adoption. India's life insurance sector functions not merely as a provider of fiscal stability. Discuss.
- **Global Parallels:** India mirrors Japan, UK and South Korea, where insurers are key holders of long-dated sovereign debt due to liability profiles.

Current Status of India's Insurance Sector

- **Scale:** India is the 10th largest insurance market globally by premium volume and the 5th largest life insurance market among emerging economies.
 - **As of April 2026, India has 74 insurers:** 26 life, 35 non-life, and other specialised insurers.
 - In FY25, total premium income was around ₹7.05 lakh crore, with 5.6% YoY growth.
 - **Insurance penetration stood at 3.7% of GDP:** Life 2.7% and Non-Life 1%. Insurance density rose from USD 95 in FY24 to USD 97 in FY25.
 - Health insurance became the largest non-life segment in FY25, with around 41% of gross domestic premium, overtaking motor insurance, driven by rising healthcare costs, health awareness and

demand for private health coverage. Measures to Actualize the Vision of “Insurance for All by 2047”

- **Rationalise Taxation:**
 - Reduce GST on essential life and health insurance, provide dedicated income-tax deductions, and develop GIFT City as a global reinsurance hub.
- **Strengthen Digital Public Infrastructure:**
 - Operationalise Bima Sugam for low-cost distribution, single-window servicing and grievance redressal; integrate with Account Aggregator framework and Ayushman Bharat Digital Mission (ABDM) for paperless underwriting and faster claims.
- **Promote Innovative and Inclusive Products:** Expand parametric insurance for climate risks and develop low-cost, bite-sized products for the missing middle, including gig workers, MSMEs and rural households.
- **Develop GIFT City as a Reinsurance Hub:**
 - Use regulatory sandboxes and tax incentives to attract global reinsurers, build domestic reinsurance capacity and retain premiums in India.
- **Leverage 100% FDI:** Use foreign investment for capital infusion, global underwriting expertise and niche products like cyber, catastrophe and IoT-based insurance.
- **Strengthen Consumer Protection:**
 - Use AI-based monitoring to curb mis-selling, standardise exclusions, simplify policy documents and improve last-mile awareness through Bima Vahak. financial protection but also as an important pillar of sovereign Drishti Mains Question

► World Bank Income Classification: India Remains Lower-Middle-Income

India continues to be classified as a Lower-Middle-Income economy in the World Bank Group's Country Income Classifications for FY 2027 — a status it has held since 2009.

Key Highlights

- **Upgraded Economies:** 6 nations moved to higher income categories; low-income economies fell from nearly 30% in 1987 to 11% by 2026.
 - **Lower-Middle to Upper-Middle Income:** Sri Lanka, Vietnam, Philippines, Jordan and Micronesia.
 - **Low to Lower-Middle Income:** Togo.
- **Growth Drivers:** Vietnam and Philippines grew through export-led industrial growth and rising GNI; Sri Lanka recovered through tourism and financial services.
 - Jordan and Togo benefited from updated national accounts and revised census data.
- **India's Position:** India remains Lower-Middle-Income, with GNI per capita of USD 2,760 in 2025.

World Bank's Classification of Economies

- **Country Income Classifications:** World Bank classifies economies into Low, Lower-Middle, Upper-Middle and High-Income groups.

- Classification is done annually on 1st July, using previous calendar year's GNI per capita.

- **Atlas Method:** GNI is expressed in current US dollars using the Atlas method to reduce exchange rate and inflation fluctuations.
 - A country must record real economic growth above population growth and inflation.
- **Annual Updates:** Category thresholds are revised every July using the Special Drawing Rights (SDR) deflator to account for global inflation.
- **Current Brackets for 2026-2027 (FY27):** Income Category GNI Per Capita (2025) Low-Income USD 1,175 or less Lower-Middle-Income USD 1,176–USD4,635 Upper-Middle-Income USD 4,636–USD14,375 High-Income More than USD 14,375
- **Significance:**
 - **Access to World Bank Loans:** Low-income countries get concessional loans and grants from International Development Association (IDA), while many middle-income countries borrow from International Bank for Reconstruction and Development (IBRD) on less concessional terms.
 - **Allocation of Foreign Aid:** Donors use income levels to decide development assistance.
 - **International Trade Benefits:** Income status can affect eligibility for preferential trade schemes and special treatment.
 - **Distribution of Climate Finance:** Helps prioritize support for economically vulnerable countries facing climate change.
 - **Investor Assessment:** Indicates a country's broad economic development level.
 - **Policy Formulation:** Helps governments compare progress and avoid the Middle-Income Trap. The World Bank's income classification is primarily an analytical and operational tool, not a measure of a country's overall development.

Reasons for India's Continued 'Lower-Middle-Income' Status

- **Denominator Challenge:** India's 1.4 billion+ population dilutes aggregate GDP growth in per capita income terms.
- **Regional Disparities:** High-income states like Tamil Nadu, Maharashtra and Gujarat raise output, but populous low-income states like Bihar and UP pull down the national average.
- **Informalization and Disguised Unemployment:** Up to 85% of India's workforce is informal, with heavy reliance on low-productivity agriculture, suppressing earnings and tax base growth.
- **Historical Starting Line:** India moved out of the Low-Income bracket only in 2009; reaching the next tier needs sustained high real income growth over decades.

► 5 Years of Cooperative Transformation in India

The Ministry of Cooperation marked its 5th Foundation Day on 6th July 2026, spotlighting digital and infrastructure initiatives to strengthen cooperatives under the banners of 'Sahkar Se Samridhi' and 'Vasudhaiva Kutumbakam'.

- **Massive Scale and Deep Penetration:** India has over 8.5 lakh cooperatives, serving nearly 32 crore members across about 30 sectors, covering ~98% of rural India.
- **Grassroots Economic Role:** Cooperatives support farmers, dairy producers, fishers, artisans, and workers through access to credit, markets, storage, livelihoods, and essential services.
- **Women-led Development:** ~10 crore women are linked to cooperatives through SHGs.
- **Strong Panchayat-level Presence:** PACS are present in over 2.55 lakh Gram Panchayats; dairy cooperatives cover 87,159 Gram Panchayats and fisheries cooperatives nearly 29,964 Gram Panchayats.
- **Expansion Beyond Credit:** Cooperatives are expanding into retail, storage, healthcare, fuel, digital services, dairy, fisheries, exports, organic products, seeds, and mobility services.
- **Growing Institutional Financing:** NCDC sanctioned ₹1.55 lakh crore and disbursed ₹1.27 lakh crore in FY 2025–26.
 - It also disbursed ₹2,320 crore to FPOs and CBBOs under the scheme for formation and promotion of 10,000 FPOs.
- **Role in Viksit Bharat:** Cooperatives are being positioned as engines of grassroots prosperity, rural enterprise, women's empowerment, food security, and inclusive growth under "Sahkar Se Samridhi." Key Initiatives Related to Cooperatives
- **Creation of Ministry of Cooperation:**
 - Established on 6th July 2021 to make cooperatives more transparent, inclusive, digital, and future-ready.
 - On 5th Foundation Day, Ministry launched transformation of 50,000 PACS into e-PACS, laid foundation stones for 47 grain storage godowns, and launched Milk Supply Review Dashboard Portal for NDDB.
- **Revitalising Primary Agricultural Credit Societies:** Model bye-laws enabled PACS in 32 States/UTs to undertake over 25 business activities, including retail, storage, healthcare, fuel, and digital services.
- **PACS as Rural Service Centres:** As of June 2026, 39,177 PACS function as PM Kisan Samridhi Kendras, 54,117 as CSCs, 394 applied for retail fuel outlets, 3 fuel outlets commissioned, 4,248 approved for Jan Aushadhi Kendras, and 843 ready to function.
- **Expansion of New Cooperatives:** 37,454 new multipurpose PACS, dairy cooperatives, and fisheries cooperative societies registered in underserved areas.
- **Decentralised Grain Storage Plan:** Government is implementing the world's largest decentralised grain storage plan through cooperatives.
 - Godowns completed in 145 PACS, creating over 68,702 MT storage capacity.
- **Farmer Producer Organisations:** 1,863 FPOs formed in cooperative sector, including 1,117 through PACS and 1,070 fisheries FPOs, with ₹98 crore disbursed.
- **Tax Relief and Ease of Doing Business:** Reforms include surcharge reduction from 12% to 7% for cooperatives with income of ₹1–10 crore, MAT reduction from 18.5% to 15%, TDS cash withdrawal limit raised from ₹1 crore to ₹3 crore, and higher cash transaction limits for PACS and Primary Cooperative Agriculture and Rural Development Banks.
- **White Revolution 2.0:** Aims to strengthen dairy cooperatives and raise milk procurement by 50% by 2028–29.
 - So far, 25,282 dairy cooperative societies registered, focusing on women-led dairy cooperatives and wider coverage.
- **New National Cooperative Institutions:** Established NCEL, NCOL, and Bharatiya Beej Sahakari Samiti Limited.
- **Progress of National Institutions:** NCEL recorded 15.4 lakh MT exports worth ₹6,295 crore to 38 countries as of June 2026.
 - NCOL has 14,286 member cooperatives, while Bharatiya Beej Sahakari Samiti Limited has 38,665 member cooperatives and sells quality seeds under "Bharat Beej".
- **Cooperative Education and Capacity Building:** Tribhuvan Sahkari University, India's first cooperative university, was established for education, research, and skill development.
 - Training is also conducted through NCCT and NABARD.
- **Urban Cooperative Banking Initiatives:** NUCFDC launched Sahakar CBS, a centralised core banking solution for Urban Cooperative Banks, and Sahakar Sahyogi, an AI-powered conversational platform.
- **Bharat Taxi Initiative:** Bharat Taxi, India's first cooperative-based mobility platform, was launched under Sahakar Taxi Cooperative Limited.
 - It has 6.37 lakh drivers and 35.77 lakh customers, operates in Delhi-NCR, Gujarat, Lucknow, Chandigarh, Mumbai, Jaipur, and Kanpur, with expansion planned to Ranchi, Patna, Guwahati, Bhopal, Kolkata, Indore, and Nagpur.

Challenges Faced by India's Cooperative Sector — and Suggestions

- **Challenge:** Regulatory Fragmentation: Overlap among Registrar of Cooperatives, RBI, and other authorities causes jurisdictional conflicts, inconsistent supervision, and regulatory gaps.
 - **Suggestion:** Establish a clear and harmonised regulatory framework with coordination between state cooperative departments, RBI, NABARD, and Ministry of Cooperation; single-window compliance can reduce confusion.
- **Challenge:** Governance Deficits: Lack of transparency, weak controls, elite capture, and poor democratic functioning weaken accountability; PMC Bank collapse exposed such failures.
 - **Suggestion:** Strengthen democratic governance through audits, transparency, member participation, regular elections, professional boards, social audits, and strict disclosure norms.
- **Challenge:** Financial Constraints and Poor Infrastructure: Many cooperatives lack capital, credit access, warehouses, cold storage, processing units, and market linkages.

- **Suggestion:** Improve financial deepening and infrastructure investment by linking cooperatives with NABARD, MUDRA, CGTMSE, and investing in warehouses, cold chains, processing units, and Common Facility Centres.
- **Challenge:** Operational and Technological Hurdles: Rural cooperatives often lack digital accounting, ERP systems, online services, e-commerce access, and efficient logistics.
 - **Suggestion:** Promote technological integration through mobile banking, digital payments, ERP systems, online reporting, and e-commerce linkage with ONDC and GeM; member-owned logistics cooperatives can improve efficiency.
- **Challenge:** Socio-Cultural Barriers: Caste, class, gender inequalities, and local power hierarchies limit inclusive participation and representation.
 - **Suggestion:** Ensure inclusive cooperative governance through leadership reservations, participation of women and marginalised communities, awareness drives, and grassroots capacity building.
- **Challenge:** Intense Market Competition: Cooperatives face competition from commercial banks, fintech firms, private agribusinesses, and modern retail platforms.
 - **Suggestion:** Focus on branding, diversification, and professional management through brands like "CoopMade" or "Bharat Organics", certification, skill training, and diversification into renewable energy, eco-tourism, digital services, and modern agriculture.

► NCLAT on IBC-PMLA Conflict

The NCLAT has held that the moratorium under the IBC, 2016 cannot be used to shield assets alleged to be 'proceeds of crime' from attachment under the PMLA, 2002.

- Ruling came in Siddhi Vinayak Logistics Ltd. insolvency proceedings, where ED attached assets despite ongoing insolvency.
- **Liquidator's Argument:** Relied on P. Mohanraj v. Shah Brothers Ispat, 2021, which barred coercive recovery during IBC moratorium.
- **ED's Argument:** Relied on Embassy Property Developments v. State of Karnataka, 2019, which limited NCLT/NCLAT interference in decisions of independent statutory authorities.

NCLAT Rule Regarding the IBC-PMLA Conflict

- **Distinct Statutory Domains:** IBC, 2016 deals with insolvency resolution and creditor recovery, while PMLA, 2002 deals with tracing and confiscating proceeds of crime.

Feature IBC, 2016 Primary Objective Insolvency resolution and creditor recovery. Nature of Law Civil and commercial law.

**Asset Treatment Protects legitimate assets of corporate debtor
Moratorium Impact Section 14 stops civil suits and recovery act
Jurisdiction NCLT and NCLAT.**

Suggestions strengthen democratic governance through audits, transparency, member participation, regular elections, professional boards, social audits, and strict disclosure norms. promote financial deepening and infrastructure investment by linking operatives

with NABARD, MUDRA, CGTMSE, and investing in warehouses, cold chains, processing units, and Common Facility Centres. promote technological integration through mobile banking, digital payments, RP systems, online reporting, and e-commerce linkage with ONDC and GeM; member-owned logistics cooperatives can improve efficiency. ensure inclusive cooperative governance through leadership reservations, participation of women and marginalised communities, awareness drives, and grassroots capacity building. focus on branding, diversification, and professional management through brands like "CoopMade" or "Bharat Organics", certification, skill training, and diversification into renewable energy, eco-tourism, digital services, and modern agriculture. they combine grassroots ownership with professional governance

Drishti Mains Question

- **Moratorium Limited to Legitimate Assets:**
 - Section 14 IBC moratorium protects only legitimately acquired assets, not assets alleged to be proceeds of crime.
- **Public Law Proceedings Unaffected:**
 - PMLA proceedings are penal/public law actions and cannot be stopped by IBC moratorium.
 - **Section 41 PMLA:** Bars civil courts from examining matters handled by PMLA authorities, limiting civil scrutiny of ED actions.
- **National Interest:**
 - Confiscation of proceeds of crime prevails over creditor recovery concerns under IBC.
 - **Jurisdiction:** NCLT/NCLAT cannot test validity of ED attachment orders; challenges must go before designated PMLA authorities/courts.

PMLA, 2002 Tracing and confiscating proceeds of crime. Criminal and public law. r. Attaches tainted/ill-gotten assets. ions. ED can freeze tainted assets. PMLA Adjudicating Authorities and designated courts.

► India's Fisheries Sector

India's marine fisheries are largely on a sustainable footing, with 91.1% of assessed fish stocks found to be in good condition, per CMFRI data.

- However, the FAO has flagged concerns over stagnant marine production, pressure on fish stocks, declining catches, degradation of inshore ecosystems, and the rapid expansion of mechanised trawling.

Current Status of India's Fisheries Sector

- **Marine Resource Base:** India has an EEZ of about 2.4 million sq. km, with continental shelf and inshore waters as key fishing grounds.
- **Status of Fish Stocks:** CMFRI 2022 found 91.1% of 135 marine fish stocks sustainable; India mainly uses landing/ catch data for assessment.
- **Economic Contribution:** Fisheries contribute 7.43% of Agricultural GVA, with production rising to 197.75 lakh tonnes in FY 2024–25.
- **Export Performance:** Seafood exports reached Rs 62,408 crore in FY 2024–25, led by frozen shrimp, mainly to US and China.

- **Budgetary Support:** Union Budget 2026–27 allocated Rs 2,761 crore, including Rs 2,500 crore for PMMSY.
- **Infrastructure & Credit:** FIDF and KCC limit up to Rs 5 lakh support credit access and processing capacity.
- **Fishing Fleet Profile:** India has 64,000+ mechanised vessels, along with traditional and artisanal boats.
- **Technological Shift:** RAS and Bio-floc technology are promoting sustainable, high-density aquaculture with lower resource use.
- **Digital Governance:** NFDPA, 2024 gives digital identities to 30 lakh+ stakeholders for easier access to insurance and subsidies.
- **Formalization:** PM-MKSSY with Rs 6,000 crore outlay aims to formalise fisheries value chains and improve traceability.
- **Regulatory Framework:** 2025 Rules for Sustainable Harnessing of Fisheries in EEZ and High Seas aim at compliance, sustainability, and resource security.

Challenges Facing India's Fisheries Sector

- **Questionable Sustainability Assessment:** India's 91.1% sustainable stock claim is questioned as it relies mainly on landing/catch data, not detailed stock assessments at sea.
- **Degradation of Inshore Ecosystems:** Productive inshore waters face mangrove loss, pollution, reduced river nutrient flow, and seabed damage.
- **Unregulated Mechanised Trawling:** 64,000+ mechanised vessels disturb seabeds, damage benthic ecosystems, and create conflicts with small fishers.
- **Weak Governance:** Seasonal bans and trawling limits exist, but enforcement is weak due to poor staffing, fewer patrol vessels, and low community participation.
- **Overcapacity and Livelihood Stress:** Rising mechanised fishing increases competition over declining resources and threatens small-scale fishers.
- **Misplaced Deep-Sea Focus:** Deep-sea fishing may offer limited gains, while raising costs and ignoring restoration of productive inshore waters.

Steps Needed for Sustainable Fisheries Sector

- **Strengthen Inshore Governance:** Improve vessel monitoring, patrols, community surveillance, and penalties in nearshore zones.
- **Strengthen Scientific Stock Assessment:** Move beyond landing-data estimates to detailed sea-based stock and benthic ecosystem studies.
- **Regulate Mechanised Trawling:** Enforce coastal zoning, seasonal bans, and limits on destructive bottom trawling.
- **Promote Aquaponics:** Encourage fish farming with hydroponics to save water and improve income.
- **Enhance Cold Chain:** Build collection centres, cold storage, refrigerated transport, and processing units.
- **Support Value Addition:** Provide training, credit, branding, packaging, and market links for value-added fish products.

Discuss the ecological and governance challenges in India's marine fisheries.

► 9 Years of Goods and Services Tax (GST)

GST has completed nine years since its 2017 rollout, a landmark moment for India's indirect-tax reform journey, with the recent Next-Generation GST reforms simplifying the tax structure, lowering rates, easing compliance and benefiting households, MSMEs, businesses and overall growth.

Key Achievements of GST over the Past 9 years

- **Creation of a Common National Market:** GST created a "One Nation, One Tax" framework by subsuming 17 diff. taxes and 13 cesses, reducing fragmentation, hidden costs and cascading effects.
- **Expansion of the Taxpayer Base:** GST taxpayers increased from 66.5 lakh in 2017 to 1.65 crore by May 2026, showing greater formalisation and compliance.
- **Strong Revenue Growth:** Gross GST collection rose from about ₹7.4 lakh crore in 2017-18 to ₹22.27 lakh crore in 2025-26; in the last five years, it increased from ₹13.76 lakh crore in 2021-22.
- **High-Frequency Indicator of Economic Activity:** GST collections now reflect consumption, trade, compliance and formalisation. In April-May 2026, collections reached about ₹4.37 lakh crore.
- **Strengthening of Cooperative Federalism:** The GST Council enabled Centre-State tax decision-making, regular reviews, corrections and flexibility in the tax system.
- **Digital Transformation of Tax Administration:** GSTN provides common digital infrastructure. E-invoicing, pre-filled returns, real-time validation and digital reconciliation improved transparency and reduced manual errors.
- **Ease of Compliance for Small Taxpayers:** Reforms include higher exemption limits, composition scheme, quarterly returns, NIL return via SMS and faster registration for low-risk applicants.

Key Features of the Next-Generation GST Reforms

- **GST 2.0 Reform Push:** The 56th GST Council meeting approved Next-Generation GST reforms to simplify indirect taxes, reduce compliance burden and support common people and businesses. They came into effect from 22nd Sept 2025.
- **Simplified Rate Structure:** GST has been streamlined mainly into 2 slabs: 5% and 18%, making it simpler, predictable and easier to comply with.
- **Higher Rate for Luxury and Sin Goods:** A 40% GST rate applies to luxury and sin goods, including lottery/online gaming, tobacco, aerated drinks, high-end cars, yachts and private aircraft.
- **Relief for Households and Consumers:** Lower rates and exemptions make goods/services cheaper, support household savings and improve affordability.
 - Exemptions on insurance and essential medicines strengthen protection and healthcare access.
- **Boost to MSMEs and Industry:** Lower GST on inputs and sectors like cement and handicrafts reduces production costs, improves competitiveness and supports MSMEs, artisans and manufacturers.
- **Correction of Inverted Duty Structures:** Reforms aim to correct inverted duties, support domestic value addition, reduce distortions and promote exports.

- **Easier Compliance for Businesses:** GST 2.0 simplifies registration and return filing, speeds up refunds and lowers procedural costs, especially for MSMEs, startups and small taxpayers.
- **Data-Driven Tax Administration:** Strengthens use of GSTN, e-invoicing, pre-filled returns, real-time validation, AI, ML and data analytics to improve compliance, reduce errors and detect evasion.

Challenges in the Current GST Framework

- **Exclusion of Key Items:** Alcohol for human consumption and 5 petroleum products remain outside GST, limiting seamless input tax credit and causing tax cascading.
 - Bringing them under GST is difficult as States depend heavily on them for revenue.
- **Rate and Classification Disputes:** Despite GST 2.0's 5%, 18% and 40% structure, disputes may continue due to exemptions, special categories and product-specific rate interpretations.
- **GST Appellate Tribunal:** The tribunal has been created with a Principal Bench and State Benches, but delays in full functioning may prolong litigation and uncertainty.
- **Compliance Burden for Small Businesses:** MSMEs and small taxpayers still face issues due to frequent notifications, return filing, reconciliation and changing procedural rules.
- **Inverted Duty Structure:** Some sectors may still face working capital stress where input taxes exceed output taxes, causing refund dependence and liquidity pressure.
- **Centre-State Revenue Concerns:** Differences over rate changes, exemptions, compensation and revenue protection can slow deeper GST reforms.

Reforms to Further Strengthen the GST Framework

- **Phased Inclusion of Excluded Items:** Bring petroleum products under GST gradually, starting with natural gas and ATF, using revenue-neutral rates and temporary compensation safeguards.
 - Alcoholic liquor for human consumption needs wider political consensus and fiscal safeguards as it is constitutionally outside GST.
- **Further Rate Rationalisation after GST 2.0:** After moving mainly to 5% and 18% slabs, reforms should reduce classification disputes, review exemptions and address remaining inverted duty sectors.
- **Faster Refunds and Correction of Inverted Duty Structures:** Make refunds faster and predictable, especially for exporters and sectors with input-output tax mismatch.
 - Rebalancing input tax rates can reduce working capital stress and support domestic value addition.
- **Strengthening Dispute Resolution:** Make GST Appellate Tribunals fully functional by fast-tracking appointments and infrastructure. Binding clarificatory circulars and limited amnesty for early procedural lapses can reduce litigation.
- **Preparing GST for Emerging Sectors:** Provide clearer GST rules for digital goods and services, crypto-assets, carbon credits and other emerging sectors for certainty, uniformity and global tax alignment. "GST has strengthened India's formal economy and cooperative federalism, but its unfinished reform agenda remains significant." Discuss.

► Unlocking Growth in India's Tourism and Hospitality Sector

NITI Aayog and the Tourism Ministry have jointly released 'Unlocking Growth in Tourism and Hospitality Sector', aimed at clearing procedural bottlenecks and shifting India's tourism model from volume-driven to high-value and investment-led.

Tourism Sector in India: Current Status

- **Global Role:** Travel and tourism contributed nearly 10% of global GDP in 2024 and supported 1 in 10 jobs.
- **Future Potential:** By 2035, global tourism may reach USD 16.5 trillion.
- **India's GDP Share:** Tourism contributed ₹15.73 lakh crore in FY 2023–24, about 5.22% of GDP.
- **Employment:** Supported around 84.6 million jobs, rising nearly 20% in 5 years.
- **Domestic Tourism:** Recorded 2.9 billion visits in 2024.
- **Foreign Tourists:** 9.95 million FTAs in 2024; India's global share remains below 1.5%.
- **TTDI 2024:** India ranks 6th in Natural Resources, 9th in Cultural Resources, but 39th overall.

Challenges to India's Tourism Sector Demand-Side Challenges

- **Restrictive Visa Regime:** India's Visa Openness Index score is 38.14, below world average 40 and Asia-Pacific average 46.
- **Limited Easy Entry:** Visa-free access only for Nepal, Bhutan and Maldives; Visa-on-Arrival only for Japan, South Korea and UAE.
- **Poor Visa Experience:** Issues include complex forms, technical glitches, payment failures and weak support.
- **Weak Visitor Retention:** Lack of destination marketing, loyalty programmes and repeat-visitor incentives.
- **Outbound Spending Leak:** India's tourism forex receipts are around USD 35 billion, while Indian outbound spending is 15% above pre-pandemic level.

Supply-Side Challenges

- **Hotel Shortage:** Branded hotel inventory is only about 0.2 million rooms, under 8% of total lodging stock.
- **Slow Hotel Development:** Hotel projects take 36–48 months in India, compared to 12–18 months in ASEAN countries.
- **High Compliance Burden:** Hotels need around 50–60 approvals/licenses across multiple authorities.
- **Restrictive Building Norms:** Low FAR, strict ground coverage and low high-rise thresholds increase costs.
- **Interstate Transport Barriers:** States continue to levy entry taxes/road fees, weakening AITP benefits.
- **Clearance Delays:** Environmental and CRZ clearances face delays; 89% EC cases exceeded the 105-day timeline.

Measures to Strengthen India's Tourism Sector

- **License Rationalisation:** Integrate approvals through NSWS and remove duplicate licences like police-issued Eating House Licence.
- **Homestay Scalability:** Raise homestay room cap from 6 to 9 rooms and remove local NOC requirement.
- **Building Byelaws:** Increase FAR, remove rigid ground coverage norms and raise high-rise threshold to 23 metres.

- **Vehicle Re-registration:** Amend Section 47 of Motor Vehicles Act, 1988 to require re-registration only for permanent residence change.
- **Visa Reform:** Introduce 90-day multiple-entry Visa-on-Arrival for high-potential countries.
- **E-Visa Simplification:** Reduce data fields, fix foreign card payment issues and create unified traveller profiles.
- **Interstate Travel:** Extend AITP validity up to 5 years and remove overlapping state entry taxes.
- **CRZ/Forest Mapping:** Digitise HTL/LTL and forest land maps for faster clearances.
- **Dedicated SEACs:** Create tourism-specific SEACs for faster Environmental Clearances.

India possesses immense tourism potential but continues to underperform in attracting international tourists. Examine the major structural constraints and suggest reforms to unlock the sector's growth.

► Reforms to Expand Foreign Participation in G-Secs

The government has introduced reforms to widen FPI participation in government securities, deepening India's bond market, drawing in long-term foreign capital and reinforcing India's standing as a global investment destination.

FPI Reforms in G-Secs

- **Objective:** Deepen India's bond market, diversify investors and attract long-term foreign capital.
- **Tax Exemption:** From 1 April 2026, FPIs/FIIs exempted from interest income and capital gains tax on G-Secs.
- **FAR Expansion:** 15-year, 30-year and 40-year G-Secs and eligible Sovereign Green Bonds added under Fully Accessible Route.
- **General Route Liberalisation:** Removed short-term investment limit, concentration limit and security-wise limit.
- **Overall Limits:** Remain 6% of CGSs and 2% of SGSS.
- **Rationalisation:** General and Long-Term FPI categories merged into one limit.
- **Target Investors:** Pension funds, insurance companies and sovereign wealth funds.
- **Significance:** Improves liquidity, price discovery, yield curve, monetary transmission and may reduce government borrowing costs.
 - Supports funding for infrastructure, manufacturing, urban development and climate projects, and helps Indian bonds enter global indices.

Concepts Related to Foreign Investment in G-Sec

- **FII:** Institutional FPI such as mutual funds, pension funds, insurance companies and hedge funds.
- **FPI:** Foreign investors investing in stocks, bonds, mutual funds and G-Secs without management control.
- **G-Secs:** Tradable debt instruments issued by Central/State Governments.
- **BIS:** Central bank-owned global institution promoting monetary and financial cooperation.

- **LTCG:** Gains from G-Secs held for more than 12 months if listed and 24 months if unlisted.
- **STCG:** Gains from G-Secs held up to 12 months if listed and 24 months if unlisted.

► 20th Statistics Day and SDGs-National Indicator Framework Progress Report 2026

MoSPI marked the 20th Statistics Day on 29th June 2026, coinciding with the 133rd birth anniversary of Prof. P.C. Mahalanobis, and used the occasion to release the SDGs-National Indicator Framework Progress Report 2026.

National Statistics Day

- **Date:** Celebrated on 29th June since 2007.
- **Purpose:** Honours Prof. P.C. Mahalanobis and promotes awareness about statistics in planning and policymaking.
- **Theme 2026:** "Unlocking the Potential of Administrative Data" — using government operational data like tax records, registries and welfare enrolments for evidence-based policy.

Prof. P.C. Mahalanobis

- **About:** P.C. Mahalanobis (1893–1972) is known as the Father of Indian Statistics.
- **Institution Builder:** Founded ISI (1931) and Sankhya journal (1933); contributed to NSS (1950) and CSO.
- **Economic Planning:** Key member of the first Planning Commission; shaped the Second Five-Year Plan (1956–61) through the Mahalanobis Model focused on heavy industrialisation.
- **Mahalanobis Distance:** Introduced in 1930; used in machine learning, clustering and classification.
- **Sample Surveys:** Pioneered large-scale sample surveys as cost-effective alternatives to census.
- **Applied Statistics:** Used data for governance, flood control and meteorological studies.
- **Honours:** UN statistical role, Fellow of Royal Society (1945) and Padma Vibhushan (1968).

SDGs-NIF Progress Report 2026

- **SDG 1:** Multidimensional poverty fell 24.85% → 14.96%; social protection coverage rose 22% → 65.3%.
- **SDG 2:** Underweight children reduced 35.7% → 31.8%; stunting fell 38.4% → 29.3%.
- **SDG 3:** MMR improved 122 → 87; U5MR 43 → 28; NMR 25 → 18; TB treatment coverage 71% → 92%.
 - Skilled health personnel birth attendance rose from 81.4% to 91.3% (NFHS-4 to NFHS-6).
- **SDG 4:** School internet access rose 46.30% → 84.20%; GER in higher secondary remained 48.32.
- **SDG 5:** Sex ratio at birth improved 896 → 918; FLFPR ratio 0.43 → 0.52; women SHGs reached 96%.
- **SDG 6:** Rural piped water rose 48.15% → 81.81%; wastewater processing 17.97% → 82.20%.
- **SDG 7:** 100% household electrification; renewable capacity 64.04 → 193.36 watts/capita; energy intensity declined.
 - Energy intensity declined from 0.2556 to 0.1329 MJ/Rupee (2015-16 to 2024-25).

- **SDG 8:** Unemployment fell 6.1% → 3.1%; tourism growth reached 15.01%.
- **SDG 9:** Manufacturing employment rose 11.40% → 12.14%; 4G coverage reached 99.51%.
- **SDG 10:** Rural Gini improved 0.28 → 0.23; urban Gini 0.36 → 0.28; female-male professional ratio 51.3%.
- **SDG 11:** Door-to-door waste collection 43% → 97%; waste processing 17.97% → 82.20%.
- **SDG 12:** Recycling plants rose 829 → 3,236; wheat/rice storage losses nearly zero.
- **SDG 13:** Industry compliance improved 86.25% → 91.82%; climate plans updated under NAPCC/SAPCC.
- **SDG 14:** Fishery MSY rose 3.078 → 5.311 million tonnes/ year.
- **SDG 15:** Forest cover rose 21.34% → 21.76%; Ramsar area share doubled 4.15% → 8.66%.
- **SDG 16:** Judges per lakh rose 1.33 → 1.55; Aadhaar coverage reached 95.67%.
- **SDG 17:** Merchandise export share 1.62% → 1.70%; services export share 3.11% → 4.35%.

National Indicator Framework (NIF)

- NIF is India's main statistical framework to monitor progress on 17 SDGs.
- Developed by MoSPI with NITI Aayog, UN agencies and stakeholders, it has 277 national indicators (2026).
- It is updated by the HLSC and supports SDG tracking through State and District Indicator Frameworks.

UN Sustainable Development Report 2026 India ranked 94th out of 167 countries in the 2026 UN SDG Index, with an overall score of 68.3 out of 100, as per SD Report 2026 released by the UN SDSN.

Key Findings of the Report

- **Global:**
 - **SDGs off track:** None of the 17 SDGs are on track for 2030. Only 16.5% targets are on track; 15% have reversed since 2015.
 - **Top performers:** Finland, Sweden, and Denmark lead the rankings.
 - **Lowest ranked:** Chad, Central African Republic, and South Sudan.
 - **Most stagnant SDGs:** SDG 2, 11, 14, 15 and 16.
 - **Multilateralism:** Barbados ranks first; US ranks last.
- **India:**
 - **Ranking improvement:** India rose 18 places, from 112th to 94th since 2015.
 - **2030 target status:** Only 33.3% targets are on track; 24% have worsened.
 - **Major challenge:** SDG 2 Zero Hunger remains most critical.
 - **Hunger indicators:** Child wasting 19%, stunting 29.3%, undernourishment 12%.
 - **Major challenges in 7 SDGs:** SDG 2, 3, 5, 11, 14, 15 and 16.

- **Reversals:** Press Freedom score declined; air pollution and NCD-linked mortality worsened.
- **Environmental decline:** SDG 12 and SDG 13 deteriorating; per capita CO₂ reached 2.21 tonnes.
- **Success areas:** Strong progress in electricity access and mobile broadband/internet use.

► India Leads the Ship Recycling Sector

India emerged as the world's top ship-recycling nation in 2025, hitting a key MIV 2030 target ahead of schedule, according to UNCTAD.

- The 2026 India-South Korea engagement also boosted India's ambition to emerge as a global shipbuilding hub.

Current Status of India's Ship Recycling Sector

- **Global Leadership:** India's global ship recycling share rose to 35.4% in 2025, recycling 2.99 million GT.
- **MIV Target Achieved Early:**
 - India met a key MIV 2030 ship recycling target ahead of schedule (India aims to rank among the top 10 global shipbuilding nations by 2030 and the top five by 2047).
- **Policy Enablers**
 - **HKC Compliance:** Recycling of Ships Act, 2019 aligned India with Hong Kong Convention; ₹53 crore helped modernise 115 yards.
 - **Ship-breaking Credit Note:** Shipowners get credit worth 40% of scrap value, usable for new ships in Indian yards.
 - **SBFAS:** Provides 15–25% financial assistance and supports ₹96,000 crore shipbuilding projects.
 - **SbDS:** Promotes greenfield clusters, shipyard modernisation, technology centre and credit risk coverage.
 - **Capacity Goal:** SBFAS and SbDS aim for 4.5 million GT/ year shipbuilding capacity by 2047.
 - **MDF:** ₹25,000 crore fund for low-cost maritime finance through MIF and IIF.
 - **SMFCL:** India's first dedicated maritime and shipbuilding NBFC.
 - **Green Push:** GTTP and Harit Nauka promote LNG, electric, hydrogen and methanol vessels.
 - **Alang Expansion:** Capacity to rise to about 9 million LDT; India seeking EU-approved yard status.

South Korea's Role in India's Shipbuilding Ambitions

- **Mega Shipyard:**
 - Supports India's first mega greenfield shipyard at Thoothukudi under VOYAGES, with 2.5 million GT capacity and ~15,000 jobs.
- **Technology Transfer:** HD Hyundai, SHI and Hanwha Ocean to share expertise in design, automation, green propulsion and high-value vessels.
- **Local Supply Chain:**
 - KOMEA's Mumbai presence will boost domestic marine equipment production.

- **Defence Cooperation:** Joint naval and amphibious vessel manufacturing to support Make in India.
- **Skills & R&D:**
 - KOICA, MoPSW, IMU and KMOU partnerships to train workforce and promote marine engineering research.
- **Global Competitiveness:** Helps India modernise shipyards and target top 10 by 2030 and top 5 by 2047.

Key Challenges in Indian Shipbuilding

- **Low Capacity:** India has only 0.072 million GT shipbuilding capacity and less than 1% global share, while China, South Korea and Japan dominate 95% orders.
- **High Cost of Capital:** Indian yards face 10–10.5% interest rates, high working capital needs and lack sovereign refund guarantees.
- **Import Dependency:** India imports 60–70% critical marine components, raising costs and supply-chain risks.
- **Weak Infrastructure:** Lack of mega dry docks limits construction/repair of ULCCs and mega container ships.
- **Weak Domestic Demand:**
 - Indian firms prefer cheaper second-hand foreign vessels; domestic order book remains small.
 - **Poor MRO Share:** India has less than 1% global MRO share, with vessels going to Singapore, Dubai or Colombo.
- **Skill Deficit:** Shortage of experts in marine engineering, automated design and green propulsion.
- **Regulatory Hurdles:** Land acquisition, legal delays and policy inconsistencies affect investor confidence.

Measures to Strengthen India's Shipbuilding Sector

- **Adopt Ulsan Model:**
 - Develop cluster-based shipbuilding hubs by integrating shipyards, ancillary industries, logistics and training institutions.
- **Link Recycling with Shipbuilding:** Use steel and materials from India's ship recycling industry to build a circular maritime economy.
- **Conditional Foreign Partnerships:**
 - Ensure foreign tie-ups include local value addition, technology transfer and skill development.
- **Localize Suppliers:** Build domestic marine equipment and component industries within SPV clusters to reduce import dependence.
- **Green Technology Leapfrogging:**
 - Focus on hydrogen fuel-cell, methanol/ammonia dual-fuel and other green vessels under IMO decarbonisation push.
- **Strict RoFR Enforcement:** Mandate Right of First Refusal for Indian-built and Indian-flagged vessels in government and PSU cargo tenders. 'The future of India's Blue Economy depends on strengthening its shipbuilding ecosystem.' Critically examine.

► Index of Services Production

MoSPI is set to roll out the Index of Services Production in July 2026 to track growth in India's services sector, mirroring the existing Index of Industrial Production.

- It was developed by a Technical Advisory Committee chaired by Debjani Ghosh and will initially be released on a trial basis with sectoral indices.

Key Facts About the Index

- **About:** Monthly indicator by MoSPI to measure short-term changes in real output of India's formal services sector, like IIP for industry.
- **Need:** Services contribute over 50% of India's GVA since 2013-14, but lacked a monthly real-growth indicator.
- **Objective:** Gives timely services growth data, supports monitoring, policy, forecasting, and complements IIP.
- **Improved Data Ecosystem:** GST data and Annual Survey of Incorporated Services Sector Enterprises (ASISSE) enabled reliable ISP compilation.

Key Mechanics of ISP

- **Scope and Limitations:** Covers only formal sector; excludes non-market government activities, personal services, and informal sector.
- **Excluded areas:** Public administration & defence, gambling, personal services, government-run health/education, and other non-market activities.
- **Methodological Framework:**
 - Uses fixed-weight Laspeyres volume index, base year 2024–25, with GVA-based weights.
 - Tracks real output growth by deflating nominal turnover using CPI and WPI.
- **Major Data Sources for ISP:**
 - **Administrative/Secondary Data:** Air Transport, Railways, Banking, Insurance.
 - **GST Data:** Trade, transport, telecom, accommodation, real estate, professional services, arts & recreation.
 - **ASISSE Data:** Health and Education services, excluding government.
- **Quantity vs Value Indicators:** Air Transport and Railways use quantity-based indicators (e.g., passenger-kilometres); most others use turnover/sales/GST outward supplies.
- **Preferred Output Measure:** Deflated turnover, as turnover closely reflects services output.
- **Deflators Used:** WPI for wholesale trade; sector-specific CPI where available; CPI General for banking/insurance; CPI Non-Food for other services.
 - A deflator removes price effects to measure real output growth.
- **Trial Phase:** MoSPI will release trial indices for 2025–26 and April 2026 from July 2026, before monthly release with 60-day lag.
- **Deflator Strategy:** In absence of Service Producer Price Indices (SPPI), CPI (Non-Food) will be used as proxy, as over 80% of non-food inflation is linked to services/cost-push factors.

► FCRA Amendment Rules 2026

The MHA has notified the Foreign Contribution (Regulation) Amendment Rules, 2026, revising the 2011 rules to tighten compliance for NGOs and associations receiving foreign funds, sharpen transparency, classify permissible activities and guard against misuse.

Key Highlights of the Rules

- **Activity-Specific Registration:**
 - NGOs must specify exact objectives and State/UT-wise operational areas.
 - Separate fees for each activity category and State/UT.
 - Existing FCRA organisations get 1 year to update purposes and States/UTs.
- **Religious Activities:** Foreign funds allowed for worship, religious education, heritage preservation, and community kitchens.
 - Proselytisation (religious conversion) is prohibited.
- **Explicit Exclusion of Conversion Work:** Religious activities can receive funds, but conversion-oriented work is barred.
 - **SC in Rev. Stainislaus v. State of Madhya Pradesh (1977):** Right to propagate does not include the right to convert.
- **Restrictions on “Key Functionaries”:** Associations with foreign nationals (except PIOs) as key functionaries will ordinarily not get FCRA registration/prior permission.
 - Includes directors, partners, trustees, and even the Karta of a Hindu Undivided Family (HUF).
- **Stricter Financial Compliance:** Must utilize 75% of previous funds before receiving further installments.
 - Must spend at least ₹10 lakh on approved activities over 2 years for renewal.
- **Enhanced Transparency:** Mandatory disclosure of ultimate donor, official website, social media accounts, and publications.

FCRA, 2010

- **About:** FCRA, 2010 regulates acceptance and utilization of foreign contributions and foreign hospitality.
 - Originally enacted in 1976; replaced by FCRA, 2010.
 - Amended in 2016, 2018, and 2020.
 - Foreign Contribution (Regulation) Amendment Bill, 2026 overhauls handling of foreign funds/assets of NGOs whose licences are cancelled, surrendered, or expire.
- **Nodal Ministry:** Implemented and monitored by the Ministry of Home Affairs (MHA).
- **Objective:** Regulate foreign contributions to protect sovereignty, internal security, public interest, and democratic functioning.
- **Constitutional Linkage:** Article 19(1)(c): Right to form associations.
 - **Noel Harper v. Union of India (2022):** SC upheld FCRA, 2010 as a reasonable restriction under Article 19(4).
- **Salient Features & Provisions:**

- **Registration Requirement:** Foreign contribution needs FCRA registration or Prior Permission from Central Government.
- **Eligibility for Registration:** Organisation must be registered under Societies Registration Act, 1860, Indian Trusts Act, 1882, or Companies Act, 2013. FCRA registration valid for 5 years. Foreign funds allowed for cultural, economic, educational, religious, or social activities. Barred: election candidates, MPs/MLAs, political parties, judges, government servants, state-owned corporation employees, and registered news media personnel. Indian Social Action Forum (INSAF) v. Union of India (2020): Only groups in active/party politics are barred.
- **SBI Account Mandate:** Foreign funds must first be received only in FCRA Account, SBI New Delhi Main Branch.
- **Ban on Transfers:** FCRA Amendment Act, 2020 bans transfer/sub-granting of foreign funds to any person or organisation.
- **Registration Validity & Renewal:** Registration valid for 5 years. Renewal application must be filed online at least 6 months before expiry.

The Foreign Contribution (Regulation) Act seeks to balance national security with civil society participation. Critically examine.

INTERNATIONAL RELATIONS

► Presidential Visits to Moldova and North Macedonia

The President of India completed the first-ever visit by an Indian Head of State to both Moldova and North Macedonia.

Key Highlights of the Visit to Moldova

- India decided to double ITEC training slots for Moldovan professionals.
- The President addressed the India-Moldova Business Forum to promote trade, investment and resilient supply chains.
- **Moldova:** A landlocked Eastern European country, bordered by Romania and Ukraine.
 - Became an EU candidate country in 2022.
 - Strategically important due to the Russia-Ukraine war and the breakaway region of Transnistria.
- The President paid tribute to Goce Delčev, a revolutionary against Ottoman rule.
- India welcomed North Macedonia's interest in joining the ISA, CDRI and GBA.
- India doubled ITEC training slots, with focus on AI upskilling.
- **North Macedonia:** A landlocked Balkan country bordered by Kosovo (northwest), Serbia (north), Bulgaria (east), Greece (south), and Albania (west).
 - Renamed from Macedonia in 2019, enabling its NATO membership.

- Serves as a gateway between the Mediterranean and Central Europe.
- Skopje, its capital, is the birthplace of Mother Teresa.

► World AI Cooperation Organization (WAICO)

China announced the operational launch of the World AI Cooperation Organization at the 2026 World Artificial Intelligence Conference in Shanghai.

- Established with the support of 29 countries, WAICO seeks to shape global AI governance. It promotes inclusive AI development, greater Global South participation, and a state-led governance framework.

WAICO

- **About:** WAICO is an independent intergovernmental organization headquartered in Shanghai, established to promote global cooperation and governance in AI.
- **Establishment:** Proposed at the 2025 WAIC and included in China's Five-Year Plan (2026–2030).
 - Formally established through an agreement signed by 29 countries, including China, Russia, Pakistan, Indonesia, Brazil and South Africa.
- **Objective:** Promote inclusive AI development through consultation, joint contribution and shared benefits.
- **Focus on Inclusivity:** Improve developing countries' access to AI technology, infrastructure, training and research cooperation.
- **Capacity Building:** China has committed 5,000 AI training and research opportunities over five years for countries associated with ASEAN, African Union, SCO and BRICS.

Concerns

- **State-centric governance:** Emphasizes state oversight, traceable data and "secure and controllable" AI.
- **Digital authoritarianism:** WAICO may spread China's state-led Silk Road. Reliance on Chinese AI infrastructure, cloud ser geopolitical influence.
- **Norm-setting:** Technical cooperation and capacity building ma WAICO vs Western and Indian Parameter Western Frameworks Inclusive AI Objective AI safety, ethics and accountability sharing Risk-based, rights-centric and multi-State-led, ac Approach stakeholder focused Frontier risks, privacy, misuse and national Key Concerns Export contr security Open-source Technology Access Export controls and licensing technology s Focuses on Global Role Global North-led standard setting SCO and AS EU AI Act, Hiroshima AI Process, Bletchley Key Mechanisms WAICO, Glob Declaration

► India-UK CETA Comes into Effect

The India-UK Comprehensive Economic and Trade Agreement, together with the Double Contribution Convention, took effect on 15th July 2026.

Key Highlights of India-UK CETA

- **UK Market Access:** The UK provides zero-duty access to nearly 99% of Indian exports, covering almost 100% of bilateral trade value.
- **India's Tariff Commitments:** India offers concessions on 89.5% of tariff lines, covering 91% of UK exports.

- 24.5% of UK exports get immediate duty-free access; the rest will be phased in.
- **Protection for Sensitive Sectors:** No concessions on dairy, agriculture, millets, apples, edible oils, and gold.
- **Services Trade Boost:** The UK opens all 12 major service sectors and 137 sub-sectors, benefiting Indian IT, healthcare, financial, and engineering professionals.
- **Safeguards for Steel Trade:** Both countries agreed to minimise disruptions from upcoming UK steel measures and protect Indian exporters.
- **Professional Mobility:** Provides clear rules for temporary professional movement without hidden quotas or arbitrary economic needs tests.
- **Protection for Strategic Sectors:** Tariff cuts for Make in India and PLI Scheme sectors will be phased over 5, 7, and 10 years.

ed AI technologies and regulatory model through the Digital rvices and data systems could increase China's strategic and ay gradually promote Chinese AI standards in global governance.

AI Governance Frameworks WAICO India's "AI for All" I access and technology Inclusive growth and socio-economic development ccess-first and sovereignty- Innovation-friendly, inclusive and development- oriented Digital divide, bias, trusted AI and strategic rols and technology denial autonomy e AI, capacity building and Open innovation through the IndiaAI Mission sharing and compute infrastructure the Global South, BRICS, Acts as a bridge between the Global North SEAN and South bal AI Governance Initiative IndiaAI Mission, National Strategy for AI, GPAI

- **Calibrated Automotive Liberalisation:** Automobile access will be quota-based and phased.
 - Concessions for affordable EVs begin only from Year 6.

Significance of India-UK CETA

- **Textiles & Apparel:** Zero-duty access improves India's competitiveness in the UK's USD 28.8 billion textile import market, benefiting garments, home textiles, and handicrafts.
- **Plantation Sector:** Duty-free access supports value-added coffee exports. The UK accounts for 5.6% of India's tea exports, 2.9% of spice exports, and 1.7% of coffee exports.
- **Marine Products:** Tariff-free access to the UK's USD 4.9 billion market promotes seafood exports, value-added processing, better price realisation, and coastal livelihoods.
- **Engineering & Electronics:** Engineering exports may exceed USD 7.5 billion by 2029–30, alongside higher exports of smartphones, optical fibre cables, and IT-enabled services.
- **Pharmaceuticals & Chemicals:** Duty-free access opens the UK's USD 30 billion pharmaceutical and USD 35.8 billion chemical import markets.
- **Plastics:** Lower landed costs improve competitiveness; India is the UK's 13th-largest plastics supplier.
- **Sports Goods & Toys:** Exports may rise by 15% and reach USD 186.97 million by 2030, improving competitiveness against China and Vietnam.
- **Oilseeds:** Lower tariffs and streamlined procedures improve export competitiveness.

- **Leather & Footwear:** Duty-free access to the UK's USD 8.9 bil
- **Promotes Inclusive Innovation:** Supports technology-neut horticultural states.
- **Gems & Jewellery:** Jewellery exports may double within 2–3
- **Steel Sector:** Expanded tariff-free quotas and preferential acc Double Contribution
- **About:** The DCC prevents dual social security contributions for specified t
- **Extended Exemption Window:** Extends the UK National Insurance (NI) ex
- **The Non-Retropective Clause:** It does not apply retrospectively.
 - Indian professionals working in the UK immediately before 15th July 2
- **Certificate of Coverage (CoC):** Eligible workers must obtain a CoC from E
- **Significance:** Expected to benefit over 75,000 Indian professionals and 9
 - May promote talent mobility and encourage UK firms to develop Indian o analytics, and cybersecurity.

Key Challenges in India–UK CETA

- **Non-Tariff Barriers:** Strict Sanitary and Phytosanitary (SPS) norms, technical standards, and certifications may restrict gains for MSMEs, agri-food, pharmaceutical, and engineering exporters.
- **UK Carbon Border Adjustment Mechanism (CBAM):** From 2027, Indian exports such as steel, aluminium, cement, and fertilisers may face carbon taxes, reducing competitiveness.
- **Import Circumvention:** Third-country goods may enter India through the UK at lower tariffs, affecting Make in India and PLI initiatives.
- **Complex Rules of Origin:** Stringent verification and documentation may raise compliance costs, especially for small exporters.
- **Limited Mobility Gains:** Visa liberalisation remains limited despite the DCC, with only a small annual quota for select service providers.
- **Low FTA Utilisation:** Poor awareness of CETA provisions and compliance rules may limit exporter participation.

The India–UK Comprehensive Economic and Trade Agreement (CE trade integration. Examine.

► India-Australia Civil Nuclear Cooperation

India and Australia have finalised an Administrative Arrangement under their Civil Nuclear Cooperation Agreement to secure long-term Australian uranium supplies for India's nuclear power programme.

Key Highlights of the Arrangement

- **Background:** The Civil Nuclear Cooperation Agreement was signed in 2014 and came into force in 2015.
- **Operationalisation:** The arrangement sets procedures for commercial exports of Australian uranium to India.
- **Purpose:** Uranium will be used only for peaceful purposes under IAEA safeguards. Ilion market supports labour-intensive

manufacturing. tral innovation and producers across major agricultural and years, creating jobs in Surat, Jaipur, and Mumbai. cess protect Indian exports from UK safeguard measures.

Convention (DCC) temporary workers moving between India and the UK. xemption for detached workers from 12 months to 60 months. 2026 must continue paying UK NI contributions. EPFO, proving contribution to India's social security system. 900 companies, with annual savings exceeding USD 600 million. operations into Global Capability Centres (GCCs) focused on R&D, advanced Suggestions

- **Address Non-Tariff Barriers:** Improve testing, certification, and traceability infrastructure and use the CETA Joint Committee to resolve trade barriers.
- **Greening Supply Chains:** Decarbonise manufacturing and align industries with global green standards to counter climate-based trade barriers.
- **Enhance MSME FTA Utilisation:** Set up MSME Trade Facilitation Centres and promote paperless trade and Authorised Economic Operator (AEO) mechanisms.
- **Expand Services & Mobility:** Fast-track MRAs and promote AI, cybersecurity, and advanced analytics.
- **Protect Domestic Industry:** Enforce Rules of Origin, conduct sectoral reviews, and use safeguard measures when required.

ETA) represents a shift from defensive protectionism to strategic Drishti Mains Question

- **Participation:** Australian uranium companies can contract with eligible Indian entities, including private firms.
- **Framework:** It provides a stable long-term mechanism while meeting Australia's safeguards and non-proliferation requirements.

India's Current Nuclear Energy Landscape

- **Installed Capacity:** India operates 24 reactors across seven sites, with 8.78 GW capacity.
- **Capacity Expansion:** 10 reactors (8,000 MW) are under construction, while pre-project work has begun for 10 more.
- **Reactor Mix:** The fleet includes PHWRs, BWRs, and LWRs.

PHWRs mainly use natural uranium and produce plutonium.

- **Breeder Programme:** The 500 MWe Prototype Fast Breeder Reactor at Kalpakkam attained first criticality in April 2026, launching the second stage of India's three- stage nuclear programme.
- **Thorium Strategy:** Fast Breeder Reactors will support the shift towards thorium-based reactors and Uranium-233 production, using thorium reserves concentrated in Kerala, Tamil Nadu, Andhra Pradesh, and Odisha.
- **Small Reactors:** The Union Budget 2025–26 allocated ₹20,000 crore for indigenous SMRs, with at least five targeted by 2033.

Significance of the Administrative Arrangement for India and Australia Significance for India

- **Fuel Security:** Ensures long-term Australian uranium supply for India's expanding reactor fleet.
- **Energy Transition:** Supports low-carbon baseload power, complements renewables, and aids the 2070 net-zero target.

- **Nuclear Expansion:** Supports the Nuclear Energy Mission and SHANTI Act, 2025, improving fuel certainty, investment, and private participation.
- **Global Cooperation:** Strengthens India's civil nuclear ties; India has agreements with 18 countries.

Significance for Australia

- **Resource Advantage:** Enables Australia, which holds over one-third of global uranium resources, to serve India's nuclear market.
- **Export Opportunity:** Creates a stable market and commercial opportunities for Australian uranium firms.
- **Strategic Partnership:** Adds an energy pillar to the India-Australia Comprehensive Strategic Partnership under IAEA safeguards and non-proliferation commitments.

The India-Australia Administrative Arrangement for uranium supply strengthens India's nuclear energy programme and energy security. Discuss.

► China's Helium Export Ban and Supply Chain Vulnerabilities

China has temporarily halted helium exports to conserve domestic supply for AI chips and quantum computing — a move that has stoked global supply worries even though China itself imports over 80% of its helium.

Helium

- **Basic Properties:** Helium (He) is the second-lightest and second-most abundant element (after Hydrogen) in the universe and the first noble gas.
- **Physical Characteristics:** It is colourless, odourless, tasteless, non-toxic, non-flammable, and chemically inert.
- **Lowest Boiling Point:** It has the lowest boiling point of any element at -269°C (4.2 K).
- **Occurrence:** On Earth, helium is a non-renewable resource formed mainly through radioactive decay of uranium and thorium.
- **Extraction Process:** It accumulates in natural gas reservoirs and is commercially extracted when its concentration is at least 0.3% by volume.
- **Isolation and Purity:** Once extracted, it is separated using its low boiling point and purified to about 99.997%.
- **Minor Sources:** Small quantities are recovered from LNG plants and the atmosphere, but these are negligible.

Fragile Global Helium Supply Chain

- **Concentrated Production:** China produces only 1.6% of global helium and imports over 80% of its needs. Production is concentrated in the US, Qatar, and Russia, with Canada and Algeria as other suppliers.
- **Geopolitical Risks:** Restrictions on Russian exports and other disruptions have tightened supply.
- **Chokepoint Risks:** Qatar's Asian shipments pass through the Strait of Hormuz, making supplies vulnerable to West Asian tensions.
- **Storage and Transport Complexity:** Helium requires specialised cryogenic or compressed-gas vessels. Transit delays cause boil-off, making logistics time-sensitive.

- **India's Vulnerability:** India is 100% import-dependent, with over 50% of imports from Qatar. The March 2026 Ras Laffan disruption caused shortages and a 35–50% price rise in India.

Does India Have Domestic Helium Reserves?

- **Bakreshwar Thermal Springs (West Bengal):** India's most promising source, with gases containing about 1.4% helium. Variable Energy Cyclotron Centre (VECC) under DAE has established a pilot plant for helium capture, purification, and liquefaction.
- **Monazite Sands of Kerala:** Thorium- and uranium-rich sands contain trapped helium, but commercial extraction is highly capital-intensive.
- **Oil and Natural Gas Basins:** ONGC is mapping fields such as the Godavari and Mahanadi basins, though Indian natural gas generally contains very low helium levels.

► India-New Zealand Strategic Partnership: Roadmap to 2030

The Prime Minister's visit to New Zealand — the first by an Indian PM in four decades — saw both countries upgrade ties to a full Strategic Partnership and adopt the India-New Zealand Strategic Partnership: Roadmap to 2030.

- **A gala titled "India-New Zealand: A Winning Partnership"** highlighted their growing cooperation and shared democratic values.

Key Features of the Partnership

- **Political and Diplomatic Engagement:** Regular high-level visits, Foreign Ministers' Dialogue, parliamentary exchanges, and annual Secretary-level meetings.
- **Defence and Maritime Security:** Greater military exchanges and naval exercises; cooperation on Maritime Cooperation, Hydrography and Nautical Cartography, and Mutual Logistics Support. An annual Maritime Security Dialogue will be established.
- **Counter-Terrorism and Security Cooperation:** A Joint Working Group on Counter-Terrorism, stronger cooperation against narcotics trafficking and crime, and enhanced cybersecurity cooperation through the India- New Zealand Cyber Dialogue.
- **Trade and Economic Cooperation:** Target to double bilateral trade to NZ\$7 billion (₹35,000 crore) by 2030.
 - Trusted trade will be supported by the 2025 Authorised Economic Operators Mutual Recognition Arrangement (AEO-MRA) under the 2024 Customs Cooperation Arrangement (CCA), along with early implementation of the India-New Zealand Free Trade Agreement.
- **Agriculture and Primary Industries:** Cooperation in horticulture, forestry, animal husbandry, and dairying.
 - An MoC on Animal Husbandry and Dairying, a Kiwifruit Action Plan, and two Centres of Excellence in Nagaland and Uttarakhand will promote productivity, skills, innovation, and education.
- **Tourism, Culture and Sports:** The Tourism Cooperation Agreement aims to increase tourist flows, while the updated Air Services Agreement promotes direct flights.

The Joint Action Plan on Sport expands cooperation beyond cricket.

- The Cultural Cooperation Arrangement and collaboration b/w Lothal's National Maritime Heritage Complex and the New Zealand Maritime Museum will promote cultural and maritime heritage exchanges.
- **Education, Research and Technology:** Cooperation will expand in education, climate, digital transformation, and emerging technologies. NCPOR–University of Canterbury cooperation will strengthen Antarctic research, while NIFTEM–K–Massey University cooperation will support research, academic exchanges, and student mobility.
- **Clean Energy and Disaster Management:** New Zealand joined the Global Biofuels Alliance. An NDMA–NEMA MoC will strengthen earthquake resilience, tsunami preparedness, coastal hazard mitigation, and disaster response.
- **Indo-Pacific and Multilateral Cooperation:** New Zealand prioritised the Maritime Security pillar of IPOI, focusing on IUU Fishing. Both countries supported a rules-based Indo-Pacific, peaceful dispute resolution under UNCLOS, UN reform, and India's permanent membership of a reformed UNSC.
- With New Zealand, India has Strategic Partnerships or equivalent arrangements with around 46 countries and regional blocs.
- India's first Strategic Partnership was with France, followed by Russia, the US, the UK, and the EU, later expanding through the Act East Policy and Indo-Pacific engagement.

The India-New Zealand Strategic Partnership reflects India's growing preference for issue-based partnerships rather than traditional military alliances. Discuss with reference to the Roadmap to 2030.

Major Challenges — and Suggestions

- **Challenge:** Dairy Sector Friction: India's reluctance to provide wider dairy market access protects its small farmers but limits deeper economic integration with export-oriented New Zealand.
 - **Suggestion:** Institutionalizing Dispute Resolution: Use Sectoral Working Groups to resolve Phytosanitary (SPS) disputes and gradually expand agricultural market access without affecting India's dairy sector.
- **Challenge:** Agricultural Technology Transfer Concerns: New Zealand producers fear that technology transfers in kiwifruit, apples, and honey could create stronger Indian competitors.
 - **Suggestion:** Upgrading the Air Services Agreement: Prioritise direct flights to improve connectivity and support the NZ\$7 billion trade target.
- **Challenge:** Divergent China Calculus: China receives ~30% of New Zealand's exports, limiting its alignment with India on balancing China in the Indo-Pacific and constraining defence cooperation.
 - **Suggestion:** Deepen Non-Traditional Maritime Cooperation: Expand cooperation in IUU fishing, maritime domain awareness, hydrography, HADR, and UNCLOS-based governance under the IPOI.
- **Challenge:** Strategic and Normative Divergences: New Zealand's Five Eyes membership and positions on human rights and governance may conflict with India's strategic autonomy and sovereignty-focused policy.
 - **Suggestion:** Fostering 'Niche' Technological Synergies: Focus on Green Hydrogen, Agri-Tech, Space Exploration, and the Global Biofuels Alliance.
- **Challenge:** Transnational Extremism Concerns: Separatist activities on New Zealand soil complicate counter-terrorism cooperation due to its domestic free-speech laws.
 - **Suggestion:** Joint Outreach to Pacific Island Countries: Extend NDMA–NEMA and CDRI cooperation for tsunami preparedness, coastal resilience, and disaster-management capacity.
- **Challenge:** Labour Mobility Constraints: New Zealand's changing immigration policies and concerns over jobs, infrastructure, and migrant exploitation may restrict access for Indian skilled professionals.

► 3rd India-Australia Annual Leaders' Summit 2026

The Prime Minister travelled to Australia for the 3rd India-Australia Annual Leaders' Summit in July 2026, with talks centred on deepening Indo-Pacific cooperation, securing energy and critical-technology supply chains, defence collaboration and a lasting strategic partnership.

Key Outcomes of the Summit

- **Defence & Maritime Security:** Adopted Joint Declaration on Defence and Security Cooperation (JDDSC), renewing the 2009 framework.
 - **Focus areas:** interoperability, cybersecurity, defence industrial collaboration, and cooperation in UNCLOS, ASEAN and IORA.
 - Launched Maritime Security Collaboration Roadmap (MSCR) for information sharing, capability development and operational coordination.
 - Signed MoU between Indian Coast Guard (ICG) and Maritime Border Command (MBC) for maritime law enforcement and border protection.
- **Energy Security & Civil Nuclear Ties:** Operationalised the Administrative Arrangement under the 2014 India- Australia Civil Nuclear Agreement, enabling Australian uranium supply for India's civilian nuclear energy needs.
 - Adopted India-Australia Joint Statement on Energy Security to strengthen energy supply chains.
 - Launched Rooftop Solar Training Academy at Pandit Deendayal Energy University (PDEU), Gandhinagar to train 2,000 women and youth as solar technicians under PM Surya Ghar Yojana.
- **Technology, Innovation & Critical Minerals:** Launched Australia-India Partnership for Cyber, Critical Technologies, Supply Chains (PACTS) to enhance digital resilience and secure supply chains.
 - Signed trilateral ACITI Partnership MoU (Australia-Canada-India Technology and Innovation) for emerging technology cooperation.
- **Investment:** AustralianSuper committed an additional AUD 500 million to National Investment and Infrastructure Fund (NIIF), taking its total India investments to AUD 3.3 billion.

- **Education, Skills & Scientific Research:** Approved campuses of Flinders University (Bengaluru) and Victoria University (Gurugram) in India.
 - Provided IP Australia access to Traditional Knowledge misappropriation.
 - Launched India-Australia Sports Collaboration Roadmap for high-performance sports centres and cooperation in Para sports and Olympics.
- **Space Cooperation:** Australia supported Gaganyaan Mission through a temporary space-tracking terminal at Cocos (Keeling) Islands.
- **Culture:** Australia announced repatriation of three 11th– 12th century Indian artefacts: Stone Nandi; Bhadrakali trident; Skanda sculpture
- **Social Media Regulation:** India welcomed Australia's initiative on restricting social media access for minors.

India-Australia Relations

- **High-Level Bilateral & Multilateral Architecture:** Australia is one of only two countries (along with Japan) with which India has:
 - Annual Leader-Level Summits; Free Trade Agreement; 2+2 Foreign and Defence Ministers' Dialogue
- **Economic and Trade Dynamics:** Economic Cooperation and Trade Agreement (ECTA) came into force in December 2022, strengthening economic integration.
 - India is Australia's 5th-largest trading partner.
 - Two-way trade in goods and services reached USD 50.2 billion (2025).
 - **2024–25 trade:** Australian exports: USD 32 billion; Indian imports: USD 18 billion
 - **2025:** Australia launched Roadmap for Economic Engagement with India focusing on four sectors: Clean energy; Education; Agribusiness; Tourism
 - Both countries are negotiating an upgrade of ECTA into Comprehensive Economic Cooperation Agreement (CECA).
- **Strategic Convergence:** Both countries are members of: Quad; Supply Chain Resilience Initiative (SCRI)
 - **Aim:** Promote a free, open and rules-based Indo-Pacific.
- **Renewable Energy:** India-Australia Renewable Energy Partnership (REP) launched in 2024.
 - **Focus areas:** Solar PV; Green hydrogen; Battery storage; Circular economy
- **Education and People-to-People Links:** Around 976,000 people in Australia reported Indian heritage.
 - **2023:** Launched Migration and Mobility Partnership Arrangement; Centre for Australia-India Relations
 - Education is Australia's major service export to India, valued at USD 9.4 billion (2025).

Major Challenges in India-Australia Relations

- **Strategic and Geopolitical Divergences:** Australia is closely aligned with the US alliance system and AUKUS, while India

follows strategic autonomy and avoids formal military alliances.

- **Security priorities differ:** Australia focuses on Western Pacific maritime threats. India faces LAC-related continental challenges and Indian Ocean maritime concerns.
- Australia's economic dependence on China complicates deeper strategic alignment.
- **Economic and Trade Bottlenecks:** Progress from ECTA to CECA is slow due to:
 - Australia seeking greater access to India's agriculture and dairy markets.
 - Australian SPS standards affecting Indian exports.
 - India's dependence on Australian coking coal and LNG contributes to a trade deficit.
- **Critical Minerals Supply Chain Constraints:** Australia has reserves of lithium, cobalt and rare earth elements, but limited processing capacity.
 - Dependence on China-linked refining supply chains restricts development of secure and diversified mineral supply chains.
- **Sociopolitical and Diaspora Frictions:** Issues such as temple vandalism and activities of Khalistani separatist elements have caused diplomatic tensions.
 - Differences over freedom of expression laws complicate cooperation on security concerns.

Measures to Strengthen India-Australia Relations

- **Deepen Economic Integration:** Finalise a balanced CECA by addressing Australian SPS barriers through Mutual Recognition Agreements (MRAs).
 - Protect India's agriculture and dairy sectors through tariff-rate quotas and safeguard mechanisms.
- **Build Resilient Critical Mineral Supply Chains:** Shift from raw mineral trade to joint refining and processing infrastructure.
 - Leverage Quad Critical Minerals Initiative (2026) and operationalise PACTS (2026) to reduce dependence on China-linked supply chains.
- **Deepen Defence and Maritime Cooperation:** Implement JDDSC and MSCR (2026) through stronger Underwater domain awareness; Military deployments; Operational coordination
 - Promote joint defence R&D, technology transfer and co-production.
- **Strengthen Nuclear and Energy Security:** Convert operationalisation of the India-Australia Civil Nuclear Agreement (2014) into long-term uranium supply arrangements for India's nuclear energy programme.
- **Manage Diaspora and Security Concerns:** Enhance intelligence sharing and law-enforcement cooperation against extremist activities, Khalistani elements, and attacks on Indian diplomatic and cultural institutions.
 - Ensure protection of diplomatic missions under international law.

India-Australia relations have evolved from mutual strategic neglect to an increasingly institutionalised Comprehensive Strategic Partnership.

► India's Bid for UNSC Non-Permanent Seat for 2028-29

India is set to launch its campaign for a UNSC non-permanent seat for 2028-29, seeking a stronger voice in global governance and to represent the Global South.

Key Issues and Priorities for India's 2028-29 UNSC Bid

- **Diplomacy:** India needs strong mobilisation as Tajikistan is also contesting the Asia-Pacific non-permanent UNSC seat.
- **Support:** Tajikistan's reported OIC backing may make the contest tougher; India must widen support beyond Fiji, US, Austria and Sri Lanka.
- **Leadership:** India will project itself as a responsible Global South voice on energy security, fertiliser supply, development and global governance.
- **Reform:** India will continue pushing for UNSC expansion and reform to reflect current geopolitical realities.
- **Engagement:** EAM's outreach to the Gulf, Caribbean and other regions aims to build wider support.
- **Competition:** Kyrgyzstan's victory over the Philippines shows UNSC elections are increasingly competitive; Kyrgyzstan will serve on the Council for the first time since joining the UN in 1992.

Key Facts About UNSC

- **About:** UNSC was established in 1945 under the UN Charter as one of the 6 principal organs of the UN, responsible for maintaining international peace and security.
- **Members:** It has 15 members: 5 permanent members and 10 non-permanent members elected for 2-year terms by the UNGA.
- **Permanent Members:** China, France, Russia, UK and US have veto power.
- **Non-permanent Members:** Seats are regionally distributed: 5 African and Asian, 1 Eastern European, 2 Latin American and Caribbean, and 2 Western European and Other States.
- **Election:** Non-permanent members are elected annually by secret ballot and need a two-thirds majority, even if unopposed.
- **Binding Authority:** UNSC is the only UN body whose decisions are binding on member states under the UN Charter.

India and the UNSC

- **India's Participation:** India has served as a non-permanent UNSC member in 1950-51, 1967-68, 1972-73, 1977-78, 1984-85, 1991-92, 2011-12 and 2021-22.
- **Permanent Seat Claim:** India is part of the G4 with Brazil, Germany and Japan, supporting expansion of permanent and non-permanent UNSC seats.

Key Challenges Related to UNSC

- **Lack of Adequate Representation:** UNSC is less representative, especially due to absence of Africa's 54 countries and major powers like India, Germany, Brazil and South Africa from permanent membership.
- **Misuse of Veto Power:** P5 veto is criticised as undemocratic and often prevents necessary decisions, making UNSC unsuitable for today's security needs.

- **Geopolitical Rivalry within P5:** Rivalries among US, Russia and China weaken UNSC action on issues like the Taiwan issue and Russia-Ukraine War.
- **Threat to State's Sovereignty:** UNSC resolutions are binding, and actions like sanctions can affect a state's sovereignty.

Way Forward

- **Democratization of UNSC:** Address power imbalance between P5 and other countries to make UNSC more democratic and legitimate.
- **Expansion:** Include under-represented regions, especially Africa, Latin America and Global South, along with major contributors like India, Germany, Brazil and South Africa.
- **Representation:** Membership should reflect present-day geopolitical and economic realities, not post-World War II power structures.
- **Veto Reform:** Restrict veto use in cases of genocide, war crimes, terrorism, humanitarian crises and mass atrocities.
- **Transparency:** Improve working methods through wider consultations, open debates and participation of affected non-member states.
- **Accountability:** Ensure fair and consistent enforcement of resolutions so sanctions, peacekeeping and military action are not seen as selective.
- **India's Role:** India pushed UNSC reform in September 2022 through G-4 and L-69 meetings in New York; it should represent Global South peace and security concerns in UNSC. India's campaign for a non-permanent seat at the UNSC is closely linked to its larger demand for reform of global governance institutions. Discuss.

► India-Indonesia Relations

The Prime Minister wrapped up a State Visit to Indonesia that advanced the India-Indonesia Comprehensive Strategic Partnership of 2018, during which he was conferred Indonesia's highest civilian honour, the Bintang Adipurna — making him only the second Indian PM after Jawaharlal Nehru to receive it.

Key Outcomes of the PM Visit to Indonesia

- **Defence and Maritime Security:** Indonesia signed a USD 200 million contract for 2 BrahMos missile batteries and placed the first export order for India's Astra air-to-air missile system.
 - Both sides extended cooperation on Maritime Safety and Security, important for Indo-Pacific sea lanes.
 - India and Indonesia agreed to jointly develop Sabang Port, located near the Strait of Malacca, strengthening India's maritime surveillance and naval logistics reach.
 - Leaders welcomed the planned 3rd India-Indonesia Security Dialogue.
- **Critical Minerals, Steel, and Heavy Industry:** SAIL signed an agreement to set up a Stainless-Steel Slab manufacturing facility in Indonesia.
 - MoU signed for joint development of Rare Earth Magnets, crucial for EVs and advanced electronics.
 - MoU signed for cooperation in steel and mineral supply chain extraction and technology.

- **Technology and Space:** Space cooperation framework for peaceful use of outer space was extended.
 - MoUs signed on Research, Technology and Innovation and Next-Generation Telecommunications Technologies.
- **Health and Disaster Management:** MoU between CDSCO (Central Drugs Standard Control Organisation) and Indonesia to harmonize medical product regulations.
 - Implementation Agreement signed on Health Workforce Collaboration.
 - MoU between NDMA and Indonesia's National Agency for Disaster Management for institutional cooperation.
- **Agriculture:** MoU signed on Agriculture and Allied Sectors to strengthen mutual food security.
 - India announced supply of 100 tonnes of DWR 162 wheat seeds to support Indonesia's agricultural output.
- **Soft Power Initiatives**
 - **Export of India's DPI:** Indonesia launched Indonesia Open Network (ION), modelled on India's ONDC.
 - **IFC-IOR Deployment:** Indonesia will deploy a Liaison Officer at Information Fusion Centre for the Indian Ocean Region (IFC-IOR), Gurugram for maritime domain awareness and intelligence sharing.
 - **Heritage Conservation:** India will assist in conserving the Prambanan Temple Complex in Yogyakarta.
 - **Cultural Commemoration:** Tagore-Dewantara Year 2026-27 will mark 100 years of Rabindranath Tagore's visit to Indonesia.
 - **Electoral Knowledge:** ECI and Indonesia's General Elections Commission (KPU) will share best practices in managing large-scale elections.
 - **Educational Outreach:** Branch campus of IIM Bangalore to be set up at Singhasari SEZ, East Java.

India-Indonesia Bilateral Relations

- **Economic & Commercial Dynamics:** Indonesia is India's 2nd-largest ASEAN trading partner, with bilateral trade at USD 28.15 billion in 2024-25.
- **Trade Pattern:** India is the largest global buyer of Indonesian crude palm oil and 2nd-largest buyer of coal; exports include refined petroleum, vehicles, steel and agricultural goods.
- **Tourism Corridor:** India is the 5th-largest source of tourists to Indonesia, supporting routes like Delhi-Bali and Mumbai-Jakarta.
- **Defence & Maritime Security Cooperation:** Cooperation is monitored through Joint Defence Cooperation Committee (JDCC) and Defence Ministers' Dialogues; exercises include IND-INDO CORPAT, Milan, Komodo, Garuda Shakti and Samudra Shakti.
- **ISRO and Indonesia's BRIN operationalised the Integrated Biak Telemetry, Tracking and Command (TTC) Facilities for tracking Indian satellites and launch vehicles.**

- **Socio-Cultural Symbols:** India presented a replica of the 9th-century Nalanda Copper Plate, highlighting Nalanda-Muarajambi ties.
- **Capacity Building via ITEC:** Indonesia is a key ITEC beneficiary; 30 Indonesian judges trained at the National Judicial Academy, Bhopal in April 2026.

Strategic Significance of India-Indonesia Ties Dimension
Significance Acts as the cornerstone of India's 'Act East Geopolitical Strategy Policy' and SAGAR vision. Indonesia is India's closest maritime neighbor in Southeast Asia.

Joint development of Sabang Port enhances the Indian Navy's logistical reach and Maritime Security interoperability to monitor the Strait of Malacca, ensuring a free, open, and rules-based Indo-Pacific.

Strengthening Indonesia's military capabilities (via BrahMos and Astra) and diversifying Countering Dominance critical mineral supply chains reduces the region's asymmetric dependence on China.

Indonesia is the largest economy and a natural leader within ASEAN. Deepening ties ASEAN Centrality with Jakarta automatically amplifies India's strategic footprint across the entire Southeast Asian bloc.

Challenges in India-Indonesia Relations

- **The "Quad" vs. ASEAN Centrality:** Indonesia follows Bebas-Aktif (Independent and Active) foreign policy and remains cautious of the Quad, fearing it may provoke China and weaken ASEAN Centrality.
- **Hesitance on Anti-China Balancing:** Despite buying BrahMos, Indonesia avoids overt anti-China alignment, preferring local capacity building over broader strategic balancing.
- **China's Economic Influence:** Indonesia's deep ties with China in infrastructure and nickel-based EV supply chains limit India's economic footprint.
- **Trade Imbalance and Palm Oil Vulnerability:** Bilateral trade of USD 28-30 billion is skewed in Indonesia's favour due to India's large palm oil imports. Indonesia's biofuel push may tighten edible oil supply and raise food inflation in India.
- **Trade Barriers:** Absence of CECA, low use of ASEAN-India Trade in Goods Agreement (AITIGA), and Indonesian non-tariff barriers in pharma and agriculture restrict trade growth.
- **Protectionist Frictions:** Indian industries, especially textiles, raise concerns over imports and alleged dumping of Indonesian products like Viscose Staple Fibre (VSF). India and Indonesia are natural maritime partners, yet the full strate

► Inaugural India-Mali Forum for Promotion of Exports

India and Mali held their first-ever Forum for the Promotion of Exports in Bamako, themed 'Reinforcing Trade and Strategic Partnerships', formally institutionalising their commercial ties.

Key Takeaways from the India-Mali Export Forum

- **Bilateral Trade Surge:** India-Mali trade grew 55% YoY, crossing USD 326.61 million in FY 2025-26.
- **Catalyst for Trade:** India's Duty-Free Tariff Preference (DFTP) Scheme drove bilateral trade growth.

- **Untapped Market Potential:** Mali's global exports are about USD 4 billion; untapped export potential in India is nearly USD 3.96 billion.
- **Key Trade Commodities:**
 - **Mali to India:** Raw cotton, finished leather, cashew, lead, gum arabic and sesame.
 - **India to Mali:** Pharmaceuticals, cotton fabrics, two/three-wheelers and bicycles.
- **Priority Sectors Identified:** Cotton and textiles, mining and energy, agro-industry and shea processing, pharmaceuticals, health and education for joint ventures and investments.

Measures to Strengthen India-Indonesia Relations

- **Restore Trade Parity:**
 - Fast-track AITIGA review and explore bilateral CECA to address non-tariff barriers and expand Indian exports in pharmaceuticals, dairy and other sectors.
- **Build Critical Mineral Supply Chains:**
 - Develop nickel, rare-earth and EV battery value chains through joint ventures, equity investments and processing facilities in Indonesia to reduce dependence on China-dominated supply chains.
- **Operationalise Sabang Port:** Set up a dedicated SPV, assured financing and time-bound framework to develop Sabang Port near the Malacca Strait.
- **Respect Indonesia's Strategic Autonomy:**
 - Align India's SAGAR vision with Indonesia's Global Maritime Fulcrum, while respecting Bebas-Aktif doctrine and ASEAN Centrality.
- **Practical Indo-Pacific Cooperation:**
 - Focus on maritime capacity-building, intelligence sharing and practical Indo-Pacific cooperation egic potential of their relationship remains underutilised. Discuss.
- **Mutual Administrative Requests:** Mali sought Indian support for digitizing Certificate of Origin and faster registration of Indian pharmaceuticals; India sought review of Mali's shea-nut export ban and protection of Indian nationals and investments.
- **Future Roadmap:** Mali projected itself as a West African investment hub under Vision Mali 2063 and announced an Investment Forum in December 2026 for bankable projects.

► **16th India-Japan Annual Summit 2026**

New Delhi hosted the 16th India-Japan Annual Summit, aimed at deepening the Special Strategic and Global Partnership with a focus on defence co-development, clean energy and AI.

Key Outcomes of 16th India-Japan Annual Summit

- **Defence and Security:** Agreement in principle on UNICORN project, the first India-Japan defence co-development programme.
 - Focus on defence equipment, maritime security, MRO, MDA, joint exercises.
 - 4th India-Japan 2+2 Ministerial Meeting to be held in 2026.

- **Economic Security:** Adopted Joint Declaration on Economic Security Cooperation.
 - **Focus:** semiconductors, critical minerals, ICT, clean energy, pharmaceuticals.
 - **Aim:** resilient supply chains and reduced dependence on any single country.
- **Energy and Clean Technology:** Adopted Joint Statement on Energy Resilience.
 - Cooperation in strategic petroleum reserves, energy transport, green hydrogen, clean ammonia, solar PV and nuclear energy.
 - Launched India-Japan Cooperative Biogas for Growth Initiative for 1,000 biogas and organic fertilizer plants.
 - Japan supported India's IEA membership.
- **AI and Emerging Technologies:** Launched first India-Japan AI Strategic Dialogue.
 - Cooperation on trusted AI, digital infrastructure, AI supply chains and responsible AI governance.
- **Trade and Investment:** Agreed to speed up review of CEPA.
 - Working towards ¥10 trillion Japanese investment target.
 - Signed MoC for USD 10 billion investment package.
 - Cooperation under IJICP in logistics, agriculture, healthcare, textiles, manufacturing, MSMEs and startups.
- **Indo-Pacific and Global Cooperation:** Reaffirmed commitment to Free and Open Indo-Pacific, aligned with IPOI and MAHASAGAR.
 - Strengthened cooperation through Quad, ASEAN and BIMSTEC.
 - Supported UNCLOS, freedom of navigation, UNSC reforms and counter-terrorism.
 - Started 1.5 track policy dialogue with the Philippines on maritime security.
- **Maritime Security:** Raised concerns over East China Sea and South China Sea developments & reaffirmed commitment to UNCLOS.
- **Disaster Management:** Japan to support India in hosting 4th UN World Conference on Disaster Risk Reduction, 2030.
- **Africa Cooperation:** Agreed to deepen cooperation in Africa through IAFS and sustainable development initiatives.

India-Japan Relations

- **Evolution:** Ties rooted in Buddhism; diplomatic relations began in 1952.
 - Relations upgraded to Global Partnership (2000), Annual Summit (2006), CEPA (2011) and Special Strategic and Global Partnership (2014).
 - Act East Forum and Quad revival in 2017 expanded strategic cooperation.
- **Defence and Security:** Key mechanisms: 2+2 Ministerial Dialogue and Joint Declaration on Security Cooperation.

- RPSS Agreement (2020) enables logistics support during exercises.
- **Major exercises:** JIMEX, Dharma Guardian, Malabar, Veer Guardian.
- Defence cooperation includes 2015 technology transfer agreement and UNICORN project.
- **Economic Relations**
 - **Bilateral trade:** USD 27.48 billion in FY 2025–26.
 - **India's exports:** USD 6.04 billion; imports: USD 21.44 billion.
 - Japan is India's 5th largest FDI source and largest bilateral donor.
 - ODA supports MAHSR, metro projects and infrastructure.
 - Japan supports infrastructure projects, like Delhi Metro and high-speed rail network.
- **Supply Chains and Economic Security:** Cooperation on critical minerals, semiconductors, clean energy and pharmaceuticals.
 - **Aim:** reduce supply-chain dependence on any single country.
- **North-East Connectivity:** Act East Forum (2017) links India's Act East Policy with Japan's FOIP to develop North- East India as a connectivity hub between South Asia and Southeast Asia.
 - Japan (JICA) supports projects like the 750-km North East Road Network Connectivity Project.
- **Technology and Space:** ISRO-JAXA are developing the LUPEX Mission to explore the Moon's south pole by 2026–27. Focus on AI, IoT and semiconductors, supported by Sakura and LOTUS exchange programmes.

Challenges in India-Japan Relations

- **Low Trade Potential:** Bilateral trade is around USD 27 billion, below potential and skewed in Japan's favour.
- **Project Delays:** MAHSR bullet train faces delays due to land acquisition and political issues.
 - Asia-Africa Growth Corridor lacks a strong joint financing mechanism.
- **Business Hurdles:** Japanese investors face bureaucracy, labour law issues and regulatory uncertainty in India.
- **NTBs:** Indian pharma and agriculture exports face strict SPS measures and regulations in Japan.
- **Language Barrier:** Limits use of Japan's labour schemes like SSW, despite India's workforce surplus.
- **Strategic Differences:** Japan follows G7 sanctions on Russia, while India maintains strategic autonomy.
- **Defence Transfer Issues:** Japan's export restrictions slowed defence deals like US-2 aircraft.
 - Japan easing restrictions on lethal weapon exports may boost future defence technology transfer.

Measures to Strengthen India-Japan Relations

- **MRAs:** Negotiate Mutual Recognition Agreements to reduce NTBs and ease Indian pharma and agriculture exports to Japan.

- **Joint Infrastructure Fund:** Create an India-Japan sovereign fund for AAGC and Global South infrastructure projects.
- **Skilled Workforce Pipeline:** Set up CoEs under SSW for training in advanced manufacturing, semiconductors and precision engineering.
- **Minilateral Partnerships:** Expand cooperation through India-Japan-Philippines for maritime security and India- Japan-Australia for critical minerals.
- **Cultural Diplomacy 2.0:** Build Japanese language and technical training institutes in India.
 - Facilitate movement of 5 lakh Indian students and workers to Japan in the next 5 years.

The India-Japan relationship has evolved beyond economic cooperation into a comprehensive strategic partnership. Discuss.

► India-Seychelles Relations

The Prime Minister travelled to Seychelles as Guest of Honour for its 50th National Day celebrations, a visit that also marked 50 years of India-Seychelles diplomatic ties, with both sides unveiling a commemorative logo.

Key Outcomes of PM's Seychelles Visit

- **UPI Deployment:** NIPL and Central Bank of Seychelles signed an MoU to roll out India's UPI, strengthening digital payments and financial inclusion.
- **Umbrella Line of Credit:** India extended a ₹1,250 crore rupee-denominated LoC for priority development projects.
- **Janaushadhi Scheme:** Agreement to supply affordable Indian generic medicines and medical supplies to Seychelles.
- **New National Hospital:** Framework MoU signed for developing a modern New Seychelles National Hospital.
- **Extradition Treaty:** Legal framework to extradite fugitives and combat drug trafficking, financial fraud and transnational crimes.
- **Maritime Mobility:** Mutual recognition of Indian seafarers' training and certification for service on Seychelles-flagged vessels.
- **Capacity Building:** SSIFS and Seychelles' MoFAD to conduct joint diplomatic training programmes.
- **Space Cooperation:** Cooperation in satellite applications, remote sensing, disaster management and climate monitoring.
- **Agriculture Work Plan:** ICAR and Seychelles Agriculture Department agreed on joint research and food security work for 2026–31.
- **Defence Support:** India handed over FPV PS LESPWAR, plus ambulances, utility vehicles and laser radial boats.
- **Highest Honour:** PM received 'Guardian of the Blue Horizon' award for climate action, Blue Economy and support to SIDS.
 - The award acknowledges India's global environmental initiatives, including the ISA, Mission LiFE, and the International Big Cat Alliance.
- **Vision MAHASAGAR:** Visit strengthened India's digital, health, maritime and development diplomacy in the Indian Ocean Region.

Challenges in India-Seychelles Ties

- **Geopolitical Competition:** Assumption Island project remains stalled; China's presence adds strategic pressure.
- **Maritime Security Gaps:** Seychelles struggles to monitor its vast 1.4 million sq km EEZ, facing IUU fishing, piracy and drug trafficking.
- **Limited Economic Engagement:** Small market, weak connectivity and project delays restrict trade and credibility.
- **Institutional Constraints:** Limited technical and administrative capacity slows Indian-funded projects.
- **Supply Chain Vulnerability:** External shocks increase Seychelles' dependence on India for essential supplies.

Measures to Strengthen India-Seychelles Relations

- **Enhance MDA:** Deepen real-time intelligence sharing through IFC-IOR against IUU fishing, piracy and drug trafficking.
- **Scientific Diplomacy:** Link India's Deep Ocean Mission and CSIR-NIO with Seychelles for marine genomics, bioprospecting and Blue Economy research.
- **Blue Carbon Finance:** Help Seychelles audit and securitise marine ecosystems into Sovereign Blue Carbon Credits under carbon market/Article 6 frameworks.
- **Energy Mapping:** Use ISRO data to assess OTEC potential using deep-shallow water temperature differences.
- **Climate Monitoring:** Provide real-time mapping of coral bleaching and marine heatwaves to support Seychelles' environmental security.

ENVIRONMENT & ECOLOGY

► White-bellied Heron

A proposed 1,200 MW hydropower project on the Lohit River in Arunachal Pradesh has stirred concern over the survival of the White-bellied Heron.

White-bellied Heron

- **About:** Also called Imperial Heron, it is the 2nd-largest heron species and among the world's most elusive birds.
- **Habitat & Features:** Depends on free-flowing eastern Himalayan rivers with mature riparian forests and low human disturbance.
 - Feeds mainly on fish in shallow rapids; highly sensitive to dams, altered river flow and turbidity changes.
 - Found up to 1,500 m elevation.
- **Morphological Features:** Adaptations include long flexible neck, serrated bill, short legs, extended toes and large body size for riverine fishing.
- **Conservation Status**
 - **IUCN Red List:** Critically Endangered.
 - **Wildlife Protection Act, 1972:** Schedule I species.
- **Global & Regional Population:** Global range covers around 1.65 lakh km² across Bhutan, India, Myanmar, China and Bangladesh.
 - Fewer than 60 individuals survive globally; Bhutan holds ~45% of the population.

- Considered extinct in Nepal and possibly Bangladesh.

- **Distribution in India:** Mainly found in Arunachal Pradesh (Lohit, Anjaw and Changlang districts).

- Recorded around Namdapha and Kamlang Tiger Reserves.
- India has only 6–9 individuals across Noa-Dehing, Lahm and Lohit rivers. Lahm River basin holds around 70% of India's population.

Species (Scientific Name) Common Name Regio Uttarakhan
Myotis himalaicus Himalayan long-tailed Myotis Himalayas
Lycodon irwini Irwin's wolf snake Great Nico Namdapha green
fan-throated Ptyctolaemus mamdaphaensis Arunachal lizard
Ptyctolaemus siangensis Siang green fan-throated lizard
 Arunachal

- Walong Cantonment near the proposed hydropower project is a known breeding site.

- **Behavior:** Largely solitary species; produces deep croaking calls, mainly during dawn and dusk.
 - Nests in tall mature riparian trees, which are essential for roosting and nesting. Loss of mature riparian forests directly threatens breeding and survival.
- **Ecological Significance:** Acts as a bio-indicator of Himalayan freshwater ecosystem health, reflecting water quality, fish availability and habitat integrity.
- **Major threats:** hydropower dams, habitat fragmentation, altered river flows, habitat loss, hunting and human disturbance.
 - Restricted range and small population create genetic vulnerability.
- **Conservation Measures:**
 - Develop conservation breeding centres in India. Learn from Bhutan's captive breeding programme, the first facility globally for breeding critically endangered birds.

► 2025 Animal and Plant Discoveries and 111th Foundation Day of ZSI

The Environment Ministry unveiled the Animal Discoveries-2025 and Plant Discoveries-2025 compilations, prepared by the ZSI and BSI respectively, at the ZSI's 111th Foundation Day celebrations in Kolkata.

Highlights of the Animal and Plant Discoveries-2025 Animal Discoveries-2025

- India added 709 new faunal species, taking total documented fauna to 1,05,953 species.
- Kerala led with 98 discoveries, followed by West Bengal, Karnataka and Arunachal Pradesh.
- Key finds include *Myotis himalaicus*, Irwin's wolf snake, and two green fan-throated lizards. on Discovered Key Features nd (Western Insectivorous bat with a tail almost as long as its body; s) helps in pest control.

Glossy black, non-venomous snake named after wildlife obar Island educator Steve Irwin.

A new species of green fan-throated lizard from the I Pradesh Namdapha Tiger Reserve.

A distinctly identified green fan-throated lizard found I Pradesh in the Siang district.

Plant Discoveries-2025

- BSI added 353 plant taxa; 57% non-vascular and 43% vascular plants.
- Arunachal Pradesh led with 49 discoveries, followed by Uttarakhand and Kerala.
- Key finds include *Polystichum siangense*, *Miliusa beddomei* and *Herichium indicum*.

Key Facts About ZSI

- **About:**
 - The Zoological Survey of India (ZSI) functions as the premier apex organization under the MoEFCC dedicated to comprehensive zoological research, faunal exploration, and animal taxonomy across the Indian subcontinent.
- **Administrative Structure:**
 - Headquartered in Kolkata, West Bengal, the ZSI operates a decentralized network of 16 regional centers situated across various distinct biogeographic zones of India, including the Western Ghats, marine, and high- altitude ecosystems.
- **Historical Timeline:** The foundation of ZSI lies in the establishment of the Zoological Section of the Indian Museum in Calcutta in 1875. The broader vision traces back to Sir William Jones, who founded the Asiatic Society of Bengal in 1784.
 - The ZSI was formally established as an independent organization on 1st July 1916 to survey and study the animal life of the then “British Indian Empire.”
- **Expanded Legal Mandate:** Following India’s ratification of the Convention on Biological Diversity (CBD) in 1994, ZSI scaled up its operational mandate from pure taxonomic research to modern ecosystem-based conservation monitoring.
- **National Repository:** Under the provisions of the Biological Diversity Act, 2002, ZSI is officially designated as the supreme repository for the National Zoological Collection, housing millions of reference specimens.
- **Modern Initiatives:**
 - The organization plays a vital role in executing Environmental Impact Assessments (EIA), developing DNA barcoding and wildlife forensics (such as the Pangolin Indexing System) to curb illicit trade.
- **Flagship Publications:** To guide national policy and wildlife classification, ZSI periodically publishes the Indian Red Data Book, the Fauna of India series, and its highly referenced annual directory, Animal Discoveries.

► Compressed Biogas and India’s Energy Security

Tensions in West Asia have brought renewed attention to Compressed Biogas as a way to cut India’s roughly 85% dependence on crude oil imports and bolster energy security.

Current Status of Biogas in India

- **About:**
 - Biogas, produced through anaerobic digestion of biodegradable waste, contains about 45–75% methane.
 - After purification and compression, it becomes CBG, which is similar to CNG and can be used in transport, industry, households, and power generation.
- **Progress:** The SATAT initiative (2018) targeted 5,000 CBG plants by 2023, but only 132 plants were completed by 3 June 2026.
- **Blending Targets:** Mandatory CBG blending with CNG and PNG began at 1% in FY26, rising to 3% in FY27, 4% in FY28, and 5% from FY29.
- **Gap:** India’s commercial CBG sector remains underdeveloped despite feedstock availability and policy support.
 - Around 2.88 lakh small biogas plants were installed over the last decade.
- **Global Scenario:** Europe, China, and the US account for about 90% of global biogas production.

Importance of Biogas in India’s Energy Security

- **Self-Reliance in Fuel Supply:**
 - India imports nearly 85% of its crude oil and a significant share of LPG, making it vulnerable to external shocks such as the Russia-Ukraine war and recent disruptions around the Strait of Hormuz.
 - Biogas and Compressed Biogas can reduce import dependence by using domestic resources such as cattle dung, crop residue, food waste, press mud and municipal solid waste.
- **Local Fuel Resilience:** CBG is chemically and functionally similar to CNG and can be used in transport, industries, households and city gas distribution networks. Since it can be produced locally, it strengthens energy availability during global supply-chain disruptions and supports Atmanirbhar Bharat.
- **Circular Economy:**
 - Biogas converts organic waste into useful energy and fermented organic manure. This creates a circular economy model in which waste from farms, dairies, households and cities is converted into fuel, fertiliser and rural income.
- **Waste Management and Stubble Solution:** Biogas can help utilise paddy straw and other crop residues in Punjab, Haryana and western Uttar Pradesh, reducing stubble burning, air pollution and waste disposal pressure. It also supports scientific management of food waste, animal waste and municipal solid waste.
- **Climate Change Mitigation:** Biogas reduces methane emissions from unmanaged organic waste and lowers dependence on fossil fuels. By replacing part of diesel, petrol, LPG and natural gas consumption, it supports India’s climate commitments and net-zero target for 2070.
- **Rural Economy and Farmer Income:** Biogas plants create new income opportunities for farmers, dairy owners, gaushalas, self-help groups and rural entrepreneurs. Sale of CBG and

fermented organic manure can improve rural livelihoods and reduce dependence on chemical fertilisers.

- **Soil Health and Sustainable Agriculture:** The by-product of biogas plants, fermented organic manure, improves soil organic carbon, supports natural farming and reduces fertiliser costs. This links biogas with agroecological approaches for clean and green villages.
- **Decentralised Energy Access:** Small and medium biogas plants can provide local energy for cooking, heating, electricity and transport fuel in rural and peri-urban areas. This improves energy access, reduces pressure on centralised fuel supply systems and strengthens local resilience.

Challenges in Biogas Adoption — and Measures Needed

- **Challenge:** High Costs and Limited Scale: CBG projects require substantial investment in digesters, purification units, compressors, storage and transport infrastructure. Despite an estimated potential of around 87 bcm annually, the International Energy Agency (IEA) notes that India's current capacity is below 1% of this potential.
 - **Measure Needed:** Financial Support: The government should provide viability-gap funding, interest subsidies, accelerated depreciation and tax incentives. The Indian Biogas Association (IBA) has proposed a `10,000 crore capital-subsidy fund to reduce initial costs and accelerate capacity creation.
- **Challenge:** Credit and Market Risks: Banks consider biogas projects risky because revenues depend on plant performance, assured gas purchases and the commercial value of co-products such as Fermented Organic Manure (FOM). Uncertain CBG pricing and weak demand for FOM reduce project bankability.
 - **Measure Needed:** Credit and Market Facilitation: Dedicated green-finance windows, partial credit guarantees and priority-sector lending should be introduced. A stable CBG pricing formula and assured offtake are needed, while the IBA has proposed mandatory FOM blending beginning at 1% in 2026–27 and rising to 10% by 2030.
- **Challenge:** Feedstock Constraints: The IEA identifies seasonal biomass supply, land availability, feedstock aggregation and inadequate biomass inventories as key barriers. Although cattle dung, crop residues and food waste are abundant, their dispersed nature increases collection, storage and transportation costs.
 - **Measure Needed:** Organised Supply Chains: Farmer cooperatives, municipal contracts, aggregation centres and long-term feedstock agreements should be developed. District-level biomass inventories and digital tracking systems can align local feedstock availability with plant capacity.
- **Challenge:** Infrastructure and Offtake Gaps: Limited pipelines, storage facilities, transport networks and local injection points restrict the supply of CBG to city-gas distributors. The IEA also identifies logistics and assured offtake as major priorities for improving project viability.
 - **Measure Needed:** Network Expansion: Common pipelines, local injection points and transport infrastructure should be developed, while allocated

infrastructure funds should be released faster. Long-term purchase contracts with oil-marketing and city-gas companies can provide revenue certainty.

- **Challenge:** Policy Fragmentation: The sector is governed through multiple initiatives, including SATAT, GOBARdhan and CBG blending obligations, resulting in overlapping responsibilities, procedural delays and inconsistent project monitoring.
 - **Measure Needed:** Unified Mission: As advocated by the Indian Biogas Association, a Unified National Biogas Mission should integrate existing schemes, introduce single-window clearances and establish centralised tracking, common standards and time-bound approvals.
- **Challenge:** Food and Land Risks: Excessive dependence on maize and other dedicated energy crops can alter cultivation patterns and compete with food crops. Germany's experience illustrates the risks of energy-crop monoculture and competition between food and fuel production.
 - **Measure Needed:** Waste-Based Model: India should prioritise cattle dung, sewage, press mud, food waste, municipal waste and crop residues. It can draw from Denmark's model, which relies substantially on livestock manure and organic waste, supporting biogas production without placing significant pressure on food-producing land.

SCIENCE & TECHNOLOGY

► Space Oncology and Cancer Treatment

With India expected to see 1.87 million new cancer cases in 2026, space oncology — using microgravity and the space environment to study tumours and develop advanced therapies — is emerging as a new frontier.

Space Oncology

- **About:** Studies the impact of microgravity and cosmic radiation on cancer cells, tumour growth, treatment response, and adaptation.
- **Space as a Natural Laboratory:** Helps study metastasis, treatment resistance, radiation response, biomarkers, and tissue behaviour.
- **Research Value:** Supports tumour modelling, drug discovery, protein crystallisation, drug formulation, 3D cell cultures, and tumour spheroid development.

Importance of Space Oncology

- **Economic Burden:** Cancer imposes financial stress through treatment costs, income loss, debt, asset depletion, and caregiver burden.
- **Need for Advanced Models:** Space-based environments provide improved tumour models to understand cancer mechanisms and accelerate therapies.
- **Drug Development Potential:** Microgravity can improve drug formulation, testing models, and reduce dependence on animal studies.

Microgravity Effects on Cancer Cells

- **Cellular Changes:** Causes cytoskeletal reorganisation, altered focal adhesion signalling, and changes in extracellular matrix interaction.
- **Tumour Behaviour:** Affects cell adhesion, migration, proliferation, invasion, and gene expression.
- **Spheroid Formation:** Enables formation of multicellular tumour spheroids for improved cancer modelling.
- **Drug Response:** Changes in cell structure and gene expression influence drug uptake and treatment response.

Space Oncology and Cancer Types

- **Breast Cancer:** Microgravity may reduce malignant characteristics by affecting adhesion, migration, and cell-cycle regulation, improving response to specialised therapies.
- **Gastrointestinal Cancer:** Alters cancer progression and may increase drug sensitivity through changes in resistance genes and cellular proteins.

Role that India can Play in the Emerging Field of Space Oncology

- **Leverage Space Capabilities:** Utilise ISRO's space expertise, space economy, and private space sector for space-based biomedical research.
- **Promote Space-Based Pharmaceutical Research:** Encourage microgravity-based drug development, cancer models, and space manufacturing of medicines.
- **Strengthen Public-Private Partnerships:** Promote collaboration among ISRO, research institutions, hospitals, pharmaceutical companies, and space startups.
- **Develop Affordable Cancer Solutions:** Translate space research into cost-effective diagnostics, therapies, and drug delivery systems.
- **Build Global Leadership:** Position India as a hub for space biotechnology and cancer research through growing commercial space opportunities.

► India's 1st Geothermal Wells Commissioned at Puga Valley

India has commissioned its first and deepest geothermal wells at Puga Valley in Ladakh, a step forward for its clean-energy transition.

Key Facts About the Project

- **Location:** Puga Valley, Ladakh, at over 14,000 feet altitude.
- **Depth:** Two wells drilled up to 1,000 metres.
- **Target:** Support a 1 MW pilot geothermal power plant, India's first demonstration-scale project.
- **Working:** Uses underground heat for reliable 24×7 renewable power.
- **Temperature:** Up to 135°C recorded at 400 metres depth.
- **Executing agencies:** ONGC Energy Centre, Ladakh Administration and LAHDC Leh.

Geothermal Energy

- **About:** Geothermal energy is heat from the Earth's interior, used for electricity generation, direct heating and building heating or cooling. It is renewable because Earth's heat is continuously replenished.
- **Sources**
 - **Deep reservoirs:** Underground steam or hot water accessed through wells.

- **Near-surface resources:** Hot springs and shallow hydrothermal reservoirs.
- **Shallow ground:** Stable ground temperatures used by geothermal heat pumps.

● Institutional Framework

- The National Policy on Geothermal Energy, 2025 promotes exploration and development.
- The Ministry of New and Renewable Energy is the nodal ministry.

● Geothermal Potential

- **Global capacity:** 15.4 GW in 2024, led by the US, Indonesia and the Philippines.
- **India:** 381 hot springs identified, with temperatures of about 35°C–89°C.
- India has 10 recognised geothermal provinces, including the Himalayan, Cambay Graben, West Coast and Andaman–Nicobar regions.
- Major sites include Puga, Chumathang, Manikaran, Tapoban, Bakreshwar, Tuwa, Tattapani and Deulajhari.
- India's estimated geothermal power potential is about 10,600 MW.

► White Rabbit Technology- Based IST Dissemination Demonstration Network

A White Rabbit Technology-based network for disseminating Indian Standard Time has been commissioned at RRSL Bengaluru to strengthen indigenous, secure Digital Public Infrastructure.

IST Dissemination Demonstration Network

- **IST Dissemination Demonstration Network:** A secure, tamper-resistant network that distributes precise Indian Standard Time (IST) across critical digital systems.
 - Developed jointly by the Department of Consumer Affairs, CSIR-National Physical Laboratory (CSIR-NPL) and ISRO.
 - Disseminates IST traceable to UTC (NPLI) maintained by CSIR-NPL, using Precision Time Protocol-based White Rabbit Technology.
 - Supports synchronisation in banking, financial markets, 5G/6G, smart grids, transport and digital governance.
- **Pilot Test:** Secure time transmission was successfully tested between RRSL Bengaluru and the NSE facility in Chennai.
- **White Rabbit Technology:** An extension of Precision Time Protocol (IEEE 1588) that enables microsecond-to-nanosecond accuracy over optical-fibre Ethernet networks.
 - More secure and resilient than satellite-based systems such as GPS, which are vulnerable to spoofing, jamming and signal loss.

Significance of Precision Time Dissemination

- **Critical Sector Coverage:** Enables secure time synchronisation across banking, 5G/6G, smart grids, transport and digital governance.

- **DPI & Cyber Resilience:** Protects algorithmic trading, prevents timestamp tampering and strengthens cybersecurity.
- **Strategic Autonomy:** Supports “One Nation, One Time” by reducing reliance on foreign satellite-based timing systems.
- **Regulatory & Economic Growth:** Aids Legal Metrology reforms, ease of doing business and investor confidence.

Time Generation and Dissemination of Indian Standard Time (IST)

- **Realisation and Maintenance of IST:** CSIR-NPL generates UTC (NPLI), India's official realisation of UTC, traceable to International Bureau of Weights and Measures (BIPM), France.
 - **IST = UTC+5:30**
 - Generated using 5 caesium clocks and 3 hydrogen masers
 - **Accuracy:** ± 2.8 nanoseconds relative to UTC
 - **Caesium clocks:** Long-term stability
 - **Hydrogen masers:** Short-term stability
- **Dissemination:**
 - **GNSS (Global Navigation Satellite System):** Provides nanosecond-level synchronisation and UTC traceability.
 - **TWSTFT (Two-Way Satellite Time and Frequency Transfer):** Uses geostationary satellites for accurate time transfer and supports NavIC and international UTC links.
 - **NTP (Network Time Protocol):** Distributes IST through time.nplindia.org to government, industry and digital networks. CERT-In Requirement: Critical ICT infrastructure must synchronise with NPL/NIC time servers.

► **Vikram-1: Charting India's Cosmic Future**

Skyroot Aerospace's Vikram-1 has become India's first privately built rocket to successfully deliver payloads into Low Earth Orbit.

- India became the third country, after the US and China, where a private company independently reached orbit.
- Vikram-1 achieved this on its maiden orbital mission.

Key Highlights of the Skyroot's Vikram-1

- **About Vikram-1:** Named after Dr. Vikram Sarabhai, it is an orbital launch vehicle developed by Hyderabad-based Skyroot Aerospace, India's first space-sector unicorn.
 - Its maiden orbital flight under Mission Agaman followed the Vikram-S suborbital mission (2022), which tested launch capability but did not reach orbit.
- **Payload Capacity:** Designed to carry around 300–480 kg to LEO for the small-satellite market.
- **Unique Materials and Methods:**
 - **Carbon Composite Architecture:** Uses lightweight all-carbon composite structures to improve fuel efficiency and payload capacity.
 - **3D-Printed Engines:** Uses the liquid-fuelled Raman engine for orbital insertion and manoeuvres, reducing manufacturing time, parts and cost.

- **Solid Propulsion:** Lower stages use Kalam-series engines with advanced solid propellants.

- **Symbolic Tributes:** Carries “Cosmic Bloom” and an 18-karat gold micro-rocket containing microscopic sculptures of C.V. Raman, Vikram Sarabhai and A.P.J. Abdul Kalam.

Significance of the Vikram-1

- **Vindication of Space Sector Reforms:** Validates the 2020 space sector reforms, supported by IN-SPACe and the Indian Space Policy 2023.
- **Establishing India as a Commercial Hub:** Strengthens the public-private space model and enhances India's position in the global small-satellite launch market.
- **Cost-Effective Innovation:** Demonstrates world-class aerospace capability through 3D printing and carbon composites at lower costs.
- **Strategic Independence:** Reduces dependence on ISRO's PSLV and SSLV, allowing ISRO to focus on deep-space missions, Gaganyaan and advanced R&D.

Role of Government Reforms in Enabling Private Sector Participation

- **Indian Space Policy 2023:** Opened the entire space value chain to Non-Government Entities (NGEs) for satellite manufacturing, launch services and downstream operations.
- **Role of NSIL:** NewSpace India Limited (NSIL), ISRO's commercial arm, manufactures space systems, delivers end-to-end solutions and promotes private participation through PSLV production and technology transfer.
 - By July 2026, it had launched 141 satellites, including 138 international/customer satellites and 3 Indian satellites.
- **IN-SPACe as a Single-Window Agency:** Authorises, enables and promotes government and private space activities, while providing NGEs access to ISRO facilities, technology and expertise.
- **Financial Facilitation:** Enabled USD 150 million in private investment in 2025, 118 technology-transfer agreements and 189 joint partnerships.
- **Financial Schemes:**
 - **IN-SPACe Seed Fund Scheme:** Grants up to ₹1 crore to startups and MSMEs, with mentorship and training.
 - **₹1,000 crore VC Fund:** Provides early-stage capital and attracts private investment.
 - **₹500 crore Technology Adoption Fund:** Supports commercialisation of indigenous technologies, funding up to 60% for startups/MSMEs and 40% for large industries, capped at ₹25 crore per project.
 - **Liberalised FDI Policy:** Allows automatic FDI of 74% in satellite manufacturing and operations, 49% in launch vehicles and spaceports, and 100% in satellite components and subsystems.

Key Milestones of India's Transition “From Policy to Progress”

- **Startup Growth:** Space startups increased from 1 in 2014 to over 400 in 2026.

- **Market Trajectory:** India's space economy is projected to grow from USD 8.4 billion to USD 40–45 billion by 2030 and USD 100 billion by 2040.
- **Pivotal Operational Milestones:**
 - **NSIL:** Conducted India's first commercial LVM3 mission in 2022, launching 36 OneWeb satellites into LEO.
 - **Vikram-S (2022):** India's first privately developed rocket and first private launch authorised by IN-SPACe.
 - **Agnikul Cosmos (2024):** First private launch from the Dhanush launch pad, using the world's first single-piece 3D-printed semi-cryogenic engine.
 - **Pixxel-led PPP:** IN-SPACe approved an Earth Observation satellite constellation for agriculture, disaster management, climate monitoring and urban planning.
 - **Technology Commercialisation (2026):** SSLV technology was transferred to HAL, while Bellatrix Aerospace demonstrated an indigenous Green Propulsion System under DRDO's Technology Development Fund.

Challenges for India's Private Space Sector

- **Single Spaceport Bottleneck:** Dependence on Satish Dhawan Space Centre, Sriharikota limits launch frequency.
- **Missing Reusable Launch Capability:** Reliance on expendable rockets weakens cost competitiveness against reusable systems such as SpaceX.
- **Regulatory Vacuum:** Absence of a Space Activities Act creates uncertainty over liability, insurance, intellectual property and dispute resolution.
- **"Anchor Customer" Deficit:** Limited assured government procurement makes commercialisation difficult for startups.
- **Orbital Slot and Spectrum Competition:** Global mega-constellations such as Guowang and Qianfan increase competition for ITU-managed orbital slots and spectrum.
- **Dependence on Space-Grade Imports:**
 - Reliance on imported semiconductors, radiation-hardened electronics, sensors and propulsion components exposes firms to export controls and supply-chain risks.
- **Space Security and Sustainability:** Stronger Space Situational Awareness, debris mitigation, cybersecurity and safeguards for dual-use technologies are needed.

Measures to Strengthen India's Private Space Sector

- **Enact the Space Activities Act:**
 - Provide legal clarity on IP rights, technology transfer, insurance and international liability under the 1972 Liability Convention.
 - Establish a Telecom Disputes Settlement and Appellate Tribunal (TDSAT) for commercial space disputes, orbital collisions and spectrum conflicts.
- **Establish Anchor Tenancy:** Enable NSIL or the Ministry of Defence to sign long-term procurement contracts for launch

services and Earth Observation data, following NASA's COTS model.

- **Fund Dual-Use Technologies:** Use mechanisms similar to ADITI-IDEX to finance and procure military-grade optical, radar and other dual-use space technologies from startups.
- **Indigenise the Supply Chain:** Introduce PLI schemes for space-grade electronics, advanced composites and green propulsion systems.
- **Standardise Space Systems:**
 - IN-SPACe and ISRO should standardise satellite buses and launch interfaces to enable mass production of Commercial Off-The-Shelf components.
- **Infrastructure Democratisation:**
 - Fast-track the Kulasekarapattinam Spaceport and develop state-level space manufacturing parks with plug-and-play facilities.
- **Accelerate Reusable Launch Technologies:** Expand private participation in RLV and NGLV development to improve cost competitiveness.
- **Leverage iCET and Artemis Accords:** Integrate Indian startups into global aerospace supply chains and secure commercial lunar exploration contracts.

Despite policy reforms, investment remains concentrated in a few Indian states. Analyse the structural challenges responsible for regional investment disparities.

► Semaglutide Patent Expiry and Opportunities for India

The expiry of Novo Nordisk's patent on Semaglutide in India has opened the door to affordable generic versions of this GLP-1 receptor agonist therapy.

NOTE: Generic GLP-1 (Glucagon-Like Peptide-1) receptor agonists are medications that mimic the natural gut hormone GLP-1. They regulate blood sugar, reduce appetite, and promote weight loss by stimulating insulin release and slowing digestion.

Semaglutide

- **About:** Semaglutide is a GLP-1 (Glucagon-Like Peptide-1) receptor agonist used to treat Type-2 Diabetes and obesity, originally developed by the Danish pharmaceutical company Novo Nordisk.
 - It improves blood glucose control, promotes weight loss, and reduces the risk of cardiovascular complications.
- **Significance:** Semaglutide has transformed the treatment of diabetes and obesity, two major drivers of non-communicable diseases (NCDs) worldwide, by offering a highly effective non-surgical therapy.
 - It highlights the growing importance of GLP-1 therapies and peptide therapeutics, before its patent expiry the high cost of branded versions limited access for many patients.
 - Its patent expiry now paves the way for affordable generic medicines, improved healthcare access, and growth of India's pharmaceutical industry.
- **Opportunities for India:**

- **Improved Healthcare Access:** Affordable generic versions of Semaglutide can significantly reduce treatment costs for 10+ crore Indians with diabetes and the rising obesity burden, making advanced GLP-1 therapies more accessible.
- **Export-Led Growth:** Patent expiries in China, Brazil, Canada, South Africa, and Turkey open access to high-value pharmaceutical markets, strengthening India's position as a leading exporter of complex generics.
- **Technological Advancement:** Manufacturing generic versions of semaglutide enables Indian companies to transition from small-molecule generics to complex peptide therapeutics and advanced drug-delivery systems, enhancing global competitiveness.
- **Economic Growth:** The domestic Semaglutide market is projected to witness strong growth, while the Production Linked Incentive (PLI) for pharmaceutical and medical devices supports investments in R&D, API manufacturing, and high-value pharmaceutical production, boosting the sector's long-term growth.

GLP-1s and Dermatological Health

- Beyond industrial economics, the clinical application of GLP-1 receptor agonists (like Semaglutide) has significant implications for systemic health, particularly dermatology.
- **Facial and Body Skin Changes:** Rapid medically-assisted weight loss frequently leads to "Ozempic face" a non-medical term for facial volume loss, hollowing, and sagging.
 - On the body, loose skin can cause intertrigo (friction-induced fungal/bacterial infections) and persistent pigmentation.
- **Telogen Effluvium (Hair Fall):** The physiological stress of rapid weight loss, combined with potential nutritional deficits (protein, iron, B12), can trigger severe, temporary hair shedding.
- **Nail Health:** Nutritional shifts during treatment often manifest as brittle nails, ridging, and slow growth.
- **Anti-Inflammatory Potential:** Early clinical reports suggest GLP-1s possess systemic anti-inflammatory properties that may benefit chronic inflammatory skin conditions like Psoriasis and Hidradenitis Suppurativa, particularly when they coexist with metabolic syndrome.

How have Patent Expiries Driven India's Pharmaceutical Growth?

- **Atorvastatin (2011):** When Pfizer's cholesterol-lowering drug Lipitor lost its patent, Indian firms aggressively flooded regulated markets with affordable generics, permanently establishing their stronghold in the US and European cardiovascular segments.
- **Clopidogrel & Sildenafil (2012):** The expiry of patents on Plavix (blood thinner) and Viagra allowed Indian manufacturers to rapidly scale global volumes, providing low-cost alternatives that reshaped global prescriptions.
- **Imatinib (2013):** A landmark Supreme Court judgment prevented the "evergreening" of Novartis's leukemia drug patent. This allowed domestic firms to legally produce generic

versions, crashing the annual treatment cost from over USD 25,000 to a fraction, saving countless lives.

- **Sofosbuvir (2025):** The expiration of base patents for this vital Hepatitis C treatment preceded by strategic voluntary licensing further solidified India's role as the "Pharmacy of the Developing World."

► Cabinet Approves Semicon 2.0

The Union Cabinet has approved Semicon 2.0 to build a complete semiconductor ecosystem — from chip design through advanced packaging — and position India as a trusted global manufacturing hub.

Semicon 2.0

- **About:** Building on India Semiconductor Mission 1.0 (2021), Semicon 2.0 shifts from ecosystem creation to ecosystem deepening.
- **Financial Outlay:** ₹1,27,500 crore.
- **Six Key Pillars:**
 - **Design of Chips:** Support semiconductor IP and design startups to strengthen India's fabless design ecosystem.
 - **Machines and Materials:** Promote domestic production and R&D of semiconductor equipment, specialty chemicals, industrial gases, and critical materials.
 - **Setting up more Fabs:** Support silicon, compound semiconductor, discrete component, and display fabs. India's first semiconductor fab is expected by 2028.
 - **Strengthening ATMP/OSAT:** Expand advanced semiconductor assembly, testing, marking, and packaging capabilities.
 - **Research & Development (R&D):** Promote global research collaboration and frontier technologies such as AI-native chip design.
 - **Talent Development:** Build industry-ready skills; 315 universities use advanced Electronic Design Automation (EDA) tools to train around 68,000 students.

Current Status of India's Electronics and Semiconductor Ecosystem

- **Growth in Electronics Manufacturing:** Electronics production grew 7-fold and exports 11-fold in eleven years.

India is now the world's second-largest mobile phone manufacturer.

- **Inclusive Job Creation:** The sector generated around 25 lakh jobs in a decade. Women comprise about 30% of the electronics workforce and 70% of direct mobile-manufacturing workers.
- **Success of ISM 1.0:** Since December 2021, 12 semiconductor projects across six States have been approved, involving over ₹1.64 lakh crore. Commercial production has begun at major OSAT/ATMP facilities.
 - **Semicon India Programme:** Launched in 2021 with ₹76,000 crore, it supports semiconductor and display fabs, compound semiconductor and

ATMP/OSAT facilities, and the Design Linked Incentive Scheme.

- **Design and Innovation:** Financial support was given to 24 startup and MSME projects developing SoCs for satellite communication, drones, and AI systems.
- **Future Targets:** Semicon 2.0 targets 3-nanometre and 2-nanometre nodes and a domestic semiconductor market of USD 200 billion by 2035.

Need for a Comprehensive Semiconductor Ecosystem Crucial for India

- **Geostrategic Imperative:** Capabilities across chip design, fabrication, packaging, and materials reduce external dependence and strengthen strategic autonomy.
- **National Security:** Indigenous chips lower risks of hardware tampering and supply-chain manipulation in defence, space, power, telecom, and other Critical Information Infrastructure.
- **Economic Competitiveness:** Domestic manufacturing can reduce India's electronics import bill, ease pressure on the Current Account Deficit, and capture higher value beyond assembly.
- **Industrial Transformation:** Semiconductors support EVs, electronics, 5G/6G, AI hardware, medical devices, automation, and aerospace, strengthening manufacturing value chains.
- **Technological Leadership:** India has nearly 20% of global semiconductor design talent but limited advanced manufacturing capacity. A complete ecosystem supports AI, quantum computing, IoT, and HPC.
- **Supply Chain Resilience:** Domestic production of equipment, chemicals, gases, and critical minerals reduces exposure to global disruptions and external dependence.
- **Technology Diplomacy:** A trusted semiconductor ecosystem strengthens cooperation through India-US iCET, Quad, and partnerships with Japan, the Netherlands, Germany, Singapore, and the EU.

Semiconductors have become strategic assets in the emerging global geopolitical order. Discuss with reference to India's semiconductor policy.

► Gaganyaan Mission

ISRO is gearing up for Gaganyaan, India's first human spaceflight mission, and is currently testing the Crew Module to ensure astronauts return safely through atmospheric re-entry.

Gaganyaan Mission

- **About:** Gaganyaan, announced in 2018, is India's indigenous human spaceflight programme.
 - It aims to send three astronauts to a 400 km Low Earth Orbit (LEO) for three days and return them through splashdown in Indian sea waters.
 - India will become the fourth country, after US, Russia, and China, to independently conduct a human spaceflight mission.
 - Human-rated Launch Vehicle Mark (HLVM) 3 will place the Orbital Module (OM) in the required orbit.

- Before the crewed mission, ISRO is conducting uncrewed tests of the Crew Module, Crew Escape System, and HLVM3.

- **Crew training for Gaganyaan:** Astronauts-designated—Group Captain Prasanth Balakrishnan Nair, Group Captain Ajit Krishnan, Group Captain Angad Pratap, and Wing Commander Shubhanshu Shukla.
- **Strategic and Scientific Significance:** Enables microgravity research in biological sciences, material science, and medicine.
 - Validates life-support systems, radiation shielding, and safe re-entry mechanisms. Supports future plans for the Bharatiya Antariksh Station by 2035 and a crewed lunar mission by 2040.
- **Orbital Module (OM):** Gaganyaan's spacecraft is a two-part, bi-modular system.
 - **Crew Module (CM):** Pressurised, habitable capsule with Environmental Control and Life Support System (ECLSS), Thermal Protection System, avionics, and deceleration systems for safe re-entry and splashdown.
 - **Service Module (SM):** Unpressurised module providing propulsion, power, thermal control, avionics, and deployment mechanisms. Separates before re-entry and burns up in the atmosphere. Unlike the three-module Soyuz and Shenzhou, Gaganyaan uses a lighter two-module design.

Safe Re-entry Mechanism of the Gaganyaan Crew Module

- **Service Module Separation:** The Connect & Disconnect System (CS-CDS) detaches the Service Module before re-entry.
 - Failure could alter the spacecraft's centre of gravity and make re-entry fatal.
- **Sphere-Cone Aerodynamic Design:** The blunt base creates a detached shockwave that deflects heat.
 - The conical section provides controlled lift and reduces g-forces.
- **Thermal Protection System (TPS):** The ablative heat shield chars and erodes to carry away extreme heat during hypersonic re-entry.
- **Active Attitude Control:** Reaction Control System (RCS) thrusters maintain capsule orientation and keep the heat shield correctly aligned.
- **Multi-stage Parachute System:** Drogue parachutes stabilise the capsule, while main parachutes reduce its speed for sea splashdown.
 - The system has redundancy for crew safety.
- **Hydrodynamic Up-righting (CMUS):** If the Crew Module overturns after splashdown, CMUS inflates flotation bags using stored cold gas.
 - This rolls the capsule upright, protects the crew, and exposes communication beacons for Indian Navy recovery teams.

► India Joins NeoSep1 Trial to Combat Neonatal Sepsis

JIPMER, Puducherry has become the first Indian centre to enrol a newborn in the international NeoSep1 trial, which is working to identify safe, effective antibiotic combinations against antimicrobial-resistant neonatal sepsis.

- **NeoSep1 Clinical Trial:** A multicentre international trial sponsored by GARDP to treat drug-resistant infections.
- **Coverage:** Aims to enrol 3,000 newborns across Asia and Africa by 2028.
- **Participating Countries:** Ongoing in Ghana, Kenya, South Africa, India, Vietnam and Pakistan; planned expansion to Malaysia, Bangladesh and Uganda.
- **Core Objective:** Identify effective antibiotic combinations for neonatal sepsis and develop evidence-based treatment strategies for Low- and Middle-Income Countries (LMICs).
- **Innovative Framework:** Uses the PRACTical (Personalised Randomised Controlled Trial) design, allowing clinicians to choose suitable regimens before randomization.
- **India's Strategic Participation:** Generates localized evidence as neonatal sepsis pathogens in India differ from those in high-income countries.

Neonatal Sepsis

- **Definition:** A severe, life-threatening systemic bloodstream infection in infants below 90 days, which may cause septic shock, multi-organ failure and death. It may present as septicaemia, pneumonia or meningitis.
- **Classification:**
 - **Early-onset Sepsis (EOS):** Occurs within the first 72 hours, usually due to maternal transmission before or during delivery.
 - **Late-onset Sepsis (LOS):** Occurs from 72 hours to 90 days, generally acquired from hospitals or the community.
- **Causes:**
 - **Global Pattern:** Mainly Group B Streptococcus (GBS) and E. coli in high-income countries.
 - **Indian Pattern:** Predominantly Gram-negative, Multidrug-Resistant (MDR) bacteria, especially Klebsiella pneumoniae, E. coli, Acinetobacter and Pseudomonas aeruginosa, making treatment difficult.
- **Major Risk Factors:** Prolonged rupture of membranes, maternal infections, unhygienic delivery, infected amniotic fluid, prematurity, Low Birth Weight (LBW), prolonged hospitalisation, and invasive devices such as ventilators and catheters.
- **Signs and Symptoms:**
 - **Temperature Instability:** Hypothermia or fever.
 - **Respiratory Distress:** Rapid breathing, grunting and apnoea.
 - **Neurological Symptoms:** Lethargy, irritability, abnormal crying and seizures.
 - **Gastrointestinal Symptoms:** Poor feeding, vomiting and abdominal distension.

- As symptoms are often non-specific and deterioration is rapid, immediate medical intervention is required.

- **Treatment Protocols:** Immediate broad-spectrum antibiotics after collecting blood cultures, followed by modification based on antimicrobial susceptibility results and supportive care.

Burden of Neonatal Sepsis in India

- **High Mortality Burden:** Sepsis is the second most common cause of neonatal mortality, causing over 1 million deaths globally each year.
 - It accounts for an estimated 30%–40% of neonatal deaths in India, or around 2–2.5 lakh preventable deaths annually.

► Quantum Computing

Progress in Quantum Error Correction, together with India's National Quantum Mission, could help shift quantum computing away from error-prone NISQ systems toward fault-tolerant machines — opening doors in cryptography, climate modelling and materials science.

Quantum Computing

- **About:** Quantum computing uses quantum mechanics to solve certain complex problems beyond classical computers, performing specific calculations much faster than supercomputers.
- **Classical Bit vs. The Qubit:** Classical computers use bits as 0 or 1; quantum computers use qubits, which can exist in multiple states due to superposition.
- **Core Principles of Quantum Computing:**
 - **Superposition:** A qubit can exist in multiple states at the same time, like a spinning coin until measured.
 - **Entanglement:** Linked qubits affect each other regardless of distance, enabling faster processing of large information.
 - **Interference:** Quantum computers cancel incorrect answers and amplify correct solutions.
- **Massive Parallelism:** Superposition and entanglement allow quantum computers to evaluate countless solutions simultaneously, increasing speed for specific tasks like sorting and search algorithms.
- **Different Types of Qubits:**
 - **Superconducting Qubits:** Use Josephson junctions cooled near absolute zero, e.g., Google's Willow processor. The 2025 Nobel Prize in Physics was awarded to John Clarke, Michel H. Devoret and John M.

Martinis for work on macroscopic quantum tunnelling and energy quantisation in electric circuits, aiding superconducting quantum computers and sensors.

- **Quantum Dot Qubits:** Made using tiny semiconductor particles like silicon or germanium.
- **Trapped Ion Qubits:** Use individual charged atoms trapped by electromagnetic fields.
- **Photonic Qubits:** Use manipulated photons to carry quantum information.

- **NMR Qubits:** Use nuclear angular momentum in molecules; used in the first 1998 quantum computer demonstration.
- **Quantum Key Distribution (QKD) Network:** QKD securely shares encryption keys using photons; interception disturbs particles and alerts users. "Noise" Problem in Quantum Computing
- **The Threat of Decoherence:** Present quantum computers or NISQ devices are fragile and error-prone. Qubits lose their quantum state due to environmental interference like heat, light and electromagnetic interference, causing (lose their quantum state).
- **High Error Rates:** Quantum processors are kept near absolute zero (-273°C), yet have error rates of 1% to 0.1%, unlike classical computers with far lower error rates.
- **Imperfect Control Mechanisms:** Lasers and microwave pulses used to control qubits are imperfect, adding to noise and calculation errors.

Attempts to Fix Quantum Errors

- **Quantum Error Correction (QEC):** Multiple noisy physical qubits are combined to form one stable logical qubit. If individual qubit errors fall below a threshold, overall error rates drop exponentially as more qubits are added.
- **Breakthrough:** In 2024, Google's Willow processor showed that scaling physical qubits suppressed encoded error rates, advancing fault-tolerant quantum computing.

India's Strategy in the Quantum Race

- **National Quantum Mission (NQM):** Sanctioned in April 2023, it aims to make India a leading nation in Quantum Technologies by 2031.
- **Objective:** Build intermediate-scale quantum computers and indigenous hardware-software ecosystems.
- **Target:** Develop 50-1,000 qubit quantum computers, 2,000-km satellite-based quantum communication and QKD networks, quantum sensing, metrology, materials and devices.
 - The Mission has set up four Thematic Hubs (T-Hubs) and supports deep-tech startups through Optionally Convertible Debt (OCD).
- **Progress:** India has developed an indigenous 1,000-km quantum communication network, achieving half of its 2,000-km target, with support from DST and QNu Labs.

► UN Scientific Panel on AI Report

The UN's Independent International Scientific Panel on AI has warned that AI capabilities are outpacing both scientific understanding and regulatory frameworks, posing serious risks to global stability.

Highlights of the UN Report on AI

- **Capability Race Outpacing Governance:** Frontier AI models are improving faster than regulation, with task autonomy doubling every 4–7 months, and showing risks like evaluation awareness and shutdown resistance in lab settings.
- **Concentration of AI Power:** The US holds about 75% and China 15% of top AI supercomputer computers, while 91% of notable AI models come from the private sector.

- **Hardware Choke Points:** Key AI hardware supply (80% market share) chains are concentrated around firms like ASML, TSMC, and NVIDIA, each holding major dominance in critical niches.
- **Global South Exclusion:** 118 nations, largely from the Global South, remain unrepresented in major AI governance summits.
- **Multidimensional AI Divide:** The divide includes gaps in sovereign compute, talent, regulation, and application capacity, not just digital access.
 - **Language Bias:** AI models cover only a small share of 7,000+ global languages, causing safety risks in low-resource languages.
- **Agentic AI and Cybersecurity:** Autonomous AI agents can boost coding but raise risks of multi-agent miscoordination, prompt injection, and discovery of zero-day vulnerabilities.
 - **Erosion of Shared Reality:** Risks include deepfakes, epistemic erosion, liar's dividend, and synthetic consensus, weakening public trust.
 - **Human Rights Risks:** Concerns include AI-generated CSAM of leading AI researchers being male.
- **Macroeconomics, Environment, and Evidence Dilemma:** A investment before benefits appear; risks include AI washing, r capex, and delayed regulation due to the Evidence Dilemma.

Report Finding AI compute is concentrated in the US (75%) and China (15%). Need to b AI divide includes infrastructure, talent, governance, and Strengthe application gaps. AI Stack. 7,000+ languages remain underserved. Scale BHA Healthcare AI needs local validation. Use Indian Implement Agentic AI raises cybersecurity risks.

Security S Support r Global AI governance is fragmented. forums (G AI-generated CSAM/deepfakes harm women and children. Enforce IT India can c 118 countries excluded from AI governance.

South-Sou

► Reforms 3.0 for the Bharat Rate of Growth

Experts have floated 'Reforms 3.0', which treats AI as public digital infrastructure to power India's next phase of economic transformation and sustain a 'Bharat Rate of Growth' above 8% over the coming decade.

AI-driven Reforms 3.0 AI-driven Reforms 3.0: Better Brief

- **National AI Token Policy:** Implement within 24 months through PPPs with AWS, Google and Microsoft to create sovereign AI infrastructure; provide free AI research tokens to IITs/IISc, API sandboxes for startups and AI literacy in schools.
- **Subsidising Cognitive Capacity:** India spends only 0.65% of GDP on R&D, far below Israel 5.4%, South Korea 4.9%, US 3.5% and China 2.4%. Redirect a fraction of India's USD 49 billion physical subsidies toward AI access.
- **Affordable AI Access:** Free AI access to top 100 universities, national R&D institutions and 5,000 high schools would cost about USD 2 billion/year, only 0.06% of GDP, far below food/fertiliser subsidies.
- **Sovereign AI Infrastructure:** Host open-source models like Llama and Indian models like Sarvam domestically to avoid sudden foreign API restrictions.

- **Strategic Capability:** Treat AI infrastructure like space and nuclear programmes, with 99.99% uptime, multi-region redundancy, low latency in Tier-2/3 cities and strict data residency.

M, deepfake abuse against women, and gender bias, with 88% AI gains may follow a Productivity J-Curve, requiring upfront rising environmental pressure from USD 770 billion hyperscaler.

Implications for India boost IndiaAI Mission, sovereign GPU capacity, and Digital Sovereignty. en National Quantum Mission, AI CoEs, industry-academia links, and India ASHINI, BharatGen, and multilingual foundation models. n datasets under ABDM/National Digital Health Mission to reduce bias. t DPDP Act, 2023, empower CERT-In/I4C, and finalise National Cyber Strategy to safeguard AI-enabled critical infrastructure. risk-based regulation via IndiaAI Safety Institute, GPAI, and multilateral G20). T Act, 2000, BNS, 2023, POCSO Act, 2012, and IT Rules, 2021. champion Global South through DPI, One Future Alliance, India Stack, and uth cooperation.

- **Diversified Compute Hardware:** Avoid Nvidia lock-in through a 40:30:30 matrix — 40% AWS Trainium, 30% Google TPUs, 30% NVIDIA GPUs.
- **PPP & Market Leverage:** Use India's 1.4-billion-user market to negotiate cloud/compute capacity in exchange for land, power access and favourable data residency rules.
 - **Cross-Subsidy Model:** Enterprise AI usage tiers can subsidise free access for education and public sectors.
- **Indic AI:** Develop foundational models across all 22 Scheduled Languages for Tier-2/3 cities, local courts, rural clinics and agriculture.

Bharat Rate of Growth

- **Historical Context:** India earlier remained stuck in the “Hindu rate of growth” of around 3.5–4% for nearly 45 years after independence.
- **Reforms 1.0:** 1991 LPG reforms after the balance-of-payments crisis accelerated GDP growth.
- **Reforms 2.0:** Post-2010s DPI revolution through Aadhaar, UPI and Jio effect; UPI handles 50% of global real-time digital payments.
- **Reforms 3.0:** Focuses on AI-led cognitive infrastructure to achieve inclusive 8%+ GDP growth and build a Sovereign AI Ecosystem.

Challenges to AI-driven Reforms 3.0

- **Compute-Energy-Climate Trilemma:** AI data centres need 5–10 times more power than traditional cloud systems, increasing electricity and water-cooling stress on India's thermal-heavy grid and Net Zero 2070 goals.
- **Silicon Supply Risk:** India lacks advanced-node chip fabrication (<5nm), making AI plans dependent on TSMC-dominated supply chains, export controls and geopolitical risks.
- **Subsidy Politics:** Shifting from physical subsidies to “cognitive subsidies” may trigger welfare, agrarian and political backlash.
- **Tokenization Bias:** Indic languages face a higher “token tax,” needing more compute and cost than English, widening the AI access divide.

- **Algorithmic Governance Deficit:** India lacks strong rules for black-box AI, DPDP Act enforcement, bias, deepfakes, misinformation liability and AI training-data IPR.

- **Last-Mile Infrastructure Gap:** Real-time AI in Tier-2/3 and rural areas needs edge computing, but 5G and BharatNet penetration remain uneven. “Artificial Intelligence has the potential to become the next Digital Public Infrastructure in India.” Discuss.

► India's First 3D-Printed Artificial Reefs

Tamil Nadu is set to deploy India's first 3D-printed artificial reefs under Phase II of the Pradhan Mantri Matsya Sampada Yojana, aimed at restoring marine habitats.

Key Facts Ramanathapuram coast.

- It will test six newly developed reef designs in coastal waters.
- Scientists will assess durability and ecological performance before larger deployment.
- **Collaboration:** Project is being carried out with the Visakhapatnam Regional Centre of ICAR-CMFRI.
 - Each module weighs about 1 tonne.
 - Modules are developed by Tvasta, a Chennai-based IIT Madras-incubated startup.
- **Design:** Modules are made without iron reinforcement, unlike conventional reinforced concrete reefs.
 - They have complex 3D-printed structures with crevices, folds and attachment surfaces.
 - Design improves porosity, surface area and habitat suitability for corals, sponges and reef-associated organisms.
- **Impact:** Funded jointly by the Centre and Tamil Nadu in a 60:40 ratio.
 - Part of a wider artificial reef project across 213 sites in Tamil Nadu.
 - Expected to improve fish stocks, restore marine ecosystems and benefit traditional fishing communities. 3D Printed Artificial Reef
- **About:** 3D-printed artificial reefs are human-made underwater structures used to restore degraded marine habitats and support biodiversity.
- **Technology:** Made using advanced 3D-printing methods, allowing intricate, customised and species-specific designs compared to conventional concrete reefs.
- **Design:** They contain varied cavity sizes, folds, textures and complex surfaces for shelter, attachment and breeding of marine organisms.
- **Biodiversity:** Support colonisation by corals, sponges, algae, crustaceans, fish and other reef-associated species, helping create a new marine ecosystem.
- **Fisheries:** Provide additional habitats and nursery grounds, increasing fish biomass and supporting sustainable fisheries management.
- **Advantages:** Offer design flexibility, faster modification, site-specific material use and targeted support for specific marine species or ecological needs.

- **Concerns:** Success depends on durability, non-toxic materials, proper placement and long-term ecological monitoring.
 - Artificial reefs may not always achieve intended ecological goals.
- **Significance:** They are an innovative restoration tool to strengthen marine biodiversity, support coastal communities and reduce pressure on natural coral reefs.

PMMSY

- **About:** Launched on 10th Sept 2020 to bring a Blue Revolution by making India's fisheries sector sustainable, productive and inclusive.
- **Funding:** Approved with a total investment of ₹20,050 crore for 2020-21 to 2024-25. Extended up to 2025-26.
- **Achievements:** Fish production rose to 195 lakh tonnes in 2024-25.
 - Fisheries exports increased under the scheme.
 - Created 58 lakh livelihoods.
 - Empowered 99,018 women.

► Scaling India's Technology Ecosystem

As India rolls out national missions in AI, semiconductors, quantum computing and space technology, building a stronger innovation ecosystem has become a growing priority.

- India has a strong legacy of scientific research and technological innovation, but faces challenges in bridging the "Valley of Death" — the gap between indigenous prototypes and globally competitive, commercialised industries.

Bottlenecks that Limit India's Ability to Scale Innovations Globally

- **Stagnant R&D Expenditure:** GERD remains around 0.64% of GDP, compared to the global average of ~1.7% and 2.5%+ in advanced economies like the US and China.
- **Skewed Funding Pattern:** Unlike leading innovation economies where the private sector contributes over 70% of R&D, India's R&D remains largely public sector-driven despite initiatives like tax incentives and ANRF.
- **Poor Commercialisation of Research:** Innovations often remain within government research institutions and fail to transition into commercially viable products.
- **The "Missing Middle" in Manufacturing:** India's Opportunities in Emerging Tech Sector India's Existing Strengths AI Large talent pool, DPI, multilingual dataset Research ecosystem, National Quantum Mission Quantum Computing and physics expertise 20% of global VLSI design workforce, ISM Semiconductors ecosystem Space Technologies Frugal innovation through Chandrayaan and Digital Public Infrastructure (DPI) Aadhaar, UPI, DigiLocker, ONDC and CoW Leadership in pharmaceuticals, and Biotechnology & Life Sciences biotechnology Advanced Manufacturing Engineering base and PLI schemes Renewable energy deployment and green Green & Clean Technologies initiatives Cybersecurity & Digital Trust Digital economy and IT services ecosystem Measures to Scale India's Emerging Technologies
- **Bridge the "Valley of Death":** Expand the RDI Scheme by establishing Translational Research Centres for shared prototyping and testing facilities for deep-tech startups.

- **Reform Academic R&D:** Shift from "Publish or Perish" to "Patent & Produce" ecosystem through a framework similar to the US Bayh-Dole Act (1980).
- **Provide Patient & Blended Finance:** Enable Anusandhan National Research Foundation to provide long-term, high-risk capital through industry-academia partnerships.
- **Make Government the Anchor Customer:** Expand the iDEX model beyond defence and introduce 5–10% public procurement quota for indigenous deep-tech startups.
 - India lacks mid-sized deep-tech firms capable of building complex supply chains between large conglomerates and informal MSMEs.
- **Weak Industry-Academia Linkage:** Research in institutions like CSIR and DRDO labs often does not translate into large industrial ecosystems.
- **Inadequate Venture Capital for Deep Tech:**
 - India has strong VC support for software and consumer internet, but lacks patient capital for hardware, deep-tech and capital goods.
- **Intellectual Property (IP) Deficit:**
 - India performs well in service delivery and process engineering but lags in creating and owning Standard Essential Patents (SEPs) in frontier technologies. Technologies to Achieve Global Scale Opportunities to Achieve Global Scale Sovereign, low-cost and energy-efficient AI; sector-specific solutions Mission, maths Affordable infrastructure; applications in drugs, cybersecurity, materials, finance and climate M, electronics Scale fabs, ATMP, chip design and indigenous IP Space data centres, orbital computing, quantum and Mangalyaan communication, satellites and launches WIN Export DPI model and interoperable digital public goods vaccines and Genomics, precision medicine, synthetic biology, bio-manufacturing and new vaccine platforms Industry 4.0, robotics, 3D printing, advanced materials and smart manufacturing green hydrogen Green hydrogen, battery storage, carbon capture, electric mobility and climate technologies Indigenous cybersecurity, post-quantum cryptography, secure cloud and digital trust solutions
- **Lead Global Technology Standards:**
 - Support Indian firms' participation in ITU, 3GPP and ISO to secure Standard Essential Patents (SEPs) in emerging technologies.
- **Institutionalizing Brain Circulation:** Scale Vajra and Ramanujan Fellowship to bring Indian scientists as visiting professors, investors and startup mentors.
- **Regulatory Sandboxes:** Enable testing of emerging technologies like drones, AI and crypto without regulatory uncertainty.
- **Tech-Alliances:** Leverage US-India iCET and Quad for technology transfers in defence, space and quantum computing.

- **Mineral Diplomacy:** Expand KABIL to acquire critical mineral assets in Africa, Australia and South America for battery and semiconductor supply chains.
- **Innovation Progress:** India improved from 81st (2015) to 38th (2025) in the Global Innovation Index 2025, but needs stronger support to convert research into commercial products. "India's technological history shows that being first matters little if you cannot scale." Discuss the structural bottlenecks in India's innovation ecosystem that prevent them from becoming global industries. Suggest measures to bridge the gap.

► The Challenge of India's Digital Sovereignty

Rising cyberattacks and geopolitical tension have exposed India's reliance on foreign digital infrastructure — underscored by the 2026 CCTV hack involving Chinese software EseeCloud and the 2025 Nayara Energy service disruption — fuelling calls for greater digital sovereignty.

Key Challenges for India to Achieve Digital Sovereignty

- **Semiconductor Chokepoints:** ISM is scaling chip packaging, but front-end fabrication depends on foreign Extreme Ultraviolet (EUV) lithography and precision chemicals.
 - **Risks:** export controls and hardware trojans (maliciously embedded circuits).
- **Cable Sovereignty Deficit:** Over 95% of India's international data moves through subsea cables.
- **The AI Compute Gap:** IndiaAI Mission provides access to 38,000 sovereign GPUs.
 - India's compute capacity is still far behind global firms investing USD 40–50 billion annually.
 - **Risk:** dependence on foreign foundation models.
- **The Source Code "Black Box":** DPDP Act, 2023 ensures data privacy but not platform sovereignty.
 - India cannot audit proprietary source code of foreign critical-sector software.
 - Hidden software backdoors may remain undetected.
- **Q-Day and Encryption Vulnerability:** Quantum computing can break encryption through "Harvest Now, Decrypt Later" attacks.
 - DST early-2026 roadmap requires CII migration to Post-Quantum Cryptography (PQC) by 2029, posing financial and logistical hurdles.
- **Regulatory Reciprocity Paradox:** FTAs and Indo-Pacific Economic Framework (IPEF), push unrestricted data flows and bans on source-code audits.
 - This conflicts with India's sovereign policy goals.
- **Global Standards Deficit:** India lacks strong representation in bodies like ITU.
 - Dependence on foreign Standard Essential Patents (SEPs) leads to high royalties and foreign-designed 5G/6G systems.
- **Deep-Tech Capital and Brain Drain:** Talent drain in quantum mechanics and device physics.
 - Foreign VC reliance can shift critical IP/patents abroad.
- **LEO Satellites & Cyber-Insurance:** Foreign LEO constellations like Starlink risk external control over connectivity.
 - Western cyber-insurance (like Lloyd's of London) dominance may expose Indian firms to payout denial under "state-sponsored cyberattack" exclusions.
- **Missing 'Patient' Capital:** Deep-tech needs long-term, high-risk capital.
 - Indian VC funding mostly goes to consumer tech, not hard/deep technology.

Measures to Achieve Absolute Digital Sovereignty

- **Adopt Geopatiation:** Shift critical government/strategic workloads to sovereign domestic cloud like MeghRaj.
- **Subsea Infrastructure:** Create Cable Protection Zones in EEZ.
 - Fund a domestically flagged subsea cable repair fleet.
 - Expand decentralized CLS-PoPs under Draft Telecommunications Rules, 2026.
- **Build a 'Third Way' Digital Ecosystem:** Expand open, interoperable DPI like UPI and ONDC to reduce US/China tech dependence.
- **Strengthen Sovereign AI:** Expand sovereign AI ecosystem for cognitive autonomy.
 - Subsidize GPU infrastructure for indigenous startups like Sarvam AI.
 - Use initiatives like Bhashini and BharatGen.
- **Advance Digital Financial Sovereignty:** Expand Digital Rupee and cross-border settlement initiatives to reduce reliance on foreign financial networks.
- **Ecosystem Design from Day One:** Integrate supply chains, developer communities, and target markets from mission inception.
- **Preventing "Protocol Hegemony":** Strengthen India's role in global standard-setting forums to avoid Splinternet duopoly and foreign surveillance risks.

Digital sovereignty has become a cornerstone of national security in the digital age. Discuss with reference to India's strategic priorities.

HISTORY, ART & CULTURE

► PM Pays Tribute to Swami Vivekananda

The Prime Minister paid tribute to Swami Vivekananda on his Nirvana Day, highlighting his role in carrying India's cultural heritage, spiritual traditions and national consciousness to the world.

- **About:** Swami Vivekananda, born Narendra Nath Datta on 12th Jan 1863, was a monk and chief disciple of Ramakrishna Paramhansa.
 - In 1893, on request of Maharaja Ajit Singh of Khetri, he adopted the name Vivekananda, replacing Sachidananda.
- **Enlightenment:** In 1892, he meditated for three days and nights on a rock near Kanyakumari, later named Vivekananda Rock Memorial, leading to his enlightenment.

● Contributions:

- **Philosophical:** Introduced Indian philosophies of Vedanta and Yoga to the world. Preached neo-Vedanta, interpreting Hinduism through a Western lens, and supported combining spirituality with material progress.
- **Spiritual:** His message drew from the Upanishads, Gita, Buddha, and Jesus, emphasizing self-realization, compassion, and selfless service. Advocated service to jiva as worship of Shiva. Explained four paths to moksha in Raja-yoga, Karma-yoga, Jnana-yoga, and Bhakti-yoga.
- **Revivalism:** Emphasized education for national regeneration and advocated man-making, character-building education.
- **Nationalism:** His nationalism was based on Humanism and Universalism, key features of Indian spiritual culture. It focused on masses, freedom, equality, and Karma Yoga as a path to political and spiritual freedom through selfless service.

● Associated Organisations: Founded Ramakrishna Mission in 1897 for service, education, and spiritual upliftment.

- Established Belur Math in 1899, which became his permanent abode.

● International Address: Represented Hinduism at the Parliament of Religions, Chicago, 1893.

- Addressed the London Hindu Association conference in July 1896.

● Death: Passed away on 4th July 1902 while meditating at Belur Math; observed as Nirvana Day.

► Birth Anniversary of Dr. Syama Prasad Mookerjee

The Prime Minister remembered Dr. Syama Prasad Mookerjee on his birth anniversary on 6th July, recalling his contribution to national unity, industrial policy, education and modern India's development.

- **Birth and Early Life:** Born in Calcutta; son of Sir Ashutosh Mookerjee, educationist and Vice-Chancellor of Calcutta University.
- **Academic Excellence:** Represented Calcutta University at the Conference of the Universities of the British Empire in England.
 - Became the youngest Vice-Chancellor of Calcutta University at 33 in 1934.
 - Started Bang Wani in 1922 and The Nationalist in the 1940s.
- **Political Career:** Joined the Indian National Congress in the 1920s but resigned over ideological differences.
 - Later joined the Hindu Mahasabha and helped form the Progressive Coalition government in Bengal in 1937, serving as Finance Minister.
 - Became acting President of the Hindu Mahasabha in 1940 and advocated complete independence.
 - Founded the All India Bharatiya Jan Sangh in 1951, later evolving into the Bharatiya Janata Party.
- **Post-Independence Role:** Served as Minister for Industry and Supply in the Interim Government after independence.

- Helped establish Chittaranjan Locomotive Factory, Sindri Fertilizer Corporation, and Hindustan Fertilizer Corporation.

● Ideological Stance: Advocated nationalism, Hindu cultural identity, and a united India.

- Opposed Article 370, stating that one nation cannot have two constitutions, heads, or flags.
- Opposed linguistic division of India, favouring unity based on administrative efficiency, security, and economic prosperity.
- Arrested during protest against J&K's special status and died under mysterious circumstances in 1953.

● Legacy: Known as "The Lion of Parliament" for sharp debates on national issues.

► 16th-Century Vijayanagara Inscriptions in Seshachalam Forest

The ASI has unearthed three 16th-century inscriptions of Vijayanagara king Sadasivaraya inside the Seshachalam forest in Tirupati district.

● Linguistic Diversity: Epigraphs are in Telugu, Tamil, and Kannada.

- Date deciphered as 31st July 1554 C.E.

● Royal Patronage: Records construction of a Siva temple and Mutt at Papavinasa by King Sadasivaraya during pilgrimage.

● Revenue & Temple Administration: Mentions taxes (Kaanika) and land grants from two villages for daily food offerings and worship at Gudimallam Parasurameswara temple.

- Names Sadasiva Basavanna Odeya, Linganna Vodaya, and Peddayya, son of Chembhaperiya, as the composer/temple accountant.

● Historical Significance of Gudimallam: Reaffirms glory of 2nd-century BC Gudimallam shrine, widely recognized as India's first known Siva temple.

- Shows direct Vijayanagara royal funding and attention.

Vijayanagara Empire

- **Vijayanagara Empire:** 1336–1646 CE.
- Founded by Harihara I and Bukka Raya I of Sangama dynasty on the banks of Tungabhadra River.
- Dynasties– Sangama, Saluva, Tuluva, Aravidu.
- Greatest extent under Krishnadevaraya of Tuluva dynasty.
 - Krishnadevaraya authored Amuktamalyada, patronized Ashtadiggajas (8 prominent scholars), and defeated Gajapatis and Adil Shahis.
- **Administration based on Nayankara/Amara-Nayaka system:** chiefs got Amaram territories for maintaining troops and paying tribute.
- **Architecture:** final phase of Dravidian style, with Kalyana Mandapas (marriage halls), ornate monolithic pillars, and Raya Gopurams immortalised in Vittalaswamy and Hazara Rama at Hampi.
- Foreign accounts– Ibn Battuta, Nicolo de Conti, Abdur Razzak, Domingo Paes.

- Decline after Battle of Talikota/Rakshasi-Tangadi, 1565 against unified Deccan Sultanates.

► Birth Anniversary of Mangal Pandey

The Prime Minister paid homage to freedom fighter Mangal Pandey on his birth anniversary, 19th July.

Mangal Pandey

- **Early Life:** 19 July 1827, Ballia district, Uttar Pradesh.
 - Joined the 34th Bengal Native Infantry of the East India Company at age 22.
- **Mutiny:** Opposed the Enfield Pattern 1853 rifle-musket because its cartridges were believed to contain beef and pork fat.
 - On 29 March 1857, he fired at his Senior Sergeant Major at Barrackpore.
 - He was hanged on 8 April 1857; his regiment was later disbanded.
- **Impact:** His revolt contributed to the outbreak of the Revolt of 1857, also called the First War of Independence.
 - The 7th Awadh Regiment's revolt was suppressed. On 10 May 1857, Meerut sepoys marched to Delhi and proclaimed Bahadur Shah Zafar II as Shah-en-shah-i-Hindustan.
- Mangal Pandey became a symbol of Indian resistance to British rule and sepoy-peasant grievances.

► Birth Anniversary of K. Kamaraj

The Prime Minister paid tribute to Thiru K. Kamaraj on his birth anniversary, recalling his role in the freedom struggle and in nation-building.

K. Kamaraj (1903-1975)

- **Role in Freedom Struggle:** Inspired by the Jallianwala Bagh massacre, he joined the freedom movement.
 - Participated in the Salt Satyagraha (1930) and was jailed during the Quit India Movement (1942).
 - Elected to the Constituent Assembly in 1946 and Parliament in 1952.
- **Contribution in Nation Building:** Served as Chief Minister of Madras Province from 1954 and President of the Indian National Congress from 1963. Perhaps the first non-English-speaking CM of India
 - Proposed the Kamaraj Plan (1963), urging senior Congress leaders to leave ministerial posts and strengthen party organisation.
 - Introduced free education and the mid-day meal scheme in schools.
 - His birth anniversary is observed as Education Development Day in Tamil Nadu.
- **Legacy:** Posthumously awarded the Bharat Ratna in 1976.
 - Died in 1975 at the age of 72.

NFHS data shows secondary infertility in India has climbed from around 19.5% in the early 1990s to 28.6% in 2015–16.

Major causes include delayed parenthood, age-related fertility decline, lifestyle disorders, reproductive complications, and male infertility.

Infertility

- **About:** Failure to achieve pregnancy after 12 months or more of regular unprotected sexual intercourse.
- **WHO:** Around 1 in 6 people of reproductive age globally experience infertility during their lifetime.
- **Causes:** Male factors, female factors, both, or unexplained causes.
- **Primary Infertility:** No previous pregnancy.
- **Secondary Infertility:** At least one previous pregnancy, but unable to conceive again.

Causes of the Rising Trend of Secondary Infertility in India

- **Delayed Family Completion:** Career, migration, and financial pressures delay childbirth. Women planning a second child are often above 35 years, when Diminished Ovarian Reserve (DOR) and egg quality decline; advancing paternal age may increase sperm DNA fragmentation.
- **Post-Partum Anatomical Complications:** Caesarean sections may cause pelvic adhesions or isthmoceles, affecting implantation. Untreated infections can lead to Pelvic Inflammatory Disease (PID) and fallopian tube blockage.
- **Progression of Reproductive Disorders:** Endometriosis and uterine fibroids may develop or worsen between pregnancies.
- **Post-Partum Endocrine and Metabolic Shifts:** Weight gain, sedentary lifestyle, and metabolic changes may disrupt the Hypothalamic-Pituitary-Ovarian (HPO) axis, affecting ovulation and hormones.
- **PCOS and Thyroid Disorders:** PCOS, affecting up to 20% of Indian women, may worsen with age, weight gain, and insulin resistance, causing chronic anovulation. Postpartum thyroiditis and hypothyroidism may also disrupt fertility.
- **Male Factor:** Weight gain, smoking, alcohol, occupational stress, and metabolic disorders may reduce sperm concentration, motility, and morphology.
- **Endocrine-Disrupting Chemicals (EDCs):** Pesticides, microplastics, and industrial chemicals may disturb hormonal signalling and affect egg and sperm quality.
- **Air Pollution and Oxidative Stress:** Exposure to PM2.5 and heavy metals may impair sperm parameters and ovarian function.

Major Challenges in Addressing Secondary Infertility in India

- **Legal and Regulatory Bottlenecks:** Under the Surrogacy (Regulation) Act, 2021, married couples with a surviving child cannot opt for surrogacy, except when the child has a life-threatening disorder or severe mental/physical disability.
 - This restricts options for couples with secondary infertility and raises concerns over reproductive autonomy under Article 21.
- **Public Health Policy Blind Spots:** Treatments such as IVF and ICSI cost around ₹1.5–2 lakh per cycle but are largely excluded from AB-PMJAY.

SOCIAL ISSUES

► Rising Secondary Infertility in India

- The RMNCH+A framework prioritizes contraception and maternal mortality, while infertility care remains neglected.
- **Urban-Private Concentration:** ART clinics are concentrated in the private sector and Tier-1 and Tier-2 cities. Public district hospitals often lack embryology laboratories and specialized endocrinologists.
- **Socio-Cultural Stigma:** Secondary infertility is often trivialized because the couple already has a child, causing isolation and delaying psychiatric or medical support.
- **Male Diagnostic Evasion:** The belief that a man who has fathered a child remains permanently fertile leads to refusal or delay in semen analysis, despite declining sperm quality being a major factor.
- **Misinformation and Unregulated Care:** Despite the ART Act, 2021, weak enforcement allows clinics to make misleading claims such as “100% IVF success in one cycle.”
- **Delay in Evidence-Based Treatment:** Rural and semi-urban couples may spend crucial reproductive years on unverified remedies, especially affecting women above 35 years, when ovarian reserve declines rapidly.

► Empowering Persons with Disabilities in India

Renewed attention to disability rights has revived calls for a rights-based, uniform and dignified welfare framework for persons with disabilities in India.

Need for Rights-based Disability Welfare Framework

- **Rights-based Approach:** Treats PwDs as equal citizens with dignity, not as charity recipients.
- **Exclusion:** Many PwDs remain outside welfare due to access, documentation and certification barriers.
- **Low Pension:** Disability pensions in many States are only ₹300–₹500/month, inadequate for dignified living.
- **State Inequality:** Support varies by domicile, State budgets and administrative priorities.
- **Low Spending:** India spends only around 0.02% of GDP on disability welfare.
- **Economic Cost:** Excluding PwDs from education, jobs and social security reduces productivity and GDP.
- **Legal Need:** Helps realise constitutional equality, dignity, right to life and the RPwD Act, 2016.

Current Status of PwDs in India

- **Population:** Census 2011 recorded 2.68 crore PwDs, i.e. 2.21% of population; prevalence is higher among males (2.4%) than females (1.9%), and higher in rural areas.
- **Recognised Disabilities:** RPwD Act, 2016 recognises 21 disabilities, including locomotor, visual, hearing, speech/language, intellectual, multiple disabilities, cerebral palsy and dwarfism.
- **Constitutional Basis:** Preamble ensures justice, liberty and equality; Part III Fundamental Rights apply to PwDs; Article 41 directs public assistance in cases of disablement, sickness, old age and unemployment.
- **Local Governance:** 11th Schedule Entry 26 and 12th Schedule Entry 9 include welfare/safeguarding of PwDs and weaker sections.

- **Policy & Legal Framework:** National Policy for PwDs 2006, UNCRPD ratification 2008, RPwD Act 2016, National Trust Act 1999, RCI Act 1992, and SIPDA 2015 support rights, rehabilitation, training and skill development.
- **SIPDA:** Focuses on skill training of PwDs aged 15–59 under the National Action Plan for Skill Development.
- **Judicial Pronouncements:** Rajive Raturi v. Union of India (2024) made accessibility and digital inclusion part of Article 21 dignity/ equality; RBI v. A.K. Nair (2023) upheld reservation in promotions for PwDs under RPwD Act.

Challenges Faced by PwDs in India

- **Infrastructure:** Public buildings, transport and urban spaces lack ramps, elevators, tactile paths and universal design; only 3% buildings were fully accessible as per 2018 report.
- **Education:** Inaccessible schools, lack of trained teachers and assistive tech; only 52.2% PwDs aged 7+ are literate.
- **Employment:** Discrimination, inaccessible workplaces and poor accommodation; only 34 lakh of 1.3 crore employable PwDs are employed.
- **Healthcare:** Lack of disability-friendly facilities, trained staff and equipment; Covid-19 exposed severe access gaps.
- **Digital-Legal:** Inaccessible websites/apps and weak enforcement of RPwD Act, 2016 deepen exclusion.

Measures to Empower PwDs in India

- **Identification:** Create a centralised, portable digital disability database linked with certificates, audits and welfare access.
- **Protection:** Ensure a Minimum Universal Disability Pension Floor Rate through a National Disability Pension Authority, DBT delivery and grievance redress.
- **Accessibility:** Enforce universal design in buildings, schools, hospitals, transport and digital platforms with ramps, tactile paths, sign language, captions, screen-reader access and GIGW 3.0 compliance.
- **Education:** Strengthen inclusive education through special educators, assistive tech, adapted curriculum and early identification under Samagra Shiksha and NEP 2020.
- **Employment:** Expand PM-DAKSH, Divyangjan Kaushal Vikas and Divyangjan Rozgar Setu with employer incentives, job portals and flexible/gig work models.
- **Awareness:** Train officials, police, judiciary, teachers, health workers and employers; use campaigns like Badhte Kadam to promote dignity and equal citizenship.

Disability welfare in India must move from charity-based assistance to rights-based entitlement. Analyse.

► SUMAN Roadmap 2030

The Health Minister launched the SUMAN Roadmap 2030 at the 16th CCHFW Conference, alongside Aarogya Setu 2.0, eSushrut@clinic, the PM-JAY WhatsApp Chatbot, a Drug Registry and the Unified Health Interface.

SUMAN Roadmap 2030

- **About:** MoHFW's strategic framework to strengthen maternal and newborn healthcare.
- **Approach:** Evidence-driven, locally responsive strategy to achieve SDG maternal and newborn health targets by 2030.

- **Framework:** Anchored in RMNCHA+N life-cycle approach from pre-pregnancy to postnatal care.
- **High-Risk Care:** Focuses on identification, tracking and management of high-risk pregnancies.
- **Focus Areas:** Transport, tribal/hard-to-reach areas, emergency obstetric care, SUMAN Panchayats and climate risks.
- **Target Districts:** Time-bound interventions in 130 districts across 13 high-focus States.
- **Goal:** Reduce MMR below 70, lower NMR/IMR, and achieve zero preventable maternal-newborn deaths.
- **Key Interventions:** Folic acid, nutrition support, MDSR, MNM reviews, NASG, AI-enabled labour rooms, C-section optimisation and SSBK integration.
- **Support System:** Centres of Excellence, SUMAN Call Centre, referral linkages and JANANI Portal monitoring.

SDG Targets on Maternal and Newborn Health

- **Target 2.2:** End malnutrition; address nutrition needs of adolescent girls, pregnant/lactating women and children under 5.
- **Target 3.1:** Reduce global MMR below 70 per 100,000 live births.
- **Target 3.2:** End preventable newborn/under-5 deaths; reduce NMR to 12 per 1,000 and under-5 mortality to 25 per 1,000.
- **Target 3.7:** Ensure universal access to sexual and reproductive healthcare, family planning and education.
- **Target 5.6:** Ensure reproductive rights and informed reproductive choices.

Other Health Initiatives at 16th CCHFW

- **Drug Registry:** ABDM platform to standardise generic, branded and substance information for e-prescriptions and clinical decisions.
- **Unified Health Interface:** ABDM service layer to discover, book and access digital health services across platforms.
- **NAS Guidelines 2026:** Framework for ambulance deployment, AIS-125 compliance, ICDCs, GPS tracking and 112 integration.
- **Aarogya Setu 2.0:** PHR app for ABHA creation, health records, PM-JAY wallet, reminders and consent-based data sharing.
- **Ayushman Sarathi:** PM-JAY WhatsApp chatbot for eligibility, Ayushman Card, hospital search, grievance and treatment history.
- **eSushrut@Clinic:** ABDM-enabled HMIS by C-DAC for PHCs, HWCs, small and private clinics.
- **Samagra Shishu Bal Swasthya Karyakram (SSBSK):** Integrates Home-Based Newborn Care (HBNC) and Home-Based Care for Young Child (HBYC) for home/community care from birth to 36 months.

► Tackling Adolescent Malnutrition in India

NFHS-6 (2023–24) data points to a growing adolescent malnutrition challenge in India, marked by a sharp rise in obesity, elevated blood sugar and lifestyle-related disease.

Status of Adolescent Malnutrition in India

- **Double Burden:** India faces both persistent undernutrition and rising overweight/obesity among adolescents.
- **Rising Lifestyle Diseases (NFHS-6, 2023–24):** Obesity increased to 30.7% among women and 27.3% among men, while the prevalence of high blood sugar rose to 17.8% among women and 20.9% among men, indicating worsening metabolic health.
- **Thin-Fat Phenotype:** Many adolescents appear lean but have excess visceral fat and high metabolic risk, making them vulnerable to early-onset Type-2 diabetes, hypertension, and cardiovascular diseases.
 - As per CNNS (2019), 27.4% of adolescents are stunted, 35% of stunted children under five already have adult-level triglycerides.
- **Poor Dietary Patterns:** Adolescents rely heavily on cereal-based diets, with low intake of proteins, dairy, fruits and vegetables. HFSS and UPF consumption is rising rapidly, with UPFs increasing by over 13.7% annually.
- **Growing Future Burden:** A 2025 Lancet study projects that by 2050, 21.8 crore men and 23.1 crore women in India will be overweight, with the sharpest rise among 15–24 years.
- **Physical Inactivity:** Excessive screen time and sedentary lifestyles are increasing obesity and cardiovascular risks among adolescents.

How Schools Can Address Adolescent Malnutrition

- **Skill-Based Learning:** Teach food label reading, portion control and misleading junk food marketing.
 - Use ICMR-NIN's LFOF kits, CBSE's 2025 Sugar Boards, and NCERT-UNESCO's Let's Move Forward comic.
- **Healthy Food Environment:** Make campuses UPF/HFSS-free through FSSAI's Eat Right School Initiative and enforce the 2020 rule banning HFSS sale within 50 metres of schools. Use PM POSHAN for protein-rich, millet-based balanced meals; promote school gardens and fruit breaks.
- **Curriculum Overhaul:** Make nutrition practical, covering macro/micronutrients, healthy diets and everyday food choices. Make structured physical education and sports a daily core activity to reduce sedentary lifestyle and screen-time risks.
- **Health Screenings:** Link schools with RBSK and hold Adolescent Health and Wellness Days for BMI, anaemia and metabolic-risk screening.
- **Parental Engagement:** Conduct awareness sessions on UPFs and dietary diversity to sustain healthy habits at home.
- **Policy Support:** Higher taxes on sugary drinks and strict regulation of junk-food advertising targeting minors. "Preventive healthcare must begin in classrooms rather than hospitals." Examine this statement in the context of adolescent nutrition and lifestyle diseases in India.

Drishti Mains Question Reports & Indices 1st Sub – Sectoral Trial Index of Services Production MoSPI released the first trial Index of Services Production for 19 service sub-sectors for April 2026.

- **Base Year:** 2024–25, based on National Industrial Classification (NIC), 2025.

- **Scope:** India's first monthly indicator of short-term changes in the formal services sector, which contributes over 50% of GDP. It excludes government, non-market, and informal services.
- **Methodological Framework:** Designed by the Technical Advisory Committee on Index of Services Production (TAC-ISP), constituted in May 2025.
- **Deflation Mechanism:** Uses WPI for wholesale trade, service-specific or proxy CPI for most services, and CPI- General for repair, banking, and insurance.
- **Principal Data Streams:** Uses GST filings, administrative data for regulated sectors, and Annual Survey of Incorporated Services Sector Enterprises (ASISSE) data for industrial weights.
- **Growth Trends (April 2026):** 14 of 19 sub-sectors recorded double-digit growth. Highest growth was in Accommodation & Food (37.2%), Retail Trade (30.8%), Administrative & Support Services (28.7%), and Real Estate (27.7%). Air Transport (-13.9%) and Railway Transport (-0.4%) contracted.
- **Frequency and Evolution:** Sub-sector indices will be released on the 29th of every month; a composite Overall ISP will be introduced later.

Digital Threat Report 2025-26 MeitY, with Computer Emergency Response Team (CERT- In), Computer Security Incident Response Team in Finance (CSIRT-Fin), and Strategic Information Services Agreement (SISA), released the 2nd Digital Threat Report 2025-26 to strengthen cyber resilience in India's Banking, Financial Services and Insurance (BFSI) and digital payments ecosystem.

Key Highlights of the Report

- **AI Asymmetry Emerges as the Biggest Cybersecurity Risk:** AI-enabled attackers are advancing faster than defensive and regulatory systems, allowing low-resource actors to launch sophisticated attacks at machine speed.
- **Rapid Evolution of Cyber Threats:** The time between emergence and exploitation of threats has fallen from years to months or weeks.
- **Changing Nature of Cyberattacks:** Attacks now rely on social engineering, credential theft, supply-chain and cloud exploitation, AI-assisted fraud, and legitimate-looking sessions, making early detection difficult.
- **Anatomy of Cyber Failure Framework:** A 4-Layer Gap Archetype Framework explains how breaches result from interconnected vulnerabilities and helps prioritise cybersecurity investment.
- **18-Month Cyber Resilience Roadmap:** Focuses on stronger security controls, continuous risk assessment, coordinated incident response, information sharing, and resilient architectures.
- **Major Recommendations:** Replace periodic audits with continuous assessment, improve real-time threat intelligence sharing, strengthen Digital Forensics and Incident Response (DFIR), cloud and supply-chain security, adopt AI-enabled defence, and enhance coordination among regulators, financial institutions, and cybersecurity agencies. India Ranks 13th in QS World Future Skills Index 2027 India ranked 13th globally in QS World Future Skills Index 2027, topping South Asia and lower-middle-income economies. US ranked first, followed by Australia, UK, Germany, and Canada.
- **About:** Released by QS Quacquarelli Symonds (a global higher education analytics organisation) .
 - Measures readiness for future work through skills transformation, economic capacity, and new-age skills demand.
- **India's Strength:** India scored 100 in Economic Capacity, highest globally.
 - Backed by GDP growth, labour/infrastructure investment, and AI investments worth around \$90 billion.
- **Future Work Readiness:** India ranked 5th globally in Future of Work indicator.
 - Reflects strong IT workforce and AI/digital technology role.
- **Key Concern:** India ranked 73rd on Human Capital Index.
 - Shows gap between graduates produced and employer-demanded skills.

Awards & Honours R. Vairamuthu Conferred 60th Jnanpith Award Tamil poet-lyricist R. Vairamuthu received the 60th Jnanpith Award (2025).

- Third Tamil recipient after Akilan and Jayakanthan, ending a 24-year gap.
- Earlier won the Sahitya Akademi Award (2003) for Kallikattu Ithikasam.

Jnanpith Award

- **About:** Instituted in 1961 by Bharatiya Jnanpith, it is India's highest literary honour for outstanding lifetime contribution to literature.
 - Often regarded as the "Nobel Prize of Indian literature".
- **Institutional Background:** Established by Sahu Shanti Prasad Jain and Rama Jain. The first award was given in 1965 to G. Sankara Kurup for Malayalam.
 - **First woman recipient:** Ashapurna Devi, Bengali, 1976
 - **First English-language recipient:** Amitav Ghosh, 2018
- **Eligibility and Scope:** Awarded annually only to an Indian author. From 1965–1981, it recognised a specific work; since 1982, it honours lifetime contribution. It covers 22 Eighth Schedule languages and English, included in 2013. No posthumous award is given.
- **Prize and Symbolism:** ₹11 lakh, a citation and a bronze statuette of Vagdevi (Saraswati); often presented by the President.
- **Selection Process:** The Pravara Parishad, comprising eminent scholars and litterateurs, assesses creativity, vision and literary impact.

Pradhan Mantri Rashtriya Bal Puraskar PMRBP is India's premier national award for children aged 5–18 years, recognising courage, creativity, resilience, and public-spirited achievements.

- **About:** Started in 2019.

- Conferred annually by President on Veer Bal Diwas, 26 Dec.
- Day remembers Sahibzada Zorawar Singh and Sahibzada Fateh Singh.

Facts For Prelims

- **Award Categories:** Bravery, Social Service, Environment, Sports, Art and Culture, Science and Technology.
- **Award Components:** Includes medal, certificate, and citation.
 - Around 25 children selected each year.
 - Generally not posthumous; exceptions possible.
- **Nodal Ministry:** Administered by Ministry of Women and Child Development.
 - Selection by expert committee.

Important Days *Death Anniversary of Thiru Subramania Siva Vice-President C. P. Radhakrishnan paid tributes to freedom fighter Subramania Siva on his death anniversary (23 July). Subramania Siva was born on 4 Oct 1884 in Batlagundu, Tamil Nadu.*

- **Literary & Cultural Contributions:** Pioneer of Tanittamil (Pure Tamil) Movement, advocating Tamil free from excessive Sanskrit influence.
 - Founded nationalist journal Gnanabhanu (1913) and authored 30+ books, including Ramanuja Vijayam and Madhva Vijayam.
 - Developed spiritual-nationalist outlook after becoming disciple of Sadananda Swami (1902).
- **Nationalist Awakening:** Inspired by Arya Samaj leader Thakur Kahan Chandra Verma, became a prominent nationalist speaker.
 - Along with V.O. Chidambaram Pillai and Subramania Bharati, promoted Bal Gangadhar Tilak's nationalist ideology.
 - Founded Dharma Paripalana Samajam (1906) for social reform and patriotic awakening.
- **Role in the Freedom Movement:** Played key role in Swadeshi Movement with V.O. Chidambaram Pillai.
 - Mobilised workers during Coral Mill Strike (1908), Thoothukudi and organised nationalist meetings.
 - Arrested for sedition; became the first recognised political prisoner of Madras Presidency.
 - Laid foundation of Bharat Mata Temple, Pappapatti (1923).
 - Contracted leprosy due to harsh jail conditions; died on 23 July 1925.

World Population Day *World Population Day is observed annually on 11th July to raise awareness about global population issues and their social, economic and developmental impacts.*

- **Origin:** Began on 11 July 1987, when global population reached around 5 billion, highlighting concerns over rapid population growth.
- **Establishment:** Formally established by UNDP in 1989.
- **Objective:** Promote awareness on population issues including maternal health, poverty, unemployment, migration and access to essential services.

- **Theme 2026:** "Realizing the hopes and aspirations of young people – today and for the future".
 - Focuses on supporting youth choices related to relationships, parenthood and family life.
 - Based on the report "Lives, Choices and Futures", covering views of 108,000+ adults (18–39 years) across 73 countries.
- **Global Population Trend Reached 7 billion in 2011.**
 - Projected to reach 8.5 billion by 2030 and 9.7 billion by 2050.
- **India's Population Trend:** Population– 1.4 billion (~17% of global population).
 - Expected to peak at 1.7–1.9 billion by the 2060s–2080s before stabilising or declining.

World Zoonoses Day *Union Ministry of Health & Family Welfare held a National Multistakeholder Consultation on World Zoonoses Day, 6th July, to discuss the draft National Action Plan for Prevention and Control of Zoonoses under the One Health Approach.*

- World Zoonoses Day marks Louis Pasteur's first rabies vaccine administration in 1885. The 2026 theme– "One World, One Health: Prevent Zoonoses."
- **State-Level Decentralization:** National Action Plan will guide States and UTs to prepare local State Action Plans based on ecological and epidemiological conditions.
- **Launch of Technical Resources:** Under the National One Health Programme for Prevention and Control of Zoonoses, two tools were launched:
 - **Learning Resource Package:** Covers 10 Priority Zoonotic Diseases: Anthrax, Brucellosis, KFD, CCHF, Nipah, Mpox, Rabies, Leptospirosis, Scrub Typhus and Zika.
 - **E-Learning Modules:** Digital courses to improve surveillance and diagnostic skills of healthcare professionals, veterinarians and frontline workers.
- **Integrated Disease Intelligence:** Need to expand sentinel surveillance sites and enable real-time cross-sectoral data sharing through Integrated Health Information Platform (IHIP) 2.0.
- **Nodal Execution:** NCDC will lead integrated disease surveillance, risk communication and sustainable financing across ministries, including Animal Husbandry and Environment.

Zoonotic Diseases

- **About:** Zoonoses are infectious diseases naturally transmitted between vertebrate animals and humans, caused by viruses, bacteria, parasites or fungi.
- **Modes of Transmission:**
 - **Direct Contact:** Contact with saliva, blood, urine or feces of infected animals, e.g., Rabies.
 - **Indirect Contact:** Contact with contaminated surfaces or areas where animals live/roam.
 - **Vector-borne:** Spread through ticks, mosquitoes or fleas, e.g., Scrub Typhus, Zika, KFD.

- **Foodborne:** Consuming contaminated meat, unpasteurized milk or water, e.g., Brucellosis, Anthrax. 250th Anniversary of US Independence PM greeted the US President and people on the 250th anniversary of US Independence Day on 4th July 2026.
- **US Declaration of Independence:** The US celebrates Independence Day on 4th July, marking the adoption of the Declaration of Independence, 1776, which proclaimed the independence of 13 American colonies from British rule and laid the foundation for modern democracy, constitutionalism, and human rights.
 - Drafted mainly by Thomas Jefferson in June 1776, it declared that all individuals are created equal and have unalienable rights to Life, Liberty, and the Pursuit of Happiness.
 - It rejected the divine right of kings and stated that governments derive power from the “consent of the governed”.
- **Impact:** It influenced the Universal Declaration of Human Rights, 1948.
- **Influence on India:** The US Constitution’s Bill of Rights inspired Fundamental Rights in Part III of the Indian Constitution, especially Articles 14 and 21.

Nadaprabhu Kempe Gowda The Vice-President paid tribute to Nadaprabhu Sri Kempe Gowda on his 517th birth anniversary (27th June) in Bengaluru, highlighting his legacy in urban planning, inclusive governance and environmental conservation.

- **Historical Context:** Kempe Gowda (1510–1569), from the Morasu Gowda lineage, was a ruler and chieftain under the Vijayanagara Empire.
- **Foundation of Bengaluru:** With permission from Emperor Achyuta Deva Raya, he founded Bengaluru in 1537 by building Bengaluru Fort and establishing Bengaluru Pete.

He shifted his capital from Yelahanka and envisioned an inclusive city later seen as “Mini Bharat.”

- **Progressive Social Reforms:** He is known for prohibiting the amputation of the last two fingers of the left hand of unmarried women during “Bandi Devaru”, a custom among Morasu Vokkaligas.
- **Infrastructure and Cultural Patronage:** He supported art and learning, and built temples and water reservoirs for public welfare, drought resilience and cultural growth.
- **Legacy:** The 108-foot Statue of Prosperity in Bengaluru honours Kempe Gowda and is recognized by the World Book of Records as the world’s tallest bronze statue of a city’s founder.

Birth anniversary of Bankim Chandra Chattopadhyay PM paid homage to Bankim Chandra Chattopadhyay (1838–1894), the great Indian novelist, poet and journalist, on his birth anniversary on 27th June.

- **Early Life:** Born on 27th June 1838 at Naihati, Bengal Presidency; among the first graduates of Calcutta University; served as Deputy Magistrate and Deputy Collector.
- **Bengal Renaissance:** Known as the Father of the Modern Bengali Novel and a key Bengal Renaissance figure.

- **Major Works:** Anandamath (1882), Durgeshnandini (1865), Kapalkundala (1866), Vishabriksha (1873), Devi Chaudhurani (1884), Krishna Charitra.
- **Vande Mataram:** Published in Bangadarshan and later included in Anandamath; sung by Tagore at Congress session, 1896; became Swadeshi rallying cry; first two stanzas adopted as National Song in 1950.
- **Journalism:** Founded Bangadarshan in 1872 to promote Bengali identity and nationalist literature.
- **Nationalist Role:** Promoted cultural nationalism, Bharat Mata and deshbhakti through writings.
- **Legacy:** Died on 8th April 1894; revered as Sahitya Samrat.

MSME Day 2026-Udyami Bharat Vice President will preside over MSME Day 2026 – Udyami Bharat on 27th June 2026 in New Delhi.

- **About:** MSME Day is celebrated on 27th June for MSMEs’ role in growth, innovation, jobs, exports and inclusive development.
- **Key Achievements:** National Small Industries Corporation (NSIC).upgraded to Schedule ‘A’ CPSE; Ponduru Khadi, Andhra Pradesh, got GI tag.
- **Multilingual Access:** MSME portals offer services in 22 Scheduled languages via BHASHINI and NIC.
- **KVIC Product Launches:** KVIC to launch eco-friendly products: Tukun, Rangtaal, Bela, Vanya, Umang.

FACTS FOR UPSC

REPORTS & INDICES

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AWARDS & HONOURS

★ R. Vairamuthu Conferred 60th Jnanpith Award

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 - Day remembers Sahibzada Zorawar Singh and Sahibzada Fateh Singh.

★ Facts For Prelims

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 - Generally not posthumous; exceptions possible.
- **Nodal Ministry:** Administered by Ministry of Women and Child Development.
 - Selection by expert committee.

IMPORTANT DAYS

Vice-President C. P. Radhakrishnan paid tribute to freedom fighter Subramania Siva on his death anniversary (23rd July); Siva was born on 4th October 1884 in Batlagundu, Tamil Nadu.

- **Literary & Cultural Contributions:** Pioneer of Tanittamil (Pure Tamil) Movement, advocating Tamil free from excessive Sanskrit influence.

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- World Zoonoses Day marks Louis Pasteur's first rabies vaccine administration in 1885. The 2026 theme– "One World, One Health: Prevent Zoonoses."
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 - It rejected the divine right of kings and stated that governments derive power from the "consent of the governed".
- **Impact:** It influenced the Universal Declaration of Human Rights, 1948.

- **Influence on India:** The US Constitution's Bill of Rights inspired Fundamental Rights in Part III of the Indian Constitution, especially Articles 14 and 21.

★ Nadaprabhu Kempe Gowda

The Vice-President marked the 517th birth anniversary of Nadaprabhu Sri Kempe Gowda (27th June) in Bengaluru, recalling his contribution to urban planning, inclusive governance and environmental conservation.

- **Historical Context:** Kempe Gowda (1510–1569), from the Morasu Gowda lineage, was a ruler and chieftain under the Vijayanagara Empire.
- **Foundation of Bengaluru:** With permission from Emperor Achyuta Deva Raya, he founded Bengaluru in 1537 by building Bengaluru Fort and establishing Bengaluru Pete.

★ He shifted his capital from Yelahanka and envisioned an inclusive city later seen as “Mini Bharat.”

- **Progressive Social Reforms:** He is known for prohibiting the amputation of the last two fingers of the left hand of unmarried women during “Bandi Devaru”, a custom among Morasu Vokkaligas.
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- **Legacy:** The 108-foot Statue of Prosperity in Bengaluru honours Kempe Gowda and is recognized by the World Book of Records as the world's tallest bronze statue of a city's founder.

★ Birth anniversary of Bankim Chandra Chattopadhyay

The PM paid homage to Bankim Chandra Chattopadhyay (1838–1894) — novelist, poet and journalist — on his birth anniversary, 27th June.

- **Early Life:** Born on 27th June 1838 at Naihati, Bengal Presidency; among the first graduates of Calcutta University; served as Deputy Magistrate and Deputy Collector.
- **Bengal Renaissance:** Known as the Father of the Modern Bengali Novel and a key Bengal Renaissance figure.
- **Major Works:** Anandamath (1882), Durgeshnandini (1865), Kapalkundala (1866), Vishabriksha (1873), Devi Chaudhurani (1884), Krishna Charitra.
- **Vande Mataram:** Published in Bangadarshan and later included in Anandamath; sung by Tagore at Congress session, 1896; became Swadeshi rallying cry; first two stanzas adopted as National Song in 1950.
- **Journalism:** Founded Bangadarshan in 1872 to promote Bengali identity and nationalist literature.
- **Nationalist Role:** Promoted cultural nationalism, Bharat Mata and deshbhakti through writings.
- **Legacy:** Died on 8th April 1894; revered as Sahitya Samrat.

★ MSME Day 2026-Udyami Bharat

The Vice President will preside over MSME Day 2026 – Udyami Bharat in New Delhi on 27th June 2026.

- **About:** MSME Day is celebrated on 27th June for MSMEs' role in growth, innovation, jobs, exports and inclusive development.
- **Key Achievements:** National Small Industries Corporation (NSIC) upgraded to Schedule 'A' CPSE; Ponduru Khadi, Andhra Pradesh, got GI tag.

- **Multilingual Access:** MSME portals offer services in 22 Scheduled languages via BHASHINI and NIC.
- **KVIC Product Launches:** KVIC to launch eco-friendly products: Tukun, Rangtaal, Bela, Vanya, Umang.

★ Facts For Prelims Key Initiatives

- **PMEGP 2.0 Portal:** Simplifies beneficiary lifecycle and links with Jan Samarth Portal for real-time loan processing.
- **SAMADHAAN 2.0 Portal:** Tracks dues owed to MSMEs by ministries, departments, CPSEs and government agencies.
- **Procurement and Marketing Support Portal:** Connects MSEs with trade fairs and exhibitions.
- **MSME Global Mart 2.0:** Digital commerce platform integrated with ONDC.
- **MSME Testing Portal:** Enables digital testing process, payments, tracking and report download.
- **MSME Idea Hackathon 6.0:** Supports innovators with up to ₹15 lakh per idea under MSME Champions Scheme.

DEFENCE & SECURITY

★ DRDO Tests Pinaka Long Range Guided Rocket

DRDO has successfully test-fired the Pinaka Long Range Guided Rocket at the ITR, Chandipur, Odisha, confirming its 60 km minimum strike range and high precision.

- An indigenous guided rocket for striking enemy positions, bunkers, artillery and logistics hubs from stand-off ranges.
- **Operational range:** 60–120 km; the latest test confirmed accurate engagement at the minimum 60 km range.
- The trial demonstrated complex energy reduction and steep manoeuvres, indicating no major dead zone within its range.
- Fired from an existing Pinaka launcher, which can deploy multiple rocket variants without separate launch systems.
- Developed by ARDE and HEMRL, with support from DRDL and RCI.
- One launcher fires 12 rockets in about 44 seconds; a six-launcher battery can fire 72 rockets and saturate nearly 1 sq. km.
- Its truck-mounted design supports high mobility and shoot-and-scoot operations.
- Strengthens India's indigenous artillery capability and supports development of proposed 300 km and 450 km variants.

★ Exercise RIMPAC

The Indian Navy's P-8i maritime patrol aircraft is taking part in RIMPAC 2026 in Hawaii.

- **RIMPAC:** It is the world's largest international naval exercise, hosted by the U.S. Pacific Fleet since 1971.
- **Objective:** Strengthens interoperability, Maritime Domain Awareness, readiness, and coordination among navies.
- **Theme:** RIMPAC 2026, the 30th edition, is themed “Partners: Integrated and Prepared.”
- **Participation:** Includes 30 nations, 30+ ships, 5 submarines, and 200+ aircraft, with India, US, Australia, Japan, France, UK, South Korea, Singapore and Indonesia.

- **Training Areas:** Covers anti-submarine warfare, air defence, amphibious operations, missile drills, counter-piracy, mine countermeasures, and salvage operations.
- **Significance:** Helps the Indian Navy improve coordination with partner navies and support Indo-Pacific maritime security.

★ P-8i Maritime Patrol Aircraft

- **P-8i Maritime Patrol Aircraft:** Multi-role, long-range maritime reconnaissance and anti-submarine warfare aircraft based on the Boeing 737-800 platform.
- **Role:** Supports maritime surveillance, strike missions, electronic warfare, search and rescue, and targeting support.
 - Used for reconnaissance and surveillance during the post-Galwan high-altitude stand-off.
- It can carry air-to-ship missiles and torpedoes. India operates 12 P-8i aircraft and plans to acquire 6 more.

★ VIJAY Roadmap for the Indian Army

Army Chief General Dhiraj Seth, the 31st Chief of the Army Staff, has unveiled the 'VIJAY' roadmap to build a digitised, technology-enabled, Aatmanirbhar and multi-domain-capable Army, in line with the MoD's Decade of Transformation (2023–2032).

★ Core Pillars of 'VIJAY' Roadmap

- **Vigilance (V):** Ensures operational readiness and alertness along borders.
- **Innovation and Transformation (I):** Integrates modern doctrine, new technologies and rapid capability development.
- **Jointness and Integration (J):** Promotes synergy among Army, Navy and Air Force with a Whole-of-Nation approach.
- **Aatmanirbharta (A):** Focuses on indigenous defence solutions and self-reliance.
- **Yodha First (Y):** Prioritises training, tech-skilling and welfare of soldiers, Agniveers, veterans and Veer Naris.

★ Project UNICORN: India-Japan's First Joint Defence Co-development Project

India and Japan have announced their first joint defence co-development project, unveiled at the 16th Annual Summit in New Delhi in July 2026, to manufacture the UNICORN (Unified Complex Radio Antenna) Mast for future Indian Navy warships.

- India becomes the second Asian country after the Philippines to receive Japanese defence technology.

★ UNICORN Mast

- **About:** Advanced unified mast integrating multiple communication systems and antennas into one structure.
- **Stealth advantage:** Reduces radar cross-section, improving warship stealth and tactical evasion.
- **Other name:** Also known as Nora-50.
- **Make in India:** BEL will manufacture it with Japanese partners; Japan provides design expertise, India handles integration and production.
- **Naval upgrade:** Expected to replace existing ACCS-based external communication infrastructure.
- **Significance:** Enhances secure communication, maritime capability, and India-Japan cooperation for a free, open Indo-Pacific.

★ Project BRAHMANK Project BRAHMANK of BRO celebrated its 16th Raising Day on 29 June 2026 at Ranaghat, Arunachal Pradesh; its area was carved out from Project Arunank and Project Udayak.

- **Mandate:** Develops and maintains strategic roads in Siang, East Siang, West Siang, Upper Siang, Shi-Yomi districts of Arunachal Pradesh and parts of Dhemaji, Assam.
- **Infrastructure:** Responsible for 811 km roads and about 86 bridges.
- **Major works:** Built 100-m steel arch bridge over Siyom Nallah and 165-m PSC bridge over Simang Nallah.
- **Significance:** Improves Armed Forces' operational connectivity, village access, and socio-economic integration.

★ Border Roads Organisation (BRO)

- **About:** India's key agency for infrastructure in high-altitude, snow-bound and difficult terrains.
- **Genesis:** Established on 7 May 1960 with Project Vartak and Project Beacon.
- **Presence:** Operates 18 field projects across 11 States and 3 UTs.
- **Mandate:** Builds and maintains strategic border infrastructure for all-weather connectivity and defence readiness.
- **Framework:** Works under the Ministry of Defence and Border Roads Development Board.
- **Key assets:** Atal Tunnel, Sela Tunnel, Shinkun La Tunnel, Siyom, Sisseri and Devak bridges.
- **Global outreach:** Project DANTAK, India-Myanmar Friendship Road, Delaram-Zaranj Highway, and works in Tajikistan.

★ Army to Raise Baaz Battalions

The Indian Army will raise dedicated drone units called Baaz Battalions to strengthen its unmanned-warfare capability.

- **About:** Baaz Battalions will operate, manage and sustain the Army's drones and Remotely Piloted Aircraft systems.
- **Structure:** They will build on existing Remotely Piloted Aircraft (RPA) Flights and create a specialist cadre of trained drone personnel.
- **Objective:** They will enhance surveillance, reconnaissance, intelligence gathering, target tracking and battlefield assessment through real-time aerial inputs.
- **Operational Value:** RPAs will improve situational awareness, enable faster command decisions, support rapid response and reduce risks to personnel.
- **Need:** The move reflects lessons from the Russia-Ukraine war, LAC standoffs with China and Operation Sindoor.
- **Significance:** They will strengthen border monitoring, drone warfare preparedness, operational readiness along sensitive frontiers and coordination with intelligence systems.

★ Garudastra Mortar System

India has successfully test-fired Garudastra, an indigenous long-range 120 mm vehicle-mounted mortar system, at Mhow, Madhya Pradesh.

- **About:** Garudastra is an indigenous 120mm vehicle-mounted mortar system for accurate indirect fire support with high mobility and rapid response.

- **Features:** It has rapid deployment, high rate of fire, shoot-and-scoot capability, MRSI, precision-guided munitions and command-and-control network integration.
- **Precision:** It can engage targets at 7–10 km using GPS and laser guidance with minimum collateral damage.
- **Mobility:** It can take firing position in less than 30 seconds, fire two rounds within 15 seconds, and relocate in under 15 seconds.
- **Firepower:** Operated by a two-member crew, it can fire 12 rounds in 60 seconds while maintaining accuracy.
- **Warhead:** It carries a 17-kg penetrating warhead effective against reinforced concrete, bunkers and hardened structures.
- **Significance:** It strengthens indigenous defence manufacturing and supports Make in India and Aatmanirbhar Bharat.

★ Netra Airborne Early Warning and Control (AEW&C) System

India's indigenous Netra AEW&C system has received Final Operational Clearance, clearing it for full operational deployment by the Indian Air Force.

★ Netra AEW&C

- **About:** India's first indigenous airborne surveillance and battle-management system, developed by DRDO-CABS.
- **Global Status:** India became the 5th country after the US, Russia, Israel and China to develop indigenous AEW&C capability.
- **Platform:** Integrated on Brazilian Embraer EMB-145I, acting as an "eye in the sky."
- **Capabilities:** AESA radar, IFF, mission computer, secure communication, ESM, CSM and self-protection systems.
- **Operational Role:** Provides early warning, real-time battlefield awareness and airborne command-and-control.
- **Background:** Began with Project Guardian in the 1980s; revived after the 1999 Arakkonam setback.
- **Operations:** Used in Balakot strikes (2019) and Operation Sindoor (2025).
- **Significance:** Indigenous design gives India control over software, source codes and upgrades.
- **Future:** Six upgraded Netra Mk-1A approved; Netra Mk-2 on Airbus A321 planned.

accountability and retain human authority in critical areas such as healthcare, policing and justice.

- **Global South and Capacity Gaps:** Developing countries need technological, financial and institutional support to participate in AI rule-making and benefit equitably.
- **India's Domestic Approach:** The National Strategy for AI and National AI Governance Guidelines follow "AI for All", promoting inclusion and innovation without unnecessary restrictions.
- **Major Global Concerns:** Deepfakes, sexual abuse, threats to children, autonomous weapons, deceptive AI, environmental costs, unequal access, and widening economic, security and sovereignty gaps.
- **Significance:** India and the UN supported consensus-based multilateral governance, harmonised safety testing, legal accountability, transparent environmental reporting, renewable-powered data centres, and stronger protection of children and human rights.

★ India Seeks Clarity on 'Climate Tipping Points' at Bonn Climate Conference 2026

At SB64 of the UNFCCC in Bonn, India cautioned against using the term 'climate tipping points' in negotiations without clear definitions and firm scientific consensus, as talks laid technical groundwork for COP31 in Antalya, Türkiye.

- **Climate Tipping Points:** Critical thresholds in the Earth's climate system that may trigger rapid, self-reinforcing, and irreversible changes.
- **Major Global Examples:** Amazon dieback, AMOC collapse, coral reef bleaching, and shifts in Indian and West African monsoons.
- **India's Stand on Scientific Rigor:** India said the term lacks a universally accepted definition, with uncertainty over thresholds, timing, and impacts.
- **The 1.5°C Misconception:** 1.5°C and 2°C under the Paris Agreement are political temperature targets, not proven tipping points.
- **The EU's Pushback:** The EU called India's demand for clarity misinformation and an obstruction to urgent climate action.
- **Implications for Developing Nations:** Poorly defined thresholds may impose unfair mitigation burdens on the Global South, weakening Equity and CBDR.
- **Climate Finance & Trade Measures:** India flagged falling climate finance and opposed unilateral measures like the EU's CBAM for penalising developing countries.

★ Bonn Climate Change Conference

- Mid-year UNFCCC summit, formally called Sessions of the Subsidiary Bodies, held before COP to review climate commitments, advance technical talks, and prepare the COP agenda.
- **Key Bodies:** Supported by SBI for implementation and support, and SBSTA for scientific and technological advice based on IPCC assessments.

★ Textiles Summit 2026

The Textiles Ministry has wrapped up Textiles Summit 2026, with discussions centred on sustainability, exports, expanding global markets and India's USD 100 billion textile-export target for 2030.

SUMMITS & CONFERENCES

★ 1st UN Global Dialogue on AI Governance

The first UN Global Dialogue on AI Governance was held in Geneva to work towards a shared approach to AI governance; the second session is set for New York in May 2027.

- **About:** Established under UNGA Resolution 79/325 after the Global Digital Compact, 2024, the Dialogue promotes cooperation, scientific understanding, accountability and capacity-building in AI governance.
- **India's Position:** India advocated a human-centric, inclusive, safe, secure and trustworthy AI framework with meaningful human oversight.
- **Foundational Principles:** AI governance must protect human rights, prevent misuse and discrimination, ensure

- **About:** The summit brought together States, industry, academia, and Export Promotion Councils to prepare a National Textile Export Roadmap, focusing on implementation, value addition, product-market alignment, niche and high-value products, quality, innovation, and sustainability.
- **Sustainability and Traceability:** Emphasis was placed on environmental standards, quality certification, digital product passports, supply-chain traceability, closed-loop recycling, circularity, and textile-waste management through State-municipal collaboration.
- **Export Competitiveness:** Industry was urged to use Free Trade Agreements, diversify markets and products, expand man-made fibre exports, strengthen Brand India, and align policies with global regulations.
- **Districts as Export Hubs:** States and UTs were encouraged to join the revived initiative to reduce district-level information gaps and improve local export readiness.

★ Key Facts About Textile Industry

- India's textiles and apparel industry is valued at ~USD 179 billion and contributes nearly 2% of GDP.
- India is the 6th-largest global exporter, accounting for around 4% of world textile and apparel exports.
- It is India's second-largest employment-generating sector after agriculture.
- 100% FDI is permitted under the automatic route.

★ BRICS Space Agencies Meeting Concludes in Bengaluru

The Union Earth Sciences Minister proposed a 'BRICS Space Economy' at the BRICS Heads of Space Agencies meeting in Bengaluru, built around entrepreneurship and sustainable development.

- **About:** Hosted by ISRO under India's BRICS Chairship 2026, the meeting included space agency heads and officials from Brazil, China, Egypt, Ethiopia, Indonesia, Iran, Russia, South Africa, and the UAE.
- **Purpose:** To review BRICS space cooperation and use space technology for shared prosperity, resilience, and global challenges.
- **Focus Area:** Discussions covered space sustainability, debris-free missions, the BRICS Remote Sensing Satellite Constellation, new-member participation, and the proposed BRICS Space Council.
- **Future Collaboration:** Cooperation was explored in disaster management, Earth observation, capacity building, knowledge sharing, and satellite-data sharing.
- **India's Space Ecosystem:** India highlighted its NewSpace sector, private companies, startups, and missions such as Chandrayaan-3, Aditya-L1, and Gaganyaan.
- **Significance:** India urged BRICS to shift from coordination to co-creation, joint innovation, co-development, responsible space behaviour, sustainable operations, and stronger partnerships.

PLACES IN NEWS

★ Sarnath: India's 45th UNESCO World Heritage Site

Sarnath has been added to the UNESCO World Heritage List, taking India's tally to 45 sites — the 6th-highest count worldwide and 2nd-highest in the Asia-Pacific.

★ Key Facts About the Ancient Buddhist Site of Sarnath

- **Historical and Spiritual Significance of Sarnath:** Buddha delivered his first sermon here in the 6th century BCE, known as Dharmachakra Pravartana.
- **Birthplace of the Sangha:** Buddha met his first disciples here, marking the beginning of the Buddhist Sangha and the teaching of the Noble Eightfold Path.
- **One of the Four Principal Pilgrimage Sites:** Sarnath is one of the four major Buddhist pilgrimage sites, along with Lumbini, Bodhgaya and Kushinagar.
 - Of these, Lumbini, Bodhgaya and Sarnath are UNESCO World Heritage Properties.
- **Historical Nomenclature:** Ancient names include Rishipatana, Ishipatana and Mrigadava (Deer Park).
- **National Emblems Found:** Excavations yielded the Mauryan Lion Capital, India's National Emblem, and the Dharmachakra Pravartana Buddha statue of the Gupta period. They are housed in the Sarnath Site Museum, established in 1904.

★ Sarnath as a UNESCO World Heritage Property

- **UNESCO Selection Criteria:** Placed on India's Tentative List in 1998 and inscribed under Criterion (iii) for its spiritual significance and Criterion (vi) for its association with the Buddha, his teachings and Triratna.
- **Site Components:** The serial property includes Chaukhandi Stupa and the Archaeological Remains of Sarnath, including Dhamekh Stupa, Dharmarajika Stupa, Mulagandhakuti Vihara and Ashokan Pillar.
 - **Dhamekh Stupa:** Marks the site of the Buddha's First Sermon.

★ Facts For Prelims

- **Dharmarajika Stupa:** An early Buddhist stupa, traditionally commissioned by Emperor Ashoka to preserve the Buddha's relics.
- **Mulagandhakuti Vihara:** Believed to be the Buddha's residence during his first Varshavasa at Sarnath.
- **Ashokan Pillar:** Erected by Emperor Ashoka in the 3rd century BCE; its Lion Capital is India's National Emblem. The site also contains remains of temples, monasteries, shrines and other structures, reflecting over two millennia of Buddhist learning, pilgrimage and monastic life.

★ First-Ever Fencing of Sundarbans Border

The Home Affairs Ministry will fence roughly 90 km of the Sundarbans along the India-Bangladesh border in West Bengal to tighten security across this difficult terrain.

- BSF has begun feasibility and technical studies for fencing the Sundarbans border, where mangroves, tidal swamps, creeks and marshy terrain complicate surveillance.
- With no ground barriers, the BSF currently uses Floating Border Outposts.
- The India-Bangladesh border in West Bengal is about 2,216.7 km long.

★ **Sundarbans**

- **About:** World's largest mangrove forest, located in the Ganges–Brahmaputra–Meghna delta along the Bay of Bengal.
- **Flora and Fauna:** Supports 84 plant species, including 26 mangrove species, and 453 faunal species, including 120 fish, 290 birds, 42 mammals, 35 reptiles and 8 amphibians.
 - It shelters threatened species such as the estuarine crocodile, Gangetic dolphin, olive ridley turtle and water monitor lizard.
 - **More than 12 million people depend on the ecosystem:** 4.5 million in India and 7.5 million in Bangladesh.
- **Protection:** Around 40% of the Sundarbans lies in India.
 - **UNESCO World Heritage Site:** India in 1987 and Bangladesh in 1997
 - **Ramsar Site:** Indian Sundarbans in Jan 2019
 - **Project Tiger:** Habitat of the Royal Bengal Tiger
 - **Biosphere Reserve:** The Sundarbans is a Biosphere Reserve containing: Sundarbans National Park; Sundarbans East Wildlife Sanctuary; Sundarbans South Wildlife Sanctuary; Sundarbans West Wildlife Sanctuary; Sundarbans Reserve Forest, Bangladesh Ecological Recovery of J&K's Manasbal Lake Manasbal Lake, J&K, is witnessing ecological recovery, marked by the return of diverse migratory birds after habitat restoration and hydrological management.
- **Geographical Profile:** Manasbal Lake, an alkaline, spring-fed freshwater lake in Ganderbal district, is India's deepest freshwater lake at about 13 m. It is sustained by precipitation, groundwater springs, and runoff.
- **Avian Biodiversity Indicators:** The lake hosts over 46 bird species from 23 families. The return of species such as Mallards, White-Headed Ducks, Horned Grebes, and Long-Eared Owls indicates improving water quality.
- **Habitat Restoration Measures:** The Wullar-Manasbal Development Authority has undertaken dredging and weed removal to restore circulation and control excessive vegetation.
- **Hydrological Management (Water Budgeting):** The J&K Water Resources Regulatory Authority will assess carrying capacity, water withdrawals, and surplus availability.

Mechanised gates and gauge meters are expected to help keep ecological water levels in balance.

- **Pollution Mitigation Framework:** Measures include a Sewerage Treatment Plant, an integrated solid waste management plant, and trash guards along the Lar irrigation canal.
- **Community-Led Conservation:** Initiatives include World Wetland Day, bird-watching festivals, and eco-friendly tourism to reduce human pressure.

★ **Major Lakes of Kashmir**

- **Wular Lake:** Asia's 2nd largest freshwater lake and a Ramsar Site; important for flood regulation and fisheries.
- **Dal Lake:** Iconic urban lake known for houseboats, shikaras, and Mughal gardens.

- **Manasbal Lake:** India's deepest freshwater lake; noted for biodiversity and wetland restoration.
- **Surinsar-Mansar Lakes:** Ramsar Sites valued for ecological, scenic, and cultural importance.

★ **Phu Quoc Island**

A speedboat capsized off Vietnam's Phu Quoc Island, causing multiple casualties, including Indian tourists.

★ **Vietnam's Phu Quoc Island**

- **About:** Vietnam's largest island, known as "Pearl Island," and a major tropical tourist destination.
- **Location and Size:** Located near Cambodia, it covers about 574 sq km, extends roughly 50 km, and is part of an archipelago of 22 islands.
- **Natural Environment:** It has over 150 km of coastline, mountains up to about 630 m, forests, waterfalls, caves, and rock pools. More than half the island has been part of a UNESCO Biosphere Reserve since 2006.
- **Economy and Local Products:** Major activities include fishing, agriculture, tourism, and production of fish sauce, black pepper, and pearls.
- **Religious Heritage:** The island has Cao Dai temples, representing Caodaism, a syncretic Vietnamese religion.

★ **Mizoram Museum Notified as India's 21st Designated Repository**

On the National Biodiversity Authority's recommendation, the MoEFCC has notified the Natural History Museum, Mizoram, as India's 21st Designated Repository under the Biological Diversity Act, 2002.

- **About:** Designated Repositories preserve authenticated biological specimens accessed under the Biological Diversity Act, 2002.
- **NHM Mizoram:** Established in 2022 under Mizoram University, located in the Indo-Burma Biodiversity Hotspot.
- **Specimens:** It will maintain voucher specimens of selected flora like pteridophytes, macrofungi, and fauna like reptiles, amphibians, fishes, moths, beetles, butterflies.
- **Role:** It will act as depository for type specimens of newly discovered species, aiding identification, traceability and research.
- **Regional Biodiversity:** Mizoram and the North-east have over 7,500 flowering plant species and 2,000+ faunal species.
- **Significance:** It will support resource safeguarding, long-term conservation and ecological restoration.
- **Relevance:** It strengthens ex situ conservation and supports National Biodiversity Target 4 under NBSAP 2024-2030, aligned with the Kunming-Montreal GBF.

★ **Indian Navy Foils Piracy Attempt in Gulf of Aden**

INS Trikand, backed by MARCOS commandos, responded to a piracy attempt on the vessel MV Golden Arsenal roughly 300 nautical miles east-northeast of Djibouti in the Gulf of Aden, amid a rise in piracy incidents across the Western Indian Ocean.

★ **Gulf of Aden**

- **Location:** Between Arabian Peninsula and Africa; bounded by Yemen, Somalia, Socotra, Arabian Sea and Djibouti.
- **Connectivity:** Links Somali Sea via Guardafui Channel and Red Sea via Bab el-Mandeb.

- **Major Ports:** Aden, Djibouti City, Berbera, Zeila and Bosaso.
- **Economic Importance:** Carries around 10% of global seaborne petroleum and over USD 110 billion of India's trade.
- **Threats:** Faces piracy, armed attacks, trafficking, terrorism and conflict-linked disruptions.

★ Rakhigarhi Skeletons Transferred for Scientific Research

The ASI has handed over human skeletal remains recovered from Rakhigarhi, Haryana, to the Anthropological Survey of India for in-depth scientific study.

- **Transfer:** Under a recent MoU, three complete skeletons and fragments shifted to ASI's Kolkata laboratory.
- **About:** Rakhigarhi spans about 550 hectares and is one of the largest known Harappan settlements.
- **Evidence:** Excavations show planned settlements, drainage, craft centres, trade networks, and burial grounds from Early to Mature Harappan periods.
- **Burials:** Mound 7 yielded 56 skeletons, including a woman dated around 4,600 years ago.
- **Ancestry:** DNA analysis of the Rakhigarhi woman showed absence of Steppe Pastoralist genetic component.
- **Methods:** Study to use ancient DNA, stable isotopes, osteology, palaeopathology, and environmental reconstruction.

★ Facts For Prelims

- **Significance:** Insights into ancestry, migration, diet, disease, health, social status, adaptation, and human-environment relations.

★ China's LineShine Becomes World's Fastest Supercomputer

China's LineShine supercomputer has topped the latest TOP500 rankings, overtaking the US's El Capitan as the world's fastest publicly ranked supercomputer, with Frontier (US) at 3rd, Aurora (US) at 4th, and JUPITER Booster (Germany) at 5th.

- **TOP500 List:** Published twice a year since 1993; ranks supercomputers using the High Performance LINPACK (HPL) benchmark.
- **About LineShine:** Located at the National Supercomputing Center, Shenzhen; perform over two quintillion calculations per second.
 - It expanded the global exascale club to five systems, with Asia, North America, and Europe all hosting HPL exaflop-class supercomputers.
- **Technical Uniqueness:** First TOP500 system to cross two exaflops with a CPU-only architecture.
- **HPC-AI Convergence:** Shows merger of HPC and AI for simulations and machine-learning workloads.
- **Applications:** AI-assisted weather forecasting, rainfall prediction across East Asia, and atomic-level simulations of magnetic materials.
- **Significance:** Developed largely with Chinese technology, despite US export restrictions on advanced AI chips and semiconductor tools.

★ Jaipur Among World's Best Cultural Cities

Jaipur has been ranked 18th globally in Time Out's Best Cities for Art and Culture 2026, making it India's highest-ranked city on the list.

- London topped the list, followed by Paris, New York City, Berlin, and Cape Town.
- Ranking was based on a survey of 24,000+ residents across 150+ cities, plus inputs from editors and cultural experts.

★ Jaipur

- **About:** Capital of Rajasthan, part of Delhi-Agra-Jaipur Golden Triangle.
 - Founded in 1727 by Sawai Jai Singh II.
 - One of India's earliest planned cities.
- **Planned Pink City:** Designed by Vidyadhar Bhattacharya on Vastu Shastra principles.
 - Divided into nine blocks.
 - Called Pink City after being painted pink in 1876.
- **Architectural Heritage:** Key sites- Hawa Mahal, City Palace, Amber Fort, Jal Mahal, Nahargarh Fort, Jaigarh Fort, Jantar Mantar.
- **UNESCO World Heritage Site:** Jaipur Walled City inscribed as UNESCO World Heritage Site, 2019.
- **Management:** Managed through Conservation Management Plan (CMP), Integrated Management Plan, and State-level Heritage Regulations.
- **Vibrant Cultural Calendar:** Events- Jaipur Literature Festival, Jaipur Art Week, The Manganiyar Seduction.

PORTALS & APPS

★ Indiahandmade Platform Promotes India's Craft Heritage

Indiahandmade, part of the Digital India push, is bringing India's handloom and handicraft traditions online while supporting artisan livelihoods, cultural preservation and rural employment.

- **About:** Launched in 2023, Indiahandmade is a digital marketplace by Digital India Corporation under the Ministry of Textiles, connecting artisans and weavers directly with buyers.
- **Importance of the Sector:** India has around 64.66 lakh handloom and handicraft artisans; women account for 71% of handloom weavers and 64% of total artisans.
- **Direct Market Access:** It reduces intermediaries and expands artisan access beyond local markets.
- **Wide Product Range:** Includes apparel, home décor, furnishings, paintings, furniture, religious items, stationery, musical instruments, jewellery, bags and footwear.
- **Promotion of Regional Identity:** Promotes GI-tagged and ODOP products like Aipan art, Pashmina shawls, Dokra décor, Tangail sarees, Banarasi silk, Ikat, Chanderi silk and terracotta products.
- **Trust and Accessibility:** Provides secure payments, free shipping, purchase protection, buyer support and simple onboarding for artisans, weavers and producer organisations.
- **Significance:** Plans to onboard over 60 lakh artisans, supporting Atmanirbhar Bharat, digital market access, small sellers and India's handmade heritage.

★ SHE-LEAPS Platform SHE-LEAPS was launched under 'Gramodaya Se Rashtrodaya', to support "Viksit Gram - Viksit Bharat."

- **About:** SHE-LEAPS stands for Self-Help Entrepreneur-Livelihoods and Enterprise Application for Prosperity and

Sustainability; a digital platform to empower women-led SHG enterprises in rural India.

- **Development and Platform:** Developed by Digital India Corporation (DIC) and implemented under LokOS, which captures activities of CBOs such as SHGs, Village Organisations and Cluster Level Federations.
- **Objectives:** Empowers rural SHG women entrepreneurs, strengthens women-led enterprises, links rural producers with formal value chains, enhances financial inclusion and enables data-driven rural entrepreneurship.
- **Implementation and Features:** To be implemented in 34 States/UTs; helps State Rural Livelihood Missions (SRLMs) capture real-time enterprise data, track livelihood journeys, improve monitoring, planning and decision-making.
- **Link with Lakhpati Didi Mission:** Supports Lakhpati Didi Mission through end-to-end tracking of income growth and enterprise performance, as the target expanded from 3 crore to 6 crore women.
- **Significance:** Combines digital infrastructure, entrepreneurship and women's empowerment to support enterprise expansion, financial inclusion and women-led rural economic transformation.

★ MANAS: Digital Platform Against Drug Abuse

The government is deploying MANAS, alongside public-health measures and law enforcement, to fight drug abuse and trafficking under the Nasha Mukh Bharat campaign.

- **About:** Launched on 18th July 2024, MANAS (Madak Padarth Nishedh Asoochna Kendra) is India's National Narcotics Helpline under NCB, Ministry of Home Affairs.
- **Access and Partners:** Developed with Digital India Corporation; accessible via 1933, portal, email and UMANG app.
- **Core Objective:** Enables confidential reporting of drug trafficking, peddling, illegal cultivation and related activities.
- **Counselling and Rehabilitation:** Addiction-related calls are transferred to MoSJE helpline 14446 for counselling and de-addiction support.
- **Digital Workflow:** Uses digital tickets, workflow management, tracking and data analytics for coordination, hotspot identification and faster response.
- **Agency Linkage:** Connects citizens with 30 NCB Zonal Units and 36 State/UT Anti-Narcotics Task Forces.
- **Significance:** Strengthens secure reporting, counselling access, digital governance, coordination and citizen-led anti-drug action.

★ Kisan Sarathi Platform Kisan Sarathi provides farmers with advisories, expert support, weather updates, market prices, and scheme information on a single platform.

- **About:** Kisan Sarathi is India's integrated digital agro-advisory platform for farmers.
- Launched in July 2021.
- Joint initiative of MeitY and Ministry of Agriculture and Farmers Welfare.
- Implemented by IASRI and Digital India Corporation.

- Connects farmers with KVKs, ICAR institutes, agricultural universities, and experts.
- Uses Interactive Information Dissemination System for two-way personalised advisories.
- Integrates Kisan Call Centre, CSC, IMD, MyScheme, and BHASHINI.
- Provides region-specific advisories, weather updates, mandi prices, market trends, training, video consultations, scheme discovery, and PM-KISAN information.
- Supports live interaction in 13 regional languages and has handled 19.21 lakh farmer queries.
- **Significance:** Strengthens lab-to-land transfer, farmer decision-making, expert support, and digital agriculture.

★ Rural Internal Audit Portal

The Union Rural Development Minister launched the AI-enabled Rural Internal Audit Portal at the Rashtriya Gramin Vikas Sammelan in New Delhi.

- Developed with National Informatics Centre (NIC); manages the end-to-end internal audit lifecycle.
- **Comprehensive Core Coverage:** Unified digital ecosystem for compliance and risk-based audits, replacing paper-heavy audit systems with an automated, transparent mechanism.
- **Phased Rollout History:** After pilot phase, all core modules became operational from October 2025.

★ Facts For Prelims

- **Geospatial Tracking Capability:** Map View Module gives geospatial view of audits across India and identifies units never audited.
- **AI and Machine Learning Integration:** Uses AI and analytics for predictive risk-scoring, pattern recognition for leakages, and data-led audit planning.
- **Pan-India Civil Ministry Adoption:** CGA, Ministry of Finance mandated its implementation across all civil ministries and departments in December 2025.
- **Action Taken Report (ATR) Automation:** Digitizes ATR submission and settlement of audit paragraphs for real-time compliance monitoring.
- **Technology:** Secure architecture with role-based access, centralized monitoring, secure API integrations, audit logging, backups, disaster recovery, and separate development/testing/production environments.
- **Centralized Record Management:** Stores audit records, compliance responses, and reports in a centralized repository, keeping failures and financial irregularities traceable.
- **Environmental and Administrative Outcome:** Enables paperless public financial management and shifts internal audit into a strategic management tool.

SPECIES IN NEWS

★ Spotted Deer

Under the Wildlife Protection Act, 1972, the Chief Wildlife Warden is empowered to permit translocation of the species for scientific management.

- **Objective:** Strengthen the prey base, enhance biodiversity and reduce predator movement into human settlements.

- A larger herbivore population helps carnivores meet food needs within forests, lowering conflict and improving ecosystem stability.

- **Post-release Monitoring:** Forest guards, trackers and camera traps will monitor movement, habitat use, health and survival.

★ Spotted Deer

- **Scientific Name:** Axis axis; also called Chital, Cheetal or Axis Deer.
- **Distribution:** Native to India, Nepal, Bhutan, Bangladesh and Sri Lanka; invasive in the Andaman Islands.
- **Habitat:** Deciduous forests, grasslands, riverine areas and forest fringes.
- **Physical Features:** Golden-brown coat with white spots; only males have three-pronged antlers, shed and regrown annually.
- **Diet:** Grasses, shoots, leaves and fallen fruits.
- **Ecological Role:** Associates with langur monkeys and is a major prey species for tigers, leopards, Asiatic lions and Indian wolves.
- **Conservation Status:** IUCN: Least Concern; Schedule II of the Wild Life (Protection) Act, 1972.

★ Breeding of Indian Grey Hornbills in Gir

The Indian Grey Hornbill has bred in Gujarat's Gir forests for a fourth straight year following its 2021 reintroduction, ending an absence of over 60 years.

- 40 hornbills were translocated from Gujarat's Aravalli forests.
- 11 males were fitted with satellite transmitters to track movement, habitat use, settlement and breeding behaviour.

★ Indian Grey Hornbill

- **About:** A hornbill species of the Indian subcontinent found in forests, orchards, scrublands, gardens and urban areas with old trees.
- **Distribution:** Found across India from Jammu to Kerala and Rajasthan to West Bengal, and in parts of Pakistan, Nepal and Bangladesh.
- **Habitat:** Prefers dry plains, foothills, deciduous forests, thorny scrub and open wooded landscapes.
- **Habitat Recovery:** Protection following the declaration of Gir Wildlife Sanctuary in 1965 and Gir National Park in 1975 supported its reintroduction.
- **IUCN Status:** Least Concern
- **Appearance:** Ashy-grey body, long tail with a white band and a curved ivory-coloured beak with a blackish base.
- **Casque:** Narrow casque on the beak; larger in males.
- **Eye Features:** Adults have red eyes with grey surrounding skin; juveniles have brown-orange eyes with reddish- orange skin.
- **Ecological Role:** An important seed disperser supporting tree regeneration.

★ Gitchak nakana: First Blind Aquifer-Dwelling Fish in Northeast India

Gitchak nakana, a newly described genus and species of blind, aquifer-dwelling fish, was found in a dug-out well in Assam — the first such record from Northeast India and the Eastern Himalayas.

★ Gitchak nakana

- **Name:** Gitchak = red; nakana = blind fish in the Garo language.
- **Taxonomy:** New genus and species of the Cobitidae (true loach) family.
- **Habitat:** Rare subterranean (aquifer-dwelling) fish found in a single dug-out well in Assam.
- **Significance:** First evidence of phreatobitic fauna in the Eastern Himalayas; earlier such fishes were mainly known from the Western Ghats.
- **Conservation:** Highlights the need to protect restricted subterranean species; Neolissochilus pnar (Meghalaya cave mahseer) is threatened by the aquarium trade.

MISCELLANEOUS

★ 23rd Commonwealth Games 2026

The 23rd Commonwealth Games are being held in Glasgow, Scotland (23rd July–2nd August 2026), with 74 nations and territories taking part.

- **Featured Sports:** 2026 edition includes 10 sports (9 fewer than Birmingham 2022).
 - **Sports:** Athletics, swimming, 3×3 basketball, track cycling, weightlifting, bowls, artistic gymnastics, netball, boxing and judo.
- **Indian Participation:** India is participating with a 125-member contingent, including para-athletes.
 - Indian athletes will compete in athletics, boxing, weightlifting, judo, artistic gymnastics, track cycling, bowls, swimming and para-sports.
 - India will not participate in 3×3 basketball and netball.
- **India's CWG Record:** India first participated in the Commonwealth Games in 1934.
 - **Best performance:** 2010 Commonwealth Games (Delhi) with 101 medals.

★ Borophene-Based Green Lubricant

Researchers at IASST, Guwahati, an autonomous institute under the DST, have demonstrated the first-ever use of borophene as a lubricant additive in castor oil — an innovation that could enable more energy-efficient, sustainable green lubrication technology.

- **Need for Research**
 - Friction and wear cause major energy losses and machinery failures.
 - Castor oil is renewable and biodegradable but requires additives for better lubrication performance.
- **Borophene**
 - A 2D nanomaterial made of boron atoms with high mechanical strength and electrical conductivity. supercapacitors, fuel cells and green lubrication.
 - Addition of just 0.1 wt.% borophene to castor oil reduced friction by ~42% compared to pure castor oil.
 - Forms a protective tribofilm containing iron oxides, carbonaceous species and boron compounds, reducing wear and improving load-bearing capacity.
- **Significance**

- Improves machinery efficiency, reduces energy consumption and extends equipment life.
- Supports sustainable lubrication technologies with applications in renewable energy, marine systems and green manufacturing.

★ **Pellet Guns and Shock Batons** Pellet guns came under scrutiny after allegations of their use during the July 2026 Delhi youth and student protest organised by the CJP.

★ Pellet Guns

- **Classification:** Considered “non-lethal” crowd-control weapons along with tear gas and water cannons, but can cause fatal injuries and permanent blindness when fired at close range.
- **Working:** Fire cartridges containing hundreds of lead pellets to immobilize targets.
- **Manufacturing & SOPs:** Manufactured at Ordnance Factory, Ishapore; SOPs require minimal firing and aiming below the waist.
- **Use in India:** Introduced during the 2010 Kashmir unrest; faced criticism after the 2016 Kashmir unrest due to mass blinding injuries.
- **Alternative:** Plastic bullets were introduced in 2017, tested by TBRL, Chandigarh.

★ Shock Batons

- **About:** Handheld electroshock devices used for non-lethal self-defence and crowd control.
- **Function:** Deliver high-voltage, low-current shocks causing temporary pain and muscle disruption.
- **Use in India:** Carried by Rapid Action Force (RAF) personnel.
- **MHA/BSF Standards (2021):**
 - **Weight:** ≤1 kg; Length: 450–700 mm
 - **Operating range:** –20°C to +50°C
 - **Service life:** minimum 5 years
 - **Rechargeable battery:** 1,000 quarter-second shock bursts per charge.

★ **Facts For Prelims** New Exoplanet Discovered Around Beta Pictoris Using the James Webb Space Telescope (JWST), astronomers discovered the hidden giant exoplanet Beta Pictoris d in the Beta Pictoris star system (63 light-years from Earth in the Milky Way).

★ Beta Pictoris System

- A young planetary system (~23 million years old) that helps study planet formation and planet-disk interactions.
- **Earlier known planets:** Beta Pictoris b and Beta Pictoris c.
- With Beta Pictoris d, it became the second known system with three directly imaged planets.

★ Beta Pictoris d

- A gas giant exoplanet with at least 2 times Jupiter's mass; smallest among the three known giant planets in the system.
- Orbits its star at around 30 AU and has the widest orbit in the system.
- Remained hidden due to the system's bright debris disk, which hindered direct imaging.

★ India's 1st Immersive Language Museum

The Union Home Minister inaugurated the Museum of Word (Shabdlok) on the National Library campus in Kolkata.

- Shabdlok is India's first immersive museum on languages, words and multilingual heritage, developed by the National Library of India under the Ministry of Culture.
 - It is India's largest library by collection size..
- It explains the link between language, culture and intergenerational transmission of traditions.
- Uses visual, auditory, tactile and immersive displays to present India's linguistic diversity.
- Traces the evolution of language from Omkar, Panini, Shruti-Smriti and inscriptions to manuscripts, printing and digital archives.
- Exhibits include dialects, folk traditions, copper plates, Bhojpatra texts, manuscripts, printed books and lullabies.

★ QDENG: India's 1st Dengue Vaccine

India has approved its first dengue vaccine as the disease burden climbs — cases have risen nearly 11-fold over two decades.

- **About:** QDENG (TAK-003) is a recombinant, live- attenuated, tetravalent dengue vaccine developed by Takeda.
- **Approval:** Authorised by CDSCO, Ministry of Health and Family Welfare, after assessing safety, quality and efficacy.
- **Legal basis:** Approved under the Drugs and Cosmetics Act, 1940 and Drugs Rules, 1945.
- **Eligibility:** Approved for individuals aged 4–60 years, regardless of previous dengue infection.
- **Key advantage:** Does not require prior blood testing for dengue exposure.
- **Protection:** Targets all four serotypes—DENV-1, DENV-2, DENV-3 and DENV-4.
- **Global status:** Approved in over 40 countries, WHO-prequalified, with more than 32 million doses distributed.

★ India Becomes Party to WTO Agreement on Fisheries Subsidies

India has deposited its Instrument of Acceptance for the WTO Agreement on Fisheries Subsidies, becoming the pact's 123rd member.

- **First environment-focused WTO pact:** Adopted at MC12, Geneva, in June 2022 and entered into force on 15 September 2025 after acceptance by two-thirds of WTO members.
- **Scope:** Applies only to marine wild-capture fishing and related sea-based activities; aquaculture and inland fisheries are excluded.
- **Harmful subsidies:** Prohibits subsidies for IUU fishing and fishing of overfished stocks.
 - **Global concern:** Around 37.7% of marine stocks are overfished, while fisheries subsidies total nearly USD 35 billion annually.
- **Small-scale fishers:** Limits unfair competition from subsidised distant-water fleets and protects livelihoods and food security.
- **India's exports:** Aquaculture is excluded, so India's shrimp exports remain unaffected.
- **Domestic alignment:** Supported by the EEZ Fisheries Rules, 2025, High Seas Fishing Guidelines, 2025 and PMMSY.

★ India's First Night Safari

The Supreme Court has cleared the way for Uttar Pradesh to proceed with India's first night safari and a zoological park at Kukrail Reserve Forest, Lucknow.

- It will be the world's fifth night safari, after those in Singapore, Thailand, China and Indonesia.
- The project has approvals from the Central Zoo Authority and MoEFCC. Ashok Kumar Sharma (IFS) vs. Union of India– SC had directed that no final approval for any zoo or safari can be granted without prior permission of the Court.

★ Kukrail Reserve Forest

- **Location:** Notified in 1950, it is located in Lucknow and spans about 4,500 acres, forming the city's largest contiguous green cover.
 - Named after the Kukrail stream, a tributary of the Gomti River.
- **Kukrail Gharial Rehabilitation Centre:** Established in 1975 as India's first gharial conservation centre for the Critically Endangered gharial.
- **Urban Green Lung:** Supports carbon sequestration, temperature regulation, groundwater recharge, air purification and climate resilience.
- **Biodiversity Value:** Provides habitat for birds, reptiles, butterflies and small mammals, while supporting the Kukrail stream's ecology.

★ Codex Commission Adopts Global Standards for Three Spices

At its 49th Session in Geneva, the Codex Alimentarius Commission adopted global standards for large cardamom, coriander and vanilla.

- **Significance:** The standards benefit India as a major producer and exporter of large cardamom and coriander. The vanilla standard provides a common quality framework, improving consistency and consumer confidence.
- **India and CAC:** India has chaired the Codex Committee on Spices and Culinary Herbs (CCSCH) since 2014, with the Spices Board of India as secretariat.
 - It is also Co-Chair of an Electronic Working Group on risk analysis for new food products and has advocated SMART (Specific, Measurable, Achievable, Relevant, Time-bound) indicators under the Codex Strategic Plan 2026–2031.
- **Codex Alimentarius:** The Food Code includes global standards and guidelines on food hygiene, additives, pesticide residues, contaminants, labelling, and inspection.
 - The Agreement on Application of Sanitary and Phytosanitary Measures (SPS) of WTO recognises Codex standards as references for trade and dispute settlement.
- **Codex Alimentarius Commission (CAC):** Created in 1963 by FAO and WHO, it sets global food safety and quality standards.
 - It has 189 members; India joined in 1964. CCEXEC oversees CAC management and standards development.
 - India is a CCEXEC member as Regional Coordinator for Asia (CCASIA).

★ India's 1st Hydrogen-Powered Train

The PM flagged off NaMo Green Rail, India's first hydrogen-powered train, on the 89-km Jind–Sonapat route in Haryana.

- **About the Project:** A technology-demonstration project to test hydrogen propulsion, refuelling, safety, operations, and maintenance for future deployment.
- **Indigenous Development:** Designed and developed in India, with specifications prepared by the Research, Design and Standards Organisation.
- **Features:** The 10-coach trainset has 2 Hydrogen Driving Power Cars and 8 Trailer Coaches. Each power car generates 1,200 kW, providing 2,400 kW combined capacity. Operational speed is 75 kmph and design speed 110 kmph.
- **Working Mechanism:** Proton Exchange Membrane fuel cells combine onboard hydrogen with atmospheric oxygen to generate electricity. Lithium iron phosphate batteries support acceleration and variable power needs.
- **Environmental Significance:** Produces only water vapour and heat directly, with no smoke or tailpipe carbon emissions. Overall benefits depend on using renewable- energy-based hydrogen.
- **Safety and Regulation:** Requires specialised storage, ventilation, leak detection, and automatic shutdown systems. The system was approved by Petroleum and Explosives Safety Organisation and assessed by TÜV SÜD, Germany.
- **Global Significance:** India joins countries such as Germany, Japan, China, and US in deploying or testing hydrogen-powered rail technology.
- **Potential and Challenges:** Suitable for replacing diesel trains on non-electrified, heritage, and difficult-to- electrify routes. It supports the National Green Hydrogen Mission, but faces high costs, storage constraints, and limited green-hydrogen availability.

★ Navi Mumbai Airport Notified for Import of Drugs

The Union Health and Family Welfare Ministry has cleared drug imports through Navi Mumbai Airport to boost pharmaceutical logistics and trade.

- **About:** Notification issued under the Drugs and Cosmetics Act, 1940 after consultation with Drugs Technical Advisory Board (DTAB), a statutory body advising on drug and cosmetics regulation.
- **Expansion:** Rule 43A of Drugs Rules, 1945 amended to designate Navi Mumbai Airport as an authorised drug import entry point, increasing total approved entry points to 42.

★ Facts For Prelims

- **Logistics:** Enables smoother and faster movement of pharmaceutical consignments.
- **Flexibility:** Provides importers an additional route and improves supply-chain flexibility.
- **Significance:** Improves trade facilitation and Ease of Doing Business while ensuring regulatory oversight.

★ Cyclosporiasis Outbreak

A cyclosporiasis outbreak — a gastrointestinal illness — in the US has prompted health advisories over contaminated food and water.

- **Cyclosporiasis:** A foodborne illness caused by the parasite *Cyclospora cayentanensis*.
- **Mode of Transmission:** Spreads through contaminated food or water via the faeco-oral route.

- It does not spread directly from person to person.
- **Symptoms and Vulnerability:** Causes prolonged watery diarrhoea, fatigue, weight loss, and stomach cramps.
 - Higher risk for children, the elderly, and immunocompromised people.
- **Potential Complications:** May cause malabsorption, cholecystitis, and reactive arthritis.
- **Diagnostic Challenges:** Often missed because the parasite is shed irregularly.
 - Diagnosis requires Stool PCR tests (to identify the parasite's DNA) or microscopy (to identify eggs), sometimes using multiple samples.
- **Treatment Protocol:** Treated with trimethoprim-sulfamethoxazole (TMP-SMX) for 7–10 days, along with hydration.
- **Common Sources:** Linked to contaminated raw produce such as leafy greens, lettuce, spinach, basil, and cilantro.
- **Prevention Nuances:** Chemical sanitisation may not fully remove the parasite.
 - Thorough washing under clean running water and strict hand hygiene are essential.

★ RBI's Regulatory Guidance on Data Governance Framework for Banks

The RBI has proposed a two-tier Data Governance Framework for regulated entities to tighten data security, accountability and compliance with the DPDP Act, 2023.

- **Objective:** Require all Regulated Entities (REs) to align their Data Governance Framework (DGF) with the Enterprise Risk Management (ERM) framework across the entire data lifecycle to reduce financial, operational, and cyber risks.
- **Board-Level Oversight:** A Board-level Data Governance Committee will oversee implementation, review data breaches, and assess framework effectiveness.
- **Executive-Level Governance:** Banks must establish an Executive Data Governance Committee and a dedicated Data Management Function, headed by an officer of at least Chief General Manager (CGM) rank or equivalent.
- **Defined Data Governance Roles:**
 - **Data Owners:** Data quality, classification, and governance.
 - **Data Stewards:** Day-to-day implementation.
 - **Data Custodians:** Storage, technical controls, backup, disaster recovery, and secure disposal.
- **Data Lifecycle Management:** Covers purpose-based collection, consent, classification, secure processing, encryption, tokenisation, anonymisation, retention, archival, and disposal.
- **Single Source of Truth (SSOT):** Banks must create an SSOT for critical data and maintain metadata and data lineage for consistency, traceability, and auditability.
- **Integrated Data Risk Management:** Integrates data quality, privacy, security, ownership, cross-border processing, and third-party risks with the ERM framework.

- **Third-Party Data Governance:** Banks remain accountable for data shared with service providers and group entities and must ensure access controls, encryption, contractual safeguards, monitoring, and audits.
- **Expected Outcome:** Stronger operational resilience, better data-driven decisions, improved customer-data protection, and a robust banking data-governance ecosystem.

★ Centre Notifies Ban on Paraquat Dichloride

The government has proposed a nationwide ban on the import, manufacture, sale, transport, distribution and use of Paraquat Dichloride.

- **Legal Basis:** Proposed under Section 27 of the Insecticides Act, 1968 due to serious risks to humans and animals.
- **About:** A fast-acting, non-selective herbicide used for weed control and crop desiccation in crops including tea, cotton, paddy, wheat and maize.
- **Key Findings:** Expert bodies reported severe health effects, repeated fatal poisonings, no specific antidote, and bans or restrictions in over 70 countries.
- **Health Risks:** Exposure through ingestion, inhalation or skin contact can cause lung fibrosis, kidney and liver failure, heart damage, Parkinson's disease and death.
- **Need:** Driven by occupational exposure, self-harm, accidental poisoning, misuse and demands for tighter controls from several States.
- **Implications:** May raise weed-management costs and require safer alternatives, but can reduce health risks and hazardous food residues.
- **Significance:** Strengthens pesticide regulation and promotes safer, sustainable agriculture.

★ India Bans Import of Goods Made Using Forced Labour

The DGFT has amended the Foreign Trade Policy, 2023 to ban imports made using forced labour, against the backdrop of a USTR Section 301 probe into weak enforcement across 60 economies, including India.

- **Paragraph 2.20B in the Trade Policy:** Prohibits imports produced wholly or partly through forced labour.
- **DGFT Role:** Can investigate complaints, seek information and recommend restrictions; the government may ban specific goods through notifications.
- **Gap Addressed:** Introduces an explicit trade provision against goods made with forced labour abroad.
- **Enquiry Mechanism:** Procedures will be specified in the Handbook of Procedures, 2023.
- **ILO Alignment:** Uses the definition under the ILO Forced Labour Convention, 1930 (No. 29).
- **Strategic Significance:** Strengthens India's trade-compliance framework and bargaining position in the India-US trade deal.

★ Parrot Bornavirus 4 Identified for the 1st Time in India

India has reported its first confirmed detection and genetic characterisation of Parrot Bornavirus 4 (PaBV-4), flagging a new threat to captive and exotic birds.

- **About PaBV-4:** A Bornaviridae-family Orthobornavirus infecting psittacine birds such as parrots, macaws, cockatoos, budgerigars, and lovebirds.

- **Classification:** Eight genotypes occur in two clades: Alphapsittaciforme (PaBV-1 to 4, 7 and 8) and Betapsittaciforme (PaBV-5 and 6).
- **Associated Disease:** Causes Proventricular Dilatation Disease (PDD), leading to weight loss, regurgitation, weakness, poor coordination, behavioural changes, and death.
- **Key Findings:** PaBV-4 was found in 44 of 83 birds, including 88% of PDD deaths and 19% of apparently healthy birds.
- **Global Link:** Detection in healthy birds indicates asymptomatic transmission. Sequencing showed similarity with strains from the US, Canada, Israel, Japan, and South Korea, suggesting spread through international bird trade.
- **Significance:** It threatens the exotic pet industry and conservation breeding programmes, requiring quarantine, screening, veterinary care, clean enclosures, stronger biosecurity, and better avian disease surveillance.

★ Ladakh to Extend Autonomous Hill Councils to All 7 Districts

The Ladakh administration will extend the Ladakh Autonomous Hill Development Council framework to all seven districts and create 17 new tehsils, strengthening decentralisation, grassroots governance and protection of Ladakh's land, culture and identity.

- **Administrative Reorganization and Expansion:** After creating five new districts—Sham, Nubra, Changthang, Zaskar, and Drass—in April 2026, Ladakh now has seven districts and 32 tehsils, including 17 new tehsils.
 - The LAHDC Act, 1995 allows a council in every district, subject to legal amendments and delimitation.
- **Devolution of Regulatory Powers:** Each district will have an elected Autonomous Hill Development Council (AHDC) with functions relating to development, land, infrastructure, health, education, and tourism.
 - Powers of the five new councils will depend on amendments, notifications, and delimitation.
- **Infrastructure Augmentation:** The administration created four new Public Health Engineering (PHE) and Flood Control divisions and five new PWD and PMGSY divisions to improve services in high-altitude areas.
- **Customised Article 371 Model:** The MHA is considering a sui generis arrangement under Article 371, instead of Sixth Schedule status, to protect Ladakh's demographic, tribal, land, and cultural interests.
- **Constitutional Framework of Article 371:** Articles 371 to 371J in Part XXI provide special arrangements to protect cultural identity, land rights, employment, and indigenous administration in specific regions.

★ India Unveils 1st Indigenous EXIM Shipping Container

India has unveiled its first domestically manufactured export-import shipping container, built for A.P. Moller-Maersk at the Maersk-CONCOR Inland Container Depot in Uttar Pradesh.

- **About:** The initiative will manufacture globally deployable containers in India, supporting Atmanirbhar Bharat, Make in India and Maritime Amrit Kaal Vision 2047.
- **International Standards:** The container meets ISO specifications and the International Convention for Safe Containers (CSC).

- **Policy Support:** The proposed ₹10,000-crore Container Manufacturing Promotion Scheme (CMPS) provides capital, operational and R&D support.

★ Facts For Prelims

- **Capacity and Benefits:** CMPS targets annual capacity of about 7.5 lakh Twenty-foot Equivalent Units (TEUs), reducing imports and promoting supply-chain resilience, jobs, skilling and technology transfer.
- **Broader Maritime Vision:** It complements the Merchant Shipping Act, 2025, Coastal Shipping Act, 2025, Indian Ports Act, 2025, and digital initiatives such as One Nation One Port Process, Maritime Single Window and e-Samudra.

★ Mission Drishti Loses Communication After Solar Storm Mission Drishti, the world's first OptoSAR satellite, lost communication after a geomagnetic solar storm disrupted a critical onboard system during the final Launch and Early Orbit Phase.

★ Mission Drishti

- **Opto-SAR Technology:** Drishti combined optical multispectral and Synthetic Aperture Radar (SAR) imaging of the same location simultaneously.
 - SAR enabled imaging through clouds and at night, while optical sensors provided clearer imagery.
 - Its AI system could convert SAR data into optical-like images when clouds blocked visibility.
 - Proprietary synchronisation enabled instant fusion of optical and SAR data.
- **Utility and Significance:** Intended for border surveillance, defence, disaster response, agriculture, infrastructure planning and insurance assessment.
 - Strengthened India's private space ecosystem, alongside firms such as Agnikul Cosmos and Skyroot Aerospace.

★ Geneva Conventions and War Crimes

The 1949 Geneva Conventions are back in focus after the HRF sought the arrest of an Israeli soldier travelling along India's 'Hummus Trail' in Himachal Pradesh over alleged war crimes in Gaza.

★ Hummus Trail

- **Hummus Trail:** A colloquial travel circuit in India popular among young Israeli backpackers, especially military veterans.
 - Named after the Hippie/Hashish Trail, it includes Kasol, Dharamkot, Rishikesh, Pushkar, Goa, Hampi, Gokarna, Kodaikanal, and the Andaman and Nicobar Islands.
- **Tiul Gadol:** The "Big Trip" undertaken after military service, usually lasting 6–12 months and often funded through post-service benefits.
 - Around 80,000 Israeli tourists reportedly visit India annually.
 - In 2026, Israel allocated 4 million NIS to promote tourism cooperation with India.

★ India's Legal Framework for Geneva Convention Breaches

- **Geneva Conventions, 1949:** Protect wounded soldiers, shipwrecked personnel, prisoners of war and civilians.

Serious violations such as wilful killing, torture and unjustified destruction of property count as grave breaches.

- **Universal jurisdiction:** Signatory States must search for, prosecute or extradite persons accused of grave breaches, irrespective of nationality or place of offence.
- **Geneva Conventions Act, 1960:** India can arrest and prosecute any person present in its territory for alleged grave breaches, although it lacks a separate comprehensive war-crimes code.
- **Administrative remedy:** The Ministry of Home Affairs and immigration authorities may deport an accused foreign national when criminal proceedings are not initiated.
- **Global precedent:** Groups such as HRF have invoked universal jurisdiction in Chile, Brazil and Canada.
- **Key challenge:** India must balance its strategic ties with Israel against its obligations under international humanitarian law, amid proceedings against Israel before the ICJ.

★ Agreement on Sardar Sarovar Project Financial Disputes

Maharashtra, Gujarat, Rajasthan and Madhya Pradesh have signed a one-time settlement agreement to resolve long-pending disputes over cost-sharing and dues linked to the Sardar Sarovar Project.

- **Scope of Disputes:** Covers project cost-sharing, R&R expenses, and interest on construction loans of the Sardar Sarovar and Indira Sagar projects.
 - Gujarat's share increased from 50% to 75%, reducing Madhya Pradesh's burden.
- **Sardar Sarovar Project:** Concrete gravity dam on the Narmada River near Navagam, Gujarat.
 - Located near the Statue of Unity, the idea of a dam was envisioned by Sardar Patel in 1946, and foundation stone laid in 1961 by J. Nehru.
 - Benefits Gujarat, Madhya Pradesh, Maharashtra, and Rajasthan through irrigation, drinking water, and hydropower.
- **Narmada Water Disputes Tribunal:** Constituted in 1969 under the Inter-State River Water Disputes Act, 1956.
 - Its 1979 award fixed water and power sharing among the four States.
- **Narmada River:** Originates at Amarkantak Plateau, Madhya Pradesh, and drains into the Gulf of Khambhat.
 - **Length:** 1,312 km (Madhya Pradesh, Maharashtra, and Gujarat); basin area: about 98,800 sq. km.

★ Academic Bank of Credits and APAAR

ABC and APAAR ID are designed to make India's education system more flexible, portable and learner-centric, feeding into a lifelong-learning ecosystem.

- **Academic Bank of Credits:** ABC is a Ministry of Education digital platform, regulated by UGC, to store, manage, transfer and redeem academic credits from recognised institutions.
- **APAAR ID:** APAAR is a unique 12-digit student ID linked to ABC under "One Nation, One Student ID", creating a single academic identity across school, higher education, skill development and other learning programmes.
- **Digital Linkage:** APAAR is accessible through DigiLocker and can be generated via Common Service Centres for remote and underserved learners.

- **Credit Use:** Students can accumulate, transfer and redeem credits across eligible institutions; credits are valid up to 7 years or as prescribed, and redeemed credits cannot be reused.

- Students can earn up to 40% credits from SWAYAM; around 388 universities adopted SWAYAM credit regulation and 170 universities adopted National Credit Framework (NCrF).

- **Working Mechanism:** Students register on ABC portal using ABC/APAAR ID linked with Aadhaar and DigiLocker; institutions upload credit data to student accounts.
- **Data Security:** ABC and APAAR use encryption, security protocols and Aadhaar-linked DigiLocker authentication for secure academic records.
- **Significance:** They strengthen digital education infrastructure through DigiLocker, CSCs, SWAYAM, SAMARTH ERP and blockchain-based digital credentials.

★ BHAVYA Industrial Parks Scheme

The Union Commerce and Industry Minister chaired the Board of Trade meeting, urging States to prioritise exports, make use of the BHAVYA Industrial Parks Scheme, and sharpen export competitiveness through Centre-State-industry coordination.

- **About:** BHAVYA is a Central Sector Scheme of DPIIT to develop 100 investment-ready, world-class industrial parks across India.
- **Objective:** Strengthen manufacturing infrastructure aligned with Make in India, PM Gati Shakti and India's goal of becoming a globally competitive manufacturing hub.
- **Financial Outlay:** Total outlay of around ₹33,660 crore, implemented over 6 years from 2026-27 to 2031-32.
- **Industrial Park Development:** Supports greenfield and eligible brownfield parks; minimum land requirement is 100 acres for non-hilly states and 25 acres for hilly, Northeastern, UT and smaller states.
- **Challenge-Based Selection:** Up to 50 parks in Phase I through competition based on connectivity, site suitability, infrastructure quality, industrial ecosystem, policy support, digital readiness and sustainability.
- **Key Infrastructure Features:** Includes plug-and-play facilities, multimodal logistics, reliable power and water, underground utilities, waste management, CETPs, testing labs, worker housing, renewable energy and digital single-window systems.
- **Implementation Mechanism:** Implemented through SPVs under Companies Act, 2013; NICDC acts as Project Management Agency.

★ SpudCell: Lab-made Synthetic Cell

US researchers have developed SpudCell, a synthetic cell built from non-living chemicals that is capable of growth, DNA replication, division and evolutionary selection.

- **Constructed from Non-Living Chemicals:** SpudCell was built from scratch using lifeless chemicals, starting with an artificial fat bubble liposome as the cell membrane.
- **Artificial Protein Factory:** It contains a cell-free PURE system that translates a minimal 90,000 base-pair DNA genome into working proteins.

- **Nutrient Absorption (Feeding):** Its DNA creates an alpha-hemolysin protein “hook” to capture and fuse with smaller nutrient bubbles for lipids and materials.
- **DNA Replication:** As the cell grows, it uses a copying enzyme to duplicate its entire genetic blueprint.
- **Innovative Cell Division:** SpudCell divides into daughter cells using physical pressure and mechanical stress from proteins crowding its outer surface, instead of a natural cell-like cytoskeleton.
 - It shows life-like behaviour but is not fully living or autonomous; it needs external food and ribosomes and cannot sustain itself like a natural cell.
- **Darwinian Evolution:** Artificial systems can undergo natural selection; faster-feeding mutant cells reproduced quicker and outcompeted the original population.

★ Telangana Declared Cancer a Notifiable Disease

Telangana has declared cancer a notifiable disease, requiring every health facility to report diagnosed cases within a month.

★ Facts For Prelims

- The move will help map incidence, mortality, and geographical spread, with validated data from MNJ Cancer Hospital feeding into ICMR's National Cancer Registry Programme.
- **Notifiable Disease:** A disease that must be legally reported to government authorities for surveillance and public health response.
- **India:** The Epidemic Diseases Act, 1897, provides the legal basis, while States decide notified diseases.
- **Examples:** TB, Dengue, Malaria, Cholera, Hepatitis, Measles, Polio, and Covid-19 during the pandemic. eSARAS: Empowering Rural Women through Digital Markets eSARAS is a key initiative driving women's entrepreneurship, preserving India's cultural heritage, and building a digitally empowered, self-reliant rural economy.
- **eSARAS:** Official online marketplace by Ministry of Rural Development under DAY-NRLM for products made by women SHGs and their federations.
- **Purpose:** Provides rural artisans and women-led cooperatives direct access to buyers across India.
- **Product Range:** Includes home items, apparel, accessories, personal care, food items, toys, and crafts like Chanderi sarees, marble crafts, and Pashmina products.
- **Support Provided:** Helps in marketing, branding, logistics, processing, packaging, and shipping.
- **Platform Evolution:** Expanded through mobile app, fulfilment centre, ONDC integration, UMANG listing, SARAS Shakti Collection, and SARAS Aajeevika Gallery, New Delhi.
- **Significance:** Promotes women entrepreneurship, digital inclusion, market access, cultural heritage, and self-reliant rural economy.

★ I-2SEA Submarine Cable System Unveiled

Microsoft, Singtel, Tata Communications and Lightstorm will build the India-Southeast Asia (I-2SEA) submarine cable system to meet growing AI, cloud and hyperscaler connectivity demand along the corridor.

- **About:** I-2SEA is a submarine cable system with carrier-neutral landing infrastructure, connecting India's east coast

with Malaysia and Singapore and linking major AI and cloud infrastructure hubs.

- **Submarine Cables:** Undersea fibre-optic cables carrying large internet, telecom and data traffic; backbone of global digital connectivity.
- **Route and Landings:** Dual Indian landing stations at Machilipatnam and South Chennai. Machilipatnam gives the shortest subsea access to Hyderabad, with onward connectivity to Mumbai and 80+ data centres via Lightstorm's terrestrial network.
- **Purpose:** Serves hyperscalers, GPU infrastructure providers and enterprises running AI training and inference workloads, with high-capacity, low-latency connectivity.
- **Features:** Includes interoperable cable architecture, carrier-neutral landing, deep cable burial, and integration with Lightstorm's SmartNet AI Fabric and Polarin platform.
- **Significance:** Expected operational by Q4 2029; the 3,600- km cable will boost India-Southeast Asia digital connectivity, support AI/cloud ecosystems, and provide one of the fastest routes between Singapore/Malaysia and Hyderabad.

★ GAGAN: India's Indigenous Satellite-Based Navigation System

The DGCA has carried out India's first GAGAN-based satellite landing approach on a commercial jet, a major milestone for indigenous aviation navigation.

- GAGAN stands for GPS Aided GEO Augmented Navigation.

★ It is

GAGAN is India's own Satellite-Based Augmentation System, jointly developed by ISRO and the AAI.

- It improves GPS accuracy, reliability and integrity for safer aircraft navigation and landing.
- It became operational in 2015 and is certified for the equatorial region.
- Architecture includes 15 INRES, 2 INMCC, 3 INLUS and 3 geostationary satellites: GSAT-8, GSAT-10, GSAT-15.
- Applications include aviation, maritime navigation, railways, roads, disaster management, defence, telecom and mapping.
- India joins the USA, Europe and Japan among regions with operational SBAS.
- **GAGAN vs NavIC:** GAGAN augments GPS for precision aviation, while NavIC is India's own regional navigation system for PNT services.

★ Centre Amends Drugs Rules 1945 for Advanced Therapies

The Central Government has amended the Drugs Rules, 1945 to bring cell/stem-cell-derived products, gene therapies and xenografts under the CLAA framework, tightening regulation and standardising rules for advanced medical technologies nationwide.

- **Objective:** Ensure patient safety, uniform standards across States, and safe use of advanced medical technologies.
- **CLAA:** Works under CDSCO and Drugs and Cosmetics Act, 1940 as a joint Central-State licensing mechanism.
- **Expanded Coverage:** CLAA now covers cell/stem cell- derived products, gene therapies and xenografts.
- **Earlier Coverage:** Included vaccines, large volume parenterals and r-DNA medicines.

- **Need:** These therapies are complex and rapidly evolving, needing strict checks for quality, safety and efficacy.
- **Significance:** Aligns India's regulation with global best practices and supports safe healthcare innovation.

★ **Mandu's Khurasani Imli Gets GI Tag** Mandu's Baobab fruit (Khurasani Imli) in Madhya Pradesh has received a GI tag, giving it official recognition and protection.

★ **Khurasani Imli**

- **About:** Light green Baobab fruit with tangy sweet-sour taste; valued for nutrition, medicine and culture in Mandu.
- **Baobab Tree:** Adansonia digitata, known for water-storing trunk and inverted-tree-like branches.
- **Origin:** Introduced around six centuries ago by Afghan and Arab traders.
- **Local Presence:** Mandu has India's largest natural Baobab population, with 1,000+ trees.
- **Traditional Uses:** Used by tribal communities for diabetes, digestion, fever and fatigue.
- **GI Impact:** Boosts branding, marketing, cooperatives, value-added products, income and conservation.

★ **Sushruta Statue Unveiled in Edinburgh**

The Royal College of Surgeons of Edinburgh, founded in 1505 by King James IV, has unveiled a bronze statue of Maharishi Sushruta in recognition of India's ancient surgical legacy.

- The statue was crafted at Swamimalai, Tamil Nadu, using the traditional lost-wax and single bronze casting technique.

★ **Maharishi Sushruta**

- **About:** Ancient Indian physician-surgeon, associated with Varanasi, around 7th–6th century BCE.
- **Titles:** Known as the Father of Surgery and Father of Plastic Surgery.
- **Lineage:** Traditionally regarded as a disciple of Dhanvantari and linked with the Navratnas of King Vikramaditya or Chandragupta II.
- **Work:** Authored Sushruta Samhita, part of Ayurveda's Great Trilogy with Charaka Samhita and Astanga Hridaya.
- **Surgeries:** Documented 300+ procedures, including rhinoplasty, cataract removal, fracture care, caesarean delivery, lobuloplasty and otoplasty.
- **Principles:** Emphasised anatomy, instruments, cleanliness, cadaver dissection, anaesthesia practices and hands-on surgical training.

★ **India's Kharif Preparedness Amid El Niño** Due to a delayed southwest monsoon and 43% rainfall deficit, the Agriculture Ministry has prepared a contingency plan to protect the Kharif season from possible El Niño impacts.

- **Vulnerability Mapping and Prioritization:** 315 districts across 12 states have been identified as monsoon- vulnerable; 111 are high priority with irrigation below 25%, 76 medium priority and 128 low priority.
- **Contingency Planning:** ICAR's District Agriculture Contingency Plans are being converted into field-level action plans.

- **Climate-Resilient Crop Diversification:** States are promoting short-duration, low-water and drought-resistant crops, especially pulses, oilseeds and Shree Anna.
- **Macro Water Harvesting Framework:** Check dams, farm ponds and reservoirs are being repaired/desilted through MGNREGA/VB-GRAMG to improve recharge and jobs.
- **Three-Tier Financial Safety Nets:** PMFBY, KCC and PM- KISAN are being converged to provide insurance, credit and income support.
- **Real-Time Institutional Monitoring:** El Niño Monitoring Cell, Crop Weather Watch Group and 731 KVKs will support weekly reviews and advisories.
- **Food Security and Macro Targets:** Kharif foodgrain target remains 176 million tonnes, backed by adequate wheat and rice buffer stocks.

★ **Mahesh Dixit Appointed Intelligence Bureau Chief**

Mahesh Dixit, a 1993-batch IPS officer, has been appointed Director of the Intelligence Bureau for a two-year term, succeeding Tapan Kumar Deka.

★ **Intelligence Bureau (IB)**

- **About:** India's internal security and domestic intelligence agency under MHA.
- **Historical Background:** Traced to Central Special Branch, 1887; some link origin to 1885 unit by Sir Charles Metcalfe MacGregor.
- **Mandate:** Counters terrorism, collects intelligence, protects critical infrastructure, and checks secessionist activities.
- **Security Clearances:** Conducts background checks for diplomats, judges and key individuals.
- **Composition:** Personnel mainly from IPS, IRS and military.
- **Institutional Position:** IB Director is part of Strategic Policy Group and Joint Intelligence Committee of National Security Council, and reports to the Prime Minister.

★ **Facts For Prelims Hemis Festival 2026 Begins in Ladakh** Hemis Festival 2026 began at Hemis Monastery, Leh, Ladakh.

★ **Hemis Festival**

- **About:** Annual festival at Hemis Monastery, Ladakh, on 10th day of Tse-Chu month (according to the Tibetan lunar calendar).
- **Religious Significance:** Marks birth anniversary of Guru Padmasambhava/Guru Rinpoche, revered as Second Buddha.
- **Events:** Main attraction is Cham mask dance by lamas and monks.
- **Ritual Practice:** Dough sculpture symbolising evil is destroyed to ward off evil and purify the soul.
- **Local Tradition:** Chhang is served, a traditional local drink.
- **Thangka Display:** Every 12th year, large thangka of Guru Padmasambhava is displayed.
- **Significance:** Preserves Buddhist heritage, promotes tourism, brotherhood, spirituality, culture, and entertainment.

★ **DoT Notifies New Telecom Authorisation Norms**

The Centre has notified a new telecom authorisation framework under the Telecommunications Act, 2023, replacing the licensing regime that ran under the Indian Telegraph Act, 1885.

- **Objective:** Simplify approvals, reduce overlapping licences, improve ease of business, and support emerging telecom technologies.
- **Digital implementation:** DoT Telecom e-Services Portal as single-window platform.
- **Coverage:** Covers wireline, wireless, internet, long-distance, satellite, earth stations, and related telecom services.
- **Separate Categories:** Includes M2M, PM-WANI, enterprise communications, in-flight/maritime connectivity, and captive/private networks.
- **Migration & Entry:** Existing licensees can migrate; new entrants need fresh authorisation.
- **Spectrum Clarification:** Authorisation does not automatically provide spectrum rights.
- **Compliance & Security:** Stronger anti-fraud, anti-spoofing, lawful interception, reporting, audit, accounting, and security norms.
- **Data Localisation & Sensitive Areas:** Telecom data/logs/network information must be stored in India.
 - Prior Central Government approval needed in notified security-sensitive areas.

END OF GHATAK SERIES — JULY 2026**30-DAY REVISION PLAN**

- Week 1 (Days 1-7): Revise Polity & Governance and Nation & States — focus on Acts, Bills, Commissions and Committees.
- Week 2 (Days 8-14): Revise Economic Scenario and International Relations — focus on indices, schemes, summits and bilateral agreements.
- Week 3 (Days 15-21): Revise Environment & Ecology, Science & Technology, History Art & Culture and Social Issues.
- Week 4 (Days 22-30): Revise Facts for UPSC section daily — reports, awards, defence, summits, places and species. Attempt mock tests based on this edition.

EXAM POINTS TO REMEMBER

- Focus on numbers, years, ranks and 'firsts' — these are most frequently tested in NDA/CDS/CAPF objective papers.
- Defence & Security and International Relations sections carry high weightage for SSB and AFCAT current affairs rounds.
- Revise Facts for UPSC one category at a time rather than all at once — retention improves with spaced repetition.



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— Hartaj Dhaliwal, Director
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