

CURRENT AFFAIRS

JANUARY 2026

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ART AND CULTURE

Somnath Swabhiman Parv marks 1000 years since Mahmud Ghazni's 1026 attack, highlighting cultural resilience, continuity of faith and civilisational pride.

- ❖ Somnath Temple is at Prabhas Patan near Veraval on Gujarat's western coast; dedicated to Lord Shiva and revered as the first of the 12 Jyotirlingas.
- ❖ Located near the Triveni Sangam of Kapila, Hiran and Saraswati rivers, making it an important pilgrimage centre.
- ❖ Built in Mâru-Gurjara style with curvilinear shikhara, ornate mandapas, high plinth and detailed carvings
- ❖ The site has seen repeated destruction by invaders from Mahmud Ghazni (1026) to Aurangzeb (1706), symbolising endurance of faith.
- ❖ Rebuilt multiple times : early temples existed about 2000 years ago; rebuilt by regional rulers including Nagabhata II and Bhimdev; a shrine by Ahilyabai Holkar (1782); present temple reconstructed in 1951 after Independence.

The Prime Minister paid tribute to the celebrated Tamil poet-philosopher Thiruvalluvar on Thiruvalluvar Day.

- ❖ A legendary Tamil saint-poet and thinker, regarded as a major cultural symbol of Tamil civilization; also linked with the Siddha tradition and widely known as Valluvar/Thiruvalluvar.
- ❖ Social background traditions connect him with the Valluva community; some accounts describe his father as Bhagavan (a Brahmin) and mother Adi (from the Pariah community).
- ❖ Birthplace often associated with Madurai; his lifetime is debated, with estimates ranging from 4th century BCE to 6th century CE.
- ❖ Scholarly views differ : Maraimalai Adigal dated him to 31 BCE, while Kamil Zvelebil suggested 500– 600 CE; Tamil Nadu government officially accepted 31 BCE as the birth year in 1935.
- ❖ Best known for Tirukkural, a classical Tamil text presenting guidance on ethics, governance, economy, and human relationships, widely treated as a universal moral work.
- ❖ The work contains 1,330 couplets arranged in 133 chapters (10 couplets each). Organised into three sections : Aram (virtue), Porul (statecraft and society), and Kamam (love).



In Jaipur's Kathputli Nagar, about 250 hereditary families continue the centuries-old Kathputli puppetry tradition.

- ❖ Puppetry is among India's oldest storytelling traditions, combining elements of painting, sculpture, music, and drama.
- ❖ Kathputli is believed to be over 1,000 years old; historically performed by travelling Bhat and Nat communities in fairs, royal courts, and village gatherings for entertainment and social messaging.
- ❖ Archaeological hints of early puppetry come from Harappa–Mohenjo-daro terracotta figures with movable limbs; references also appear in Silappadikaram and Natyashastra (mention of "Sutradhar," the stringholder).
- ❖ Indian puppetry is broadly grouped into four forms based on technique : string, shadow, rod, and glove.

- ❖ “Kathputli” comes from Kath (wood) + Putli (doll); widely practiced across Rajasthan, with Kathputli Nagar in Jaipur as the largest living centre.
- ❖ Puppets are carved from a single piece of wood, with oval faces, large eyes and arched brows; they usually have no legs and long skirts to create a floating movement effect.
- ❖ Controlled using simple string loops tied to the puppeteer’s fingers rather than complex cross-bars. Performances use a bamboo-rubber whistle (boli) for sharp stylised voices, accompanied by dholak and harmonium.
- ❖ Themes include heroic tales of Rajput figures like Amar Singh Rathore along with social satire and moral narratives.
- ❖ PM Modi paid tributes to Sri Guru Gobind Singh Ji on his Parkash Utsav, remembering his message of courage, justice, righteousness and service.

Sri Guru Gobind Singh Ji was the tenth and last human Guru of Sikhism, known as a spiritual teacher, warrior, poet and philosopher; born on 22 December 1666 at Patna Sahib (Bihar).

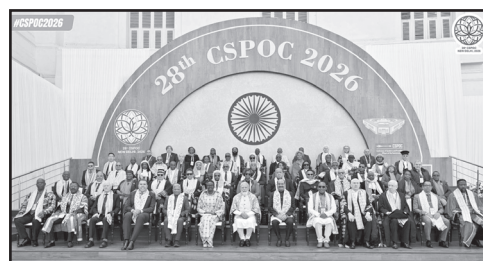
- ❖ He founded the Khalsa in 1699, giving a distinct collective identity to Sikhs rooted in discipline, equality, courage and devotion, and stood firmly against oppression to defend religious freedom.
- ❖ He contributed to Sikh literature through compositions later compiled in the Dasam Granth and inspired extraordinary sacrifices, including those of his four Sahibzadas, for faith and justice.
- ❖ Parkash Utsav commemorates the birth anniversary of Sikh Gurus and is observed with devotion, prayers and remembrance of their teachings
- ❖ Gurudwaras are illuminated to symbolise divine light; celebrations include Akhand/Anand Path, Prabhat Feri and Seva, reinforcing ideals of equality, sacrifice and community service.



ECONOMY

1. Prime Minister highlighted India’s readiness to share its Digital Public Infrastructure (DPI) with Commonwealth nations during the 28th Conference of Speakers and Presiding Officers of the Commonwealth (CSPOC).

- ❖ It was hosted by India. This is the fourth time India has hosted the conference after 1971, 1986, and 2010.
- ❖ Digital Public Infrastructure (DPI) refers to foundational digital systems that support modern governance and service delivery.
- ❖ It works as a digital public good, designed to be accessible, inclusive, and usable across sectors.
- ❖ It enables secure and seamless interaction among citizens, businesses, and governments through digital identity, payments, and datasharing systems.
- ❖ India Stack forms the backbone of India’s DPI.



- ❖ It is an open and interoperable set of digital platforms that enables paperless, cashless, and presence-less service delivery at scale.
- ❖ Conference of Speakers and Presiding Officers of the Commonwealth (CSPOC) is a platform that brings together Speakers and Presiding Officers of national parliaments from sovereign Commonwealth countries to strengthen parliamentary cooperation.
- ❖ It was established in 1969 on the initiative of Lucien Lamoureux, then Speaker of Canada's House of Commons.
- ❖ The forum functions independently and has no formal links with the Commonwealth Parliamentary Association, Commonwealth Secretariat, or CHOGM.
- ❖ Canada provides administrative and institutional support as the secretariat.
- ❖ Membership is limited to Speakers and Presiding Officers of national parliaments of independent Commonwealth states.
- ❖ It follows a two-year cycle, with a full conference held biennially and a Standing Committee meeting in the intervening year.
- ❖ The Standing Committee, consisting of 15 members, oversees its activities and is chaired by the Speaker of the lower House of the next host country.
- ❖ The forum aims to promote impartiality in parliamentary functioning, strengthen democratic institutions, and encourage exchange of best practices.

2. RBI has proposed reopening the licensing window for new Urban Co-operative Banks (UCBs).

- ❖ This was largely closed around 2004 due to financial weakness in many newly licensed banks.
- ❖ New applicants must maintain a Capital to Risk-Weighted Assets Ratio (CRAR) of at least 12% and net non-performing assets (NNPA) below 3% at the time of licensing.
- ❖ Only large co-operative credit societies can apply. They must have at least 10 years of operation and a strong financial record for 5 years.
- ❖ CRAR indicates capital adequacy by comparing a bank's capital with its risk-weighted assets.
- ❖ UCBs are co-operative institutions registered under State/Multi-State Co-operative Acts and licensed under the Banking Regulation Act, 1949.
- ❖ They operate as primary co-operative banks mainly serving urban and semi-urban populations.
- ❖ They function under dual regulation : RBI supervises banking operations, while the Registrar of Cooperative Societies manages administrative matters.
- ❖ RBI classifies UCBs into four tiers based on deposit size :
- ❖ Tier 1 : Up to Rs. 100 crore Tier 2 : Rs. 100–1,000 crore Tier 3 : Rs. 1,000–10,000 crore Tier 4 : Above Rs. 10,000 crore

3. FIU-IND under the Ministry of Finance issued revised norms to tighten oversight of cryptocurrency and Virtual Digital Asset (VDA) platforms in India.

- ❖ All crypto exchanges must register with FIU-IND as Reporting Entities and submit Suspicious Transaction Reports while maintaining detailed client and transaction records.
- ❖ Every VDA entity must appoint a Principal Officer responsible for compliance related to anti-money laundering, terror-financing prevention and related safeguards.
- ❖ Platforms must obtain a cybersecurity audit certificate from a CERT-In empanelled auditor to ensure compliance with national cyber safety standards.
- ❖ Reporting entities must collect details for transfers involving unhosted wallets and peer-to-peer transactions to improve traceability.
- ❖ Stronger KYC norms require PAN, selfie-based identity verification with liveness detection, geo-tagging and bank account verification through the 'penny-drop' method.
- ❖ These rules are issued under the Prevention of Money Laundering Act; cryptocurrencies are not legal tender but are taxable under the Income-tax Act. x VDAs are defined under Section 2(47A) of the Income-tax Act and include crypto tokens, NFTs and other digital assets capable of being stored or traded electronically.
- ❖ FIU-IND is the national agency set up in 2004 to analyse suspicious financial transactions and combat money laundering and terror financing.
- ❖ It functions under the Economic Intelligence Council chaired by the Finance Minister and serves as the key oversight body for crypto exchanges.



4. The Fifth National Conference of Chief Secretaries (NCCS), chaired by the Prime Minister, adopted a coordinated framework to strengthen human capital as the base for achieving the vision of Viksit Bharat.

- ❖ Viksit Bharat is a national vision to make India a developed nation by 2047, marking 100 years of independence.
- ❖ It is aligned with Article 38 of the Directive Principles and with SDG-8 on inclusive economic growth.
- ❖ The goal includes building a \$30-trillion economy with high productivity and resilience.
- ❖ The strategy rests on four pillars : Youth, Poor, Women and Farmers.
- ❖ Key long-term targets include achieving a Very High HDI level, improving gender parity in the workforce and reducing informal employment.
- ❖ Key Outcomes of the Conference x Governance & Administrative Reforms
- ❖ Manufacturing & Economic Growth x Human Capital, Skilling & Sports

- ❖ Innovation, Culture & Agriculture
- ❖ Security & Internal Affairs
- ❖ NCCS was institutionalised in 2022 as a non-statutory coordination platform to strengthen Centre–State cooperation in governance.
- ❖ It brings together Chief Secretaries of States and UTs along with senior Union officials to focus on policy implementation and administrative reforms.
- ❖ The 2025 theme of the conference was “Human Capital for Viksit Bharat.”

5. The RBI released the Report on Trend and Progress of Banking in India 2024–25, presenting a comprehensive assessment of the performance and health of the banking sector.

- ❖ It is an annual statutory publication of RBI under the Banking Regulation Act, 1949.
- ❖ The report reviews the performance of commercial banks, cooperative banks and Non-Banking Financial Companies (NBFCs).
- ❖ It highlights trends in credit and deposit growth, asset quality, profitability, capital strength, risk patterns and regulatory developments during the financial year.
- ❖ Key Findings (2024–25)
- ❖ Banking sector remained strong with continued double-digit balance sheet growth, though slower than FY24.
- ❖ Credit and deposit growth stayed robust across Scheduled Commercial Banks. x Asset quality improved significantly; GNPA fell to about 2.2% (March 2025) and 2.1% (Sept 2025) - multi-decade low.
- ❖ Profitability stayed healthy with RoA around 1.4% and RoE about 13.5%.
- ❖ Urban co-operative banks and NBFCs showed steady expansion with better capital and asset quality.
- ❖ Fraud cases declined in number, but total money involved increased.
- ❖ Customer complaints rose slightly, mainly in loans, credit cards and digital banking services.



6. The MOSPI released the First Advance Estimates (FAE) of GDP for FY 2025–26, giving an early picture of economic performance.

- ❖ First Advance Estimates (FAE) are the initial projections of GDP for a financial year, released usually in early January.
- ❖ They are prepared using available data up to the third quarter (Oct–Dec), though full Q3 data is included later in the Second Advance Estimates.
- ❖ These estimates help the government in budget planning, especially because nominal GDP reflects inflation-adjusted economic size.

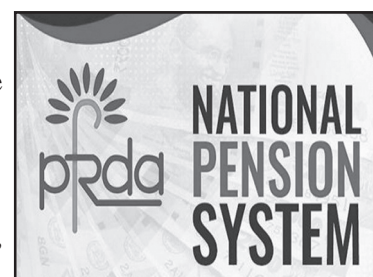
- ❖ They are calculated using the Benchmark-Indicator method, which extrapolates past data using indicators such as the Index of Industrial Production, inflation trends, and vehicle sales.
- ❖ **Key Highlights :**
- ❖ Real GDP Growth : Estimated at 7.4% for 2025–26, higher than 6.5% in 2024–25.
- ❖ Nominal GDP Growth : Projected at 8%, the lowest in the last five years.
- ❖ Nominal GDP Size : Around Rs. 357 lakh crore (~\$3.97 trillion).
- ❖ Sector-wise Growth Estimates
- ❖ Manufacturing : Expected to grow 7% (up from 4.5% last year).
- ❖ Agriculture : Likely to grow 3.1% (slower than 4.6% earlier).
- ❖ Mining & Quarrying : Estimated to contract by 0.7% (earlier growth was 2.7%).
- ❖ Services Sector : Projected to grow 9.1% (up from 7.2%).

7. The Pension Fund Regulatory and Development Authority (PFRDA) has announced policy reforms to strengthen the National Pension System (NPS).

- ❖ PFRDA is a statutory authority established under the PFRDA Act, 2013.
- ❖ It regulates and develops pension funds in India and works to ensure old-age income security by protecting the interests of pension subscribers.

Key Reforms :

- ❖ Scheduled Commercial Banks allowed to establish and run pension funds, improving competition.
- ❖ Three new trustees added to the NPS Trust to strengthen oversight and governance.
- ❖ Investment Management Fee structure revised from April 2026 with tiered charges linked to AUM.
- ❖ Separate fee approach introduced for government and non-government subscribers.
- ❖ Annual Regulatory Fee retained at 0.015%.
- ❖ A small portion of AUM allocated to the Association of NPS Intermediaries for outreach and financial literacy.



8. Concerns raised by the Union Labour Ministry over worker safety and excessive pressure, quick commerce platforms agreed to drop their 10-minute delivery guarantee.

- ❖ Quick commerce refers to extremely fast delivery of goods, generally within an hour, using hyper-local supply chains and digital platforms.
- ❖ It is an advanced form of e-commerce built around instant access and convenience for consumers.
- ❖ The sector is growing rapidly and is expected to reach nearly \$9.95 billion by 2029.
- ❖ Its services are mainly concentrated in metro and Tier-1 cities, catering to nearly 20 million urban households.

- ❖ As per NITI Aayog's estimates, around 7.7 million people were engaged in gig work in 2020–21, and this number may increase to about 23.5 million by 2029–30.
- ❖ Presently, about 47% of gig jobs fall under medium-skill roles, 22% under high-skill and 31% under lowskill categories.
- ❖ The gig economy is a labour system based on flexible, short-term, and task-based employment instead of permanent jobs.
- ❖ The Code on Social Security, 2020 defines a gig worker as a person who provides services through online platforms or contracts without a traditional employer-employee relationship.

9. The Ministry of Textiles has increased the financial approval power of the Central Silk Board from Rs. 50 lakh to Rs. 1 crore to improve faster project decisions.

- ❖ Central Silk Board is a statutory body set up in 1948 under the Central Silk Board Act and functions under the Ministry of Textiles. Its headquarters is in Bengaluru.
- ❖ It works for sericulture research, technology transfer, quality improvement, and promotion of silk production and exports.
- ❖ India is the second-largest silk producer in the world and the largest consumer. The sector supports about 9.76 million livelihoods.
- ❖ Raw silk production reached about 41,121 metric tonnes in FY 2024–25, with mulberry silk forming the major share.
- ❖ Major producing states include Karnataka, Andhra Pradesh, Tamil Nadu, Assam, Bihar, West Bengal, Maharashtra, Gujarat, Uttar Pradesh, Chhattisgarh, and Jammu & Kashmir.
- ❖ Non-mulberry silk is mainly produced in Jharkhand, Chhattisgarh, Odisha, and North-Eastern states.
- ❖ Mulberry silk comes from silkworms fed on mulberry leaves and contributes nearly 92% of India's output.
- ❖ Non-mulberry (Vanya) silk comes from wild silkworms and is known for strength and durability.

10. PFRDA has issued guidelines for the NPS Vatsalya Scheme, a pension-linked savings plan created for minors.

- ❖ NPS Vatsalya is a contributory savings scheme that helps parents or guardians build long-term financial security for children. It converts into a regular NPS account once the child becomes an adult.
- ❖ It was announced in the Union Budget 2024–25 and formally launched in September 2024. It functions under the Ministry of Finance and is regulated by PFRDA.
- ❖ The scheme allows all Indian citizens below 18 years, including NRIs and OCIs, to open accounts through their guardians.
- ❖ The minimum contribution is Rs. 250 per year with no upper limit on deposits.
- ❖ Partial withdrawal is permitted after three years, up to 25% of the guardian's own contribution, excluding returns.
- ❖ Incentives have been introduced for community-level workers such as Anganwadi workers, ASHAs, and Bank Sakhis to promote enrolment.

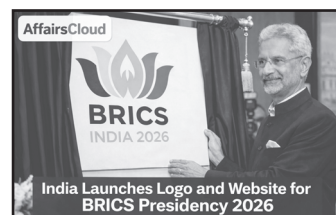
INTERNATIONAL RELATIONS

1. India joined the Weimar Triangle format for the first time, a trilateral forum of Germany, France and Poland.

- ❖ It was established in 1991 at Weimar, Germany, after the Cold War.
- ❖ It originally aimed to support Poland and other Central European states in joining NATO and the European Union.

2. India launched the BRICS 2026 Presidency logo, theme and official website in New Delhi by External Affairs Minister S. Jaishankar.

- ❖ The logo is inspired by the lotus and incorporates a Namaste gesture, symbolising unity, respect and India's cultural identity; petals represent the five founding members - Brazil, Russia, India, China and South Africa.
- ❖ Theme : "Building for Resilience, Innovation, Cooperation and Sustainability."
- ❖ A dedicated website will act as the official digital platform to share updates on meetings, initiatives and outcomes during India's chairship.



3. EU's Anti-Coercion Instrument (ACI), adopted in 2023, is a legal mechanism to respond to economic pressure by non-EU countries against the Union or its members.

- ❖ It targets situations where trade, investment, or financial threats are used to force policy changes.
- ❖ The tool prioritises deterrence through dialogue and de-escalation first, with retaliatory trade measures kept as a last resort.

4. Bulgaria adopted the euro as its official currency and became the 21st member of the euro area, a monetary union of EU countries using the euro (•).

- ❖ The euro was introduced electronically in 1999 and physical notes/coins began circulating in 2002; not all EU members are part of the eurozone.
- ❖ Bulgaria lies in southeastern Europe on the Balkan Peninsula; capital Sofia; bordered by Romania, Serbia, North Macedonia, Greece, Turkey and the Black Sea.
- ❖ The Danube forms its northern boundary, the Balkan (Stara Planina) Mountains run east-west, and Musala (2,925 m) in the Rila range is its highest peak.

5. Spain joined the Indo-Pacific Oceans Initiative (IPOI) and elevated ties with India to a Strategic Partnership.

- ❖ It was launched by India in November 2019 at the ASEAN-led East Asia Summit in Bangkok.
- ❖ It promotes a free, open and inclusive Indo-Pacific, maritime security, rules-based order, and sustainable development in the oceans.
- ❖ It is a Non-treaty, voluntary and flexible framework; no new institution created; works mainly through EAS with ASEAN members and eight dialogue partners.



- ❖ It focuses on practical cooperation and shared understanding rather than military alliances. x It also reflects India's SAGAR vision (Security and Growth for All in the Region) and stronger IndoPacific maritime engagement.

6. World Economic Forum's 56th Annual Meeting held from 19–23 January 2026 at Davos, Switzerland.

- ❖ It brings together global leaders from politics, business, academia and civil society; Theme : "A Spirit of Dialogue."
- ❖ WEF was founded in 1971 by German economist Klaus Schwab as the European Management Forum; now an independent, not-for-profit foundation promoting the idea that businesses should create economic value while serving society and protecting the planet.
- ❖ It headquarters at Cologny (Switzerland) with offices in New York, San Francisco, Beijing and Tokyo; largely funded by partner multinational corporations, typically with annual revenues above USD 5 billion.
- ❖ Governance includes a Board of Trustees (global leaders from business, politics and academia), a Managing Board led by the President as executive body, Managing Directors for thematic/regional areas, and a diverse Executive Committee.
- ❖ It publishes major global reports such as the Global Risks Report, Future of Jobs Report, Global Gender Gap Report, Global Cybersecurity Outlook and Global Cooperation Barometer; its discussions in the late 1990s helped shape the idea that later led to the creation of the G20.

INDIAN SOCIETY

1. Haryana recorded its best sex ratio at birth in five years, reaching 923 girls per 1,000 boys in 2025 (up from 910 in 2024).

- ❖ In Census 2011, the state had a very low ratio of 834. Panchkula (971), Fatehabad (961) and Panipat (951) reported the highest district figures, moving the state closer to the national average of about 933.
- ❖ The improvement is linked to strict enforcement of the Pre-Conception and Pre-Natal Diagnostic Techniques (PCPNDT) Act, 1994 through regular inspections, monitoring and review meetings of ultrasound centres by district authorities.
- ❖ A 12-digit Reproductive and Child Health Identity (RCHID) number is assigned to every pregnant woman to track pregnancies and prevent illegal sex determination.
- ❖ Under the Saheli Project (2025), each pregnant woman expecting a girl child is given a dedicated caregiver for support and monitoring.
- ❖ The trend indicates gradual social transformation, improved institutional deliveries and better maternalchild health tracking systems. x Historically, India's sex ratio declined from 972 females per 1,000 males in 1901 to 933 in 2001 due to deep-rooted gender bias and preference for male children.
- ❖ NFHS-5 (2019–21) showed improvement in overall sex ratio to 1,020 females per 1,000 males, though sex ratio at birth remains lower at 929.



- ❖ Census 2011 data shows wide regional variation : Kerala (1084) and Puducherry (1037) had high sex ratios, while Haryana (879), Delhi (868) and Chandigarh (818) were among the lowest.
- ❖ Improving sex ratio at birth is crucial for gender balance, women's empowerment and long-term social stability.

2. Child marriage continues in India despite legal prohibition, exposing girls to health risks, gender inequality and intergenerational poverty.

- ❖ The Bal Vivah Mukta Bharat initiative (2024) aims to eliminate the practice and promote a child-marriage-free society.
- ❖ Early legal efforts began with the Age of Consent Act, 1891, followed by the Child Marriage Restraint (Sarda) Act, 1929, which fixed minimum marriage ages at 14 for girls and 18 for boys.
- ❖ The Prohibition of Child Marriage Act, 2006 replaced earlier law, made child marriage a punishable offence, and allowed the minor to seek annulment; marriages become void in cases involving force, trafficking or deception, with imprisonment and fines for offenders.
- ❖ The Bharatiya Nyaya Sanhita, 2023 treats sexual relations with a wife below 18 years as rape, strengthening legal protection.
- ❖ The POCSO Act, 2012 considers sexual activity within child marriage as aggravated penetrative sexual assault.
- ❖ Bal Vivah Mukta Bharat (BVMB) was launched on 27 November 2024 to eliminate child marriage and support SDG target 5.

3. On ending harmful practices by 2030.

- ❖ The initiative is backed by the Prohibition of Child Marriage Act and linked to constitutional protection under Article 21 ensuring life, liberty and dignity. 1. Child Marriage Prevention Initiatives
 - Supreme Court Direction (2024): The SC directed States to improve enforcement through:
 - o Appointing Child Marriage Prohibition Officers.
 - o Creating dedicated enforcement units.
 - o Expanding awareness campaigns.
- ❖ **National Campaign (December 2025):** A 100-day national campaign was launched focusing on prevention, community outreach, and thematic awareness drives.
- ❖ **Legal Definition:** Child marriage is defined as any union where the female is under 18 and the male is under 21 years.
- ❖ **Legal Penalties (BNS 2023):** Under the *Bharatiya Nyaya Sanhita*, sexual relations with a wife below 18 years are legally classified as rape.

4. PANKHUDI Portal

- ❖ Launch: Introduced by the Ministry of Women and Child Development.
- ❖ Nature: An integrated Corporate Social Responsibility (CSR) and partnership facilitation portal for women and child welfare.

- ❖ Core Function: Acts as a single-window digital platform connecting NGOs, Corporates, NRIs, and Government agencies for developmental collaboration.
- ❖ Features:
 - Allows stakeholders to register contributions and identify welfare initiatives.
 - Facilitates submission of proposals and transparent tracking of project progress.
- ❖ Priority Focus Areas:
 - Nutrition and Health.
 - Early Childhood Care and Education (ECCE).
 - Women's safety and empowerment.
- ❖ Target Infrastructure: Aims to strengthen services across:
 - 14 lakh+ Anganwadi centres.
 - 5,000 Child Care Institutions.
 - 800 One Stop Centres (OSCs).



4. Noted ecologist Madhav Gadgil passed away; known for major contributions to environmental policy and Western Ghats conservation.

- ❖ Madhav Dhananjaya Gadgil (Born 1942, Pune) was a leading Indian ecologist, often called the father of modern Indian ecology.
- ❖ He chaired the Western Ghats Ecology Expert Panel, which produced the 2011 Gadgil Report recommending Ecologically Sensitive Areas and sustainable development measures.
- ❖ He played a key role in shaping the Biological Diversity Act, 2002 and founded the Centre for Ecological Sciences at IISc Bengaluru.
- ❖ He strongly promoted community-based conservation and local participation in natural resource management.
- ❖ He received the Padma Bhushan and the Tyler Prize for Environmental Achievement.
- ❖ His notable writings include, This Fissured Land and Ecology and Equity.

5. Funding deployment under the Research, Development and Innovation (RDI) scheme is set to begin by January 2026.

- ❖ The scheme aims to support high-risk, high-impact research and strengthen industry-academia collaboration.
- ❖ It has a corpus of Rs. 1 lakh crore and is implemented by the Department of Science and Technology.
- ❖ Funds are routed through ANRF with Second-Level Fund Managers; Technology Development Board and BIRAC are the first two, receiving Rs. 2,000 crore each.

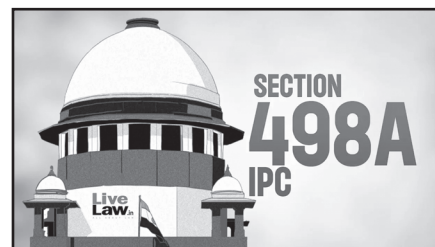
POLITY AND GOVERNANCE

1. Widowed Daughter-in-Law's Right to Maintenance

- ❖ **SC Ruling:** A widowed daughter-in-law has the right to seek maintenance from her father-in-law's estate.
- ❖ **Legal Basis:** Hindu Adoptions and Maintenance Act, 1956.
- ❖ **Broad Interpretation:** Under Section 21(vii), the term "widow of a son" applies whether widowhood occurred before or after the father-in-law's death.
- ❖ **Heir Liability:** Section 22 makes heirs inheriting property legally responsible for dependents. The duty is tied to the estate and shared proportionately.
- ❖ **Constitutional & Historical Backing:** Refusal based on the timing of widowhood violates Article 14 (Equality) and Article 21 (Dignity/Right to Life). The court also cited Manusmriti (Chapter 8, Verse 389) regarding the moral obligation to support dependents.
- ❖ **Conditions:** Maintenance is granted only if the widow cannot maintain herself via her own income, property, or parental support.
- ❖ **Limitations:** Claims are strictly limited to the inherited property's extent; heirs have no personal liability beyond the estate's value.

2. Financial Control vs. Cruelty (Section 498A IPC)

- ❖ **SC Ruling:** Mere financial control by a husband over household expenses is not "cruelty" unless it causes clear mental or physical harm.
- ❖ **Context:** Managing finances or asking for expense records cannot automatically be treated as criminal cruelty under Section 498A (dowry harassment/cruelty).
- ❖ **Threshold for Liability:** Requires tangible evidence of harassment, injury, or severe mental suffering. Ordinary domestic disagreements or financial discipline without demonstrable harm do not meet the legal threshold.



3. Right to Education (RTE) – 25% EWS Reservation

- ❖ **SC Directive:** States must strictly implement the 25% reservation for Economically Weaker Sections (EWS) and disadvantaged children as a binding obligation, not a policy choice.
- ❖ **Statutory Rules:** Under Section 38, States must frame clear statutory admission rules (not just executive guidelines).
- ❖ **Monitoring:** The National Commission for Protection of Child Rights (NCPCR) will track compliance and submit a nationwide status report by 31 March 2026.
- ❖ **Digital Divide:** States must create physical help-desks to help poor families overcome digital barriers during admissions.

- ❖ **Constitutional Links:** * Operationalises **Article 21A** (free and compulsory education for ages 6–14).
 - o Linked to **Article 51A(k)** (parents' duty to ensure schooling) and **Article 45** (early childhood care).
- ❖ **Mechanism:** Section 12(1)(c) mandates private unaided non-minority schools to reserve entry-level seats, with government reimbursement.

4. Governor's Rule in Chakma Autonomous District Council (CADC)

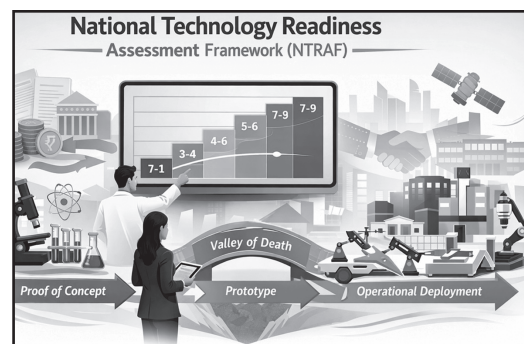
- ❖ **Update:** Governor's Rule in CADC (Mizoram) extended by six months due to political instability.
- ❖ **Background:** Formed in 1972 under the **Sixth Schedule** to protect the rights of the Chakma community (Mizoram's second-largest Scheduled Tribe, mainly Buddhist, traditional jhum cultivators).
- ❖ **Sixth Schedule Powers (Article 244):** Autonomous District Councils (ADCs) in Assam, Meghalaya, Tripura, and Mizoram.
- ❖ **Composition:** Up to 30 members (26 elected, 4 nominated by the Governor); 5-year tenure.
- ❖ **Functions:** Can make laws on land, unreserved forests, water, public health, and social customs. Can also set up tribal courts for ST vs. ST disputes (punishments not exceeding 5 years).

5. Constitution Translated into Santhali (Ol Chiki Script)

- ❖ **Milestone:** The President released the Constitution in Santhali, completing translations for all 22 Eighth Schedule languages.
- ❖ **Language Profile:** Santhali (Horo Ror) belongs to the Austroasiatic family (Munda branch) and is one of eastern India's oldest living languages. Spoken in Jharkhand, WB, Odisha, Assam, Bihar.
- ❖ **Script:** Written in the **Ol Chiki script**, created by Pandit Raghunath Murmu (2025 marked the script's 100th anniversary).
- ❖ **Constitutional Status:** Added to the Eighth Schedule via the **92nd Constitutional Amendment Act, 2003**.

6. National Technology Readiness Assessment Framework (NTRAF)

- ❖ **Purpose:** Unveiled by the Principal Scientific Adviser to evaluate technology maturity from the research stage to market deployment.
- ❖ **Function:** Provides a standardized, evidence-based framework across the innovation lifecycle. Tracks progress from lab research to the pilot stage and commercial use.
- ❖ **Collaboration:** Developed with the Confederation of Indian Industry (CII).



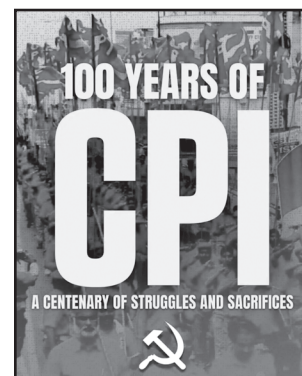
- ❖ **Impact:** Guides funding decisions and commercialization, acting as the operational backbone for R&D funding under national missions.

7. Rajasthan AI-ML Policy-2026

- ❖ **Objective:** Integrates AI across governance, industry, and public services to make Rajasthan a tech-driven investment hub.
- ❖ **Focus:** Strengthening administrative efficiency, improving public service delivery (faster, transparent, citizen-centric), and digital transformation.
- ❖ **Safeguards:** Emphasizes ethical, secure, and accountable AI deployment.

8. Communist Party of India (CPI) Centenary

- ❖ **Milestone:** December 26, 2025, marks the centenary of CPI, founded at the Kanpur conference in 1925.
- ❖ **Founders/Leaders:** M.N. Roy, S.A. Dange, Muzaffar Ahmad, Singaravelu Chettiar, Shaikat Usmani.
- ❖ **Historical Role:** Anti-imperialist mobilization, organized workers/peasants, and involvement in movements like AITUC (1920), Tebhaga (1946–47), and Telangana peasant struggle (1946–51).
- ❖ **Repression:** Faced the Kanpur Bolshevik Conspiracy Case (1923) and Meerut Conspiracy Case (1929).
- ❖ **Splits:** Divided in 1964 to form CPI(M), and in 1969 to form the Maoist-oriented CPI-ML.



9. Personality Rights & AI (Kamal Haasan Case)

- ❖ **Issue:** Actor Kamal Haasan sought Madras HC protection against unauthorized commercial use and AI-generated misuse of his identity (name, voice, deepfakes).
- ❖ **John Doe Suit:** Filed against unknown persons to stop acts like piracy or identity misuse; courts can later force platforms to unmask culprits.
- ❖ **Personality Rights:** Protect an individual's identifiable attributes from commercial exploitation.
- ❖ **Constitutional Link:** In India, these rights are interpreted as part of the right to privacy, dignity, and life/personal liberty under **Article 21**.

10. BHASHINI Samudaye

- ❖ **Event:** Organized by MeitY under the National Language Translation Mission to strengthen India's language-AI ecosystem.
- ❖ **Purpose:** A collaborative platform for shared ownership and ethical data use.
- ❖ **About BHASHINI:** An AI-driven language technology mission launched in July 2022 to break language barriers in digital services.
- ❖ **Features:** Supports 22 Scheduled (and many non-scheduled) languages. Provides real-time translation (text/speech) for platforms like e-Swaraj using AI and NLP

GEOGRAPHY AND ENVIRONMENT

1. Arctic Report Card 2025 (NOAA)

- ❖ **Context:** 2025 marks 20 years of annual assessments (begun in 2006) by the National Oceanic and Atmospheric Administration.
- ❖ **Temperature Record:** Recorded highest surface air temperatures since 1900 during the period Oct 2024–Sept 2025.
- ❖ **Sea-Ice Loss:** * March 2025 saw the **lowest annual maximum sea-ice extent** in the 47-year satellite record.
 - Old/thick ice (>4 years old) has declined by over **95%** since the 1980s.
- ❖ **Biological & Glacial Impact:** * Phytoplankton productivity rose by **80%** in the Eurasian Arctic.
 - Greenland Ice Sheet alone lost **129 billion tonnes** of ice in 2025.
- ❖ **Arctic Geography:** * Surrounds the North Pole; includes Canada, Denmark (Greenland), Finland, Iceland, Norway, Russia, Sweden, and the US (Alaska).
 - The Arctic Ocean is the smallest/shallowest ocean with the lowest salinity due to high freshwater inflow.



2. Disaster Vulnerability in Asia

- ❖ **Regional Risk:** Asia is the most disaster-prone region, with 100+ climate disasters annually affecting ~80 million people.
- ❖ **Major Threats:** Floods/landslides (hydrological), storms/heatwaves (meteorological), and earthquakes/volcanos (geophysical).
- ❖ **Indian Context:** * Primarily prone to floods and landslides.
 - Average annual disaster losses are **0.4% of GDP** (can rise to 2% in severe years).
- ❖ **World Risk Index 2025:** Ranked the **Philippines 1st**, **India 2nd**, and **Indonesia 3rd** in global disaster risk.

3. Black Dried Fish (Karelu) & Kolleru Lake

- ❖ **Karelu (Karimeen):** A traditional black dried fish delicacy from Kolleru Lake, Andhra Pradesh.
 - Rich in protein and Omega-3; prepared using salt, turmeric, and sun-drying without preservatives.
 - ~90 tonnes exported annually, supporting local fishing livelihoods.



❖ **Kolleru Lake:**

- One of India's largest **freshwater lakes**, located between the Krishna and Godavari deltas.
- Designated a **Ramsar Wetland** in 2002.
- Acts as a natural flood buffer for the surrounding basin.

4. Bargi Dam (Rani Avanti Bai Sagar Project)

❖ **Status:** National Dam Safety Authority (NDSA) issued a notice to MP's Narmada Valley Development Authority over safety lapses.

❖ **Location:** Built on the **Narmada River** near Jabalpur, Madhya Pradesh.

❖ **Structure:** A composite gravity dam (concrete/masonry and earthen) completed in 1990.

❖ **Purpose:** Multipurpose—irrigation, hydroelectric power, flood control, and water supply.



5. Thwaites Glacier (“Doomsday Glacier”)

❖ **Location:** Located in **West Antarctica**, draining ice into the Amundsen Sea.

❖ **Significance:** Its collapse could trigger a catastrophic global sea-level rise; it acts as a “plug” holding back inland ice.

❖ **Current Findings:** Rapid fracturing and rising cracks due to warming oceans indicate a high long-term risk of ice-sheet collapse

6. High Seas Treaty (BBNJ Agreement)

❖ **Status:** Entered into force on **17 January 2026** after Morocco became the 60th country to ratify (Sept 2025).

❖ **Definition:** A legally binding global framework under **UNCLOS** for the conservation of marine biodiversity in areas beyond national jurisdiction (High Seas).

❖ **Key Goals:**

- Supports the **“30 by 30” target** (protecting 30% of the world's oceans by 2030).
- Contributes to **SDG-14** (Life Below Water).
- Allows the creation of **Marine Protected Areas (MPAs)** in international waters.

❖ **The Four Pillars:**

1. Marine Genetic Resources (MGRs).
2. Area-Based Management Tools (ABMTs).



3. Environmental Impact Assessments (EIAs).

4. Capacity Building & Technology Transfer.

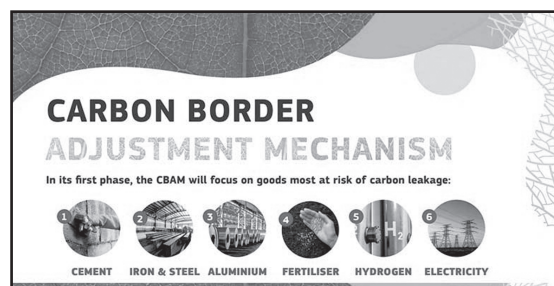
- ❖ **Geography:** High seas cover nearly **two-thirds** of the world's oceans and are considered a common global resource.

7. International Year of Rangelands and Pastoralists (2026)

- ❖ **Declaration:** The UN General Assembly declared **2026** to highlight grassland ecosystems and pastoral livelihoods.
- ❖ **Objectives:**
 - Recognize rangelands as critical for climate action and biodiversity (often overlooked compared to forests).
 - Integrate rangelands into **Nationally Determined Contributions (NDCs)** and land restoration.
 - Promote coordination between the three **Rio Conventions** (UNFCCC, CBD, UNCCD).
- ❖ **Definitions:**
 - **Rangelands:** Include grasslands, savannahs, shrublands, and deserts (covers >1/3 of Earth's land).
 - **Pastoralists:** Communities dependent on livestock grazing (e.g., **Maasai** in East Africa, **Mongolian nomads**, **Raikas/Rebaris** in Rajasthan/Gujarat).

8. Carbon Border Adjustment Mechanism (CBAM)

- ❖ **Implementation:** Began on **1 January 2026** by the European Union.
- ❖ **Mechanism:** A “climate tariff” or carbon-linked tax on imports of carbon-intensive goods (Steel, Aluminium, Cement, Fertilisers, etc.).
- ❖ **Purpose:** Part of the EU's “**Fit for 55**” plan to cut emissions by 55% by 2030; prevents “carbon leakage.”
- ❖ **Requirement:** Importers must buy certificates linked to the **EU Emissions Trading System (ETS)** price based on the product's carbon footprint.
- ❖ **Impact on India:** Likely to affect India's high-volume exports of **steel and aluminium**.



9. Delhi's Winter Air Pollution & Secondary Particulate Matter

- ❖ **Findings (CAQM):** **Secondary Particulate Matter (PM2.5)** is the largest contributor to Delhi's winter pollution (**27%**).
- ❖ **Source Ranking:**
 1. Secondary Particles (27%)

2. Transport (23%)
 3. Biomass burning (20%)
 4. Dust (15%)
 5. Industry (9%)
- ❖ **Formation:** Not released directly; formed via chemical reactions between primary pollutants (SO₂, NO_x) and ammonia in the atmosphere.
 - **SO₂ (Coal/Kilns)** → Sulphuric acid.
 - **NO_x** Nitric acid.
 - **Acid + Ammonia** Ammonium Sulphate/Nitrate (Fine PM_{2.5}).
 - ❖ **Agriculture Link:** 80% of India's ammonia comes from **fertilizer use and livestock**, making it an indirect contributor to urban smog.

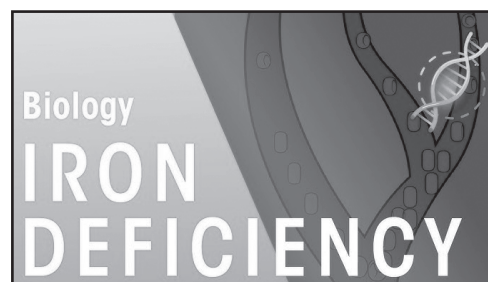
10. State of Finance for Nature 2026 (UNEP)

- ❖ **The Funding Gap:** A massive imbalance exists where **\$7.3 trillion** flows into nature-harming activities, while only **\$220 billion** supports **Nature-based Solutions (NbS)** (a 30:1 gap).
- ❖ **Harmful Finance Sources:**
 - **Private Sector:** \$5 trillion (Energy, Utilities, Industry).
 - **Subsidies:** \$2.4 trillion (Fossil fuels, Agriculture, Transport). Fossil fuels get 47% of these subsidies.
- ❖ **Required Action:** NbS investment must increase 2.5 times to **\$571 billion annually by 2030**.
- ❖ **Nature Transition X-Curve:** A new tool introduced to help phase out harmful finance and scale up nature-positive investments.

SCIENCE & TECHNOLOGY

1. Iron Deficiency & Biology

- ❖ **Role of Iron:** It is an essential micronutrient for oxygen transport (via hemoglobin), energy production, and cell growth.
- ❖ **Storage:** An adult male carries about **50 mg/kg**, while females carry about **40 mg/kg**.
- ❖ **Requirements:** Daily intake needs vary—men need **8–10 mg**, non-pregnant women **18–20 mg**, and pregnant women **27 mg**.
- ❖ **Absorption:** Only about **10%** of dietary iron is absorbed. Heme iron (meat/fish) is absorbed better than non-heme iron (plants). **Vitamin C** significantly boosts absorption.



- ❖ **Excess Iron:** Since the body cannot easily remove iron, excess leads to accumulation in the liver and heart (**Cirrhosis/Heart disease**). This is treated via **Chelation therapy**.

2. India's Space Economy (Project Odyssey)

- ❖ **Market Growth:** Projected to grow from **\$13 billion to \$40 billion** by 2030, aiming to be the world's 3rd largest.
- ❖ **Private Investment:** Expected to reach **\$3–3.5 billion** over the next five years.
- ❖ **Sector Shift:** Focus is moving from “Launch Hardware” to “**Downstream Services**” like satellite data analytics and climate intelligence.
- ❖ **Key Startups:** * **Skyroot & Agnikul:** Launch vehicles and 3D-printed engines.
 - o **Pixxel:** Hyperspectral imaging satellites.
- ❖ **Policy Support:** **Indian Space Policy 2023** and **100% FDI** for components (74% for satellite operations) under the automatic route.

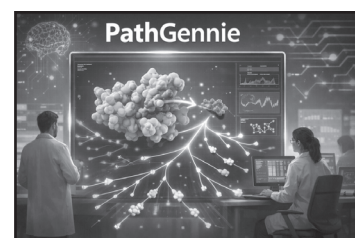


3. Nanorobots (Nanobots) in Cancer Therapy

- ❖ **Definition:** Programmable machines at the nanoscale (one-billionth of a meter).
- ❖ **Composition:** Built from biocompatible materials like silica, DNA, or magnetic metals (iron).
- ❖ **Targeted Delivery:** Guided by external magnetic fields or ultrasound, they deliver drugs directly to tumor cells, minimizing damage to healthy tissue.
- ❖ **Recent Recognition:** Dr. Ambarish Ghosh (IISc) won the **2025 Transformation Prize** for his work on magnetic nanobots for breast/ovarian cancer.

4. PathGennie Software

- ❖ **Developer:** S.N. Bose National Centre for Basic Sciences, Kolkata.
- ❖ **Purpose:** Open-source software used to simulate **rare molecular events**, such as how drug molecules interact with proteins.
- ❖ **AI Integration:** Compatible with machine-learning to refine drug discovery simulations and study chemical catalytic processes.



5. NASA's OSIRIS-REx & Asteroid Bennu

- ❖ **The Mission:** Collected regolith (soil) from the carbon-rich asteroid Bennu and returned it to Earth in 2023.
- ❖ **Findings:** * Contains **Amino acids** and all five **nucleobases** (building blocks of DNA/RNA).
 - o Discovery of **six-carbon sugars** (glucose and ribose) for the first time on an asteroid.

- ❖ **Significance:** Bennu is a “time capsule” from **4.6 billion years ago**, potentially explaining how life’s ingredients arrived on Earth.

6. Param Shakti Supercomputer

- ❖ **Location:** Inaugurated at **IIT Madras**.
- ❖ **Performance:** A **3.1-petaflop** system (3.1 quadrillion calculations per second).
- ❖ **Indigenous Tech:** Developed by C-DAC using the **RUDRA server series** and **Trinetra** high-speed interconnect.
- ❖ **Application:** Used for high-end research in climate modeling, aerospace, and drug discovery.



7. Orbital Datacentres (Project Suncatcher)

- ❖ **Concept:** Moving energy-intensive AI datacentres into **Low-Earth Orbit**.
- ❖ **Advantages:**
 - * **Uninterrupted Solar Power:** Constant exposure to sunlight.
 - o **Cooling:** Utilizes the vacuum/environment of space to solve terrestrial cooling issues.
 - o **Sustainability:** Reduces the carbon footprint and water consumption of ground-based facilities.
- ❖ **Timeline:** Google’s **Project Suncatcher** aims for space-based deployment by **2027**.

8. Gravitational Microlensing

- ❖ **The Physics:** Based on Einstein’s General Relativity, a foreground object (like a planet) acts as a lens, bending and magnifying the light of a distant star.
- ❖ **Significance:** This is the most effective method for detecting “**Rogue Planets**” (planets that don’t orbit a star) and dark objects (black holes/neutron stars).
- ❖ **New Discovery:** Scientists identified a **Saturn-mass free-floating planet** 9,800 light-years away using this technique

ETHICS

DEATH PENALTY – THE PRACTICE AND THE PERIL

- ❖ **Context:** The Supreme Court of India is currently hearing the Union government’s submission regarding the feasibility of replacing “hanging” with a more humane and less painful method of execution. This has reignited the debate on the constitutional and moral validity of capital punishment in a modern democracy.

1. Understanding the Death Penalty

- ❖ **Definition:** The death penalty (capital punishment) is the state-sanctioned killing of a person as punishment for a heinous crime.

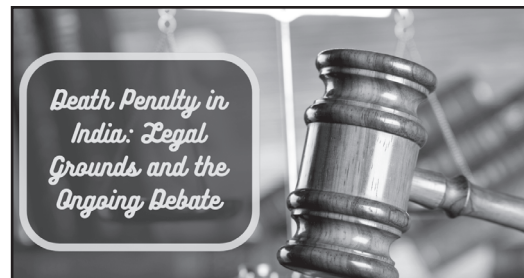
- ❖ **Judicial Homicide:** In legal and ethical discourse, the practice is often termed “judicial homicide”—an intentional killing authorized by the judiciary.
- ❖ **Death Row:** Refers to the status of a prisoner who has been sentenced to death and is awaiting execution.

2. Status of Death Penalty in India

A. Judicial Trends (The “Rarest of Rare” Paradox)

Despite being a retentionist country, India’s highest court has shown a distinct reluctance to confirm death sentences in recent years.

- ❖ **Zero Confirmations:** For the third consecutive year, the Supreme Court has **not confirmed any death sentences**.
- ❖ **Acquittals & Commutations:** Instead of execution, the Court has leaned towards acquitting death row prisoners (9 acquitted recently) or commuting sentences to life imprisonment (5 commuted).
- ❖ **Remand:** Several cases have been sent back to trial courts for fresh consideration, highlighting procedural flaws in the lower judiciary.



B. The “Hanging vs. Lethal Injection” Debate

- ❖ **Current Proposals:** The Supreme Court is evaluating a proposal to give death row convicts the **option to choose** between “death by hanging” and “lethal injection.”
- ❖ **Government’s Stand:** The Centre maintains that hanging is the “safest and quickest” method. However, following the Court’s displeasure at this rigid stance, the government has hinted it is open to examining alternative, less painful methods.
- ❖ **Court’s View:** The Top Court emphasizes that the method of execution must meet the constitutional test of human dignity, even in death.

C. The Reality of “Death Row”

- ❖ **Statistics:** India currently has **564 prisoners on death row**, the highest number in nearly two decades.
- ❖ **Trial Court Aggression:** Trial courts have been sentencing over **100 people to death annually**. These sentences are often passed without proper consideration of **mitigating circumstances** (e.g., the convict’s socio-economic background, age, or potential for reform).
- ❖ **Judicial Guidance:** In the landmark *Manoj vs State of Madhya Pradesh (2022)* judgment, the Supreme Court ruled that courts must evaluate mitigating factors to prevent retributive sentencing. The Court reminded judges not to be swayed by “public outrage” or the “brutality of the crime,” asserting that modern penology centres on the **preservation of human life**.

D. The “Middle Path”

- ❖ Courts are increasingly adopting “**Life Imprisonment without Remission**” as a substitute for the death penalty. Introduced after the Nirbhaya case, this ensures the convict remains in prison until natural death, satisfying the need for severe punishment without state-sponsored killing.

3. Global Landscape of Capital Punishment

A. Rising Executions (The 2023 Spike)

According to **Amnesty International**, the use of the death penalty saw a disturbing rise in 2023.

- ❖ **Recorded Executions:** 1,153 executions were recorded in 2023, a **31% increase** from 2022. This is the highest figure since 2015.
- ❖ **The “Hidden” Numbers:** These figures exclude China, which is believed to be the world’s leading executioner (executing thousands) but keeps the data a state secret.
- ❖ **Sentencing Surge:** Global death sentences increased by **20%**, reaching 2,428.

B. Retentionist vs. Abolitionist Nations

- ❖ **Retainers (55 Nations):** Major countries like the **USA, China, India, Japan, Saudi Arabia, Iran,** and **Singapore** continue to use the death penalty.
- ❖ **Abolitionists:** Over **70% of the world** has abolished capital punishment in law or practice.
 - **Fully Abolished (2024):** Kazakhstan, Papua New Guinea, Sierra Leone, and the Central African Republic.
 - **Reformist Steps:** **Malaysia** removed the *mandatory* death penalty for 11 serious crimes, and **Ghana** voted to abolish it altogether in 2023.

4. Methods of Execution

Different nations employ varying methods, often sparking debate over “cruelty” and “humaneness.”

Here is the revised section on **Methods of Execution** presented as a list instead of a table.

Methods of Execution

- ❖ **Hanging**
 - **The Process:** The ‘long drop’ method is the most commonly used technique, designed to break the neck instantly.
 - **Used by:** India, Japan, Bangladesh, Iran, Malaysia, Nigeria, etc.
- ❖ **Lethal Injection**
 - **The Process:** Involves the administration of a cocktail of three drugs:
 1. **Sodium Thiopental:** An anaesthetic to induce unconsciousness.
 2. **Pancuronium Bromide:** A paralytic agent to stop breathing.
 3. **Potassium Chloride:** Stops the heart.
 - **Used by:** USA, China, Vietnam.
- ❖ **Electrocution**
 - **The Process:** The prisoner is blindfolded and subjected to repeated jolts of **500–2000 volts** for approximately 30 seconds.

- **Used by:** USA.
- ❖ **Nitrogen Hypoxia**
 - **The Process:** Forces the inmate to breathe only nitrogen gas, causing death by oxygen deprivation (hypoxia).
 - **Used by:** Select US states.
- ❖ **Shooting**
 - **The Process:** Execution is carried out by firing squads.
 - **Used by:** China, North Korea, Indonesia, Saudi Arabia, Yemen.
- ❖ **Beheading**
 - **The Process:** Public execution using a sword.
 - **Used by:** Saudi Arabia (Sole country known to use this method as of 2022).

5. The Great Debate: Justice vs. Humanity

The Argument for Retention:

- ❖ Supporters argue that capital punishment is society's necessary response to extreme cruelty. It is viewed as a mechanism to satisfy the **collective sense of justice** and act as a deterrent against the recurrence of heinous crimes.

The Argument for Abolition (The Peril):

- ❖ **Ineffectiveness:** Empirical evidence shows that the death penalty **does not deter violent crime** more effectively than life imprisonment.
- ❖ **Irreversibility:** The risk of **wrongful execution** is the gravest peril. Once executed, a miscarriage of justice cannot be rectified.
- ❖ **Moral Contradiction:** Taking a life in the name of law ("killing to show that killing is wrong") creates a moral paradox.
- ❖ **No Rehabilitation:** It denies the possibility of reform, which is a core tenet of modern restorative justice.

6. What Lies Ahead?

The larger constitutional issue—ensuring fairness and consistency in awarding death sentences—is currently pending before a **Constitution Bench** of the Supreme Court.

- ❖ **The Need for Clarity:** The current system is marked by arbitrariness (judge-centric variations in sentencing). The Bench's decision is expected to bring long-overdue clarity.
- ❖ **Moral Progress:** As over 113 countries move towards total abolition, India's reliance on capital punishment appears out of step with global moral progress.
- ❖ **Conclusion:** Focusing merely on the "mechanics of execution" (hanging vs. injection) misses the larger point. The true question facing the judiciary and society is not *how* to kill, but *whether* the state should kill at all.

ATTITUDE BEATS APTITUDE

1. The Core Concept

- ❖ **Aptitude:** Refers to raw technical skills and cognitive ability. It is the **entry ticket** to a job.
- ❖ **Attitude:** Refers to mindsets and behaviors (e.g., resilience, accountability, openness). It determines **professional growth** and long-term success.

2. Why Attitude Wins (The “Soft” Edge)

In a fast-changing environment, static skills become obsolete quickly. Attitude bridges the gap:

- ❖ **Learnability:** Openness to experimenting allows employees to stay relevant, unlike those with fixed skill sets.
- ❖ **Ownership:** Taking responsibility for *outcomes* (not just tasks) builds trust and reliability.
- ❖ **Handling Ambiguity:** The ability to remain calm and solution-oriented in uncertain environments is crucial.
- ❖ **Coachability:** A willingness to accept feedback signals maturity and leadership potential.
- ❖ **Collaboration:** Interpersonal maturity ensures effective teamwork and conflict resolution.

3. Why Aptitude Still Matters (The Foundation)

While attitude drives growth, aptitude ensures the baseline of competence:

- ❖ **Quality & Safety:** Ensures minimum standards of accuracy and safety.
- ❖ **Efficiency:** Strong cognitive skills allow for faster understanding and logical problem-solving.
- ❖ **Credibility:** Essential for building confidence among peers in specialized or technical roles.
- ❖ **Autonomy:** High aptitude reduces the need for “hand-holding,” saving organizational resources.

4. Challenges to Developing the Right Attitude

- ❖ **Fear of Mistakes:** Over-emphasis on perfectionism discourages experimentation.
- ❖ **Rigid Hierarchies:** Power distances prevent young professionals from seeking clarity.
- ❖ **Remote Disengagement:** Lack of in-person interaction weakens emotional alignment and informal learning.
- ❖ **Credential Entitlement:** Excessive focus on degrees can reduce humility and willingness to learn.
- ❖ **Low Feedback Literacy:** Taking feedback as a personal attack rather than a tool for improvement.

5. Methods to Instill Both

- ❖ **Continuous Learning Culture:** Integrate behavioral learning with technical training.
- ❖ **Structured Feedback:** Regular feedback helps individuals reflect and course-correct.
- ❖ **Mentorship:** Senior professionals act as role models, demonstrating how skills and attitude blend in practice.
- ❖ **Experiential Learning:** Real-world tasks build both competence (aptitude) and confidence (attitude).

Conclusion

- ❖ **Aptitude** enables entry into the workplace, but **Attitude** governs growth, trust, and leadership. In the long run, character acts as the true **multiplier of competence**.

MISCELLANEOUS EVENTS

1. Global Risks Report 2026 (World Economic Forum)

- ❖ The WEF released its **21st edition** of the report, based on the Global Risks Perception Survey. It evaluates risks over a **2-year (short-term)** and **10-year (long-term)** horizon.

Global Perspective

- ❖ **Top Risk 2026: Goeconomic confrontation** (trade wars, sanctions, supply chain decoupling) has overtaken extreme weather and armed conflict.
- ❖ **Technological Shift:** Misinformation/disinformation is now the **5th** highest risk globally, followed by AI-related risks (**8th**) and cyber insecurity (**9th**).
- ❖ **Long-term Outlook (2036):** The focus shifts to environmental and social collapse, specifically **biodiversity loss** and **ecosystem collapse**.

India-Specific Risk Profile

- ❖ **Cybersecurity (#1 Risk):** Due to India's massive scale of digital payments (UPI) and digital public infrastructure, cyberattacks are the biggest threat.
- ❖ **Socio-Economic Gaps:** Income/wealth inequality and gaps in social protection remain high.
- ❖ **Resource Tensions:** Specifically cited water security issues in the **Indus Basin**.

2. Mission Sudarshan Chakra (Air Defence)

This is India's ambitious initiative to build a **fully indigenous**, multi-layered air defence shield by **2035**.

- ❖ **Objective:** Protect military bases and "critical civilian infrastructure" (railways, hospitals, public sites) from aerial threats.
- ❖ **Technology:** Uses AI-enabled surveillance, swarm drone detection, and **Directed-Energy Weapons (DEW)** like high-power lasers.
- ❖ **Strategic Context:** India is moving toward the league of global systems like:
 - **Russia:** S-400 / S-500
 - **USA:** Patriot / THAAD
 - **Israel:** Iron Dome / David's Sling
 - **China:** HQ-9 / HQ-19



3. INSV Kaundinya & The Tankai Technique

- ❖ This project is a blend of the **Indian Navy** and the **Ministry of Culture** to retrace ancient maritime trade routes (Porbandar to Muscat).

Historical Reconstruction

- ❖ **The Vessel:** INSV Kaundinya is built using **no metal fasteners** (no nails/screws), based on the **Tankai technique**.
- ❖ **The Tankai Method:** A 2,000-year-old “stitched ship” method. Wooden planks are sewn together using **coconut coir ropes**. This makes the ship flexible in rough seas and prevents rust.
- ❖ **Design Inspirations:** * Ship depiction in **Ajanta Cave 17**.
 - o King Bhoja’s 11th-century Sanskrit text, **Yuktikalpataru**.
- ❖ **Symbolism:** Features the **Gandabherunda** (two-headed bird) on sails and a Harappan-style stone anchor.

Who was Kaundinya?

- ❖ He was a 1st-century CE Indian merchant-mariner who established the **Funan Kingdom** in present-day Cambodia, marking the early spread of Indian influence in Southeast Asia.

4. ICGS Samudra Pratap (Pollution Control)

India commissioned its **first fully indigenous** Pollution Control Vessel (PCV) in Goa.

- ❖ **Role:** Dedicated to tackling **marine oil spills** and environmental disasters in the Indian Ocean.
- ❖ **Capabilities:** * Equipped with **Oil-spill detection radar** and recovery systems.
 - o Features **Dynamic Positioning** technology (allows the ship to stay in a fixed position automatically during cleanup).
- ❖ **Indigenous Content:** Over **60%**, supporting the “Make in India” initiative in the maritime sector



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FEBRUARY 2026

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ART AND CULTURE

1. Tulu Language & Article 345

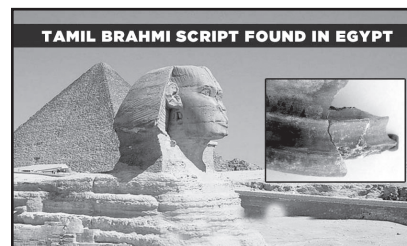
The move by the Karnataka government to grant **Tulu** official status highlights the constitutional flexibility provided under **Article 345**. This article empowers State Legislatures to adopt one or more languages for administrative purposes based on regional needs.

- ❖ **Cultural Context:** Tulu is a Dravidian language with a 3,000-year history, primarily spoken in **Tulunadu** (Udupi and Dakshina Kannada in Karnataka, and parts of Kerala). It utilizes the **Tigalari script** and is famous for oral traditions like *Paddanas* (ballads) and *Bhoota Kola* (ritual dance).
- ❖ **Constitutional Nuance:** A critical takeaway for the exam is that a language **does not** need to be part of the **8th Schedule** to be a state's official language. Official status helps in preserving the linguistic identity and ensures the language is used in government notifications and local administration.

2. Tamil Inscriptions in Egypt

The discovery of **Tamil Brahmi, Prakrit, and Sanskrit** inscriptions in Egypt's **Valley of the Kings** is a monumental find for ancient history.

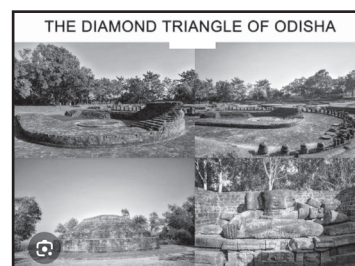
- ❖ **The Evidence:** Found in the Theban Necropolis and dating to the 1st–3rd century CE, these inscriptions (like “*Kopâl varata kantan*”) serve as “visitor graffiti.”
- ❖ **Trade Significance:** This discovery reinforces the existence of robust **Indo-Roman maritime trade** routes. It proves that Indian merchants and sailors were not just trading at Red Sea ports like Berenike but were traveling inland along the Nile Valley to major religious and royal sites. It showcases the global reach of the ancient **Tamilakam** culture and its integration into the Roman economy.



3. Odisha's Diamond Triangle (UNESCO Status)

The inclusion of **Ratnagiri, Udayagiri, and Lalitgiri** in the UNESCO Tentative List marks a major recognition of Odisha's Buddhist heritage.

- ❖ **Evolution of Buddhism:** These sites represent the transition of Buddhism from **Hinayana** to **Mahayana** and eventually to the Tantric **Vajrayana** tradition.
- ❖ **Architectural Uniqueness:** **Ratnagiri** features India's only Buddhist monastery with a curvilinear roof and is famous for its green chlorite doorframes. **Lalitgiri** is the oldest of the three (2nd century BCE), where bone relic caskets (possibly of the Buddha) were discovered. **Udayagiri** is the largest complex, functioning as a high-tier learning center.



4. Neolithic Discoveries at Lakkundi

Lakkundi, in Karnataka's Gadag district, is traditionally famous for its **Kalyana Chalukya** architecture and its medieval role as a royal minting hub (**tankashale**). However, recent excavations have pushed its history back to the **Neolithic period**.

- ❖ **Key Findings:** The discovery of grey clay pots, stone axes, and cowrie shells indicates that the site was a center of human habitation thousands of years before the Chalukyas.
- ❖ **Medieval Layer:** The presence of Jina carvings also confirms that Lakkundi was a significant center for **Jainism** during the medieval period. This site represents a continuous timeline of human civilization from the Stone Age to the flourishing empires of the Yadavas and Hoysalas.

5. Vasai Cathedral: Heritage Conservation

The **Our Lady of Grace Cathedral** in Vasai, Maharashtra, received the UNESCO Asia-Pacific Award for Cultural Heritage Conservation.

- ❖ **The Structure:** Built 475 years ago during Portuguese rule, it is a fortress-like structure that served as a major Catholic stronghold on the west coast.
- ❖ **Sustainability:** The restoration is notable for shunning modern cement in favor of traditional **stone, mud mortar, and lime**. This preservation of 16th-century building techniques aligns with modern goals of sustainable development and cultural authenticity, showcasing how traditional materials can ensure the longevity of historical monuments.

6. Repatriation of South Indian Bronzes

The return of three bronze sculptures from the Smithsonian (USA) to India highlights the success of international conventions (like the **1970 UNESCO Convention**) in stopping the illicit trade of cultural property.

- ❖ **The Artworks:** 1. **Shiva Nataraja (Chola, 990 CE):** Portrays the *Ananda Tandava* (Cosmic Dance of creation and destruction). 2. **Somaskanda (Chola, 12th Century):** Shiva with Parvati and child Skanda, used as an *utsava murti* (processional idol). 3. **Saint Sundarar with Paravai (Vijayanagar, 16th Century):** Represents the Bhakti movement's influence on art.
- ❖ **Technique:** These were created using the **lost-wax technique**, a hallmark of South Indian metallurgy.



7. Magh Mela 2026

The **Magh Mela** in Prayagraj is an annual 45-day pilgrimage held at the **Triveni Sangam** (confluence of Ganga, Yamuna, and Saraswati).

- ❖ **Cycle of Melas:** It is important to remember the hierarchy: Magh Mela (Annual) '! Kumbh Mela (every 4 years) '! Maha Kumbh Mela (every 12 years).
- ❖ **Significance:** The festival is rooted in the concept of **Moksha** (liberation), where ritual bathing during the month of Magha is believed to cleanse one's sins. The 2026 event concluded on Maha Shivratri, highlighting the enduring socio-cultural fabric and administrative scale of Indian religious gatherings.

8. Meghalaya's Living Root Bridges

India has nominated the **Living Root Bridges** (*Jingkieng Jri*) for UNESCO World Heritage status.

- ❖ **Bio-Engineering:** These bridges are created by guiding the aerial roots of **Ficus elastica** (Rubber fig) trees across rivers.

- ❖ **Indigenous Knowledge:** They represent the traditional ecological knowledge of the **Khasi and Jaintia** tribes. Unlike modern concrete bridges, these “living” structures grow stronger over time, lasting up to 300 years. They are a prime example of a **living cultural landscape** where human ingenuity works in tandem with natural growth rather than against it.

9. Pandit Deendayal Upadhyaya: Integral Humanism

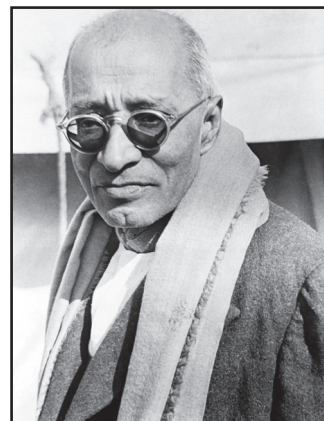
A key figure in modern Indian political thought, Upadhyaya’s primary contribution is the philosophy of **Integral Humanism** (*Ektaatm Manavvaad*).

- ❖ **Philosophy:** He critiqued both Western capitalism and communism for being too materialistic. Instead, he advocated for a development model rooted in **Dharma** and human welfare.
- ❖ **Key Pillar - Antyodaya:** This concept refers to the “upliftment of the last person.” It emphasizes that the success of a nation should be measured by the well-being of its poorest citizen. His focus on **Swadeshi** (self-reliance) and decentralized development remains a cornerstone of current Indian governance policies.

10. C. Rajagopalachari & Decolonization

The replacement of Edwin Lutyens’ statue with a bust of **C. Rajagopalachari** at Rashtrapati Bhavan is a symbolic act of **decolonization**.

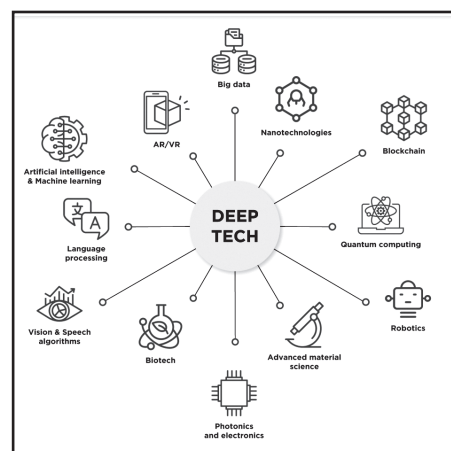
- ❖ **Legacy of CR:** Known as “Rajaji,” he was India’s first and only Indian **Governor-General**. He was a master negotiator, evidenced by the **C.R. Formula (1944)**, which sought to bridge the divide between the Congress and the Muslim League.
- ❖ **Decolonization Context:** While Lutyens designed the imperial architecture of New Delhi to project British power, the installation of CR’s bust reclaims that space for Indian leadership. His Bharat Ratna (1954) and the founding of the **Swatantra Party** mark him as a leader who valued both political freedom and economic liberty.



ECONOMY

1. Deep Tech Startups

- ❖ The Government of India has defined “deep tech startups” to guide policy support, funding, and long-term technological innovation. These startups are promoted under the Startup India initiative launched in 2016 by DPIIT, which provides benefits such as tax incentives, easier compliance, and faster intellectual property processing.
- ❖ Deep tech startups are distinguished by their reliance on advanced scientific or engineering knowledge, often involving fields like artificial intelligence, biotechnology, and quantum computing. They typically require high research and development investment, face long development timelines, and involve significant technical uncertainty.



- ❖ Unlike conventional startups, they generate strong intellectual property and require substantial capital, specialised infrastructure, and highly skilled talent. Recognising their longer commercialisation cycles, the government allows them to retain startup status for up to 20 years, with a turnover limit of Rs. 300 crore.
- ❖ Deep tech represents breakthrough innovations emerging from fundamental research and has the potential to transform industries, enhance productivity, and address complex societal challenges. It plays a crucial role in strengthening India's innovation ecosystem and achieving technological self-reliance.

2. Scientific River Ranching

- ❖ Scientific river ranching is an important conservation strategy implemented under the Namami Gange Programme to revive declining fish populations in the Ganga river system. It involves releasing hatchery-reared native fish fingerlings into natural river ecosystems to enhance stock levels and restore ecological balance.
- ❖ This method uses wild broodstock to maintain genetic purity and ensures that fingerlings are reared to an optimal size before release, improving their chances of survival.
- ❖ The programme is implemented by the ICAR–Central Inland Fisheries Research Institute, which identifies suitable river stretches for scientifically planned releases. Between 2017 and 2025, around 169 ranching programmes were conducted, resulting in the release of over 205 lakh indigenous fish fingerlings across the Ganga and its tributaries.
- ❖ The focus is on native species such as Indian Major Carps, Mahseer, Hilsa, and catfishes. This initiative not only helps conserve aquatic biodiversity but also strengthens river ecosystems and supports the livelihoods of fishing communities. It represents a sustainable and science-based approach to river restoration and fisheries management in India.

3. Merchandise Trade Indices

- ❖ The Directorate General of Commercial Intelligence and Statistics has revised the base year of India's Merchandise Trade Indices from 2012–13 to 2022–23 to better reflect current trade patterns. These indices measure changes in the price and quantity of goods exported and imported over time, helping assess the performance of the external sector.
- ❖ They include export and import unit value indices, quantity indices, and bilateral or regional trade indices. A base year is assigned an index value of 100 and serves as a reference point for comparing changes in subsequent years.
- ❖ The indices are constructed using the Laspeyres method, where weights are derived from trade values of the base year. They are widely used by the Ministry of Statistics and Programme Implementation and the Reserve Bank of India for estimating real GDP growth, analysing balance of payments, and calculating terms of trade.
- ❖ Updating the base year ensures that the indices remain representative of evolving economic conditions, trade composition, and price structures, thereby improving the accuracy of economic analysis and policymaking.

4. Coking Coal

- ❖ Coking coal, also known as metallurgical coal, has been notified as a critical and strategic mineral under the MMDR Act, 1957, highlighting its importance for India's industrial sector. It is primarily used in steel production through the blast furnace route, where it is heated in the absence of air to produce coke, a strong and porous fuel essential for iron making.
- ❖ Compared to thermal coal, coking coal has higher carbon content and lower ash and moisture levels. It is classified into primary, medium, and semi or weak coking coal based on its properties. Coking coal is vital for sectors such as infrastructure, manufacturing, defence, and construction.
- ❖ Globally, major producers include China, Australia, Russia, and the United States. India has significant reserves, estimated at around 37 billion tonnes, mainly located in Jharkhand, West Bengal, Chhattisgarh, and Madhya Pradesh. However, despite these reserves, India remains heavily dependent on imports, meeting nearly 95 percent of its steel sector demand through imports. This makes securing supply and boosting domestic production strategically important.

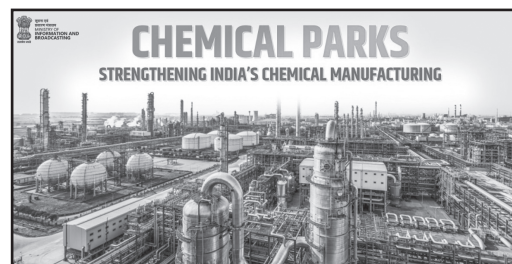


5. C4IR Centres

- ❖ The Centres for the Fourth Industrial Revolution (C4IR) are an initiative of the World Economic Forum, launched in 2017 to guide the governance of emerging technologies. These centres function as a global multi-stakeholder network connecting governments, industry, academia, and civil society to ensure that technological advancements are used responsibly and inclusively.
- ❖ Recently, a new C4IR centre has been established in Andhra Pradesh, named the Centre for Energy and Cyber Resilience, making it India's third such centre after Mumbai and Telangana. The centre focuses on critical areas such as energy transition, green energy systems, cybersecurity, cyber resilience, and workforce upskilling.
- ❖ The broader concept behind C4IR is the Fourth Industrial Revolution, which refers to the rapid integration of digital, physical, and biological technologies such as artificial intelligence, robotics, and the Internet of Things.
- ❖ Popularised by Klaus Schwab in 2016, this phase of technological change is transforming industries, economies, and societies at an unprecedented pace. The C4IR network aims to maximise the benefits of these technologies while addressing associated risks like data privacy, security threats, and ethical concerns.

6. Chemical Parks

- ❖ The Union Budget 2026–27 proposed the establishment of three Chemical Parks through a challenge-based selection process, marking a significant step towards strengthening India's chemical manufacturing sector. With an allocation of Rs. 600 crore, this initiative provides the first dedicated budgetary support for developing chemical park infrastructure.



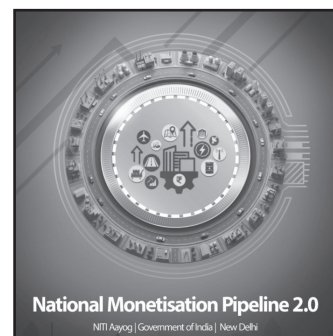
- ❖ Chemical parks are planned industrial clusters where multiple chemical and petrochemical units operate together with shared infrastructure and utilities. These parks offer facilities such as central effluent treatment plants, hazardous waste management systems, and safe storage and logistics infrastructure, ensuring both cost efficiency and environmental compliance.
- ❖ India is currently the sixth-largest chemical producer globally and the third-largest in Asia, with the sector contributing around 7 percent to GDP and over 8 percent to manufacturing gross value added. The industry produces a wide range of products, including bulk chemicals, petrochemicals, agrochemicals, polymers, and specialty chemicals, and was valued at approximately \$250 billion in 2024.
- ❖ The development of chemical parks is expected to attract investment, improve competitiveness, boost exports, and promote sustainable industrial growth by reducing costs and improving regulatory coordination.

7. Consumer Price Index (CPI) New Series

- ❖ The Ministry of Statistics and Programme Implementation has introduced a new Consumer Price Index (CPI) series with base year 2024, replacing the earlier base year of 2012. CPI is a key indicator that measures changes in retail prices of a basket of goods and services consumed by households, thereby reflecting inflation trends in the economy.
- ❖ The new series is based on the Household Consumption Expenditure Survey 2023–24, ensuring that it captures current consumption patterns more accurately. One significant change is the reduction in the weight of food and beverages to 36.75 percent, indicating diversification in consumption.
- ❖ The basket has been expanded to 358 items from the earlier 299, incorporating modern consumption items such as OTT services, cleaner fuels like CNG and PNG, and various digital goods and services. At the same time, obsolete items like VCRs, CDs, and tape recorders have been removed.
- ❖ The index now follows the COICOP 2018 classification, increasing categories from six to twelve divisions, which enhances global comparability. This revision improves the accuracy of inflation measurement and strengthens its role in monetary policy formulation and economic planning.

8. National Monetisation Pipeline (NMP) 2.0

- ❖ The National Monetisation Pipeline (NMP) 2.0, announced in the Union Budget 2025–26, represents the next phase of India's strategy to finance infrastructure development by monetising public assets. It builds upon the success of NMP 1.0, which achieved nearly 90 percent of its Rs. 6 lakh crore target.
- ❖ The initiative provides a structured roadmap for attracting private investment by unlocking the value of existing brownfield assets such as roads, railways, power infrastructure, ports, and telecom networks. The core idea is asset recycling, where funds generated from monetising operational public assets are reinvested into new infrastructure projects.
- ❖ Various instruments such as Public–Private Partnerships, Infrastructure Investment Trusts, and cash-flow securitisation are used for monetisation. The process is monitored by the Core Group of Secretaries on Asset Monetisation, chaired by the Cabinet Secretary. Revenues generated are channelled into the Consolidated Fund of India or relevant public sector accounts.



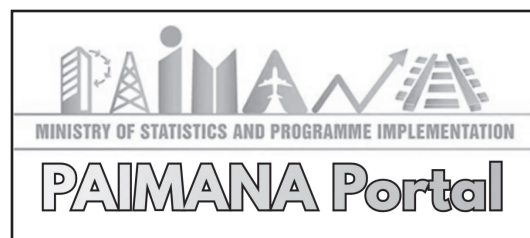
- ❖ NMP 2.0 aims to reduce the fiscal burden on the government, improve efficiency in asset utilisation, and provide long-term investment opportunities for the private sector, thereby accelerating infrastructure growth in the country.

9. Bharat-VISTAAR & AgriStack

- ❖ Bharat-VISTAAR, announced in the Union Budget 2026, is an artificial intelligence-driven multilingual platform designed to transform agricultural services in India. It integrates AgriStack, a digital public infrastructure for agriculture launched under the Digital Agriculture Mission, with agricultural knowledge systems developed by the Indian Council of Agricultural Research.
- ❖ AgriStack is built on three core registries: the Farmer Registry, Crop Sown Registry, and geo-referenced village maps maintained by states and Union Territories. Each farmer is assigned a unique digital ID linked to landholdings, crops, livestock, and access to government schemes.
- ❖ As of now, over 8.6 crore farmer IDs have been generated. Bharat-VISTAAR uses AI analytics to provide personalised, location-specific advisories to farmers, including weather updates, pest management strategies, soil health information, and market price insights.
- ❖ By integrating multiple data sources, the platform aims to reduce information asymmetry and improve decision-making at the farm level. It represents a significant step towards digital agriculture, enhancing productivity, efficiency, and sustainability while ensuring better last-mile delivery of services to farmers across the country.

10. PAIMANA Portal

- ❖ The Ministry of Statistics and Programme Implementation has launched the PAIMANA portal, a digital platform designed to monitor major Central Sector infrastructure projects across India.
- ❖ PAIMANA, which stands for Project Assessment, Infrastructure Monitoring and Analytics for Nationbuilding, is a web-based system that tracks projects with an investment of Rs. 150 crore and above. It replaces the earlier Online Computerised Monitoring System introduced in 2006 and represents a modern, technology-driven approach to project monitoring.
- ❖ The platform provides real-time data, advanced analytics, and performance tracking tools, enabling better evaluation of project progress and early identification of delays or bottlenecks. By improving transparency and accountability, PAIMANA helps policymakers and administrators make informed decisions and take timely corrective actions.
- ❖ It also facilitates efficient coordination among various stakeholders involved in infrastructure development. The initiative reflects the government's focus on leveraging digital technologies to enhance governance and ensure effective implementation of large-scale infrastructure projects, which are crucial for economic growth and national development.



INTERNATIONAL RELATIONS

1. 4B Movement

- ❖ The 4B movement, which originated in South Korea, has recently gained renewed attention in global discussions on gender equality and patriarchy. It is a radical feminist movement in which women collectively reject participation in social institutions they perceive as inherently patriarchal.
- ❖ The term “4B” represents four Korean words that begin with “bi,” meaning “no” or “refusal.” These include Bihon (no marriage), Bichulsan (no childbirth), Biyeonae (no dating), and Bisekseu (no sexual relationships).
- ❖ The movement challenges traditional gender roles, especially those that impose expectations of marriage, motherhood, and emotional labour on women. It emerged as a response to structural inequalities, gender-based violence, and societal pressures in South Korea.
- ❖ By rejecting these norms, participants aim to assert autonomy over their lives and protest systemic discrimination. The movement reflects a broader global trend where women question entrenched patriarchal systems and advocate for equality, bodily autonomy, and freedom from coercive social expectations. While controversial, it highlights deep-rooted gender issues in modern societies.

2. India–US Tariff Changes

- ❖ Recent trade developments between India and United States include a reduction in reciprocal tariffs on Indian goods from 25 percent to 18 percent, along with the removal of additional penalty tariffs related to India’s imports of Russian oil.
- ❖ This change improves India’s competitive position in global trade, especially compared to countries like Vietnam, Bangladesh, and Pakistan, which face slightly higher tariffs. However, developed economies such as the European Union, the United Kingdom, Japan, and South Korea continue to enjoy lower tariff rates.
- ❖ Bilateral trade between India and the United States reached approximately \$132.2 billion in FY25, reflecting steady growth. India also maintains a significant trade surplus of over \$40 billion with the US. The United States is one of the largest sources of foreign direct investment in India, with cumulative inflows exceeding \$70 billion since 2000.
- ❖ Key Indian exports include electrical machinery, pharmaceuticals, and precious stones, while imports from the US include mineral fuels and advanced machinery. The tariff reduction strengthens trade ties and enhances India’s export competitiveness.



3. International Energy Agency (IEA) & India

- ❖ The International Energy Agency has welcomed progress on India’s request for full membership, marking a significant development in global energy governance. Established in 1974 under the framework of the OECD after the oil crisis, the IEA is headquartered in Paris and provides policy advice, data, and analysis on energy security, sustainability, and market trends.

- ❖ India has been an associate member since 2017 and is now seeking full membership, which would require meeting certain criteria. These include maintaining strategic oil reserves equivalent to at least 90 days of net imports and having mechanisms to reduce oil consumption during supply disruptions.
- ❖ India currently maintains around 66–70 days of reserves through a combination of strategic storage and company stocks. Full membership would enhance India's role in shaping global energy policies and improve coordination during energy crises.
- ❖ However, it also involves legal and strategic commitments, including alignment with international energy frameworks and emergency response obligations. Membership would strengthen India's energy security and global standing.

4. Pax Silica Initiative

- ❖ India has joined the Pax Silica initiative, a US-led coalition aimed at building a secure and resilient global technology supply chain centred on semiconductors and related industries. The initiative focuses on the entire “silicon stack,” which includes critical minerals, semiconductor manufacturing, artificial intelligence infrastructure, energy inputs, and logistics systems.
- ❖ The term “Pax Silica” combines the idea of global stability with the strategic importance of silicon-based technologies in the modern digital economy. The coalition includes countries such as Japan, South Korea, the United Kingdom, Australia, and the UAE, reflecting a network of trusted partners.
- ❖ The objective is to reduce dependence on vulnerable supply chains and enhance economic and national security, especially in the context of geopolitical tensions. For India, participation provides an opportunity to integrate into global semiconductor ecosystems, attract investment, and strengthen domestic manufacturing capabilities.
- ❖ It also helps diversify supply chains and reduce reliance on dominant players like China. Overall, the initiative reflects the growing importance of technology alliances in shaping global power dynamics.

5. UNIFIL & Blue Line

- ❖ The United Nations Interim Force in Lebanon is a peacekeeping mission deployed along the Lebanon–Israel border to maintain stability in the region. Established in 1978 and expanded after the 2006 Israel–Hezbollah conflict, its mandate includes monitoring the cessation of hostilities, ensuring that the area is free from armed groups, and supporting the Lebanese government in maintaining peace.
- ❖ Recently, UN peacekeepers temporarily halted patrols near the Blue Line due to the release of a chemical substance in the area. The Blue Line is a UN-demarcated withdrawal line established in 2000 to verify Israel's withdrawal from southern Lebanon. It is not an internationally recognised boundary but a technical line used to monitor compliance with UN resolutions. Stretching about 120 kilometres, it runs from the Mediterranean coast near Naqoura to the tri-junction near the Golan Heights. The situation highlights the fragile security environment in the region and the continued importance of UN peacekeeping efforts in preventing escalation.

6. Bangladesh Political Change

- ❖ A major political transition has taken place in Bangladesh, where the Bangladesh Nationalist Party (BNP) secured a significant electoral victory. Tarique Rahman is set to become Prime Minister after the party achieved a two-thirds majority in the Jatiya Sangsad, the country's unicameral parliament.

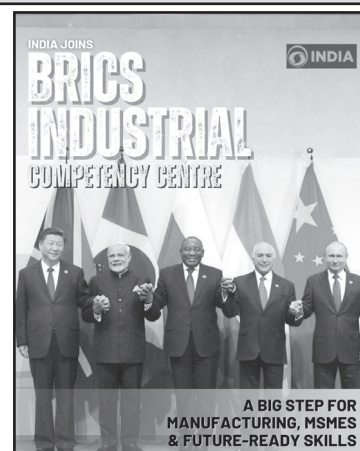
- ❖ This election marks a shift from the earlier leadership of Sheikh Hasina, who was removed in 2024. Bangladesh follows a parliamentary system where the Prime Minister holds executive power, while the President serves a largely ceremonial role.
- ❖ The change in leadership has important implications for India–Bangladesh relations. Concerns include security issues linked to past BNP-era tolerance of insurgent groups, as well as diplomatic sensitivities regarding Sheikh Hasina’s presence in India.
- ❖ Trade relations also remain imbalanced, with India exporting significantly more than it imports. Additionally, unresolved issues such as the Teesta river water-sharing dispute and Bangladesh’s increasing engagement with China and Pakistan could influence future bilateral ties. The transition signals evolving regional dynamics in South Asia.

7. EU GSP Suspension

- ❖ The European Union has suspended Generalised Scheme of Preferences (GSP) tariff concessions for India, impacting several export sectors. The GSP is a trade arrangement introduced in 1971 under UNCTAD, allowing developed countries to offer reduced or zero tariffs to imports from developing nations.
- ❖ With this suspension, a large portion of India’s exports to the EU will now face standard Most Favoured Nation tariffs, reducing their price competitiveness. Only a small segment of exports, mainly certain agricultural and handicraft products, continues to receive preferential treatment.
- ❖ Key sectors affected include textiles, chemicals, machinery, and precious metals. The textile and garment sector, in particular, may face challenges as buyers could shift to countries like Bangladesh and Vietnam, which still benefit from preferential access.
- ❖ The move underscores the importance of trade negotiations and diversification of export markets for India. It also highlights the role of trade preferences in shaping global competitiveness.

8. BRICS Industrial Competencies Centre

- ❖ India has joined the BRICS Centre for Industrial Competencies (BCIC), a platform aimed at promoting Industry 4.0 and strengthening the competitiveness of manufacturing sectors, particularly MSMEs. The initiative operates under the BRICS Partnership on New Industrial Revolution and is supported by the United Nations Industrial Development Organization.
- ❖ It focuses on digital transformation, industrial modernisation, and sustainable manufacturing practices. The centre provides services such as technology adoption support, market intelligence, skill development, and access to finance.
- ❖ India’s participation is facilitated through a Trust Fund Agreement between DPIIT and UNIDO, with the National Productivity Council serving as the nodal agency. The initiative aims to enhance productivity, resilience, and global competitiveness of industries by integrating advanced technologies such as automation, artificial intelligence, and data analytics.



- ❖ It also promotes cross-border collaboration among BRICS countries. By participating in BCIC, India seeks to strengthen its manufacturing base, support MSMEs, and align with global industrial trends in the era of digital transformation.

9. Arctic Sentry Initiative

- ❖ NATO has launched the Arctic Sentry initiative to enhance security coordination in the Arctic and High North regions. This initiative integrates military activities of member countries under a unified framework, improving surveillance, monitoring, and defensive capabilities in the strategically important Arctic region.
- ❖ The Arctic includes the Arctic Ocean and surrounding territories of countries such as Russia, Canada, Norway, Denmark, and the United States. The High North specifically refers to northern European areas, particularly Norway and adjacent seas, which are critical for NATO's strategic interests.
- ❖ Arctic Sentry builds upon earlier initiatives like Baltic Sentry and Eastern Sentry, aiming to strengthen coordination among allied forces. The initiative reflects growing geopolitical competition in the Arctic, driven by factors such as melting ice, emerging shipping routes, and access to natural resources.
- ❖ It highlights the increasing importance of the Arctic in global security dynamics and NATO's efforts to maintain stability and preparedness in the region.

INDIAN SOCIETY

1. Tribal Rights & Social Inclusion

- ❖ The **Kalbelia community** in Rajasthan, traditionally nomadic snake charmers, is currently under the **NHRC's** focus regarding their right to designated burial grounds. Despite following the Hindu Nath tradition, they bury their dead (marked by a Nandi idol) rather than cremating them.
- ❖ This highlights the landlessness and identity crises faced by **Denotified, Nomadic, and Semi-Nomadic Tribes (DNT/NT/SNT)**. These communities, once branded "criminal" by the 1871 British Act, are now demanding a separate category in the **2027 Census** to ensure targeted welfare and end decades of "institutional invisibility."

2. Digital Health & Menstrual Rights

- ❖ India is pioneering responsible technology through the **SAHI** (Strategy for AI in Healthcare) and **BODH** platforms. While SAHI provides an ethical framework for AI adoption, BODH (developed by **IIT Kanpur**) acts as a privacy-preserving benchmark to test medical AI models without compromising raw patient data.
- ❖ Simultaneously, a landmark **Supreme Court ruling** has integrated menstrual hygiene into **Article 21 (Right to Life)**. The Court mandated that all schools provide free sanitary napkins and separate toilets, ensuring that "biological reality" does not become a barrier to the **Right to Education (Article 21A)**.



3. Environment & Sustainable Governance

- ❖ In Nagaland, the **Sangtam tribe** has passed a historic resolution to protect the **Pangolin**, the world's most trafficked mammal. All eight species are threatened, with the Indian Pangolin listed as **Endangered (IUCN)** and protected under **CITES Appendix I**.
- ❖ On the urban front, the **NAMASTE Scheme** is working to mechanize sanitation work, with new data revealing that over 84% of waste-pickers belong to SC/ST/OBC groups. This scheme aims to eliminate hazardous manual cleaning deaths, which claimed 43 lives in 2025.

4. Global Achievements & Safety

- ❖ The **PM RAHAT Scheme** marks a shift in emergency care by providing cashless treatment up to **1 1.5 lakh** for road accident victims during the critical "Golden Hour." Internationally, the **2026 Winter Olympics** in Italy saw Norway dominate the tally, while India's **Arif Khan** achieved a record-best 39th place in men's slalom.
- ❖ In chess, **Magnus Carlsen** secured the first official **FIDE Freestyle Chess (Chess960)** title, a format designed by Bobby Fischer to eliminate memorized openings and test pure creativity.

5. NSO Survey on Migration (2026-27)

- ❖ The **National Statistics Office (NSO)** is launching a specialized survey to fill a massive data gap in India's understanding of its mobile workforce.
- ❖ **The Focus:** It specifically targets **internal migration**—not just people moving permanently, but also **seasonal and return migration**.
- ❖ **Why it matters:** Economic planning has long relied on outdated 2011 Census data. This survey will map the "socioeconomic profile" of migrants, helping the government design targeted social security for migrant laborers who often fall through the cracks of state-specific welfare schemes.
- ❖ **Timeline:** Data collection runs from **July 2026 to June 2027**.



6. Menstrual Health as a Fundamental Right

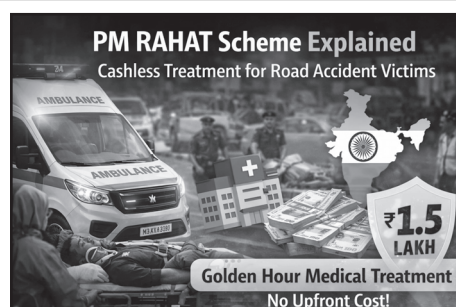
- ❖ The Supreme Court has made a landmark leap by linking **Menstrual Hygiene Management (MHM)** directly to **Article 21 (Right to Life and Dignity)**.
- ❖ **The Logic:** The Court argued that dignity isn't just a "constitutional ideal"—it requires "real living conditions." If a girl misses school because she lacks a toilet or a sanitary pad (**Menstrual Poverty**), her **Article 21A (Right to Education)** is being violated.
- ❖ **Constitutional Shift:** It moves menstruation from a "private health issue" to a "state responsibility."
- ❖ **Key Mandates:** Schools must provide **vending machines for oxo-biodegradable pads** and establish "MHM corners" (spare uniforms/disposal areas).

7. NAMASTE Scheme & Waste-Picker Data

- ❖ The government has finally put numbers to the social reality of India's sanitation ecosystem.
- ❖ **The Social Reality:** 84.5% of waste-pickers belong to **SC, ST, and OBC** communities, confirming the deep link between caste and “informal” sanitation work.
- ❖ **NAMASTE Objective:** The goal is **zero fatalities** in sanitation. The scheme aims to turn “manual scavengers” into “sanitation entrepreneurs” by providing high-tech machinery for sewer cleaning.
- ❖ **Mechanization:** It is a joint effort between the **Social Justice Ministry** and the **Housing & Urban Affairs Ministry**.

8. PM RAHAT: The “Cashless” Safety Net

- ❖ The **PM Road Accident Victim Hospitalisation and Assured Treatment (PM RAHAT)** is a direct intervention to tackle the high mortality rate on Indian roads.
- ❖ **The “Golden Hour”:** It provides up to **Rs. 1.5 lakh** for treatment during the first **7 days** post-accident.
- ❖ **Cashless Convenience:** Victims don't need to pay upfront; hospitals are reimbursed via the **Motor Vehicle Accident Fund (MVAF)**.
- ❖ **Tech Integration:** It uses the **eDAR (Electronic Detailed Accident Report)** to verify accidents instantly, ensuring that hospitals can't deny treatment due to financial or legal fears.



9. 2026 Winter Olympics (Milano-Cortina)

- ❖ The 25th Winter Games in Italy concluded with a focus on “dispersed hosting”—using existing venues across different regions rather than building a single “Olympic Village” from scratch.
- ❖ **The Leaderboard:** **Norway** maintained its dominance in winter sports with 18 golds.
- ❖ **India's Progress:** **Arif Khan** (Slalom) secured the 39th rank. While it seems humble, it marks India's best-ever performance in the discipline, signaling a slow but steady growth in India's winter sports ecosystem.

POLITY AND GOVERNANCE

The Syro-Malabar Church has requested the Union government to grant it “micro minority” status.

- ❖ The request for “**micro-minority**” status by the Syro-Malabar Church highlights a growing debate regarding the equitable distribution of benefits within India's minority framework.
- ❖ While the Indian Constitution recognizes religious and linguistic minorities under **Articles 29 and 30**, it does not formally acknowledge “micro-minorities” as a distinct legal category.
- ❖ Currently, the **National Commission for Minorities Act, 1992**, notifies six communities (Muslims, Christians, Sikhs, Buddhists, Parsis, and Jains) as minorities.

- ❖ The demand for sub-classification stems from the perception that smaller denominations within these broad groups are often overshadowed by larger, more influential sub-groups, leading to skewed access to welfare schemes, scholarships, and institutional protections.
- ❖ From a constitutional perspective, any move toward sub-classification must pass the **Article 14 (Right to Equality)** test. It requires an “intelligible differentia”—a clear logical distinction—and a rational nexus to the objective of fair representation. While the Supreme Court has previously held (in cases like *T.M.A. Pai*) that minority status should be determined at the state level, the legal recognition of intra-faith sub-groups remains a complex administrative and judicial challenge.

The Union Ministry of Home Affairs issued guidelines on the protocol for singing and playing Vande Mataram at official events.

1. Historical & Constitutional Status

- ❖ **Constituent Assembly Resolution:** Neither the National Song nor the National Anthem is explicitly defined within the articles of the Constitution. Their status stems from a resolution adopted by the Constituent Assembly on **January 24, 1950**.
- ❖ **Authorship:** *Vande Mataram* was written by **Bankim Chandra Chatterjee** in his 1882 novel *Anandamath*.
- ❖ **Equality of Status:** The President of the Constituent Assembly, Dr. Rajendra Prasad, stated that *Vande Mataram* shall be honored equally with *Jana Gana Mana* and have equal status with it.

2. Performance Protocol at Official Events

The 2026 guidelines clarify the sequence and conduct during official ceremonies:

- ❖ **Sequence:** When both are performed, **Vande Mataram is played first**, followed by the National Anthem.
- ❖ **Duration:** The official version of the National Song consists of six stanzas and lasts approximately **3 minutes and 10 seconds** (significantly longer than the 52-second National Anthem).
- ❖ **Code of Conduct: * Stand at Attention:** All citizens must stand at attention when the song is sung or played at official functions.

Occasions: It is performed during flag hoistings, national parades, investiture ceremonies, and the arrival/ departure of the President or Governors.

- ❖ **Cinema Hall Exemption:** Unlike the National Anthem (which saw historical debates regarding cinema halls), *Vande Mataram* will **not** be played in cinema halls, and audiences are not required to stand if it appears in documentaries or newsreels.

3. The Union Cabinet approved a proposal to change the name of Kerala to “Keralam.”

Renaming Kerala to “Keralam”

- ❖ The Union Cabinet approved a proposal to rename Kerala as “Keralam,” following a unanimous resolution passed by the Kerala Legislative Assembly in June 2024. Under **Article 3 of the Constitution**, Parliament has the power to alter the name, area, or boundaries of a state.
- ❖ The process begins with the President referring the Bill to the concerned State Legislature for its views, although its opinion is not binding. After this consultation, the Bill must be passed by a simple majority in Parliament.

- ❖ The Ministry of Home Affairs examines such proposals and seeks clearances from multiple agencies to avoid administrative disruption. Government guidelines (1953) suggest that renaming should primarily involve linguistic or phonetic corrections and avoid political or communal considerations.
- ❖ Renaming in India often reflects linguistic identity, cultural assertion, or historical correction. However, it must ensure continuity in governance, administrative efficiency, and public convenience. Once Parliament approves and the law is notified, the new name officially comes into effect.

4. Urban Challenge Fund (UCF)

- ❖ The Urban Challenge Fund (UCF) is a Centrally Sponsored Scheme launched to promote sustainable urban development and economic growth. With a central assistance of Rs. 1 lakh crore, it aims to support initiatives like “Cities as Growth Hubs,” creative redevelopment, and improved water and sanitation infrastructure.
- ❖ A key feature is its innovative financing model, where at least 50% of project funding must come from market-based sources such as municipal bonds, loans, or Public–Private Partnerships. The remaining funds will be contributed by states, Union Territories, and Urban Local Bodies (ULBs).
- ❖ The scheme targets cities with populations above 10 lakh, state capitals, and major industrial towns. Smaller and financially weaker ULBs, particularly in hilly and North-Eastern regions, will benefit from a Credit Repayment Guarantee mechanism. Additionally, a Rs. 5,000 crore credit enhancement corpus aims to improve the creditworthiness of over 4,000 cities.
- ❖ Projects will be selected through a competitive challenge-based approach, encouraging innovation and governance reforms. The initiative seeks to make cities financially self-reliant and attractive for private investment.

5. President’s Rule

- ❖ President’s Rule refers to the suspension of a state government and direct governance by the Union through the Governor, as per **Article 356** of the Constitution. It is imposed when the President is satisfied that the constitutional machinery in a state has failed, often based on the Governor’s report.
- ❖ In Manipur, it was imposed in February 2025 and later revoked after a new government was formed. The proclamation must be approved by both Houses of Parliament within two months by a simple majority.
- ❖ Initially valid for six months, it can be extended up to three years, subject to conditions introduced by the 44th Constitutional Amendment. Extension beyond one year requires a National Emergency and certification by the Election Commission.
- ❖ Related provisions include **Article 355**, which obligates the Union to protect states, and **Article 365**, which treats non-compliance with Union directions as constitutional failure. President’s Rule is subject to judicial review, ensuring it is not misused for political purposes.

6. Breach of Privilege

- ❖ A breach of privilege occurs when the rights or immunities of Parliament or its members are violated. These privileges are protected under **Article 105 (Parliament)** and **Article 194 (State Legislatures)** to ensure independent and effective functioning of the legislature.

- ❖ A privilege notice can be moved by any Member of Parliament against a minister, MP, or even an outsider. Common instances include making defamatory statements against MPs, publishing expunged proceedings, or prematurely disclosing committee reports.
- ❖ The notice is submitted to the Speaker (Lok Sabha) or Chairman (Rajya Sabha), who decides whether to admit it. If admitted, the matter may be discussed in the House or referred to the Committee of Privileges. This committee investigates and recommends action.
- ❖ Punishments may include reprimand, suspension, expulsion, or even imprisonment in serious cases. The mechanism safeguards legislative dignity and accountability, ensuring that no external interference undermines parliamentary functioning.

7. AI Regulation (IT Rules Amendment)

- ❖ The government amended the Information Technology Rules, 2021 to regulate AI-generated content. The rules mandate that photorealistic synthetic content must be clearly labelled to inform users that it is artificially created. Platforms must embed permanent metadata and unique identifiers to trace content origin, ensuring accountability.
- ❖ Certain categories of AI content are strictly prohibited, including deepfakes, non-consensual intimate imagery, child sexual abuse material, impersonation, and security-sensitive content. The rules also introduce strict takedown timelines—illegal content declared by courts must be removed within three hours, while deepfakes and explicit content must be removed within two hours.
- ❖ Platforms are required to verify user disclosures regarding AI-generated content and either label or remove it if necessary. Non-compliance may result in the loss of “safe harbour” protection under Section 79 of the IT Act, 2000, exposing intermediaries to legal liability. The amendments aim to balance technological innovation with user safety, privacy, and misinformation control in the digital ecosystem.



8. “Just Deserts” Theory

- ❖ The “just deserts” theory is a principle of punishment based on the idea that offenders deserve punishment proportional to the seriousness of their crime. It is rooted in **retributive justice**, which focuses on moral accountability rather than deterrence or reform.
- ❖ According to this theory, punishment is justified not because it prevents future crimes, but because wrongdoing itself warrants a proportionate response. The concept emphasises fairness and proportionality—minor offences should receive lighter punishments, while serious crimes deserve harsher penalties.
- ❖ It assumes that individuals are rational agents capable of making choices and therefore responsible for their actions. Unlike utilitarian approaches that aim at rehabilitation or deterrence, the “just deserts” approach is backward-looking, concentrating on the offence already committed. It seeks to maintain moral balance in society by ensuring that justice is served in proportion to the harm caused.
- ❖ Critics argue that it may neglect the possibilities of reform and rehabilitation, while supporters believe it upholds justice and societal order by reinforcing accountability.

9. Reproductive Autonomy & Abortion Law

- ❖ The Supreme Court's decision permitting termination of a 30-week pregnancy highlights the importance of reproductive autonomy, especially for minors. Reproductive autonomy refers to a woman's right to make informed decisions about her body, including whether to continue or terminate a pregnancy. It is linked to **Article 21**, which guarantees the right to life, dignity, and personal liberty.
- ❖ In India, abortion is governed by the Medical Termination of Pregnancy (MTP) Act, 1971, amended in 2021. The law allows termination up to 20 weeks with the opinion of one doctor and between 20–24 weeks with two doctors for specific categories such as rape survivors. Beyond 24 weeks, termination is allowed only in cases of substantial fetal abnormalities with approval from a Medical Board.
- ❖ The amendment also replaced the term “husband” with “partner,” expanding access to unmarried women. The Court emphasised that forcing a woman to continue an unwanted pregnancy violates her dignity and mental well-being. The judgment reflects a progressive interpretation of reproductive rights within the statutory framework.

10. Frontier Nagaland Territorial Authority (FNTA)

- ❖ The Frontier Nagaland Territorial Authority (FNTA) is a proposed administrative body established through an agreement between the Union Government, the Nagaland Government, and the Eastern Nagaland People's Organisation (ENPO).
- ❖ It aims to address long-standing demands for greater autonomy and development in eastern Nagaland, covering six districts: Mon, Tuensang, Kiphire, Longleng, Noklak, and Shamator.
- ❖ The FNTA will have authority over 46 governance subjects, enabling better local decision-making and development planning. Unlike Sixth Schedule autonomous councils, FNTA will function within the existing state framework, as Nagaland is not covered under the Sixth Schedule.
- ❖ The arrangement safeguards **Article 371A**, which provides special constitutional protections to Nagaland, including control over customary laws, land, and natural resources. A dedicated administrative secretariat will support its functioning, and development funds will be allocated based on population and geography.
- ❖ The initiative seeks to promote balanced regional development, reduce grievances, and strengthen governance in the region without altering the constitutional structure of the state.

11. Right to Recall

- ❖ The Right to Recall is a democratic mechanism that allows voters to remove an elected representative before the completion of their term. It typically involves a recall petition signed by a specified percentage of voters, followed by a vote to decide whether the representative should continue in office.
- ❖ Although not provided in the Indian Constitution for MPs or MLAs, the concept has been discussed since independence, supported by thinkers like M.N. Roy and Jayaprakash Narayan. The judiciary has recognised recall provisions at the local body level, as seen in cases like Mohan Lal Tripathi (1993).
- ❖ Several states, including Madhya Pradesh and Bihar, allow recall for panchayat representatives. Proponents argue that it enhances accountability, deters corruption, and strengthens participatory democracy. However, critics warn that it may lead to political instability, frequent elections, and misuse for partisan purposes.

- ❖ Implementing recall at higher legislative levels would require constitutional amendments and robust safeguards to prevent abuse while ensuring democratic accountability.

12. Pennaiyar River Dispute

- ❖ The Pennaiyar River dispute involves Tamil Nadu and Karnataka over water sharing and upstream developments. Tamil Nadu approached the Supreme Court in 2018, alleging that Karnataka's construction of dams and diversion projects could reduce downstream water flow, affecting irrigation and drinking water supply.
- ❖ The Court directed the Union Government to set up a tribunal under the **Inter-State River Water Disputes Act, 1956**. The constitutional basis for such disputes lies in **Article 262**, which empowers Parliament to provide mechanisms for adjudication and even bar judicial intervention in such matters.
- ❖ The Pennaiyar River originates in the Nandidurg hills of Karnataka, flows through both states, and drains into the Bay of Bengal. It is the second-longest river in Tamil Nadu after the Kaveri.
- ❖ The dispute reflects broader challenges in inter-state water sharing, including competing developmental needs, ecological concerns, and federal tensions. Tribunals play a key role in ensuring equitable distribution and resolving conflicts through legal and technical evaluation.



13. Right to Vote as a Qualified Right

- ❖ The Election Commission has clarified that the right to vote in India is a “qualified right,” not an absolute fundamental right. It is governed by **Article 326**, which provides for elections based on adult suffrage, subject to certain conditions.
- ❖ To be eligible, a person must be an Indian citizen, at least 18 years of age, and ordinarily resident in a constituency. Additionally, individuals must not be disqualified under law, such as for unsoundness of mind, corrupt electoral practices, or criminal convictions.
- ❖ The issue arose in the context of the Special Intensive Revision (SIR) of electoral rolls, aimed at ensuring accuracy and eliminating ineligible voters. The Commission emphasised that inclusion in voter lists is conditional and must be continuously verified.
- ❖ This distinction is important because it means voting rights can be regulated by law, unlike fundamental rights which have stronger constitutional protection. The framework ensures electoral integrity while balancing inclusiveness with legal safeguards against misuse.

14. DGP Appointment & Police Reforms

- ❖ The Supreme Court has criticised states for appointing “acting” Directors General of Police (DGPs), stressing adherence to the **Prakash Singh v. Union of India (2006)** judgment on police reforms.
- ❖ The Court observed that delaying regular appointments undermines police independence and allows political interference. According to the guidelines, states must send a list of eligible senior IPS officers to the UPSC, which prepares a panel of three candidates based on merit and seniority.

- ❖ The state then appoints one as DGP with a minimum fixed tenure of two years. The judgment also recommended key reforms such as the establishment of a State Security Commission, separation of investigation from law-and-order functions, and creation of Police Complaints Authorities.
- ❖ These measures aim to ensure professionalism, accountability, and autonomy in policing. Despite clear directives, many states have failed to fully implement these reforms. The issue highlights the tension between state control over police (a State List subject) and the need for national standards in governance and rule of law.

15. PANCHAM Chatbot

- ❖ PANCHAM (Panchayat Assistance and Messaging Chatbot) is an AI-based initiative launched by the Ministry of Panchayati Raj in collaboration with UNICEF to strengthen grassroots governance. It operates as a WhatsApp-based chatbot designed to assist panchayat representatives, including sarpanches and ward members, in accessing information and performing administrative tasks.

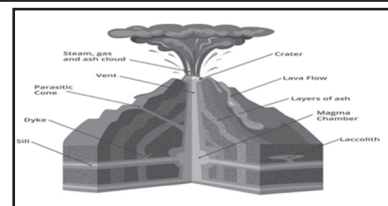


- ❖ The platform supports 22 Indian languages through the BHASHINI initiative, ensuring inclusivity and accessibility across diverse regions. PANCHAM enables two-way communication, allowing users to ask questions, receive guidance on government schemes, and access training materials such as videos and advisories.
- ❖ It also provides updates on policies and best practices, helping improve decision-making at the local level. By leveraging artificial intelligence, the chatbot simplifies governance processes and enhances the capacity of local bodies. The initiative aims to promote transparency, efficiency, and citizen-centric service delivery in rural areas. It represents a step towards digital empowerment of Panchayati Raj Institutions and strengthening decentralized governance in India

GEOGRAPHY AND ENVIRONMENT

1. Volcanology: Volcán de Fuego

- ❖ **The Event:** This basaltic volcano in Guatemala recently sent ash plumes up to 16,000 feet.
- ❖ **Core Concept:** It is a **stratovolcano** (or composite volcano). These are characterized by a steep, conical shape built by alternating layers of viscous lava flows and **pyroclastic materials** (ash, rock fragments).
- ❖ **Geographical Context:** Located in the **Pacific Ring of Fire**, it is one of the world's most active volcanoes due to the subduction of tectonic plates in Central America.



2. Atmospheric Science: Stratospheric Smoke Vortices

- ❖ **The Discovery:** Research now explains why wildfire smoke forms stable “smoke rings” in the stratosphere.

❖ The Mechanism:

1. **Solar Heating:** Dark smoke particles absorb sunlight and heat the surrounding air.
2. **Buoyancy:** This warm air rises rapidly into the stratosphere.
3. **Coriolis Effect:** As the air rises, Earth's rotation induces a spinning motion.

- ❖ **Hemispheric Difference:** Due to the Coriolis effect, these vortices spin **clockwise in the Northern Hemisphere** and **counter-clockwise in the Southern Hemisphere**. They act as “containers,” trapping heat and allowing smoke to persist for long periods.

3. The Formation Mechanism: Solar Heating and Buoyancy

- ❖ The process begins with the injection of massive amounts of smoke into the upper troposphere by intense wildfires (often via **Pyrocumulonimbus** clouds). Unlike ordinary clouds, wildfire smoke is rich in black carbon.
- ❖ **Absorption:** These dark particles absorb incoming solar radiation with high efficiency.
- ❖ **Local Heating:** The absorbed energy heats the surrounding air, significantly increasing its temperature relative to the ambient environment.
- ❖ **Self-Lofting:** This localized heating makes the smoke-filled air highly buoyant. It begins to rise rapidly, a process known as “self-lofting,” allowing the smoke to penetrate deep into the stratosphere—well above the altitudes where weather usually occurs.

The Role of the Coriolis Effect

- ❖ As these bubbles of warm, smoke-laden air ascend through the atmosphere, they are influenced by the Earth's rotation. This is where the **Coriolis effect** becomes the defining force.
- ❖ **Inducing Rotation:** The upward movement of air creates a pressure gradient that, combined with the Earth's rotation, induces a spinning motion.
- ❖ **Hemispheric Difference:** Due to the physics of the Coriolis force, these vortices spin **clockwise in the Northern Hemisphere** and **counter-clockwise in the Southern Hemisphere**.
- ❖ **Stability:** This rotation creates a stable boundary layer around the smoke bubble. Much like a spinning top, the angular momentum prevents the smoke from quickly mixing with the surrounding stratospheric air.

4. Climatology: The Global Temperature Surge

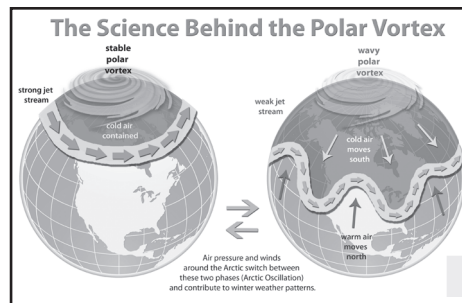
A study in *Nature Geoscience* explains why temperatures jumped significantly since 2023.

- ❖ **The “Triple-Dip” La Niña:** From 2020–2023, an unusual three-year La Niña phase occurred. During La Niña, warm water is pushed deep into the ocean.
- ❖ **Energy Imbalance:** When this phase ended and shifted toward **El Niño**, a massive amount of stored oceanic heat was released into the atmosphere.
- ❖ **Key Drivers:** While ENSO shifts caused ~23% of the recent heat surge, over **50% is attributed directly to greenhouse gas emissions**.

- ❖ **Policy Shift:** Rising global temperatures are so consistent that **NOAA** has revised its criteria for identifying ENSO events, acknowledging that “normal” ocean temperatures are now much higher than in the past.

5. The Polar Vortex & Extreme Weather

- ❖ **Definition:** A large area of low pressure and cold air surrounding Earth’s poles.
- ❖ **The Winter Storm Link:** When the **Jet Stream** (the belt of strong winds that keeps the cold air trapped at the pole) weakens or becomes “wavy,” the Polar Vortex can expand southward.
- ❖ **Impact:** This brings Arctic air down to mid-latitude regions like the US or Europe, causing sudden and extreme cold waves.



6. Marine Biology: Mangrove Clams (*Geloina erosa*)

- ❖ **Success Story:** The **CMFRI** has successfully induced captive breeding of this bivalve (mud clam).
- ❖ **Ecological Role:** These clams are “filter feeders.” They clean coastal waters by straining organic matter and act as **bio-indicators** of pollution.
- ❖ **Economic Value:** Known as *Kandal Kakka* in Kerala, they are vital for the livelihood of coastal communities but face threats from overharvesting and habitat loss.

7. Places in News (Quick Reference)

Place	Significance
Firozabad, UP	Known as the “Glass City”; building India’s first Glass Museum.
Dhamtari, Chhattisgarh	First district to launch online tax collection via SAMARTH portal.
Kerala	First state to introduce a dedicated ‘ Elderly Budget ’ document.
Strait of Hormuz	Strategic chokepoint between the Persian Gulf and the Gulf of Oman; site of recent military drills.
Mt. Aconcagua	Highest peak in the Southern and Western Hemispheres (Argentina); successfully summited by Indian teams.
Reynisfjara, Iceland	Famous black sand beach facing severe coastal erosion.

8. Tiger Conservation: New Frontiers & 50-Year Review

The recorded presence of a Royal Bengal Tiger in the **Ratanmahal–Jambughoda** corridor marks Gujarat’s return as a “tiger-bearing state” after 30 years.

- ❖ **Ratanmahal & Jambughoda (Gujarat):**
 - o **Habitat:** Dry teak and mixed deciduous forests.
 - o **Wildlife:** Known for the largest **Sloth Bear** population in Gujarat and the **Kada reservoir**.
 - o **Corridor Connectivity:** The sighting proves the efficacy of the forest corridor between Gujarat and Madhya Pradesh.

❖ **Project Tiger @ 50:**

- **Status:** India hosts ~75% of the world's wild tigers (**3,682 tigers** as per 2022 census).
- **Top States:** Madhya Pradesh (785) > Karnataka (563) > Uttarakhand (560).
- **Institutional Framework:** The **National Tiger Conservation Authority (NTCA)** is a statutory body under the Wildlife Protection Act, 1972 (amended 2006).
- **Monitoring Tech:** Use of **M-STripES** for patrolling and population estimation every 4 years.

9. Ramsar Convention: New Wetlands (Total: 98)

India added two more sites to the Ramsar list, bringing the count to 98.

❖ **Theme 2026:** “Wetlands and traditional knowledge: Celebrating cultural heritage.”

Site	Location	Key Characteristics
Patna Bird Sanctuary	Etah, Uttar Pradesh	Shallow natural freshwater lake; supports Ruddy Shelduck and Graylag Goose.
Chhari-Dhand Wetland	Kutch, Gujarat	Seasonal saline wetland near Banni grasslands; supports 250+ bird species.

Export to Sheets

- **Note:** Tamil Nadu (20) and UP (11) remain the leading states in Ramsar designations.

10. Solid Waste Management (SWM) Rules & Article 21

The Supreme Court has mandated nationwide compliance with **SWM Rules** by **April 1, 2026**, linking waste management to the **Fundamental Right to a Healthy Environment**.

❖ **Key Mandates:**

- **Source Segregation:** Four streams—Wet, Dry, Sanitary, and Special Care.
- **Governance:** District Collectors are responsible for supervision; non-compliance may lead to criminal action.
- **Principles:** Adheres to **Extended Producer Responsibility (EPR)** and the “Polluter Pays” principle.
- **Bioremediation:** Focus on clearing large legacy dumpsites rather than just dumping more waste.

**11. UNEP: State of Finance for Nature 2026**

The report highlights a staggering “Nature-Negative” investment gap.

- ❖ **The Imbalance:** **\$7.3 trillion** flows into nature-negative activities (fossil fuels, harmful subsidies), while only **\$220 billion** supports **Nature-based Solutions (NbS)**.
- ❖ **The X-Curve:** A new framework introduced to phase out harmful finance and scale up nature-positive investments to meet 2030 biodiversity goals.

12. Climate-Resilient Agriculture: ACASA-India

Marking 15 years of **NICRA** (National Innovations in Climate Resilient Agriculture), the government launched the **Atlas of Climate Adaptation in Indian Agriculture (ACASA-India)**.

- ❖ **Function:** A web-based digital atlas providing district-level climate risk insights.
- ❖ **Goal:** Helps in location-specific planning for rain-fed regions to anticipate climate stress using crop and soil data.

13. Regional Biodiversity Spotlights

- ❖ **Karimpuzha Wildlife Sanctuary (Kerala):** Part of the **Nilgiri Biosphere Reserve**; home to the **Cholanaikan tribe** (a PVTG). Recent surveys found record butterfly and bird diversity.
- ❖ **Pangolakha Wildlife Sanctuary (Sikkim):** An ecological corridor connecting India, Bhutan, and West Bengal. Home to the **Red Panda** (Sikkim's state animal).
- ❖ **Bactrian Camels (Ladakh):** Double-humped camels found in **Nubra Valley**. Historically vital for the **Silk Road**, the wild variant is now **Critically Endangered**.

SCIENCE & TECHNOLOGY

1. Epstein–Barr Virus (EBV) & Monoclonal Antibodies

- ❖ Scientists have recently reported promising progress in preventing infection by the Epstein–Barr virus through the use of monoclonal antibodies. EBV is a common human herpesvirus that causes infectious mononucleosis and remains latent in the body for life after infection.
- ❖ It is estimated that nearly 95 percent of the global population is infected at some stage, although severe complications mainly arise in immunocompromised individuals. Importantly, EBV is associated with diseases such as multiple sclerosis and certain cancers, including lymphomas.
- ❖ Researchers developed monoclonal antibodies targeting two key viral proteins, gp350 and gp42, which are involved in the virus's ability to attach to and enter host cells. Experimental results showed that the antibody targeting gp42 successfully prevented infection in mice, while the gp350-targeting antibody provided only partial protection.
- ❖ This suggests that multiple viral targets may be necessary for effective vaccine development. The study, conducted by the Fred Hutch Cancer Center and published in *Cell Reports Medicine*, represents an important step toward developing vaccines or antibody-based therapies against EBV, which could have major implications for preventing associated diseases.

2. GPU & AI Economy

- ❖ The rise of the digital and artificial intelligence economy has brought renewed attention to the role of Graphics Processing Units, particularly those developed by NVIDIA, which introduced the first GPU in 1999. A GPU is a specialised processor designed for parallel processing, enabling it to perform many simple calculations simultaneously.

- ❖ This contrasts with a Central Processing Unit, which is optimised for sequential tasks. Initially developed for rendering graphics in video games, GPUs have evolved into essential infrastructure for modern computing.
- ❖ Their architecture makes them highly efficient for running neural networks, which are algorithms inspired by the human brain and are fundamental to artificial intelligence and machine learning. As a result, GPUs are widely used in data centres, scientific simulations, high-performance computing, and emerging technologies such as autonomous vehicles.
- ❖ They also play a critical role in cloud computing and big-data analytics. Major manufacturers include NVIDIA, AMD, and Intel. Over time, GPUs have transitioned from niche graphic tools to foundational components of the global digital economy, powering innovations across industries and enabling rapid advancements in AI-driven applications.

3. Astronomy Projects in Ladakh

- ❖ The Union Budget 2026–27 has approved major astronomy infrastructure projects in Ladakh, positioning India as a significant player in global astronomical research. One of the key initiatives is the National Large Solar Telescope, a 2-metre solar telescope to be established in the Merak region near Pangong Tso.
- ❖ This facility will operate in visible and near-infrared wavelengths to study solar dynamics, magnetic activity, and space weather processes. Another major project is the National Large Optical–Near Infrared Telescope, a 13.7-metre segmented mirror telescope to be set up in Hanle.
- ❖ It is expected to be among the world’s largest optical-infrared telescopes and will enable advanced research on stellar evolution, galaxies, and the origin of the universe. These projects take advantage of Ladakh’s high-altitude, low-light pollution environment, which is ideal for astronomical observations.
- ❖ Once operational, the solar telescope will become India’s third ground-based solar observatory after Kodaikanal and Udaipur. These initiatives reflect India’s growing investment in scientific infrastructure and its ambition to contribute to cutting-edge research in space science and astrophysics.

4. Biopharma SHAKTI Scheme

- ❖ The Biopharma SHAKTI scheme, announced in the Union Budget 2026–27, is a major initiative aimed at strengthening India’s biopharmaceutical sector. The scheme, which stands for Strategy for Healthcare Advancement through Knowledge, Technology and Innovation, seeks to create a robust ecosystem for domestic manufacturing of advanced biopharmaceutical products.



- ❖ With a financial outlay of Rs. 10,000 crore over five years, it is implemented by the Department of Pharmaceuticals under the Ministry of Chemicals and Fertilizers. The programme focuses particularly on addressing non-communicable diseases such as cancer, diabetes, and autoimmune disorders, which are rising significantly in India.
- ❖ It promotes the production of biologics, which are complex medicines derived from living organisms, and biosimilars, which are cost-effective alternatives to such biologics.

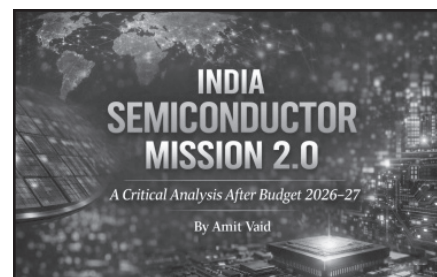
- ❖ These products require sophisticated manufacturing processes, including advanced purification and strict quality control, making them strategically important for healthcare security. By boosting domestic production capabilities, the scheme aims to reduce dependence on imports, lower treatment costs, and enhance access to advanced therapies, while also positioning India as a global hub for biopharmaceutical innovation.

5. Sovereign AI Models

- ❖ India has unveiled three sovereign AI models at the India AI Impact Summit 2026 as part of its strategy to build domestic capabilities in artificial intelligence. Sovereign AI refers to AI systems that are developed, trained, deployed, and governed within a country, ensuring control over data, infrastructure, and regulatory frameworks.
- ❖ These models operate under the Rs. 10,000 crore IndiaAI Mission, approved in 2024, which aims to develop indigenous AI technologies and reduce dependence on foreign platforms. The initiative emphasises domestic data governance, sovereign cloud and GPU infrastructure, and national regulatory oversight. Among the key developments, Sarvam AI has created large language models tailored for Indian languages and governance applications, enabling improved delivery of public services.
- ❖ Gnani.ai has developed voice-first AI systems optimised for Indian accents, supporting applications in banking, customer service, and e-governance. BharatGen is a multilingual generative AI model designed to support all 22 scheduled Indian languages, promoting inclusivity in digital services. These efforts aim to strengthen technological self-reliance, enhance data security, and ensure that AI development aligns with India's socio-economic priorities.

6. India Semiconductor Mission 2.0

- ❖ The India Semiconductor Mission 2.0, announced in the Union Budget 2026–27, represents a renewed effort to build a self-reliant semiconductor ecosystem in the country. With an allocation of ₹ 1,000 crore for the financial year, the mission focuses on developing end-to-end capabilities, including chip design, manufacturing equipment, and materials. It aims to strengthen supply chains, promote industry-led research and development, and establish training centres to build a skilled workforce.
- ❖ This initiative builds upon the earlier India Semiconductor Mission launched in 2021 with a much larger outlay, which provided financial support for semiconductor fabrication units and display manufacturing. Key components included schemes offering up to 50 percent fiscal support for setting up fabrication plants and incentives for chip design through the Design Linked Incentive scheme.
- ❖ The new phase places greater emphasis on developing domestic intellectual property and reducing dependence on global supply chains, which have been vulnerable to disruptions. By fostering innovation and attracting investment, the mission seeks to integrate India into global electronics value chains and support the growth of the digital economy.



7. Sodium-Ion Batteries

- ❖ India is exploring sodium-ion batteries as an alternative to lithium-ion technology to reduce dependence on imported critical minerals and enhance energy security.

- ❖ Sodium-ion batteries operate on a similar principle as lithium-ion batteries, where sodium ions move between the cathode and anode during charging and discharging.
- ❖ However, sodium is more abundant and widely available than lithium, cobalt, and nickel, making it a cost-effective and sustainable option. These batteries are particularly suitable for applications such as grid-scale energy storage, two- and three-wheeler electric vehicles, and backup power systems for households and telecom infrastructure.
- ❖ They also support the integration of renewable energy sources by providing reliable storage solutions. Despite these advantages, sodium-ion batteries have lower energy density compared to lithium-ion batteries, which limits their use in long-range electric vehicles.
- ❖ Additionally, the technology is still in its early stages of development, and large-scale commercial deployment has yet to be achieved. Nevertheless, continued research and investment could make sodium-ion batteries a key component of India's future energy strategy.

8. Zinc-Ion Batteries Innovation

- ❖ Recent research by Indian scientists has led to the development of a new cathode material for zinc-ion batteries, offering potential improvements in large-scale renewable energy storage. Zinc-ion batteries use zinc metal as the anode and zinc ions as charge carriers, typically in a water-based electrolyte, which makes them safer than lithium-ion batteries.
- ❖ During discharge, zinc oxidises and releases electrons, while during charging, zinc ions are redeposited on the anode. Researchers at the Centre for Nano and Soft Matter Sciences in Bengaluru developed a novel cathode material known as sulfur-vacancy-induced 1T-phase molybdenum disulfide.
- ❖ This material contains engineered defects that enhance electrical conductivity and facilitate faster movement of zinc ions. Experimental results showed that the battery retained over 97 percent of its capacity after 500 cycles, with very high efficiency, indicating strong stability and reversibility.
- ❖ These characteristics make zinc-ion batteries a promising option for grid-scale storage and renewable energy integration. The innovation highlights the potential of advanced materials research in addressing energy storage challenges.



9. SC on Stem Cell Therapy & ASD

- ❖ The Supreme Court of India has ruled that stem cell therapy cannot be used as a routine clinical treatment for Autism Spectrum Disorder due to insufficient scientific evidence regarding its safety and effectiveness.
- ❖ The Court emphasised that offering such therapy violates the standard of care expected from medical professionals and that informed consent cannot be considered valid when the treatment lacks proven efficacy. It also clarified that patient autonomy does not justify the use of unproven or potentially unsafe medical interventions.
- ❖ The government has been directed to establish a dedicated regulatory authority to oversee stem cell research nationwide. Stem cell therapy involves the use of unspecialised cells capable of self-renewal and differentiation to repair or replace damaged tissues.

- ❖ In India, existing guidelines permit only hematopoietic stem cell transplantation for certain blood disorders, while other applications remain experimental and are allowed only within approved clinical trials. Autism Spectrum Disorder is a neurodevelopmental condition affecting communication, behaviour, and social interaction, and currently has no definitive cure.

10. Biobank for Lysosomal Storage Disorders

- ❖ India has established its first government-supported national biobank for Lysosomal Storage Disorders, marking a significant step in rare disease research. A biobank is a structured repository that collects and stores biological samples such as blood, DNA, tissues, and associated clinical data for research purposes.
- ❖ This initiative is led by the Foundation for Research in Genetics and Endocrinology in Ahmedabad with support from the Department of Biotechnology. Lysosomal Storage Disorders are rare inherited conditions caused by enzyme deficiencies that prevent the breakdown of cellular waste, leading to accumulation of harmful substances and progressive organ damage.
- ❖ These diseases often result in disability and high mortality, especially among children, and treatment options are limited and expensive. The biobank integrates data from multiple institutions and covers a wide range of disorders, including Gaucher disease and Tay-Sachs disease.
- ❖ By providing researchers with access to high-quality biological and genetic data, the initiative aims to accelerate the development of therapies, improve early diagnosis, and support evidence-based policymaking for rare diseases.

11. Quantum Sensors using Fluorescent Proteins

- ❖ Recent studies published in the journal Nature have demonstrated that engineered fluorescent proteins can function as quantum sensors within living cells. Scientists modified existing proteins such as Enhanced Yellow Fluorescent Protein and developed a new magneto-sensitive protein called MagLOV, capable of detecting magnetic fields and radio waves.
- ❖ These proteins work by linking changes in electron spin, a quantum property, to changes in fluorescence, enabling detection of extremely small variations in physical conditions. Experiments conducted on bacteria showed that these proteins could operate effectively even at room temperature, suggesting that quantum behaviour can persist in biological environments.
- ❖ Fluorescent proteins, which absorb light at one wavelength and emit it at another, are widely used in biological research to study cellular processes. The development of quantum sensors based on such proteins opens new possibilities for monitoring biochemical reactions, protein folding, and drug interactions in real time. This innovation represents an intersection of quantum physics and biology, with potential applications in medical diagnostics and advanced research.

12. nOPV2 Vaccine

- ❖ The World Health Organization has granted prequalification to a new version of the Novel Oral Polio Vaccine type 2, marking an important step in global polio eradication efforts. Prequalification ensures that the vaccine meets international standards of safety, quality, and effectiveness, enabling its procurement by global agencies.

- ❖ The vaccine is specifically designed to address outbreaks caused by circulating vaccine-derived poliovirus type 2, which remains a challenge despite the eradication of wild poliovirus type 2.
- ❖ It is a live attenuated vaccine with improved genetic stability, reducing the risk of reversion to a disease-causing form. Manufactured by companies in India and Indonesia, it supports global immunisation programmes.
- ❖ Poliomyelitis is a highly infectious disease that primarily affects children and can lead to paralysis. While India was declared polio-free in 2014, continued vaccination efforts are necessary to prevent re-emergence. The development of improved vaccines such as nOPV2 strengthens global efforts to eliminate polio completely.

13. HPV Vaccination Programme

- ❖ The Government of India is set to launch a nationwide HPV vaccination programme targeting adolescent girls to prevent cervical cancer, one of the most common cancers among women in the country. The vaccine will be provided free of cost at government health facilities and is expected to significantly reduce disease burden.
- ❖ It targets specific strains of the Human Papillomavirus, particularly types responsible for the majority of cervical cancer cases. Evidence suggests that vaccination is most effective when administered before exposure to the virus, which is why the programme focuses on younger age groups. The initiative is supported by global organisations to ensure quality and accessibility.
- ❖ HPV is a common viral infection transmitted through skin-to-skin contact, and persistent infection can lead to cancer over time. In addition to vaccination, screening methods such as Pap tests play an important role in early detection. The programme reflects a preventive healthcare approach and is expected to improve women's health outcomes significantly.



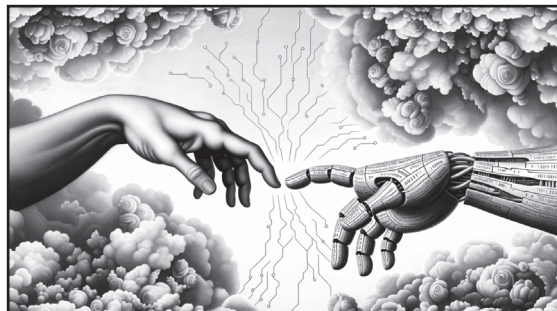
14. Lymphatic Filariasis & MDA Campaign

- ❖ The Government of India has launched a nationwide Mass Drug Administration campaign to eliminate Lymphatic Filariasis, a neglected tropical disease that remains endemic in several parts of the country. The disease is caused by parasitic worms transmitted through mosquito bites and affects the lymphatic system, leading to conditions such as swelling of limbs and severe disability.
- ❖ It is often acquired in childhood but manifests later in life, causing long-term health and social challenges. There is no complete cure, but the disease can be effectively controlled and eliminated by interrupting transmission through preventive chemotherapy.
- ❖ The Mass Drug Administration approach involves distributing anti-filarial drugs to the entire at-risk population in endemic areas, regardless of infection status. India has adopted a comprehensive strategy that includes vector control, improved surveillance, morbidity management, and community awareness. The goal is to eliminate the disease ahead of the global target, reflecting India's commitment to public health and disease control.

ETHICS

1. AI for Humanity

- ❖ Context: The 2026 New Delhi Summit marks a paradigm shift—from debating AI’s capabilities to defining its character. Under the UNESCO–India partnership, the focus moves from “Action” to “Impact,” asserting that AI progress must remain firmly human-centric to be meaningful.



About the UNESCO-India Partnership:

- ❖ The collaboration between UNESCO and India represents a unique synergy between a global normative authority and a rising digital superpower.
- ❖ Global Conscience: With a mandate spanning education, science, and culture, UNESCO acts as the world’s moral compass, translating the First Global Framework on Ethical AI into actionable national policies.
- ❖ The “Sutras” of Progress: The 2026 Summit successfully distilled global AI needs into three “Sutras”—People, Planet, and Progress.
- ❖ By hosting the first-ever Global AI Summit in the Global South, India has effectively shifted the narrative from mitigating risk (The Bletchley approach) to maximizing equitable opportunity (The Delhi approach).
- ❖ Also, India reinforces its role as a “Vishwa Bandhu” (Global Friend), bridging the gap between the technological standards of the Global North and the socio-economic aspirations of the Global South.
- ❖ Multilateral Leadership: The partnership emphasizes that AI governance cannot be unilateral; it requires the consensus of 194 Member States to prevent a fragmented digital world.

Key Ethical Outcomes:

- ❖ The summit moved beyond theoretical rhetoric to establish concrete, applied ethical interventions across three critical domains:
- ❖ Judicial Integrity & The Rule of Law: Recognizing that 44% of judicial professionals are already using AI without formal guidance, the summit released the ‘AI Essentials for Judges’.
- ❖ This seeks to prevent “Black-Box Justice,” ensuring that algorithmic tools remain subordinate to human reasoning and do not violate the Principles of Natural Justice or introduce systemic biases in legal adjudication.
- ❖ Environmental Stewardship & Energy Ethics: Training frontier AI models currently consumes the annual electricity of thousands of households.
- ❖ The summit launched the ‘Resilient AI Challenge’ to promote Lightweight AI models that offer a 90% reduction in energy consumption. This aligns with the principle of Intergenerational Equity, ensuring that our digital progress today does not Humanity in the Loop (HITL):

- ❖ The summit advocated for a values-driven design where human oversight is a non-negotiable component of the AI lifecycle.
- ❖ By prioritizing Human Agency, the framework ensures that AI remains a tool for societal well-being and information integrity, rather than an autonomous force that erodes individual autonomy.

Moral Philosophy: The Foundation of “AI for Humanity”

- ❖ The “Delhi Approach” can be interpreted through various philosophical lenses to justify its human-centric character:
- ❖ Deontology (Duty-Based Ethics): Anchoring AI in the MANAV framework suggests that certain human rights—privacy, dignity, and autonomy—are “categorical imperatives.”
- ❖ In Kantian terms, AI must be treated as a means to an end (human well-being) and never as an end in itself.
- ❖ Virtue Ethics (Aristotelian Approach): The summit’s focus on “defining the character” of AI mirrors Aristotle’s Phronesis (practical wisdom).
- ❖ By embedding ethics into the code (FIA: Fairness, Inclusiveness, Accountability), we are essentially teaching AI to “act virtuously” by design.
- ❖ Ubuntu & Vasudhaiva Kutumbakam: The summit bridges Western individualism with Eastern collectivism.
- ❖ The role of India as “Vishwa Bandhu” (Global Friend) reflects a cosmopolitan ethical duty to ensure that technological progress does not leave the Global South in a “state of nature” (Hobbesian) but brings them into a global “social contract.”

Ethical Theories: Resolving the “AI Dilemmas”

The summit addresses classic ethical conflicts using modern frameworks:

- ❖ Utilitarianism vs. Minority Rights: While big data seeks the “greatest good for the greatest number,” UNESCO’s focus on
- ❖ Bhashini (linguistic inclusion) prevents the “tyranny of the majority.”
- ❖ It ensures that minority languages and cultures are not marginalized by the “English-language premium.”
- ❖ Intergenerational Equity: The ‘Resilient AI Challenge’ (90% energy reduction) is a direct application of the Trusteeship Model.
- ❖ It asserts that the current generation has a moral debt to future generations to not exhaust the planet’s “carbon budget” for the sake of processing power.
- ❖ Rawlsian “Veil of Ignorance”: The Delhi Approach to “Democratizing the AI Stack” aligns with John Rawls’ Difference Principle.
- ❖ It argues that inequalities (digital divide) are only justified if they result in compensating benefits for the least advantaged members of society.

Significance: Redefining the Global AI Order:

- ❖ Democratic Diffusion vs. Digital Colonialism: By championing the “Smaller Footprint, Bigger Impact” philosophy, the summit challenged the monopoly of trillion-parameter models.

- ❖ **The Shift:** It prioritizes Sovereign AI and Frugal Innovation, ensuring that nations with energy and compute constraints are not reduced to mere “data colonies” for Silicon Valley.
- ❖ **Impact:** This “Delhi Approach” democratizes the AI stack, allowing the Global South to build indigenous models that are culturally representative and economically viable.
- ❖ **Strategic Trust-Building through “Techno-Legal” Governance:** In an era of deepfakes and algorithmic bias, the summit moved beyond voluntary “codes of conduct” to a robust Techno-Legal Framework.
- ❖ **The Framework:** By integrating Fairness, Inclusiveness, and Accountability (FIA) into the very code of AI models, governance becomes proactive rather than reactive.
- ❖ **Outcome:** This strengthens the Social Contract between the state and citizens, ensuring that public service delivery—from digital payments to judicial assistance—remains transparent and “Safe by Design.”
- ❖ **Operationalizing “Action to Impact” (The Macron-Modi Pivot):** As noted by the French President Macron, the 2026 Summit successfully pivoted from the “Action” phase of the 2025 Paris Summit to a measurable “Impact” phase.
- ❖ **Carbon-Ethics Linkage:** Ethics is no longer just about bias; it is now embedded in the carbon footprint of the model.
- ❖ **The New Standard:** Through the “Resilient AI Challenge,” the summit established that a model’s success is measured by its energy efficiency (Planet Sutra) and its ability to solve real-world problems in agriculture and health (People Sutra), rather than just raw processing power.

Challenges that need to be tackled:

- ❖ **The Institutional “Guideline Gap” & Institutional Readiness:** A staggering 91% of judicial professionals lack formal training despite high adoption rates (44%).
- ❖ **This creates an Institutional Vacuum** where technology outpaces the “Rule of Law.” Deploying AI without a normative framework violates the Principle of Legality and risks “Black-Box Justice,” where decisions are made without the transparency required by the Principles of Natural Justice.
- ❖ **Crisis of “Moral Agency” & Discretionary Integrity:** Public officials are increasingly delegating decision-making to algorithms, leading to a “Discretionary Void.”
- ❖ **Administrative ethics mandates** that an official cannot abdicate their Moral Agency.
- ❖ **Over-reliance on AI leads to Automation Bias,** where the “Human-in-the-Loop” becomes a mere rubber stamp, eroding the constitutional values of Individual Autonomy and personal accountability.
- ❖ **Fiduciary Duty & “Safe by Design” Governance:** The transition from voluntary ethics to Statutory Audits and Ethical Impact

Assessments (EIA)

- ❖ **As Trustees of Public Data,** the state has a Fiduciary Responsibility to ensure “Techno-Legal” integrity. By integrating Fairness, Inclusiveness, and Accountability (FIA) into the code, administrators uphold the civil service values of Objectivity and Non-Partisanship, preempting “Hidden Biases” before they manifest in public service.

- ❖ Global Equity & the “Compute Divide”: Concentration of high-level hardware in private, Global North hands despite the push for “Lightweight AI.”
- ❖ This reflects a violation of Distributive Justice (Rawlsian Ethics). A fragmented global regulatory landscape, driven by economic competitiveness over ethical guardrails, threatens Global Fraternity and risks “Digital Colonialism,” where the Global South remains a data provider rather than a sovereign innovator.

Way Forward:

To bridge the gap between “Action” and “Impact,” the following four-pronged strategy is recommended:

- ❖ Institutionalizing the MANAV Framework: India’s M.A.N.A.V. (Moral, Accountable, National Sovereignty, Accessible, Valid) vision should be the bedrock for national AI policies. This ensures that AI is not an “autonomous force” but a “force multiplier” for human aspirations.
- ❖ Operationalizing the “Seven Chakras”: Global cooperation must move from vague treaties to the seven specific pillars defined in the 2026 Declaration:
- ❖ Democratizing AI Resources: Ensuring affordable compute access.
- ❖ Economic Growth & Social Good: Focusing on MSMEs and agriculture.
- ❖ Secure & Trusted AI: Implementing the “Trusted AI Commons” for benchmarks.
- ❖ AI for Science: Pooling research through the International Network of AI Institutions.
- ❖ Access for Social Empowerment: Multilingual models for digital inclusion.
- ❖ Human Capital Development: Scaled reskilling and “AI literacy” for public officials.
- ❖ Resilient & Efficient AI: Prioritizing “Green AI” to reduce carbon footprints.
- ❖ Transition to Statutory Audits: Move beyond voluntary ethics. High-risk AI applications (in healthcare or law) must undergo
- ❖ Ethical Impact Assessments (EIA) as pioneered by UNESCO, making “Humanity in the Loop” a legal mandate rather than a design choice.
- ❖ Strengthening the “Digital Commons”: By supporting the Charter for the Democratic Diffusion of AI, nations can prevent “Digital Colonialism” and ensure that the Global South transitions from being “data providers” to “innovation creators.”

Conclusion:

- ❖ The India AI Impact Summit 2026 reinforces the philosophy that while AI may be the most powerful engine of the 21st century, Ethics must be its steering wheel.
- ❖ As we move forward, the success of AI will be measured not by the complexity of its algorithms but by its resilience, sustainability, and alignment with human dignity.

MISCELLANEOUS EVENTS

1. Missile Technology & Deterrence

❖ India is making significant strides in its “No First Use” nuclear deterrent and conventional strike capabilities.

❖ **Agni-3 (Intermediate-Range Ballistic Missile):**

- **Range:** ~3,000 km (Strategic coverage of regional targets).
- **Tech:** Two-stage **solid-fuel** propulsion. Solid fuel is preferred for “launch-on-demand” readiness compared to liquid fuel.



- **Platform:** Road-mobile, which increases survivability by making the launcher harder to track.

❖ **SFDR (Solid Fuel Ducted Ramjet):**

- **The Concept:** An air-breathing engine. Unlike rockets, it doesn’t carry an oxidizer; it “rams” atmospheric air for combustion.
- **Impact:** Dramatically increases the “**No-Escape Zone**” for Beyond-Visual-Range (BVR) missiles.
- **Performance:** Sustains supersonic speeds (**Mach 2–3.8**) and extends engagement range up to **340 km**.

❖ **LR-AShM (Hypersonic Glide Missile):**

- **Speed:** Up to **Mach 10**.
- **Trajectory:** Quasi-ballistic. It starts like a ballistic missile but “glides” and maneuvers at lower altitudes to evade enemy radar and interceptors.
- **Purpose:** Coastal defense for the Indian Navy with a **1,500 km** reach.

2. Border Infrastructure: Vibrant Village Programme (VVP)

The government is shifting from a “neglected border” policy to a “strategic hub” policy.

Feature	Phase-I (Launched 2023)	Phase-II (Launched 2025)
Type	Centrally Sponsored	Central Sector (100% Union funded)
Focus	Northern Border (China)	Borders with Pakistan, Nepal, Bangladesh, Bhutan, Myanmar
Coverage	662 Villages	1,954 Villages
Goal	Stop migration, improve roads/telecom	Infrastructure saturation, integration, and security

3. Global Energy: World Nuclear Performance Report 2025

- ❖ **The Trend:** Record generation in 2024 (**2667 TWh**).
- ❖ **Net Zero Goal:** Global nuclear capacity must **triple** by 2050.

- ❖ **India's Role:** Identified as one of five key nations (alongside US, China, Russia, France) that will dominate nuclear capacity by 2050.
- ❖ **Strategy:** Extending current reactor lives to **60–80 years** is the most cost-effective way to maintain a low-carbon grid.

4. Military Ethics & Guidelines

The Ministry of Defence (MoD) is tightening rules on memoirs:

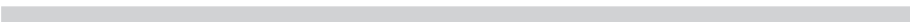
- ❖ **Legal Basis: Official Secrets Act, 1923** applies even after retirement.
- ❖ **Serving Personnel:** Cannot publish without prior written permission (Army Act, 1950).
- ❖ **Retired Personnel:** Encouraged to seek “voluntary clearance” to ensure no operational or intelligence data is leaked.

5. Joint Military Exercises (Quick Revision Table)

Exercise	Partners	Category	Location
KHANJAR-XIII	India & Kyrgyzstan	Special Forces	Misamari, Assam
DHARMA GUARDIAN-7	India & Japan	Army	Chaubattia, Uttarakhand
VAJRA PRAHAR-16	India & USA	Special Forces	Bakloh, Himachal Pradesh

CURRENT AFFAIRS

MARCH 2026

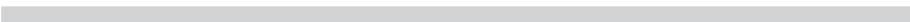


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ART AND CULTURE

1. Megalithic Burial Discovery

- ❖ The discovery of a **2,000-year-old megalithic laterite rock-cut burial chamber** is a significant archaeological finding that sheds light on ancient burial practices in India. Megalithic cultures, which flourished during the Iron Age, are known for their distinctive burial systems involving stone structures. The use of laterite rock indicates advanced knowledge of local materials and engineering techniques.
- ❖ Such burial chambers were often used to inter human remains along with grave goods like pottery, tools, and ornaments, reflecting beliefs in life after death. This discovery helps historians understand the social hierarchy, religious beliefs, and lifestyle of early communities.
- ❖ It also provides clues about trade, craftsmanship, and technological advancement of that period. Excavations of such sites are crucial for reconstructing India's prehistoric past and linking it with later historical developments. Moreover, preserving these sites is essential for future research and cultural heritage awareness. Overall, this finding enriches our understanding of ancient Indian civilization and highlights the importance of archaeological exploration.

2. Adopt A Heritage (AAH) 2.0

- ❖ The **Adopt A Heritage (AAH) 2.0 programme** is an initiative by the Government of India to enhance the quality of tourism infrastructure at heritage sites. It encourages private and public organizations to partner with the government as "Monument Mitras" to provide and maintain basic amenities such as cleanliness, signage, drinking water, and digital services.
- ❖ Unlike the earlier version, AAH 2.0 places greater emphasis on sustainability, accountability, and transparency in operations. It aims to improve visitor experience while ensuring that the historical and cultural integrity of monuments is preserved. The programme also promotes responsible tourism by integrating eco-friendly practices and local community participation.
- ❖ By involving corporate entities, the government seeks to reduce the burden on public resources and bring in professional management. This initiative not only boosts tourism but also generates employment opportunities and increases awareness about heritage conservation. Overall, AAH 2.0 reflects a collaborative approach to preserving India's rich cultural legacy while making heritage sites more accessible and visitor-friendly.



3. Shaheed Diwas Tribute

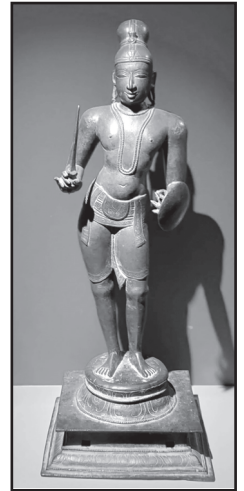
- ❖ **Shaheed Diwas** is observed to honor the sacrifices of India's freedom fighters who laid down their lives for the nation's independence. On this occasion, Prime Minister Narendra Modi paid tribute to martyrs such as Bhagat Singh, Rajguru, and Sukhdev, who were executed by the British on March 23, 1931. Their courage and commitment to the freedom struggle continue to inspire generations.
- ❖ The day serves as a reminder of the immense sacrifices made by countless individuals in the fight against colonial rule. It also reinforces the values of patriotism, unity, and dedication to the nation. Commemorations

often include ceremonies, speeches, and educational activities to spread awareness about the contributions of these heroes.

- ❖ Remembering such events is important for preserving national identity and instilling a sense of responsibility among citizens. Shaheed Diwas not only pays homage to the past but also encourages people to work towards the progress and integrity of the country.

4. Thirumangai Alvar Idol

- ❖ The **16th-century bronze idol of Thirumangai Alvar** is an important representation of India's rich religious and artistic heritage. Thirumangai Alvar was one of the twelve Alvars, the Tamil poet-saints of the Bhakti movement who were devoted to Lord Vishnu. Bronze idols from this period are known for their exquisite craftsmanship, detailed ornamentation, and spiritual symbolism.
- ❖ They were often used in temple rituals and processions, playing a central role in religious life. The idol reflects the advanced metallurgical skills and artistic excellence of medieval South India. Such artifacts are valuable not only for their religious significance but also for understanding the cultural and historical context of the Bhakti movement.
- ❖ Preserving these idols is crucial, as many have been lost or stolen over time. Their recovery and conservation help protect India's heritage and ensure that future generations can appreciate its artistic traditions. This idol stands as a testament to devotion, culture, and craftsmanship.



5. Savitribai Phule Tribute

- ❖ The tribute paid by the Union Home Minister to **Savitribai Phule** on her death anniversary highlights her immense contribution to Indian society. Savitribai Phule was a pioneering social reformer and the first female teacher in India. Along with her husband Jyotirao Phule, she established the first school for girls in Pune in 1848, challenging deep-rooted social norms and caste discrimination.
- ❖ She worked tirelessly to promote women's education, eradicate untouchability, and support marginalized communities. Despite facing social resistance and discrimination, she remained committed to her mission of equality and empowerment. Her efforts laid the foundation for modern education and social reform in India. Remembering her legacy is important for recognizing the role of women in shaping society and inspiring future generations to work towards inclusivity and justice. The tribute serves as a reminder of her courage, vision, and dedication to building a more equitable society.

ECONOMY

1. 4th National Agro-RE Summit in New Delhi

- ❖ The **4th National Agro-RE (Renewable Energy) Summit** held in New Delhi focused on integrating renewable energy solutions into India's agricultural sector. The summit brought together policymakers, industry experts, farmers, and researchers to discuss sustainable energy practices such as solar irrigation, biomass energy, and decentralized renewable systems.

- ❖ A major objective was to reduce farmers' dependence on conventional fuels like diesel and grid electricity, thereby lowering input costs and carbon emissions. Initiatives like solar-powered pumps and agro-voltaic systems were highlighted as transformative solutions that can improve farm productivity while ensuring energy security.
- ❖ The summit also emphasized the role of government schemes such as PM-KUSUM in promoting clean energy adoption in rural areas. Discussions included financing challenges, technological innovation, and the need for capacity building among farmers.
- ❖ By encouraging the use of renewable energy in agriculture, the summit supports India's broader goals of achieving sustainable development and climate resilience. Overall, it reflects a shift towards eco-friendly farming practices and energy-efficient rural development.

2. Coconut Promotion Scheme in Union Budget 2026–27

- ❖ The **Union Budget 2026–27** introduced a Coconut Promotion Scheme aimed at boosting coconut production, processing, and export in India. The scheme focuses on supporting farmers through improved planting material, modern cultivation practices, and better irrigation facilities.
- ❖ It also aims to strengthen value addition by promoting coconut-based industries such as coir, oil, and food products. By enhancing processing infrastructure and supply chains, the scheme seeks to increase farmers' income and generate employment in rural areas. Special attention is given to states like Kerala, Tamil Nadu, and Karnataka, where coconut cultivation is a major livelihood source.
- ❖ The initiative also encourages research and innovation to improve productivity and disease resistance. Export promotion is another key component, aiming to position India as a major player in the global coconut market. Overall, the scheme aligns with the government's vision of doubling farmers' income and promoting agro-based industries while ensuring sustainable agricultural growth.



3. Three Initiatives Launched by Union I&B Minister

- ❖ The Union Minister for Information and Broadcasting launched three key initiatives aimed at strengthening India's media and entertainment ecosystem. These initiatives focus on promoting digital innovation, supporting content creators, and enhancing global outreach of Indian media.
- ❖ One initiative aims to provide a platform for young and emerging creators to showcase their talent, while another focuses on improving transparency and accessibility in broadcasting services. The third initiative emphasizes capacity building and skill development in the media sector, ensuring that professionals are equipped with modern tools and technologies.
- ❖ These steps are designed to boost India's creative economy and position it as a global hub for media and entertainment. The initiatives also aim to preserve cultural diversity by encouraging regional content and storytelling. By leveraging digital platforms and technological advancements, the government seeks to expand the reach of Indian content worldwide. Overall, these initiatives reflect a forward-looking approach to strengthening the media sector and promoting innovation.

4. AI4Agri Summit 2026 in Mumbai

- ❖ The **AI4Agri Summit 2026**, held in Mumbai, focused on the application of artificial intelligence in agriculture. The summit brought together experts from technology, agriculture, and policymaking to explore how AI can improve farming efficiency and productivity.
- ❖ Key areas of discussion included precision farming, crop monitoring, weather prediction, pest control, and supply chain optimization. AI-driven tools such as drones, sensors, and data analytics were highlighted for their ability to provide real-time insights to farmers.
- ❖ These technologies can help reduce costs, increase yields, and minimize risks associated with climate change. The summit also addressed challenges such as digital literacy, data access, and affordability for small farmers.
- ❖ Government initiatives and startup innovations were showcased to promote the adoption of AI in rural areas. By integrating technology with agriculture, the summit supports the goal of creating a smart and sustainable farming ecosystem. It represents a significant step towards modernizing India's agricultural sector.



5. New GDP Series with Base Year 2022–23

- ❖ India adopted a new **GDP series with base year 2022–23**, replacing the previous base year to better reflect current economic realities. Updating the base year is essential to capture structural changes in the economy, including the growth of new sectors like digital services and technology.
- ❖ The new series improves data accuracy by incorporating updated methodologies, broader data sources, and revised sectoral classifications. It also aligns with international standards, ensuring comparability with global economic data. This change helps policymakers make informed decisions regarding fiscal and monetary policies.
- ❖ The revised GDP calculations may lead to changes in growth estimates, providing a clearer picture of economic performance. It also enhances transparency and credibility in national income statistics. Overall, the new GDP series is an important step in modernizing India's statistical framework and ensuring that economic indicators accurately reflect the country's development trajectory.

6. RBI Liquidity Injection of Rs. 25,101 Crore

- ❖ The **Reserve Bank of India (RBI)** injected Rs. 25,101 crore into the banking system to address liquidity shortages and ensure smooth functioning of financial markets. Liquidity injection is typically carried out through mechanisms such as open market operations (OMOs) or repo transactions.
- ❖ This move helps banks maintain adequate funds for lending and prevents short-term interest rates from rising sharply. It is particularly important during periods of tight liquidity caused by factors like tax outflows or market volatility. By increasing liquidity, the RBI aims to support economic activity, encourage credit flow, and maintain financial stability.



- ❖ Such measures also help control inflation and ensure that monetary policy transmission remains effective. The injection reflects the RBI's proactive approach to managing liquidity conditions and sustaining economic growth. Overall, it plays a crucial role in stabilizing the banking system and supporting broader economic objectives.

7. NITI Aayog Fiscal Health Index 2026

- ❖ The **NITI Aayog Fiscal Health Index 2026 (second edition)** assesses the fiscal performance of Indian states based on parameters such as revenue generation, expenditure management, debt levels, and fiscal discipline. The index provides a comparative analysis of states, highlighting strengths and areas for improvement.
- ❖ It encourages states to adopt better financial practices and maintain fiscal sustainability. The report also promotes transparency and accountability in public finance management. By identifying best-performing states, it creates a competitive environment that motivates others to improve their fiscal policies.
- ❖ The index serves as a valuable tool for policymakers to design effective strategies for economic growth and development. It also helps investors and stakeholders understand the financial stability of different states. Overall, the Fiscal Health Index contributes to strengthening India's federal financial system and ensuring balanced regional development.

8. IEEFA Report: Electric Cooking Cheaper than LPG

- ❖ An analysis by the **Institute for Energy Economics and Financial Analysis (IEEFA)** highlights that electric cooking is becoming cheaper than LPG in many regions. The study points out that falling electricity costs, improved efficiency of electric appliances, and rising LPG prices have made electric cooking more economical.
- ❖ It also emphasizes environmental benefits, as electric cooking reduces carbon emissions and indoor air pollution. The transition to electric cooking can improve public health and support climate goals. However, challenges such as reliable electricity supply, affordability of appliances, and infrastructure development remain.
- ❖ The report suggests policy support and incentives to accelerate this transition. Promoting electric cooking aligns with India's commitment to clean energy and sustainable development. Overall, the findings indicate a shift towards more efficient and eco-friendly cooking solutions in the country.

9. Halt on Rice Fortification under PMGKAY

- ❖ The government has temporarily halted **rice fortification under the Pradhan Mantri Garib Kalyan Anna Yojana (PMGKAY)** and related schemes. Rice fortification involves adding essential micronutrients like iron, folic acid, and vitamin B12 to improve nutritional outcomes.
- ❖ The halt may be due to concerns related to implementation challenges, cost, or scientific evaluation. While fortification aims to address malnutrition and anemia, experts have raised questions about its effectiveness and possible health implications for certain groups. The pause allows the government to review the programme and address these concerns.



- ❖ It highlights the need for evidence-based policymaking in nutrition interventions. Ensuring food security while maintaining nutritional quality remains a key priority. The decision reflects a cautious approach to large-scale public health initiatives and the importance of continuous monitoring and evaluation.

10. Increased PM-KUSUM Allocation

- ❖ The **Union Budget 2026–27** increased the allocation for the **PM-KUSUM scheme** to ₹ 5,000 crore, emphasizing the promotion of solar energy in agriculture. The scheme supports farmers in installing solar pumps and decentralized renewable energy systems. This reduces dependence on diesel and grid electricity, lowering costs and emissions.



- ❖ It also provides farmers with an additional source of income by allowing them to sell surplus power. The increased allocation aims to expand the scheme's reach and accelerate the adoption of clean energy in rural areas. It contributes to energy security, environmental sustainability, and farmers' welfare.
- ❖ The initiative aligns with India's renewable energy targets and climate commitments. Overall, PM-KUSUM plays a vital role in transforming the agricultural sector through sustainable energy solutions.

11. LPG Shortages and Strait of Hormuz

- ❖ Recent **LPG shortages** have been linked to disruptions in the **Strait of Hormuz**, a critical global oil transit route. A significant portion of the world's petroleum and gas supplies passes through this narrow waterway.
- ❖ Any geopolitical tensions or disruptions in the region can affect global energy supply chains, leading to price fluctuations and shortages. For India, which relies heavily on energy imports, such disruptions can impact domestic availability and prices of LPG.
- ❖ This situation highlights the importance of energy security and diversification of supply sources. It also underscores the need to promote alternative energy options such as electric cooking and renewable energy. Strengthening strategic reserves and improving supply chain resilience are essential to mitigate such risks. Overall, the issue reflects the interconnected nature of global energy markets and the challenges faced by import-dependent countries like India.

INTERNATIONAL RELATIONS

1. BRICS STI Cooperation

- ❖ **BRICS STI Cooperation** refers to collaboration among BRICS countries in **Science, Technology and Innovation** to promote joint research, technology transfer, innovation networks and capacity building. Under **India's BRICS Presidency in 2026**, STI has gained renewed prominence within the larger theme of resilience, innovation, cooperation and sustainability. India is pushing for deeper collaboration in frontier sectors such as **AI, biotechnology, clean energy, digital public infrastructure, health technologies and advanced manufacturing**.

- ❖ The BRICS STI Framework Programme remains an important platform for funding **multilateral research consortia** and encouraging academic-industry partnerships. The **7th coordinated BRICS STI call for 2026** is open, showing that cooperation is moving beyond declarations into project-based engagement.
- ❖ For India, BRICS STI cooperation is important for three reasons. First, it supports **strategic technological autonomy** in a world marked by supply-chain disruptions and technology nationalism. Second, it enables access to wider pools of scientific talent, infrastructure and markets. Third, it strengthens the voice of the Global South in shaping rules on emerging technologies and innovation governance. However, differences in technological capacity, intellectual property issues, export controls and geopolitical rivalry remain obstacles.
- ❖ Overall, BRICS STI cooperation reflects an attempt to build a **multipolar technology order**. For India, it is both a diplomatic platform and a developmental tool for advancing innovation-led growth while reducing dependence on a few advanced economies.

2. Goeconomic Fallout of the US–Israel–Iran Conflict on India

- ❖ The **US–Israel–Iran conflict** has significant goeconomic implications for India because India is deeply connected to West Asia through **energy imports, trade routes, diaspora links and investment flows**. A major concern is the vulnerability of the **Strait of Hormuz**, through which a large share of global oil and gas supplies passes. Any disruption raises crude prices, shipping insurance costs and freight rates, thereby worsening India’s import bill and current account pressures. Recent tensions around the Strait have already renewed fears of supply shocks and price spikes.
- ❖ For India, the conflict threatens its “high growth with manageable inflation” balance. Costlier oil can fuel imported inflation, strain public finances, and increase logistics and fertilizer costs. Export sectors may also suffer because conflict in West Asia disrupts sea-lanes, reroutes cargo, and weakens demand in key markets. India also faces a strategic dilemma: it has important ties with the **US, Israel and Iran simultaneously**, so it must protect its interests without appearing aligned against any one side.
- ❖ At the same time, the crisis could push India to diversify energy sourcing, strengthen strategic petroleum reserves, accelerate renewables, and deepen rupee-based or alternative payment arrangements. Thus, the conflict exposes India’s external vulnerabilities but also underlines the need for **energy security, maritime resilience and strategic autonomy**. In policy terms, the episode shows that geopolitics and economics are now inseparable for India’s rise.

3. Xiaokang Villages and India’s Border Security

- ❖ **Xiaokang villages** are China’s model border settlements aimed at creating “moderately prosperous” villages in remote frontier regions, especially Tibet. In recent years, India has grown increasingly concerned because many such villages have been built near the **Line of Actual Control (LAC)**, particularly opposite **Arunachal Pradesh**. Reports in 2026 indicated that China has constructed hundreds of such villages, with a heavy concentration in areas facing India. Though presented as civilian development, these villages are widely viewed as having a **dual-use strategic role**.



- ❖ From India's security perspective, Xiaokang villages help China consolidate territorial claims through permanent civilian presence, roads, communications and logistics infrastructure. They can function as surveillance nodes, support bases and symbols of administrative control in contested zones.
- ❖ This fits China's broader "salami slicing" strategy, in which gradual changes on the ground are used to reinforce claims without full-scale war. Such settlements can also alter local demographics and strengthen Beijing's legal-political narrative over disputed territory.
- ❖ India's response has included infrastructure building, better border connectivity and the **Vibrant Villages Programme**, which aims to strengthen habitation and development in frontier areas on the Indian side. In the long term, the issue is not just military but also demographic, administrative and psychological. Thus, Xiaokang villages represent a **new model of border competition**, where civilian infrastructure becomes a tool of state strategy and sovereignty projection.

4. Weapons in the US–Israel–Iran Conflict

- ❖ The **US–Israel–Iran conflict** has highlighted how modern warfare is increasingly shaped by a mix of **ballistic missiles, drones, stealth aircraft, air-defence systems, cruise missiles and electronic warfare**. On one side, the US and Israel have relied on advanced air power, precision-guided munitions, submarine-launched systems, intelligence assets and layered missile defences. On the other side, Iran has demonstrated the importance of massed missile and drone attacks, mobile launchers, underground facilities and asymmetric strike capabilities.
- ❖ The conflict has shown that relatively cheaper offensive systems such as drones and missiles can impose heavy costs on advanced military powers by saturating their defences. Iran's arsenal reportedly includes systems supported by domestic air-defence platforms such as **Bavar-373, Sevom-e-Khordad and Tor-M1**, while the US–Israel side uses high-end assets ranging from fighter aircraft to long-range standoff strike systems. This creates a classic contest between **low-cost volume attacks and high-cost interceptors and precision weapons**.
- ❖ The strategic lesson is that future wars will not be decided by one platform alone, but by **integrated networks** combining surveillance, cyber capability, mobility, deception and layered defence. For India, the conflict offers lessons on the importance of indigenous missile defence, drone warfare capability, hardened infrastructure, and resilience against multi-domain attacks. In short, the war marks a shift toward **high-tech, attritional, networked warfare**, where both quantity and sophistication matter.

5. India Opts Out of IEA-led Oil Release from SPRs

- ❖ India's reported decision to **opt out of an International Energy Agency-led release of oil from Strategic Petroleum Reserves (SPRs)** reflects its cautious and interest-driven energy policy. The IEA sometimes coordinates emergency stock releases to calm markets during major supply disruptions. However, India is not an IEA member country in the same way as the traditional OECD bloc, and its reserve policy is shaped by its own consumption needs, import dependence and stock adequacy. In the context of the West Asian crisis, India appears to prefer preserving strategic reserves rather than deploying them prematurely.



- ❖ This approach stems from several considerations. First, India's SPR capacity is still limited relative to its overall oil demand, so reserves are seen as a critical buffer for **genuine emergencies**. Second, uncertainty in the Strait of Hormuz and wider West Asia means the crisis could last longer than expected. Third, India may believe that market stability should come from a broader mix of diplomacy, diversified sourcing and commercial inventory management rather than immediate reserve drawdown.
- ❖ The decision highlights an important distinction: for advanced economies with larger reserves, coordinated releases can be a market tool; for India, SPRs are primarily a **strategic shield**. This episode also underscores India's need to expand storage capacity, diversify import partners, and accelerate renewable transition. Thus, opting out is less about non-cooperation and more about **energy prudence under conditions of vulnerability**.

6. India–Finland Relations

- ❖ **India–Finland relations** gained fresh momentum in 2026 with high-level political engagement and a significant upgrade in bilateral ties. During the Finnish President's state visit, the two countries elevated their partnership to a **“Strategic Partnership in Digitalization and Sustainability.”** This reflects a modern, sector-focused bilateral agenda rather than a traditional security-centric one. Both sides emphasized cooperation in **AI, telecommunications, quantum technologies, digital public systems, green transition, circular economy, education and innovation**.
- 
- ❖ Finland is important for India because of its strengths in clean technology, advanced manufacturing, digital systems, research and design. India, in turn, offers Finland a large market, talent base and strategic role in the Indo-Pacific and Europe-Asia supply chains. Joint research calls and technology partnerships signal an effort to institutionalize innovation collaboration. Both countries also expressed support for safe, inclusive and trustworthy development of artificial intelligence.
 - ❖ Economically, the relationship is expected to benefit from the broader **India–EU trade architecture** and efforts to expand bilateral trade by 2030. Politically, India and Finland share support for democracy, rule of law and a rules-based international order. Though the relationship may not be high-profile like India's ties with major powers, it is valuable because it is **future-oriented**, centered on sustainability and high technology. In that sense, India–Finland relations exemplify how India is building issue-based partnerships with technologically advanced middle powers.

7. Raisina Dialogue 2026

- ❖ The **Raisina Dialogue 2026**, held in New Delhi, continued its role as India's flagship conference on **geopolitics and geoeconomics**. Organized by the Ministry of External Affairs in partnership with the Observer Research Foundation, it brings together world leaders, ministers, diplomats, scholars, military officials and business voices. The 2026 theme, **“SaAskâra – Assertion, Accommodation, Advancement,”** captured the tensions of the current world order: civilizational identity, strategic competition, coexistence and progress.
- ❖ The Dialogue is significant because it reflects India's ambition to shape international debate rather than merely participate in it. The thematic pillars of the 2026 edition covered contested frontiers, global commons, climate change, technology futures and trade resilience.

- ❖ This shows how global politics is no longer limited to military power alone; it now includes supply chains, digital governance, environmental stress and development competition.
- ❖ For India, the Raisina Dialogue serves three functions. First, it is a **diplomatic platform** to project India's worldview on a multipolar order. Second, it helps India engage diverse actors from the Global South, West Asia, Europe, Africa and the Indo-Pacific. Third, it positions New Delhi as an intellectual and strategic convening space, much like Munich or Singapore have done in their regions. Thus, Raisina Dialogue 2026 was not merely a conference but a tool of **strategic signaling, agenda-setting and soft power projection**.

8. Conflict Zones in the US–Israel–Iran War

- ❖ The **US–Israel–Iran war** is not confined to one battlefield; it has created multiple overlapping **conflict zones** across West Asia and adjoining maritime spaces. Iran itself has been a primary theatre, especially around military, nuclear and command targets. Israel has been another front because it faces retaliatory missile and drone attacks. Beyond these two, the conflict has spilled into **Lebanon, Iraq, Syria, the Gulf region, the Red Sea and the Strait of Hormuz**, showing the regionalized nature of the war.
- ❖ This multi-theatre character arises from alliances, proxy networks and the geography of energy corridors. Iranian-backed groups in different countries, US bases across the region, and Israeli operations against hostile networks have all widened the arc of instability. Reports have even indicated that neighbouring states such as Turkey and Jordan have been affected by air-defence interceptions, debris and strategic spillovers. Maritime zones are particularly important because they connect war with global trade and energy security.
- ❖ For India and the wider world, the key lesson is that modern regional wars can quickly become **systemic conflicts** involving land, sea, air, cyber and energy infrastructure. The conflict zones are linked by logistics, ideology and strategic chokepoints rather than by one continuous frontline. This makes diplomacy harder and escalation control more difficult. In essence, the war demonstrates how **regional rivalries can create a chain of insecurity stretching from the Levant to the Indian Ocean**.

9. US Torpedo Sinks Iranian Warship in Indian Ocean

- ❖ The reported sinking of the Iranian frigate **IRIS Dena** by a US submarine in the **Indian Ocean**, near Sri Lanka's southern coast, marks a striking geographical expansion of the conflict. It is significant not only because of the naval loss itself, but because it brings the West Asian war closer to the **Indian Ocean Region (IOR)**, an area central to India's strategic interests. If confirmed and sustained as a pattern, such incidents could transform the IOR from a transit space into an active theatre of great-power confrontation.
- ❖ Naval conflict in the IOR has broad consequences. It threatens commercial shipping, raises insurance premiums, endangers energy supplies, and could unsettle littoral states that depend on open sea-lanes. For India, the development is serious because the Indian Ocean is the backbone of its trade and maritime security architecture. A militarized IOR would increase the burden on India's navy, intelligence systems and maritime domain awareness.
- ❖ The episode also illustrates how maritime warfare has changed. Submarines, long-range surveillance and precision naval strikes allow conflict to travel far from its original theatre. Even a single such sinking has symbolic impact: it signals that escalation is no longer limited to the Persian Gulf. Therefore, the event is important not just as a naval incident, but as a warning that the **Indian Ocean may increasingly become linked to extra-regional conflicts**, demanding stronger Indian preparedness and diplomacy.

10. India–Canada Strategic Reset

❖ The **India–Canada strategic reset** in 2026 marks an effort by both countries to move beyond the diplomatic tensions of 2023–24 and rebuild a more structured partnership. The visit of Canadian Prime Minister **Mark Carney** to India was widely seen as the political signal for this reset. The renewed approach focuses on **trade, clean energy, critical minerals, defence dialogue, innovation, food processing and education linkages**. Both countries appear to have recognized that prolonged friction would damage mutual strategic and economic interests.



- ❖ A major pillar of the reset is the restarting of **Comprehensive Economic Partnership Agreement (CEPA)** negotiations. Economic complementarity is considerable: Canada brings capital, resources, uranium, agri-technology and critical minerals, while India offers market size, talent, manufacturing scale and digital capacity. The reset also includes a first formal defence dialogue and broader cooperation in research, skills and mobility.
- ❖ Strategically, the significance of the reset goes beyond bilateral ties. It reflects the emergence of a wider pattern in world politics where democratic middle powers seek pragmatic alignment despite episodic political strain. For India, engagement with Canada is useful for energy security, education links, pension fund investment and access to advanced resources. For Canada, India is indispensable as a major Indo-Pacific partner. Thus, the reset shows how diplomacy can shift from confrontation to **interest-based reconstruction of trust**, even after severe political disruption.

11. Self-Defence, IHL and UNCLOS in the US–Israel–Iran Conflict

- ❖ The **US–Israel–Iran conflict** has revived major debates in international law, especially regarding **self-defence, International Humanitarian Law (IHL), and the UN Convention on the Law of the Sea (UNCLOS)**. Under the UN Charter, the use of force is generally prohibited except when authorized by the UN Security Council or exercised in lawful self-defence under **Article 51**. The central legal question is whether the US and Israel acted in response to an actual or imminent armed attack, or whether their action amounted to unlawful pre-emptive force. Many legal analyses argue that the threshold for anticipatory self-defence is extremely strict.
- ❖ IHL applies once hostilities begin and requires distinction, proportionality and precaution. This means parties must distinguish between military and civilian targets, avoid excessive civilian harm and use force proportionately. Any attacks on nuclear facilities, urban areas or maritime assets raise difficult humanitarian and environmental concerns.
- ❖ UNCLOS becomes relevant because of the maritime dimension: blockades, interdictions, navigation rights and attacks on vessels in or around major sea lanes such as the Strait of Hormuz. If navigation is obstructed or neutral shipping endangered, wider international legal questions arise.
- ❖ For students of international relations, the conflict shows how military escalation today is judged not only by power politics but also by **legal legitimacy**. In practice, law may not stop war, but it shapes diplomatic narratives, global opinion and future accountability.

12. Durand Line Dispute

- ❖ The **Durand Line** is the disputed border between **Pakistan and Afghanistan**, originally drawn in **1893** between British India and the Amir of Afghanistan. It runs for about **2,600 km** and cuts through Pashtun tribal areas. Pakistan treats it as an international border, but successive Afghan governments have questioned or rejected its legitimacy. This historic disagreement continues to fuel instability in the region.
- ❖ The issue has become more volatile in recent years due to cross-border militancy, Pakistan's fencing efforts, the presence of **Tehrik-i-Taliban Pakistan (TTP)** in Afghan territory, and disputes involving refugees and border management. Clashes between Pakistani forces and Afghan Taliban elements show that the Durand Line is not merely a colonial-era cartographic issue but a live geopolitical fault line.
- ❖ For India, the dispute matters in three ways. First, instability along the Pakistan–Afghanistan frontier affects the wider regional security environment. Second, Pakistan's internal and border pressures can alter its strategic behavior toward India. Third, the dispute exposes the limits of Pakistan's traditional "strategic depth" doctrine in Afghanistan.
- ❖ The Durand Line also illustrates a broader post-colonial problem: borders drawn by imperial powers often ignored ethnic and tribal realities. As a result, such lines continue to generate disputes long after decolonization. In essence, the Durand Line is a **historical border dispute with contemporary implications for militancy, regional order and South Asian security**.



13. US–Israel Attack on Iran

- ❖ The **US–Israel attack on Iran** in 2026 marked a major escalation in West Asian geopolitics. Reports indicate that the operations targeted Iranian leadership, strategic infrastructure, nuclear-related facilities and military capabilities. The attack was presented by its supporters as a move to weaken Iran's nuclear and missile potential, as well as its regional proxy networks. Critics, however, view it as a destabilizing action that widened an already fragile regional security crisis.
- ❖ The strike is important for several reasons. First, it shifted the region from proxy confrontation to more **direct interstate warfare**. Second, it triggered Iranian retaliation through missiles, drones and broader pressure on maritime chokepoints such as the **Strait of Hormuz**. Third, it intensified global concerns over energy prices, shipping disruption and regional spillover into Lebanon, Iraq, Syria and the Gulf.
- ❖ From India's standpoint, the attack creates both economic and diplomatic complications. India has strategic relations with the US and Israel, but it also has civilizational, connectivity and energy interests involving Iran. Therefore, India must balance condemnation of escalation with protection of its national interests and citizens.
- ❖ The broader significance is that the attack shows how quickly regional deterrence can collapse when preventive or punitive military actions are used against a state with substantial retaliatory capacity. In strategic terms, it reveals the dangers of **escalation dominance without escalation control**.

14. Missile Defence in the US–Israel–Iran Conflict

- ❖ **Missile defence** has been one of the defining features of the US–Israel–Iran conflict. The war has demonstrated that modern battlefield success depends not just on launching missiles but on being able to **detect, track and intercept** them across different altitudes and ranges. Israel’s multi-layered defence architecture includes systems such as **Iron Dome, David’s Sling and Arrow**, supported in part by US systems like **THAAD**. These layers are designed to counter rockets, cruise missiles, drones and ballistic missiles.
- ❖ The conflict has shown both the strengths and limitations of missile defence. On the positive side, layered systems can protect cities, bases and critical infrastructure from large numbers of incoming threats. On the negative side, missile defence is expensive and can be strained by repeated saturation attacks. When cheaper drones and missiles are launched in large waves, the defender may face an unfavorable cost equation because high-end interceptors are far costlier than the incoming projectiles.
- ❖ Strategically, missile defence changes decision-making. It can improve deterrence by reducing vulnerability, but it can also create overconfidence and encourage prolonged conflict if leaders believe they are protected. For India, the lessons are highly relevant. India needs integrated air and missile defence, strong early-warning systems, indigenous interceptor development, and affordable counter-drone solutions. In the long run, the conflict confirms that missile defence is not a luxury but a **core pillar of national security in the age of precision and saturation warfare**.

15. India–Israel Relations

- ❖ **India–Israel relations** entered a new phase in 2026 when the relationship was elevated to a **“Special Strategic Partnership for Peace, Innovation and Prosperity.”** This represents one of the highest forms of bilateral engagement and reflects the deepening convergence between the two countries. The partnership spans **defence, homeland security, agriculture, water technology, innovation, cyber cooperation, trade, mobility and digital collaboration**.
- ❖ Defence remains a major pillar. Israel has long been an important supplier of advanced military systems and technology to India, and both sides now emphasize not just procurement but also co-development, high technology transfer and strategic coordination. Alongside defence, civilian cooperation has widened considerably in areas like precision agriculture, start-up ecosystems, fintech, and innovation. The first round of **India–Israel FTA negotiations** also signals an effort to broaden the economic base of ties.
- ❖ Politically, the relationship reflects shared concerns over terrorism, technology security and regional instability. Yet India continues to balance its close ties with Israel alongside support for a negotiated and peaceful resolution of the Palestinian question. This balancing approach is central to India’s West Asia policy.
- ❖ The significance of India–Israel relations today lies in their multidimensional character. What began as a cautious relationship has evolved into one driven by **strategic trust, innovation partnership and mutual security interests**. It is now one of India’s most important high-technology partnerships in West Asia.



16. Agreements on Reciprocal Trade

- ❖ **Agreements on reciprocal trade** refer to arrangements in which countries provide each other preferential or mutually beneficial market access, often through tariff reductions, rules of origin, non-tariff barrier reforms and facilitation measures. In 2026, India's trade diplomacy has increasingly focused on such agreements to improve export competitiveness and integrate more deeply into global value chains. Official statements on India's trade partnerships indicate growing attention to **reciprocal and mutually beneficial trade frameworks**, especially with major partners such as the United States.
- ❖ The significance of reciprocal trade agreements lies in their strategic-economic role. They can expand market access for Indian goods and services, attract investment, diversify supply chains and help India move beyond a defensive trade posture. At the same time, reciprocal arrangements require domestic readiness because tariff concessions and market opening may expose vulnerable sectors to competition. Thus, success depends on negotiation quality, sectoral calibration and the ability of Indian firms—especially MSMEs—to actually use these agreements.
- ❖ A major challenge for India has been low **FTA utilisation rates**, often due to complex rules of origin, compliance burdens and lack of awareness among exporters. Therefore, the current push is not just to sign more agreements, but to simplify their implementation and align them with India's development priorities. In essence, reciprocal trade agreements are becoming key instruments of India's effort to combine **growth, resilience and global economic integration**.

INDIAN SOCIETY

1. Casebook on AI and Gender Empowerment

- ❖ The **Casebook on AI and Gender Empowerment** was launched at the **India AI Impact Summit 2026** on **17 February 2026** as part of a broader set of sectoral AI casebooks released by the Government of India. It was developed jointly with the **IndiaAI Mission** and showcases deployed, scalable AI solutions rather than just pilot ideas. The larger set of casebooks covers more than **170 AI innovations** across sectors such as health, education, agriculture, energy, accessibility and gender empowerment.
- ❖ Its importance lies in showing how artificial intelligence can be used to reduce gender gaps in access, opportunity and participation. In practice, AI tools can support women through better access to digital services, safer workplaces, improved health information, financial inclusion, skilling and entrepreneurship platforms. The casebook is therefore not only a documentation exercise but also a policy resource that identifies models that can be replicated and scaled in India and elsewhere.
- ❖ From an exam perspective, the casebook reflects India's effort to promote **inclusive and ethical AI**. It underlines that technology policy should not be gender-neutral in a superficial sense, because existing inequalities can get reproduced in algorithms and digital systems. The initiative therefore connects AI governance with women's empowerment, digital inclusion and social justice. In this way, it supports the broader idea that innovation must be people-centric and development-oriented, especially for historically underrepresented groups.

2. World Obesity Atlas 2026

- ❖ The **World Obesity Atlas 2026**, released by the **World Obesity Federation** on **4 March 2026** around World Obesity Day, presents new global, regional and national estimates on childhood overweight and obesity, with projections extending to **2040**. The report warns that the world is off track in tackling obesity and notes that more than **one in five school-age children aged 5–19 years** are now estimated to be living with overweight or obesity globally. It also highlights rising early signs of heart disease, stroke, diabetes and liver disease associated with excess weight.
- ❖ The Atlas is significant because obesity is no longer only a lifestyle issue; it is a major **public health, economic and developmental challenge**. Rising obesity increases the burden of non-communicable diseases, strains health systems and reduces productivity. For developing countries, the problem is even more complex because undernutrition and obesity can coexist, creating a “double burden of malnutrition.”
- ❖ For India, the report is a reminder that urbanization, processed food consumption, sedentary lifestyles and unequal access to healthy diets are creating new health risks, especially among children and adolescents. The policy response must therefore include better nutrition awareness, school-based interventions, regulation of unhealthy food environments, and promotion of physical activity. Overall, the Atlas reinforces that obesity prevention must become a long-term public policy priority rather than being treated only as an individual responsibility.

3. UNIGME Report 2025

- ❖ The **UN Inter-agency Group for Child Mortality Estimation (UNIGME) Report 2025**, released in **March 2026**, tracks global trends in child mortality. According to the report, in **2024** the world lost an estimated **4.9 million children before their fifth birthday**, along with about **2.1 million deaths among older children, adolescents and youth**. Although the global under-five mortality rate has fallen by about **60% since 1990**, the report warns that progress is now slowing or stalling in many places, especially in **sub-Saharan Africa and Southern Asia**.
- ❖ The report is important because it shows both achievement and unfinished work. Decades of investment in immunization, maternal care, nutrition, clean water and primary health services have saved millions of lives. Yet preventable child deaths remain high, which means inequalities in healthcare access, poverty and weak health systems continue to affect survival. UNIGME also notes that updated estimates are not directly comparable with previous rounds because of methodological improvements and new data inputs.
- ❖ For India, the report has policy relevance because child survival is closely linked to maternal health, sanitation, nutrition and public health delivery. India has made substantial progress, but the global findings underline the need to sustain efforts in neonatal care, immunization coverage and equitable access to health services. In essence, the UNIGME Report 2025 reminds policymakers that child mortality is one of the clearest indicators of overall social development and state capacity.



4. WHO's 90-70-90 Targets for Elimination of Cervical Cancer by 2030

- ❖ The **World Health Organization's 90-70-90 targets** are the core global benchmarks for putting countries on the path to eliminate **cervical cancer as a public health problem**. WHO states that by **2030**, every country should aim for: **90% of girls fully vaccinated with the HPV vaccine by age 15; 70% of women screened with a high-performance test by ages 35 and 45; and 90% of women with pre-cancer treated and 90% of women with invasive cancer appropriately managed**. WHO links these targets to the long-term goal of bringing cervical cancer incidence below **4 cases per 100,000 women-years**.
- ❖ These targets are significant because cervical cancer is one of the most preventable forms of cancer when vaccination, early screening and timely treatment are combined. The strategy is comprehensive: vaccination prevents HPV infection, screening detects disease early, and treatment reduces mortality. It also reflects a public health approach that connects adolescent health, women's health and cancer care.
- ❖ For India, these targets are especially relevant because cervical cancer remains an important health burden among women. Achieving them requires expanding HPV vaccination, strengthening screening systems, improving awareness and ensuring affordable treatment access. The WHO strategy also highlights a wider lesson: disease elimination is possible only when prevention, diagnosis and care are integrated into a strong public health system. Thus, the 90-70-90 framework is both a measurable target and a roadmap for women's health equity.

5. International Women's Day (IWD) – 8 March

- ❖ **International Women's Day (IWD)** is observed globally every year on **8 March** to celebrate women's achievements and to draw attention to gender equality, women's rights and remaining forms of discrimination. The United Nations recognizes 8 March as a day to uphold women's achievements, recognize challenges and focus action on women's rights and empowerment. UN Women also notes that IWD is observed each year on 8 March, while the **2026 UN theme** emphasized **"Rights. Justice. Action."**



- ❖ Historically, the day is rooted in women's labour movements and early struggles for political and social rights. The UN background on the observance links 8 March strongly to women's movements during the **Russian Revolution of 1917**, though the day's modern meaning has broadened to include economic equality, freedom from violence, representation, education, healthcare and access to justice.
- ❖ In contemporary policy discourse, IWD serves both symbolic and practical functions. Symbolically, it honours women's contributions in every field. Practically, it creates momentum for legal reforms, institutional change and public awareness. For India and other countries, the observance is a reminder that gender equality is not only a social goal but also a development imperative. Greater participation of women in education, labour markets, politics and technology directly strengthens democracy and economic growth. Thus, International Women's Day is both a celebration and a call for unfinished action.

6. Bharat Audyogik Vikas Yojna (BHAVYA)

- ❖ The **Union Cabinet** approved the **Bharat Audyogik Vikas Yojna (BHAVYA)** on **18 March 2026** as a major industrial infrastructure initiative. According to the official announcement, the scheme has an outlay of **Rs. 33,660 crore** and aims to develop **100 plug-and-play industrial parks** across India. These parks are to be built with pre-approved land, ready infrastructure and integrated services so that industries can move from intent to production much faster. The scheme will be implemented in partnership with states and private players, building on the experience of the **National Industrial Corridor Development Programme (NICDP)**.
- ❖ BHAVYA emphasizes **ease of doing business**, investor-friendly reforms and high-quality industrial ecosystems. The parks, ranging from **100 to 1000 acres**, will receive support for core infrastructure such as roads, underground utilities, drainage, treatment facilities, ICT systems and administrative services. The scheme also supports value-added infrastructure like ready-built factory sheds, warehousing and testing labs, as well as social infrastructure including worker housing. External infrastructure support can go up to **25% of project cost**.
- ❖ Its larger significance lies in promoting **manufacturing-led growth**, employment generation and regional industrialization. By aligning with **PM GatiShakti** principles and sustainable infrastructure design, BHAVYA seeks to strengthen domestic supply chains and improve India's competitiveness. In policy terms, it reflects the shift from merely approving projects to creating fully prepared industrial ecosystems. Thus, BHAVYA can become an important instrument for advancing **Atmanirbhar Bharat** and the broader goal of **Viksit Bharat** through modern industrial development.

POLITY AND GOVERNANCE

1. Pradhan Mantri Jan Arogya Yojana (PM-JAY)

- ❖ The **Pradhan Mantri Jan Arogya Yojana (PM-JAY)**, launched under **Ayushman Bharat**, is the world's largest government-funded health insurance scheme. It provides health coverage of up to Rs. 5 lakh per family per year for secondary and tertiary care hospitalization to economically vulnerable sections. The scheme is based on a cashless and paperless system, enabling beneficiaries to access services at empanelled public and private hospitals across India.
- ❖ PM-JAY aims to reduce out-of-pocket expenditure on healthcare, which is a major cause of poverty in India. By covering hospitalization costs, it ensures financial protection and improves access to quality healthcare. The scheme also promotes portability, allowing beneficiaries to avail treatment anywhere in the country.



- ❖ In addition, PM-JAY encourages private sector participation and strengthens healthcare infrastructure. It also supports data-driven policy decisions through digital health records. However, challenges such as awareness gaps, uneven hospital distribution, and fraud control remain. Overall, PM-JAY is a significant step towards achieving **Universal Health Coverage (UHC)** in India.

2. Anti-Dumping Probe into Ethyl Chloroformate

- ❖ An **anti-dumping probe into Ethyl Chloroformate** has been initiated to examine whether the chemical is being imported into India at unfairly low prices, harming domestic manufacturers. Dumping occurs when foreign producers export goods at prices lower than their normal value, often to capture market share.
- ❖ Ethyl Chloroformate is used in pharmaceuticals, agrochemicals, and chemical synthesis. If dumping is proven, it can lead to financial losses for domestic industries, job losses, and reduced competitiveness. The Directorate General of Trade Remedies (DGTR) conducts such investigations to ensure fair trade practices.
- ❖ If the probe confirms dumping, the government may impose anti-dumping duties to protect local producers. These measures are consistent with World Trade Organization (WTO) rules. The investigation reflects India's efforts to balance free trade with domestic industry protection and maintain a level playing field in international trade.

3. Model Code of Conduct (MCC)

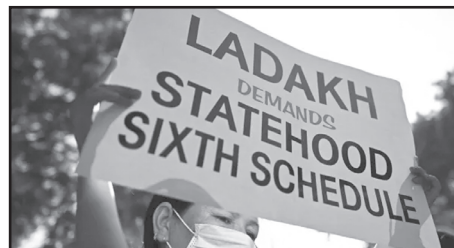
- ❖ The **Model Code of Conduct (MCC)** is a set of guidelines issued by the Election Commission of India to regulate political parties and candidates during elections. It comes into effect from the date of election announcement and remains in force until the completion of the electoral process.
- ❖ The MCC ensures free and fair elections by restricting misuse of government machinery, preventing hate speech, and promoting ethical campaigning. It prohibits announcements of new policies, schemes, or projects that may influence voters. It also regulates campaign conduct, including use of public spaces and media.
- ❖ Although not legally enforceable, the MCC carries moral authority, and violations can lead to censure or legal action under other laws. It plays a crucial role in maintaining electoral integrity and public confidence in the democratic process.

4. National Vaccination Day and Universal Immunisation Programme (UIP)

- ❖ **National Vaccination Day**, observed on 16 March, marks the launch of India's **Pulse Polio Immunisation Programme** in 1995. It highlights the importance of vaccination in preventing diseases and promoting public health.
- ❖ The **Universal Immunisation Programme (UIP)** is one of the world's largest vaccination initiatives, providing free vaccines against several life-threatening diseases such as polio, measles, diphtheria, and tuberculosis. It targets infants, children, and pregnant women.
- ❖ UIP has significantly reduced disease burden and improved child survival rates in India. However, challenges such as vaccine hesitancy, logistical issues, and regional disparities remain. Continued awareness and infrastructure strengthening are essential to ensure universal coverage and sustain public health gains.

5. Statehood and Sixth Schedule Demand in Ladakh

- ❖ The demand for **statehood and inclusion under the Sixth Schedule** in Ladakh has gained momentum after it became a Union Territory in 2019. The Sixth Schedule of the Constitution provides autonomous administrative powers to tribal areas in certain northeastern states.
- ❖ Supporters argue that such provisions are necessary to protect Ladakh's unique cultural identity, environment, and land rights. They also seek greater political representation and decision-making powers.
- ❖ The issue raises questions about balancing local autonomy with national administrative priorities. It also reflects broader concerns of regional identity and governance in newly reorganized territories. The government must carefully address these demands to ensure inclusive development and stability.



6. Kisan Credit Card (KCC) Scheme

- ❖ The **Kisan Credit Card (KCC) Scheme** provides farmers with timely access to short-term credit for agricultural needs such as seeds, fertilizers, and equipment. It aims to reduce dependence on informal moneylenders and promote financial inclusion.
- ❖ KCC offers flexible repayment options and interest subsidies, making credit more affordable. The scheme has been expanded to include allied activities like fisheries and animal husbandry.
- ❖ By ensuring easy credit access, KCC supports agricultural productivity and rural livelihoods. However, challenges include limited awareness, access issues for small farmers, and repayment risks. Strengthening the scheme is crucial for sustainable agricultural growth.

7. Passive Euthanasia in Harish Rana Case

- ❖ The Supreme Court's decision allowing **passive euthanasia** in the Harish Rana case marks an important development in the right to die with dignity. Passive euthanasia involves withdrawing or withholding life-sustaining treatment for terminally ill patients.
- ❖ The Court reaffirmed that such decisions must follow strict safeguards, including medical evaluation and consent procedures. It also emphasized the role of advance directives or "living wills."
- ❖ The judgment balances ethical considerations, patient autonomy, and legal safeguards. It reflects evolving jurisprudence on personal liberty and dignity under Article 21 of the Constitution. However, the issue remains sensitive and requires careful implementation.

8. Grid Bottlenecks in Renewable Energy Expansion

- ❖ India's rapid expansion of renewable energy faces challenges due to **grid bottlenecks**, including inadequate transmission infrastructure and integration issues. Renewable sources like solar and wind are intermittent, requiring flexible and robust grid systems.
- ❖ Delays in transmission projects and lack of storage capacity can lead to power curtailment and inefficiencies. These bottlenecks hinder India's goal of achieving ambitious renewable energy targets.
- ❖ Addressing these issues requires investment in grid modernization, energy storage, and smart technologies. Strengthening grid infrastructure is essential for ensuring reliable and sustainable energy supply.

9. Removal of the Chief Election Commissioner (CEC)

- ❖ The **Chief Election Commissioner (CEC)** can be removed only through a process similar to that of a Supreme Court judge, ensuring independence of the Election Commission. The removal requires a parliamentary process based on proven misbehavior or incapacity.
- ❖ This safeguard prevents arbitrary removal and protects the integrity of the electoral system. Other Election Commissioners can be removed on the recommendation of the CEC.
- ❖ The provision reflects the importance of an independent electoral body in a Lok Tantrik system. It ensures that elections are conducted fairly without political interference.

10. Governor and Lieutenant Governor Appointment in India

- ❖ Governors and Lieutenant Governors (LGs) are appointed by the President under Articles 155 and 239 of the Constitution. They act as representatives of the Union in states and Union Territories.
- ❖ Their role includes constitutional functions such as appointing the Chief Minister, ensuring governance according to the Constitution, and acting in special circumstances. However, their discretionary powers often lead to debates on federalism.
- ❖ The appointment process has been criticized for lack of transparency and political influence. Strengthening conventions and clarity in roles is essential to maintain cooperative federalism.

11. Centre Pauses Rice Fortification

- ❖ The government's decision to pause **rice fortification** under welfare schemes reflects concerns about implementation and health implications. Fortification involves adding micronutrients like iron and vitamins to address malnutrition.
- ❖ While it aims to improve public health, experts have raised questions about effectiveness and safety in certain populations. The pause allows for further review and evaluation.
- ❖ The decision highlights the importance of evidence-based policymaking in nutrition interventions and balancing benefits with potential risks.



12. India's Digital Transformation and Growth Story

- ❖ India's digital transformation has been driven by initiatives like **Digital India**, UPI, Aadhaar, and digital public infrastructure. These have improved governance, financial inclusion, and service delivery.
- ❖ Digitalization has boosted economic growth, innovation, and entrepreneurship. It has also enabled efficient welfare distribution and transparency.
- ❖ However, challenges such as digital divide, cybersecurity, and data privacy remain. Addressing these issues is crucial for inclusive and sustainable digital growth.

13. Bulldozer Justice

- ❖ "**Bulldozer justice**" refers to the practice of demolishing properties of accused individuals without due legal process. It has raised concerns about violation of constitutional rights and rule of law.

- ❖ Critics argue that such actions undermine judicial procedures and principles of natural justice. Supporters claim it acts as a deterrent against crime.
- ❖ The issue highlights the need to balance law enforcement with legal safeguards and uphold constitutional values.

14. Industrial Corridors and NICDP

- ❖ **Industrial corridors** and the **National Industrial Corridor Development Programme (NICDP)** aim to develop world-class infrastructure and promote manufacturing. These corridors integrate transport, logistics, and industrial hubs.
- ❖ They attract investment, generate employment, and boost economic growth. Examples include the Delhi-Mumbai Industrial Corridor.
- ❖ Challenges include land acquisition, environmental concerns, and coordination among agencies. Effective implementation is key to achieving industrial development goals.



15. Reforming Tribunals in India

- ❖ Reforming tribunals aims to improve efficiency, independence, and accessibility of quasi-judicial bodies. Tribunals handle specialized disputes such as taxation, environment, and corporate matters.
- ❖ Issues include delays, vacancies, and executive interference. Reforms focus on transparent appointments, better infrastructure, and streamlined procedures.
- ❖ Strengthening tribunals is essential for reducing burden on courts and ensuring speedy justice.

GEOGRAPHY AND ENVIRONMENT

1. Total Lunar Eclipse Visible Across India

- ❖ A **total lunar eclipse** occurs when the Earth comes directly between the Sun and the Moon, casting its shadow on the Moon. During this event, the Moon often appears reddish, a phenomenon known as the “Blood Moon,” due to scattering of sunlight through Earth’s atmosphere. Recently, a total lunar eclipse was visible across India, offering a rare astronomical opportunity for observation.
- ❖ Such eclipses are significant for both scientific and cultural reasons. Scientifically, they help astronomers study Earth’s atmosphere and lunar surface characteristics. Unlike solar eclipses, lunar eclipses are safe to observe with the naked eye.
- ❖ In India, eclipses are also associated with traditional beliefs and rituals. However, from a scientific perspective, they are natural celestial events with no harmful effects. Public awareness programs during such events help promote scientific temper. Overall, lunar eclipses provide a valuable opportunity to engage people with astronomy and space science.

2. Nor'wester Storms in Odisha

- ❖ **Nor'wester storms**, also known as “Kalbaisakhi,” are pre-monsoon thunderstorms common in eastern India, especially Odisha, West Bengal, and Assam. These storms are characterized by strong winds, heavy rainfall, lightning, and sometimes hailstorms.
- ❖ Recently, Nor'wester storms caused deaths and property damage in Odisha. Such extreme weather events are often linked to rising temperatures and atmospheric instability during the pre-monsoon season.
- ❖ These storms can damage crops, infrastructure, and homes, affecting livelihoods, especially in rural areas. Early warning systems and disaster preparedness are crucial in reducing their impact.
- ❖ With climate change, the intensity and frequency of such extreme events may increase. Strengthening resilience, improving forecasting, and raising awareness are essential to minimize losses.



3. Rollback of Earthquake Zoning Map Revision

- ❖ The government recently **rolled back the proposed revision of India's earthquake zoning map**, which classifies regions based on seismic risk. The revision had suggested significant changes in seismic zones, potentially affecting construction norms and insurance costs.
- ❖ Concerns were raised regarding the methodology, data accuracy, and possible economic implications. A change in zoning could impact infrastructure planning, real estate, and disaster preparedness strategies.
- ❖ The rollback indicates the need for a more comprehensive and scientifically validated approach before implementing such critical changes. Accurate seismic mapping is essential for building safety, urban planning, and disaster risk reduction.
- ❖ India, being prone to earthquakes in regions like the Himalayas and northeast, requires robust and updated seismic assessments while balancing economic and safety concerns.

4. ICIMOD Report

- ❖ The **International Centre for Integrated Mountain Development (ICIMOD)** report focuses on the Himalayan region, highlighting environmental challenges such as glacier melt, climate change, and biodiversity loss.
- ❖ The report emphasizes that rising temperatures are accelerating glacier retreat, affecting water availability for millions of people dependent on Himalayan rivers. It also warns of increased risks of floods, landslides, and ecosystem degradation.
- ❖ For India, the report is crucial as the Himalayas are vital for water security, agriculture, and ecological balance. It calls for regional cooperation among countries sharing the Himalayan ecosystem.
- ❖ Sustainable development, climate adaptation strategies, and conservation efforts are essential to protect this fragile region. The report underscores the urgency of addressing climate change impacts in mountain ecosystems.

5. Silverpit Crater in the North Sea

- ❖ The **Silverpit Crater**, located beneath the North Sea, is believed to have been formed by a massive asteroid impact millions of years ago. It consists of a central crater surrounded by concentric rings, resembling impact structures seen elsewhere.
- ❖ The study of such craters helps scientists understand Earth's geological history and the role of asteroid impacts in shaping the planet. These impacts can have significant environmental consequences, including climate changes and mass extinctions.
- ❖ Research on the Silverpit Crater also contributes to understanding potential future impact risks and planetary defense strategies. It highlights the importance of monitoring near-Earth objects.
- ❖ Overall, the crater is a valuable geological feature that provides insights into Earth's past and the dynamic processes that have shaped it.

6. Gypsum-rich Rocks in Chile's Salar de Pajonales

- ❖ Scientists are studying **gypsum-rich rocks in Chile's Salar de Pajonales**, a high-altitude desert environment. These rocks are of interest because they may resemble conditions found on Mars.
- ❖ Gypsum can trap and preserve microorganisms, making it important for astrobiology research. Studying such environments helps scientists understand how life might survive in extreme conditions and guides the search for life beyond Earth.
- ❖ The research also provides insights into Earth's own extreme ecosystems and geological processes. It supports space exploration missions by offering analog sites for testing instruments and hypotheses.
- ❖ Overall, these studies bridge Earth science and space research, contributing to our understanding of life in extreme environments

7. Sudden Cooling Event in Greenland

- ❖ Scientists have identified a **sudden cooling event in Greenland**, which appears paradoxical in the context of global warming. This phenomenon is linked to disruptions in ocean circulation systems, particularly the **Atlantic Meridional Overturning Circulation (AMOC)**. As melting ice releases large amounts of freshwater into the North Atlantic, it reduces salinity and weakens heat transport, leading to localized cooling.
- ❖ This cooling has significant implications for global climate patterns. It can alter weather systems, affect monsoon patterns, and disrupt marine ecosystems. While global temperatures are rising overall, such regional cooling events highlight the complexity of climate systems.
- ❖ For policymakers, the event underscores the importance of monitoring polar regions and understanding feedback mechanisms in climate change. Greenland's ice sheet is a critical component of Earth's climate system, and changes there can have far-reaching consequences. Overall, the finding reinforces the urgency of climate mitigation and adaptation strategies.

8. Rediscovery of Two Marsupial Species

- ❖ Researchers have rediscovered two marsupial species that were previously thought to be extinct or extremely rare. Such rediscoveries are significant for biodiversity conservation, as they indicate that some species may still survive in isolated or poorly studied habitats.

- ❖ Marsupials, known for carrying their young in pouches, are important components of their ecosystems. Their rediscovery provides opportunities for conservation efforts, habitat protection, and further scientific research.
- ❖ However, these species often remain at risk due to habitat loss, climate change, and human activities. Conservation strategies must focus on protecting their habitats and minimizing threats. The rediscovery also highlights gaps in biodiversity knowledge and the importance of continued exploration and ecological studies.

9. Convention on Migratory Species (CMS) – Campo Grande

- ❖ The **Convention on the Conservation of Migratory Species (CMS)** meeting held in Campo Grande, Brazil, focused on protecting migratory animals across international borders. CMS aims to conserve species such as birds, marine animals, and terrestrial wildlife that migrate between countries.
- ❖ The convention emphasizes international cooperation, as migratory species depend on multiple habitats along their routes. Key discussions include habitat conservation, reducing human-wildlife conflict, and addressing threats like climate change and pollution.
- ❖ For India, CMS is important due to its role as a habitat for many migratory species. Participation in such global agreements strengthens conservation efforts and promotes sustainable biodiversity management.

10. Standing Authority on Environment Impact Assessment (SAEIA)

- ❖ The proposed **Standing Authority on Environment Impact Assessment (SAEIA)** aims to streamline the environmental clearance process in India. It is intended to replace or complement existing mechanisms for evaluating environmental impacts of projects.
- ❖ The authority would focus on faster decision-making, reducing delays, and improving efficiency. However, concerns have been raised about transparency, accountability, and the potential weakening of environmental safeguards.
- ❖ Balancing development with environmental protection is a key challenge. A robust and independent assessment system is essential to ensure sustainable development and prevent ecological degradation.

11. World Air Quality Report 2025 (IQAir)

- ❖ The **World Air Quality Report 2025 by IQAir** highlights global trends in air pollution, with several Indian cities ranking among the most polluted. The report measures particulate matter (PM_{2.5}), which poses serious health risks.
- ❖ Air pollution is linked to respiratory diseases, cardiovascular problems, and reduced life expectancy. The report emphasizes the need for stricter emission controls, cleaner energy, and improved urban planning.
- ❖ For India, addressing air pollution requires coordinated efforts across sectors, including transportation, industry, and agriculture. Public awareness and policy interventions are crucial for improving air quality and protecting public health.



12. Lakes Mai Ndombe and Tumba (DRC)

- ❖ **Lakes Mai Ndombe and Tumba** in the Democratic Republic of the Congo are important ecological zones within the Congo Basin. They support rich biodiversity and are vital for local livelihoods.
- ❖ These lakes play a role in regulating regional climate and carbon cycles. However, they face threats from deforestation, pollution, and climate change.
- ❖ Conservation of these ecosystems is essential for maintaining biodiversity and supporting sustainable development. International cooperation and local community involvement are key to protecting such critical habitats.

13. Project HANUMAN – Andhra Pradesh

- ❖ **Project HANUMAN** launched by Andhra Pradesh aims to use advanced technologies like drones and artificial intelligence for forest monitoring and wildlife conservation. The project focuses on improving surveillance, preventing illegal activities, and enhancing biodiversity protection.
- ❖ It represents a modern approach to environmental management, integrating technology with conservation efforts. The initiative can help in early detection of forest fires, tracking wildlife, and improving decision-making.
- ❖ Such projects highlight the role of innovation in addressing environmental challenges and promoting sustainable resource management.

14. Bird Survey in Silent Valley National Park

- ❖ A **comprehensive bird survey in Silent Valley National Park** in Kerala documented rich avian diversity, including endemic and endangered species. Silent Valley is part of the Western Ghats, a biodiversity hotspot.
- ❖ The survey helps in understanding species distribution, population trends, and conservation needs. It also highlights the importance of protected areas in preserving biodiversity.
- ❖ Findings from such surveys support policy decisions and conservation strategies, ensuring long-term ecological balance.

15. WHO Warning on “Black Rain” in Tehran

- ❖ The **WHO warning on “black rain” in Tehran** refers to rainfall contaminated with pollutants, giving it a dark appearance. This phenomenon is linked to severe air pollution and particulate matter in the atmosphere.
- ❖ Black rain can have harmful effects on health, agriculture, and the environment. It reflects the severity of pollution levels in urban areas.
- ❖ The warning underscores the need for stricter pollution control measures and sustainable urban planning to prevent such environmental hazards.

16. Rising Honey Bee Attack Incidents in India

- ❖ India has seen a rise in **honey bee attack incidents**, which may be linked to environmental stress, habitat disturbance, and climate change. Bees play a crucial role in pollination and ecosystem balance.

- ❖ Disturbances in their habitats can make them more aggressive. These incidents highlight the need for better awareness and management strategies to coexist with wildlife.
- ❖ Protecting bee populations is essential for agriculture and biodiversity, as they are key pollinators.

17. New Fish Species – Gitchak Nakana

- ❖ The discovery of a new fish species, **Gitchak Nakana**, adds to India's biodiversity records. Such discoveries are important for understanding aquatic ecosystems and species diversity.
- ❖ New species identification helps in conservation planning and ecological research. It also highlights the richness of unexplored habitats.
- ❖ Protecting aquatic ecosystems is crucial to ensure survival of such species and maintain ecological balance.

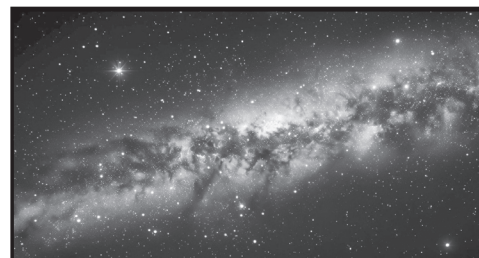
18. Japanese Macaque

- ❖ The **Japanese macaque**, also known as the snow monkey, is a primate species native to Japan. It is known for its adaptability to cold climates and unique behavior of bathing in hot springs.
- ❖ The species is an important subject for behavioral and ecological studies. It also plays a role in its ecosystem.
- ❖ Conservation efforts are needed to protect its habitat and ensure its survival, especially in the face of environmental changes.

SCIENCE & TECHNOLOGY

1. Magnetic Skeleton Mapping of Small Molecular Clouds

- ❖ Scientists have mapped the “**magnetic skeleton**” of **small molecular clouds**, revealing how magnetic fields influence star formation. Molecular clouds are dense regions of gas and dust where stars are born. The study shows that magnetic fields act like a framework, guiding the movement of matter and regulating gravitational collapse.



- ❖ Understanding this structure is crucial because star formation is not driven by gravity alone; magnetic forces also play a key role. The mapping was achieved using advanced observational techniques that detect polarization of light, helping scientists trace magnetic field lines.
- ❖ This discovery improves our understanding of how stars and planetary systems form and evolve. It also contributes to broader astrophysical research, including galaxy formation. Overall, the finding highlights the importance of magnetic fields in shaping cosmic structures.

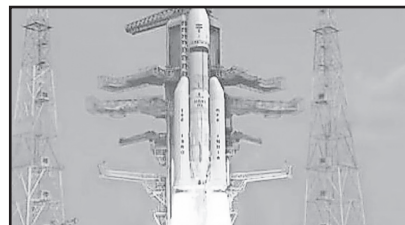
2. Atomic Clock in IRNSS/NavIC Satellite

- ❖ An **atomic clock onboard India's IRNSS/NavIC satellite** ensures precise timing for navigation and positioning services. Atomic clocks use vibrations of atoms, such as rubidium or cesium, to measure time with extreme accuracy.

- ❖ NavIC (Navigation with Indian Constellation) is India's regional satellite navigation system, providing accurate location data for civilian and military use. The atomic clock is critical because even a tiny error in time measurement can lead to large errors in positioning.
- ❖ Developing indigenous atomic clock technology enhances India's strategic autonomy and reduces dependence on foreign systems like GPS. It also improves reliability for applications such as disaster management, transportation, and telecommunications.

3. ISRO Missions: Gaganyaan and Reusable Launch Vehicle

- ❖ India's space program is advancing with missions like **Gaganyaan** and reusable launch vehicle (RLV) experiments by ISRO. Gaganyaan aims to send Indian astronauts into space, marking a major milestone in human spaceflight.
- ❖ The RLV program focuses on developing reusable rockets to reduce launch costs and increase efficiency. Reusability is a key trend in modern space exploration.
- ❖ These initiatives strengthen India's capabilities in space technology, enhance scientific research, and boost global competitiveness. They also inspire innovation and interest in STEM fields.



4. Discovery of Xi-cc-plus Particle at LHC

- ❖ The **Large Hadron Collider (LHC)** has discovered a new particle called **Xi-cc-plus**, a type of doubly charmed baryon. Such particles help scientists understand the fundamental building blocks of matter and the strong nuclear force.
- ❖ The discovery provides insights into how quarks combine to form particles. It also tests predictions of quantum chromodynamics (QCD), the theory describing strong interactions.
- ❖ This finding contributes to high-energy physics research and enhances our understanding of the universe at the smallest scales.

5. Thorium-based Nuclear Power in India

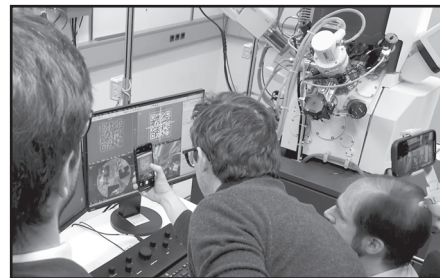
- ❖ India is exploring **thorium-based nuclear power** as an alternative to uranium. Thorium is more abundant in India, especially along coastal regions.
- ❖ Thorium reactors can provide safer and more sustainable energy, with lower radioactive waste. India's three-stage nuclear program aims to utilize thorium in advanced reactors.
- ❖ This approach supports energy security, reduces dependence on imports, and aligns with clean energy goals. However, technological challenges remain in developing efficient thorium reactors.

6. High-Energy Proton Accelerator in Visakhapatnam

- ❖ A **high-energy proton accelerator** is planned in Visakhapatnam, Andhra Pradesh, to support advanced scientific research. Such accelerators are used in particle physics, medical research, and materials science.
- ❖ The facility will enhance India's research capabilities and contribute to innovation in fields like cancer treatment and nuclear science. It also promotes collaboration with global scientific institutions.
- ❖ This initiative reflects India's commitment to strengthening its scientific infrastructure.

7. ARFID (Avoidant/Restrictive Food Intake Disorder)

- ❖ **ARFID** is an eating disorder characterized by limited food intake due to sensory issues, fear, or lack of interest in eating. Unlike other disorders, it is not linked to body image concerns.
- ❖ The condition is gaining attention in India, especially among children and adolescents. It can lead to nutritional deficiencies and health problems.
- ❖ Early diagnosis and intervention are important. Awareness among parents and healthcare providers is essential for effective management.



8. World's Smallest QR Code by TU Wien

- ❖ Researchers at **TU Wien (Austria)** created the world's smallest QR code using nanotechnology. The code is so small that it can only be read using specialized microscopes.
- ❖ This innovation demonstrates advances in miniaturization and nanotechnology. It has potential applications in data storage, security, and tracking systems.
- ❖ Such developments highlight the growing role of nanoscience in modern technology.

9. Nucleic Acid Test (NAT) in Blood Banks

- ❖ The **Nucleic Acid Test (NAT)** is a screening method used in blood banks to detect infections like HIV, hepatitis B, and hepatitis C at an early stage.
- ❖ Making NAT mandatory can improve blood safety by identifying infections during the “window period” when other tests may fail.
- ❖ Although NAT is more expensive, it significantly reduces the risk of transfusion-transmitted infections. It is an important step toward ensuring safe blood supply.

10. Artificial Amino Acids in Bacteria

- ❖ Scientists have developed methods to introduce **artificial amino acids into bacteria**, expanding the genetic code beyond natural limits.
- ❖ This allows the creation of proteins with new properties, useful in medicine, biotechnology, and industrial applications.
- ❖ The technique opens possibilities for designing novel drugs, enzymes, and materials. It represents a major advancement in synthetic biology.

11. Rising Burden of Shingles

- ❖ A survey highlights the growing burden of **shingles (herpes zoster)**, a viral infection caused by reactivation of the chickenpox virus. It mainly affects older adults and those with weakened immunity.
- ❖ Shingles can cause severe pain and complications. Vaccination and early treatment are important for prevention and management.
- ❖ The rising cases indicate the need for awareness, vaccination programs, and better healthcare access.

12. Meningococcal Infection Advisory in Meghalaya

- ❖ Meghalaya issued a health advisory after suspected cases of **meningococcal infection**, a serious bacterial disease affecting the brain and spinal cord.
- ❖ The infection spreads through respiratory droplets and can lead to meningitis. Early detection and treatment are crucial to prevent outbreaks.
- ❖ Public health measures include awareness campaigns, hygiene practices, and vaccination where necessary.

ETHICS

Introduction to Hive Ethics (AI Ethics)

Hive Ethics (AI Ethics)

Introduction

- ❖ **Hive Ethics**, also understood in the context of **Artificial Intelligence (AI) Ethics**, refers to the moral principles and frameworks that guide the design, development, and deployment of AI systems. The term “hive” symbolizes interconnected systems, collective intelligence, and networked decision-making, much like a hive of bees. In today’s digital age, AI systems operate in interconnected environments influencing governance, economy, healthcare, and society. Therefore, ensuring ethical behavior in such systems is crucial to protect human values, rights, and dignity.

Need for AI (Hive) Ethics

The rapid growth of AI has raised several ethical concerns:

- ❖ **Bias and Discrimination:** AI systems trained on biased data may reinforce inequalities (e.g., hiring algorithms favoring certain groups).
- ❖ **Privacy Concerns:** AI relies on large datasets, often involving personal information.
- ❖ **Accountability Issues:** It is difficult to assign responsibility when AI systems make harmful decisions.
- ❖ **Autonomy vs Control:** Increasing automation may reduce human control over decisions.
- ❖ **Misinformation and Manipulation:** AI can generate fake content (deepfakes), influencing public opinion.

Thus, AI ethics is essential to ensure technology serves humanity rather than harming it.

Core Principles of Hive Ethics

1. Fairness and Non-Discrimination

- ❖ AI systems must avoid biases based on race, gender, caste, or socioeconomic status. Ethical AI ensures equal opportunity and justice.

2. Transparency and Explainability

- ❖ AI decisions should be understandable. “Black-box” algorithms must be made explainable so users can trust outcomes.

3. Accountability

- ❖ Developers, companies, and governments must be accountable for AI outcomes. Clear legal frameworks are required.

4. Privacy and Data Protection

- ❖ Personal data used in AI must be protected. Consent and data minimization are key principles.

5. Human Oversight

- ❖ AI should augment human intelligence, not replace human judgment in critical areas like healthcare and law.

6. Safety and Security

- ❖ AI systems must be robust and protected against misuse, hacking, or unintended consequences.

Applications and Ethical Concerns

1. Healthcare

- ❖ AI improves diagnosis and treatment but raises concerns about data privacy and algorithmic bias.

2. Governance

- ❖ AI can enhance service delivery but may lead to surveillance and loss of civil liberties.

3. Economy and Jobs

- ❖ Automation increases efficiency but may lead to job displacement and inequality.

4. Military Use

- ❖ Autonomous weapons raise serious ethical questions about accountability and human control.

Global and Indian Initiatives

Global Efforts

- ❖ **OECD AI Principles:** Promote responsible AI use.
- ❖ **UNESCO AI Ethics Framework:** Focus on human rights and inclusivity.
- ❖ **EU AI Act:** Regulates high-risk AI applications.

Indian Initiatives

- ❖ **NITI Aayog's AI Strategy (AI for All):** Focus on inclusive growth.
- ❖ **Digital Personal Data Protection Act:** Protects individual data.
- ❖ **Responsible AI Guidelines:** Promote ethical AI development.

India emphasizes **inclusive and development-oriented AI**, aligning with its socio-economic context.

Challenges in Implementing AI Ethics

- ❖ **Lack of Global Consensus:** Different countries have different priorities.
- ❖ **Technological Complexity:** AI systems are difficult to regulate.
- ❖ **Rapid Innovation vs Regulation:** Laws often lag behind technology.

❖ **Data Inequality:** Limited access to quality data in developing countries.

❖ **Corporate Dominance:** Big tech companies control AI development.

Way Forward

1. Strong Regulatory Frameworks

❖ Governments must create clear laws ensuring ethical AI use.

2. Ethical AI Design

❖ Ethics should be integrated at the design stage (“ethics by design”).

3. Public Awareness and Education

❖ Citizens should understand AI risks and benefits.

4. Global Cooperation

❖ International collaboration is needed for standard-setting.

5. Inclusive Development

❖ AI should benefit all sections of society, especially marginalized groups.

6. Human-Centric Approach

❖ AI must remain a tool for human welfare, not control.

Conclusion

❖ Hive Ethics, or AI ethics, is essential in ensuring that technological advancement aligns with human values and societal well-being. As AI systems become more powerful and integrated into daily life, ethical considerations must guide their development and use. A balance between innovation and regulation is crucial to harness AI’s benefits while minimizing risks. Ultimately, ethical AI is not just a technical requirement but a moral necessity for building a just, inclusive, and sustainable future.

MISCELLANEOUS EVENTS

1. Surrender of the Last Armed Maoist in Munger, Bihar

❖ The surrender of the last armed Maoist in Munger marks a significant decline in left-wing extremism in Bihar. It reflects effective counter-insurgency measures, development initiatives, and rehabilitation policies. This milestone indicates improved law and order and progress toward long-term peace and integration of former insurgents into society.

2. India’s Participation in Sixth-Generation Fighter Aircraft Programmes

❖ India is exploring participation in sixth-generation fighter programmes to enhance its air power capabilities. These advanced aircraft will feature AI integration, stealth, hypersonic weapons, and network-centric warfare. Participation can boost indigenous defence technology, strengthen strategic partnerships, and reduce dependence on foreign military imports.

3. Global Terrorism Index 2026

- ❖ The Global Terrorism Index 2026 assesses the impact of terrorism across countries based on incidents, deaths, and economic costs. It highlights trends, regional patterns, and emerging threats. The index helps policymakers understand security challenges and design counter-terrorism strategies while tracking global and national progress.

4. Legacy Thrust Territories (LTTs)

- ❖ Legacy Thrust Territories (LTTs) refer to regions previously affected by insurgency or underdevelopment that require focused government attention. These areas receive targeted development, security measures, and welfare schemes to address historical neglect, promote stability, and integrate them into mainstream economic and social progress.

5. Operation Sankalp and Indian Navy Deployment

- ❖ Operation Sankalp is an Indian Navy mission to ensure maritime security in the Persian Gulf and surrounding regions. Warships remain on standby to protect Indian shipping and energy supplies. The operation highlights India's commitment to safeguarding sea lanes and responding to geopolitical tensions.

6. ALH Mk-III and Shtil Missile System

- ❖ The ALH Mk-III helicopter, used by the Indian Coast Guard, supports search and rescue and maritime surveillance. The Shtil missile system, deployed by the Indian Navy, provides air defence against aerial threats. Together, they strengthen India's maritime security and defence preparedness.