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FOR UPSC CIVIL SERVICE EXAMINATION

JANUARY 2026

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National Youth Day

Context: National Youth Day is observed every year on 12 January to mark the birth anniversary of Swami Vivekananda and to inspire youth through his teachings.

About Swami Vivekananda (1863–1902)

Early Life
- Born as Narendranath Datta on 12 January 1863 in Kolkata.
- Known for his deep spiritual curiosity and search for direct experience of God.
- Took the name Vivekananda in 1893 at the suggestion of the Maharaja of Khetri.
- Emphasized physical strength, mental discipline, and character-building for personal and national progress.

Spiritual Mission
- Became a monk to serve humanity, guided by the idea: self-realization and welfare of the world.
- After his guru Ramakrishna Paramahansa's death, he established the Ramakrishna Order, later forming the Ramakrishna Mission.
- Inspired youth with the message: "Arise, awake, and stop not till the goal is reached."

Philosophy & Contributions
- Popularized Vedanta and Yoga in a modern and practical way.
- Promoted religious harmony and universal spirituality.
- Explained four spiritual paths:
    - Karma Yoga – selfless service
    - Bhakti Yoga – devotion
    - Jnana Yoga – knowledge and inquiry
    - Raja Yoga – meditation and mind control
- Encouraged blending ancient wisdom with scientific thinking.

Global Recognition
- Gained worldwide fame after his speech at the World Parliament of Religions, Chicago (1893).
- Spread Indian spirituality and ethics in Europe and America.

Major Works
- Raja Yoga, Karma Yoga, Jnana Yoga
- Lectures from Colombo to Almora
- Practical interpretation of the Bhagavad Gita.

Institutions Established
- Ramakrishna Mission (1897) – social service, education, healthcare.
- Belur Math (1899) – headquarters near Kolkata.
- Advaita Ashrama and Vedanta Societies worldwide promote Vedanta teachings.

Modern Relevance
- National Youth Day highlights his vision for confident, disciplined, and socially responsible youth.
- His ideas support nation-building, unity in diversity, and service to society.

Death
- Swami Vivekananda passed away in 1902 at Belur Math, West Bengal.

Somnath Swabhiman Parv (1026–2026)

Context: The Prime Minister recently marked 1000 years since the first attack on Somnath (1026 AD) as Somnath Swabhiman Parv.

About Somnath Swabhiman Parv
- Commemorates a millennium since the first invasion of Somnath Temple.
- Celebrates India's cultural resilience, faith, and civilisational pride.
- Somnath stands as a symbol of enduring religious faith despite repeated destruction.

About Somnath Temple
- Located at Prabhas Patan near Veraval, Gujarat, on the Arabian Sea coast.
- Dedicated to Lord Shiva.
- Houses the first of the 12 Jyotirlingas, making it a major Hindu pilgrimage site.
- Located near the Triveni Sangam of Kapila, Hiran, and Saraswati rivers, adding to its spiritual importance.

Architecture
- Built in the Māru-Gurjara architectural style.
- Features curvilinear shikhara, carved pillars, mandapas, and elevated platforms with intricate designs.

Historical Timeline
- The original temple is believed to have existed over 2000 years ago.
- The temple was repeatedly destroyed during invasions, beginning with Mahmud of Ghazni in 1026, followed by later attacks including those during the Delhi Sultanate and Aurangzeb's period, making it a symbol of resilience.

Reconstruction Phases
- 649 AD: Rebuilt by the Maitraka rulers of Vallabhi.
- 815 AD: Reconstructed by Gurjara-Pratihara ruler Nagabhata II using sandstone.
- 11th century: Rebuilt during the reign of Solanki ruler Bhima I with support from regional kings.
- 1782: A smaller temple was built by Queen Ahilyabai Holkar.
- 1951: After Independence, the present temple was rebuilt in traditional style at the original site.

Thiruvalluvar

Context: The Prime Minister paid tribute to Tamil poet-philosopher Thiruvalluvar on Thiruvalluvar Day.

Life and Background
- Thiruvalluvar was a renowned Tamil poet and philosopher, regarded as a cultural icon of Tamil civilisation.
- Also known as Valluvar, he is traditionally associated with the Valluva community, known historically for social and cultural roles.
- According to tradition, he was born to Bhagavan and Adi, though details vary across historical accounts.

Period and Birthplace
- His birth is traditionally linked to Madurai, though sources differ.
- Scholars place his period between 4th century BCE and 6th century CE.
- In 1935, the Tamil Nadu government officially recognised 31 BCE as his birth year.

Key Contribution
- Author of the Tirukkural, one of Tamil literature's greatest works.
- The text contains couplets covering ethics, governance, economy, and love, and is widely respected for its universal moral teachings.
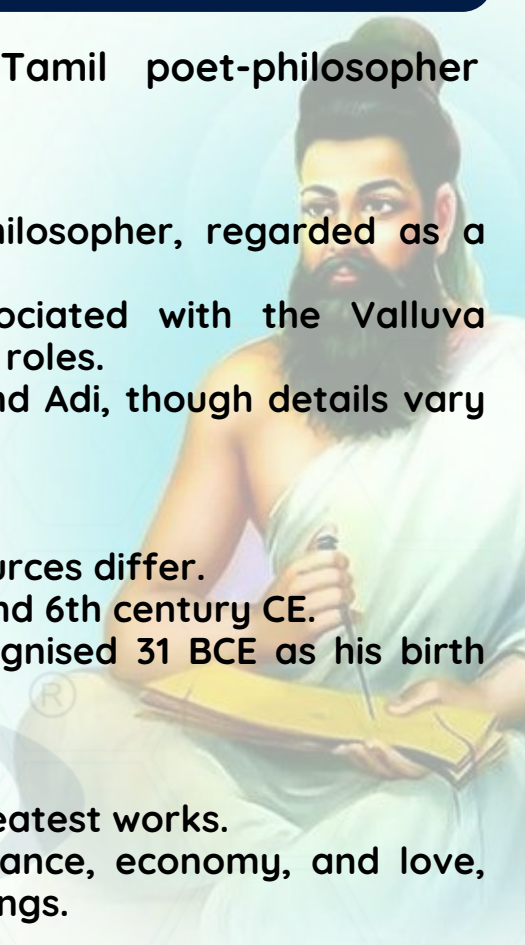
Kathputli Puppetry

Context: In Jaipur's Kathputli Nagar, around 250 traditional families continue the centuries-old art of Kathputli puppetry.

Puppetry in India
- Puppetry is one of India's oldest storytelling traditions, combining art, music, drama, and sculpture.
- Kathputli puppetry is believed to be over 1,000 years old, traditionally performed by Bhat and Nat communities in villages, fairs, and royal courts.
- Archaeological finds at Harappa and Mohenjo-Daro show movable figurines, indicating ancient puppet traditions.
- Literary references appear in Silappadikaram and the Natyashastra, which mentions the Sutradhar (holder of strings).

Types of Puppetry in India
Indian puppetry is broadly divided into:
- String puppets
- Shadow puppets
- Rod puppets
- Glove puppets

Kathputli – String Puppets of Rajasthan
- The term Kathputli comes from Kath (wood) and Putli (doll).
- Major centres include Nagaur, Churu, Sikar, with Kathputli Nagar in Jaipur being the largest hub.

Key Features
- Puppets are carved from a single piece of wood, with large expressive eyes and painted faces.
- Usually lack legs and wear long skirts, creating a floating movement effect.
- Controlled using a simple string loop, unlike complex string systems used elsewhere.

Performance Style
- Puppeteers use a 'Boli' whistle to create distinctive puppet voices.
- Performances are accompanied by Dholak and Harmonium.
- Themes include stories of Rajput heroes, along with social and moral messages.

UGC (Promotion of Equity in Higher Education Institutions) Regulations, 2026

Context: The Supreme Court has kept in abeyance the UGC Equity Regulations, 2026, which aimed to strengthen measures against discrimination in higher education institutions.

Background
- Notified on 13 January 2026, the regulations replace the advisory 2012 framework with a legally enforceable system.
- For the first time, OBC students were explicitly included among groups protected from caste-based discrimination.
- The move followed concerns over discrimination highlighted by cases like Rohith Vemula (2016) and Payal Tadvi (2019).

Supreme Court Observations
- Regulations were termed "too sweeping" with possible social consequences.
- Court questioned whether policies may unintentionally promote social divisions.
- Discrimination can also occur on regional, linguistic, or cultural grounds, not only caste.
- Protection appears limited to SC/ST/OBC, leaving general category students without equal remedy.
- Concern expressed over possible misuse, especially in campus disputes.

Key Features of UGC Equity Regulations, 2026

- Mandatory equity bodies in all institutions, including Equal Opportunity Centres and Equity Committees.
- Vice-Chancellors and institutional heads held accountable for compliance.
- Complaints must be reviewed within 24 hours and resolved within 15 days.
- UGC empowered to impose penalties, including withdrawal of grants and scheme eligibility.
- Equity measures extend beyond admissions to classrooms, hostels, labs, and campus spaces.

Significance

- Shifts focus from mere access to ensuring equality in campus life.
- Linked equity compliance to funding and recognition, making it a regulatory obligation.
- Addresses rising discrimination complaints reported across universities.
- Promotes inclusion of SC, ST, OBC, women, and PwDs in grievance bodies.

Concerns and Challenges

- Critics argue regulations may exclude general category students from protection.
- Questions raised regarding constitutional equality under Article 14.
- Fear of misuse due to unclear definitions and safeguards.
- Implementation may strain smaller institutions lacking resources.
- Regulations have triggered political and social debate.

Suggested Measures

- Conduct regular social audits and improve campus monitoring.
- Promote inclusive curriculum and faculty diversity.
- Introduce faculty sensitisation and mentorship programmes.
- Provide financial and administrative support to institutions.

Way Forward

- Develop clear operational guidelines for fair implementation.
- Ensure grievance mechanisms remain inclusive and transparent.
- Strengthen campus sensitisation and capacity-building.
- Balance equity protection with constitutional principles of equality.

Conclusion: The UGC Equity Regulations, 2026 aim to institutionalise fairness in higher education, but their effectiveness depends on balanced implementation, clarity, and inclusiveness, ensuring both equity and constitutional equality.

Haryana's Improvement in Sex Ratio at Birth

Context: Haryana recorded its best sex ratio at birth in five years, reaching 923 girls per 1,000 boys in 2025.

Key Highlights
- Haryana had one of the lowest sex ratios at birth in Census 2011 (834).
- The ratio improved from 910 in 2024 to 923 in 2025, nearing the national average of 933.
- Districts with highest ratios: Panchkula (971), Fatehabad (961), and Panipat (951).

Initiatives by Haryana Government
- Monitoring of Ultrasound Centres: Strict enforcement under the PCPNDT Act, 1994, with regular inspections and monitoring.
- RCHID System: Introduction of a unique 12-digit ID to track healthcare services for pregnant women.
- Saheli Project (2025): Pregnant women expecting girl children are supported by assigned caregivers called 'Sahelis'.

Sex Ratio Trends in India
- India's sex ratio declined from 972 (1901) to 933 (2001) due to gender discrimination.
- NFHS-5 (2019–21) reported 1,020 females per 1,000 males, indicating improvement in overall gender balance.
- However, sex ratio at birth remains low (929) due to continued sex-selective practices.

State-wise Pattern (Census 2011)
- Highest: Kerala (1084), Puducherry (1037)
- Lowest: Haryana (879), Delhi (868), Chandigarh (818)

Haryana's progress reflects the impact of strong monitoring and targeted welfare initiatives, though sustained efforts remain necessary to achieve gender balance.

A Dangerous March Towards a Himalayan Ecocide

Context: The Himalayan region witnessed over 4,000 deaths in 2025 due to climate-related disasters, raising concerns about an emerging ecological crisis driven by unplanned development, including projects like the Char Dham highway.

What is Ecocide?
- Ecocide refers to large-scale destruction of ecosystems caused by human actions, threatening both nature and human survival.
- The term was coined in 1970 by Arthur Galston during debates on environmental destruction in the Vietnam War.
- It involves long-term or irreversible ecological damage, often due to state or corporate activities.

Why the Himalayas are Vulnerable
- The Himalayas are young and geologically fragile mountains, lying in high seismic zones.
- Rapid warming in the region accelerates glacial melt, floods, landslides, and cloudbursts.
- Deforestation and mining weaken slopes and disturb natural drainage systems.

Human-Induced Triggers
- Aggressive road construction and vertical hill cutting have created hundreds of landslide-prone zones.
- Hydropower tunnelling and urban expansion into riverbeds and floodplains increase disaster risk.
- Infrastructure projects increasingly extend into high-risk zones near the Main Central Thrust (MCT) fault line.

Governance and Social Challenges
- Mass tourism and pilgrimage occur without scientific carrying-capacity assessment.
- Poor coordination between agencies leads to weak monitoring and delayed warnings.
- Mountain communities remain underprepared and vulnerable due to poor infrastructure and services.

Importance of the Himalayas
- Act as India's climate regulator, influencing monsoon patterns.
- Serve as the country's major freshwater source, feeding rivers like the Ganga, Indus, and Brahmaputra.
- Support agriculture in the Indo-Gangetic plains.
- Provide natural defence barriers and are rich in biodiversity and cultural heritage.

Systemic Shortcomings

- Disaster monitoring data is often not used in real time, and alerts lack clear evacuation guidance.
- Infrastructure projects sometimes bypass Environmental Impact Assessments.
- Tourism and construction exceed ecological limits.
- Post-disaster reconstruction often repeats unsafe practices.

Way Forward

- Adopt Himalayan-specific policies under the National Mission for Sustaining the Himalayan Ecosystem.
- Create a unified Himalayan governance body for coordinated planning.
- Enforce carrying-capacity limits on tourism and infrastructure.
- Promote hill-sensitive construction and climate-resilient infrastructure.
- Strengthen real-time early warning systems and community preparedness.
- Encourage nature-based solutions, including forest restoration and eco-friendly tourism.

Conclusion - The Himalayan crisis shows that disasters often result from unsustainable development choices. Sustainable and ecosystem-based governance is essential to protect both people and fragile mountain environments, aligning with global goals on climate action and sustainable communities.

Indian Himalayan Region (IHR)

1. LADAKH	6. WEST BENGAL (Darjeeling)	11. MANIPUR
2. JAMMU & KASHMIR	7. ARUNACHAL PRADESH	12. MIZORAM
3. HIMACHAL PRADESH	8. NAGALAND	13. TRIPURA
4. UTTARAKHAND	9. ASSAM(Karbi Anglong & North Cachar)	
5. SIKKIM	10. MEGHALAYA	
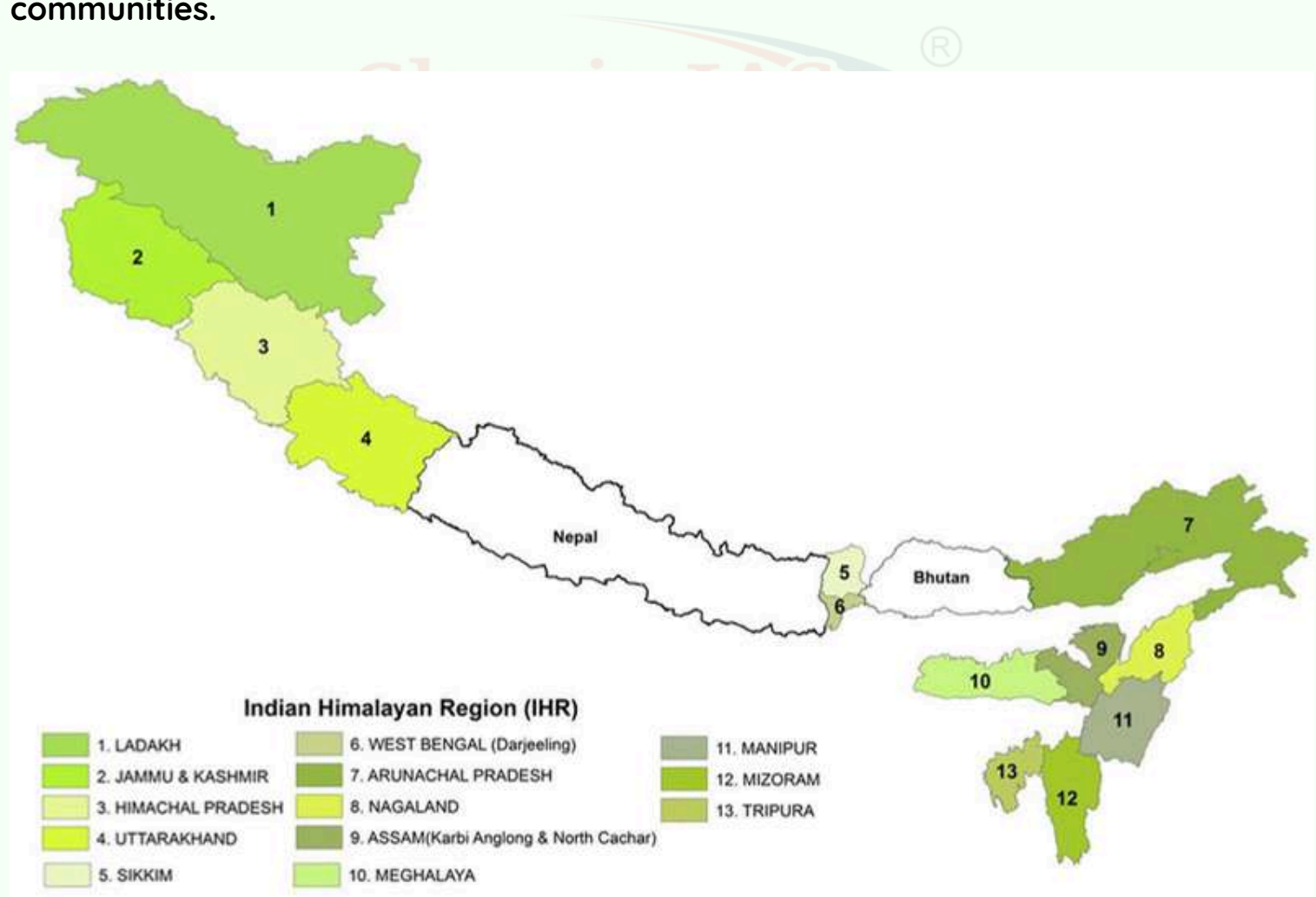
Arctic Thaw

Context: The Arctic Report Card (ARC) 2025, released by the U.S. National Oceanic and Atmospheric Administration (NOAA), highlights rapid environmental changes in the Arctic. The report marks 20 years of annual assessments since 2006.

Key Findings of ARC 2025
- Record Warming: The Arctic recorded its highest surface air temperatures between October 2024 and September 2025 since records began in 1900.
- Sea Ice Decline: March 2025 saw the lowest annual maximum sea-ice extent in satellite records.
- Loss of Thick Ice: Ice older than four years has declined by over 95% since the 1980s, now limited mainly to areas near Greenland and Canada.
- Rising Phytoplankton Growth: Marine productivity increased significantly, especially in the Eurasian Arctic, indicating changing ocean conditions.
- Glacier Loss: Arctic glaciers across Scandinavia, Svalbard, and Alaska are shrinking, contributing to global sea-level rise.
- Greenland Ice Sheet: Lost around 129 billion tonnes of ice in 2025, continuing long-term decline.

About the Arctic Region
- The Arctic surrounds the North Pole and includes parts of Canada, Greenland (Denmark), Finland, Iceland, Norway, Russia, Sweden, and the USA (Alaska).
- The Arctic Ocean is the smallest and shallowest ocean and remains partly ice-covered year-round.
- It has the lowest salinity among oceans due to freshwater inflow and limited water exchange.

India's Arctic Interests
- India became an observer in the Arctic Council in 2013.
- India's Arctic Policy (2022) focuses on research, climate protection, economic cooperation, transport, governance, and capacity building.
- India operates the Himadri research station in Svalbard since 2008 to study Arctic changes and their impact on the Indian monsoon.

The ARC 2025 findings underline the Arctic's rapid warming and its global climate implications, including impacts on weather patterns far beyond the polar region.

Section 17A of the Prevention of Corruption Act, 1988

Context: The Supreme Court delivered a split verdict on the constitutionality of Section 17A of the Prevention of Corruption Act (PCA), 1988, and the issue has now been referred to a larger bench.

What is Section 17A?
- Introduced through the 2018 amendment to the PCA.
- It requires prior government approval before investigating public servants for actions taken during official duties.
- Intended to protect officials from frivolous or motivated complaints.

Significance of Section 17A
- Protects officials from malicious or politically motivated cases.
- Encourages officers to take decisions without fear of investigation.
- Preserves administrative stability and reputation of honest officers.
- Introduces procedural checks before starting investigations.

Key Concerns
- Conflict of interest, as the government decides whether its own officers are investigated.
- Delay in approval can lead to loss of evidence.
- Weakens autonomy of agencies like CBI and Anti-Corruption Bureaus.
- May violate equality by creating a privileged class.
- Could provide cover for corrupt officials.
- Difficult to distinguish official duty from misconduct without preliminary inquiry.

Way Forward
- Transfer approval power to Lokpal/Lokayukta for neutrality.
- Introduce deemed approval if decision is not taken within a fixed period.
- Clearly define what constitutes official duty.
- Allow limited preliminary inquiry before approval.
- Restrict protection mainly to high-level policy decisions.

Divergent Views in the Supreme Court

Justice B.V. Nagarathna (Against Section 17A)
- Violates Article 14 (Equality before law) by giving special protection to officials.
- Government control over approvals may shield corrupt officials and hinder investigations.

Justice K.V. Viswanathan (In Favour, with Changes)
- Protection is necessary to prevent policy paralysis and harassment of honest officers.
- Suggested approval authority be shifted to an independent body like Lokpal/Lokayukta instead of the government.

Conclusion: The debate reflects the challenge of balancing administrative protection and anti-corruption accountability. Future reforms must ensure that safeguards protect honest officials without granting immunity to the corrupt.

Romeo-Juliet Clause in POCSO

Context: The Supreme Court urged the Union Government to consider introducing a "Romeo–Juliet clause" in the POCSO Act, while hearing a case related to bail granted by the Allahabad High Court due to inconsistencies in the victim's age records.

What is the Romeo–Juliet Clause?
- Originated in the United States and parts of Europe.
- Provides a legal exemption for consensual relationships between adolescents close in age, without reducing the age of consent.
- Aims to prevent criminalisation of consensual teenage relationships while maintaining strong child-protection laws.
- It does not legalise sexual offences against minors, but offers a limited close-in-age exception.

Age of Consent in India
- The age of consent is 18 years, as provided under POCSO Act, IPC, and Bharatiya Nyaya Sanhita (BNS), 2023.
- Anyone below 18 is legally considered incapable of consenting to sexual activity.

Key Trends
- NFHS-4 data shows about 39% of girls reported first sexual experience before 18, reflecting social realities.
- Studies suggest nearly 25% of POCSO cases involve consensual adolescent relationships, not abuse.

Current Legal Position
- Under POCSO, IPC, and BNS, any sexual act involving a person below 18 attracts strict punishment, even if consensual.
- Laws related to child protection and child marriage also impose severe penalties in such cases.

About POCSO Act, 2012
- Enacted to protect children from sexual abuse, harassment, and pornography.
- Defines a child as anyone below 18 years.
- Treats offences as strict liability, making consent irrelevant.
- Provides child-friendly legal procedures, including special courts and in-camera trials.
- Places burden of proof on the accused.
- Law is gender-neutral, protecting all children.

Governor's Customary Address

Context: Tamil Nadu Governor R.N. Ravi declined to deliver the customary address in the Assembly, citing the non-playing of the National Anthem before his speech. The Speaker clarified that the State anthem is played at the beginning and the National Anthem at the end of the session as per established practice.

About the Governor's Address
- Constitutional Basis:
  - Article 176 mandates the Governor to address the State Legislature.
  - Article 87 provides a similar provision for the President addressing Parliament.
- Nature of Address:
  - It is a constitutional obligation, not a discretionary act.
  - The speech reflects the policies and agenda of the elected government, not the Governor's personal views.
- When Delivered:
  - At the first session after general elections and at the start of each legislative year.
  - In bicameral states, the Governor addresses both Houses together.
- Content:
  - Government's policy priorities, legislative agenda, and achievements of the previous year.
  - Drafted by the state government.
- Governor's Role:
  - Under Articles 74 and 163, the Governor acts on the aid and advice of the Council of Ministers.

Constitutional Issues if Address Is Refused
- May create a constitutional deadlock and disrupt legislative functioning.
- Rejection of the Address is often seen as a vote of no-confidence in the government.
- This could lead to demands for government resignation.
- If refusal arises from Governor's deviation, it may undermine the democratic mandate of the elected government.
- Such situations can weaken parliamentary democracy and constitutional balance.

Historical Origins
- Inspired by UK's Monarch's Speech outlining government plans.
- Similar to the US State of the Union Address.
- India adopted the practice from the Westminster parliamentary system.

Hindu Adoptions and Maintenance Act (HAMA), 1956

Context: The Supreme Court recently ruled that a widowed daughter-in-law can claim maintenance from her father-in-law's estate under the Hindu Adoptions and Maintenance Act, 1956.

Supreme Court's Legal Reasoning

- Interpretation of Dependants (Section 21):
- The Court held that the phrase "any widow of his son" is clear and not dependent on when widowhood occurred.
- Timing of Widowhood Irrelevant:
- A daughter-in-law can claim maintenance irrespective of whether her husband died before or after the father-in-law's death.
- Scope of Section 22:
- All heirs inheriting the property of a deceased Hindu are legally required to maintain his dependants from the inherited estate.
- Estate-Centric Liability:
- Maintenance obligation is linked to the inherited estate, not to an individual person, making all heirs proportionately responsible.
- Reference to Manusmriti:
- The Court cited Manusmriti (Chapter 8, Verse 389), emphasizing that close family members, including women dependants, must not be abandoned.
- The reference highlights the traditional duty to support dependent family members.

Constitutional and Social Significance

- Article 14 – Equality:
- Treating widows differently based on the timing of the husband's death would be arbitrary and unconstitutional.
- Article 21 – Right to Dignity:
- Denial of maintenance on technical grounds can undermine a widow's right to live with dignity.
- Conditional Maintenance:
- Maintenance is not automatic and applies only when the widow cannot maintain herself through other lawful means.

Supreme Court on Right to Education (RTE) Act, 2009

Context: The Supreme Court recently directed States to ensure effective implementation of the 25% reservation for disadvantaged children in private schools under the RTE Act, 2009.

Key Directions by the Supreme Court
- Mandatory Rule-Making (Section 38):
- States must frame legally enforceable admission rules, instead of relying only on guidelines or standard procedures.
- Implementation is a State Duty:
- The Court clarified that enforcing the 25% quota is a core constitutional obligation, not an optional welfare measure.
- Institutional Monitoring:
  - The National Commission for Protection of Child Rights (NCPCR) has been made responsible for monitoring nationwide compliance.
  - It must submit a status report by March 31, 2026.
- Bridging the Digital Divide:
- States must establish physical help-desks and assistance centres to support disadvantaged families lacking digital access.
- Promoting Fraternity:
- The quota promotes social integration, enabling children from different caste and economic backgrounds to study together.

About the RTE Act, 2009
- Constitutional Basis:
- The Act implements Article 21A, making education a fundamental right for children aged 6–14 years.
- Section 12(1)(c): 25% Reservation:
- Private unaided, non-minority schools must reserve 25% of entry-level seats for children from Economically Weaker Sections (EWS) and Disadvantaged Groups (DG).
- Reimbursement to Schools:
- Governments reimburse schools based on per-child public expenditure or the actual school fee, whichever is lower.
- Objective:
- To promote social justice and equality by allowing children from diverse socio-economic backgrounds to study together.

Constitutional Provisions Related to Education
- Article 21A: Guarantees free and compulsory education for children aged 6–14 years.
- Article 51A(k): Makes it a duty of parents or guardians to provide education to children in this age group.
- Article 45 (DPSP): Directs the State to provide early childhood care and education for children.

Governor's Rule in Autonomous District Council (ADC)

Context: Governor's Rule in the Chakma Autonomous District Council (CADC), Mizoram, has been extended for six more months due to political instability and administrative difficulties.

About Chakma Autonomous District Council (CADC)
- Constitutional Basis: Established in 1972 under the Sixth Schedule of the Constitution.
- Purpose: To protect the political, social, and cultural interests of the Chakma community in Mizoram.

The Chakma Community
- Demography: Second-largest Scheduled Tribe in Mizoram after the Mizos.
- Language: Chakma (Changma Bhajchare).
- Religion: Mostly Buddhists.
- Livelihood: Traditionally practice jhum (shifting) cultivation.
- Settlement Areas:
    - Chittagong Hill Tracts (Bangladesh)
    - Indian states of Mizoram, Tripura, and Arunachal Pradesh.

About Autonomous District Councils (ADCs)
- ADCs are self-governing tribal bodies created under the Sixth Schedule (Article 244).
- Applicable in tribal areas of Assam, Meghalaya, Tripura, and Mizoram.
- Aim is to ensure tribal self-governance and protection of traditional rights.

Structure of ADCs
- Members: Up to 30 members (26 elected, 4 nominated by the Governor).
- Tenure: 5 years.

Powers of ADCs
- Legislative Powers: Can make laws on land, forests (excluding reserved forests), agriculture, water use, sanitation, public health, and social customs.
- Executive Powers: Administer village councils, local governance, inheritance matters, and manage public facilities like schools, markets, roads, and fisheries.
- Judicial Powers: Can set up tribal courts to resolve disputes among Scheduled Tribes, with sentencing powers up to five years.

India-EU Free Trade Agreement (FTA)

Context: The India-EU Free Trade Agreement, concluded on 27 January 2026, marks a major shift in India's trade strategy. Often called the "mother of all deals," it creates a vast market of nearly 2 billion people and reduces dependence on any single trading partner.

Background
- Finalised during the 16th India-EU Summit (New Delhi, Jan 2026) by PM Narendra Modi and EU Commission President Ursula von der Leyen.
- Talks began in 2007, resumed in 2022, and concluded after nearly two decades.
- Agreement will take effect after legal review and parliamentary approvals, expected by late 2026.
- Forms the economic pillar of the "Towards 2030: India-EU Strategic Agenda."

Key Outcomes of the FTA
1. Tariff Reduction & Market Access
- Duties removed on over 90% of bilateral trade.
- EU to remove duties on 99.5% of Indian exports, boosting sectors like:
  - Textiles & apparel
  - Leather & footwear
  - Gems & jewellery
- India to phase out tariffs on over 90% of EU goods, including machinery, chemicals, and pharmaceuticals.

2. Automobiles, Wines & Spirits
- Luxury cars tariffs cut from 110% to 10% over five years (with import quota).
- Wine duties reduced from 150% to 20-30%; spirits to about 40%.

3. Services & Mobility
- India gains access to 144 EU service sub-sectors (IT, finance, R&D).
- Easier mobility and visa rules for professionals and students.
- Recognition opportunities for AYUSH practitioners in some EU countries.

4. Sustainability & Climate Cooperation
- EU to provide €500 million support for India's green transition.
- Cooperation under Carbon Border Adjustment Mechanism (CBAM) to help Indian exporters comply with carbon norms.

5. Protection of Sensitive Sectors
- India protected key sectors like dairy, rice, wheat, and poultry from tariff cuts.
- GI protection ensured for products such as Darjeeling Tea and European products like Champagne.

Strategic Significance
- Diversifies India's trade away from excessive reliance on the US.
- Positions India as an alternative manufacturing hub under China-plus-one strategy.
- Adoption of EU standards improves global competitiveness of Indian goods.
- Supports India's long-term goal of Viksit Bharat @2047 through trade, services mobility, and green growth.

Key Provisions

1. **Definition**
   - Hate Speech: Publicly spoken, written, electronic, or visual expression intended to create hatred, enmity, or ill-will against a group.
   - Hate Crime: Acts promoting, propagating, or inciting hate speech; includes circulation and publication of such content.
2. **Penalties**
   - Cognisable & non-bailable offences.
   - Imprisonment: 1–10 years.
   - Fine: Up to ₹1 lakh for repeat offenders.
3. **Victim Support**
   - Compensation based on severity of harm.
4. **Digital Takedown**
   - Authorities can order social media platforms to block or remove hateful content.
5. **Organisational Liability**
   - Individuals in control of organisations can be held accountable for hate-related acts.
6. **Exemptions**
   - Does not apply to content in public interest, or used in science, literature, art, education, heritage, or religious purposes.

Need for the Law
- **Protect Human Dignity:** Safeguards Article 14 & 21 rights.
- **Preserve Social Fabric:** Prevents communal violence, discrimination.
- **Maintain Public Order:** Prevents incitement to real-world clashes.

Challenges
1. **Legal & Constitutional**
   - No precise statutory definition; relies on colonial-era IPC/BNS laws.
   - Low conviction rate (~20%).
   - Vague laws risk chilling free speech (Article 19(1)(a)).
2. **Digital & Enforcement**
   - Social media spreads hate instantly.
   - Anonymous/offshore posting creates jurisdiction issues.
   - Lack of political will can hinder action against powerful offenders.
3. **Societal & Political Risks**
   - Hate speech often targets marginalized communities.
   - Political rhetoric normalizes divisive speech.

Way Forward
- **Legislative Clarity**
   - Narrow definition focused on incitement to violence, not mere offense.
   - Proportional penalties depending on severity.
- **Institutional Strengthening**
   - Judicial oversight for police takedowns/arrests.
   - Dedicated anti-hate crime units and fast-track courts to improve convictions.
- **Social & Educational Measures**
   - Media literacy campaigns to combat misinformation.
   - Counter-speech initiatives to promote reasoned, constructive dialogue.

About the European Union (EU)
- Political and economic union of 27 countries.
- Major institutions: European Commission, Parliament, Council, Court of Justice, and European Central Bank.
- Euro (€) used by most member states.

Conclusion
The India–EU FTA strengthens economic ties while helping India diversify trade partnerships. Its success will depend on smooth implementation and cooperation in resolving regulatory and sustainability challenges.

Oil Economy

Context: Recent U.S. sanctions on Russian energy and renewed engagement with Venezuelan oil highlight shifts in global oil trade and concerns over weakening dominance of the petrodollar system.

About the Petrodollar System
- Refers to the global practice of pricing and trading oil mainly in U.S. dollars.
- Emerged in the 1970s after agreements between the U.S. and major oil producers, linking oil trade with the dollar.
- Today, nearly 80% of global oil trade is still settled in dollars.
- This system strengthens U.S. financial and geopolitical influence.

Current Changes in the Global Oil Market
- Geopolitical fragmentation: Russia–Ukraine conflict and sanctions have reshaped oil trade flows, with countries buying discounted crude through alternative payment systems.
- Oil quality differences: U.S. produces light shale oil, but many refineries require heavier crude, keeping demand for Venezuelan and Canadian oil.
- Market volatility: Conflicts, OPEC+ production decisions, and climate disruptions create supply uncertainty.
- Energy transition: Growth of renewable energy and electric vehicles is slowing long-term oil demand growth.
- Greater state intervention: Governments increasingly use sanctions, reserves, and export controls to influence markets.

Key trends include:
- Non-dollar oil trade: Russia and China increasingly trade oil using ruble and yuan.
- BRICS initiatives: Discussions on local currency trade and alternative payment systems.
- India's efforts: Use of rupee-based and alternative currency settlements for oil imports; RBI enabled international trade settlement in INR in 2022.
- Sanctions impact: U.S. sanctions encourage countries to build alternative payment systems like China's CIPS.
- Multipolar energy markets: Multiple suppliers and regional hubs weaken single-currency dominance.

India's Position in the Oil Economy

- High import dependence: Over 85% of crude oil is imported.
- Geopolitical risks: Disruptions in key supply routes or sanctions can raise costs.
- Economic impact: A $10 rise in oil prices can raise inflation and slow GDP growth.
- Limited strategic reserves: India's reserves cover about 9–10 days, rising to around 70–75 days including company stocks; expansion plans are underway.

Measures to Reduce Oil Vulnerability

- Energy diversification: Increased use of LNG, renewables, and nuclear energy.
- Import diversification: More oil sourced from Russia, the U.S., and Africa.
- Biofuels: Expansion of ethanol blending and biofuels.
- Electric mobility & Green Hydrogen: India targets 5 MMT green hydrogen capacity by 2030.
- Efficiency improvements: Better refinery and energy-use efficiency.

Conclusion- Global oil trade is increasingly shaped by geopolitics, currency competition, and energy transition. While the petrodollar remains dominant, gradual de-dollarisation and diversification are reshaping the global oil economy.

NATO and the Greenland Crisis

Context: Recent U.S. efforts to increase strategic influence over Greenland, an autonomous territory of Denmark (a NATO member), have created tensions within NATO and raised concerns about the future of alliance-based global order.

Impact on NATO

1. Internal Tensions
- Pressure by one NATO member on another challenges alliance trust.

2. Article 5 Confusion
- NATO's defence clause applies against external threats, not internal disputes.
- Denmark could first invoke Article 4 for consultations if security is threatened.

3. Alliance Credibility Risk
- Conflict among allies weakens NATO's deterrence power.

Crisis of Multilateralism
- Indicates shift from rules-based cooperation to power politics.
- Benefits rivals like Russia and China, who gain from NATO divisions.
- Leads to faster Arctic militarisation.
- Weak alliances may push countries to seek nuclear deterrence.

India's Strategic Concerns

1. Balancing Diplomacy
- India must engage major powers while supporting multilateral institutions like the UN.

2. Trade & Security Impact
- Changing alliances affect global security and trade.
- Arctic competition affects future energy and shipping routes.

3. Strategic Autonomy
- India prefers flexible partnerships rather than military alliances.

Way Forward

For NATO
- Restore unity and respect for sovereignty.
- Resolve disputes through diplomacy.
- Avoid using economic pressure against allies.
- Develop cooperative Arctic security policies.

For the World
- Strengthen international law and multilateral institutions.

For India
- Maintain strategic autonomy.
- Increase Arctic engagement.
- Support reform of global governance institutions.

Conclusion - The Greenland issue shows growing power politics in global affairs, challenging NATO unity and the rules-based order. Long-term global stability depends on balancing power with cooperation and shared rules.

India-Iran: 75 Years of Diplomatic Relations

Context: India and Iran will celebrate 75 years of diplomatic relations in 2026, reflecting long-standing civilisational, strategic, and economic ties.

Evolution of India-Iran Relations

1. Civilisational Phase (Pre-1947)
- India and Iran share deep cultural and historical links, with similarities between the Rigveda and Avesta traditions.
- Persian language influenced Indian administration and culture for centuries.
- Mughal architecture shows Indo-Persian fusion, visible in monuments like the Taj Mahal.
- The Parsi community, which migrated from Persia to India, continues to serve as a cultural bridge.

2. Formal Diplomatic Phase (1950–1979)
- Diplomatic relations began with the Treaty of Friendship (1950).
- Cooperation expanded, especially in the energy sector, after PM Indira Gandhi's visit to Iran in 1974.

3. Post-Revolution Phase (1979–2000s)
- After Iran's Islamic Revolution (1979), India quickly recognised the new regime, ensuring continuity in relations.

4. Contemporary Phase (21st Century)
- The Tehran Declaration (2001) described ties as a strategic partnership.
- The 2016 India–Iran–Afghanistan Agreement developed Chabahar Port, allowing India access to Central Asia bypassing Pakistan and balancing China's CPEC.
- India supported Iran's membership in SCO and BRICS (2023–24), strengthening multilateral cooperation.

Significance of India–Iran Relations
1. Geostrategic Importance — Gateway to Eurasia
- Iran's location is crucial for India's connectivity strategy due to lack of land access via Pakistan.

Key Projects
- Chabahar Port: Operational agreement signed in May 2024 makes it a key trade and connectivity hub.
- International North–South Transport Corridor (INSTC): A 7,200 km route linking India to Russia and Europe via Iran.
- Afghanistan Access: Iran provides India access to Afghanistan without relying on Pakistan.

2. Energy Security & Economic Cooperation
- India is among Iran's major trade partners.
- Indian exports: rice, tea, sugar, pharmaceuticals.
- Imports: fertilisers, chemicals, dry fruits.

Financial Cooperation
- Efforts to reduce dependence on the US dollar through Rupee–Rial trade.
- Proposed linkage between India's UPI and Iran's Shetab payment system.

Energy Potential
- Iran holds the world's second-largest natural gas reserves, important for India's long-term energy needs and cleaner energy transition.

CoSP11 of the UN Convention Against Corruption (UNCAC)

Context: The 11th Session of the Conference of the States Parties (CoSP11) to the UN Convention against Corruption (UNCAC) concluded in Doha, Qatar.

Conference of States Parties (CoSP) to UNCAC
- It is the largest global platform focused on combating corruption and economic crimes.
- Organised by: United Nations Office on Drugs and Crime (UNODC) in cooperation with the host country, Qatar.
- Theme (2025): "Shaping Tomorrow's Integrity."

Focus Areas
- Tackling corruption related to: Environmental crimes, Climate-related governance, Political finance transparency, Use of emerging digital technologies.

Key Outcomes of CoSP11
Doha Declaration 2025
- Emphasised:
  - Stronger international cooperation
  - Enhanced technical assistance
  - Use of AI and digital tools in preventing and detecting corruption.

Launch of CoSP Private Sector Platform
- Joint initiative of UNODC and UN Global Compact.
- Promotes:
  - Public–private cooperation
  - Ethical business practices
  - Corporate integrity and AI ethics.

United Nations Convention Against Corruption (UNCAC)
- The only legally binding global anti-corruption treaty.
- Provides a comprehensive framework to prevent, detect, and punish corruption.
- Covers corruption in both public and private sectors.

Adoption & Administration
- Adopted by UN General Assembly in 2003.
- Entered into force in 2005.
- UNODC serves as Secretariat.

Key Features of UNCAC
- Combines preventive and punitive measures.
- Contains a dedicated chapter on asset recovery, a major achievement for developing countries.
- Encourages participation of civil society, media, and private sector in anti-corruption efforts.

Governance and Monitoring
1. Conference of States Parties (CoSP)
   - Main decision-making body.
   - Meets every two years to review progress and adopt resolutions.
2. Implementation Review Mechanism (IRM)
   - Peer review system assessing how countries implement UNCAC provisions.
3. Link with Sustainable Development Goals
   - Supports SDG 16: Peace, Justice, and Strong Institutions.
4. India and UNCAC
   - India signed UNCAC in 2005.
   - Ratified it in 2011, committing to global anti-corruption cooperation.

Conference of the States Parties to the United Nations Convention against Corruption

15 - 19 December 2025, Doha, Qatar

A Decade of Startup India

Context: 16 January 2026 marks 10 years of the Startup India Initiative, celebrated as National Startup Day.

What is a Startup?
- A startup is an innovation-driven new business created to solve a problem using a scalable product or service, with potential for rapid growth.

Startup Definition in India (DPIIT Recognition)
An entity must:
- Be registered as Private Limited Company, Partnership Firm, or LLP.
- Be less than 10 years old.
- Have annual turnover below ₹100 crore.
- Work on innovation, improvement of products/services, or possess a scalable business model with employment potential.

Examples
- Indian startups: Flipkart, Paytm, Ola, Zomato.
- Global: Airbnb, Uber, SpaceX.
- Key sectors: Fintech, Healthtech, Agritech, Edtech, Clean Energy.

Why Startups Matter
Startups:
- Create jobs
- Promote innovation
- Increase competition
- Encourage new technologies
- Boost economic growth
- Promote entrepreneurial culture.

Startup India Initiative
Launched in 2016, Startup India aims to create a strong ecosystem for innovation and entrepreneurship.
- Nodal Ministry: DPIIT under Ministry of Commerce & Industry.
- Main Objective: Reduce regulatory burden and support startups' growth.

Key Features of Startup India

- Lifecycle Support - Support from idea stage to scaling up through incubation, funding, and mentoring.
- Inclusive Entrepreneurshi - Encourages startups beyond metro cities into Tier-II, Tier-III and rural areas.
- State Startup Ranking Framework - Promotes competitive federalism by ranking states on startup ecosystem performance.
- Sectoral Support - Focus on sectors like biotechnology, agritech, renewable energy, and deep-tech through Startup India Hub.

Challenges Facing Indian Startups

- **Funding Constraints**

Early-stage funding remains limited; funding declined to $10.5 billion in 2025.

- **Regulatory Complexity**

Compliance burdens in taxation, finance, and data regulations.

- **Infrastructure & Talent Gap**

Tier-II/III cities face weak infrastructure and talent shortages.

- **Market Competition**

Large corporations dominate markets, making survival tough for startups.

- **Intellectual Property Issues**

Patent and trademark processes remain costly and slow.

- **Deep-Tech Commercialization Issues**

Space, biotech, and advanced tech startups need long-term patient capital..

Other Issues

- Rural-urban digital divide
- Talent retention problems
- Gender gap: only ~7.5% startups led by women.

Way Forward

- **Improve Funding Access**

Expand domestic venture capital and state-level funds.

- **Regulatory Reforms**

Simplify GST, labour compliance, and speed up IP approvals.

- **Improve Infrastructure**

Develop incubators and improve digital connectivity in smaller cities.

- **Talent Development**

Promote industry-academia partnerships and employee incentives.

- **Promote Inclusive Entrepreneurship**
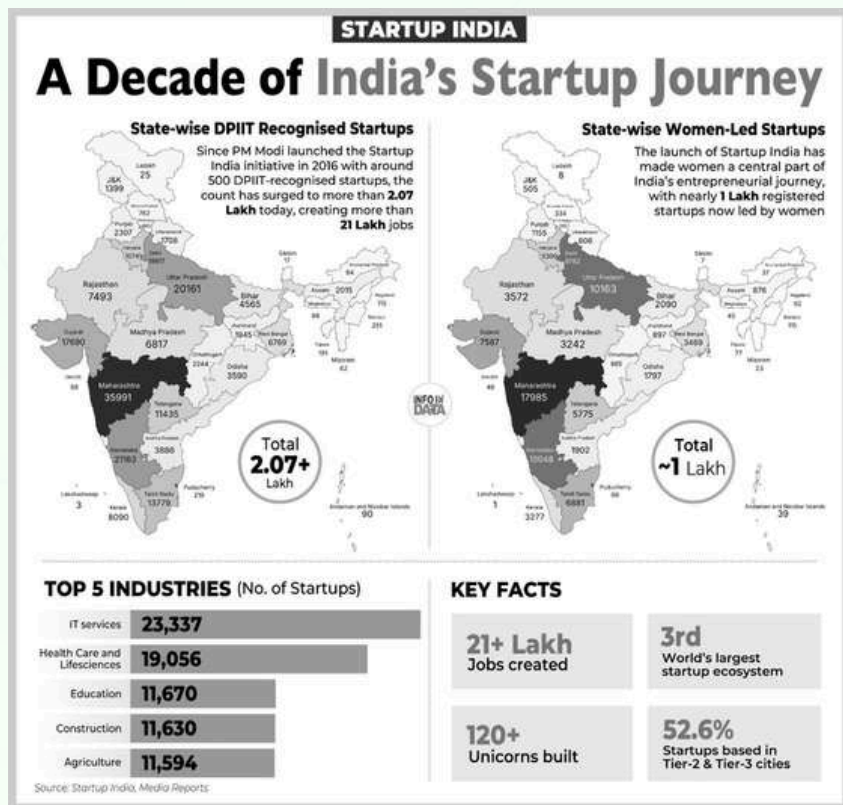
Increase funding and mentorship for women-led startups.

- **Support Deep-Tech Innovation**

Encourage long-term investment in space, biotech, defence, and clean energy.

- **Enhance Global Market Access**

Help startups integrate into global value chains and export markets.

Conclusion - In ten years, Startup India has transformed entrepreneurship into a major growth engine, powered by digital infrastructure, policy reforms, and innovation-driven enterprises, making startups key contributors to India's economic and technological future.

STARTUP INDIA

A Decade of India's Startup Journey

State-wise DPIIT Recognised Startups

Since PM Modi launched the Startup India initiative in 2016 with around 500 DPIIT-recognised startups, the count has surged to more than **2.07 Lakh** today, creating more than **21 Lakh** jobs

Total **2.07+** Lakh

State-wise Women-Led Startups

The launch of Startup India has made women a central part of India's entrepreneurial journey, with nearly **1 Lakh** registered startups now led by women

Total **~1** Lakh

TOP 5 INDUSTRIES (No. of Startups)

Industry	No. of Startups
IT services	23,337
Health Care and Lifesciences	19,056
Education	11,670
Construction	11,630
Agriculture	11,594

Source: Startup India, Media Reports

KEY FACTS

- **21+ Lakh** Jobs created
- **3rd** World's largest startup ecosystem
- **120+** Unicorns built
- **52.6%** Startups based in Tier-2 & Tier-3 cities

Digital Public Infrastructure (DPI)

Context: The Prime Minister highlighted India's readiness to share its Digital Public Infrastructure (DPI) with Commonwealth countries during the 28th Conference of Speakers and Presiding Officers of the Commonwealth (CSPOC) hosted in India.

- India has earlier hosted CSPOC in 1971, 1986, and 2010.

What is Digital Public Infrastructure (DPI)?
Digital Public Infrastructure (DPI) refers to core digital systems that serve as the backbone of modern digital societies.

Purpose
- DPI enables secure and seamless interaction among:
    - Citizens,
    - Businesses,
    - and Governments.
- It functions as a digital public good, meaning:
    - Accessible to all,
    - Non-exclusionary,
    - Supports multiple public and private services.

India Stack: Foundation of India's DPI
India Stack is a set of open, interoperable digital platforms enabling:
- Paperless,
- Cashless,
- Presence-less service delivery.

Three Layers of India Stack
1. Identity Layer
Provides secure digital identification and authentication.
- Examples: Aadhaar, e-KYC
2. Payment Layer
Enables fast, low-cost digital transactions.
- Examples: UPI, Aadhaar Payment Bridge
3. Data Governance Layer
Allows secure, consent-based data sharing and digital document storage.
- Examples: DigiLocker, Account Aggregator framework

Urban Co-operative Banks (UCBs)

Context: The Reserve Bank of India (RBI) has proposed reopening the licensing window for new Urban Co-operative Banks (UCBs) after nearly two decades.

Background: RBI had stopped issuing new UCB licences around 2004 as many newly licensed banks soon became financially weak.

Key RBI Proposals

- **Capital Adequacy:** Banks must maintain a Capital to Risk-Weighted Assets Ratio (CRAR) of at least 12%, ensuring financial stability.
- **Asset Quality:** Net Non-Performing Assets (NNPA) must not exceed 3% at the time of licence application.
- **Eligibility Criteria:** Only large cooperative credit societies with:
  - At least 10 years of operation, and
  - 5 years of strong financial track record can apply.

About Urban Co-operative Banks (UCBs)

- UCBs are cooperative societies registered under State or Multi-State Cooperative Societies Acts.
- They operate as banks after obtaining a licence under the Banking Regulation Act, 1949.
- Mainly serve urban and semi-urban customers, especially small businesses and local communities.

Regulatory Structure (Dual Control)

- **RBI:** Handles banking regulation including licensing, capital norms, and financial supervision.
- **Registrar of Cooperative Societies (RCS):** Oversees management and administrative matters under state or central control.

Tier-wise Classification of UCBs (Based on Deposits)

- **Tier 1:** Deposits up to ₹100 crore
- **Tier 2:** ₹100–1,000 crore
- **Tier 3:** ₹1,000–10,000 crore
- **Tier 4:** Above ₹10,000 crore

Human Capital for Viksit Bharat

Context: The Fifth National Conference of Chief Secretaries, chaired by the Prime Minister, adopted a national framework to strengthen human capital as the foundation for achieving Viksit Bharat.

National Conference of Chief Secretaries (NCCS)

- Institutionalised in 2022 as a non-statutory platform to improve Centre–State coordination.
- Brings together Chief Secretaries of States/UTs and senior central officials.
- Focuses on policy implementation and administrative coordination.
- 2025 Theme: Human Capital for Viksit Bharat

Key Outcomes of the Conference

1. Governance & Administrative Reforms
- States asked to prepare 10-year action plans with clear milestones.
- States encouraged to adopt PRAGATI-like platforms for monitoring projects.
- District officials advised to spend more time in field administration.
- Creation of Data Strategy Units and Deregulation Cells to improve Ease of Doing Business.

2. Manufacturing & Economic Self-Reliance
- Announcement of a National Manufacturing Mission to boost domestic production.
- Centre and States to identify 100 products to reduce imports.
- Promotion of Zero Defect, Zero Effect (ZED) manufacturing.
- States urged to expand services beyond IT into AI, healthcare, and Global Capability Centres.

3. Human Capital & Sports
- Focus on early childhood education and skill mapping for global jobs.
- Preparation for 2036 Olympics with talent scouting at district levels.
- States to develop at least one world-class tourist destination to create jobs.

4. Innovation, Culture & Agriculture
- Proposed Gyan Bharatam Mission to digitise ancient manuscripts using AI.
- Priority to AgriStack for smart agricultural supply chains.
- Integration of Ayush systems into primary healthcare.

5. Security & Internal Affairs
- Plans for governance and development in areas affected by Left Wing Extremism (LWE) after recent security improvements.

About Viksit Bharat
- Vision to make India a developed nation by 2047 (100 years of independence).
- Based on Article 38 (DPSP) and aligned with SDG-8.
- Target to build a $30 trillion economy with inclusive growth.

Four Key Pillars: 1. Youth, 2. Poor, 3. Women, 4. Farmers

Targets by 2047
- Achieve Very High Human Development Index (HDI) status.
- Improve gender participation in the economy.
- Reduce informal workforce through formal employment and social security coverage.

Report on Trend and Progress of Banking in India 2024–25

Context:
- The Reserve Bank of India (RBI) released the Report on Trend and Progress of Banking in India 2024–25, reviewing the performance of the country's banking sector.

About the Report
- It is an annual statutory report published by RBI under the Banking Regulation Act, 1949.
- Covers performance of:
  - Commercial banks,
  - Cooperative banks,
  - Non-Banking Financial Companies (NBFCs).
- Purpose: To analyse yearly trends in banking, including:
  - Credit and deposit growth,
  - Asset quality,
  - Profitability,
  - Capital adequacy,
  - Risk patterns,
  - Regulatory developments.

Key Findings (FY 2024–25)

1. Overall Sector Performance
- Banking sector remained strong and resilient.
- Growth continued but at a slower pace compared to FY24.

2. Growth Indicators
- Deposits and credit of Scheduled Commercial Banks (SCBs) grew in double digits, though slower than last year.
- Balance sheets expanded by over 11% during the year.

3. Asset Quality Improved
- Asset quality reached its best level in decades.
- Gross NPA (GNPA) ratio fell to:
  - 2.2% in March 2025, and
  - 2.1% by September 2025.
- Reflects better loan recovery and cautious lending practices.

4. Bank Profitability
Banks recorded strong earnings:
- Return on Assets (RoA): 1.4%
- Return on Equity (RoE): 13.5%

5. Co-operative Banks & NBFCs
- Urban Co-operative Banks showed faster growth with better asset quality.
- NBFCs maintained strong credit growth and healthy capital levels.

Key Challenges Identified
- Fraud pattern changed: Fewer cases reported, but higher financial amounts involved.
- Customer complaints increased, mainly related to:
  - Loans,
  - Credit cards,
  - Digital banking services.

Gross Non-Performing Assets (GNPA)	Return on Assets (RoA)	Return on Equity (RoE)
- Total loans where repayment is overdue by 90 days or more. - Indicates loan stress in banks. - Higher GNPA = weaker asset quality.	- Measures profit earned per unit of assets. - Formula: Net Profit / Total Assets - Shows efficiency in using assets.	- Measures return generated for shareholders. - Formula: Net Profit / Shareholders' Equity

NPS Reforms

Context: The Pension Fund Regulatory and Development Authority (PFRDA) has introduced reforms to strengthen the National Pension System (NPS) and improve retirement income security.

These reforms aim to make the NPS ecosystem more competitive, transparent, and sustainable for subscribers.

About PFRDA
- Established under the PFRDA Act, 2013.
- Objective: To regulate and develop pension funds and ensure old-age income security while protecting subscriber interests.

Key NPS Reforms

1. Banks Allowed to Set Up Pension Funds
- Scheduled Commercial Banks (SCBs) can now independently establish pension funds.
- Eligibility based on net worth and RBI norms.
- Expected outcome:
    - Increased competition,
    - Stronger pension fund ecosystem,
    - Better services for subscribers.

2. Appointment of New Trustees
- PFRDA appointed three new trustees to the NPS Trust Board, strengthening governance and oversight.

3. Revised Investment Management Fee (IMF)
- New IMF structure effective from April 1, 2026.
- Different fee structures for Government and Non-Government subscribers.
- For Non-Government sector, fees decrease as investment size increases:

AUM Level	IMF Rate
Up to ₹25,000	0.12%
₹25,000–50,000	0.08%
₹50,000–1,50,000	0.06%
Above ₹1,50,000	0.04%

4. Regulatory Fee & Outreach Support
- Annual Regulatory Fee (ARF) remains 0.015% of AUM.
- Additional 0.0025% of AUM allocated to Association of NPS Intermediaries (ANI) for:
    - Awareness campaigns,
    - Financial literacy,
    - NPS outreach programs.

Significance

- Enhances pension fund competition.
- Improves governance and efficiency.
- Encourages higher participation in retirement savings.
- Strengthens old-age income security in India.

Quick Commerce (Q-Commerce)

Context:Quick commerce platforms such as Blinkit, Zepto, Zomato, and Swiggy have agreed to end the 10-minute delivery promise after intervention by the Union Labour Ministry.

The move aims to improve safety and working conditions of gig workers, who often face pressure to deliver orders within tight deadlines.

About Gig Economy

- A system where employment is based on short-term, freelance, or temporary jobs instead of permanent employment.

Gig Worker (Code on Social Security, 2020)

A gig worker is a person who:

- Works outside the traditional employer-employee relationship, and
- Provides services temporarily through online platforms or contracts.

What is Quick Commerce?
- Quick Commerce (Q-Commerce) refers to very fast delivery of goods, usually within an hour or less.
- It is an advanced form of e-commerce focused on speed and convenience, enabling near-instant delivery of daily essentials.

Status of Quick Commerce in India

Market Growth
- Q-commerce market is projected to reach $9.95 billion by 2029.
- Expected to grow at around 76% year-on-year, showing rapid expansion.

Consumer Base
- Mainly serves urban households in metro and Tier-1 cities.
- Around 20 million households form the core consumer market.

Gig Workforce Trends (NITI Aayog Report)

According to "India's Booming Gig and Platform Economy":

- 2020–21: About 77 lakh workers were in gig employment.
- By 2029–30: Gig workforce may rise to 2.35 crore workers.

Skill Composition of Gig Jobs
- 47% medium-skilled jobs
- 22% high-skilled jobs
- 31% low-skilled jobs

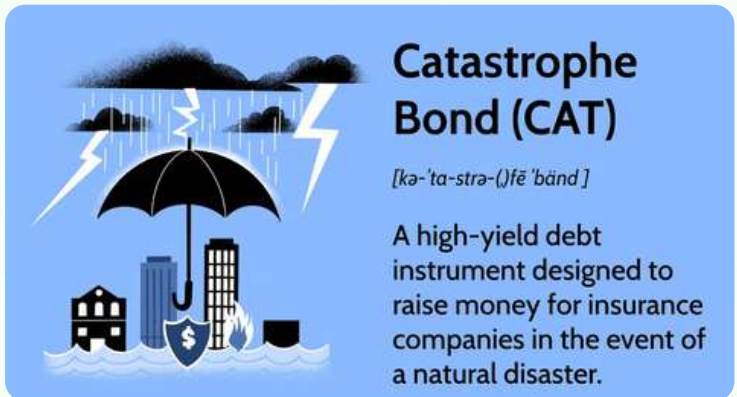### Significance of Ending 10-Minute Delivery
- Reduces delivery pressure on gig workers.
- Improves road safety and worker welfare.
- Encourages sustainable platform practices.

Catastrophe Bonds (CAT Bonds)

Context:
- The Kerala government has urged the Union Government to introduce Catastrophe Bonds (CAT bonds) as a financial safeguard against losses caused by natural disasters.

Catastrophe Bond (CAT)

[kə-'ta-strə-(,)fē 'bänd]

A high-yield debt instrument designed to raise money for insurance companies in the event of a natural disaster.

What are Catastrophe Bonds?
- Catastrophe Bonds (CAT bonds) are insurance-linked financial instruments that transfer disaster risk from governments or insurers to investors in capital markets.
- They help governments access funds quickly after major disasters.

How CAT Bonds Work
- Investors purchase CAT bonds and provide funds (principal).
- If no disaster occurs during the bond period, investors receive:
  - Their principal back, plus
  - High interest returns.
- If a predefined disaster event occurs (such as floods, earthquakes, or cyclones), part or all of the invested money is used for disaster relief.
- In such cases, investors bear the loss.

Key Benefits of CAT Bonds
- Provide quick access to disaster relief funds without immediate fiscal burden.
- Transfer disaster risk to global investors, reducing pressure on government finances.
- Offer multi-year risk protection, unlike costly or short-term traditional insurance.

Export Preparedness Index (EPI) 2024

Context:
- NITI Aayog has released the 4th edition of the Export Preparedness Index (EPI) 2024.

About Export Preparedness Index (EPI)
- EPI measures the export readiness of States and Union Territories (UTs).
- Aim: Support India's target of USD 1 trillion merchandise exports by 2030 and the Viksit Bharat @2047 vision.

Framework of the Index

The index is based on four pillars, covering 13 sub-pillars and 70 indicators:

1. Export Infrastructure (20%)
2. Measures logistics, utilities, and industrial infrastructure.
3. Business Ecosystem (40%) (highest weightage)
4. Assesses competitiveness, MSME ecosystem, human capital, and access to finance.
5. Policy & Governance (20%)
6. Evaluates export policies and trade facilitation.
7. Export Performance (20%)
8. Measures export outcomes and global integration.

Key Findings: Top Performers
Large States — Leaders
1. Maharashtra
2. Tamil Nadu
3. Gujarat
4. Uttar Pradesh
5. Andhra Pradesh

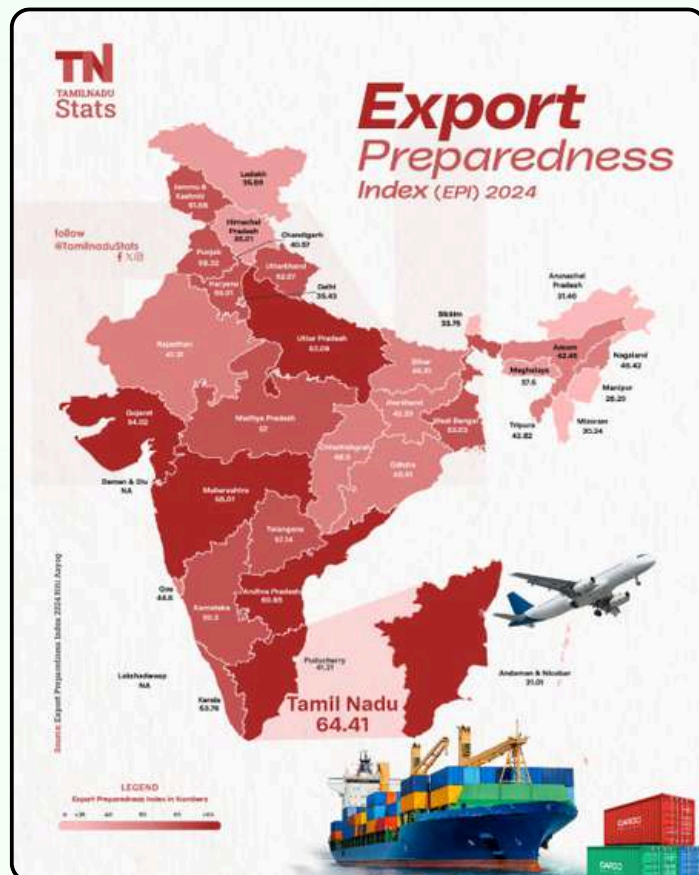**Small States, North Eastern States & UTs — Leaders**
1. Uttarakhand
2. Jammu & Kashmir
3. Nagaland
4. Dadra & Nagar Haveli and Daman & Diu
5. Goa

Challengers
- Large States: Madhya Pradesh, Haryana, Kerala
- Small/NE/UTs: Meghalaya, Ladakh, Delhi

Aspirers
- Large States: Odisha, Chhattisgarh, Rajasthan
- Small/NE/UTs: Arunachal Pradesh, Andaman & Nicobar Islands, Mizoram

Classification of States & UTs
Regions are grouped into:
- Large States
- Small States
- North Eastern States
- Union Territories

They are further classified as:
- Leaders – high preparedness
- Challengers – moderate performance
- Aspirers – early-stage development
, Andaman & Nicobar Islands, Mizoram

Netting of Funds for FPI

Context: Securities and Exchange Board of India (SEBI) has proposed allowing netting of funds for cash market transactions by Foreign Portfolio Investors (FPIs) to make trading and settlement more efficient.

What is Foreign Portfolio Investment (FPI)?
- Investment by foreign investors in shares, bonds, ETFs, mutual funds, etc., without controlling company management.
- Investments are highly liquid and sensitive to global market changes.
- Recorded in the Capital Account of the Balance of Payments.

What is Netting of Funds?
- Netting allows investors to offset buy and sell transactions on the same day, settling only the net amount payable.
- Example: If an investor buys ₹100 worth and sells ₹80 worth, only ₹20 is finally settled.

Benefits of Netting for FPIs
- Better Liquidity Management: Reduces need for large temporary funds, especially during market adjustments.
- Lower Transaction Costs: Cuts borrowing and funding costs for investors.
- Market Stability: Intraday trades are excluded from netting to prevent market manipulation; settlement of securities remains unchanged.

Environmental Cost of AI

Context: Rapid adoption of Artificial Intelligence (AI) across sectors is generating significant environmental impacts alongside economic benefits.

What is Artificial Intelligence (AI)?
Artificial Intelligence (AI) enables machines to learn, reason, and self-correct, supporting sectors like governance, healthcare, agriculture, defence, finance, climate action, and digital infrastructure. AI leadership is increasingly linked with economic and strategic power.

How AI Supports Environmental Management

AI also contributes positively to sustainability:
- Pollution Monitoring: Improves compliance tracking and public access to environmental data.
- Sustainable Agriculture: Enables precision farming, early disease detection, and efficient resource use.
- Smart Urban Management: AI tools such as Google's Google Project Green Light optimize traffic flows, reducing fuel use and emissions.
- Waste Management: AI improves recycling and material sorting.
- Biodiversity Protection: Helps monitor wildlife, forests, and detect illegal activities.
- Energy Efficiency: Supports smart grids, energy-efficient buildings, and EV charging systems.
- Disaster & Climate Forecasting: Enhances early warning systems and climate modelling.

Environmental Costs of AI

-Despite benefits, AI systems impose serious environmental costs:

1. High Energy Consumption
- Training large AI models consumes massive electricity; studies from Organisation for Economic Co-operation and Development (OECD) show AI development is energy-intensive.

2. Carbon Footprint
- The global ICT sector contributes nearly 2–4% of global greenhouse gas emissions, and AI expansion adds to this footprint.

3. Resource Depletion
- According to United Nations Environment Programme (UNEP), data centres may consume billions of cubic meters of water annually for cooling.
- AI hardware requires rare metals like lithium, cobalt, and copper, whose mining causes environmental damage.

4. Rising E-Waste
- Rapid hardware upgrades create massive electronic waste due to shorter device lifecycles.

5. Climate Impact
- Training and running large AI models generate significant CO_2 emissions, especially when powered by fossil fuels.

India's Sustainable AI Initiatives

India is promoting environmentally responsible AI through:
- Green Data Centres: Under the IndiaAI Mission, data centres must use renewable energy and maintain high energy efficiency.
- Efficient AI Models: Development of low-compute, high-efficiency language models reduces energy demand.
- Planet Sutra Framework: Promotes transparency and environmental accountability in AI development.

Key Challenges
- Lack of universal standards to measure AI's carbon footprint.
- Rising energy demand from continuous AI services.
- Supply-chain emissions often go unreported.
- Efficiency gains sometimes increase total energy consumption (rebound effect).
- Weak regulatory mandates for environmental reporting.
- Environmental burden often falls on vulnerable communities near data centres.

Way Forward
- Promote renewable-powered and energy-efficient data centres.
- Develop small and frugal AI models to reduce computing demand.
- Strengthen hardware recycling and circular economy practices.
- Introduce environmental impact assessments for large AI projects.
- Incentivize low-carbon AI infrastructure and regulate data centre locations.

Biodiversity Beyond National Jurisdiction (BBNJ) Agreement

Context: The Biodiversity Beyond National Jurisdiction (BBNJ) Agreement came into force on 17 January 2026 after achieving 60 ratifications, with Morocco becoming the 60th country to ratify the treaty in September 2025.

What is the BBNJ Agreement?

- Officially adopted under the framework of the United Nations Convention on the Law of the Sea (UNCLOS), it is the first legally binding global treaty to protect marine biodiversity in international waters.
- Also known as the High Seas Treaty.
- Applies to areas beyond national jurisdiction, i.e., waters and seabed outside countries' Exclusive Economic Zones (EEZs).
- Adopted in June 2023 and became operational 120 days after the 60th ratification.
- Supports the global goal of protecting 30% of oceans by 2030 ("30 by 30" target).

What are High Seas?

- High seas are ocean areas outside national jurisdiction.
- They cover nearly two-thirds of the world's oceans.
- Considered the common heritage of humankind, allowing all nations freedom of navigation, fishing, and research.
- Contributes to SDG 14 – Life Below Water and enables creation of Marine Protected Areas (MPAs).

Key Objectives

- Ensure conservation and sustainable use of marine biodiversity in international waters.
- Fill governance gaps left by existing ocean laws regarding biodiversity protection.

Four Pillars of the Agreement

1. Marine Genetic Resources (MGRs): Ensures fair sharing of benefits from genetic resources of high seas.
2. Area-Based Management Tools (ABMTs): Enables creation of Marine Protected Areas (MPAs) and other conservation zones.
3. Environmental Impact Assessments (EIAs): Mandatory assessments for activities that may harm marine ecosystems.
4. Capacity Building & Technology Transfer: Supports developing countries through funding, technology access, and cooperation.

Secondary Pollutants

Context: A meta-analysis by the Commission for Air Quality Management found that secondary particulate matter is the largest contributor to winter air pollution in Delhi, accounting for 27% of PM2.5 pollution.

Key Findings
- Secondary particulates contribute 27% of winter PM2.5 pollution.
- Other sources include:
  - Transport – 23%
  - Biomass burning – 20%
  - Dust – 15%
  - Industry – 9%
- Winter pollution is driven not only by direct emissions but also by chemical reactions in the atmosphere.

What is Particulate Matter (PM)?
PM refers to tiny solid and liquid particles suspended in air.
Types:
- PM10: Particles with diameter ≤10 micrometers.
- PM2.5: Fine particles ≤2.5 micrometers that can enter deep into lungs.

What are Secondary Pollutants?
- Pollutants not directly emitted, but formed in the atmosphere through reactions of primary pollutants.
- Major examples: Ammonium sulphate and Ammonium nitrate, key components of winter PM2.5.

How are They Formed?
- SO_2 emissions (coal use, brick kilns) form sulphuric acid.
- NOx emissions form nitric acid.
- These acids react with ammonia to produce fine aerosol particles.

Role of Agriculture
About 80% of ammonia emissions in India come from fertilizers and livestock waste, making agriculture an indirect contributor to urban air pollution.

Health Impacts
Secondary PM2.5 particles can cause:
- Asthma and COPD
- Lung cancer
- Heart diseases
- Eye irritation
- Respiratory infections
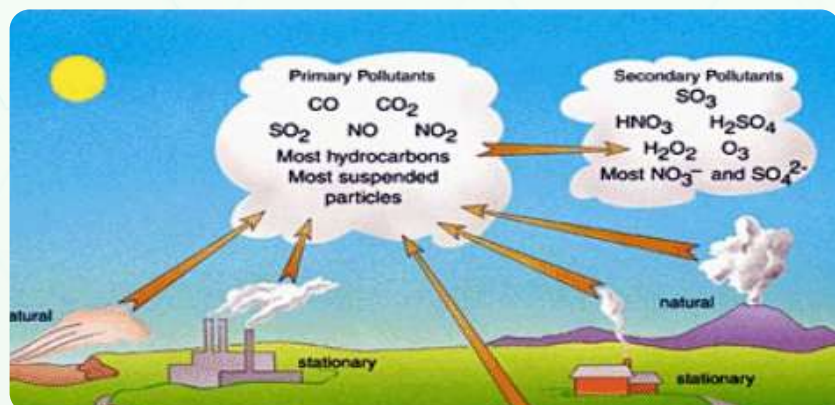
State of Finance for Nature 2026

Context: The United Nations Environment Programme released the State of Finance for Nature 2026 report, highlighting the global gap between harmful investments and nature protection.

About the Report
- An annual global assessment tracking financial flows affecting nature.
- First published in 2021, aiming to boost investments in nature-based solutions (NbS).

Key Findings
- In 2023, about $7.3 trillion flowed into nature-damaging activities, while only $220 billion went to nature protection.
- This means harmful finance is over 30 times larger than nature-positive investment.
- The imbalance fuels the triple planetary crisis: climate change, biodiversity loss, and pollution.

Sources of Nature-Negative Finance
- Private sector investments: Around $5 trillion, mainly in energy, industry, and utilities.
- Harmful subsidies: About $2.4 trillion, largely supporting fossil fuels, agriculture, water use, transport, and construction.
- Fossil fuels receive the largest subsidy share (47%).

Investment Gap
- Investment in nature-based solutions must increase 2.5 times to reach $571 billion annually by 2030 to meet climate and biodiversity goals.

Positive Trends
- Private investments in harmful sectors declined 48% between 2020 and 2023.
- Finance for nature-based solutions rose 5% in 2023.

Nature Transition X-Curve
The report proposes a framework to:
- Phase out nature-negative finance, and
- Scale up nature-positive investments, ensuring economic systems support nature protection.

Key Recommendations
- Reform harmful subsidies and redirect funds to biodiversity and climate solutions.
- Align government policies and incentives with the true economic value of nature.
- Ensure companies disclose nature-related risks and impacts.
- Expand blended finance models to attract private investment.

What are Nature-Based Solutions (NbS)?

- According to the UN Environment Assembly, NbS are actions that protect, restore, or sustainably manage ecosystems to address climate, social, and economic challenges while supporting livelihoods and biodiversity.

Why NbS Matter

- Help tackle climate change and biodiversity loss.
- Provide benefits for communities and ecosystems.
- Offer cost-effective long-term environmental and economic gains.

Aralam Butterfly Sanctuary

Context: Kerala has renamed Aralam Wildlife Sanctuary as Aralam Butterfly Sanctuary, making it the state's first protected area dedicated to butterfly conservation.

Key Facts

- Originally declared in 1984, the sanctuary was renamed in 2025 due to its rich butterfly diversity and seasonal migrations.
- Location: In Kannur district.
- Ecological Linkages: Shares forest boundaries with
  - Brahmagiri Wildlife Sanctuary,
  - Kottiyoor Wildlife Sanctuary, and
  - North Wayanad Forest Division.
- River System: Cheenkanni River flows through the sanctuary, originating from the Brahmagiri ranges.
- Vegetation: Dense evergreen and semi-evergreen forests provide ideal habitats for diverse wildlife.
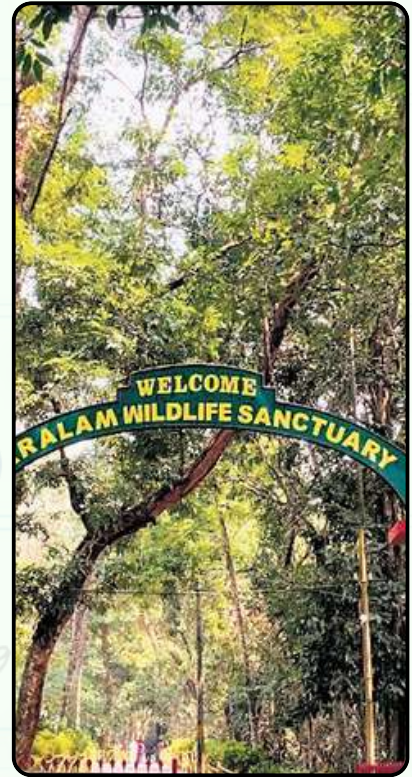
Biodiversity Importance

- Home to 266+ butterfly species, representing over 80% of Kerala's butterfly diversity.
- Hosts rare and endemic species like Southern Birdwing, Malabar Banded Peacock, and Travancore Evening Brown.
- Special conservation efforts focus on Malabar Rose and Malabar Raven butterflies.
- Also supports wildlife such as elephants, leopards, giant squirrels, diverse birds, and the Schedule-I protected Slender Loris.
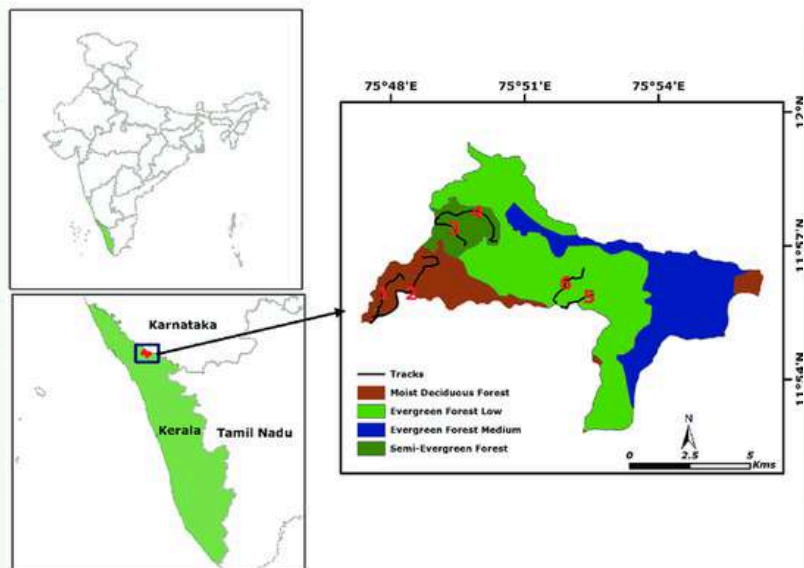
Iron as Nutrition

Context: Iron deficiency remains a major public health challenge in India, reducing work capacity and affecting child growth and learning.

About Iron
- Iron (Fe) is an essential metal used widely in industry and vital for human survival.
- In the body, it is a key component of haemoglobin and enzymes, helping transport oxygen and produce energy.

Iron as a Nutrient
- Iron is an essential micronutrient needed for oxygen transport, metabolism, and normal growth.
- Average body iron levels:
  - Adult males: ~50 mg/kg body weight
  - Adult females: ~40 mg/kg body weight

Role in Human Body
- Oxygen Transport: Helps red blood cells carry oxygen.
- Energy Production: Supports cellular respiration.
- Growth & Immunity: Important for brain development and immune function.

Excess Iron and Its Effects
- The body cannot easily remove excess iron.
- Excess iron accumulates in organs like the liver and heart, causing damage.
- Causes include repeated blood transfusions and genetic disorders.
- Chelation therapy removes excess iron through medication.

Daily Iron Requirement
(as per World Health Organization)
- Adult men: 8–10 mg/day
- Adult women: 18–20 mg/day
- Pregnant women: ~27 mg/day

Impact of Iron Deficiency
- Anaemia & Fatigue: Causes weakness, breathlessness, and low productivity.
- Child Development: Leads to poor growth and learning difficulties.
- Economic Impact: Reduces workforce efficiency and economic output.

Sources of Iron
Dietary Sources
- Heme iron (better absorbed): Meat, fish, poultry.
- Non-heme iron: Millets, pulses, unpolished rice, green leafy vegetables, milk, and curd (absorption improves with Vitamin C).
- Only about 10% of dietary iron is absorbed, so adequate intake is important.

Supplements
- Oral iron: Common and affordable treatment; usually taken for at least three months.
- Intravenous iron: Used when oral supplements are ineffective or not tolerated.

PSLV's Second Consecutive Failure

Context: A mission of the Indian Space Research Organisation (ISRO), PSLV-C62, failed to place satellites into orbit due to a problem in the third stage of the rocket, marking the second PSLV failure in 2025.

About PSLV-C62 Mission
- The mission aimed to launch one main satellite (EOS-N1) and 18 small satellites from Indian startups, universities, and foreign partners.
- It was meant to mark PSLV's return after a similar failure in May 2025, also linked to third-stage issues.

EOS-N1 (Anvesha) Satellite
- EOS-N1, named Anvesha ("exploration"), is an advanced Earth observation satellite.
- Developed by the Defence Research and Development Organisation (DRDO) mainly for defence use.
- Uses hyperspectral imaging, which captures detailed data beyond visible light.
- Useful for agriculture, environment monitoring, urban planning, and resource mapping.

Secondary Payloads
- Included satellites from Indian startups and universities, showing India's growing private space sector.
- Also included international payloads, such as a European re-entry capsule.
- One payload aims to test future satellite refuelling and servicing in space.

About PSLV Rocket
- PSLV is India's most reliable launch vehicle, often called ISRO's "workhorse."
- Mainly used to place satellites into Polar and Sun-Synchronous orbits, but also used for other missions.

Four Stages of PSLV
1. First Stage: Solid fuel boosters lift the rocket off the ground.
2. Second Stage: Liquid engine maintains direction and stability.
3. Third Stage: Solid motor increases speed close to orbital velocity.
4. Fourth Stage: Liquid engines ensure precise satellite placement.

Why Did PSLV-C62 Fail?
- The third stage is crucial to achieve high speed needed for orbit.
- Rockets must reach about 26,000–28,000 km/h to stay in orbit.
- Earlier failure occurred due to pressure loss in the motor, reducing thrust.
- Current failure is suspected to have a similar cause, possibly leakage or manufacturing defects.

OSIRIS-REx & Asteroid Bennu

Context: Samples brought to Earth in 2023 by the OSIRIS-REx mission have revealed complex organic molecules and ancient stellar materials, improving understanding of the solar system's formation and the origin of life.

About OSIRIS-REx Mission
- OSIRIS-REx stands for Origins, Spectral Interpretation, Resource Identification, and Security–Regolith Explorer.
- The mission was led by NASA in collaboration with Japan Aerospace Exploration Agency (JAXA).
- Objective: To collect and return untouched asteroid material for detailed study on Earth.

Key Discoveries from the Samples
- Scientists detected amino acids and all five nucleobases, essential components for DNA and RNA.
- Discovery of ribose (important for RNA) and glucose, marking the first detection of six-carbon sugars on an asteroid.
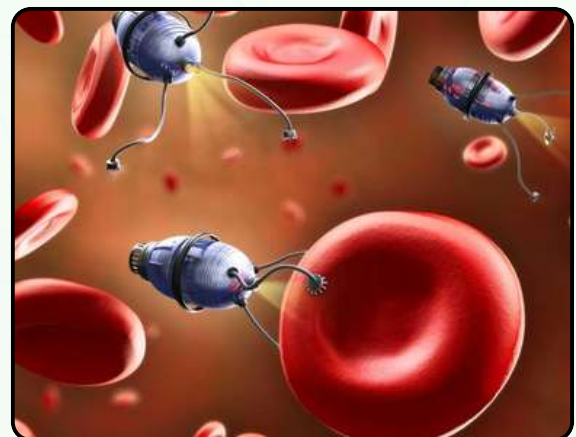
Nanobots

Context: Ambarish Ghosh of Indian Institute of Science, Bengaluru, received the 2025 Transformation Prize from New York Academy of Sciences and Tata Sons for developing magnetic nanorobots for targeted cancer treatment.

What are Nanobots?
- Nanobots (nanorobots) are extremely tiny machines that operate at the nanoscale, roughly the size of cells or molecules.
- They are programmable machines designed to perform tasks inside the body at cellular or molecular levels.
- Made using biocompatible materials such as silica, DNA, metals (like iron), or even living cells.

How Do Nanobots Work?

Nanobots are controlled remotely or programmed to react to stimuli:

- **Magnetic control:** External magnets guide their movement.
- **Chemical reactions:** Surface reactions help them move.
- **Biological motors:** Use biological energy systems like ATP.
- **Light or sound waves:** Ultrasound or light pulses power movement.

Potential Applications

1. Targeted Drug Delivery
- Deliver medicines directly to diseased cells like tumors, minimizing damage to healthy tissue.

2. Micro-Surgery & Cell Repair
- Could clear blocked arteries or repair tissues at microscopic levels.

3. Diagnosis & Imaging
- Detect disease markers and enhance medical imaging to locate tumors.

4. Disease Monitoring
- Monitor conditions like blood glucose continuously.

5. Other Uses
- Environmental cleanup of pollutants.
- Advanced material manufacturing at atomic levels.

Current Progress
- Successfully tested against ovarian and breast cancer cells in labs.
- Dental use: Effective against bacteria in root canal infections.
- Future scope includes tooth repair and regeneration.

PathGennie Software for Drug Discovery

Context:
- The Ministry of Science and Technology has introduced PathGennie, an open-source software to speed up drug discovery research.

About PathGennie
- PathGennie is a simulation tool that helps scientists study rare molecular events, such as a drug separating from a protein or protein folding/unfolding.
- **Core Function:** Efficiently simulates drug unbinding and protein transition pathways, crucial for drug design.
- **Developed by:** Scientists at S. N. Bose National Centre for Basic Sciences in Kolkata.
- **Open-source:** Freely available for researchers worldwide.
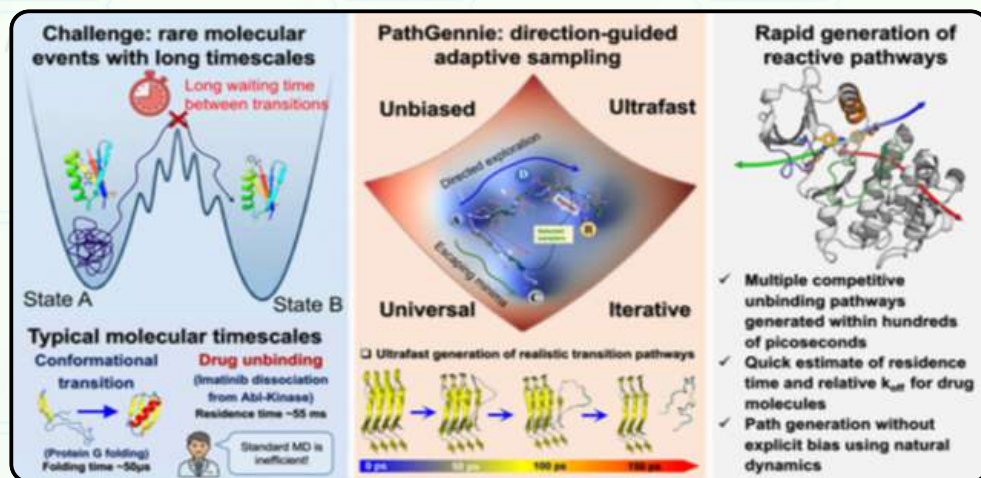
How PathGennie Works

- Instead of forcing molecular movement, it runs many ultra-short natural simulations.
- It then selects and extends only those simulations showing progress toward the desired result.
- This method efficiently finds transition pathways without artificial bias, keeping results realistic.

Wider Applications

PathGennie can also simulate other rare molecular processes such as:

- Chemical reactions
- Catalytic processes
- Phase transitions
- Molecular self-assembly

It is also compatible with machine learning, allowing AI tools to improve simulations.

Kerala's State Microbe: Bacillus subtilis

Context: Kerala has become the first Indian state to declare a state microbe, naming Bacillus subtilis for its importance in health, agriculture, and industry.

India's National Microbe

- In 2012, Ministry of Environment and Forests declared Lactobacillus delbrueckii subsp. bulgaricus as India's National Microbe.
- It is important in foods like curd and yoghurt, improving nutrition, gut health, and immunity.

About Bacillus subtilis

- A harmless and beneficial bacterium found in soil, fermented foods, and the human gut.
- Key features:
  - Gram-positive, rod-shaped bacteria.
  - Moves using flagella and reproduces rapidly.
  - Forms resistant spores to survive harsh conditions.

Importance of Bacillus subtilis

- Works as a probiotic, improving gut health and immunity.
- Supports agriculture by improving soil health and controlling plant diseases.
- Used in biofertilisers, biocontrol agents, and industrial biotechnology.

Role of Microbes in India's Economy

- India's microbial fermentation industry is valued at about $4.5 billion, expected to exceed $8 billion by 2030.
- Microbes are crucial for producing antibiotics, vaccines, enzymes, and other medicines.
- Growing use of microbes in probiotics and sustainable agriculture inputs.

Discovery of a New Genetic Code in Antarctic Archaea

Context: A study published in Science reports the discovery of a previously unknown genetic code in certain archaea found in Antarctica, marking a major breakthrough in molecular biology.

What are Archaea?
- Archaea are single-celled microorganisms similar in size and shape to bacteria.
- Many live in extreme environments, such as very cold, hot, salty, or acidic conditions.
- Some also live in moderate environments, including the human gut.
- Their survival in harsh conditions makes them important for studying evolution and adaptation.

What is the Genetic Code?
- The genetic code is the rule system by which DNA sequences are converted into proteins.
- DNA contains four bases: A, T, G, and C.
- Three bases form a codon, each coding for one amino acid.
- There are 64 codons that determine how proteins are built.

Characteristics of Archaea
- Single-celled organisms without a nucleus or membrane-bound organelles.
- Though similar in appearance to bacteria, they are genetically and biochemically different.
- Their cell membranes and cell walls are unique.
- They grow slowly and are difficult to culture in laboratories.

Significance of the Discovery
- Shows that the genetic code is not universal, as previously believed.
- Helps scientists better understand early life evolution and molecular diversity.
- May open new possibilities in biotechnology and evolutionary research.

Biomaterials

Context: With industries shifting toward sustainable and low-carbon production, biomaterials are becoming increasingly important in material engineering.

What are Biomaterials?
- Biomaterials are natural or engineered materials designed to interact safely with biological systems or the environment.
- They may be natural, synthetic, or hybrid materials.

Examples
- Bioplastics made from renewable sources like corn starch.
- Medical materials such as biodegradable sutures, implants, and tissue scaffolds.
- Bio-based fibers like cotton, hemp, and jute used in textiles.

Source and Development
- Derived from biological sources or produced using biological processes.
- Often developed to replace or improve conventional materials.

Types of Biomaterials
1. **Drop-in Biomaterials**
   - Similar to petroleum-based materials and usable in existing systems.
2. **Drop-out Biomaterials**
   - Chemically different and require new processing or recycling methods.
3. **Novel Biomaterials**
   - Provide new features like self-healing materials, bioactive implants, and advanced composites.

Applications
- Widely used in packaging, textiles, construction, and healthcare.
- Crucial in biomedicine and bioengineering, where materials are designed based on specific functional needs.

Global Risks Report 2026

Context: The Global Risks Report 2026, released by the World Economic Forum (WEF), highlights cybersecurity as the biggest risk for India in 2026, based on its Global Risks Perception Survey.

About the Global Risks Report
- An annual flagship report assessing major risks facing the world in the short term (2 years) and long term (10 years).
- The 2026 edition is the 21st report.
- Based on the Global Risks Perception Survey (GRPS), which gathers views from leaders in government, business, academia, and civil society.
- Released ahead of the WEF's annual meeting in Davos.

Key Global Findings (2026)
- Top Global Risk: Geoeconomic confrontation ranks first, overtaking armed conflicts and extreme weather.
- State-based armed conflict moves to second position.

Rising Technology Risks
- Misinformation & disinformation rank 5th globally.
- Adverse impacts of AI technologies enter top risks at rank 8.
- Cyber insecurity ranks 9th globally, reflecting growing digital vulnerability.

Dhruv-NG (Next Generation Helicopter)

Context: Hindustan Aeronautics Limited (HAL) successfully conducted the first flight of Dhruv-NG, India's next-generation civil helicopter.

About Dhruv-NG
- Dhruv-NG is an upgraded civil version of the Advanced Light Helicopter, built to meet modern global safety, performance, and comfort standards.
- It is a 5.5-tonne class, twin-engine, multi-role helicopter.

Objectives
- Reduce dependence on foreign helicopter manufacturers.
- Position India as a global hub for civil helicopter production.

Capacity & Performance
- Can carry up to 14 passengers.
- Has a service ceiling of about 6,000 metres, making it suitable for Himalayan operations and pilgrimage tourism routes.

Development & Indigenisation
- Developed by HAL at its facility in Bengaluru.
- Currently 65% indigenous content, with a target to reach 80% indigenisation in the coming decade.

Bhadrakali Temple Inscription

Context: The inscription at Bhadrakali Temple records the historical legacy of the nearby Somnath Temple and highlights King Kumarapala's role in rebuilding the temple.

About the Inscription
- Location: Found at Prabhas Patan near Somnath in Gujarat.
- Date: Carved in 1169 CE.
- Protection: Preserved by the Gujarat State Department of Archaeology.
- Nature: A prashasti (eulogy) dedicated to Acharya Bhavabrihaspati, spiritual guide of King Kumarapala.
- Historical Record: Describes the repeated reconstruction of Somnath Temple across mythological eras:
    - Satya Yuga: Built by Chandra (Soma) in gold.
    - Treta Yuga: Built by Ravana in silver.
    - Dvapara Yuga: Built by Lord Krishna in wood.
    - Kali Yuga: Rebuilt in stone by King Bhimdev Solanki.

- **Kumarapala's Contribution:** Constructed the fifth version of the temple in 1169 CE, inspired by his guru.
- **Significance:** Shows Prabhas Patan's importance as a centre of religion, architecture, and literature during Solanki rule.

About King Kumarapala (1143–1172 CE)
- A prominent ruler of the Chaulukya (Solanki) dynasty of Gujarat.
- Ruled from his capital Patan (historically Anahilapataka).
- His reign is regarded as part of Gujarat's Golden Age.
- Patronised major temple constructions including Somnath.
- Succeeded by his son Ajayapala after his death in 1172 CE.

Bargi Dam

Context: The National Dam Safety Authority (NDSA) issued a show-cause notice to the Narmada Valley Development Authority over safety lapses at Bargi Dam in Madhya Pradesh.

About Bargi Dam
- Also known as the Rani Avanti Bai Sagar Project, it is a major multipurpose dam built on the Narmada River.
- Location: Near Bargi village in Jabalpur, Madhya Pradesh.
- Type: Composite dam combining concrete (gravity) and earthen structures.
- Completion: Built in 1990; among the earliest projects in the Narmada basin development.
- Purpose: Supports irrigation, hydroelectric power generation, flood control, and water supply.
- Reservoir Role: The Bargi Reservoir also supports fisheries and local livelihoods.

Thwaites Glacier (Doomsday Glacier)

Context: A new study shows accelerating cracks and weakening in the glacier, raising concerns about a possible future collapse of Antarctic ice masses.

Key Facts
- Popularly called the "Doomsday Glacier" because its rapid collapse could significantly raise global sea levels.
- It is among the fastest-changing ice–ocean systems and plays a major role in controlling global sea-level rise.
- Location: Situated in West Antarctica, draining ice from the West Antarctic Ice Sheet into the Amundsen Sea.
- Its eastern side forms the floating Thwaites Eastern Ice Shelf, which currently slows ice flow into the ocean.

Kimberley Process (KP)

Context: India will assume the KP Chairpersonship from January 1, 2026, after serving as Vice Chair from December 2025.

About Kimberley Process
- A global initiative involving governments, the diamond industry, and civil society to regulate trade in rough diamonds.
- Objective: Prevent trade in conflict diamonds used by rebel groups to finance wars, in line with resolutions of the United Nations Security Council.
- Certification System (KPCS): Allows diamond trade only among member countries issuing conflict-free certificates.

Origin
- Emerged in the late 1990s due to conflicts financed by diamonds in Angola, Sierra Leone, and Liberia.
- Named after the meeting held in Kimberley, South Africa, in 2000.
- Became operational in 2003.

India's Role
- India is a founding member (2003), previously chaired KP in 2008, and will chair again in 2026.
- National authority: Gem and Jewellery Export Promotion Council (GJEPC).

Weimar Triangle

Context: India has participated for the first time in discussions under the Weimar Triangle format.

About the Weimar Triangle
- The Weimar Triangle is a political and diplomatic cooperation forum between Germany, France, and Poland.
- Established: 28 August 1991 in Weimar, Germany.
- Primary Objective: To support Poland and other Central European countries in joining NATO and the European Union after the end of communist rule.
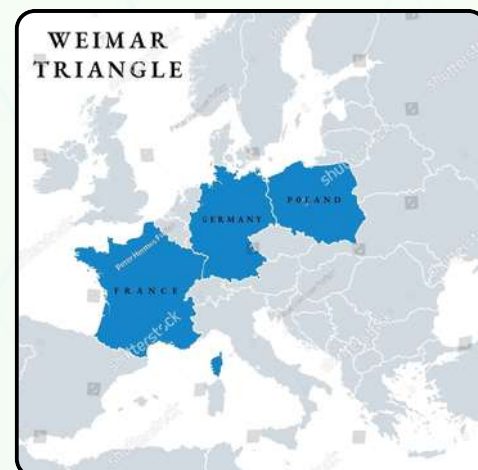
BRICS 2026

Context: India's External Affairs Minister S. Jaishankar launched the BRICS 2026 Presidency logo, theme, and official website in New Delhi.

Logo
- Inspired by the lotus, India's national symbol, with a Namaste gesture at the centre symbolising respect and unity.
- Petals represent the five founding members: Brazil, Russia, India, China, and South Africa, highlighting collective cooperation.

Theme
"Building for Resilience, Innovation, Cooperation and Sustainability."

Official Website
- Serves as a common digital platform for India's BRICS Chairship.
- Provides updates on meetings, initiatives, and outcomes, ensuring transparency and stakeholder engagement.

Bulgaria Joins Eurozone

Context: Bulgaria has adopted the euro as its official currency, becoming the 21st member of the euro area.

About the Euro Area
- A monetary union of countries within the European Union that use the euro as their common currency.
- The euro was introduced electronically in 1999, while notes and coins began circulating in 2002.
- Not all EU countries are members of the euro area.

About Bulgaria
- Located in Southeastern Europe on the Balkan Peninsula.
- Borders: Romania (north), Serbia and North Macedonia (west), Greece and Turkey (south), and the Black Sea (east).
- Capital: Sofia.
- Physical features:
  - Danube River forms much of the northern border.
  - Balkan Mountains run east-west across the country.
  - Highest peak: Musala (2,925 m) in the Rila Mountains.

Indo-Pacific Oceans Initiative (IPOI)

Context: Spain has joined the Indo-Pacific Oceans Initiative and simultaneously upgraded its bilateral ties with India to a Strategic Partnership.

About IPOI
- The Indo-Pacific Oceans Initiative (IPOI) was launched by India in November 2019 at the East Asia Summit held in Bangkok.
- It aims to promote a free, open, and inclusive Indo-Pacific region.

Objectives
- Strengthen maritime security and cooperation.
- Promote a rules-based maritime order.
- Ensure safety, stability, and sustainable development of oceans and marine resources.

Nature & Framework
- IPOI is a voluntary and non-treaty-based framework.
- It does not create a new institution but works through existing regional mechanisms, especially the Association of Southeast Asian Nations-led processes.
- Cooperation occurs through the East Asia Summit involving ASEAN members and dialogue partners.
- Focuses on practical cooperation and shared understanding, not military alliances.

Philosophical Foundation
- IPOI operationalises India's maritime vision of Security and Growth for All in the Region (SAGAR) and reflects India's growing strategic focus on the Indo-Pacific.

Only Camellia sinensis Qualifies as Tea

Context: Food Safety and Standards Authority of India (FSSAI) has tightened labelling rules, directing companies and e-commerce platforms to stop misusing the term "tea".

Key Highlights of the Directive
- Only beverages made from the leaves of Camellia sinensis can legally be labelled as tea under the Food Safety and Standards Act, 2006.
- Products marketed as "herbal tea", "flower tea", or "rooibos tea" are considered misbranded, since they are not derived from the tea plant.

About Camellia sinensis
- Plant species from which black, green, white, and instant tea are produced.
- Native to East Asia, the Indian subcontinent, and Southeast Asia.

Key Features
- Evergreen shrub or small tree.
- Leaves contain polyphenols and caffeine.

Ideal Cultivation Conditions
- Climate: Tropical to subtropical, hot and humid.
- Temperature: 20–30°C.
- Rainfall: 150–300 cm annually.
- Soil: Slightly acidic, well-drained, calcium-free.
- Humidity: Around 80%; frost-free regions preferred.

Tea Production Scenario
- India is the second-largest tea producer globally after China and the largest producer of black tea.
- Major producing regions in India:
  - Assam contributes about 55% of national production.
  - Southern states—Tamil Nadu, Kerala, and Karnataka—together produce about 17%.

Central Silk Board (CSB)

Context: The Ministry of Textiles has increased the financial approval limit of the Central Silk Board from ₹50 lakh to ₹1 crore, giving it greater operational flexibility.

About Central Silk Board
- Established: 1948 under the Central Silk Board Act.
- Nodal Ministry: Ministry of Textiles
- Headquarters: Bengaluru
- Key Functions:
  - Research & development in sericulture
  - Technology dissemination to farmers
  - Quality improvement of silk
  - Promotion of silk production and exports

Silk Sector in India
- India is the second-largest silk producer in the world and the largest consumer of silk.
- The sector supports about 9.76 million people, mainly in rural and semi-urban areas.
- Production: 41,121 metric tonnes in FY25, with mulberry silk dominating output.

Assam

Jharkhand

West Bangal

Andhra Pradesh

Karnataka
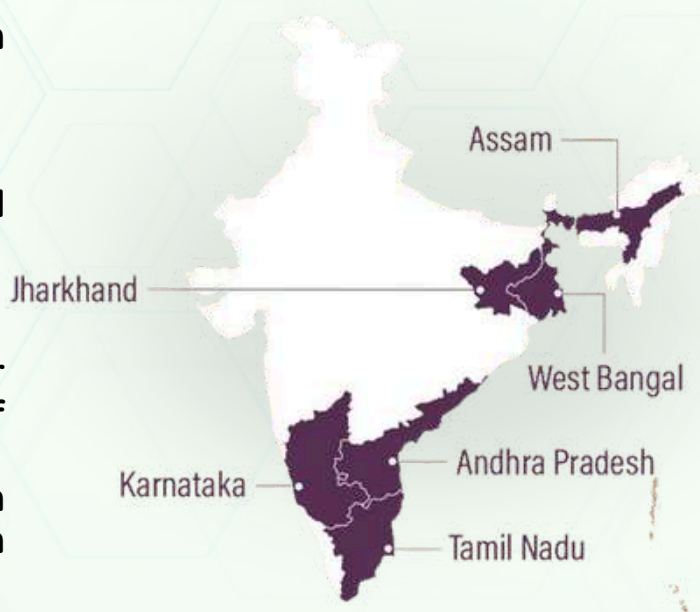
Tamil Nadu

Major Silk-Producing States
- Key producing states include Andhra Pradesh, Karnataka, Tamil Nadu, Assam, Bihar, West Bengal, Maharashtra, Gujarat, Uttar Pradesh, Chhattisgarh, and Jammu and Kashmir.
- Non-mulberry silk is also produced in Jharkhand, Odisha and several North-Eastern states.

Types of Silk
1. Mulberry Silk
- Produced by silkworms fed on mulberry leaves.
- Soft, smooth, and highly lustrous.
- Contributes about 92% of India's raw silk output.
2. Non-Mulberry (Vanya) Silk
- Obtained from wild silkworms feeding on forest trees.
- Has a coarser texture but is strong, durable, and eco-friendly.

Indiaphonte bijoyi: New Crustacean Species Discovered

Context: Researchers have discovered a new microscopic crustacean species in the Kavaratti Lagoon, Lakshadweep. It has been officially classified as a new genus and species, named Indiaphonte bijoyi.

About Crustaceans
- Crustaceans are arthropods with hard outer shells and jointed legs.
- Most live in oceans, while some occur in freshwater and on land.

About the New Species
- Named Indiaphonte bijoyi.
- Name origin:
  - Indiaphonte honours India.
  - bijoyi honours marine scientist S. Bijoy Nandan of Cochin University of Science and Technology.
- Belongs to the family Laophontidae, class Copepoda, order Harpacticoida.
- Copepods are tiny crustaceans found in marine and freshwater habitats.

Key Features
- Extremely small and visible only under a microscope.
- Semi-cylindrical body, wider in the middle and tapering at the end.
- Antenna-like appendages at the front.
- Size:
  - Females: 518–772 µm
  - Males: 508–756 µm
  - Females are slightly larger.
- Classified as meiofauna, organisms living within aquatic sediments.

Significance
- These organisms are sensitive to pollution and climate change, making them useful bio-indicators of environmental health.

Amazon's Stingless Bees Granted Legal Rights

Context: Two municipalities—Satipo and Nauta in Peru—have granted legal rights to Amazonian stingless bees, marking the first time any insect species has received such recognition worldwide.

Rights Granted
The new law recognizes bees' rights to:
- Exist and survive
- Maintain healthy populations
- Have their habitats restored
- Live in a pollution-free environment

About Stingless Bees
- Considered the oldest bee lineage, existing for nearly 80 million years.
- They lack effective stingers, making them harmless to humans.
- Found across tropical regions, especially the Amazon rainforest, which hosts about half of the world's stingless bee species.
- Peru alone has over 170 species.

Ecological & Cultural Importance
- Major pollinators, supporting over 80% of Amazonian plant species, including crops like cacao, coffee, and avocados.
- Deeply connected to Indigenous communities such as the Asháninka and Kukama-Kukamiria peoples.
- Their honey is traditionally used as medicine, with modern studies confirming anti-inflammatory and antibacterial properties.

White-bellied Heron

Content: The Union Environment Ministry has cleared the Kalai-II Hydropower Project on the Lohit River, raising concerns over its possible impact on the critically endangered White-bellied Heron, one of the rarest birds in the world.

About the Species

- Status: Second-largest living heron species and among the rarest birds globally.
- Habitat: Prefers undisturbed, free-flowing rivers, swamp forests, and tall trees for nesting.
- Diet: Feeds mainly on fish and large aquatic organisms, usually foraging alone in river rapids.
- Distribution: Found in limited areas of Arunachal Pradesh and Assam in India, along with Bhutan and Bangladesh
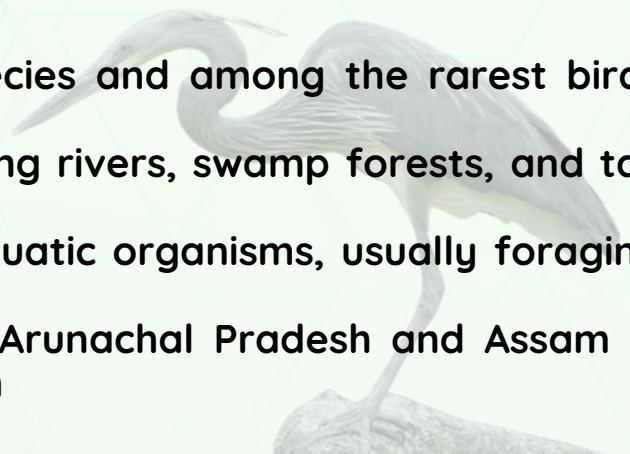
- Threats: Dam construction, habitat destruction, human disturbance, and degradation of river ecosystems.
- Conservation Status: Listed as Critically Endangered by IUCN, with fewer than 250 individuals worldwide; protected under Schedule I of the Wildlife (Protection) Act, 1972.

Pufferfish Poisoning

Content: India's first confirmed case of freshwater pufferfish poisoning has highlighted a new public health risk in riverine regions due to contamination by a deadly toxin.

What Causes It?
- Poisoning occurs due to tetrodotoxin, a powerful neurotoxin found in some marine and freshwater pufferfish.
- The toxin blocks nerve signals, causing numbness, vomiting, paralysis, breathing failure, and may lead to death.

Why Is the Risk Rising?
- Lack of awareness and misidentification of fish in rural markets lead to accidental consumption.
- Pufferfish are often sold mixed with cheaper freshwater fish.

Prevention Measures
- Awareness campaigns for fishers, vendors, and consumers.
- Market monitoring and advisories against pufferfish consumption.
- Training healthcare workers for early detection.

Treatment
- No specific antidote exists.
- Treatment involves early diagnosis, respiratory support, and symptomatic care.

About Pufferfish
- Pufferfish belong to the order Tetraodontiformes and live in marine, brackish, and freshwater habitats.
- India has around 32 species, including freshwater species found in river basins such as the Ganga River, Brahmaputra River, and Mahanadi River.
- Unlike Japan, where licensed chefs prepare pufferfish under strict rules, India lacks specific regulatory safeguards.

Ratanmahal Wildlife Sanctuary

Context: National Tiger Conservation Authority (NTCA) confirmed the presence of a tiger in the sanctuary, helping Gujarat regain its "Tiger State" status after 33 years, lost after tigers disappeared from the state following the 1992 census.

Gujarat as a Tiger State
- Gujarat is now the only Indian state hosting three big cats — lion, tiger, and leopard — reflecting successful conservation efforts.

About the Sanctuary
- Located in Dahod district, near the Gujarat–Madhya Pradesh border.
- Known for dense forests and rugged terrain, making it an important wildlife habitat.
- Hosts Gujarat's largest population of sloth bears and a healthy leopard population.
- Rich vegetation includes dry teak forests, mixed deciduous forests, and bamboo patches.
- Trees like mahua and jamun provide key food sources for wildlife, especially sloth bears.
- The sanctuary forests form the catchment of the Panam River, supporting regional water and irrigation needs.

Bio-Bitumen

Context: India became the first country to commercially produce bio-bitumen for road construction in 2026, marking progress in green infrastructure.

About Bio-Bitumen
- Bio-bitumen is an eco-friendly alternative to petroleum-based bitumen, produced using biomass and agricultural residues.
- Conventional bitumen is derived from crude oil and is used as a binding material in roads.
- Bio-bitumen can partly or fully replace fossil-fuel-based bitumen.

Facts & Figures
What is Bitumen?
Bitumen is a black substance produced through distillation of crude oil and is widely used to bind surfaces of paved road

3.21 MT India's import of Bitumen in 2022-2023

**5.24 MT** India's indigenous bitumen production in the last FY

Key Features

- **Renewable Source:** Made from crop residues and biomass waste.
- **Lower Carbon Footprint:** Reduces oil dependence and greenhouse gas emissions.
- **Performance Compatible:** Suitable for road construction with properties similar to conventional bitumen.
- **Waste Utilisation:** Converts agricultural waste into valuable infrastructure material.

India's First Urban Night Safari: Kukrail Forest Area

Context: An urban night safari is being developed at Kukrail Forest Area on the outskirts of Lucknow, Uttar Pradesh, marking a major step in eco-tourism and urban wildlife conservation.
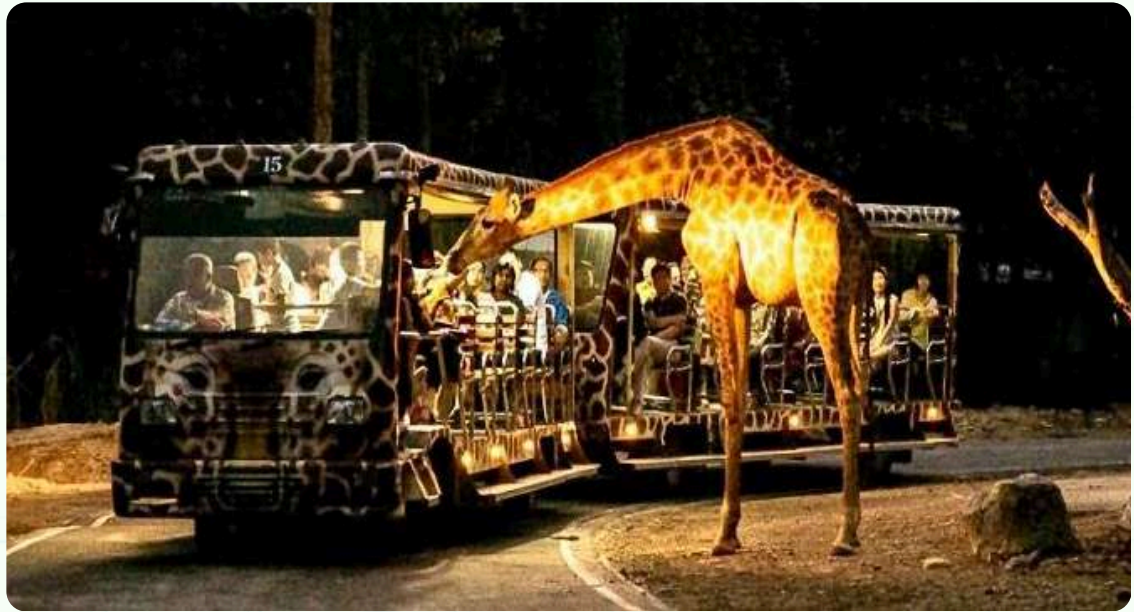
India's First Urban Night Safari

- **Concept:** Inspired by the Singapore Night Safari model, the project is adapted to Indian ecological conditions.
- **Nodal Agency:** Developed under the Uttar Pradesh Eco-Tourism Board.

Key Features

- **Nocturnal Wildlife Viewing:** Guided evening safaris on designated routes to observe animals active at night.
- **Low-Impact Infrastructure:** Controlled lighting, restricted visitor access, and eco-friendly designs to minimise disturbance.
- **Upgraded Conservation Facilities:** Modernisation of crocodile, gharial, and turtle rehabilitation centres.
- **Visitor Amenities:** Nature trails, bamboo huts, children's park, open gym, and interpretation centres.

About Kukrail Forest Area

- Functions as an important green buffer zone for Lucknow.
- Hosts established wildlife conservation and rehabilitation facilities, making it suitable for eco-tourism development.

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Dust Experiment (DEX)

Context: Indian Space Research Organisation has successfully detected interplanetary dust particles using India's first indigenous dust detector instrument, DEX.

About Dust Experiment (DEX)

- **What is DEX?** India's first indigenously developed instrument to detect high-speed interplanetary dust particles (IDPs) in space.
- **IDPs Explained:** Tiny fragments from comets and asteroids that enter Earth's atmosphere, forming the meteor layer, often seen as shooting stars.
- **Development:** A 3-kg instrument developed by Physical Research Laboratory located in Ahmedabad.
- **Launch:** Sent into space in January 2024 aboard the PSLV mission's orbital experimental module.
- **Key Findings:** Detected dust impacts roughly every 1,000 seconds, confirming continuous cosmic dust bombardment around Earth.
- **Future Use:** Acts as a prototype for dust measurement instruments in future missions around the Moon, Venus, and Mars.

Frequency Comb

Context: A frequency comb-based laser system is increasingly used in astronomy and precision physics to measure light frequencies with extremely high accuracy.

About Frequency Comb
- A frequency comb is a special laser whose spectrum contains thousands of evenly spaced frequency lines, resembling the teeth of a comb.
- The development of optical frequency combs earned the 2005 Nobel Prize in Physics, awarded by the Nobel Foundation.

Key Features
- **Equally Spaced Frequencies:** Unlike normal lasers that emit a single frequency, frequency combs produce many precisely spaced frequencies.
- **Mode-Locked Laser Source:** Generated using lasers that emit ultra-short, regular light pulses.
- **Extreme Precision:** Allows unknown frequencies to be measured by comparing them with stable references, enabling ultra-precise measurements.

Applications

- Precision Physics: Used to detect tiny frequency changes caused by gravity, motion, or other physical effects.
- Astronomy & Spectroscopy: Helps calibrate instruments and detect exoplanets by measuring tiny movements of stars.

Microlensing

Context: Microlensing observations have detected a free-floating planet with mass similar to Saturn, located about 9,800 light-years from the Milky Way's centre.

What is Microlensing?

- Microlensing occurs when a foreground object bends and magnifies light from a distant star as it passes in front of it.
- It is based on gravitational lensing predicted by Albert Einstein in his theory of relativity.
- The intervening object acts like a natural lens, briefly increasing the star's brightness.

Key Features

- The lensing object does not need to emit light, allowing detection of invisible or faint objects.
- Events are temporary and unpredictable, lasting from days to months.
- Changes in brightness help estimate the mass and distance of the object.

Applications

- Helps discover rogue planets, brown dwarfs, neutron stars, and isolated black holes.
- Useful for detecting planets far from their stars, including Earth- and Jupiter-sized planets.
- Complements other planet-detection methods that mainly find close-orbit planets.

Mpemba Effect

Context: Indian scientists have used supercomputer simulations to explain the long-standing paradox known as the Mpemba Effect.

What is the Mpemba Effect?
- The Mpemba Effect is the surprising phenomenon where hot water freezes faster than cold water under certain conditions.
- Named after Erasto Mpemba, who reported it in 1963.
- The phenomenon was earlier noticed by thinkers such as Aristotle, Francis Bacon, and René Descartes.
- Possible reasons include evaporation, convection currents, dissolved gases, and supercooling, but no single explanation fits all cases.
- The effect depends on factors like container shape, water purity, environment, and starting temperatures.

Applications
- Food Processing: Enables faster freezing, preserving food quality.
- Cryopreservation & Material Science: Helps in controlled freezing of biological samples and materials.
- Cooling & Refrigeration: May improve energy efficiency in cooling systems.
- Climate Studies: Useful in understanding natural ice formation.
- Scientific Education & Modelling: Helps test thermodynamic models and teach physics concepts.

Nipah Virus

Context: Two healthcare workers in West Bengal were suspected of Nipah virus infection.

About Nipah Virus
- Nipah virus is a bat-borne zoonotic disease, sometimes spreading via pigs and also through human-to-human transmission.
- It belongs to the Paramyxoviridae family under the Henipavirus genus.
- First human outbreaks occurred in Malaysia (1998) and Singapore (1999).
- Reservoir Host: Fruit bats (flying foxes) act as natural carriers of the virus.

Symptoms & Spread
- Initial symptoms resemble flu: fever, muscle pain, sore throat, and respiratory problems.
- Severe cases may cause brain inflammation, seizures, respiratory distress, and death.
- Incubation period: 4–14 days, making early contact tracing crucial.

Severity & Treatment
- According to World Health Organization, the fatality rate ranges from 40–75%.
- WHO lists Nipah as a priority disease.
- No vaccine or specific treatment exists; patients are treated under strict isolation and supportive care.

Past Outbreaks in India
- Last outbreak in West Bengal: 2007.
- Most recent outbreak in India occurred in Kerala in August 2025.

Nimesulide

Context: Context: Defence Minister Rajnath Singh commissioned the first indigenous pollution control vessel of the Indian Coast Guard at Goa.t, 1940.

About Nimesulide
- Nimesulide is a non-steroidal anti-inflammatory drug (NSAID) used to treat pain, inflammation, and fever due to its analgesic and antipyretic effects.
- In India, it is commonly sold under brand names like Nise, Nimulid, Nimtex, and Nicip.
- It is mainly prescribed for short-term pain relief and available in oral forms.

Health Concerns
- Higher doses of Nimesulide are linked to serious liver toxicity, prompting restrictions to protect public health.

Samudra Pratap

Context: Defence Minister Rajnath Singh commissioned the first indigenous pollution control vessel of the Indian Coast Guard at Goa.

About the Vessel
- Built by Goa Shipyard Limited, the vessel strengthens India's marine pollution response capability.
- It is a specialised Pollution Control Vessel (PCV) designed to manage oil spills and maritime pollution.

Key Features
- **Size & Capacity:** 114.5 m long, 16.5 m wide, about 4,170 tonnes displacement; crew of 14 officers and 115 sailors.
- **Pollution Response:** Equipped with side-sweeping arms, oil spill detection radar, and systems to recover, treat, and store spilled oil.
- **Advanced Systems:** Includes dynamic positioning, stern thruster, pollution response boats, firefighting systems, and security equipment.
- **Indigenous Content:** Over 60% indigenous components, supporting Atmanirbhar Bharat and Make in India initiatives.

Bhairav Battalions

Context: The Bhairav Battalions will participate for the first time in the 78th Army Day Parade on January 15, 2026, organised by the Indian Army in Jaipur, Rajasthan.

About Bhairav Battalions
- Type: Light commando, special-forces-style battalions raised in 2025 as part of Army modernisation.
- Name Origin: Named after Bhairav, symbolising power and protection.

Purpose and Role
- Designed to handle hybrid warfare, rapid response operations, and technology-driven combat.
- Bridges the operational gap between elite Para Special Forces (strategic missions) and regular infantry units.
- Built for quick deployment and immediate offensive operations ("fight tonight" capability).

Composition
- Compact units of 200–250 soldiers, much smaller than standard infantry battalions.
- Includes personnel from infantry, artillery, signals, air defence, and other arms for integrated operations.

Current Status
- 15 battalions already deployed along sensitive borders, including Rajasthan, Jammu, Ladakh, and the Northeast.
- Plans underway to expand to 25 battalions.

Madhav Gadgil

Context: Renowned ecologist Madhav Gadgil passed away, leaving a lasting legacy in ecological conservation, especially in the Western Ghats.

About Madhav Gadgil
- Born in Pune (1942), he is widely regarded as the father of modern Indian ecology.
- Played a major role in shaping India's environmental research and policy framework.
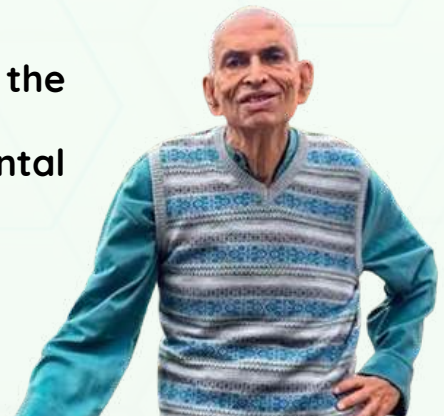
Key Contributions

- Chaired the Western Ghats Ecology Expert Panel, whose 2011 report recommended declaring Ecologically Sensitive Areas and promoting sustainable development.
- Helped shape India's biodiversity conservation framework.
- Founded the Centre for Ecological Sciences at the Indian Institute of Science, strengthening ecological research in India.
- Advocated community-based environmental governance, involving local communities in resource management.

Awards & Recognition

- Honoured with major awards, including the Padma Bhushan and the Tyler Prize for Environmental Achievement.
- Authored influential works such as This Fissured Land and Ecology and Equity, linking ecology with social justice.

Savitribai Phule (1831–1897)

Context: The Prime Minister and Union Home Minister paid tribute to Savitribai Phule on her birth anniversary, remembering her pioneering role in education and social reform.

About Savitribai Phule

- A pioneering social reformer, educationist, poet, and women's rights advocate, widely regarded as the Mother of Indian Feminism.
- Early Life: Born on 3 January 1831 in Naigaon. She was married young to Jyotirao Phule, who educated her and supported her emergence as India's first woman teacher and first woman headmistress of a girls' school in Pune.

Role in Social Reform

- Played a leading role in Satyashodhak Samaj, promoting equality and women's empowerment.
- Helped establish institutions such as the Native Female School and Mahila Seva Mandal to advance women's education and rights.
- Co-founded Bhide Wada School (1848), India's first girls' school.
- Opposed child marriage, caste discrimination, and dowry; promoted widow remarriage and safe shelters for vulnerable women.
- Supported simple, dowry-free Satyashodhak marriages.

Literary Contributions

- Authored Kavya Phule, among the earliest poetry works by a modern Marathi woman.
- Wrote Bavan Kashi Subodh Ratnakar, emphasizing education and social justice.

Legacy

- Passed away in 1897 while caring for plague patients, symbolizing lifelong dedication to public service.

Scheme to Promote Manufacturing of Sintered Rare Earth Permanent Magnets (REPM)

Context: Government of India has approved a scheme to boost domestic manufacturing of Sintered Rare Earth Permanent Magnets (REPMs).

Key Features of the Scheme
- Nodal Ministry: Ministry of Heavy Industries (approved in Dec 2025).
- Financial Outlay: ₹7,280 crore.
- Objective:
  - Develop domestic production of REPM magnets, mainly NdFeB magnets.
  - Reduce import dependence (currently almost fully imported, mainly from China).
  - Promote self-reliance under Atmanirbhar Bharat.
- Target Capacity: 6,000 metric tonnes per year.
- Scheme Duration: 7 years per manufacturer (2 years setup + 5 years incentives).
- Demand Outlook: Demand expected to double by 2030 due to EVs, renewable energy, and electronics; current demand (~4,000–5,000 tonnes) is fully imported.

About Rare-Earth Permanent Magnets
- Strongest commercially available permanent magnets.
- Made from rare-earth metals combined with iron and boron or cobalt.
- Sintered REPMs are produced by compressing and heating alloy powder to create dense, high-strength magnets.

Main Types
- NdFeB (Neodymium-Iron-Boron): Most powerful and widely used.
- Samarium Cobalt (SmCo): Better performance at high temperatures and corrosion resistance.

Major Applications
- Electric vehicle motors
- Wind turbine generators
- Consumer electronics (phones, speakers, hard drives)
- Defence, aerospace, MRI machines, and high-efficiency motors

SKOCH Award 2025

Context: Centre for Development of Telematics (C-DOT) received the SKOCH Award 2025 for its indigenous Cell Broadcast Solution (CBS), strengthening India's disaster and emergency communication system.

About the SKOCH Award
- Recognises excellence in governance, technology-driven development, and public service delivery in India.
- Organised by SKOCH Group, a policy think tank focused on socio-economic reforms and inclusive growth.
- The award was instituted in 2003.

About C-DOT's Cell Broadcast Solution (CBS)
- An indigenous emergency alert system.
- Enables near real-time transmission of disaster warnings and emergency information to mobile users through telecom networks.

Responsible Nations Index (RNI) 2026

Context: The Responsible Nations Index (RNI) 2026 was launched by former President Ram Nath Kovind, introducing a global framework to assess how responsibly countries use their power toward citizens, the world, and the environment.

About the Responsible Nations Index
- Developed by: World Intellectual Foundation (New Delhi).
- Academic collaboration: Jawaharlal Nehru University.
- Methodology validated by: Indian Institute of Management Mumbai.

Framework of the Index
The Index evaluates nations based on three core responsibilities:
1. Internal Responsibility – Ethical governance, social justice, inclusiveness.
2. Environmental Responsibility – Sustainability and climate action.
3. External Responsibility – Global cooperation and peaceful engagement.

Operational Structure:
- 7 dimensions
- 15 aspects
- 58 indicators
-

Rankings (RNI 2026) - Top 5 Countries
1. Singapore
2. Switzerland
3. Denmark
4. Cyprus
5. Sweden

Other Key Rankings
- India – Rank 16 (Top-ranked Asian nation)
- China – Rank 68
- United States – Rank 66
- Pakistan – Rank 90
- Last Rank (154): Central African Republic

Taj Trapezium Zone (TTZ)

Context: The National Green Tribunal (NGT) has issued notices to the Union government and Uttar Pradesh authorities over non-compliance with environmental norms in the Taj Trapezium Zone.

About Taj Trapezium Zone (TTZ)
- Taj Trapezium Zone is a 10,400 sq. km eco-sensitive area created to protect the Taj region from pollution and environmental degradation.
- It aims to safeguard heritage monuments, especially the Taj Mahal, from air and industrial pollution.

Coverage Area - The TTZ includes several major heritage sites, including three UNESCO World Heritage monuments:
- Taj Mahal
- Agra Fort
- Fatehpur Sikri