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JULY 2026

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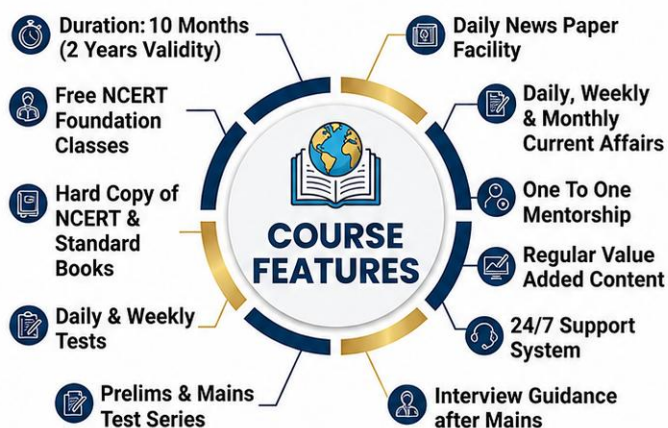
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UPSC CSE 2027/28 GENERAL STUDIES

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CONSTITUTION, POLITY & GOVERNANCE

1. Should the Right to Vote be Elevated to a Fundamental Right? – The Hindu

Why in News?

Recent legal discourse in July 2026 has renewed debates on granting constitutional or fundamental right status to the right to vote, currently classified as a statutory right.

Constitutional & Legal Framework	Judicial Evolution & Voter Rights		
• Constitutional Basis: Part XV (Articles 324–329) governs elections; Article 326 guarantees Universal Adult Suffrage for Lok Sabha and Legislative Assemblies. • Statutory Basis: Governed by the Representation of the People Act (RPA), 1950 (registration) and RPA, 1951 (Section 62 operationalizes voting). • Distinction: Fundamental Rights (Part III) offer absolute protection against state infringement; Constitutional Rights are enshrined outside Part III; Statutory Rights are created and regulated solely by legislative enactments.	• Right to Know: The ADR (2002) and PUCL (2003) cases recognized informed voting by linking the right to know candidates' antecedents to Article 19(1)(a). • Secret Ballot & NOTA: The 2013 NOTA judgment elevated the "Right Not to Vote" and secret ballot as essential facets of free expression. • Statutory Stance: The Kuldip Nayar Case (2006) reaffirmed that despite its democratic importance, voting remains a statutory privilege.		
Significance of the Debate			
 Acts as the bedrock for democratic legitimacy and political equality.	 Drives electoral accountability and strengthens participatory democracy.	 Upholds constitutional morality by ensuring free and fair elections.	 Ensures that every vote reflects the true will of the people.

Arguments for Constitutional Recognition

- Shields citizens from arbitrary legislative disenfranchisement.
- Empowers voters directly within the representative democracy.
- Elevates and safeguards the core mechanism of democratic participation.

Concerns & Counter-Arguments

- **Legislative Supremacy:** Disrupts the existing scheme where Parliament regulates electoral laws and disqualifications.
- **Judicial Overreach:** Fundamental status could trigger mass litigation, stalling strict electoral timelines.
- **Administrative Feasibility:** Creates practical challenges for the Election Commission in executing logistical mandates.

Way Forward

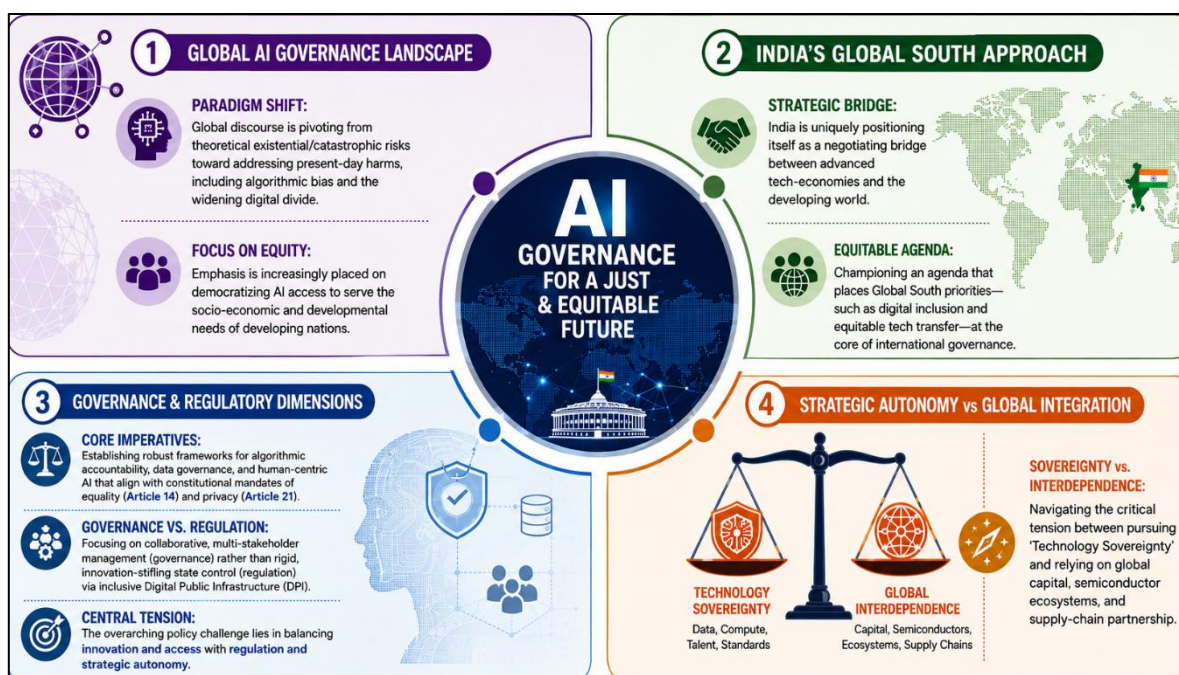
- Focus on comprehensive electoral reforms rather than mere legal reclassification.
- Safeguard the absolute institutional independence of the Election Commission.
- Drive robust voter awareness to ensure elections remain inclusive, free, fair, and informed.

QUICK REVISION BOX	
 Constitutional Articles:	Articles 324–329 (Elections), Article 326 (Adult Suffrage), Articles 14, 19 & 21 (Judicial Interpretation).
 Important Acts:	Representation of the People Act, 1950 & 1951.
 Important Judgments:	ADR Case (2002), PUCL Case (2003), Kuldip Nayar Case (2006), NOTA Judgment (2013).
 UPSC Keywords:	Universal Adult Suffrage, Electoral Democracy, Free & Fair Elections, Secret Ballot, Electoral Integrity, Constitutional Morality, Participatory Democracy.

2. India and AI Governance: Balancing Strategic Autonomy with Global South Leadership – The Hindu

Why in News?

The India AI Impact Summit 2026 has spotlighted India's evolving strategic posture in global AI governance, aiming to harmonize technological advancement with equitable public policy.



Challenges for India

- **Import Dependency:** Heavy reliance on foreign foundational AI models, critical semiconductor hardware, and AI compute infrastructure.
- **Institutional Gap:** Overcoming limited state regulatory capacity and bridging the domestic 'AI Divide' to ensure marginalized communities benefit from AI deployment.

Way Forward

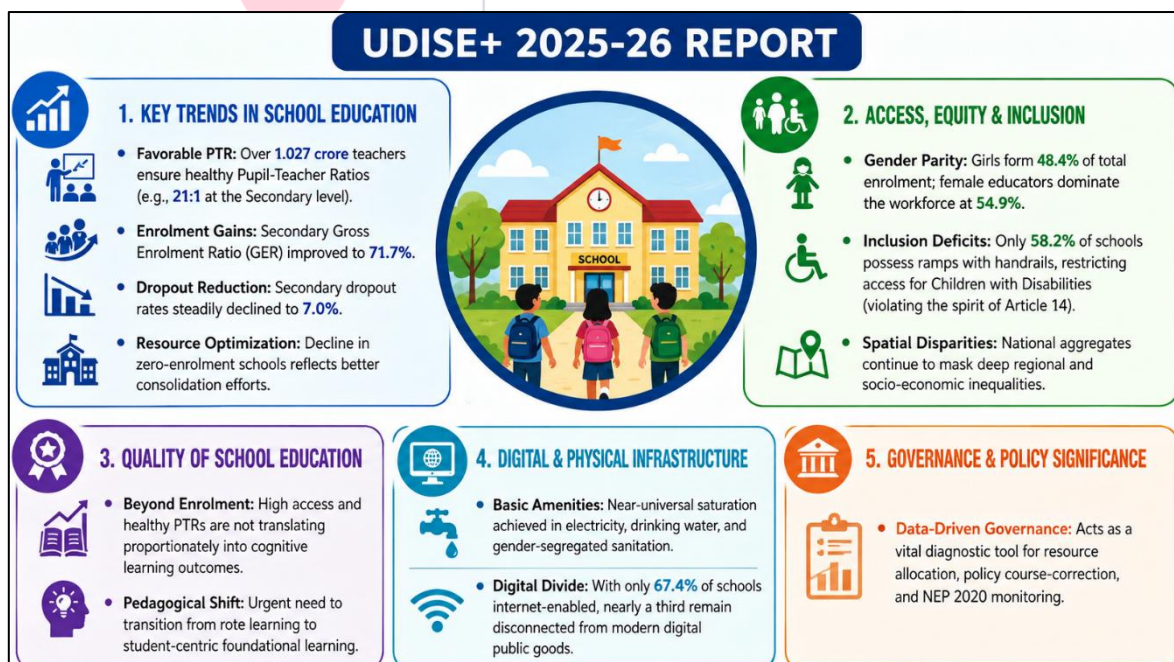
- **Risk-Based Architecture:** Develop a dynamic, risk-calibrated, and innovation-friendly governance framework.
- **Norm-Shaper:** Transition decisively from being a mere technology adopter and rule-taker to a proactive rule-shaper in global AI governance.

QUICK REVISION BOX			
 UPSC KEYWORDS: - AI Governance - Responsible AI - Strategic Autonomy - Global South - Algorithmic Accountability - Digital Divide - Technology Sovereignty.	 IMPORTANT CONCEPTS: - Risk-based AI Regulation - Human-centric AI - AI Divide - AI Compute Infrastructure - Data Governance.	 IMPORTANT FORUMS: - India AI Impact Summit 2026 - Bletchley AI Safety Summit - Seoul AI Summit - Paris AI Action Summit.	 ADDITIONAL TAKEAWAY: - India must shape global AI norms while safeguarding inclusion, equity and sovereignty. - Leadership in AI governance can amplify the voice of the Global South.

3. UDISE+ 2025-26: Assessing India's Progress in School Education – PIB

Why in News?

The Ministry of Education released the UDISE+ 2025-26 Report, providing critical data for evidence-based policymaking aligned with National Education Policy (NEP) 2020 goals.



Challenges

- **Secondary "Drop-off":** Low retention rate (51.9%) at the higher secondary level remains a critical systemic bottleneck.
- **Single-Teacher Schools:** Over one lakh schools still operate with just one teacher, crippling educational delivery.

- **Infrastructure Gaps:** Persistent digital divides and incomplete accessible infrastructure for disabled students.

Way Forward

- **Outcome-Oriented Metrics:** Shift the governance focus from merely tracking enrolment to monitoring measurable learning outcomes.
- **Rationalize Deployment:** Redeploy teaching staff strategically to eliminate single-teacher schools.
- **Digital Saturation:** Fast-track internet connectivity in rural schools to ensure equitable access to digital education.

QUICK REVISION BOX		
	Report	: UDISE+ 2025–26
	Nodal Ministry	: Ministry of Education
	Key Indicators	: PTR, GER, Dropout Rate, Retention Rate, Transition Rate
	Governance Concepts	: Evidence-based policymaking, Educational Equity, Inclusion, Learning Outcomes, Teacher Deployment
	Important Policy	: NEP 2020
	Key Data	: Teachers — 1.027 crore; Secondary GER — 71.7%; Secondary dropout — 7.0%; Internet-enabled schools — 67.4%; Girls' enrolment — 48.4%; Female teachers — 54.9%.

4. Right to be Forgotten: Balancing Privacy, Free Speech and Open Justice – The Hindu

Why in News?

Recently, the Delhi High Court delivered a landmark ruling, recognising the Right to be Forgotten (RTBF) as an extension of Article 21. It established a structured framework for de-indexing and masking personal identifiers from digital judicial records.

CONCEPT & CONSTITUTIONAL BASIS	JUDICIAL EVOLUTION & COMPETING INTERESTS	DIGITAL GOVERNANCE & DPDP ACT
 Core Concept: RTBF empowers individuals to restrict public digital access to their personal information when it is obsolete or serves no legitimate public purpose. Distinctions: It involves erasure (complete deletion), de-indexing (removal from search engine results), and masking (redacting personal identifiers while keeping the document accessible). Constitutional Link: Flows from informational privacy and the right to dignity under Article 21, as established in the Puttaswamy judgment (2017).	 Evolution: Progressing from disparate High Court rulings to the Delhi HC's 2026 guidelines, jurisprudence now heavily applies a strict proportionality test. Constitutional Balance: Courts must meticulously balance an individual's privacy, dignity, and right to rehabilitation against competing constitutional values. Tension: RTBF frequently conflicts with the freedom of speech and expression (Article 19(1)(a)), the public's right to know, and the foundational principle of open justice (transparency of judicial records).	 Statutory Backing: The Digital Personal Data Protection (DPDP) Act, 2023, provides a limited, consent-based right to erasure but lacks a comprehensive mechanism addressing public archives and legal databases. Fiduciary Role: Places the onus on data fiduciaries/intermediaries to ensure compliance with erasure requests, raising questions about platform accountability and private censorship.

Key Challenges

- **Arbitrary Adjudication:** Relying on private tech platforms to unilaterally weigh "public interest" against privacy risks arbitrary suppression of legitimate information.
- **Open Justice Dilemma:** Unrestricted de-indexing can undermine the integrity, historical accuracy, and public accessibility of legal databases (like Indian Kanoon).
- **Technological Limits:** The cross-border architecture of the internet makes achieving absolute digital erasure nearly impossible.

Way Forward

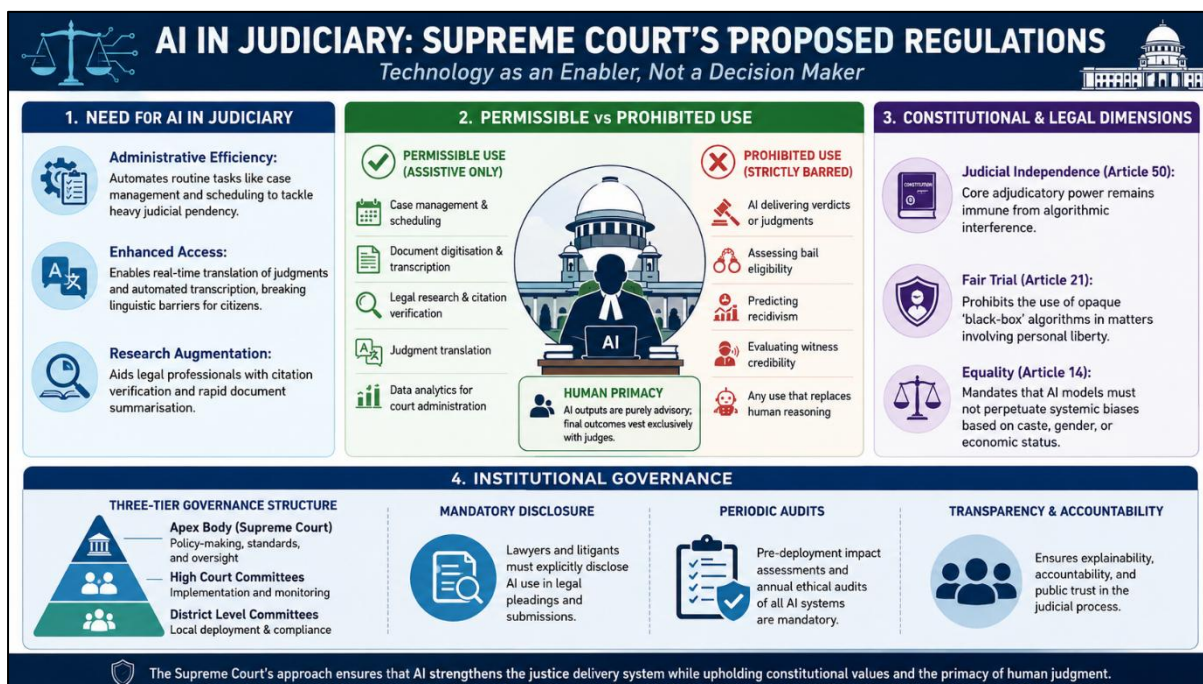
- **Statutory Clarity:** Operationalise the DPDP Act fully and empower the Data Protection Board to handle RTBF grievances uniformly.
- **Proportionality Rule:** Mandate "masking" and "de-indexing" as standard practices over absolute deletion to preserve the integrity of open justice.
- **Clear Guidelines:** Formulate precise, transparent, and multi-stakeholder guidelines to ensure RTBF protects the vulnerable without shielding powerful entities from democratic scrutiny.

QUICK REVISION BOX	
	Constitutional Provisions : Article 19(1)(a) (Free Speech), Article 21 (Right to Privacy & Dignity).
	Important Law : Digital Personal Data Protection (DPDP) Act, 2023.
	Key Concepts : Right to Privacy, Informational Privacy, Data Erasure, De-indexing, Digital Footprint, Open Justice.
	Key Balance : Privacy ↔ Free Speech ↔ Public Interest ↔ Open Justice.
	Governance Dimension : Data Protection, Platform Accountability, Grievance Redressal, Digital Rights.

5. AI in Judiciary: Balancing Technological Innovation with Judicial Independence – Indian Express

Why in News

The Supreme Court released the Draft 'Regulations for Use of Artificial Intelligence (AI) in Courts, 2026', establishing India's first constitutional framework for responsible AI adoption in the judiciary.



Risks & Challenges

- **AI Hallucinations:** High risk of generating plausible but fabricated legal precedents.
- **Digital Divide:** Unequal tech access could further alienate rural and unequipped litigants.
- **Data Privacy:** Potential compromises of highly sensitive judicial and litigant data.

Way Forward

- **Human-in-the-Loop:** Ensure AI strictly augments, rather than displaces, judicial discretion and accountability.
- **Explainable AI:** Deploy transparent AI models that allow algorithmic processes to be easily audited.
- **Capacity Building:** Train judicial officers to critically evaluate AI outputs, ensuring technology serves justice equitably.

QUICK REVISION BOX	
	Important Institution: Supreme Court of India
	Draft Framework: Regulations for Use of Artificial Intelligence in Courts, 2026
	Constitutional Provisions: Articles 14 (Equality), 21 (Fair Trial), 50 (Separation of Judiciary)
	Key Concepts: Human-in-the-Loop, Algorithmic Accountability, Explainable AI, Judicial Independence, AI Bias
	Core Principle: AI-assisted justice ≠ AI-determined justice

6. NIDAR 2.0: Building an Indigenous and Self-Reliant Drone Ecosystem – PIB

Why in News

- The Ministry of Electronics and Information Technology (MeitY), partnering with the Drone Federation of India, launched NIDAR 2.0 (2026–27) under the SwaYaan initiative.
- It challenges students to shift from assembling conventional airframes to designing the “brain” of autonomous drones using indigenous hardware.

NIDAR 2.0 – Key Highlights	
Key Features of NIDAR 2.0	Indigenous Technology & Strategic Autonomy
 Drone Innovation Track: Focuses on developing autonomous swarm drones for disaster response (operating without communication networks) and GPS-denied navigation for complex industrial inspections.	 VEGA Processor: Developed by C-DAC under the Digital India RISC-V (DIR-V) program, establishing an open-standard indigenous microprocessor architecture.
 Component Innovation Track: Tasks innovators with building indigenous flight controllers and autopilots powered exclusively by India's VEGA processor.	 Technological Sovereignty: Running drone avionics on homegrown chips mitigates supply-chain vulnerabilities, drastically cuts foreign licensing costs, and reinforces the core objectives of Atmanirbhar Bharat.
 Incentives: Features a prize pool exceeding ₹65 lakh, alongside startup incubation, internships, cloud credits, and hardware bootstrapping via free VEGA development kits.	
Governance & Strategic Applications	Human Capital & Ecosystem
 Developmental Utility: Autonomous and swarm drones offer critical, scalable solutions for disaster management, healthcare logistics, infrastructure monitoring, and precision agriculture.	 SwaYaan Synergy: Transforms students from mere technology consumers into indigenous system developers, creating a highly skilled workforce for both the semiconductor and drone sectors.
 Civil-Defence Convergence: Foundational avionics and intelligent systems developed for civilian purposes simultaneously bolster national security and defense apparatuses.	 Collaborative R&D: Fosters robust industry-academia linkages to drive patent generation, prototyping, and startup commercialization.

Challenges

- **Supply Chain Vulnerabilities:** Heavy reliance on imported electronic sub-assemblies and raw hardware components.
- **Regulatory & Safety Gaps:** Lack of standardized testing, certification, and cybersecurity frameworks for fully autonomous drone swarms.
- **Commercialization Bottlenecks:** Difficulty in transitioning viable student prototypes into scaled, market-ready products.

Way Forward

- **Deepen Component Manufacturing:** Incentivize local production of core electronic sub-assemblies to achieve complete hardware self-reliance.
- **Establish Robust Frameworks:** Formulate stringent safety, certification, and cybersecurity protocols tailored for autonomous operations.
- **Bridge the Lab-to-Market Gap:** Create dedicated government-industry funding pipelines to incubate and scale hackathon prototypes into commercial solutions.

QUICK REVISION BOX	
	Initiative : NIDAR 2.0 (2026–27) under the SwaYaan Capacity Building Initiative
	Nodal Entities : MeitY & Drone Federation of India
	Core Technology : VEGA Processor (RISC-V Architecture by C-DAC)
	Key Concepts : Autonomous Swarms, Indigenous Avionics, GPS-Denied Navigation
	Strategic Goals : Semiconductor Self-Reliance, Civil-Defence Technology Convergence, <i>Atmanirbhar Bharat</i>

7. Trial in Absentia under BNSS: Balancing Criminal Justice with the Right to Fair Trial – The Hindu

Why in News

- Recent moves by the National Investigation Agency (NIA) to seek trials against absconding terrorists have highlighted Section 356 of the Bharatiya Nagarik Suraksha Sanhita (BNSS), 2023.
- This provision explicitly enables a full trial in absentia for fugitives intentionally evading Indian judicial proceedings.

CONCEPT EXPLAINED	LEGAL FRAMEWORK UNDER BNSS (SECTION 356)	CONSTITUTIONAL & HUMAN RIGHTS DIMENSIONS	SIGNIFICANCE
 Definition: Conducting a complete criminal trial, recording evidence, and delivering a judgment without the physical presence of the accused.	 Deemed Waiver: Continued evasion is statutorily treated as a waiver of the accused's right to participate in person.	 Article 21 (Fair Trial): The provision shifts the constitutional balance, framing deliberate evasion as a forfeiture of traditional participatory rights.	 Deterrence: Prevents terrorists, economic offenders, and organized criminals from paralyzing the criminal justice system.
 Threshold: Applies strictly to persons officially declared as "Proclaimed Offenders" who deliberately abscond with no immediate prospect of arrest.	 Notice Mechanisms: Requires two consecutive arrest warrants, national/local newspaper publications, and notice to relatives/friends before initiating proceedings.	 Natural Justice: Modifies the <i>audi alteram partem</i> (right to be heard) rule by substituting physical presence with state-appointed legal counsel.	 Preserving Evidence: Facilitates the timely recording of witness testimonies, preventing memory fade or witness intimidation caused by prolonged delays.
 Scope: Restricted to serious offences carrying punishments of ten years or more, life imprisonment, or the death penalty.	 Time Buffer: A trial cannot commence until 90 days have lapsed from the framing of charges.	 Victim Rights: Prioritizes the victim's right to timely closure over the absconder's capacity to stall proceedings indefinitely.	
	 Legal Defence: State-funded legal representation is mandatory if the accused is unrepresented.		

Concerns & Challenges

- Prejudice to Accused:** Lack of direct case instructions from the accused inherently compromises the effectiveness of state-appointed defense counsels.
- Fairness Deficit:** Rigorous cross-examination of prosecution witnesses becomes exceptionally difficult without the accused's factual inputs.
- Enforcement Hurdle:** Executing a conviction order against an individual residing in a hostile foreign jurisdiction remains practically challenging.

Way Forward

- **Strict Scrutiny:** Judicial magistrates must ensure rigorous, documented compliance with all notice and proclamation safeguards before permitting a trial in absentia.
- **Meaningful Representation:** Appointed defense counsels must be senior advocates given adequate resources to rigorously contest the prosecution's claims.
- **Exceptional Use:** Courts must utilize this provision strictly as an extraordinary mechanism against deliberate evasion, not as a routine shortcut for ordinary criminal procedure.

QUICK REVISION BOX				
				
IMPORTANT LAW	KEY PROVISION	CONSTITUTIONAL PROVISION	KEY CONCEPTS	KEY INSTITUTIONS
Bharatiya Nagarik Suraksha Sanhita (BNSS), 2023	Section 356 — Trial and judgment in absentia of proclaimed offender	Article 21 (Right to a Fair Trial & Due Process)	• Trial in Absentia • Proclaimed Offender • Due Process • Natural Justice • Deemed Waiver	• NIA Courts • Criminal Courts • National Investigation Agency

8. Political Defections: Undermining the Moral Sanctity of Democracy – the Hindu

Why in News

- Recent instances of mass political realignments and intra-party splits have reignited debates around the efficacy of the Tenth Schedule.
- The central concern is that post-election defections subvert the democratic choices expressed by voters, replacing public mandates with opportunistic political maneuvering.

Constitutional & Legal Framework		Democratic & Constitutional Concerns	
	Tenth Schedule: Inserted via the 52 nd Amendment (1985), it seeks to penalize political defections to ensure government stability.		Subversion of Voter Mandate: Defections betray the electorate, reducing voters to mere bystanders as governments are formed through post-poll engineering.
	Grounds for Disqualification: Arises when a member 'voluntarily gives up' party membership or votes/abstains contrary to the party whip.		Stifled Legislative Independence: Strict party whips restrict legislators from voicing legitimate dissent or voting based on conscience and constituency interests.
	The Merger Exception: Paragraph 4 protects legislators if at least two-thirds of the legislature party merges with another political party.		Accountability Deficit: Constantly shifting loyalties blur ideological lines, threatening the core tenets of representative democracy and parliamentary morality.
	91st Amendment Act (2003): Abolished the protection previously available for 'splits' (one-third members) and capped the size of the Council of Ministers to curb patronage politics.	Judicial & Institutional Dimension	
	Adjudicatory Authority: The Speaker or Chairman of the House functions as the sole tribunal deciding disqualification petitions.		Role of the Speaker: In <i>Kihoto Hollohan</i> (1992), the Supreme Court upheld the Speaker's adjudicatory power but subjected it to judicial review.
	Why Defections Persist		Mandating Timelines: In <i>Keisham Meghachandra</i> (2020), the Court directed Speakers to decide defection petitions ordinarily within three months to prevent deliberate delays.
	Ambiguity in Law: The strategic misuse of the merger clause allows splinter groups to legitimize wholesale defections.		Interpreting Defection: Ravi S. Naik (1994) clarified that voluntarily giving up membership extends beyond formal resignation to include anti-party conduct.
	Institutional Inertia: Partisan Speakers often employ 'pocket vetoes', indefinitely delaying disqualification proceedings to favor the ruling dispensation.		
	Incentives: The lure of ministerial berths, financial patronage, and a lack of robust intra-party democracy drive unprincipled party-switching.		

Reform Debate & Way Forward

- **Independent Adjudication:** Transfer disqualification powers from the Speaker to an independent tribunal or the Election Commission, as recommended by the 2nd ARC.
- **Limiting Whips:** Restrict the issuance of binding whips only to critical votes like No-Confidence Motions or Money Bills to preserve internal dissent.
- **Plugging Loopholes:** Revisit the 'merger' exception to prevent it from acting as a legal shield for opportunistic defection.
- **Constitutional Morality:** Foster a political culture where governmental stability does not compromise representative legislative accountability and the sanctity of the electoral mandate.

QUICK REVISION BOX

 Constitutional Provision: Tenth Schedule	 Important Amendment: 91st Constitutional Amendment Act, 2003	 Key Concepts: Anti-Defection Law, Floor Crossing, Political Morality, Voter Mandate, Party Whip, Legislative Accountability	 Key Institutions: Speaker/Chairman, Supreme Court, Election Commission of India	 Core Issue: Party Loyalty ↔ Legislative Independence ↔ Voter Mandate
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9. Strengthening the Anti-Cheating Law: Fast-Track Justice for Public Examination Malpractices – Times of India

Why in News

The Public Examinations (Prevention of Unfair Means) Amendment Bill, 2026, introduced on 27 July 2026, seeks to strengthen the 2024 Act through time-bound investigation, Special Fast Track Courts, stricter penalties and speedy appeals. The Bill was passed by both Houses by 30 July 2026.

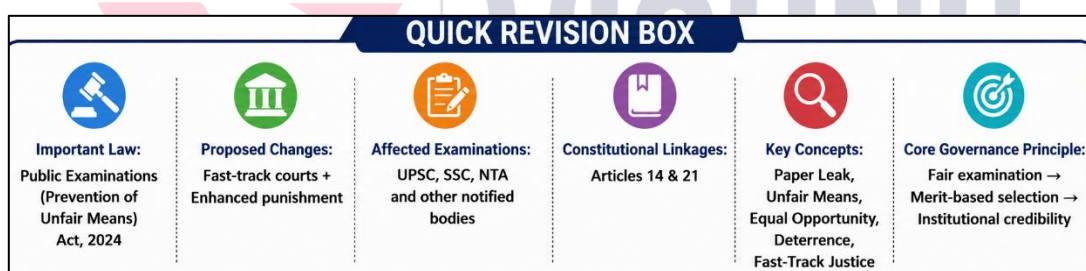
NEED FOR STRONGER ENFORCEMENT	PROPOSED AMENDMENTS	ENHANCED PENALTIES
 Merit & Equality: Paper leaks undermine equal opportunity and reward malpractice over merit.	 Fast-Track Justice: Special Fast Track Courts with day-to-day proceedings; trial targeted for completion within three months of filing of the chargesheet.	 Individuals: 3–5 years → 5–10 years ; fine up to ₹10 lakh → ₹50 lakh .
 Youth Confidence: Repeated cancellations disrupt careers and erode aspirants' trust.	 Time-Bound Investigation: Investigation to be completed within two months .	 Service Providers: Fine up to ₹1 crore → ₹5 crore ; debarment 4 → 8 years .
 Institutional Credibility: Examination integrity is central to public recruitment and admissions.	 Speedy Appeals: Appeals before a two-Judge High Court Bench, with disposal, as far as possible, within three months .	 Management: 3–10 years → 5–10 years ; fine → ₹5 crore .
	 Special Task Force: Central Government empowered to constitute a specialised investigation team.	 Organised Crime: 5–10 years → 7–10 years ; minimum fine ₹1 crore → ₹10 crore .
CONSTITUTIONAL & GOVERNANCE DIMENSIONS		
 Article 14: Protects equality and non-arbitrariness in examination processes.	 Article 16: Ensures equality of opportunity in public employment.	 Article 21: Fair procedures and examination integrity affect dignity, livelihood prospects and legitimate expectations of aspirants.
		 Rule of Law: Effective enforcement reinforces transparent and accountable governance.

Key Challenges

- **Cyber-enabled Leaks:** Encrypted communication and digital tampering complicate investigation.
- **Inter-State Networks:** Requires coordination among examination bodies, police and specialised agencies.
- **Judicial Capacity:** Fast-track timelines must not compromise fair trial safeguards or judicial scrutiny. PRS has also flagged concerns regarding rigid timelines for criminal trials and appeals.

Way Forward

- **Prevention + Punishment:** Deterrence must complement systemic prevention.
- **Secure Examination Chain:** End-to-end encryption, access controls, secure printing, randomisation and digital audit trails.
- **Institutional Accountability:** Clear SOPs, defined responsibility and liability for administrative lapses.
- **Balanced Enforcement:** Ensure speedy investigation and adjudication while preserving due process and legitimate candidates' academic cycles.



INTERNATIONAL RELATIONS

10. India–Japan Strategic Partnership: From Strategic Convergence to Economic and Technological Resilience – PM India

Why in News

- The 16th India–Japan Annual Summit further deepened the Special Strategic and Global Partnership, with 16 outcomes focused on economic security, AI, energy resilience, critical minerals, pharmaceuticals, mobility and advanced research.

Strategic Convergence

- Three Priorities: Defence & security; economic partnership covering economic security, energy, technology and innovation; and people-to-people exchanges.
- Indo-Pacific: India and Japan seek a free, open, resilient and rules-based Indo-Pacific, aligning India's MAHASAGAR/IPOI with Japan's updated FOIP vision.
- Economic Security: Cooperation is shifting from conventional trade towards resilient and diversified supply chains in strategic sectors.

 ECONOMIC & STRATEGIC SECURITY	• Critical Sectors: Semiconductors, critical minerals, AI/ICT, clean energy and pharmaceuticals identified for project-based cooperation. • Critical Minerals: Cooperation in upstream mineral exploration through technical expertise and knowledge exchange. • Batteries: Joint projects aim to develop a trusted, resilient and sustainable battery supply chain.	   
 TECHNOLOGY & AI COOPERATION	• IndiaAI–GENIAC: Cooperation through B2B matchmaking, AI-policy exchanges and access to computing resources for joint projects. • Sovereign AI: IIT Bombay, BharatGen Technology Foundation and Japan's National Institute of Informatics will collaborate on LLMs for enhanced scientific reasoning. • AI Talent: Both sides reaffirmed the goal of bringing 500 highly skilled Indian AI professionals to Japan by 2030, alongside joint research. • Responsible AI: Emphasis on safe, secure, trustworthy, inclusive and human-centric AI ecosystems.	 
 ENERGY, MINERALS & GREEN GROWTH	• Energy Resilience: Cooperation on strategic stockpiling, crude-oil and petroleum-product reserves and investments across the maritime energy-transport value chain. • CBG Initiative: Cooperation aims to establish 1,000 biogas and organic-fertiliser plants, leveraging India's dairy-cooperative network. • Green Transition: Batteries, clean energy and bioenergy cooperation support diversification of India's energy ecosystem.	  
 CONNECTIVITY, MOBILITY & HEALTH	• Next-Generation Mobility: Cooperation covers railways, automobiles, roads, aviation, shipbuilding, ports, logistics and urban development to promote "Make in India for the World" exports. • Pharmaceutical Resilience: Investment, technical and industry-academia cooperation to strengthen API and KSM supply chains. • Deep-Tech: C-CAMP–RIKEN and NCBS–RIKEN collaborations expand cooperation in life sciences, healthcare, agriculture and basic research.	     

Challenges

- **Implementation Deficit:** Translating G2G frameworks into actionable B2B technology transfers and private investments.
- **Asymmetrical Dependencies:** Diversifying supply chains without creating new structural reliance in critical technologies.
- **Regulatory Hurdles:** Navigating complex legal, trade, and regulatory differences across jurisdictions.

Way Forward

- **Private-Sector Mobilization:** Institutionalize joint mechanisms to incentivize B2B partnerships and venture collaboration.

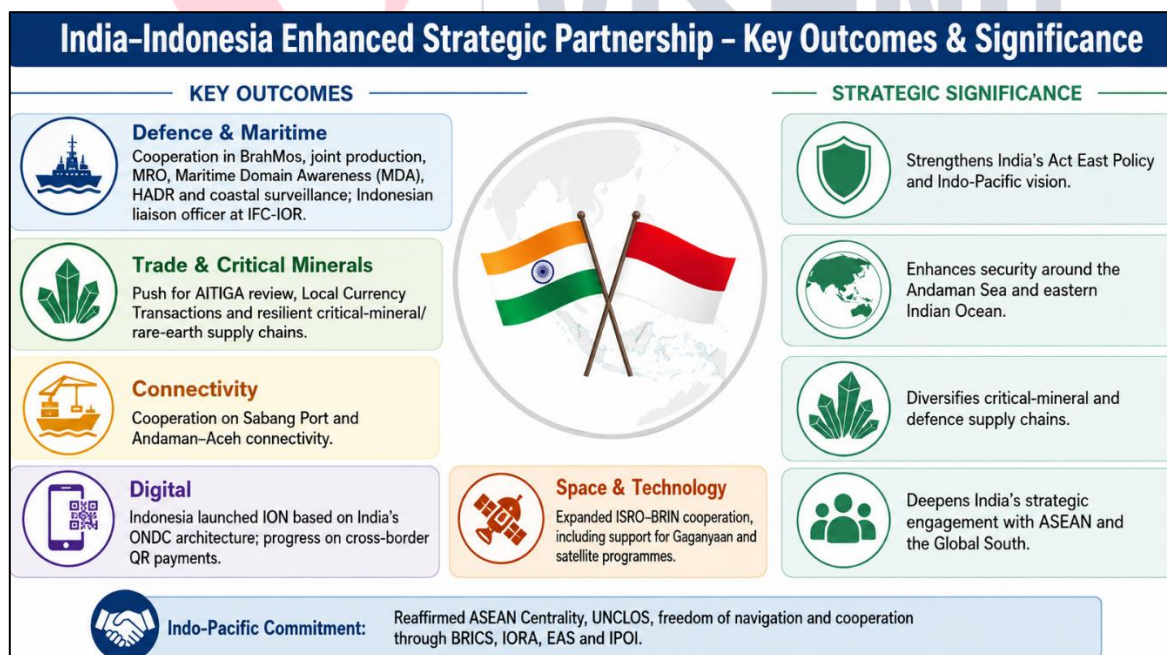
- **Technology Sovereignty:** Accelerate joint R&D in AI, semiconductors, and clean energy to secure domestic resilience.
- **Indo-Pacific Stability:** Leverage bilateral economic security as an anchor for a free, open, and resilient regional architecture.

— QUICK REVISION BOX —						
						
Summit: 16th India-Japan Annual Summit	Key Areas: Economic Security, AI, Semiconductors, Critical Minerals, Energy, Batteries, Pharmaceuticals, Mobility	AI Cooperation: IndiaAI Mission ↔ Japan's GENIAC	Energy: Strategic Stockpiling & Energy Resilience	Connectivity: Next Generation Mobility Partnership	Green Cooperation: Cooperative Biogas for Growth (CBG) Initiative — 1,000 plants	Strategic Theme: Resilient Supply Chains + Technology Cooperation + Indo-Pacific Partnership

11. India-Indonesia Comprehensive Strategic Partnership: Deepening Strategic Convergence - PIB

Why in News?

PM Narendra Modi's 6-8 July 2026 State Visit to Indonesia aimed to impart fresh momentum to the India-Indonesia Comprehensive Strategic Partnership.



Key Challenges

- **Trade barriers:** Tariff and non-tariff issues constrain economic potential.
- **Connectivity gaps:** Sabang Port and Andaman-Aceh initiatives require timely implementation.
- **Strategic complexities:** Managing evolving Indo-Pacific geopolitics while preserving ASEAN Centrality.

- **Implementation deficit:** Numerous agreements require sustained institutional follow-up.

Way Forward

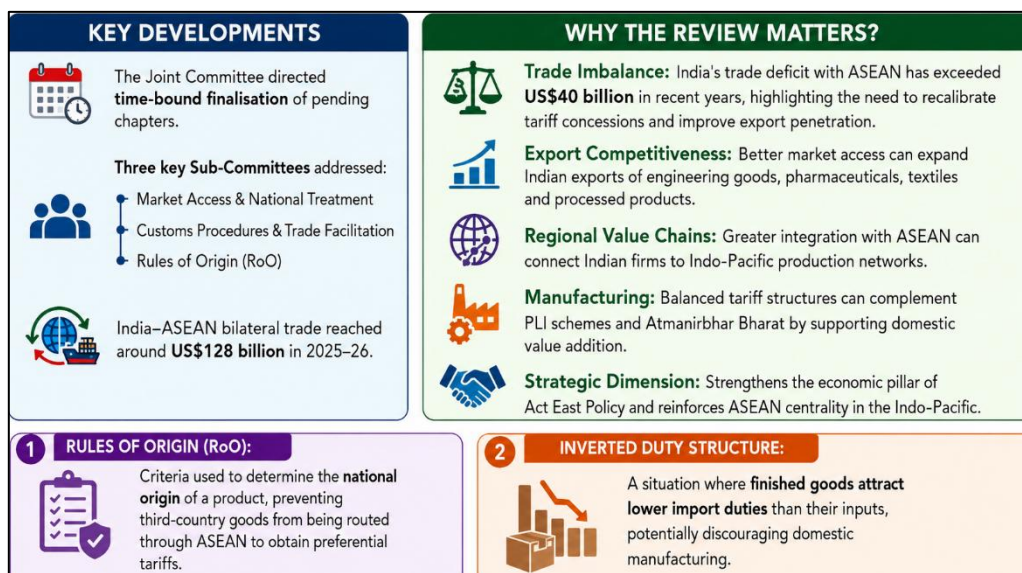
- Expedite AITIGA review and improve market access.
- Operationalise Sabang–Andaman connectivity.
- Expand joint defence production, MRO and technology transfer.
- Build resilient critical-mineral and rare-earth value chains.
- Deepen cooperation in DPI, cybersecurity, space and clean energy.
- Strengthen coordination through ASEAN, IORA, IPOI and India–Indonesia–Australia trilateral.

QUICK REVISION BOX		
	Partnership	: Comprehensive Strategic Partnership
	Maritime	: Sabang Port IFC-IOR MDA UNCLOS
	Economy	: AITIGA LCT Critical Minerals
	Digital	: ONDC → ION QR Payments
	Space	: ISRO–BRIN Gaganyaan
	Keywords	: Act East • ASEAN Centrality • Indo-Pacific • Global South

12. India–ASEAN Trade Pact Review: Strengthening Economic Integration through AITIGA – PIB

Why in News?

- India hosted the 13th ASEAN–India Trade in Goods Agreement (AITIGA) Joint Committee Meeting in New Delhi during 6–10 July 2026, seeking faster progress in the ongoing review.
- AITIGA was signed in 2009 and implemented in 2010 to liberalise trade in goods between India and the 10-member ASEAN.
- The review aims to make the agreement more balanced, user-friendly and trade-facilitative.



Major Challenges

- **Inverted Duty Structure:** Lower import duties on finished goods than inputs can discourage domestic manufacturing and value addition.
- **Non-Tariff Barriers:** SPS/TBT standards, certification and regulatory requirements restrict Indian exports.
- **Trade Diversion:** Weak RoO may allow third-country goods to enter India through ASEAN using preferential tariffs.
- **Low FTA Utilisation:** Limited awareness and compliance capacity constrain MSMEs from fully utilising trade preferences.

Way Forward

- Pursue balanced and reciprocal liberalisation aligned with India's export interests.
- Strengthen RoO and anti-circumvention mechanisms while addressing NTBs.
- Harmonise standards, improve customs digitisation and logistics, and strengthen MSME export support.
- Align AITIGA outcomes with PLI, Atmanirbhar Bharat and resilient supply-chain strategies.

QUICK REVISION BOX	
AITIGA:	Signed 2009 Implemented 2010
ASEAN Members:	Brunei • Cambodia • Indonesia • Laos • Malaysia • Myanmar • Philippines • Singapore • Thailand • Vietnam
Core Areas:	Market Access • RoO • Customs • Trade Facilitation
Trade:	~US\$128 bn (2025-26)
Keywords:	Act East • ASEAN Centrality • PLI • Atmanirbhar Bharat • Regional Value Chains • Indo-Pacific

13. BRICS Guwahati Declaration: Strengthening Cooperation Against Illicit Drug Trafficking – Indian Express

Why in News?

- The BRICS Heads of Anti-Drug Agencies Meeting concluded in Guwahati, Assam, with the adoption of the Guwahati Declaration.
- It calls for real-time intelligence sharing, technology-enabled enforcement, and coordinated action against transnational drug networks.

BRICS GUWAHATI DECLARATION 2026
Strengthening Cooperation Against Illicit Drug Trafficking

ABOUT BRICS

- BRICS is a cooperation forum of major emerging economies covering economic, developmental, political and Global South issues.
- Origin:** BRIC was formed in 2009; South Africa joined in 2011, creating BRICS.
- Expansion:** Egypt, Ethiopia, Iran and UAE joined in 2024; Indonesia joined in 2025.
- 11 Members:** Brazil, Russia, India, China, South Africa, Egypt, Ethiopia, Iran, UAE, Indonesia.

India's 2026 Chairship:
"Building for Resilience, Innovation, Cooperation and Sustainability."

KEY COMMITMENTS

- Intelligence Sharing:** Faster exchange of intelligence, information and best practices.
- Emerging Threats:** Joint action against synthetic drugs, New Psychoactive Substances (NPS) and precursor diversion.
- Digital Trafficking:** Counter trafficking through darknet, digital platforms and virtual assets.
- Maritime Routes:** Strengthen surveillance of sea-based trafficking networks.
- Demand Reduction:** Prevention, treatment, rehabilitation and protection of children and youth.

SIGNIFICANCE FOR INDIA

- Internal Security:** Drug trafficking strengthens organised crime and illicit financial networks.
- Geographical Vulnerability:** Proximity to the Golden Crescent and Golden Triangle, alongside extensive maritime routes, increases trafficking risks.
- Technology:** Promotes data analytics, digital forensics and real-time interdiction.
- Public Health:** Encourages a whole-of-society approach combining enforcement, prevention and rehabilitation.
- Global Cooperation:** Expands BRICS cooperation into non-traditional security threats.

INDIA'S APPROACH

- India follows a zero-tolerance approach under the **NDPS Act, 1985**, with the **Narcotics Control Bureau (NCB)** as the nodal agency.
- Its 2026–29 network-centric strategy focuses on dismantling entire criminal networks rather than merely intercepting consignments.

Dismantle Networks, Not Just Consignments

UNITED BY PURPOSE, STRONGER TOGETHER: BRICS AGAINST DRUG TRAFFICKING

Challenges

- **Darknet & Encryption:** Anonymity complicates detection and investigation.
- **Precursor Diversion:** Legitimate chemicals can be diverted for illicit production.
- **Financial Crime:** Virtual assets and complex transactions facilitate money laundering.
- **Cross-Border Enforcement:** Differences in laws, jurisdiction and investigative capacities hinder cooperation.

Way Forward

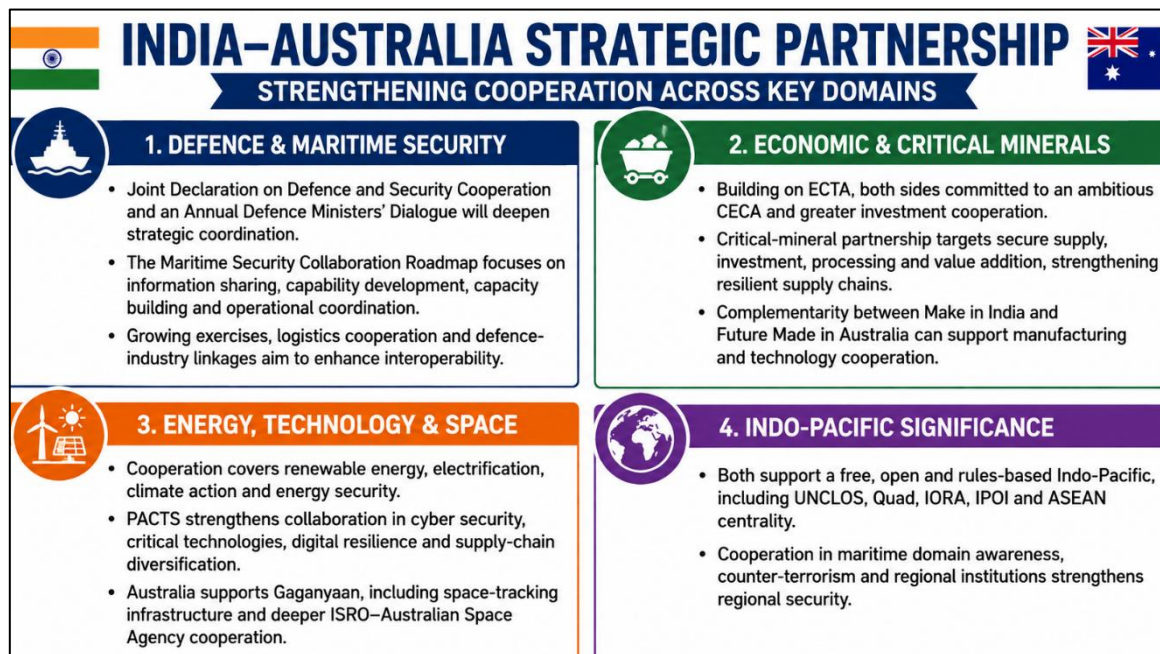
- Build interoperable intelligence systems and strengthen real-time information exchange.
- Integrate law enforcement, financial intelligence and public-health responses.
- Strengthen precursor monitoring, darknet surveillance and digital forensics.
- Develop common protocols for evidence sharing, asset tracing and coordinated investigations.

QUICK REVISION BOX	
BRICS:	BRIC (2009) → South Africa (2011) → Expanded (2024–25)
Members:	Brazil • Russia • India • China • South Africa • Egypt • Ethiopia • Iran • UAE • Indonesia
Guwahati Declaration:	Drug Trafficking • NPS • Darknet • Precursor Chemicals • Intelligence Sharing
India:	NCB • NDPS Act, 1985 • Network-Centric Strategy
Keywords:	Transnational Crime • Digital Forensics • Public Health • Financial Networks

14. India–Australia Strategic Partnership: Deepening Cooperation Across Domains – PIB

Why in News?

- Prime Ministers Narendra Modi and Anthony Albanese held the Third India–Australia Annual Summit in Melbourne from 8–10 July 2026.
- Both reaffirmed the Comprehensive Strategic Partnership (CSP) and commitment to a peaceful, stable and prosperous Indo-Pacific.



Challenges

- **Implementation Gap:** Converting multiple agreements and dialogues into measurable outcomes remains crucial.
- **Trade Barriers:** Completing CECA requires addressing market-access and non-tariff barriers.
- **Value-Chain Depth:** Critical-mineral cooperation must move beyond supply towards processing and value addition.
- **Interoperability:** Expanding defence exercises requires deeper operational and industrial integration.
- **Regional Complexity:** Coordination across Quad, IORA, IPOI and ASEAN-led mechanisms requires sustained institutional alignment.

Way Forward

- Ensure time-bound implementation, stronger defence-industrial cooperation and deeper military interoperability.
- Build resilient critical-mineral, energy and technology supply chains with greater processing in India.
- Resolve trade barriers and advance a balanced, mutually beneficial CECA.

- Expand maritime cooperation and align bilateral initiatives with an inclusive, rules-based Indo-Pacific architecture.

QUICK REVISION BOX					
Partnership: Comprehensive Strategic Partnership	Trade: ECTA → CECA	Maritime: Roadmap + MDA	Technology: PACTS	Space: Gaganyaan	Indo-Pacific: Quad • IORA • IPOI • ASEAN Centrality

15. India-New Zealand Strategic Partnership: A New Roadmap for Indo-Pacific Cooperation - PIB

Why in News?

During PM Narendra Modi's July 2026 visit to New Zealand, the first by an Indian PM in 40 years, India and New Zealand elevated bilateral ties to a Strategic Partnership and adopted the Roadmap to 2030.

KEY DIMENSIONS		CHALLENGES
	Diplomatic: Institutionalised engagement through a Foreign Ministers' Dialogue, annual senior-official meetings and parliamentary exchanges.	
	Defence & Maritime Security: The Maritime Cooperation Arrangement (MCA) covers naval activities, hydrography and mutual logistics support. Operational cooperation includes CTF-150, where New Zealand commanded and India served as Deputy Commander in 2025.	
	Counter-Terrorism & Security: Cooperation on terrorism, cyber security, narcotics and transnational crime, including a Joint Working Group on Counter-Terrorism for information and knowledge sharing.	
	Trade & Economy: A comprehensive FTA seeks to remove trade barriers, deepen economic cooperation and promote investment, supporting India's Viksit Bharat@2047 ambitions. Bilateral trade is targeted at NZ\$7 billion by 2030.	
	Agriculture: Cooperation in kiwifruit, apples, honey, animal husbandry and dairying, supported by productivity partnerships and Centres of Excellence.	
	People-to-People: Education, tourism, sport, culture and the Indian diaspora strengthen societal linkages and human-capital cooperation.	
	Climate & Resilience: Collaboration through the International Solar Alliance (ISA), Coalition for Disaster Resilient Infrastructure (CDRI) and disaster-management institutions supports climate-resilient development.	
	Indo-Pacific & Geoeconomics: Both support a free, open and rules-based Indo-Pacific, ASEAN centrality and UNCLOS. Cooperation on stable, transparent and resilient supply chains adds a geoeconomic dimension. New Zealand also supports India's permanent membership of a reformed UNSC.	

Way Forward

- Convert the Roadmap 2030 into measurable outcomes through regular reviews.
- Deepen maritime-domain awareness, counter-terrorism, cyber security and supply-chain resilience.
- Expand cooperation in agriculture, technology, education, skills, clean energy and investment.
- Leverage bilateral convergence in ASEAN-led forums, Indo-Pacific mechanisms and multilateral institutions.

QUICK REVISION BOX			
Strategic Status: Strategic Partnership	Framework: Roadmap to 2030	Trade: FTA → NZ\$7 bn by 2030	Security: MCA • CTF-150 • JWG on Counter-Terrorism
Agriculture: Kiwifruit • Apples • Honey • Dairying	Climate: ISA • CDRI	Indo-Pacific: ASEAN Centrality • UNCLOS • Supply-Chain Resilience	Multilateral: UNSC Reform

16. India's UNSC Campaign 2028-29: Advancing a More Representative Global Order – Times of India

Why in News?

- External Affairs Minister S. Jaishankar launched India's official campaign for a non-permanent UNSC seat for 2028-29 at the UN Headquarters on 13 July 2026.
- The campaign is anchored in "SHANTI – Securing Holistic Advancement through Norms, Trust, Integrity."
- Elections will be held in June 2027, with India and Tajikistan competing for the sole Asia-Pacific Group seat.

INDIA'S PRIORITIES	INDIA'S CREDENTIALS	CHALLENGES
Global South: Elevate concerns of developing countries on peace, security, food, fuel and fertiliser security through greater coalition-building.	UN Peacekeeping: India's longstanding contribution to UN peacekeeping demonstrates its commitment to international peace and security.	Geopolitical Polarisation: Rivalries among major powers can constrain consensus within the UNSC.
Maritime Security: Promote a free, open and rules-based maritime order, protection of sea lanes and safety of seafarers.	Global South Partnerships: Development cooperation and capacity-building initiatives strengthen India's credibility among developing countries.	Strategic Balancing: India must balance strategic autonomy with divergent positions of major-power blocs while retaining diplomatic credibility.
Counter-Terrorism: Strengthen international action against terrorism, terror financing and transnational security threats.	Counter-Terrorism: India's advocacy against terrorism and terror financing reinforces its security credentials.	UNSC Reform Inertia: Resistance to institutional reform limits progress towards a more representative global governance architecture.
Emerging Technologies: Encourage responsible and inclusive governance of AI and emerging technologies, while addressing their potential misuse.	Multilateral Diplomacy: India's experience in coalition-building and dialogue supports its case for a constructive UNSC role.	Electoral Diplomacy: Securing broad support requires sustained engagement with diverse UN member states.
Multilateral Reform: Advance a more representative, democratic and effective UN system, including comprehensive UNSC reform.		

Way Forward

- Build cross-regional coalitions around Global South priorities and strengthen development diplomacy.
- Pursue consensus-oriented diplomacy while maintaining strategic autonomy.
- Advance cooperation on maritime security, counter-terrorism and emerging technologies.
- Use the campaign to build wider support for comprehensive UNSC reform.

QUICK REVISION BOX				
Term:	Election:	Regional Group:	Contest:	Campaign:
2028–29	June 2027	Asia-Pacific	India vs Tajikistan	SHANTI
Full Form: Securing Holistic Advancement through Norms, Trust, Integrity				
Priorities: Global South • Maritime Security • Counter-Terrorism • AI & Emerging Technologies • UNSC Reform				
Credentials: UN Peacekeeping • Development Partnerships • Multilateral Diplomacy				

17. India Strengthens Global Leadership in Food Standards through Codex – News on air

Why in News?

- At the 49th Session of the Codex Alimentarius Commission (CAC49) held in Geneva from 6–10 July 2026, India strengthened its role in global food-standard setting.
- Codex Alimentarius, established by the FAO and WHO, develops international food standards, guidelines and codes to protect consumers and facilitate fair food trade.

India's Key Achievements			Significance for India	
✓	Seven India-led Codex texts developed under Indian chairmanship/co-chairmanship were adopted, reinforcing India's role in science-based food governance.		 Trade & Exports: Harmonised standards can reduce technical barriers and improve market access.	
✓	Standards for dried coriander seeds and fresh curry leaves were adopted, providing internationally recognised benchmarks for quality and safety.		 Consumer Protection: Science-based norms strengthen food safety and quality.	
✓	India's proposal to begin work on a Codex Standard for Cashew Kernels was approved, potentially improving quality recognition and export opportunities.		 Farmers & Value Chains: International standards can promote value addition and better integration with global markets.	
✓	India was elected Co-Chair of an Electronic Working Group on New Food Sources and Production Systems, contributing to regulatory approaches for emerging food technologies.		 Food Processing: Common standards can support quality upgrading and competitiveness of India's food-processing sector.	
			 Global Governance: Leadership in Codex enhances India's voice in shaping international food regulations.	
Challenges				
 Compliance Gap: Differences between international standards and domestic practices can restrict export competitiveness.	 Testing Capacity: Need for stronger laboratories, certification and quality-control infrastructure.	 Traceability: Fragmented agricultural supply chains can make end-to-end traceability difficult.	 Small Producers: Compliance costs may disproportionately affect small farmers and food-processing units.	 Emerging Foods: Rapid technological changes can outpace regulatory capacity.

Way Forward

- Upgrade food-testing laboratories, certification systems and traceability infrastructure.
- Strengthen coordination among FSSAI, commodity boards, exporters, farmers and food processors.
- Build capacity of MSMEs and small producers to meet international standards.
- Promote science-based, risk-based regulation for new food sources and production systems.

- Use Codex leadership to align international standards with India's export and food-processing priorities.

QUICK REVISION BOX	
 Forum:	Codex Alimentarius Commission
 Parent Bodies:	FAO + WHO
 2026 Session:	CAC49, Geneva
 India's Role:	Chairmanship/Co-chairmanship • EWG Co-Chair
 Standards:	Dried Coriander • Fresh Curry Leaves
 New Work:	Cashew Kernels • New Food Sources
 Focus:	Food Safety • Consumer Protection • Fair Trade • Export Competitiveness • Harmonised Standards

18. India-UK CETA: A Trade Deal that Tests India's Competitive Confidence – The Hindu

Why in News?

- The India-UK Comprehensive Economic and Trade Agreement (CETA) came into effect on 15 July 2026, a year after its signing.
- The Double Contribution Convention (DCC) also entered into force, addressing the burden of dual social-security contributions for eligible workers.

INDO-UK CETA: OPPORTUNITIES AND CHALLENGES FOR INDIA		
KEY FEATURES	SIGNIFICANCE FOR INDIA	CHALLENGES
 • Tariff Liberalisation: The UK eliminated tariffs on 96.8% of tariff lines, covering 97.7% of trade value, expanding market access for Indian exporters.	 • Competitive Confidence: CETA tests whether Indian firms can convert preferential access into actual export gains in a sophisticated developed market.	 • Import Competition: Greater access for British products may put pressure on less competitive domestic industries and MSMEs.
 • Services & Professionals: Greater opportunities for Indian services exports and professionals, strengthening India's comparative advantage in skill-intensive sectors.	 • Exports & Employment: Greater market access can support manufacturing, labour-intensive sectors and services exports.	 • Export Competitiveness: Market access on paper may not translate into gains without improvements in productivity, scale, quality and logistics.
 • DCC: Helps eligible workers avoid or reduce dual social-security contribution obligations, improving the economic benefits of cross-border employment.	 • Investment & GVCs: Predictable trade rules can encourage investment, technology partnerships and integration into global value chains.	 • Standards & Compliance: Meeting stringent UK technical, quality and regulatory requirements can raise costs.
 • Market Access: India gains avider access for goods and services, while phased access for British products can increase consumer choice and competitive pressures in India.	 • Consumer Welfare: Lower trade barriers can expand consumer choice and improve competitive efficiency, while exposing domestic firms to greater competition.	 • Rules of Origin: Limited domestic value addition may restrict the ability of firms to fully utilise preferential tariffs.
 • Beyond Tariffs: The agreement addresses non-tariff measures, regulatory issues and market-access conditions, making it broader than a conventional tariff agreement.	 • Economic Integration: The agreement deepens India's engagement with an advanced economy and strengthens its broader trade-integration strategy.	 • Trade Diversion: Changing relative tariff advantages could alter sourcing patterns and intensify competitive pressures in sensitive sectors.
 • Rules of Origin: Preferential treatment depends on satisfying agreed Rules of Origin and compliance requirements, making domestic value addition important.		

Way Forward

- Improve productivity, scale and quality to convert tariff preferences into sustainable export growth.
- Strengthen testing, certification, standards and regulatory-compliance infrastructure.
- Support MSMEs through finance, technology, skilling and export facilitation.
- Reduce logistics costs and deepen integration with global value chains.
- Build exporter awareness regarding Rules of Origin and CETA preferences.

- Use the agreement as a catalyst for competitiveness-led trade expansion, rather than relying solely on tariff concessions.

QUICK REVISION BOX	
 Agreement: India–UK CETA	 Effective: 15 July 2026
 UK Tariff Elimination: 96.8% tariff lines • 97.7% trade value	 Complementary Pact: DCC
 Key Areas: Goods • Services • Professionals • Market Access • Non-Tariff Measures	 Prelims: Rules of Origin
 Challenges: Import Competition • Compliance • Export Competitiveness	 Way Forward: Productivity • Quality • Logistics • GVC Integration

19. NATO Ankara Summit 2026: Europe's Defence Revival and Implications for India - PIB

Why in News?

- The 32 NATO member states met in Ankara, Türkiye, on 7–8 July 2026 to review implementation of the 2025 Hague defence commitments and strengthen collective deterrence.
- The Summit highlighted higher defence spending, expanded defence-industrial production, new procurement and greater European responsibility for security.

NATO ANKARA SUMMIT OUTCOMES AND IMPLICATIONS FOR INDIA	
KEY OUTCOMES	WHY IT MATTERS FOR INDIA
 5% Defence Commitment: NATO members are committed to spending 5% of GDP on defence and security by 2035, comprising 3.5% for core defence requirements and 1.5% for broader defence/security-related expenditure.	 Arms Market: Increased NATO procurement could shift the global defence market from a buyer's market towards a seller's market, potentially increasing competition for major weapons systems.
 Higher European Spending: European Allies and Canada increased core defence investment by over \$139 billion since the 2025 Hague Summit.	 European Defence Autonomy: A stronger European defence-industrial base could gradually reduce dependence on U.S. suppliers and reshape global defence partnerships.
 Defence Procurement: More than \$50 billion in new procurement commitments were announced at the Summit.	 India's Procurement: Greater European demand may affect the availability, delivery timelines and pricing of platforms, components and ammunition relevant to India.
 Industrial Capacity: NATO is expanding co-production, joint procurement, innovation and defence manufacturing to strengthen supply resilience.	 Diversification: India needs to balance traditional suppliers with indigenous production and diversified defence partnerships.
 Emerging Technologies: Focus areas include drones, counter-drone systems, AI, surveillance, space, air and missile defence.	 Atmanirbhar Defence: Rising global demand strengthens the case for expanding India's domestic capabilities in missiles, drones, electronics, engines and ammunition.
 Ukraine: Allies pledged at least €70 billion in military equipment, assistance and training for Ukraine in both 2026 and 2027.	 Strategic Environment: NATO's increased focus on Russia and European security may influence the wider distribution of military resources, technology and strategic attention.
 Collective Defence: Members reaffirmed Article 5—an attack on one Ally is treated as an attack on all.	

Challenges for India

- **Supply Competition:** European rearmament could absorb manufacturing capacity and create longer delivery timelines.
- **Technology Access:** Greater demand for advanced systems may increase competition for high-end defence technologies.
- **Cost Pressures:** Higher global demand can increase procurement costs.

- **Geopolitical Balancing:** India must manage defence relations with Russia, the U.S., Europe and other partners while maintaining strategic autonomy.

Way Forward

- Accelerate indigenisation and defence manufacturing capacity.
- Diversify suppliers while developing domestic alternatives for critical components.
- Deepen joint development and co-production with trusted partners.
- Invest in AI, drones, counter-drone systems, space, cyber and advanced electronics.
- Build resilient defence supply chains and reduce dependence on imported critical technologies.

QUICK REVISION BOX	
 Summit: NATO Ankara Summit	 Date: 7–8 July 2026
 Venue: Ankara, Türkiye	 Members: 32
 Core Principle: Article 5 – Collective Defence	
 Defence Target: 5% of GDP by 2035	 Core Defence: 3.5%
 Broader Security: 1.5%	 Key Focus: Defence Production • Joint Procurement • Drones • AI • Space • Air & Missile Defence
 India Angle: Arms Market • Defence Supply Chains • Technology Access • Atmanirbhar Defence • Strategic Autonomy	

ECONOMY

20. MECON Gets Miniratna Category-I Status - PIB

Why in News?

- The Ministry of Steel has granted Miniratna Category-I status to MECON Limited, a Schedule 'A' CPSE, recognising its sustained financial performance and positive net worth.
- MECON reported a net worth of ₹535.42 crore as on 31 March 2026, thereby fulfilling the eligibility criteria prescribed by the Department of Public Enterprises (DPE).

FINANCIAL PERFORMANCE	MINIRATNA CATEGORY-I & SCHEDULE 'A' STATUS	ABOUT MECON
 PBT FY 2023–24: ₹77.62 crore (restated)	 SCHEDULE 'A' CPSE: MECON is classified as a Schedule 'A' Central Public Sector Enterprise under the administrative control of the Ministry of Steel.	 Established: 1959 Headquarters: Ranchi
 PBT FY 2024–25: ₹32.08 crore (restated)	 MINIRATNA CATEGORY-I: The status provides the Board with enhanced financial and operational autonomy, within the powers delegated under the DPE framework.	 A major engineering, consultancy, project management and contracting organisation.
 PBT FY 2025–26: ₹104.53 crore	 ELIGIBILITY: MECON's sustained profitability and ₹535.42 crore positive net worth enabled it to fulfil the prescribed DPE eligibility criteria.	 Has contributed significantly to the development of India's steel sector.
 MECON has remained profitable for three consecutive financial years, supporting its eligibility for the enhanced status.		 Diversified operations span steel, mining, infrastructure, power, oil & gas and other core sectors.

Significance

- Greater Autonomy:** Enables faster and more flexible decision-making by the company's Board.
- Investment:** Facilitates greater flexibility for investment and business expansion.
- Modernisation:** Supports technological upgradation and modernisation.
- Competitiveness:** Greater operational autonomy can improve efficiency, competitiveness and responsiveness.
- Industrial Development:** Strengthens MECON's capacity to contribute to infrastructure and core-sector development.

QUICK REVISION BOX					
 MECON: Metallurgical & Engineering Consultants (India) Limited	 ESTABLISHED: 1959	 HQ: Ranchi	 ADMINISTRATIVE MINISTRY: Ministry of Steel	 CLASSIFICATION: Schedule 'A' CPSE	
 NEW STATUS: Miniratna Category-I	 NET WORTH: ₹535.42 crore (31 March 2026)	 CORE AREAS: Steel • Mining • Infrastructure • Power • Oil & Gas	 SIGNIFICANCE: Financial Autonomy • Operational Flexibility • Investment • Modernisation • Technology • Competitiveness		

21. EPF Scheme, 2026: Higher PF Contributions Now Voluntary - Livemint

Why in News?

- The Employees' Provident Funds (EPF) Scheme, 2026, notified on 29 June 2026, replaces the EPF Scheme, 1952 as part of implementing the Code on Social Security, 2020.
- It clarifies the treatment of PF contributions above the statutory wage ceiling, while retaining the existing contribution rate and wage ceiling.

Key Changes	What Remains Unchanged?
 Contribution Rate: Employee and employer continue to contribute 12% of wages towards EPF.	 • The notification does not alter the statutory contribution rate, ₹15,000 wage ceiling or existing EPS contribution structure.
 Wage Ceiling: Mandatory coverage remains linked to the statutory ceiling of ₹15,000/month .	
 Mandatory Contribution: Contribution is capped at ₹1,800/month each (12% of ₹15,000).	
 Higher Contributions: Contributions on wages above ₹15,000 are voluntary, subject to agreement between employer and employee.	
 EPS: Employer's EPS contribution remains capped at 8.33% of ₹15,000, i.e. ₹1,250/month .	 • Employees already contributing on their actual basic salary may continue higher contributions where employer and employee mutually agree.
 Interest Rate: The EPF interest rate continues to be declared annually by EPFO.	
 Minimum EPS Pension: Remains ₹1,000/month .	

Significance

- **Legal Clarity:** Provides clearer rules on PF contributions exceeding the statutory wage ceiling.
- **Employee–Employer Flexibility:** Enables continuation of higher contributions where mutually agreed, without treating them as mandatory.
- **Higher-Salaried Employees:** The practical impact is greater for employees whose PF contributions were previously calculated on actual basic wages above ₹15,000.
- **Social Security Reform:** Represents a legal and administrative transition under the Code on Social Security, 2020, rather than a change in the core EPF contribution rate or statutory wage ceiling.
- **Retirement Savings:** Voluntary higher contributions can continue to support a larger retirement corpus, subject to the applicable employment arrangement.

QUICK REVISION BOX					
 Scheme: EPF Scheme, 2026	 Notified: 29 June 2026	 Replaces: EPF Scheme, 1952	 Parent Law: Code on Social Security, 2020	 EPF Contribution: 12% each	 Wage Ceiling: ₹15,000/month
 Mandatory PF: ₹1,800/month each	 Higher Contribution: Voluntary	 EPS Contribution: 8.33% of ₹15,000 = ₹1,250/month	 Minimum EPS Pension: ₹1,000/month	 Key Change: Higher PF contributions beyond statutory ceiling are voluntary.	

22. China's Temporary Export Ban on Helium – The Hindu

Why in News?

- China's Ministry of Commerce and General Administration of Customs temporarily banned helium exports on 10 July 2026.
- The move comes amid a strained global helium market, following Russian export restrictions and supply risks linked to heightened tensions in West Asia.

GLOBAL HELIUM SUPPLY		WHY HELIUM MATTERS	
	China's Dependence: China imports more than 80% of its helium requirements despite producing only around 1.6% of global helium.		Medical Sector: Used as a coolant for MRI and other superconducting medical equipment.
	Finite Resource: Helium is effectively non-renewable on human timescales; once released, its low density allows it to escape Earth's atmosphere.		Science & Technology: Essential for cryogenics , particle accelerators and scientific research .
	Supply Concentration: Limited global production makes helium vulnerable to geopolitical disruptions and export restrictions .		Semiconductors: Used in specialised manufacturing and cooling processes .
	Strategic Resource: Its unique physical properties make it difficult to substitute in several high-technology and specialised applications .		Aerospace & Defence: Used in rocket systems , pressurisation and specialised applications .
			Industrial Uses: Applications include leak detection , welding and balloons .
			Prelims Fact: Helium (He) is a noble gas , chemically inert and the second-lightest element .
IMPLICATIONS			
	Supply Shock: China's export ban could further tighten global availability and increase prices .		Strategic Vulnerability: Concentrated supply chains increase risks for advanced industries dependent on helium.
			India: Import dependence makes India vulnerable to price and supply disruptions , particularly for MRI/healthcare , scientific research and advanced manufacturing .

Way Forward

- Diversify helium import sources and develop strategic stockpiles/reserves.
- Promote helium recovery and recycling, especially from medical and industrial systems.
- Strengthen domestic capabilities in cryogenic technologies and alternative cooling systems.
- Build resilient supply chains for critical applications dependent on helium.

QUICK REVISION BOX			
Element: Helium	Symbol: He	Atomic Number: 2	Category: Noble Gas
Nature: Chemically Inert • Second-Lightest Element			
China's Import Dependence: >80%		China's Global Production Share: ~1.6%	
Major Uses: MRI • Cryogenics • Semiconductors • Aerospace • Scientific Research			
Key Concern: Supply Concentration • Export Restrictions • Geopolitical Disruptions			
India Angle: Healthcare • Research • Advanced Manufacturing • Supply-Chain Resilience			

23. Index of Services Production (ISP): Measuring India's Services Economy - PIB

Why in News?

- The Government has introduced the Index of Services Production (ISP), India's first high-frequency indicator dedicated to measuring services-sector output.
- The first trial ISP covering 19 service sub-sectors was released for April 2026, covering around 60% of the services sector.

 KEY FINDINGS • 14 of 19 sub-sectors recorded double-digit year-on-year growth in April 2026. • Top monthly performers: • Accommodation & food (37.2%) • Retail trade (30.8%) • Administrative & support services (28.7%) • Real estate (27.7%) • Telecommunications (22.8%) • Top performers in 2025–26: • Accommodation & food (35.6%) • Retail trade (30.5%) • Repair services (25.1%) • Wholesale trade (23.6%) • Road transport (22.6%)	 KEY FEATURES OF ISP  Base Year: 2024–25, aligned with the new CPI series.  Frequency: Monthly trial index with a ~60-day lag.  Data Sources: Administrative data, GST data and ASISSE.  Deflators: WPI is used for wholesale trade, while relevant CPI-based deflators are used for other sectors.  Purpose: Measures short-term changes in the volume of services produced by removing the effect of price changes from nominal service data.	 NEED FOR DEFLATOR • Service-sector data is often initially collected in value/nominal terms, which reflects both prices and actual output. • A price deflator removes the price effect, converting nominal data into real/volume-based output. • This enables more accurate measurement of changes in actual services production over time.
 INSTITUTIONAL FRAMEWORK • MoSPI constituted a Technical Advisory Committee (TAC) in May 2025 to develop the ISP's conceptual and methodological framework. • The framework draws upon international practices, including the OECD Compilation Manual for Index of Services Production and Eurostat approaches.	 COVERAGE & EXCLUSIONS • The trial index initially covers sub-sectors where reliable, high-frequency data is available. • Excluded areas include public administration and defence; financial services other than banking and insurance; government-provided health and education; social work without accommodation; membership organisations; personal services; private household employment; extraterritorial organisations; and gambling and betting. • These activities are largely associated with core government functions, non-market activities or informal-sector components.	

Why ISP Matters?

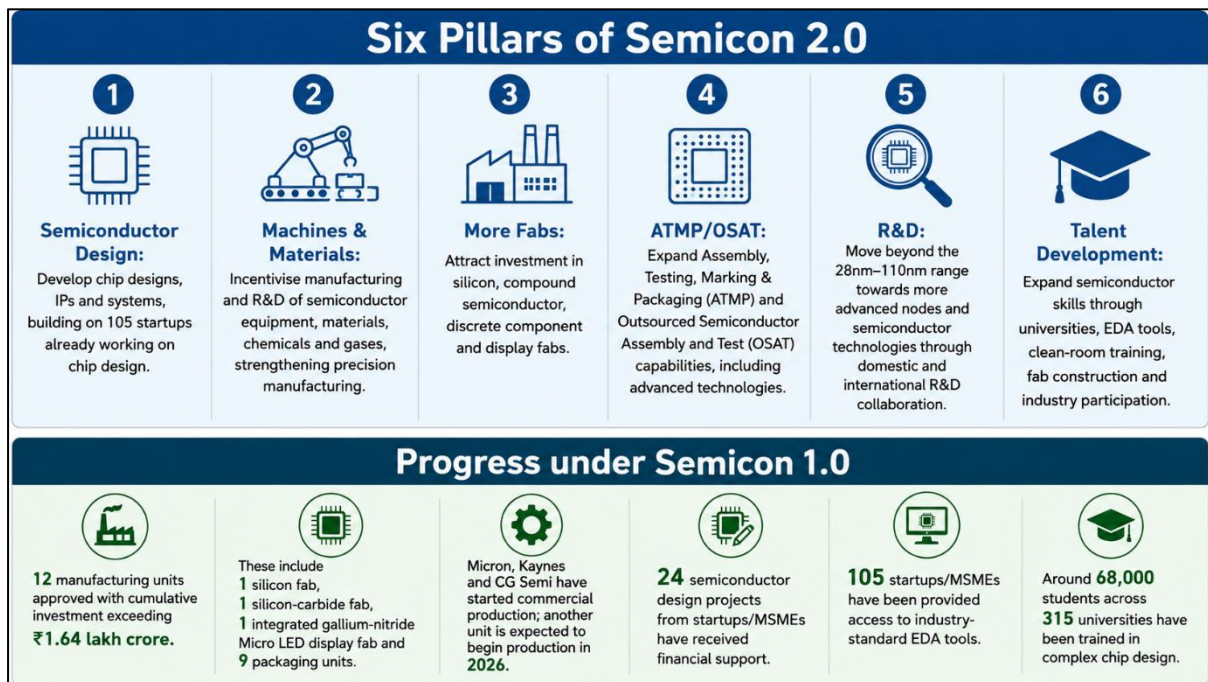
- Services Dominance:** Services contributed nearly 52.9% of GVA in 2024–25 and over 50% since 2013–14.
- Employment:** The sector accounts for around 30% of total employment.
- Services Exports:** Exports during April–June 2026–27 were estimated at \$103.41 billion, growing 6.16% year-on-year.
- Policy Utility:** Provides timely information for economic monitoring, national accounts estimation and evidence-based policymaking.
- Statistical Gap:** Unlike the Index of Industrial Production (IIP), which measures industrial activity, ISP provides a dedicated high-frequency indicator for the services economy.

QUICK REVISION BOX			
 Index:	Index of Services Production (ISP)	 First Trial:	April 2026
 Coverage:	19 sub-sectors (~60%)	 Base Year:	2024–25
 Frequency:	Monthly	 Lag:	~60 days
 Data Sources:	GST • Administrative Data • ASISSE	 Deflators:	WPI • CPI
 Nodal Ministry:	MoSPI	 Purpose:	High-Frequency Measurement of Services Output
 Services GVA Share:	~52.9% (2024–25)	 Key Significance:	Economic Monitoring • National Accounts • Evidence-Based Policy

24. Semicon 2.0: Strengthening India's Semiconductor Ecosystem - PIB

Why in News?

- The Union Cabinet approved Semicon 2.0 with a total budget outlay of ₹1,27,500 crore to develop India's semiconductor design and manufacturing ecosystem.
- It builds on the momentum created under Semicon 1.0, with a focus on long-term policy support, supply-chain resilience and technological leadership.



Significance

- Supply-Chain Resilience:** Reduces vulnerability to global semiconductor disruptions.
- Strategic Autonomy:** Strengthens capabilities in a technology critical for defence, telecommunications, AI, automobiles and electronics.
- Industrial Development:** Promotes domestic manufacturing, precision engineering and high-value technology.
- Innovation:** Integrates design, manufacturing, packaging, R&D and talent into a comprehensive ecosystem.

- **Economic Growth:** Can attract investment, generate skilled employment and deepen India's participation in global semiconductor value chains.

QUICK REVISION BOX			
 Scheme: Semicon 2.0	 Outlay: ₹1,27,500 crore	 Objective: Semiconductor Design & Manufacturing Ecosystem	 Pillars: Design • Machines & Materials • Fabs • ATMP/OSAT • R&D • Talent
 Semicon 1.0: 12 Manufacturing Units • ₹1.64 lakh crore+ Investment	 Design: 24 Projects Approved • 105 Startups/MSMEs with EDA Access	 Training: 68,000 Students • 315 Universities	 Key Focus: Supply-Chain Resilience • Technological Leadership • Strategic Autonomy.

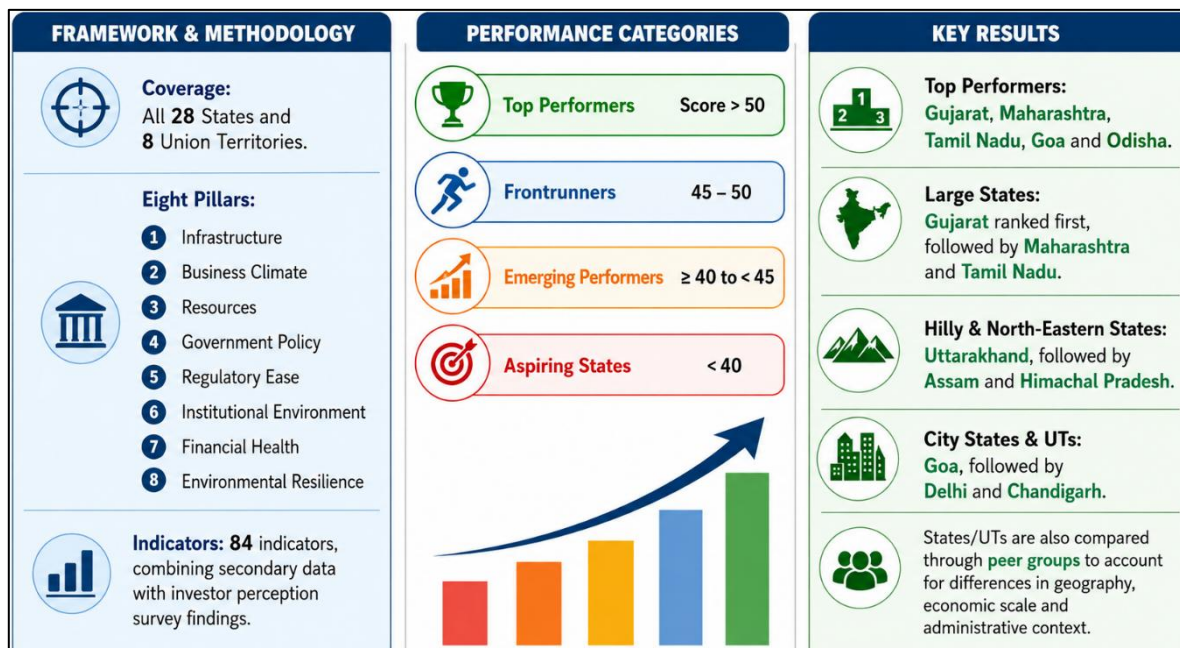
25. Investment Friendliness Index (IFI): Benchmarking States for Investment - PIB

Why in News?

- NITI Aayog has released the Investment Friendliness Index (IFI), a data-driven framework to assess the investment ecosystem across States and Union Territories.
- The Index was envisaged following the Union Budget 2025–26 announcement to strengthen investment ecosystems and promote competitive and cooperative federalism.

Why the Index Matters

- **State-Level Role:** Investment decisions depend significantly on industrial land, infrastructure, regulatory efficiency, institutional capacity and policy predictability at the State level.
- **Reform Catalyst:** The IFI goes beyond ranking by identifying strengths, reform gaps and best practices.
- **Competitive Federalism:** Encourages States/UTs to compete through better policies while promoting peer learning and cooperation.
- **Viksit Bharat @2047:** Strong State-level investment ecosystems are essential for higher private investment, industrialisation, employment and sustained economic growth.



Significance

- Promotes evidence-based State-level reforms and regulatory predictability.
- Helps policymakers identify targeted reform priorities.
- Combines objective indicators with investor experience, providing a more comprehensive assessment.
- Can improve India's domestic and foreign investment attractiveness, competitiveness and long-term growth.

QUICK REVISION BOX			
	Index	: Investment Friendliness Index (IFI)	 Released by : NITI Aayog
	Coverage	: 28 States + 8 UTs	 Pillars : 8
	Indicators	: 84	 Data : Secondary Data + Investor Perception Survey
	Categories	: Top Performers • Frontrunners • Emerging Performers • Aspiring States	
	Top Overall Performers	: Gujarat • Maharashtra • Tamil Nadu • Goa • Odisha	
	Purpose	: Investment Ecosystem Benchmarking • State-Level Reforms • Competitive & Cooperative Federalism	
	Vision	: Viksit Bharat @2047	

26. Polymer Banknotes: India Explores Plastic Currency – The Hindu

Why in News?

- The RBI's currency-printing subsidiary has invited global Expressions of Interest (EoI) for supplying polymer substrates with embedded security features.
- This marks a significant step towards India's long-standing proposal to introduce polymer banknotes, first considered in 2009.

What are Polymer Banknotes?

- Polymer banknotes are made from a special plastic substrate instead of conventional cotton-paper.
- They can incorporate advanced security features, including transparent elements, within the substrate.
- Australia and around 60 other countries use polymer currency in some form.

ADVANTAGES	SIGNIFICANCE FOR INDIA	CHALLENGES
 Durability: Polymer notes can last around 2.5–4 times longer than conventional cotton-paper notes.	 Currency Management: Could strengthen the durability and efficiency of India's banknote-management system.	 Production Cost: Polymer notes may have a higher initial manufacturing cost than conventional paper notes.
 Security: Embedded features and transparent windows can strengthen counterfeit resistance.	 Security: Provides an opportunity to integrate advanced anti-counterfeiting features into banknotes.	 Environmental Concerns: End-of-life disposal and recycling of polymer currency require appropriate systems.
 Moisture Resistance: Polymer surfaces are more resistant to water, dirt and general wear.	 Lifecycle Efficiency: Longer circulation life may reduce the frequency of note replacement.	 Infrastructure Adaptation: Currency-printing, sorting and processing infrastructure may need modification.
 Longer Circulation: Greater durability can reduce the frequency of replacing worn-out notes.	 Modernisation: Supports technological modernisation of India's currency-printing and management infrastructure.	 Machine Compatibility: ATMs, cash-processing machines and vending systems may require adaptation.
	 High Cash Usage: Greater durability could be particularly relevant for a large economy where physical currency remains widely used.	 Supply Dependence: Dependence on specialised polymer substrates and security technologies could create new supply-chain vulnerabilities.

Way Forward

- Undertake a comprehensive cost-benefit and lifecycle assessment before large-scale adoption.
- Develop robust recycling and end-of-life management systems for used polymer notes.
- Ensure compatibility with ATMs, cash-processing and vending systems.
- Strengthen domestic capabilities for polymer substrates and embedded security technologies.
- Consider phased introduction and pilot circulation before wider adoption.

QUICK REVISION BOX		
	Currency	: Polymer Banknotes
	Material	: Polymer/Plastic Substrate
	RBI Step	: Global Eol for Polymer Substrates
	Original Proposal	: 2009
	Durability	: ~2.5–4× conventional cotton-paper notes
	Global Adoption	: Australia + ~60 countries
	Key Features	: Durability • Security • Moisture Resistance • Longer Circulation
	Challenges	: Cost • Recycling • Infrastructure Adaptation • Supply Dependence
	India Angle	: Currency Modernisation • Counterfeit Prevention • Efficient Currency Management

27. EPFO 3.0: Proposed Flexible Pension Scheme for Wider Social Security - Livemint

Why in News?

- The Government is reportedly considering a new contributory pension scheme under EPFO 3.0, aimed at expanding retirement coverage beyond the existing Employees' Pension Scheme (EPS).
- The proposal could cover formal, informal, gig and platform workers, as well as higher-wage employees currently outside the EPS framework.
- Status: The proposal remains under consideration and no rollout timeline has been announced.

KEY FEATURES PROPOSED	SIGNIFICANCE	CHALLENGES
 Defined-Contribution Model: Retirement savings would accumulate in an individual pension account and be invested in long-term government-backed securities.	 Wider Coverage: Could extend retirement protection to gig, platform and informal workers.	 Irregular Incomes: Gig and informal workers may find regular contributions difficult.
 Target Retirement Sum (TRS): The system could dynamically estimate the corpus required to achieve a member's chosen retirement-income goal.	 Portability: One UAN across multiple employers/platforms can improve continuity of social-security savings.	 Digital Integration: Linking multiple employers and platforms requires robust data and digital infrastructure.
 Personalised Dashboard: Members may track contributions, corpus, retirement goals and progress towards TRS.	 Retirement Planning: TRS-based projections can encourage goal-oriented retirement planning.	 Actuarial Sustainability: Flexible withdrawals and family benefits require sound actuarial management.
 Flexible Contributions: Contributions could come from employees, employers, government co-contributions, gig aggregators, CSR funds, NGOs and donors.	 Financial Inclusion: Multiple contribution channels can broaden participation beyond traditional employment.	 Implementation: The nodal agency and operational framework are yet to be finalised.
 One-to-Many UAN: A single UAN could map contributions from multiple employers or digital platforms, improving portability for workers with multiple income sources.	 Social Security Code: Supports the broader objective of extending social security to gig and platform workers.	 Policy Uncertainty: The proposal remains under consideration and its final design may change.
 Flexible Payouts: Members could potentially choose between annuity or systematic withdrawal options at retirement, subject to the final framework.		
 Family Benefits: A proposed Family Benefit Fund could provide survivor benefits to spouses, children and orphans.		

Way Forward

- Design contribution mechanisms suited to irregular and diverse employment patterns.
- Ensure seamless UAN-based portability across employers and platforms.
- Provide workers with clear information on contributions, returns, TRS and withdrawal choices.
- Ensure long-term sustainability of pension and family-benefit components.
- Establish strong safeguards for workers' financial and employment data.
- Pilot the framework before nationwide expansion and continuously evaluate outcomes.

QUICK REVISION BOX			
	Reform	:	EPFO 3.0
	Proposed Scheme	:	Contributory Pension Scheme
	Status	:	Under consideration
	Potential Coverage	:	Formal • Informal • Gig • Platform • Higher-Wage Workers
	Model	:	Defined Contribution
	Key Concept	:	Target Retirement Sum (TRS)
	Account	:	Individual Pension Account
	Portability	:	One-to-Many UAN
	Payouts	:	Annuity • Systematic Withdrawal
	Contributors	:	Government • Aggregators • CSR • NGOs/Donors
	Family Benefit	:	Proposed Family Benefit Fund
	Policy Link	:	Code on Social Security, 2020

28. Index of Core Industries (ICI): Updated Series – The Hindu

Why in News?

- The Union Government has released a revised series of the Index of Core Industries (ICI) to better reflect the changing structure of India's industrial economy.
- The revision aligns the ICI with recently updated National Accounts, inflation and Index of Industrial Production (IIP) series.

 WHAT IS ICI? • The ICI measures the performance of major core industrial sectors that have strong linkages with overall industrial activity. • It is a separate index from the IIP, but its sectors are closely connected with broader industrial production. • The eight traditional core industries together account for 40.27% of the weight in the IIP.	 MAJOR CHANGES • New Base Year: Revised from 2011–12 to 2022–23. • Sectoral Coverage: The earlier basket comprised coal, crude oil, natural gas, refinery products, steel, cement, electricity and fertilisers. • New Addition: Iron ore has been added to the core-industry basket. • Updated Weights: Sectoral weights have been revised to better represent the current structure of core industrial activity.
 WHY THE REVISION MATTERS • Contemporary Relevance: The 2022–23 base year better captures structural changes in India's industrial economy. • Improved Measurement: Updated coverage and weights provide a more representative picture of core-sector performance. • Statistical Consistency: Brings the ICI in line with the revised IIP and other major macroeconomic indicators. • Policy Utility: Better industrial data can support economic monitoring, policymaking and investment decisions.	 DATA & POLICY SIGNIFICANCE • Base-Year Revision ≠ Higher Growth: Changing the base year does not itself indicate an increase in industrial output; it primarily improves the measurement and representation of economic activity. • Growth Indicator: Changes in core-sector output can provide signals about the broader industrial cycle and infrastructure activity. • Economic Planning: More representative data can improve assessment of industrial trends and growth prospects.

Significance for the Economy

- Core industries provide critical inputs to manufacturing, infrastructure and energy-intensive activities.
- Improved measurement can strengthen understanding of industrial momentum and growth trajectory.
- The revised series can enhance the quality of evidence-based economic policymaking.

QUICK REVISION BOX	
 Index	: Index of Core Industries (ICI)
 Old Base Year	: 2011–12
 New Base Year	: 2022–23
 Traditional Core Sectors	: Coal • Crude Oil • Natural Gas • Refinery Products • Steel • Cement • Electricity • Fertilisers
 New Addition	: Iron Ore
 IIP Weight of 8 Traditional Core Industries	: 40.27%
 Key Changes	: Base Year • Sectoral Coverage • Weights
 Nature	: Separate from IIP
 Purpose	: Track Core Industrial Activity • Improve Economic Measurement • Support Policy

SOCIAL ISSUES & SOCIAL JUSTICE

29. India-New Zealand Relations: A New Chapter of the “Waka” Journey – Hindustani Times

Why in News?

Prime Minister Narendra Modi visited New Zealand in July 2026, marking the first visit by an Indian Prime Minister to the country in about 40 years. At a community event in Auckland, he invoked the Māori concept of “Waka”, traditionally a canoe, as a symbol of the shared journey between India and New Zealand.



Challenges

- **Market Access:** Sensitivities around agriculture and dairy can complicate trade negotiations.
- **Geographical Distance:** Limits commercial and people-to-people exchanges.
- **Limited Economic Scale:** Bilateral trade remains below its potential.
- **Need for greater convergence** on regional and Indo-Pacific priorities.

Way Forward

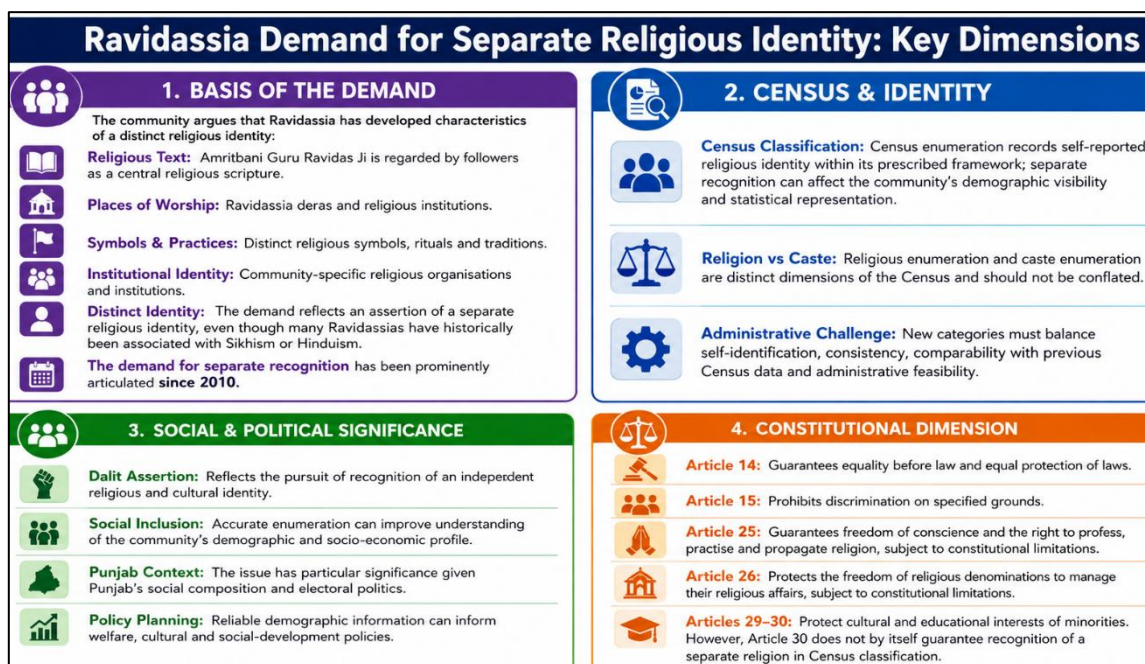
- Accelerate trade and investment negotiations while addressing sectoral sensitivities.
- Expand cooperation in education, technology, agriculture and innovation.
- Deepen Indo-Pacific, maritime and Pacific Island cooperation.
- Leverage the Indian diaspora for business, knowledge and cultural linkages.
- Promote tourism, youth exchanges and academic mobility.
- Develop joint initiatives on climate resilience and disaster management.

QUICK REVISION BOX	
Country	New Zealand
Capital	Wellington
Political System	Parliamentary democracy
Indigenous People	Māori
2026 Development	PM Modi's visit after ~40 years
Key Cultural Concept	Waka – traditional Māori canoe; symbol of shared journey
Strategic Region	Indo-Pacific / Pacific
Key Diplomatic Link	Indian diaspora
Major Cooperation Areas	Trade • Education • Technology • Agriculture • Maritime Security • Climate
UPSC Keywords	Cultural Diplomacy • Diaspora Diplomacy • Indo-Pacific • Pacific Island Cooperation • Market Access • People-to-People Ties.

30. Ravidassia Community: Demand for a Separate Religious Category in Census – Indian Express

Why in News?

Members of the Ravidassia community in Punjab have renewed their demand for a separate “Ravidassia religion” category in the Census. The issue has gained significance ahead of the 2027 Census, while also raising questions about religious identity, self-identification and Census methodology.



Way Forward

- Engage community representatives and relevant stakeholders.
- Follow consistent criteria for religious self-identification and enumeration.
- Any change in Census categories should follow transparent criteria and statistical methodology, rather than immediate political considerations.
- Ensure new classifications do not undermine comparability with previous Census data.
- Keep Census categorisation primarily evidence-based and administratively consistent.

- Use demographic data to strengthen evidence-based welfare and social-development planning.

QUICK REVISION BOX	
Community	Ravidassia
Associated Saint	Guru Ravidas
Major Region	Punjab
Important Institution	Dera Sachkhand Ballan
Religious Text	<i>Amritbani Guru Ravidas Ji</i>
Demand	Separate Ravidassia religion category in Census
Demand Prominent Since	2010
Current Context	Census 2027
Key Concepts	Self-Identification • Religious Identity • Census Classification • Dalit Assertion
Constitutional Links	Articles 14, 15, 25, 26, 29 & 30

31. Korku Adivasis and Forest Rights: Balancing Livelihoods and Conservation – Down to Earth

Why in News?

The Korku tribal community of Madhya Pradesh has demanded stronger action against alleged forest encroachments in Khandwa and Burhanpur districts. The community highlighted its dependence on forests for livelihoods, minor forest produce and cultural practices, while seeking stronger forest protection and prevention of re-encroachment.

Who are the Korkus? - The Korku are a Scheduled Tribe primarily inhabiting parts of Madhya Pradesh and Maharashtra. - Forests support livelihoods based on agriculture, livestock, collection of minor forest produce and traditional activities. - Forest ecosystems also have significance for their culture, traditional knowledge and community life. 	Forest Dependence & Livelihoods The community depends on resources such as: - Mahua, chirronji and tendu leaves - Gums and medicinal plants - Fuelwood and grazing resources - Other forest-based products and ecosystem services Forest degradation can therefore result in livelihood insecurity, ecological stress and loss of customary access.	Forest Rights Act, 2006 The Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 (FRA) seeks to address the historical injustice faced by forest-dwelling communities. Individual Forest Rights: Rights over forest land subject to statutory conditions. Community Forest Rights: Rights over community resources and customary uses recognised under the Act. Community Forest Resource (CFR): Traditionally used forest areas within customary village boundaries or seasonal-use landscapes over which eligible communities may exercise recognised rights. Gram Sabha: Initiates the process of determining forest rights, receives and verifies claims and forwards them to the relevant committees.	FRA-PESA Linkage PESA Act, 1996: Extends Panchayati Raj provisions to Scheduled Areas and strengthens Gram Sabha participation in protecting traditions, community resources and customary practices. Together, FRA and PESA provide an important framework for participatory tribal governance and resource management.
Legal Distinction FRA Rights ≠ Encroachment - Recognition of legitimate forest rights should not be conflated with subsequent illegal occupation. - At the same time, eviction or enforcement should follow due process, including verification of pending and genuine forest-rights claims.	Governance & Conservation Challenges - Balancing forest conservation with livelihood rights. - Delays or rejection of genuine forest-rights claims can generate social tensions. - Encroachment and forest clearing may affect biodiversity, wildlife habitats and water security. - Weak enforcement can facilitate re-encroachment. - Requires coordination among the Forest Department, Tribal Welfare authorities, district administration and Gram Sabhas.	Minor Forest Produce & Tribal Economy - Improve tribal incomes through value addition, storage, processing and better market access. - Strengthen implementation of Minimum Support Price (MSP) for Minor Forest Produce. - Promote community-based enterprises and sustainable harvesting.	

Way Forward

- **Transparent FRA Implementation:** Ensure fair verification and accessible appeals.
- **Strengthen CFR Governance:** Empower Gram Sabhas in community forest-resource management.

- **Improve PESA Implementation:** Strengthen participatory decision-making in Scheduled Areas.
- **Prevent Illegal Encroachment:** Use continuous monitoring and lawful enforcement.
- **Conservation with Rights:** Recognise legitimate forest rights while ensuring sustainable harvesting, habitat protection and ecological carrying capacity.
- **Participatory Conservation:** Build cooperation among tribal communities, local institutions and forest authorities.
- **Livelihood Diversification:** Promote sustainable MFP value chains, ecotourism and non-forest livelihood opportunities.

QUICK REVISION BOX	
Community	Korku
State in News	Madhya Pradesh
Key Districts	Khandwa & Burhanpur
Major Livelihood Link	Forests & Minor Forest Produce
Key Law	Forest Rights Act, 2006
Key Institution	Gram Sabha
Community Resource Concept	Community Forest Resource (CFR)
Related Law	PESA Act, 1996
MFP Examples	Mahua • Chironji • Tendu • Gums • Medicinal Plants
Core Issue	Tribal Rights • Forest Conservation
UPSC Keywords	FRA • CFR • Gram Sabha • PESA • MFP • Participatory Conservation • Ecological Sustainability

32. Education as a National Mission: Beyond Political Reshuffles – The Hindu

Why in News?

An editorial highlighting Sonam Wangchuk's indefinite fast has renewed debate on treating education as a long-term national priority rather than merely a matter of political reshuffles. It emphasises institutional accountability, policy continuity and bipartisan commitment to educational transformation.

Why Education Needs a National Mission?	Key Challenges	NEP 2020 & Reform Priorities
 Human Capital: Quality education enhances productivity, employability, innovation and long-term economic growth.	 Learning Outcomes: Expansion of enrolment must translate into stronger foundational and learning outcomes.	 Foundational Literacy & Numeracy: Strengthen foundational learning during the early years.
 Social Mobility: Equitable education can reduce inter-generational inequality and social exclusion.	 Teacher Capacity: Gaps in teacher availability, training and pedagogy affect education quality.	 ECCE: Give greater emphasis to Early Childhood Care and Education, particularly at the foundational stage.
 Democratic Citizenship: Education promotes constitutional values, critical thinking and informed participation.	 Digital Divide: Unequal access to devices, connectivity and digital resources can deepen educational inequalities.	 5+3+3+4 Structure: Align education with learners' developmental stages.
 Demographic Dividend: India's ability to realise its demographic potential depends substantially on the quality of its education and skill ecosystem.	 Regional Disparities: Rural-urban, inter-State and socio-economic disparities remain significant.	 Multidisciplinary Education: Promote flexible, interdisciplinary and holistic learning.
	 Financing Gap: Uneven public spending, infrastructure deficits and differences in State capacity can constrain educational outcomes.	 Vocational Education: Increase exposure to vocational education and practical skills from the school stage.
	 Higher Education: Challenges include employability, research quality, faculty capacity, internationalisation and industry-academia linkages.	 Indian Languages: Encourage multilingual and context-sensitive learning.
	 Governance: Frequent policy shifts can undermine institutional continuity and long-term planning.	 Technology: Leverage digital tools while addressing the digital divide.
Constitutional & Governance Dimension	Financing & Accountability	
 Article 21A: Provides the Right to Education as a Fundamental Right for children aged 6–14 years.	 Inclusive Education: Address barriers faced by girls, children with disabilities, socio-economically disadvantaged groups and learners in remote/rural areas.	 Sustainable Financing: Improve public investment in education with emphasis on school infrastructure, teachers, research and equitable access.
 Article 45: Directs the State towards early childhood care and education for children below six years.		 Outcome Orientation: Shift from measuring enrolment and expenditure alone to learning outcomes, employability, research and inclusion.
 Article 46: Directs the State to promote the educational and economic interests of weaker sections, particularly SCs and STs.		 Institutional Continuity: Build systems that survive changes in governments and Ministers.
 Concurrent List: Education is a subject in the Concurrent List, enabling both the Union and States to legislate, with effective Centre-State coordination essential for implementation.		

Way Forward

- Make education a bipartisan, long-term national mission.

- Strengthen teacher training, school leadership and foundational learning.
- Ensure sustainable and equitable public financing.
- Bridge the digital, gender, disability and regional gaps.
- Strengthen Centre–State cooperation in implementation.
- Establish measurable targets for learning, skills, research and inclusion.
- Promote evidence-based policy evaluation and institutional accountability.

QUICK REVISION BOX	
Core Policy	National Education Policy (NEP), 2020
Fundamental Right	Article 21A – Education for 6–14 years
ECCE	Article 45
Weaker Sections	Article 46
Legislative Domain	Concurrent List
School Structure	5+3+3+4
Key Priority	Foundational Literacy & Numeracy
Major Challenges	Learning Outcomes • Teacher Capacity • Digital Divide • Financing • Regional Disparities
Reform Focus	ECCE • Multidisciplinary Education • Vocational Education • Digital Learning
Mains Keywords	Human Capital • Social Mobility • Cooperative Federalism • Inclusive Education • Institutional Continuity

33. Demographic Futures: Young People Still Aspire to Family Life – Times of India

Why in News?

The UNFPA's Lives, Choices and Futures – Demographic Futures Survey 2026 surveyed more than 1.08 lakh internet-connected young adults aged 18–39 across 73 countries, including 1,722 respondents from India. The survey shows that declining marriage and fertility rates do not necessarily mean that young people have abandoned aspirations for relationships and parenthood.

KEY GLOBAL FINDINGS				
	• Marriage Remains an Ideal: More than two-thirds preferred arrangements involving marriage— 36% before cohabitation and 34% after a period of cohabitation. • Singlehood: Around 16% preferred remaining single. • Below-Replacement Fertility: More than two-thirds of the world's population lives in countries or areas where the TFR is below the commonly cited replacement level of 2.1. • Economic Constraints: 81% considered financial security important for partnership formation, while 57% identified economic and housing constraints as barriers.			
INDIA'S DEMOGRAPHIC TRANSITION				
	• India has moved from high fertility and rapid population growth towards replacement-level and, in many areas, below-replacement fertility. • Inter-State Variation: Fertility decline is uneven, with several southern and some northern States experiencing lower fertility and faster ageing, while some States remain relatively younger. • This variation has implications for migration, labour supply, fiscal federalism and regional development.			
INDIA-SPECIFIC FINDINGS				
	• Positive Outlook: 83% of Indian respondents felt positive or very positive about the future. • Concerns: 47% expressed concerns about conflict, economic insecurity and inequality. • Ideal vs Actual Fertility: Indian women aged 18–39 reported an ideal family size of 2.1 children, compared with an average of 1 child among women aged 35–39. For men, the corresponding figures were 2.2 and 1.1. • Parenthood Aspirations: Nearly 85% of Indian respondents aged 35–39 without children ideally wished to become parents. • Fertility Gap: The difference between desired family size and actual fertility suggests that low fertility may partly reflect economic and social constraints rather than a complete rejection of parenthood.			
WHY FERTILITY IS DECLINING?				
	• Economic Insecurity: Unstable employment and rising living costs. • Housing Constraints: High housing costs and delayed household formation. • Delayed Parenthood: Longer education and career-building periods. • Gendered Care Burden: Unequal distribution of household and caregiving responsibilities. • Future Uncertainty: Concerns over economic insecurity, inequality and conflict. • Women's Employment: High opportunity costs of motherhood can influence fertility decisions; flexible work, childcare and safe workplaces can help reconcile employment and family life.			
DEMOGRAPHIC & POLICY IMPLICATIONS				
 Demographic Dividend → Ageing: India's demographic dividend will eventually transition towards population ageing, increasing demand for healthcare, pensions, geriatric care and social security.	 Human Capital: India must convert its remaining demographic advantage into productivity through education, skills, health and employment.	 Family-Friendly Policies: Affordable childcare, housing and secure employment can help people realise their desired family size.	 Gender Equality: Greater sharing of care responsibilities can reduce the opportunity cost of parenthood.	 Reproductive Autonomy Policy should enable informed individual choices rather than pursue coercive fertility targets.

Way Forward

- Promote decent employment and income security for young people.

- Expand affordable housing, childcare and parental support.
- Strengthen maternity, paternity and flexible-work provisions.
- Reduce the gendered care burden and improve workplace support.
- Prepare health, pension and social-security systems for population ageing.
- Address regional demographic disparities through appropriate migration and development policies.
- Focus on enabling people to achieve their desired fertility, rather than merely increasing birth rates.

QUICK REVISION BOX		
	Report	UNFPA Demographic Futures Survey 2026
	Title	Lives, Choices and Futures
	Coverage	73 countries
	Respondents	1.08 lakh+ young adults
	Age Group	18–39 years
	India Sample	1,722 respondents
	Financial Security	81% considered important
	Economic/Housing Barriers	57%
	India Positive Outlook	83%
	India Concerns	47%
	Core Concept	Desired fertility vs Actual fertility
	Demographic Transition	Fertility decline → Ageing
	UPSC Keywords	Demographic Dividend • Fertility Gap • Below-Replacement Fertility • Population Ageing • Gender Equality • Reproductive Autonomy • Human Capital

34. State of Food Security and Nutrition in the World 2026: The High Cost of a Healthy Diet – WHO

Why in News?

The State of Food Security and Nutrition in the World (SOFI) 2026, the UN system's flagship assessment on hunger and nutrition, was released on 21 July 2026. Produced jointly by FAO, IFAD, UNICEF, WFP and WHO, the report focuses on the rising cost of healthy diets and the structural factors limiting access to nutritious food.

KEY GLOBAL FINDINGS	WHY HEALTHY DIETS REMAIN UNAFFORDABLE?	FOOD SECURITY → NUTRITION SECURITY
Global Hunger: Hunger affected 7.8% of the world's population in 2025.	Food Prices: Rising prices of nutritious foods increase the cost of a healthy diet.	Food security is not merely about calorie availability; it also requires access to safe, diverse and nutritious diets .
Food Insecurity: Around 2.1 billion people experienced moderate or severe food insecurity.	Low Incomes: Poverty reduces households' ability to diversify food consumption.	Poor diet quality can contribute to stunting, wasting, micronutrient deficiencies and diet-related NCDs .
Uneven Progress: Global food security improved modestly, but progress remains insufficient to achieve SDG 2 by 2030 .	Food-System Inefficiencies: Production, storage, transport and distribution costs raise consumer prices.	Thus, food policy must shift from a narrow "food availability" approach to nutrition-sensitive food systems .
Regional Divide: Africa recorded early signs of improvement, but two-thirds of its population cannot afford a healthy diet.	Climate & Conflict: Climate shocks and conflicts disrupt agricultural production and food supply chains.	
Nutrition Gap: Diet quality remains inadequate globally, with disproportionate impacts on women, young children and rural populations .	Unequal Access: Rural and vulnerable populations face greater barriers to nutritious foods.	
IMPLICATIONS FOR INDIA		
Strengthen the National Food Security Act (NFSA) while improving dietary diversity.	Link food distribution with nutrition outcomes, particularly for women and children .	Promote millets, pulses, fruits, vegetables and other nutrient-rich foods.
	Strengthen POSHAN Abhiyaan, ICDS and PM POSHAN.	Reduce post-harvest losses and improve storage, logistics and market infrastructure.
		Support climate-resilient agriculture to stabilise food prices.

Way Forward

- **Make Healthy Diets Affordable:** Target policies towards nutrient-rich foods rather than calories alone.
- **Strengthen Social Protection:** Use targeted transfers and nutrition programmes for vulnerable groups.
- **Build Resilient Food Systems:** Invest in climate-resilient agriculture, storage and supply chains.
- **Empower Women:** Improve women's access to income, assets and nutrition services.
- **Adopt Multisectoral Action:** Integrate agriculture, health, nutrition, water, sanitation and social protection.

QUICK REVISION BOX	
Aspect	Key Fact
Report	SOFI 2026
Focus	Cost of a Healthy Diet
Published By	FAO • IFAD • UNICEF • WFP • WHO
Global Hunger	7.8% (2025)
Food Insecurity	2.1 billion people
Goal	SDG 2 – Zero Hunger
Key Concern	Healthy diets remain unaffordable

35. PM-YASASVI: Expanding Educational Opportunities for OBC, EBC & DNT Students – PIB

Why in News?

The Government has reiterated its focus on expanding educational opportunities for OBC, EBC and Denotified, Nomadic and Semi-Nomadic Tribes (DNTs) through the PM-YASASVI umbrella scheme. It seeks to reduce financial barriers and improve access to quality education from school to higher education.

PM-YASASVI – Empowering Young Achievers for a Vibrant India

What is PM-YASASVI?

PM-YASASVI – Prime Minister Young Achievers Scholarship Award Scheme for Vibrant India is an umbrella initiative of the **Ministry of Social Justice & Empowerment** aimed at supporting eligible students belonging to **OBC, EBC and DNT communities**.



Major Components

The umbrella scheme provides support across different educational stages:



Pre-Matric Scholarship

Financial assistance for eligible students at the school level.



Post-Matric Scholarship

Supports students pursuing education after matriculation.



Top Class Education in Schools

Assistance for eligible students studying in selected quality schools.



Top Class Education in Colleges

Financial support for eligible students pursuing higher education in designated institutions.



Social Justice Significance

- ✓ **Equal Opportunity:** Reduces financial barriers to education for historically disadvantaged communities.
- ✓ **Educational Mobility:** Supports transition from school to higher education and professional education.
- ✓ **Human Capital:** Improves access to education, skills and future employment opportunities.
- ✓ **Breaking Intergenerational Poverty:** Educational support can enhance upward social mobility.
- ✓ **DNT Inclusion:** Brings attention to communities that have historically faced social and economic marginalisation.



Governance & Constitutional Link

- Article 15(4)** Enables special provisions for the advancement of socially and educationally backward classes.
- Article 15(5)** Enables special provisions relating to admission to educational institutions for socially and educationally backward classes and SCs/STs, subject to constitutional provisions.
- Article 46** Directs the State to promote the educational and economic interests of weaker sections.
- Directive Principle** Educational empowerment forms an important component of **substantive equality**.



Key Challenges

- Identifying and reaching all eligible beneficiaries.
- Awareness gaps among disadvantaged communities.
- Timely scholarship disbursement and documentation barriers.
- Ensuring quality education alongside financial assistance.
- Monitoring outcomes beyond **enrolment** and scholarship distribution.

Way Forward

- Ensure timely and transparent scholarship delivery through digital platforms.
- Simplify application and documentation procedures.
- Strengthen awareness among OBC, EBC and DNT communities.
- Track outcomes such as retention, completion, higher-education transition and employability.
- Integrate scholarships with skill development, mentoring and career guidance.

QUICK REVISION BOX

Full Form	PM-YASASVI
Ministry	Social Justice & Empowerment
Beneficiaries	OBC • EBC • DNT
Coverage	Pre-Matric to Higher Education
Components	Pre-Matric • Post-Matric • Top Class Schools • Top Class Colleges
Key Goal	Educational Inclusion & Equal Opportunity
Constitutional Links	Articles 15(4), 15(5) & 46

36. Building Water Security in a Rapidly Drying India – The Hindu

Why in News?

- Rising water stress: 11 of India's 15 major river basins are experiencing water stress, with the Krishna, Cauvery, Mahi and Tapi basins below the 1,000 m³/person water-scarcity threshold.
- Urban shortages: Cities such as Delhi, Bengaluru and Mussoorie are facing acute water stress amid rainfall variability and growing demand.

WATER SECURITY CONCERNS IN INDIA		POLICY PRIORITIES FOR WATER SECURITY	
	Growing demand: Population growth, urbanisation, industrialisation and irrigation are steadily increasing freshwater demand.		Demand-side management: Move beyond supply augmentation towards conservation, efficient use and rational allocation.
	Groundwater over-extraction: Excessive dependence on groundwater, particularly for agriculture, is depleting aquifers beyond sustainable limits.		Water-efficient agriculture: Expand micro-irrigation, crop diversification and climate-resilient farming practices.
	Uneven availability: Water resources are unevenly distributed across regions and river basins, creating spatial disparities in access.		Sustainable groundwater management: Strengthen aquifer mapping, community participation and regulation of excessive extraction.
	Climate uncertainty: Erratic monsoons, prolonged dry spells, heatwaves and changing rainfall patterns are increasing hydrological risks.		Urban water management: Promote rainwater harvesting, wastewater treatment and reuse, leakage control and water-sensitive urban planning.
	Urban water stress: Rapid urban expansion is increasing demand while ageing infrastructure, leakages and inadequate storage constrain supply.		River-basin approach: Adopt integrated basin-level planning based on reliable water accounting and ecological requirements.
	Weak water accounting: Data on basin-level withdrawals, consumption and losses remains inadequate despite relatively better information on water availability.		Circular water economy: Reuse treated wastewater for agriculture, industry and non-potable urban applications.

Way Forward

- Develop decentralised and climate-resilient water infrastructure alongside major water projects.
- Integrate surface water, groundwater, wastewater and ecosystem management.
- Strengthen coordination among the Centre, States, river-basin institutions and local bodies.
- Make water accounting, aquifer monitoring and demand forecasting integral to policymaking.
- Promote behavioural change through community-led conservation and efficient water use.

QUICK REVISION BOX	
 Water Stress	: <1,700 m ³ /person/year.
 Water Scarcity	: <1,000 m ³ /person/year.
 Stressed Basins	: Krishna • Cauvery • Mahi • Tapi.
 Key Challenges	: Groundwater depletion • Climate variability • Urban demand • Inefficient water use.
 UPSC Keywords	: Integrated Water Resources Management • Aquifer Management • Water Accounting • Circular Water Economy • Basin-level Governance.

37. India's First Commercially Produced Matcha Tea – The Hindu

Why in News?

An Assam tea estate has sold India's first commercially produced matcha tea, signalling diversification from conventional black and green teas towards premium speciality products.

What is Matcha Tea?	How is Matcha Produced?
 Matcha is a premium powdered green tea produced from <i>Camellia sinensis</i> , the same plant used for conventional tea.	 Shading: Tea plants are covered for about 3–4 weeks before harvesting, blocking nearly 90% of sunlight.
 Unlike ordinary green tea, matcha involves consuming the finely powdered whole tea leaf rather than only its brewed infusion.	 Biochemical changes: Reduced sunlight increases chlorophyll and amino-acid content, producing its characteristic bright-green colour and flavour.
 It is traditionally associated with Japan and is also commercially produced in countries such as China and Vietnam.	 Processing: Selected leaves are processed, dried and finely ground into matcha powder.
	 Its specialised cultivation and processing make it a high-value speciality tea.
Significance for India's Tea Sector	Challenges
 Product diversification: Reduces dependence on conventional bulk black tea.	 Technical expertise: Requires specialised shading, harvesting and processing infrastructure.
 Value addition: Premium teas can generate higher returns compared with low-value bulk exports.	 Quality consistency: Export markets demand strict standards in colour, flavour, texture and residue levels.
 Export opportunity: Rising global demand and supply shortages create opportunities for Indian producers.	 Global competition: Indian matcha must compete with established Japanese and other Asian producers.
 Assam diversification: Enables traditional tea estates to enter premium global beverage segments.	 Market development: Domestic awareness and demand for premium matcha remain relatively niche.
 Farmer incomes: Speciality tea cultivation can potentially improve price realisation for quality-focused producers.	
 Brand India: Matcha production can complement India's established strengths in Assam, Darjeeling and Nilgiri teas.	

Way Forward

- Promote speciality and orthodox teas, processing technology and quality certification.
- Strengthen branding, geographical identity and export-market linkages.
- Encourage R&D and skill development for high-value tea products.

QUICK REVISION BOX	
 Plant:	<i>Camellia sinensis</i> .
 Key Technique:	Shading plants for 3–4 weeks before harvest.
 Purpose of Shading:	Enhances chlorophyll and amino-acid levels.
 Indian Milestone:	First commercially produced matcha sold by an Assam tea estate.
 UPSC Keywords:	Tea diversification • Value addition • Speciality agriculture • Agri-exports • Premium tea market.

38. Landslide in Karjat–Lonavala Ghat Section – Times of India

Why in News?

- Heavy monsoon rainfall triggered a landslide in the South East Ghat section between Karjat and Lonavala, disrupting the Mumbai–Pune rail corridor in July 2026.
- The incident highlights the vulnerability of transport infrastructure in steep, rainfall-prone Western Ghats terrain.

WHAT HAPPENED?	WHY ARE THE WESTERN GHATS LANDSLIDE-PRONE?	IMPACTS
 Landslide occurred between Thakurvadi and Monkey Hill Loop Cabin on Central Railway's Mumbai Division.	 Steep slopes: High relief and sharp gradients favour gravitational movement of material.	 Transport disruption: Affected one of India's busiest Mumbai–Pune connectivity corridors.
 More than 327 mm rainfall was recorded the previous day, followed by 140 mm in four hours, intensifying slope instability.	 Heavy rainfall: Intense and prolonged rainfall saturates soil, increases pore-water pressure and reduces slope stability.	 Economic losses: Delays freight and passenger movement and disrupt regional economic activity.
 Debris and boulders fell onto railway tracks, disrupting train operations.	 Weathering: Deeply weathered rocks and loose soil can become unstable during intense precipitation.	 Safety risks: Landslides and falling boulders threaten passengers, workers and infrastructure.
 16 trains were cancelled and 9 diverted through alternative routes.	 Human intervention: Road cutting, railway construction, quarrying, deforestation and unplanned development can weaken slopes.	 Disaster-management burden: Continuous rainfall complicates debris removal and restoration operations.
	 Extreme rainfall: Short-duration, high-intensity rainfall events can rapidly exceed the natural drainage capacity of slopes.	

Disaster Risk Reduction

- Landslide hazard zonation:** Identify high-risk slopes and restrict vulnerable infrastructure development.
- Slope stabilisation:** Use retaining structures, rock bolting, drainage systems and bio-engineering.
- Early warning:** Combine rainfall thresholds, ground sensors, remote sensing and real-time monitoring.
- Infrastructure resilience:** Integrate geological and hydrological assessments into railway and highway planning.
- Ecosystem protection:** Preserve vegetation and natural drainage to enhance slope stability.

QUICK REVISION BOX	
 Location:	Karjat–Lonavala, Maharashtra.
 Physiographic Region:	Western Ghats.
 Trigger:	Intense/prolonged rainfall → soil saturation → slope failure.
 Key Infrastructure:	Mumbai–Pune railway corridor.
 UPSC Keywords:	Landslide Hazard Zonation • Slope Stabilisation • Early Warning Systems • Western Ghats • Disaster-Resilient Infrastructure.

39. Narmada Project: Four States Resolve Long-Pending Dispute – Indian Express

Why in News?

Madhya Pradesh, Gujarat, Rajasthan and Maharashtra signed an agreement in July 2026 to settle long-pending financial and rehabilitation issues linked to the Narmada Award and Sardar Sarovar Project.

WHAT WAS RESOLVED?	NARMADA WATER DISPUTES TRIBUNAL	SIGNIFICANCE
 Pending dues: Cost-sharing liabilities related to the Sardar Sarovar Project were settled through a one-time settlement .	 NWDT constituted: The Centre constituted the Tribunal in 1969 under the Inter-State River Water Disputes Act, 1956.	 Cooperative federalism: Demonstrates resolution of inter-State issues through dialogue, negotiation and consensus.
 Rehabilitation: Long-pending issues concerning Resettlement & Rehabilitation (R&R) expenditure for project-affected families were addressed.	 Award: The Tribunal delivered its Award in 1979, determining water utilisation and power-sharing among the beneficiary States.	 Water security: Reduces institutional friction around major multi-State water infrastructure.
 Land compensation: Disputes relating to compensation for submerged/acquired land were resolved.	 Beneficiary States: Madhya Pradesh, Gujarat, Maharashtra and Rajasthan.	 Project-affected people: Greater clarity on rehabilitation and compensation can strengthen distributive justice .
 Other liabilities: Pending issues included the cost-sharing of the Indira Sagar Project and interest burden on borrowings during construction.	 Core principle: Allocation of river waters was accompanied by arrangements concerning power generation, submergence, land acquisition and rehabilitation.	 Economic benefits: Facilitates smoother utilisation of infrastructure supporting irrigation, drinking water and hydropower.
		 Precedent: Provides a framework for addressing other legacy inter-State water and infrastructure disputes.

Broader Context

- **Yamuna Water Project:** Rajasthan and Haryana recently reached an agreement after decades of dispute.
- **Kishau Multipurpose Project:** Six States agreed to move forward with implementation, reflecting renewed emphasis on negotiated water governance.
- **Key lesson:** Sustainable river governance requires balancing State interests, ecological concerns and rights of project-affected communities.

QUICK REVISION BOX		
	River:	Narmada → major west-flowing peninsular river.
	Tribunal:	Narmada Water Disputes Tribunal → constituted 1969; Award 1979.
	States:	Madhya Pradesh • Gujarat • Maharashtra • Rajasthan.
	Major Project:	Sardar Sarovar Project.
	UPSC Keywords:	Cooperative Federalism • Inter-State Water Disputes • NWDT Award • Rehabilitation & Resettlement • Water Governance.

40. Indira Point: Protecting a Strategic Maritime Landmark – Indian Express

Why in News?

- The Ministry of Ports, Shipping and Waterways has proposed structural repair and tourism infrastructure around the Indira Point lighthouse in Great Nicobar Island.
- The proposed works require Coastal Regulation Zone (CRZ) clearance due to the ecological sensitivity of the coastal area.

INDIRA POINT: KEY FACTS	PROPOSED DEVELOPMENT	ECOLOGICAL SIGNIFICANCE	STRATEGIC & DEVELOPMENTAL SIGNIFICANCE
 Location: Southernmost tip of India, on Great Nicobar Island, Andaman and Nicobar Islands.	 Structural protection: Repair and strengthen the existing lighthouse infrastructure.	 Rich biodiversity: Great Nicobar supports tropical forests, coastal ecosystems and diverse marine habitats.	 Maritime security: Strengthens India's presence near strategically important sea lanes.
 Geographical significance: Lies south of Galathea Bay and is located close to major Indian Ocean maritime routes.	 Tourism facilities: Develop basic visitor amenities and tourism infrastructure around the landmark.	 Key species: The island region is associated with species such as the Nicobar megapode and leatherback turtles.	 Indian Ocean connectivity: Supports India's broader maritime and Indo-Pacific interests.
 Strategic location: Great Nicobar's proximity to the Malacca Strait enhances its importance for maritime connectivity and security.	 CRZ compliance: Coastal Regulation Zone regulations regulate specified activities in designated coastal areas and require prior approval/clearance where applicable.	 Coastal ecosystems: Coral reefs, mangroves and beaches provide important ecological and livelihood functions.	 Sustainable tourism: Can generate local employment and promote responsible island tourism.
 Maritime role: The lighthouse serves as an important navigational aid for vessels in the region.	 Balanced development: Infrastructure planning must reconcile maritime utility, tourism and ecological conservation.	 Fragile landscape: Development can increase habitat fragmentation, coastal disturbance and pressure on natural resources.	 Blue economy: Creates opportunities for environmentally sustainable coastal economic activities.
		 Disaster vulnerability: The island is exposed to earthquakes, tsunamis, coastal erosion and extreme weather events.	 Strategic infrastructure: Forms part of the broader strategic and infrastructure focus on Great Nicobar Island.
			

Way Forward

- Ensure CRZ and environmental safeguards before undertaking construction.
- Adopt low-impact and climate-resilient infrastructure suited to fragile island ecosystems.
- Conduct carrying-capacity and cumulative-impact assessments before tourism expansion.
- Integrate biodiversity conservation, maritime security and local livelihoods in development planning.

QUICK REVISION BOX	
 Location:	Indira Point — Great Nicobar Island, Andaman & Nicobar Islands.
 Significance:	Southernmost point of India; near the Malacca Strait–Indian Ocean maritime corridor.
 Key Biodiversity:	Nicobar megapode • Leatherback turtle • Coral reefs • Mangroves.
 Key Regulation:	Coastal Regulation Zone (CRZ) framework.
 UPSC Keywords:	Island Ecology • Maritime Security • CRZ • Blue Economy • Sustainable Tourism.

41. Coal Power Plants and Rising SO₂ Emissions in Delhi-NCR

Why in News?

- A CREA analysis found that nearly 81% of estimated SO₂ emissions from coal-fired power plants within 300 km of Delhi-NCR come from plants exempted from mandatory Flue Gas Desulphurisation (FGD) installation.
- The findings have renewed concerns over diluted coal-power emission norms and their implications for PM_{2.5} pollution and public health.

KEY FINDINGS	FGD & REGULATORY CHANGES	ENVIRONMENTAL & PUBLIC HEALTH IMPLICATIONS
 CREA study: Analysed 12 coal-fired power plants comprising 37 generating units; adequate public data was available for 25 units.	 Flue Gas Desulphurisation (FGD): Removes sulphur compounds from coal-combustion exhaust gases; can reduce SO ₂ emissions substantially.	 Air pollution: Higher SO ₂ emissions can increase secondary particulate pollution and worsen regional air quality.
 Estimated emissions: Studied units were estimated to emit about 154 kilotonnes of SO ₂ in 2025.	 2015 framework: India mandated FGD installation for coal-based power plants, with compliance deadlines subsequently extended.	 Health burden: PM _{2.5} exposure increases risks of respiratory illness, cardiovascular disease, stroke and premature mortality.
 Category C plants: Accounted for nearly 81% of estimated SO ₂ emissions despite being exempt from mandatory FGD installation.	 2021 categorisation: Plants were classified based on proximity to cities and polluted areas, with differentiated compliance requirements.	 Climate-energy link: Higher coal generation during periods of weak hydropower availability can intensify emission pressures.
 Emission-control gap: Around 90% of estimated emissions originated from plants operating without FGD systems.	 July 2025 notification: Category A plants retain mandatory FGD requirements; Category B plants face case-by-case assessment; Category C plants are exempt from mandatory FGD installation.	 Regional pollution: Pollution control based solely on proximity to cities may overlook long-range pollutant transport.
 Health concern: SO ₂ contributes to formation of secondary PM _{2.5} , linked to respiratory and cardiovascular diseases.	 Concern: SO ₂ can travel long distances and contribute to secondary particulate formation beyond the immediate vicinity of a power plant.	

Way Forward

- Reinstate mandatory FGD requirements based on emissions and regional pollution impacts.
- Make real-time Continuous Emission Monitoring System (CEMS) data publicly accessible.
- Regularly disclose the operational status and effectiveness of FGDs.
- Strengthen emission standards alongside accelerated renewable-energy and energy-efficiency deployment.

QUICK REVISION BOX		
	Pollutant:	SO ₂ — precursor of secondary PM _{2.5} .
	Control Technology:	FGD — reduces sulphur dioxide emissions from coal plants.
	Key Finding:	~81% of estimated SO ₂ emissions came from exempted Category C plants.
	Regulatory Update:	July 2025 norms exempted Category C plants from mandatory FGD installation.
	UPSC Keywords:	Air Pollution • Secondary PM _{2.5} • FGD • CEMS • Thermal Power Emissions.

42. Debrigarh Gaur National Park: Odisha's Conservation Push – Times of India

Why in News?

- Odisha has proposed upgrading Debrigarh Wildlife Sanctuary into Debrigarh Gaur National Park, with the proposal to be sent to the Centre after further technical discussions.
- The proposed National Park would be notable for its large and growing Indian gaur population, strengthening species and habitat conservation.

Significance of National Park Status

- **Stronger protection:** Provides a higher level of statutory protection to critical habitats.
- **Habitat conservation:** Supports long-term management of forests, grasslands and wildlife.
- **Ecotourism:** Can strengthen regulated nature-based tourism and local livelihood opportunities.
- **Landscape conservation:** Helps maintain ecological connectivity and prey-base security in central Indian landscapes.
- **Human-wildlife interface:** The sanctuary has been made free of human settlements within the proposed National Park area, with rights and claims settled through Gram Sabhas.

DEBRIGARH WILDLIFE SANCTUARY		WHY GAUR NATIONAL PARK?	
	Location: Bargarh and Sambalpur districts of Odisha, adjoining the Hirakud Reservoir .		Gaur population: Around 848 Indian gaurs are currently estimated in the sanctuary.
	Area: Sanctuary covers about 353 sq km ; around 290.65 sq km has been proposed for National Park status.		Population recovery: Gaur numbers increased by 189 between November 2024 and December 2025, attributed to protection measures, grassland management and village relocation.
	Landscape: Characterised by dry deciduous forests, grasslands and reservoir-associated ecosystems.		Ecological role: Gaur are important large herbivores and constitute prey for carnivores such as tigers and leopards .
	Biodiversity: Supports 40+ mammal species, 234 bird species, 41 reptile species and 12 amphibian species.		Conservation potential: Strong breeding success provides scope for population management and possible translocation to suitable habitats.
			

Way Forward

- Complete technical assessment and statutory procedures before notification.
- Maintain scientific monitoring of gaur population, habitat and carrying capacity.
- Ensure ecotourism remains low-impact and community-oriented.
- Strengthen landscape-level conservation and wildlife corridors beyond protected-area boundaries.

QUICK REVISION BOX	
 Location:	Bargarh & Sambalpur, Odisha; adjoining Hirakud Reservoir.
 Proposed Name:	Debrigarh Gaur National Park.
 Key Species:	Indian Gaur (Bison) • Leopard • Chousingha • diverse birdlife.
 Proposed NP Area:	290.65 sq km; sanctuary ~353 sq km.
 UPSC Keywords:	National Park • Indian Gaur • Dry Deciduous Forest • Wildlife Conservation • Hirakud Reservoir.



DEFENSE & INTERNAL SECURITY

43. Mahendragiri: Indigenous Project 17A Stealth Frigate – News on Air

Why in News?

- The Indian Navy commissioned Mahendragiri (F38), the sixth Project 17A indigenous stealth frigate, at Visakhapatnam on 11 July 2026.
- Its induction strengthens India's indigenous warship-building capability and maritime presence in the Indian Ocean Region.

MAHENDRAGIRI: KEY FEATURES	INS MAHENDRAGIRI — P17A Stealth Frigate —	PROJECT 17A PROGRAMME						
 Design: Designed by the Indian Navy's Warship Design Bureau.		 Fleet programme: Comprises seven advanced stealth frigates for the Indian Navy.						
 Builder: Built by Mazagon Dock Shipbuilders Limited (MDL), Mumbai.		 Evolution: Advanced successor to the Project 17 Shivalik-class frigates.						
 Indigenous content: Over 75%, supporting Aatmanirbhar Bharat in defence.		 Shipyards: Constructed by MDL and Garden Reach Shipbuilders & Engineers (GRSE).						
 Propulsion: Uses Combined Diesel or Gas (CODOG) propulsion — diesel engines enable economical cruising, while gas turbines provide high-speed operations.		 Modular construction: Uses modern modular construction techniques to improve construction efficiency and integration.						
 Stealth: Features reduced radar cross-section (RCS) and other signature-reduction measures, improving survivability against detection and targeting.		 Automation: Greater automation and advanced systems integration enhance operational effectiveness and crew efficiency.						
 Name: Named after the Mahendragiri mountain range in the Eastern Ghats.	 STRATEGIC SIGNIFICANCE	 Indigenous design: Strengthens domestic capabilities in warship design, engineering, systems integration and manufacturing.						
	<table border="1"><tr><td> Maritime security: Enhances India's ability to safeguard territorial waters and vital sea lanes of communication (SLOCs).</td><td> Anti-submarine warfare: Strengthens the Navy's capability to detect and counter underwater threats.</td><td> Surface & air warfare: Provides a versatile platform for multiple maritime combat missions.</td><td> Indian Ocean Region: Supports India's role as a Preferred Security Partner and first responder in the region.</td><td> Indo-Pacific: Contributes to a secure, stable and rules-based maritime environment.</td><td> Force multiplier: Adds a modern, survivable and versatile frontline combat platform to the fleet.</td></tr></table>	 Maritime security: Enhances India's ability to safeguard territorial waters and vital sea lanes of communication (SLOCs).	 Anti-submarine warfare: Strengthens the Navy's capability to detect and counter underwater threats.	 Surface & air warfare: Provides a versatile platform for multiple maritime combat missions.	 Indian Ocean Region: Supports India's role as a Preferred Security Partner and first responder in the region.	 Indo-Pacific: Contributes to a secure, stable and rules-based maritime environment.	 Force multiplier: Adds a modern, survivable and versatile frontline combat platform to the fleet.	
 Maritime security: Enhances India's ability to safeguard territorial waters and vital sea lanes of communication (SLOCs).	 Anti-submarine warfare: Strengthens the Navy's capability to detect and counter underwater threats.	 Surface & air warfare: Provides a versatile platform for multiple maritime combat missions.	 Indian Ocean Region: Supports India's role as a Preferred Security Partner and first responder in the region.	 Indo-Pacific: Contributes to a secure, stable and rules-based maritime environment.	 Force multiplier: Adds a modern, survivable and versatile frontline combat platform to the fleet.			

Defence-Industrial Significance

- **Aatmanirbhar defence:** Reduces dependence on imported warship platforms and technologies.
- **Industrial ecosystem:** Supports domestic shipyards, MSMEs and specialised component manufacturers.
- **Technology development:** Encourages indigenous expertise in propulsion, sensors, combat systems and naval engineering.
- **Strategic autonomy:** Strengthens India's ability to design, build and maintain sophisticated naval platforms domestically.

QUICK REVISION BOX

	Ship:	Mahendragiri — F38.
	Programme:	Project 17A — 7 stealth frigates.
	Shipyards:	MDL • GRSE.
	Propulsion:	CODOG — diesel for economical cruising + gas turbine for high speed.
	UPSC Keywords:	Stealth Technology • RCS Reduction • SLOC Security • Anti-Submarine Warfare • Aatmanirbhar Defence.

44. BrahMos Export to Indonesia: Deepening India-Indonesia Defence Partnership – Indian Express

Why in News?

- India is set to supply two BrahMos missile batteries worth about \$200 million to Indonesia, marking a major expansion of bilateral defence cooperation.
- The agreement comes alongside cooperation on ASTRA air-to-air missiles, defence technology, maritime security and critical minerals.

BRAHMOS MISSILE: KEY FEATURES		BRAHMOS MISSILE		INDIA'S DEFENCE EXPORT PUSH	
	Type: Supersonic, multi-platform cruise missile capable of land-, sea-, air- and submarine-based deployment.	 SPEED • PRECISION • POWER DRDO NPO MASHINOSTROYENIA			Indonesia: Two BrahMos batteries under the new agreement.
	Origin: Developed through a joint venture between India's DRDO and Russia's NPO Mashinostroyenia.				Philippines: Previously procured three BrahMos batteries.
	Name: BrahMos derives from the Brahmaputra and Moskva rivers.				Vietnam: India has also concluded a BrahMos supply agreement with Vietnam.
	Propulsion: Uses a solid-propellant booster followed by a liquid-fuel ramjet for sustained supersonic cruise.				Export potential: India is engaging with several other countries to expand the missile's international market.
	Speed: Can travel at around Mach 3, giving it high speed and reduced reaction time for targets.				Aatmanirbhar Bharat: Defence exports demonstrate the transition from a predominantly import-dependent model towards indigenous defence manufacturing and exports.
	Guidance: Employs navigation and terminal guidance systems for precision strike capability.				
	Versatility: Can perform anti-ship and land-attack missions.				
STRATEGIC SIGNIFICANCE FOR INDIA					
	Indo-Pacific: Strengthens India's defence partnerships with a key Southeast Asian maritime power.		Maritime security: Enhances cooperation to secure critical sea lanes and maintain a stable maritime environment.		Act East Policy: Deepens India's strategic engagement with ASEAN and Southeast Asia.
			Defence diplomacy: Positions India as a credible supplier of advanced weapon systems to partner countries.		Strategic autonomy: Defence exports generate economies of scale, strengthen domestic industry and support technological self-reliance.

India-Indonesia Dimension

- Comprehensive Strategic Partnership:** Defence cooperation has expanded significantly since its elevation in 2018.
- Maritime cooperation:** Both countries adopted a Shared Vision of India-Indonesia Maritime Cooperation in the Indo-Pacific.
- Broader cooperation:** Recent agreements also cover ASTRA missiles, maritime security, critical minerals, technology and connectivity.
- Regional significance:** Indonesia's location near the Strait of Malacca makes it an important partner in India's Indo-Pacific maritime strategy.

QUICK REVISION BOX	
	Missile: BrahMos — supersonic cruise missile.
	JV: DRDO (India) + NPO Mashinostroyeniya (Russia).
	Indonesia Deal: 2 batteries ≈ \$200 million.
	Key Export Markets: Philippines • Vietnam • Indonesia.
	UPSC Keywords: Defence Exports • Aatmanirbhar Bharat • Act East Policy • Indo-Pacific • Maritime Security.

45. Kudankulam Nuclear Plant Data Leak: Cybersecurity Concerns – Indian Express

Why in News?

- A 14.3 GB dataset containing 18,997 files purportedly related to the Kudankulam Nuclear Power Plant (KKNPP) has reportedly appeared on the dark web.
- The data is allegedly part of a larger 1.2-terabyte cache linked to the Reliance Group and reportedly released by the ransomware group World Leaks.

KUDANKULAM NUCLEAR PLANT DATA LEAK		
WHAT IS THE KUDANKULAM NUCLEAR POWER PLANT? Location: Kudankulam, Tirunelveli district, Tamil Nadu, on India's southeastern coast. Technology: Uses Russian-designed VVER-1000 pressurised water reactors (PWRs). Capacity: Six planned reactor units, with 1,000 MW capacity per unit. Strategic importance: One of India's major nuclear power complexes and a critical component of the national electricity infrastructure. Civilian nuclear infrastructure: Nuclear power plants form part of Critical Information Infrastructure (CII) requiring heightened cybersecurity protection.	 WHAT IS THE REPORTED DATA LEAK? Dataset: 18,997 files reportedly amounting to 14.3 GB. Larger cache: More than 858,000 files in a purported 1.2 TB dataset linked to the Reliance Group. EPC connection: Reliance Infrastructure Ltd received an Engineering, Procurement and Construction (EPC) contract in 2018 for non-nuclear Balance of Plant (BoP) facilities at KKNPP. Important caveat: Appearance of files on the dark web does not by itself establish authenticity, compromise of reactor-control systems or operational disruption.	CYBERSECURITY CONCERNS Critical infrastructure risk: Nuclear facilities require protection against espionage, ransomware and cyber sabotage. Supply-chain vulnerability: Contractors and third-party systems can become potential entry points into critical infrastructure networks. Data confidentiality: Engineering documents may reveal sensitive information about infrastructure and systems. Operational technology (OT): Cybersecurity must protect both IT networks and industrial control systems (ICS/SCADA). Ransomware threat: Attackers increasingly combine data theft with extortion and public disclosure.

India's Cybersecurity Response

- Strengthen network segmentation between IT and operational technology systems.
- Conduct continuous vulnerability assessments, penetration testing and threat monitoring.
- Enforce strict cybersecurity standards for contractors and third-party vendors.
- Strengthen incident-response mechanisms and information sharing among critical infrastructure operators.

- Protect Critical Information Infrastructure through coordinated institutional mechanisms.

QUICK REVISION BOX	
	Plant: Kudankulam Nuclear Power Plant — Tamil Nadu.
	Technology: Russian VVER-1000 PWR reactors.
	Reported Leak: 18,997 files • 14.3 GB.
	Key Cyber Risk: IT/OT and third-party supply-chain vulnerabilities.
	UPSC Keywords: Critical Information Infrastructure • Cybersecurity • Ransomware • Industrial Control Systems • Supply-Chain Security.

46. J-20: China's Fifth-Generation Fighter Transforming the PLAAF – Times of India

Why in News?

- China's J-20 Mighty Dragon has undergone continuous upgrades and is increasingly being deployed across the People's Liberation Army Air Force (PLAAF), even as China's next-generation fighter designs attract global attention.
- Its growing production and operational deployment highlight China's expanding capabilities in stealth aviation and advanced airpower.

CHINA'S J-20 STEALTH FIGHTER

Key Features, Transforming the PLAAF & Sixth-Generation Context

J-20: KEY FEATURES

- Generation:** Fifth-generation, twin-engine, stealth multirole fighter.
- Manufacturer:** Chengdu Aerospace Corporation, China.
- Stealth:** Designed with a reduced radar signature for enhanced survivability in contested airspace.
- Role:** Designed for air superiority, long-range interception and precision strike missions.
- Avionics:** Incorporates advanced sensors, data links and sensor-fusion capabilities.
- Continuous upgrades:** Improvements in engines, avionics, weapons integration and operational capabilities have increased its combat effectiveness.
- Strategic role:** Forms a key component of China's effort to modernise and strengthen the PLAAF.



HOW IS THE J-20 TRANSFORMING THE PLAAF?

- Stealth capability:** Expands China's ability to conduct operations against high-value targets in defended airspace.
- Long-range operations:** Enhances the PLAAF's reach beyond China's immediate airspace.
- Network-centric warfare:** Advanced sensors and data links enable integration with broader air and surveillance networks.
- Force modernisation:** Supports the transition from legacy fourth-generation aircraft towards stealth-enabled air combat.
- Growing production:** Increasing production allows China to progressively expand its fifth-generation fighter fleet.

SIXTH-GENERATION CONTEXT

- China is also pursuing sixth-generation combat aircraft, with observed prototype designs widely referred to as J-36 and J-50 by analysts.
- Sixth-generation aircraft are expected to emphasise all-aspect stealth, AI-assisted operations, advanced propulsion, sensor fusion and manned-unmanned teaming.
- The J-20 therefore represents an important bridge between China's current fifth-generation capability and its future air-combat architecture.

Implications for India

- **Airpower balance:** Expansion of China's stealth-fighter fleet increases the technological challenge for the Indian Air Force.
- **Border security:** Advanced Chinese aircraft could strengthen PLA airpower in the Tibetan Plateau and Western Pacific.

- **Indigenous capability:** Reinforces the need to accelerate India's AMCA programme and indigenous fighter-engine development.
- **Force multipliers:** India needs stronger AEW&C, airborne sensors, electronic warfare, air-defence systems and unmanned platforms alongside fighter modernisation.
- **Strategic preparedness:** Sustained investment in aerospace R&D is essential for maintaining credible air deterrence.

QUICK REVISION BOX



Aircraft: J-20 "Mighty Dragon".



Generation: Fifth-generation stealth fighter.



Air Force: People's Liberation Army Air Force (PLAAF).



Future Context: China is pursuing sixth-generation fighter prototypes.



UPSC Keywords: Stealth Technology • Air Superiority • Network-Centric Warfare • AMCA • Airpower Balance.

47. INS Malvan: Indigenous Anti-Submarine Warfare Shallow Water Craft – News on Air

Why in News?

- The Indian Navy commissioned INS Malvan, the second Mahe-class Anti-Submarine Warfare Shallow Water Craft (ASW-SWC), at Karwar, Karnataka, in July 2026.
- With over 80% indigenous content, the vessel highlights India's growing capability in indigenous naval design, construction and anti-submarine warfare.



INS MALVAN: KEY FEATURES



INS MALVAN: KEY FEATURES



Class: Mahe-class ASW Shallow Water Craft.



Builder: Cochin Shipyard Limited (CSL), Kochi.



Indigenous content: Over 80%, reflecting Aatmanirbhar Bharat in defence.



Role: Designed primarily for anti-submarine warfare in shallow coastal waters.



Armament: Equipped with RBU-6000 anti-submarine rocket launchers and DRDO-developed torpedoes.



Sonar: Uses an advanced German-Indian sonar suite for detecting and tracking underwater threats.



Operational role: Supports surveillance, detection and engagement of hostile submarines in coastal waters.



MAHE-CLASS ASW-SWC PROGRAMME



Objective: Strengthen the Navy's capability to counter submarine threats in littoral and shallow-water environments.



Design: Optimised for operations where larger anti-submarine platforms may face manoeuvrability constraints.



Indigenous ecosystem: Promotes domestic development of propulsion, sensors, weapons integration and naval engineering.



Industrial significance: Strengthens India's warship-building ecosystem involving shipyards, defence PSUs and private-sector suppliers.

STRATEGIC SIGNIFICANCE



Coastal security: Strengthens surveillance and protection of India's extensive coastline.



Undersea warfare: Enhances India's ability to detect and counter hostile submarines.



Indian Ocean Region: Supports protection of vital Sea Lines of Communication (SLOCs) and maritime infrastructure.



Distributed capability: Multiple smaller ASW platforms can provide persistent surveillance across coastal waters.



Aatmanirbhar defence: Reduces dependence on imported naval platforms and strengthens strategic autonomy.

Broader Significance

- **Technology integration:** Demonstrates indigenous capability in combining sonar, torpedoes and anti-submarine weapons.
- **Defence manufacturing:** Generates demand for domestic shipbuilding and specialised maritime technologies.
- **Maritime deterrence:** Adds depth to India's layered undersea surveillance and coastal defence architecture.

QUICK REVISION BOX	
	Ship: INS Malvan.
	Class: Mahe-class ASW Shallow Water Craft.
	Builder: Cochin Shipyard Limited.
	Key Systems: RBU-6000 • DRDO torpedoes • German-Indian sonar suite.
	UPSC Keywords: Anti-Submarine Warfare • Shallow-Water Operations • Aatmanirbhar Bharat • Coastal Security • Undersea Domain Awareness.

48. Exercise Pitch Black 2026: India-Australia Air Combat Cooperation – News on Air

Why in News?

- The Indian Air Force (IAF) deployed four Rafale fighters, two C-17 transport aircraft and over 120 Air Warriors to Australia for Exercise Pitch Black 2026.
- The exercise, held from 20 July to 7 August 2026, strengthens India-Australia defence cooperation and operational interoperability.

EXERCISE PITCH BLACK: KEY FACTS		
EXERCISE PITCH BLACK: KEY FACTS  Host: Royal Australian Air Force (RAAF).  Nature: Multinational air combat and tactical training exercise.  Locations: RAAF bases at Darwin, Tindal and Amberley, Australia.  Participants: Air forces from the Indo-Pacific and European regions.  Duration: Approximately three weeks.  Indian contingent: 4 Rafale • 2 C-17 Globemaster III • 120+ Air Warriors.	 OBJECTIVES  Interoperability: Improve coordination and operational compatibility among participating air forces.  Combat training: Practise complex air-to-air and air-combat scenarios.  Tactical proficiency: Sharpen combat flying, mission planning and aerial warfare skills.  Professional exchanges: Promote interaction and sharing of operational best practices.  Strategic partnerships: Build long-term defence relationships among participating countries.	INDIA-AUSTRALIA DEFENCE COOPERATION  Strategic partnership: Defence cooperation has expanded significantly within the broader Comprehensive Strategic Partnership.  Joint exercises: Includes AUSINDEX (naval), Pitch Black (air) and other bilateral/multilateral engagements.  Maritime security: Both countries cooperate on maintaining a free, open and rules-based Indo-Pacific.  Quad framework: Defence interoperability complements cooperation with Australia, Japan and the United States through the Quad.

Significance for India

- **Airpower projection:** Provides experience in operating Indian combat aircraft in distant and unfamiliar environments.
- **Rafale capability:** Enhances exposure to advanced multilateral air-combat operations.
- **Strategic mobility:** C-17 aircraft demonstrate India's capability for rapid deployment and logistical support.
- **Indo-Pacific engagement:** Strengthens India's operational presence and partnerships in the region.
- **Network-centric warfare:** Exposure to multinational air operations improves coordination, communications and information sharing.

QUICK REVISION BOX	
	Exercise: Pitch Black 2026.
	Host: Royal Australian Air Force; Australia.
	Indian Assets: 4 Rafale + 2 C-17 + 120+ personnel.
	Locations: Darwin • Tindal • Amberley.
	UPSC Keywords: Air Combat • Interoperability • India–Australia Defence • Indo-Pacific • Strategic Mobility.

49. Project Kusha: India's Indigenous Long-Range Air Defence System – The Times of India

Why in News?

- The DRDO successfully conducted the maiden flight test of the Project Kusha interceptor in July 2026, marking a major step towards an indigenous long-range air-defence capability.
- The test has renewed focus on India's effort to build a layered and integrated air-defence shield, while Project Kusha itself is primarily designed to counter aerial threats rather than serve as a dedicated ballistic-missile defence system.

WHAT IS PROJECT KUSHA? Developer: Defence Research and Development Organisation (DRDO). Type: Indigenous Long-Range Surface-to-Air Missile (LR-SAM) system. Objective: Protect strategic assets and high-value areas against advanced aerial threats. Variants: Three planned interceptors — M1, M2 and M3. Reported ranges: Approximately 150 km, 250 km and 350 km, respectively.	PROJECT KUSHA INDIGENOUS LONG-RANGE SURFACE-TO-AIR MISSILE SYSTEM 	THREATS & CAPABILITIES - Designed primarily to engage fighter aircraft, stealth aircraft, cruise missiles and drones. - Provides long-range area defence against multiple aerial threats. - Intended to operate as part of a networked and integrated air-defence architecture. - Its scalable architecture can complement existing systems such as the S-400 and other indigenous air-defence systems.
KUSHA VS BALLISTIC MISSILE DEFENCE Key distinction: Project Kusha is not India's dedicated ballistic-missile defence (BMD) system. Against ballistic missiles: India relies on its dedicated BMD programme for specialised interception capabilities. Sudarshan Chakra: The broader national air-defence vision envisages integration of long-range SAMs, BMD interceptors, sensors, radars and emerging technologies. Layered defence: No single interceptor can provide comprehensive protection against the full spectrum of aerial and missile threats.	STRATEGIC SIGNIFICANCE Aatmanirbhar defence: Reduces dependence on imported long-range air-defence platforms. Airspace protection: Strengthens defence of critical military and civilian infrastructure. Technology development: Promotes indigenous expertise in missiles, radars, sensors and command systems. Network-centric warfare: Emphasises integration of sensors, command centres and interceptors. Strategic autonomy: Enables India to develop a customised multi-layered air-defence architecture for its vast geography.	CHALLENGES Integration: Seamless coordination among diverse sensors, radars and weapon systems is critical. Saturation attacks: Large-scale simultaneous attacks can stress even sophisticated air-defence networks. Coverage: India's vast territory requires extensive deployment and redundancy. Technology maturity: Multiple testing and user-evaluation stages are required before operational induction.

Way Forward

- **Strengthen integration:** Develop common command-and-control architecture for seamless coordination among Kusha, S-400, BMD and indigenous air-defence systems.
- **Counter saturation attacks:** Expand interceptor inventory, deploy multiple firing units and develop multi-layered defence against coordinated drone, cruise-missile and aircraft attacks.
- **Improve nationwide coverage:** Prioritise strategic corridors, military assets and critical infrastructure, with mobile and relocatable air-defence units for flexible deployment.
- **Accelerate technology maturation:** Conduct extensive trials against realistic, multi-vector and electronic-warfare scenarios while strengthening indigenous radar, seeker and propulsion technologies.

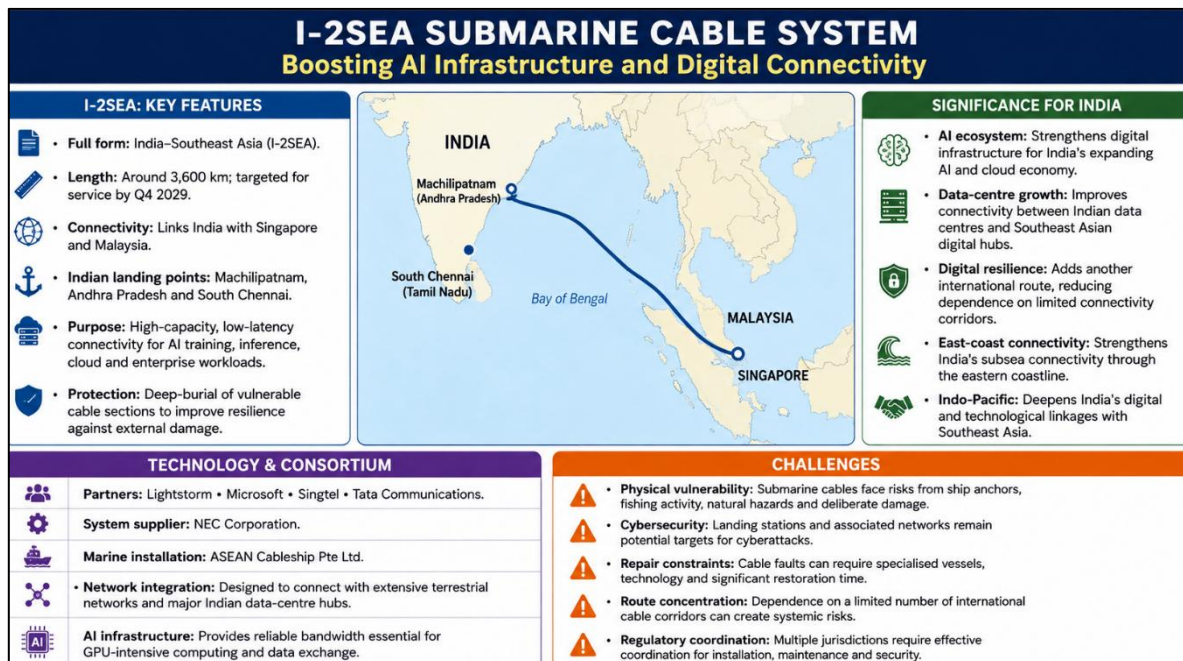
QUICK REVISION BOX		
	Project:	Kusha — indigenous long-range SAM system.
	Developer:	DRDO.
	Variants:	M1 (150 km) • M2 (250 km) • M3 (350 km).
	Primary Threats:	Aircraft • Cruise missiles • Drones • Stealth targets.
	UPSC Keywords:	Layered Air Defence • BMD • Network-Centric Warfare • Aatmanirbhar Defence • Sudarshan Chakra.

SCIENCE & TECHNOLOGY

50. I-2SEA: Submarine Cable System for AI-Ready Connectivity – Economic Times

Why in News?

- Lightstorm and its partners announced the I-2SEA submarine cable system to strengthen high-capacity connectivity between India and Southeast Asia.
- The system is designed to support growing demand from AI, cloud computing and hyperscale data infrastructure.



Way Forward

- **Build redundancy:** Develop diverse cable routes and multiple landing points to ensure continuity.
- **Strengthen monitoring:** Use sensors, satellite surveillance and maritime-domain awareness to detect threats.
- **Improve cyber resilience:** Harden landing stations through encryption, segmentation and continuous threat monitoring.
- **Develop domestic capability:** Promote indigenous cable manufacturing, repair vessels and subsea technologies.

QUICK REVISION BOX



- **Cable:** I-2SEA — India–Southeast Asia submarine cable system.



- **Length:** ~3,600 km; target service: Q4 2029.



- **Indian Landings:** Machilipatnam • South Chennai.



- **Partners:** Lightstorm • Microsoft • Singtel • Tata Communications.

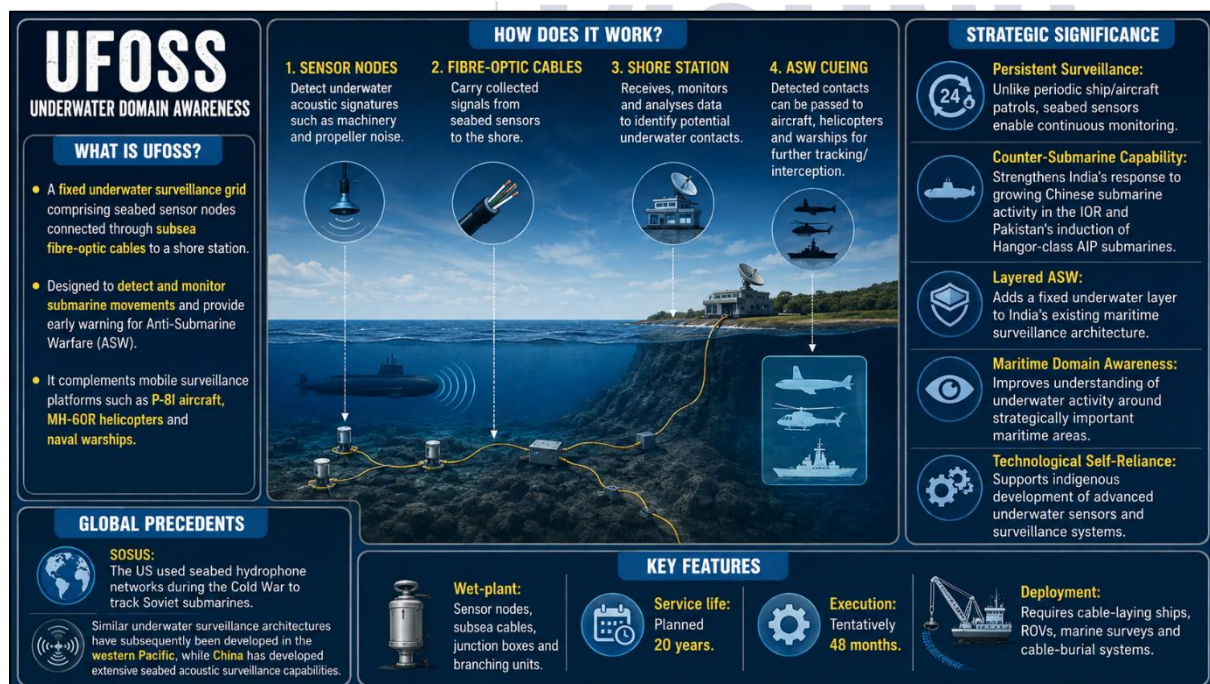


- **UPSC Keywords:** Submarine Cables • AI Infrastructure • Digital Connectivity • Data Centres • Digital Resilience.

51. Underwater Fiber Optic Sensing System (UFOSS) – Indian Express

Why in News?

- DRDO has initiated the process to develop and deploy UFOSS, a seabed-based fibre-optic surveillance network for 24×7 monitoring of underwater activity in the Indian Ocean Region (IOR).
- The Naval Physical and Oceanographic Laboratory (NPOL), Kochi, has invited an Expression of Interest (EOI) to identify a lead system integrator.



Challenges

- High cost & technical complexity of deep-sea deployment and maintenance.
- Cable vulnerability to anchors, fishing activity, natural hazards and deliberate sabotage.
- Signal processing: Distinguishing submarines from complex background ocean noise.
- Operational security: Protecting sensitive underwater surveillance data and infrastructure.

Way Forward

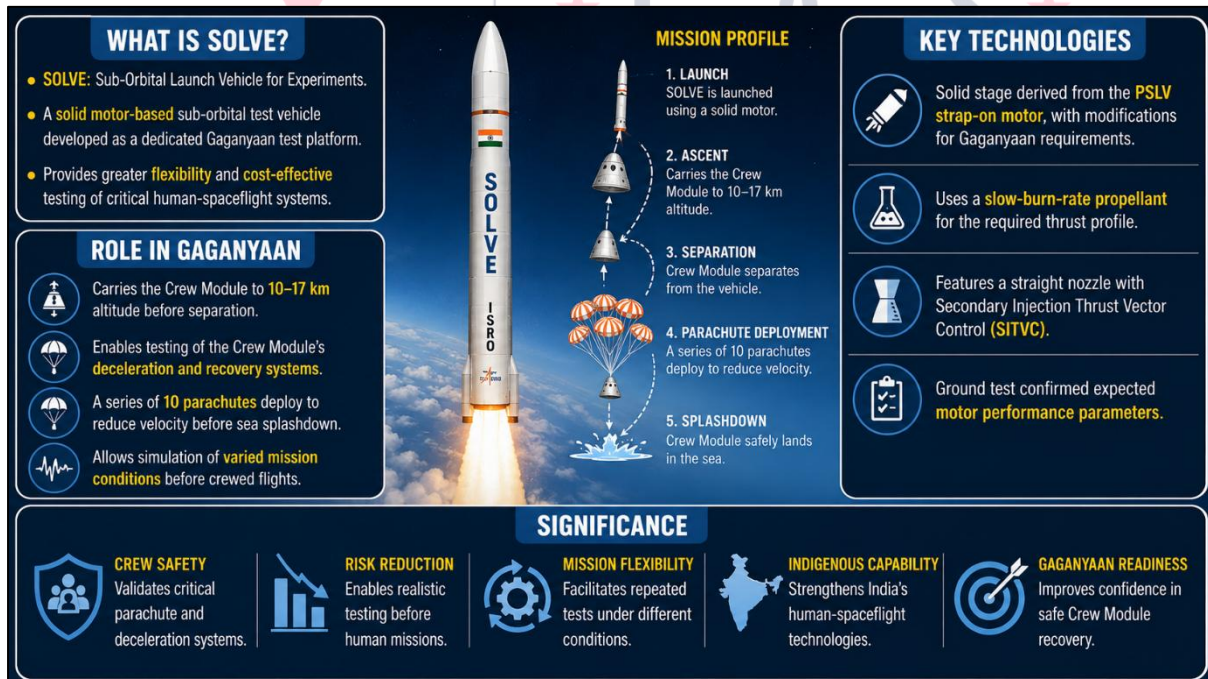
- Integrate UFOSS with P-8I, MH-60R, warships, satellites and other MDA systems.
- Develop AI/ML-based acoustic classification for faster identification of underwater contacts.
- Build domestic capability in subsea cables, sensors, ROVs and underwater robotics.
- Establish redundancy and physical/cyber protection for critical seabed infrastructure.

QUICK REVISION BOX	
 System:	UFOSS: — Underwater Fiber Optic Sensing System.
 Developer:	DRDO–NPOL , Kochi.
 Purpose:	24×7 submarine surveillance & ASW support.
 Architecture:	Seabed sensors → fibre-optic cables → shore station.
 UPSC Keywords:	Underwater Surveillance • Anti-Submarine Warfare • Maritime Domain Awareness • IOR • Seabed Sensors.

52. SOLVE: Sub-Orbital Launch Vehicle for Gaganyaan Tests - ISRO

Why in News?

- ISRO successfully conducted the first ground test of the SOLVE solid motor on 3 July 2026 at Satish Dhawan Space Centre, Sriharikota.
- SOLVE will support Gaganyaan test missions by simulating different flight and recovery conditions.



Challenges

- **High Reliability:** Human-rated systems require near-zero tolerance for failure.

- **Complex Integration:** Synchronising multiple parachutes and recovery systems is challenging.
- **Extreme Conditions:** Systems must perform reliably across varied atmospheric conditions.
- **Extensive Qualification:** Multiple tests are required before crewed missions.

Way Forward

- **Expand Testing:** Conduct diverse test scenarios to validate system performance.
- **Data Analytics:** Use detailed flight-test data for design refinement.
- **Progressive Qualification:** Qualify Crew Module, parachutes and recovery systems systematically.
- **Redundancy:** Strengthen backup mechanisms for critical human-safety systems.

QUICK REVISION BOX	
 Full Form:	SOLVE — <i>Sub-Orbital Launch Vehicle for Experiments.</i>
 Developer:	ISRO ; developed for Gaganyaan test missions.
 Test:	First solid-motor ground test — 3 July 2026, Sriharikota.
 Profile:	10–17 km altitude → Crew Module separation → 10-parachute deployment → splashdown.
 UPSC Keywords:	Gaganyaan • Human Spaceflight • Parachute Testing • Deceleration System • Sub-Orbital Test Vehicle.

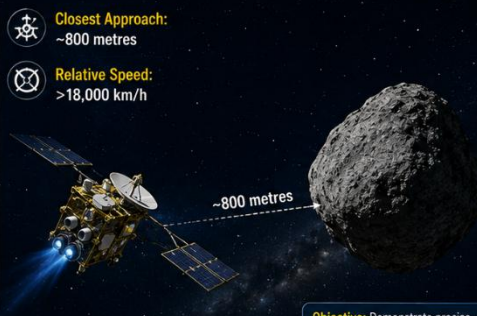
53. Hayabusa2 Flyby of Asteroid Torifune – NDTV World

Why in News?

- Japan's JAXA successfully conducted a close flyby of the near-Earth asteroid Torifune using the Hayabusa2 spacecraft on 5 July 2026.
- The mission tests technologies and gathers data relevant to asteroid deflection and planetary defence.

ABOUT THE MISSION

- Hayabusa2 passed within approximately **800 metres** of Torifune at a speed exceeding **18,000 km/h**.
- The spacecraft **did not collide** with the asteroid; the objective was to demonstrate precise trajectory control during a close approach.
- Cameras collected information on Torifune's **surface morphology, texture and temperature**.



Closest Approach: ~800 metres

Relative Speed: >18,000 km/h

Objective: Demonstrate precise trajectory control during a close approach and study the asteroid.

SIGNIFICANCE FOR PLANETARY DEFENCE

- Asteroid Deflection:** Helps assess the feasibility of accurately approaching and potentially altering the trajectory of hazardous asteroids.
- Surface Characterisation:** Determines whether an asteroid is composed of solid rock, loose sand or boulder fields.
- Impact Planning:** Surface and structural properties influence how an asteroid responds to a kinetic impactor.
- Risk Reduction:** Improves preparedness for future Near-Earth Object (NEO) threats.

LINK WITH NASA'S DART MISSION

- NASA's **Double Asteroid Redirection Test (DART)** in 2022 deliberately impacted Dimorphos.
- DART demonstrated that a spacecraft impact can **alter an asteroid's orbital motion**.
- Hayabusa2 complements this by improving understanding of **asteroid characteristics and precision navigation**.

HAYABUSA2: EARLIER ACHIEVEMENTS

- Launched in **2014** by JAXA.
- Reached asteroid **Ryugu** and collected surface/subsurface samples.
- Returned samples to Earth in **2020**, providing insights into the **early Solar System** and primitive asteroid material.
- Its extended mission includes a planned **2031** rendezvous with asteroid **1998 KY26**.

CHALLENGES

- Precision Navigation:** Extremely close asteroid flybys require highly accurate trajectory control.
- Asteroid Diversity:** Shape, composition, porosity and surface structure vary significantly.
- Limited Observation:** Ground-based observations cannot fully reveal an asteroid's physical properties.
- Deflection Uncertainty:** Impact response depends heavily on internal structure and surface composition.

Way Forward

- Strengthen international planetary-defence cooperation and NEO monitoring.
- Combine space-based observations, sample-return missions and kinetic-impact technologies.
- Develop accurate models of asteroid composition, internal structure and impact response.
- Expand early-warning and trajectory-prediction capabilities for potentially hazardous NEOs.

QUICK REVISION BOX		
	Probe:	Hayabusa2 — JAXA.
	Asteroid:	Torifune, a near-Earth asteroid.
	Flyby:	5 July 2026; planned closest approach ≈ 800 m.
	Purpose:	Precision navigation + asteroid surface study for planetary defence.
	UPSC Keywords:	Near-Earth Objects • Asteroid Deflection • Planetary Defence • DART • Kinetic Impactor.

54. Mission Drishti: GalaxEye's OptoSAR Satellite Loses Contact – Business Standard

Why in News?

- GalaxEye's Mission Drishti, the world's first OptoSAR satellite, lost contact after an anomaly following a geomagnetic solar storm.
- Preliminary analysis suggests radiation effects may have affected a critical onboard system, making recovery unlikely.

MISSION DRISHTI

- Developer:** Bengaluru-based space-tech startup **GalaxEye**.
- Innovation:** Integrates **Electro-Optical (EO)** and **Synthetic Aperture Radar (SAR)** sensors on one satellite.
- Successfully completed major **Launch and Early Orbit Phase (LEOP)** activities before communication was lost.



WHAT IS OPTOSAR?

- EO:** Provides high-resolution optical imagery but is limited by darkness and cloud cover.
- SAR:** Uses radar pulses for day-night and all-weather imaging.
- OptoSAR:** Combines both capabilities to provide complementary Earth-observation data.

SIGNIFICANCE

- Disaster Management:** Enables rapid mapping of floods, cyclones and landslides, including under cloud cover.
- Agriculture:** Supports crop monitoring, land-use assessment and resource management.
- National Security:** Strengthens potential for border surveillance, maritime awareness and strategic monitoring.

MISSION OUTCOME

- Drishti successfully validated spacecraft systems, deployment, attitude control, onboard computing and communications.
- Although contact was eventually lost, the mission generated important engineering lessons for future spacecraft.

NEWSPACE INDIA

Demonstrates the growing capability of Indian startups in advanced satellite development and mission operations.

SELF-RELIANCE

GalaxEye's move towards greater in-house manufacturing and supply-chain control can enhance technological autonomy.

SPACE RESILIENCE

Highlights the need for radiation-hardened electronics, redundancy and space-weather preparedness.

SPACE WEATHER DIMENSION

- Geomagnetic storms caused by intense solar activity can disturb Earth's magnetosphere.
- Associated radiation can affect satellite electronics, communications and spacecraft operations.
- The incident underlines the importance of space-weather monitoring and resilient spacecraft design.

Challenges

- **Space-weather vulnerability:** Solar storms can expose spacecraft to radiation-induced failures, affecting electronics, communication and onboard systems.
- **High mission complexity:** Integrating EO and SAR requires sophisticated hardware, calibration, data processing and precise attitude control.
- **Component dependence:** Limited domestic availability of specialised space-grade electronics and radiation-hardened components can create supply-chain vulnerabilities.
- **Mission reliability:** Private space companies need stronger testing, redundancy, fault-tolerance and mission-assurance mechanisms to manage high technical and financial risks.

Way Forward

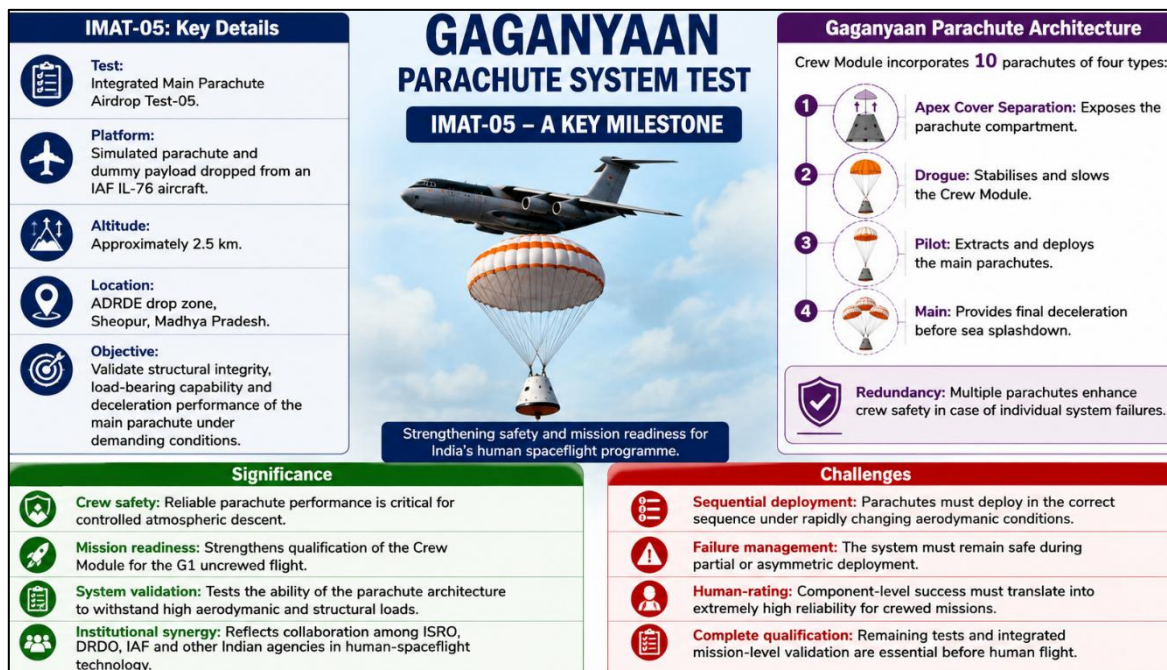
- Develop indigenous radiation-hardened electronics and fault-tolerant spacecraft.
- Strengthen space-weather forecasting and early-warning systems.
- Promote domestic manufacturing of critical space components.
- Institutionalise failure analysis and technology learning from private missions.

QUICK REVISION BOX	
	▶ Satellite: Mission Drishti — GalaxEye.
	▶ Innovation: EO + SAR integration on one satellite.
	▶ Incident: Contact lost after a geomagnetic solar-storm-associated anomaly.
	▶ Importance: All-weather Earth observation + private space innovation.
	▶ Keywords: OptoSAR • SAR • Space Weather • NewSpace India • Earth Observation.

55. Gaganyaan: ISRO Achieves Key Parachute Milestone – Times of India

Why in News?

- ISRO successfully completed IMAT-05 (Integrated Main Parachute Airdrop Test) for the Gaganyaan Crew Module.
- The test marks another milestone in validating the Crew Module's parachute-based safe descent system ahead of the uncrewed G1 mission.



Way Forward

- **Complete qualification:** Conclude remaining parachute tests and establish end-to-end reliability.
- **Test failure scenarios:** Validate performance under single-point failures and off-nominal descent conditions.
- **Integrated validation:** Combine parachute testing with re-entry, recovery and splashdown simulations.
- **Strengthen redundancy:** Enhance safety margins across all critical parachute subsystems.
- **Build indigenous capability:** Deepen collaboration between ISRO, DRDO, IAF and Indian industry.

QUICK REVISION BOX		
	Mission:	Gaganyaan — India's human-spaceflight programme.
	Test:	IMAT-05 — Integrated Main Parachute Airdrop Test.
	Location:	ADRDE, Sheopur, Madhya Pradesh.
	Architecture:	10 parachutes across 4 types.
	Purpose:	Validate Crew Module deceleration and safe descent ahead of the G1 uncrewed mission.

56. Eärendil-1: Orbital Mirror to Reflect Sunlight Towards Earth – The Hindu

Why in News?

- The U.S. Federal Communications Commission (FCC) authorised Reflect Orbital to launch and operate Eärendil-1, an experimental satellite carrying a large deployable orbital reflector.

- The mission aims to demonstrate the ability to redirect sunlight to selected locations on Earth after sunset.

WHAT IS EÄRENDIL-1?		POTENTIAL APPLICATIONS	
	Type: Single experimental satellite in non-geostationary orbit (NGSO).		Solar energy: Extend the effective operating hours of solar panels after sunset.
	Orbit: Around 625 km altitude with an inclination of about 88°.		Emergency response: Provide temporary illumination during disasters and humanitarian operations.
	Technology: A motorised, steerable highly reflective thin-film mirror.		Remote areas: Potentially deliver supplementary illumination where conventional lighting infrastructure is limited.
	Principle: The reflector will capture sunlight and redirect it towards targeted areas on Earth.		Future space economy: Demonstrates a novel commercial application of space-based solar reflection.
SCIENTIFIC & TECHNOLOGICAL SIGNIFICANCE		CONCERNS & CHALLENGES	
	Orbital sunlight management: Explores controlled manipulation of naturally available solar radiation from space.		Astronomy: Artificially brightened areas of the night sky could interfere with astronomical observations.
	Deployable structures: Requires lightweight, large-area reflectors that can be reliably deployed in orbit.		Ecological effects: Artificial nighttime illumination may disrupt nocturnal wildlife and ecosystems.
	Precision pointing: Accurate attitude control is essential to direct reflected sunlight towards specific terrestrial targets.		Light pollution: Large-scale deployment could contribute to a new form of space-enabled light pollution.
	Precedent: Orbital-reflector experiments have been conducted previously, including Russia's Znamya-2 experiment.		Orbital congestion: Additional spacecraft increase the need for responsible space-traffic and debris management.
			Governance gap: Commercial use of reflected sunlight raises questions regarding international regulation and coordination.

Way Forward

- **Impact assessment:** Conduct independent studies on effects on astronomy, ecosystems and human health.
- **Controlled operation:** Establish strict limits on brightness, duration and target areas.
- **International norms:** Develop global guidelines for commercial manipulation of Earth's nighttime environment.
- **Astronomer coordination:** Ensure orbital predictions and operating schedules are shared with observatories.
- **Responsible innovation:** Balance commercial space applications with dark-sky protection and sustainable space activities.

QUICK REVISION BOX		
	Satellite:	Eärendil-1 — Reflect Orbital.
	Approval:	Authorised by the U.S. FCC in July 2026.
	Orbit:	NGSO, approximately 625 km altitude.
	Innovation:	Deployable, steerable space-based solar reflector.
	Purpose:	Redirect sunlight towards Earth for extended solar generation and emergency illumination.

57. China's Long March-10B Achieves Breakthrough in Reusable Rocket Technology – NDTV World

Why in News?

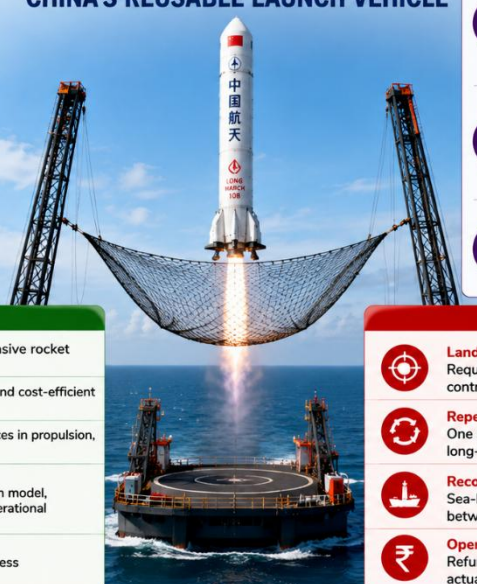
- On 10 July 2026, China successfully launched the Long March-10B from the Hainan commercial space launch site.
- China achieved its first successful controlled recovery of an orbital rocket's first stage using a sea-based net-capture system.

LONG MARCH-10B: KEY FEATURES

- Type:** Two-stage, reusable, liquid-fuelled commercial launch vehicle.
- Dimensions:** Approximately 63 m tall and 5 m diameter.
- Liftoff mass:** About 760 tonnes; thrust around 890 tonnes.
- Payload:** Up to 16 tonnes to LEO in reusable configuration.

LONG MARCH-10B

CHINA'S REUSABLE LAUNCH VEHICLE



RECOVERY MECHANISM

- After stage separation, the booster executed a controlled return manoeuvre involving attitude adjustment, powered braking and aerodynamic deceleration.
- It was recovered on an offshore platform using a large buffered net-capture system.
- Net capture can potentially reduce landing hardware and structural weight, improving payload efficiency.

SIGNIFICANCE

- Reusability:** Enables repeated use of expensive rocket stages and can reduce launch costs.
- Commercial space:** Supports high-frequency and cost-efficient satellite launches.
- Technological capability:** Demonstrates advances in propulsion, precision guidance and recovery systems.
- Global competition:** Moves China closer to SpaceX's reusable-launch model, although Falcon 9 has a substantially longer operational record and extensive booster reuse.
- Space economy:** Reusable launchers can expand affordable access to Low Earth Orbit (LEO).

CHALLENGES

- Landing precision:** Requires highly accurate guidance, navigation and control (GNC) during atmospheric return and recovery.
- Repeated reuse:** One successful recovery does not establish long-term reliability or rapid turnaround.
- Recovery complexity:** Sea-based capture demands precise coordination between booster and recovery platform.
- Operational economics:** Refurbishment and maintenance costs determine actual savings.

Way Forward

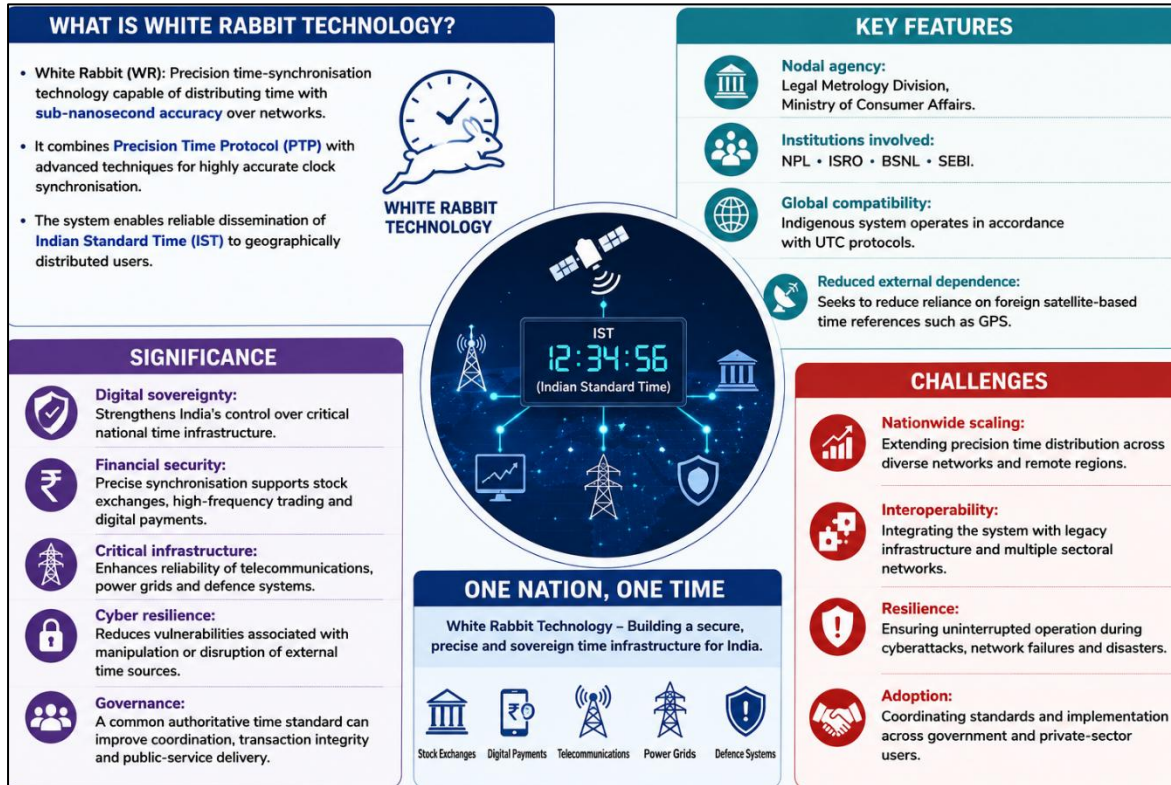
- Conduct multiple recovery and reflight demonstrations to establish reliability.
- Improve GNC and autonomous recovery systems.
- Improve refurbishment: Minimise inspection and refurbishment requirements for rapid booster turnaround and genuine cost reduction.
- Develop scalable recovery infrastructure for an expanding commercial space sector.

QUICK REVISION BOX		
	Rocket:	Long March-10B — reusable liquid-fuelled launcher.
	Milestone:	China's first successful controlled orbital booster recovery.
	Recovery:	Sea-based net capture.
	Capacity:	Up to 16 tonnes to LEO.
	Significance:	Advances low-cost, reusable and high-frequency access to space.

58. White Rabbit Technology-Based Indian Standard Time Distribution Network - PIB

Why in News?

- On 16 July 2026, Union Minister Pralhad Joshi inaugurated a White Rabbit Technology-based Indian Standard Time (IST) Distribution Demonstration Network at RRSL, Jakkur, Bengaluru.
- The initiative is part of the “One Nation, One Time” vision to establish a uniform, precise and secure time-distribution system across India.



Way Forward

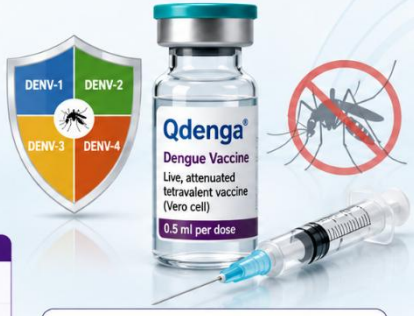
- Expand IST distribution infrastructure across critical sectors and regions.
- Establish robust redundancy and backup timing sources.
- Develop common technical standards for nationwide adoption.
- Strengthen cybersecurity and independent monitoring of time-distribution networks.

QUICK REVISION BOX	
	Initiative: IST Distribution Demonstration Network.
	Technology: White Rabbit Technology for ultra-precise synchronisation.
	Location: RRSL, Jakkur, Bengaluru.
	Institutions: NPL • ISRO • BSNL • SEBI.
	Goal: “One Nation, One Time” — secure, precise and sovereign IST distribution.

59. India Approves First Dengue Vaccine: Qdenga - PIB

Why in News?

- On 21 July 2026, the Central Drugs Standard Control Organisation (CDSCO) granted marketing authorisation to Qdenga®, making it the first dengue vaccine approved in India.
- The approval covers prevention of dengue disease in individuals aged 4–60 years.

ABOUT QDENG		QDENG		EVIDENCE & REGULATORY APPROVAL	
	Type: Live, attenuated tetravalent dengue vaccine covering all four dengue serotypes.	 QDENG India's First Approved Dengue Vaccine Schedule: 2 subcutaneous doses of 0.5 ml each at 0 and 3 months.			CDSCO evaluated the vaccine for quality, safety and efficacy under the Drugs and Cosmetics Act, 1940 and Drugs Rules, 1945.
	Technology: Developed using recombinant DNA technology; uses a DENV-2 backbone carrying serotype-specific surface-protein genes.				Evidence includes a global clinical programme across 8+ countries and a pivotal Phase III study in the Indian population.
	Production: Manufactured in Vero cells; supplied as a freeze-dried formulation for reconstitution.				Approved in 42 countries and has received WHO prequalification .
	Schedule: 2 subcutaneous doses of 0.5 ml each at 0 and 3 months.				More than 24 million doses have been distributed globally, with post-marketing surveillance indicating a favourable safety profile.
SIGNIFICANCE FOR INDIA		CHALLENGES			
	Public health: Adds a preventive tool against a major mosquito-borne disease.	 Access & affordability: Ensuring equitable availability, particularly for vulnerable populations.			
	Disease burden: Could reduce dengue-related hospitalisation and severe disease when appropriately deployed.	 Serotype dynamics: Dengue involves four serotypes with complex epidemiological patterns.			
	Integrated control: Vaccine can complement vector control, surveillance, early diagnosis and case management.	 Coverage: Vaccination cannot replace mosquito-control measures.			
	Health security: Strengthens India's preparedness against recurrent and outbreak-driven dengue transmission.	 Surveillance: Continued post-marketing monitoring is essential to identify rare or long-term safety signals.			
	Scientific regulation: Demonstrates the role of evidence-based domestic vaccine evaluation and regulatory oversight.				

Way Forward

- Integrate vaccination with vector control and disease surveillance.
- Develop evidence-based strategies for target groups and geographic prioritisation.
- Strengthen post-marketing safety and effectiveness monitoring.
- Ensure affordable, equitable access while maintaining cold-chain and quality standards.

QUICK REVISION BOX		
	Vaccine:	Qdenga® — Dengue Tetravalent Vaccine (Live, Attenuated).
	Approval:	CDSCO; July 2026.
	Age:	4–60 years; 2 doses at 0 and 3 months.
	Technology:	Recombinant DNA-based, DENV-2 backbone.
	Significance:	India's first approved dengue vaccine, complementing integrated dengue control.

60. PRAXIS: NASA Concept for In-Situ Sampling of Planetary Rings – The Hindu

Why in News?

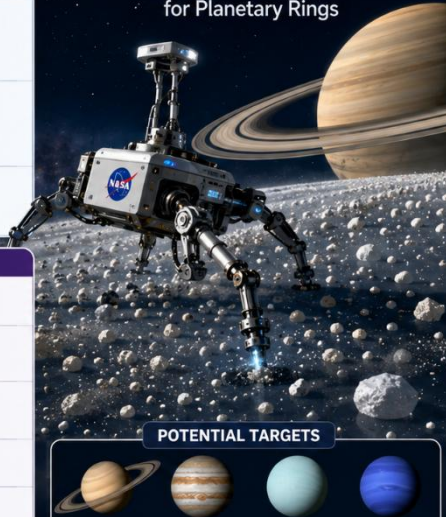
- NASA selected PRAXIS (Planetary Rings Autonomous EXploration with In-situ Sampling) for 2026 Innovative Advanced Concepts (NIAC) Phase I funding.
- The proposed mission would use a bio-inspired autonomous robotic explorer to directly sample particles from planetary ring systems.

WHAT IS PRAXIS?

- Mission concept:** Robotic exploration of planetary rings through in-situ sampling.
- Technology:** Combines bio-inspired robotic design with an AI-driven autonomous navigation and decision-making system.
- Innovation:** Designed to directly collect and analyse ring particles — an approach no previous planetary mission has attempted.
- Potential targets:** Ring systems of planets such as Saturn, Jupiter, Uranus and Neptune.

PRAXIS

AI-Driven Robotic Explorer for Planetary Rings



TECHNOLOGICAL SIGNIFICANCE

- Autonomy:** AI could enable navigation and decision-making in a complex, low-gravity environment with communication delays.
- Bio-inspired robotics:** Novel locomotion and sampling approaches could help operate within dynamic ring environments.
- In-situ science:** Direct sampling can provide information unavailable through remote sensing alone.
- Advanced exploration:** Demonstrates NASA's shift towards increasingly autonomous robotic planetary missions.

SCIENTIFIC OBJECTIVES

- Composition:** Determine the physical and chemical composition of ring particles.
- Origin:** Investigate whether rings formed from primordial planetary material, disrupted moons or other bodies.
- Evolution:** Understand how rings change through collisions, gravity and interactions with planetary moons.
- Planetary history:** Use ring material as a record of the evolution of planetary systems.
- Comparative planetology:** Improve understanding of why ring systems differ among giant planets.

POTENTIAL TARGETS

 SATURN
  JUPITER
  URANUS
  NEPTUNE

CHALLENGES

- Hazardous environment:** Ring particles range from fine dust to larger ice and rock fragments, posing collision risks.
- Navigation:** Precise trajectory control is essential within a rapidly moving particle environment.
- Sampling:** Collecting representative particles without damaging the spacecraft is technically demanding.
- Autonomy:** AI must make reliable decisions under uncertain and rapidly changing conditions.

Way Forward

- Mature the concept through NIAC technology development and laboratory testing.
- Develop robust collision avoidance, autonomous navigation and sampling systems.
- Conduct simulations of different planetary ring environments.
- Progress from concept validation towards future planetary science mission proposals.

QUICK REVISION BOX		
	Mission:	PRAXIS — Planetary Rings Autonomous EXploration with In-situ Sampling.
	Agency:	NASA; selected under NIAC 2026 Phase I.
	Technology:	AI-driven, bio-inspired robotic explorer.
	Innovation:	First proposed mission to directly sample planetary ring particles.
	Objective:	Understand the composition, origin and evolution of planetary rings.

HISTORY & CULTURE

61. Teejan Bai: The Voice That Transformed Pandavani – Indian Express

Why in News?

- Teejan Bai, legendary exponent of Pandavani and a Padma Vibhushan awardee, passed away in July 2026 at the age of 70.
- She transformed Pandavani from a traditional village performance into a nationally and internationally recognised folk-art form.



 Who was Teejan Bai? • Born in Chhattisgarh, Teejan Bai became one of India's most celebrated practitioners of Pandavani. • She pursued the art despite social and familial opposition to women performing publicly. • Her journey challenged entrenched gender norms within traditional cultural practices.	 What is Pandavani? Pandavani: A traditional folk narrative and musical theatre form of Chhattisgarh. Theme: Primarily narrates episodes from the Mahabharata, particularly stories of the Pandavas. Performance: Combines singing, narration, dialogue, music and dramatic gestures. Instrument: The tambura is traditionally used as the principal accompanying instrument. Transmission: Historically preserved through oral, community-based traditions.
 Contribution of Teejan Bai Breaking barriers: Became a pioneering woman performer in a traditionally male-dominated art form. Performance style: Developed a powerful combination of narration, singing and theatrical expression. Popularisation: Took Pandavani beyond village gatherings to national and international stages. Cultural preservation: Helped sustain wider public interest in an oral folk tradition and inspired subsequent generations of performers.	 Recognition Padma Vibhushan: India's second-highest civilian award. - Received several major national honours for her contribution to folk and performing arts. - Became an important cultural representative of Chhattisgarh's folk heritage.

Recognition

- **Padma Vibhushan:** India's second-highest civilian award.
- Received several major national honours for her contribution to folk and performing arts.
- Became an important cultural representative of Chhattisgarh's folk heritage.

Cultural Significance

- **Gender & society:** Demonstrated how artistic expression can challenge social restrictions on women.
- **Intangible heritage:** Highlights the value of preserving living oral traditions.
- **Regional identity:** Strengthened the cultural visibility of Chhattisgarh.
- **Soft power:** Folk traditions provide avenues for India's cultural diplomacy and international outreach.

Quick Revision Box	
	Artist: Teejan Bai — renowned exponent of Pandavani.
	Art form: Pandavani — Chhattisgarh folk tradition based mainly on the Mahabharata.
	Contribution: Took Pandavani from village performances to global stages.
	Legacy: Challenged gender barriers in a traditionally male-dominated art form.
	Award: Padma Vibhushan — India's second-highest civilian honour.

62. Syama Prasad Mookerjee: Legacy of National Integration and Institution Building – PM India

Why in News?

- Prime Minister Narendra Modi addressed the 125th Janma Jayanti of Dr. Syama Prasad Mookerjee, paying tribute to his contribution to national unity, education and institution building.
- The occasion highlighted Mookerjee's vision of an integrated India and his enduring contribution to nation-building.



SYAMA PRASAD MOOKERJEE: KEY CONTRIBUTIONS



CONTRIBUTION TO NATIONAL INTEGRATION

- **Partition of Bengal:** Mookerjee played a significant role in opposing attempts to separate the whole of Bengal from India and mobilised public opinion for its integration with India.
- **Kashmir:** He opposed the idea of "two constitutions, two prime ministers and two flags", advocating political and constitutional integration.
- His vision emphasised equal rights, national unity and seamless integration across regions.



EDUCATION AND CULTURAL NATIONALISM

- As the youngest Vice-Chancellor of Calcutta University, he sought to transform education into an instrument of national development.
- He advocated education rooted in the "Indian soul", including greater recognition of Indian languages.



INSTITUTION BUILDING AND ECONOMIC DEVELOPMENT

- As Industry Minister, he contributed to the establishment of major institutions including Chittaranjan Locomotive Works, Sindri Fertilizer Plant, Damodar Valley Corporation and IFCL.
- His approach viewed industries, research institutions and educational centres as instruments of nation-building, economic self-reliance and innovation.

Contemporary Relevance

- His legacy is linked to contemporary priorities of national integration, institutional capacity, linguistic empowerment and economic self-reliance.

QUICK REVISION BOX	
	Occasion: 125 th Janma Jayanti of Dr. Syama Prasad Mookerjee.
	Core idea: National unity and territorial integration.
	Kashmir: Opposed “two constitutions, two prime ministers, two flags.”
	Education: Indian languages and education rooted in Indian ethos.
	Institutions: CLW, Sindri Fertilizer Plant, DVC and IFCI.

63. Prambanan Temple: India-Indonesia Shared Cultural Heritage – News on Air

Why in News?

- Prime Minister Narendra Modi visited the Prambanan Temple Complex in Yogyakarta with Indonesian President in July 2026.
- India and Indonesia announced an ASI-supported conservation and restoration initiative for selected structures within the UNESCO World Heritage Site.

Art & Culture Significance

- **Cultural diplomacy:** Heritage conservation strengthens India-Indonesia people-to-people and civilisational ties.

PRAMBANAN TEMPLE	
A SYMBOL OF INDIA-INDONESIA CIVILISATIONAL TIES	
PRAMBANAN TEMPLE: KEY FEATURES  Built: 9th century; represents the classical Hindu temple architecture of Java.  Religious tradition: Dedicated to the Trimurti — Brahma, Vishnu and Shiva, with Shiva occupying the central position.  Original complex: Comprised around 240 large and small temples.  Architectural significance: Characterised by towering curvilinear shikharas, intricate stone carvings and monumental temple layouts.  UNESCO Status: Inscribed as a World Heritage Site in 1991.	 INDIAN CULTURAL INFLUENCE  Ramayana Tradition: Temple reliefs depict episodes from the Ramayana, demonstrating the adaptation of Indian epics in Javanese artistic traditions.  Cultural localisation: Indian religious narratives were incorporated into local Javanese artistic, literary and ritual traditions, creating a distinctive syncretic cultural expression.  Performing Arts: The Ramayana Ballet continues the tradition through dance, music, theatre and narrative performance.  Civilisational Exchange: Reflects historical transmission of Indian ideas through maritime trade, cultural contacts and religious networks. CONSERVATION & ART HERITAGE  ASI cooperation: India will provide technical assistance for conservation and restoration of selected structures.  Conservation challenge: The monument has suffered from earthquakes, volcanic activity, weathering and structural deterioration.  Heritage preservation: Cooperation combines archaeological expertise, traditional architectural knowledge and scientific conservation.  Living Heritage: Conservation protects not only physical structures but also associated epic narratives, performing arts and cultural traditions.

- **Shared heritage:** Demonstrates the historical spread and regional adaptation of Indic cultural traditions in Southeast Asia.
- **Continuity:** Prambanan illustrates how cultural traditions can survive through architecture, sculpture, literature and performing arts.
- **ASEAN cultural connect:** Strengthens India’s engagement with Southeast Asian cultural heritage through the Act East framework.

QUICK REVISION BOX	
	Location: Yogyakarta, Java, Indonesia.
	Period: 9th century Hindu temple complex.
	Deities: Brahma, Vishnu and Shiva (Trimurti).
	Cultural link: Ramayana reliefs + Ramayana Ballet.
	Current initiative: ASI-supported conservation and restoration cooperation, 2026.

64. Thukkachi Temple Restoration: Reviving Living Chola Heritage – The Hindu

Why in News?

- The Abathsahayeshwarar Temple at Thukkachi, Tamil Nadu, received the Award of Distinction under the 2024 UNESCO Asia-Pacific Awards for Cultural Heritage Conservation.
- The recognition highlights its successful revival as a living Hindu temple, combining traditional craftsmanship with modern conservation science.

Art & Culture Significance

- **Traditional Knowledge:** Demonstrates the continuing relevance of shapati craftsmanship in heritage conservation.
- **Authenticity:** Balances modern structural technology with traditional materials, techniques and aesthetics.

ABATHSAHAYESHWARAR TEMPLE: CULTURAL SIGNIFICANCE		
 CULTURAL SIGNIFICANCE	 	 CONSERVATION APPROACH
 Location: Thukkachi, near Kumbakonam, Thanjavur district, Tamil Nadu.		 Restoration adopted an interdisciplinary conservation model, integrating engineering expertise with traditional temple-building knowledge.
 Period: 12th century, associated with the architectural traditions of the Later Cholas.		 Sthapatis and traditional artisans contributed to structural conservation and renewal of decorative elements.
 Represents the evolution of Dravidian temple architecture, including the <i>gopuram</i> , <i>prakara</i> , <i>mahamandapam</i> and richly decorated temple elements.		 Traditional construction practices and vernacular artisanal techniques were retained to preserve historical authenticity.
 The temple remains a living religious space, linking architectural heritage with contemporary devotional practices.		 Modern scientific methods were used to address structural instability and deterioration.
		 HERITAGE REVIVAL
		 The project revived a monument that had suffered from neglect, structural collapse and vegetation growth.
		 Restoration brought damaged components, including the <i>prakara wall</i> , <i>gopuram</i> and <i>mandapam</i> , back into functional use.
		 The project demonstrates that conservation of a living heritage monument requires preserving both its physical fabric and religious function.
		 Continued involvement of devotees and government institutions helped sustain the temple as an active cultural space.

- **Living Heritage:** Preserves the relationship between architecture, ritual, community and faith.
- **Replicability:** Provides a potential model for restoration of other historic living Hindu temples in Tamil Nadu.

- **Heritage Conservation:** Shows a shift from merely preserving monuments to reviving their cultural functions and community connections.

QUICK REVISION BOX	
	Temple: Abathsahayeshwarar Temple, Thukkachi.
	Period: 12th century — Later Chola architectural tradition.
	Recognition: UNESCO Award of Distinction, 2024.
	Conservation Model: Modern conservation science + traditional shapathi knowledge.
	Cultural Importance: Revival of a living Chola-era temple and traditional artisanal heritage.

65. Batukeshwar Dutt: Revolutionary Nationalism and the Culture of Resistance – News on Air

Why in News?

- Batukeshwar Dutt, revolutionary freedom fighter, was remembered on his death anniversary in July 2026.
- His legacy highlights the role of revolutionary nationalism, sacrifice and resistance in India's freedom struggle.

Revolutionary Political Culture

- **Symbolic Protest:** The Assembly action reflected the use of revolutionary theatre and political symbolism to challenge colonial authority.

BATUKESHWAR DUTT: KEY CONTRIBUTIONS		
 KEY CONTRIBUTIONS		 REVOLUTIONARY CULTURE & NATIONALIST EXPRESSION
 Born in 1910 in Oari village, Kanpur region; associated with the revolutionary movement against British colonial rule.		 The Assembly episode represented a new form of political theatre and symbolic protest against colonial repression.
 Became closely associated with the Hindustan Socialist Republican Association (HSRA).		 Revolutionary activities contributed to a culture of sacrifice, courage and patriotic commitment among Indian youth.
 Worked alongside Bhagat Singh and other revolutionaries in challenging colonial authority.		 The revolutionary movement used pamphlets, slogans, trials and public statements to communicate nationalist ideas.
 Participated in the Central Legislative Assembly bombing (1929) with Bhagat Singh.		 Dutt's association with Bhagat Singh reflects the collective nature of revolutionary networks rather than an individual-centred freedom struggle narrative.
 The objective was to "make the deaf hear" and use revolutionary action as a means of political communication rather than causing mass casualties.		
 Voluntarily courted arrest and used the subsequent trial to publicise anti-colonial ideas.		
CELLULAR JAIL & PRISON RESISTANCE		
 Dutt was sentenced to life imprisonment and was subsequently incarcerated in the Cellular Jail, Andaman and Nicobar Islands.	 He participated in resistance against inhuman prison conditions and supported prisoners' rights .	 His imprisonment became part of the wider history of colonial prison resistance and political martyrdom .

- **Ideological Expression:** Dutt and his associates used slogans, pamphlets, trials and public statements to communicate anti-colonial ideas.

- **Prison Resistance:** His participation in hunger strikes and protests for prisoners' rights formed an important part of the culture of resistance against colonial repression.
- **Collective Nationalism:** His association with the HSRA highlights the role of organised revolutionary networks in shaping anti-colonial consciousness among Indian youth.

QUICK REVISION BOX		
	Revolutionary:	Batukeshwar Dutt — associated with HSRA.
	Major Event:	1929 Central Legislative Assembly bombing with Bhagat Singh.
	Objective:	Symbolic protest against colonial repression.
	Prison Legacy:	Cellular Jail and resistance for political prisoners' rights.
	Cultural Legacy:	Symbol of revolutionary nationalism, sacrifice and youth inspiration.

66. Bal Gangadhar Tilak and the Transformation of Ganesh Chaturthi – Economic Times

Why in News?

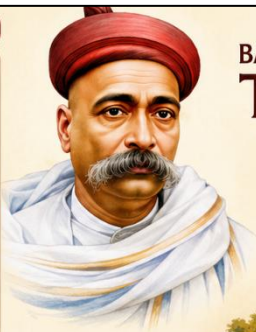
- Bal Gangadhar Tilak's birth anniversary was observed in July, highlighting his contribution to transforming Ganesh Chaturthi into a major public cultural festival.
- His initiative helped convert a predominantly household religious observance into a collective cultural tradition.

Broader Cultural Legacy

- Tilak's intervention contributed to making Ganesh Chaturthi a prominent feature of Maharashtra's cultural identity.

About Bal Gangadhar Tilak

- Bal Gangadhar Tilak (1856–1920) was a prominent nationalist, educationist, journalist and social reformer of colonial India.
- He recognised the potential of **indigenous festivals and cultural traditions** to create spaces for community participation.
- Through public celebrations, Tilak sought to strengthen **social cohesion and cultural consciousness**.
- His initiative demonstrated how existing cultural traditions could be **reinterpreted and institutionalised in the public sphere**.



BAL GANGADHAR TILAK

(1856–1920)

Nationalist
Educationist
Journalist
Social Reformer

Art & Culture Significance

- Visual arts:** Idol-making, pandal decoration and thematic displays encouraged local artistic traditions.
- Performing arts:** Music, devotional performances and cultural programmes became integral to festivities.
- Folk traditions:** Public celebrations provided space for local cultural practices and community performances.
- Cultural transmission:** Collective celebrations enabled traditions to be passed across generations.
- Living heritage:** Ganesh Chaturthi illustrates how a religious tradition can evolve into a dynamic form of intangible cultural heritage.

Ganesh Chaturthi Before Tilak

- Traditionally, **Ganesh worship** was largely conducted within **households and local communities**.
- Maharashtra had an existing **tradition of celebrating Ganapati**, including **community-based practices** in some areas.
- Tilak gave the celebration a more **organised and public cultural character**.

Tilak's Cultural Intervention

- In 1893, Tilak promoted the **Sarvajanik Ganesh Utsav** in Maharashtra.
- Public pandals brought together people from **different social groups** for collective worship and festivities.
- Celebrations incorporated **music, devotional singing, processions, cultural performances and public gatherings**.
- The festival consequently became an important platform for **community-based cultural expression**.



- The festival subsequently spread widely beyond Maharashtra, acquiring regional variations in rituals, artistic forms and public celebrations.
- It exemplifies the role of festivals in creating shared cultural spaces and collective identities.

QUICK REVISION BOX	
	• Person: Bal Gangadhar Tilak (1856–1920).
	• Initiative: Sarvajanik Ganesh Utsav, popularised from 1893.
	• Cultural transformation: Household worship → public community festival .
	• Art forms: Idol-making, pandals, music, devotional performances and processions.
	• Significance: Major example of the publicisation, preservation and evolution of living cultural traditions .

67. Ancient Buddhist Site of Sarnath: A New UNESCO World Heritage Site - PIB

Why in News?

- Ancient Buddhist Site of Sarnath was inscribed on the UNESCO World Heritage List at the 48th Session of the World Heritage Committee in Busan, South Korea, on 25 July 2026.
- With the inscription, India has 45 UNESCO World Heritage properties — 37 cultural, 7 natural and 1 mixed.

Conservation Perspective

- The inscription reinforces the need to protect Sarnath's authenticity, integrity and Outstanding Universal Value.
- Sustainable tourism and prevention of unplanned development in the buffer zone are important for long-term conservation.

- The Archaeological Survey of India (ASI) is the nodal agency for World Heritage-related matters and undertakes conservation and maintenance of centrally protected monuments.



SARNATH: CULTURAL SIGNIFICANCE



 Sarnath: Cultural Significance	 Architectural & Archaeological Heritage	 UNESCO Criteria	 Heritage & Cultural Diplomacy
• Located in Varanasi, Uttar Pradesh, Sarnath is one of the four principal Buddhist pilgrimage sites. • Known in Buddhist traditions as Rishipatana, Ishipatana and Mrigadava. • It is where Gautama Buddha delivered his first sermon in the 6th century BCE. • The sermon, Dharmachakra Pravartana ("Turning of the Wheel of the Law"), marked the beginning of the Buddhist Sangha and establishment of the Noble Eightfold Path. 	• UNESCO inscription covers Chaukhandi Stupa and the Archaeological Remains of Sarnath. • Major remains include: – Dhamek Stupa – Dharmarajika Stupa – Mulagandhakuti Vihara – Ashokan Pillar • The site reflects nearly 16 centuries of architectural and religious development, from the pre-Mauryan period to the 12th century CE. 	• Criterion (iii): Recognises Sarnath's enduring spiritual significance as a major Buddhist pilgrimage centre. • Criterion (vi): Recognises its direct association with significant events in the life and teachings of the Buddha, particularly his first sermon and meeting with his first disciples. 	• Sarnath remains a major pilgrimage destination for Buddhists from Japan, Thailand, Sri Lanka, Myanmar, Vietnam, South Korea, Cambodia and Mongolia, among others. • Its recognition strengthens India's role as the birthplace of Buddhism and a bridge for cultural engagement with Buddhist countries. • Along with Bodhi Gaya and Lumbini, Sarnath represents three of the four principal Buddhist pilgrimage sites now inscribed on the UNESCO World Heritage List. 

QUICK REVISION BOX

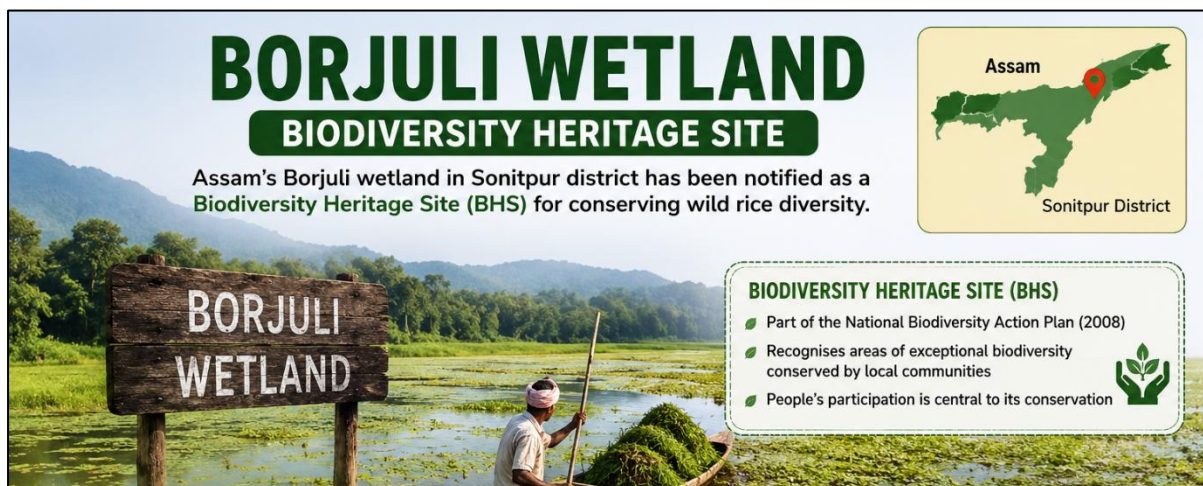
- **Site:** Ancient Buddhist Site of Sarnath, Uttar Pradesh.
- **Event:** Inscribed on UNESCO World Heritage List in **2026**.
- **Significance:** Site of Buddha's first sermon — *Dharmachakra Pravartana*.
- **UNESCO Criteria:** (iii) and (vi).
- **India's status:** **45** World Heritage properties — **37** cultural, **7** natural and **1** mixed.

PLACES IN NEWS

68. Borjuli Wetland: Biodiversity Heritage Site – DD News

Why in News?

- Borjuli wetland in Sonitpur district, Assam, has been notified as a Biodiversity Heritage Site (BHS) for conserving wild rice diversity.



About Borjuli Wetland

- Located in Sonitpur district of Assam, in the Brahmaputra floodplain region.
- Represents an important wetland ecosystem supporting agricultural biodiversity.
- Known for naturally occurring populations of wild rice (*Oryza rufipogon*).
- Its ecological conditions support conservation of valuable crop wild relatives and their genetic traits.

Biodiversity Significance

- Oryza rufipogon* is the wild progenitor of cultivated rice (*Oryza sativa*).
- Shows tolerance to flooding and salinity and resistance to pests and diseases.
- Provides genes for developing climate-resilient rice varieties.

Conservation Initiative

- In-situ Conservation and Management of Wild Rice project operational since 2022.
- Funded by NRAA and implemented by ICAR-NBPGR with the Assam State Biodiversity Board.

69. India–Mali Economic Cooperation: Deepening Bilateral Trade - PIB

Why in News?

- India and Mali held the inaugural India–Mali Forum for Promotion of Exports in Bamako to deepen trade and investment cooperation.
- Bilateral trade crossed US\$326.61 million in FY 2025–26, registering 55% growth.

About Mali

- **Mali:** Landlocked country in West Africa; capital — Bamako.
- **Borders:** Algeria, Niger, Burkina Faso, Côte d'Ivoire, Guinea, Senegal and Mauritania.
- **Niger River:** Major river flowing through the country; important for agriculture, transport and livelihoods.
- **Inner Niger Delta:** Major wetland system formed by the Niger River; supports fisheries, agriculture and pastoralism.
- **Sahara Desert:** Covers much of northern Mali; the south lies largely within the Sahel.
- **Timbuktu:** Historic city in northern Mali, associated with trans-Saharan trade and Islamic scholarship.
- **Bamako:** Located in southwestern Mali on the Niger River and serves as the national capital.



India–Mali Trade

- Mali → India: Raw cotton, finished leather, cashew, lead, gum arabic and sesame.
- India → Mali: Pharmaceuticals, cotton fabrics, two-/three-wheelers and bicycles.
- DFTP Scheme: Major facilitator of bilateral trade.
- Mali's estimated untapped export potential in India: ~US\$3.96 billion.

Significance

- Strengthens India's economic engagement with West Africa.
- Expands markets for Indian pharmaceutical, automotive, textile and infrastructure sectors.
- Promotes South–South cooperation and investment partnerships.

70. Teesta River Project: India–Bangladesh–China Strategic Concerns – India Today

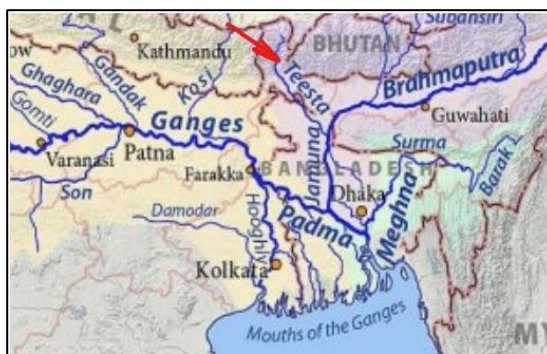
Why in News?

- Bangladesh and China agreed to conduct a feasibility study for the Teesta River Comprehensive Management and Restoration Project (TRCMRP).

- The project's proximity to India's Siliguri Corridor has strategic implications.

Places in News – Location & Geography

- **Teesta River:** ~414-km transboundary Himalayan river; originates in North Sikkim, flows through Sikkim and West Bengal, and enters Bangladesh.
- **Teesta-Jamuna:** Teesta joins the Jamuna River in Bangladesh; Jamuna is the name for the Brahmaputra in Bangladesh.
- **Siliguri Corridor:** Narrow Indian land link connecting the Northeast with mainland India; about 22 km wide at its narrowest.
- **Nilphamari & Rangpur:** Northern Bangladesh districts adjoining India's Jalpaiguri district, near the Siliguri Corridor.
- **Teesta Basin:** Spans parts of the eastern Himalayas and Bangladesh, making it important for water, agriculture and regional security.



Project Features

- Proposed river dredging, embankments, land reclamation and river-training works.
- Envisages irrigation, roads, urban centres, tourism facilities and economic zones.
- Proposed reclamation of about 171 sq km and a 224-km road network.

India's Concerns

- Chinese involvement adds a strategic dimension to an existing water-sharing dispute.
- Proximity to the Siliguri Corridor raises connectivity and security concerns.
- Highlights the intersection of water diplomacy, neighbourhood policy and India-China strategic competition.

Significance

- Teesta water sharing remains an important India-Bangladesh bilateral issue.
- Developments underline the need for cooperative river-basin management, timely project execution and deeper engagement with Bangladesh.

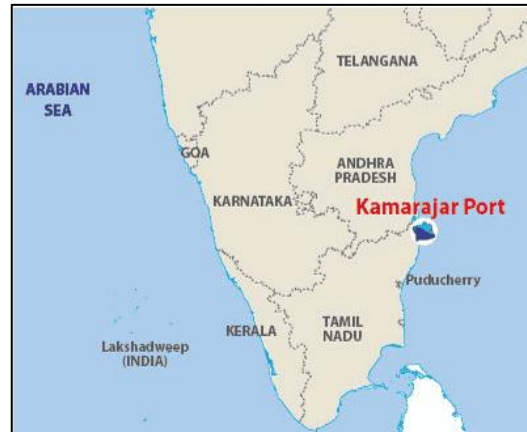
71. Kamarajar Port: 18-Metre Draft Capability – DD News

Why in News?

Kamarajar Port, Tamil Nadu, has become India's second major port after Visakhapatnam with an operational 18-metre draft.

Location:

- Kamarajar Port: Located at Ennore, Chennai, Tamil Nadu, on the Coromandel Coast along the Bay of Bengal.
- Visakhapatnam Port: Located on the east coast of India in Andhra Pradesh; first major Indian port to achieve an 18-metre operational draft.
- Coromandel Coast: Southeastern coastal belt along the Bay of Bengal, mainly covering Tamil Nadu and adjoining Andhra Pradesh.
- Bay of Bengal: Northeastern part of the Indian Ocean, bounded by India, Bangladesh, Myanmar and Sri Lanka.



Key Development

- Capital Dredging Phase VI: Completed at an investment of about ₹440 crore.
- Outer approach channel deepened to 23 m; inner entrance channel to 22 m.
- Enables handling of fully laden Capesize vessels up to 1,70,000 DWT.

Significance

- Cape Compliant deep-water facility supports larger bulk carriers.
- Enables economies of scale, lower freight costs and greater cargo capacity.
- Strengthens India's EXIM trade, logistics efficiency and maritime competitiveness.
- Supports Maritime India Vision 2030 and Maritime Amrit Kaal Vision 2047.

72. Tibetan Plateau: New Insights into Its Formation – Down to Earth

Why in News?

- A study published in Nature Geoscience provides evidence linking the formation of the Tibetan Plateau to the underthrusting of the Indian Plate beneath the Asian Plate.
- Researchers identified distinct east–west differences in the plateau's geological and topographical evolution.

Location & Geography

- **Tibetan Plateau:** Located mainly in southwestern China, north of the Himalayas; world's highest and largest upland.
- **Average elevation:** Over 4,500 m.
- **Rutog:** Western Tibet; studied to understand the plateau's western geological history.
- **Gerze:** Central Tibet; compared with Rutog for differences in uplift and exhumation.
- **Himalayas:** Mountain system along the southern margin of the Tibetan Plateau, associated with the India–Asia plate collision.
- **Major Rivers:** Plateau is the source region of several major Asian rivers, supporting billions of people.



Key Findings

- Between 45–20 million years ago, the Indian Plate moved beneath the western Asian Plate but had not yet reached central Tibet.
- This differential underthrusting helps explain contrasting uplift and exhumation histories.

Significance

- Improves understanding of mountain-building and plate tectonics.
- Helps interpret earthquake and other geological hazards.
- Demonstrates the link between deep-Earth processes and surface topography.

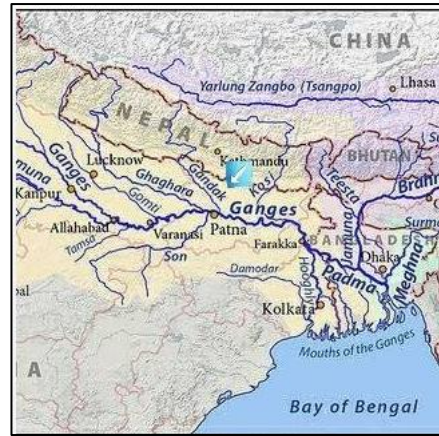
73. Gandak River Crosses Danger Mark in Bihar – News on Air

Why in News?

- The Gandak River crossed the danger mark in Gopalganj, Bihar, amid heavy rainfall in Nepal's catchment areas.
- Rising levels of the Gandak, Bagmati, Kamla Balan and Kosi triggered flood alerts.

Location & Geography

- **Gandak River:** Transboundary river originating in the Himalayan region of Nepal; enters Bihar and joins the Ganga.
- **Valmikinagar:** Located in West Champaran, Bihar, on the India–Nepal border; site of the Gandak Barrage.
- **Gopalganj:** District in northwestern Bihar through which the Gandak flows.
- **Sheohar:** North Bihar district where rising Bagmati levels caused bank erosion.
- **Bagmati River:** Originates in Nepal and flows through Bihar before joining the Ganga system.
- **Kosi River:** Himalayan river flowing from Nepal into Bihar; known for its high sediment load and shifting course.



Key Concerns

- Heavy rainfall in Nepal can rapidly increase downstream flows in Bihar.
- Bank erosion, inundation and embankment stress heighten flood vulnerability.
- Highlights the importance of India–Nepal transboundary flood management.

Significance

- Effective early-warning systems, barrage management and basin-level cooperation are crucial for reducing flood impacts.

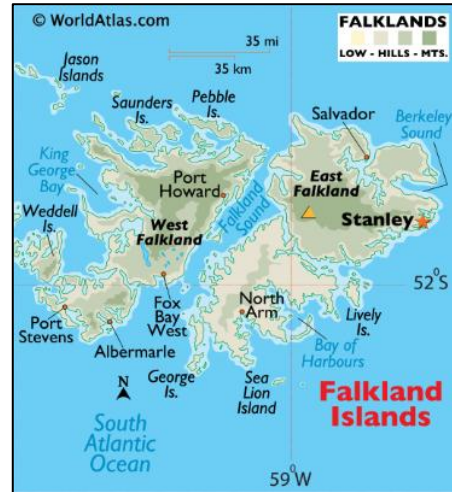
74. Falkland Islands Dispute: Argentina–UK Contestation – Indian Express

Why in News?

- Argentina players displayed a “Las Malvinas son Argentinas” banner after defeating England in the 2026 FIFA World Cup semi-final, reviving controversy over the Falklands dispute.
- The gesture attracted attention amid FIFA restrictions on political gestures around matches.

Location & Geography

- **Falkland Islands (Islas Malvinas):** Archipelago in the South Atlantic Ocean, located off the southeastern coast of South America.
- **Argentina:** Claims sovereignty over the islands and refers to them as Islas Malvinas.
- **United Kingdom:** Administers the islands as a British Overseas Territory.
- **Port Stanley:** Capital and largest settlement of the Falkland Islands.
- **South Atlantic:** Strategic maritime region connecting the Atlantic and Southern Ocean; important for fisheries and maritime routes.



Historical Background

- Sovereignty dispute dates back to the 18th century, involving competing British, Spanish and Argentine claims.
- Argentina and the UK fought the Falklands War in 1982; the UK retained control.

Contemporary Significance

- Remains a sensitive issue in Argentina–UK relations.
- Reflects the continuing role of territorial sovereignty and nationalism in international relations.
- The dispute also has implications for South Atlantic maritime resources and strategic interests.

75. Mount Olympus: UNESCO World Heritage Site – Times of India

Why in News?

Mount Olympus, Greece's highest mountain and mythological home of Zeus, was inscribed on the UNESCO World Heritage List in July 2026 as a mixed cultural and natural site.

Location & Geography

- **Mount Olympus:** Located in northern Greece, rising to 2,918 m; highest peak — Mytikas.
- **Litochoro:** Mountain gateway town located at the foot of Olympus.
- **Dion:** Ancient archaeological site at the foothills; included within the wider heritage property.



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SPECIES IN NEWS

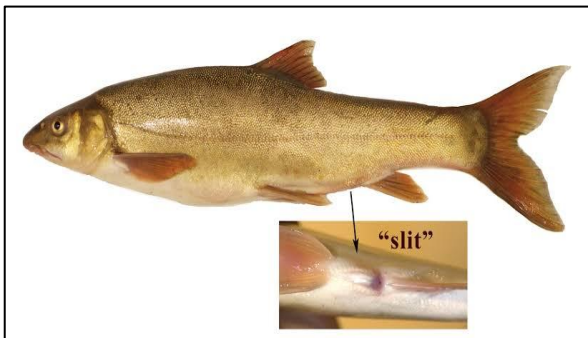
76. *Schizothorax pelzami*: Community-led Fish Conservation – The Hindu

Why in News?

- The Sangno clan of Arunachal Pradesh launched a conservation initiative to protect the endangered Himalayan ray-finned fish *Schizothorax pelzami*.
- 52 fingerlings were translocated between mountain streams in East Kameng district to reduce predation by mahseer.

About the Species

- *Schizothorax pelzami* is a Himalayan ray-finned freshwater fish.
- Adapted to cold, fast-flowing mountain streams.
- Faces pressure from predatory fish, particularly mahseer, and local fishing practices.



Conservation Initiative

- In-situ population support through translocation of fingerlings to a relatively safer stream.
- Seeks to maintain fish populations while making traditional community fishing sustainable.
- Demonstrates the role of indigenous/community-based conservation in biodiversity management.

Species & Habitat Significance

- Mountain-stream fish are sensitive to changes in water flow, habitat quality and predation pressure.
- Conservation of native fish contributes to freshwater ecosystem health and local livelihoods.

Location

- East Kameng district: Located in eastern Arunachal Pradesh; characterised by mountainous terrain and Himalayan river systems.
- Arunachal Pradesh: Part of the Eastern Himalayas, one of India's major biodiversity-rich regions.

77. Himalayan Pangolin: Recognised as a Distinct Species – Down to Earth

Why in News?

A study in Communications Biology revalidated the Himalayan pangolin (*Manis aurita*) as a distinct species, separate from the Chinese pangolin (*M. pentadactyla*).



About the Species

- Earlier status: Classified as a subspecies of the Chinese pangolin.
- Evolution: Diverged about 1.8 million years ago during the Early Pleistocene.
- Distinctive traits: Larger body and skull, smaller ears, and shorter, broader nasal bone.
- Diet: Mainly ants and termites; strongly dependent on olfaction.

Distribution & Habitat

- Restricted to the southern Himalayan foothills.
- Found in Nepal, South Tibet and Northeast India, including Assam.
- Brahmaputra drainage and Arakan Mountains acted as geographic barriers promoting isolation.

Conservation Status

- IUCN Red List: Not Evaluated (NE) as a separately recognised species.
- India: Protected under the Wild Life (Protection) Act, 1972 — Schedule I.
- CITES: Appendix I; researchers call for its formal incorporation into CITES nomenclatural references.

Threats

- Poaching and illegal wildlife trade, including trafficking of scales.
- Habitat instability, demographic decline and high inbreeding in some populations.

Significance

- Species-level recognition strengthens the basis for targeted conservation and enforcement.
- Highlights the need to synchronise taxonomic updates with wildlife-trade regulations.

78. Indian Yak: IoT-Based Health and Movement Tracker – The Hindu

Why in News?

- Scientists developed an IoT-based smart system to monitor the health and movement of high-altitude yaks.
- It can aid livestock management and track yak movement near international borders in the Himalayas.



About the Species

- Scientific name: *Bos grunniens*; commonly called the “Ship of the Himalayas”.
- Highly adapted to cold, rugged and high-altitude environments, generally above 8,000 feet.
- Provides milk, meat and transportation, supporting Himalayan communities.

Distribution in India

- India has around 58,000 yaks as per the 20th Livestock Census.
- Nearly half are found in Ladakh.
- Other regions: Arunachal Pradesh, Sikkim, Himachal Pradesh and Uttarakhand.

Conservation Status

- IUCN: Wild yak — Vulnerable (VU).
- CITES: Wild yak (*Bos mutus*) — Appendix I; domesticated form excluded.
- CMS: Listed under Appendix I since 1985.
- India: Wild yak receives strict protection under national wildlife legislation.

79. Greater One-Horned Rhino: DNA Indexing for Conservation – Indian Express

Why in News?

- The National Board for Wildlife’s Standing Committee approved a DNA-based indexing system for India’s greater one-horned rhinos.
- The database will support individual identification, genetic monitoring and wildlife-crime forensics.

About the Species

- Scientific name: *Rhinoceros unicornis*; also called Indian rhinoceros.
- Characterised by a single horn and distinctive skin folds.
- Habitat: Alluvial grasslands and floodplains of the Himalayan foothills.
- Major Indian populations occur in Assam, West Bengal and Uttar Pradesh.



Conservation Status

- **IUCN:** Vulnerable (VU).
- **CITES:** Appendix I — highest international trade protection.
- **India:** Schedule I under the Wild Life (Protection) Act, 1972.

DNA Indexing – Significance

- Enables identification of individual rhinos, sex/age assessment and genetic-diversity monitoring.
- Detects population movement and genetic mixing between forests.
- Supports scientific breeding, translocation and conservation planning.
- Provides forensic evidence in poaching and illegal wildlife-trade investigations.

Major Threats

- Poaching for horns, habitat fragmentation, degradation and invasive vegetation.
- Strengthens India's shift towards technology-driven wildlife conservation.

80. Indian Grey Hornbill: Successful Reintroduction in Gir – The Hindu

Why in News?

The Indian Grey Hornbill (*Ocyrceros birostris*) has bred successfully in Gir forests for four consecutive years after being reintroduced in 2021, more than six decades after its local disappearance.

About the Species

- Family: Bucerotidae; medium-sized, mainly arboreal hornbill.
- Habitat: Open deciduous forests, scrublands, gardens and wooded landscapes.
- Plays an ecological role in seed dispersal, particularly through fruit consumption.
- Distributed widely across the Indian subcontinent.



Conservation Status

- IUCN: Least Concern (LC).
- CITES: Not listed.
- India: Protected under the Wild Life (Protection) Act, 1972; listed in Schedule I.

Reintroduction in Gir

- Species disappeared from Gir during the 1950s–60s.
- 40 birds were reintroduced in phases during 2021–2023.

- Birds established territories and began breeding, indicating progress towards a self-sustaining population.

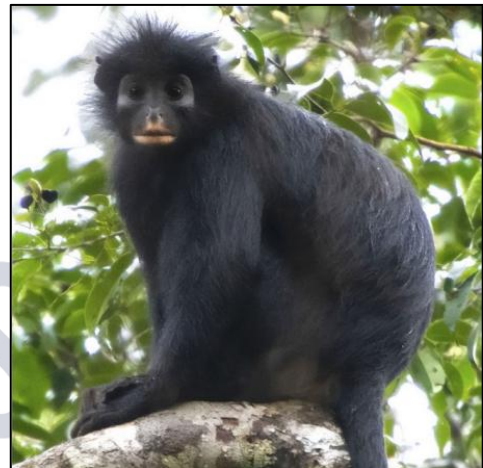
Significance

- Demonstrates the potential of scientific reintroduction and habitat management.
- Highlights the importance of mature trees and nesting cavities for hornbill conservation.
- Provides a model for restoring locally extinct species.

81. Likweli: New Colobus Monkey Species Discovered in Congo – NDTV World

Why in News?

- Scientists described Likweli (*Colobus congoensis*), only the fifth new African monkey species identified in 75 years.
- The species was formally described in PLOS ONE using genetic, morphological and vocal evidence.



About the Species

- Common name: Likweli; Scientific name: *Colobus congoensis*.
- Characterised by black fur, an orange-cream patch around the mouth and a white perianal patch.
- Closest relative: Black colobus (*Colobus satanas*), found over 1,200 km away.
- Evolutionary divergence occurred around 4–5 million years ago.

Distribution & Habitat

- Restricted to east-central Democratic Republic of Congo (DRC), between the Lomami and Congo (Lualaba) Rivers.
- Known range: only about 1,700 sq km; most records fall within Lomami National Park.

Conservation Status

- IUCN: Not yet formally assessed; researchers propose a preliminary Endangered (EN) classification.
- Major threats: Habitat conversion, hunting pressure and dependence on fragmented old-growth, high-canopy forests.
- CITES/Indian wildlife law: Not applicable, as this is a newly described African species restricted to the DRC.

Significance

- Highlights the Congo Basin's exceptional and still-underexplored biodiversity.
- Strengthens the case for protecting Lomami National Park and involving local communities in conservation.

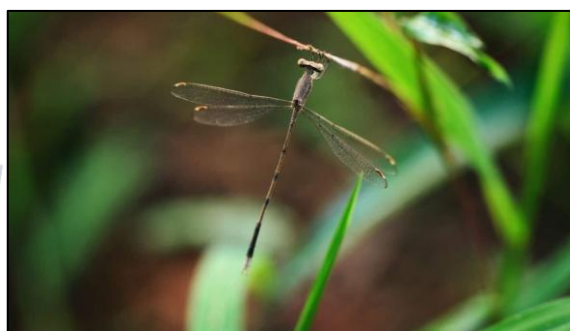
82. *Lestes paloti*: New Damselfly Species from Western Ghats – The Hindu

Why in News?

- A new spreadwing damselfly, *Lestes paloti*, has been discovered in the Western Ghats of Kerala.
- Described in the International Journal of Odonatology, it marks a major addition to India's odonate diversity.

About the Species

- **Genus:** *Lestes*; commonly known as spreadwing damselflies.
- Represents the first new *Lestes* species from India since 1987.
- First new *Lestes* species recorded from the Western Ghats since 1929.
- Highlights the region's high insect diversity and taxonomic significance.



Distribution & Habitat

- Recorded from the Western Ghats, Kerala.
- Western Ghats provide diverse freshwater habitats supporting rich odonate diversity.
- Damselflies are generally associated with streams, ponds, wetlands and other freshwater ecosystems.

Conservation Status

- IUCN: Not yet assessed.
- CITES: Not listed.
- Wild Life (Protection) Act, 1972: No specific protection status reported for *L. paloti*.
- Its restricted known occurrence highlights the importance of habitat conservation and further surveys.

Significance

- Expands knowledge of India's odonate biodiversity.
- Demonstrates the Western Ghats' continuing importance as a biodiversity hotspot.

- Shows the value of taxonomic research and field-based biodiversity surveys.

83. Kutki: Sustainable Cultivation of an Endangered Himalayan Herb – The Hindu

Why in News?

- Farmers in Mandi, Himachal Pradesh are adopting sustainable cultivation of Kutki (*Picrorhiza kurroa*), a high-value medicinal herb.
- A stolon-based harvesting method allows collection without uprooting the mother plant.

About the Species

- Scientific name: *Picrorhiza kurroa*.
- Medicinal herb native to the alpine and sub-alpine Himalayas.
- Occurs mainly at 2,700–4,500 m altitude.
- Used in various medicinal formulations.



Conservation Status

- IUCN: Listed as Endangered (EN) due to pressure from destructive wild harvesting.
- CITES: Not specified in the given source.
- Wild Life (Protection) Act, 1972: Specific legal status is not mentioned in the source.

Conservation & Sustainable Harvesting

- Conventional harvesting involved uprooting the entire plant, preventing regeneration.
- New method harvests only side stolons, leaving the mother plant intact.
- Enables repeated harvesting and supports long-term population sustainability.

Significance

- Links biodiversity conservation with livelihood generation.
- Reduces pressure on wild populations and promotes sustainable medicinal-plant cultivation.
- Demonstrates the role of community-based conservation and appropriate technology in Himalayan ecosystems.

Andhra Pradesh Current Affairs

84. Groundwater Stress in Visakhapatnam – Indian Express

Why in News?

- July 2026 monitoring showed inadequate aquifer recharge across several parts of Visakhapatnam district amid uneven monsoon rainfall.
- Arilova recorded the deepest groundwater level at 36.25 metres below ground level (mbgl), compared with 28.70 m in June.

Key Groundwater Stress Areas

- Endada: 30.86 m; Madhurawada: 27.23 m; Pedda Rushikonda: 24.14 m below ground level.
- Rapid urban expansion, land-use change and groundwater extraction are increasing pressure on aquifers.

Geographical Dimension

- Visakhapatnam has varied aquifer conditions: southern alluvial plains generally have better groundwater potential, while northern hard-rock/hilly areas have lower resources.
- Groundwater behaviour varies with geology, rainfall distribution and extraction intensity.

Concerns

- Reduced recharge can affect urban water security, domestic supply and groundwater-dependent livelihoods.
- Excessive extraction may aggravate aquifer depletion and water-quality risks.

Way Forward

- Strengthen rainwater harvesting, recharge structures and restoration of tanks/water bodies.
- Integrate aquifer-based planning with urban development and regulate excessive extraction.
- Promote efficient water use and groundwater monitoring for long-term water security.

85. Andhra Pradesh State Action Plan on Zoonotic Diseases – Indian Express

Why in News?

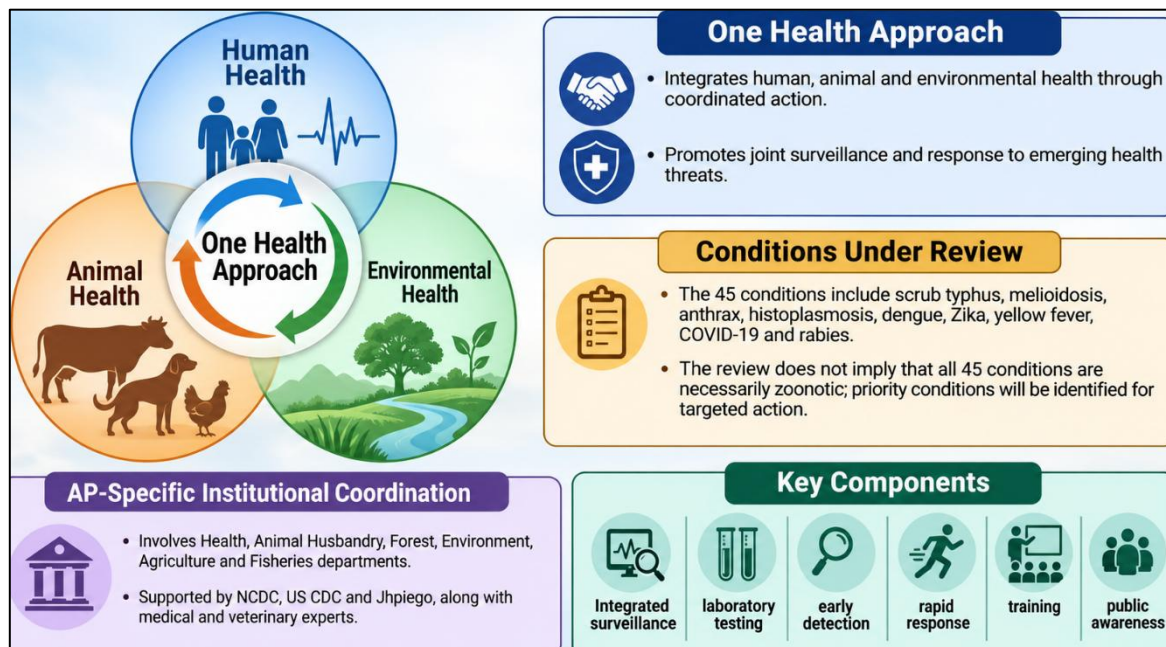
- Andhra Pradesh has begun drafting a State Action Plan on zoonotic diseases following a three-day One Health workshop in Vijayawada.
- Officials are reviewing 45 conditions to identify priority diseases for surveillance and control measures.

What are Zoonotic Diseases?

- Diseases that can be transmitted between animals and humans, directly or indirectly.
- Their emergence is influenced by interactions among humans, animals and the environment.

Significance

- Strengthens AP's outbreak preparedness and health security.



- Promotes coordinated action at the human–animal–environment interface.
- Complements India's National One Health Mission and broader One Health framework.

86. AI-Powered City Flood Alert System in Andhra Pradesh – Indian Express

Why in News?

- Andhra Pradesh is deploying “City Flood Alert”, an AI-powered urban flood forecasting system, first in Vijayawada, with plans to extend it to all Urban Local Bodies (ULBs).
- The system is designed to provide 48-hour advance rainfall outlooks and up to 6-hour flash-flood warnings, enabling timely preventive action.

Key Features

- Digital Twin of Vijayawada: Ward-wise mapping using satellite-based Digital Elevation Models (DEM) to identify elevations, drainage channels and low-lying areas.
- Historical Data: Nearly three decades of Budameru flood data are incorporated to model water flow and inundation under different rainfall scenarios.
- Drainage Risk Mapping: Identifies silted underground and surface drainage channels that may cause waterlogging and backflow.
- Predictive Technology: Builds on Flood Astra, an urban flood-forecasting model developed by researchers at IIT Gandhinagar.

Institutional Framework

- RTGS AWARE Division – technology and predictive platform.
- APSDMA – disaster-management coordination and response.
- IIT Gandhinagar – hydrological and modelling expertise.

Significance

- Shifts disaster management from reactive relief to anticipatory action.
- Enables pre-positioning of pumps, clearing culverts, traffic diversions and targeted evacuation.
- Strengthens climate-resilient urban planning and technology-enabled governance.
- Provides a potential model for AI-driven disaster management across AP's ULBs.

87. Mee Bhoomi-Blockchain: Blockchain-Based Land Records in Andhra Pradesh – Indian Express

Why in News?

- Andhra Pradesh launched the Mee Bhoomi-Blockchain pilot on 23 July 2026 to create an integrated and reliable “Single Source of Truth” for land records.
- It seeks to resolve discrepancies arising from separate databases maintained by the Revenue, Survey and Registration Departments.

Key Features

- Developed by NIC Andhra Pradesh with the Centre of Excellence in Blockchain Technology, NIC Bengaluru, using Hyperledger Fabric.
- Provides a unique digital identity for land parcels, enabling traceable and tamper-resistant records.
- Pilot covers seven mandals across seven districts, including Aspari, Penumuru, Repalle, Gannavaram, Kadiyam, Gummalakshmipuram and Kothavalasa.

Significance

- Reduces land disputes and fraudulent transactions through immutable transaction histories.
- Promotes transparency, accountability and inter-departmental data integration.
- Can improve faster mutation, registration and verification of land records.
- Strengthens e-governance and citizen-centric land administration.

Challenges

- Accuracy depends on correct digitisation and resurvey of existing records.
- Requires strong cybersecurity, privacy safeguards, interoperability and grievance redressal.

Way Forward

- **Comprehensive land-record verification:** Conduct periodic resurvey, geo-referencing and field-level verification to correct legacy errors before integrating records onto the blockchain.
- **Robust digital governance framework:** Establish strong cybersecurity and data-privacy protocols, interoperable departmental databases, regular security audits and an accessible time-bound grievance-redressal mechanism.

88. Sanjeevani: Integrated Digital Healthcare System in Andhra Pradesh – Indian Express

Why in News?

- The Andhra Pradesh Government has invited tenders for statewide implementation of 'Sanjeevani', an Integrated Digital Care Coordination and Healthcare Delivery System.
- Following a successful Kuppam pilot launched in July 2025, the system is being expanded across 28 districts, targeting health records and care coordination for over 5 crore citizens.

Key Features

- Creates integrated digital health records, enabling access to patients' medical histories.
- Provides early risk alerts, doctor-appointment scheduling and tele-consultations.
- Tracks treatment adherence from diagnosis to recovery, promoting a continuum of care.
- Integrates information from multiple Central and State health schemes to overcome fragmented service delivery.
- The platform will be developed and maintained for five years, with selection through Quality and Cost Based Selection (QCBS).

Significance

- Better coordination: Enables real-time sharing of health information across healthcare services.
- Preventive healthcare: Risk alerts can facilitate early intervention.
- Financial protection: Better treatment coordination can reduce out-of-pocket expenditure (OOPE).
- Accessibility: Tele-consultation can improve healthcare access, particularly for underserved populations.
- Strengthens digital health governance and citizen-centric service delivery.

Challenges

- Data privacy and cybersecurity risks involving sensitive health information.
- Digital divide and inadequate digital infrastructure may exclude vulnerable groups.

Way Forward

- Adopt strong health-data protection, consent and cybersecurity standards.
- Strengthen digital infrastructure and provide assisted digital services to ensure inclusive access.

89. Omicron RF.5 Variant Detected in Andhra Pradesh – Indian Express

Why in News?

- Omicron RF.5, a sub-lineage of SARS-CoV-2, was detected in four COVID-19 samples from Kadapa district after genome sequencing at the National Institute of Virology (NIV), Pune.
- The detection prompted the State Health Department to review COVID-19 surveillance and hospital preparedness.

Key Facts

- RF.5 is a naturally evolved Omicron sub-lineage, not a recombinant strain.
- It has been reported in Singapore and parts of Southeast Asia and is being monitored through genomic surveillance.
- Reported symptoms are broadly similar to other Omicron infections: fever, sore throat, cough, headache, fatigue and body aches.
- Current evidence does not indicate greater disease severity compared with other circulating Omicron variants.

Significance

- Highlights the importance of genome sequencing in detecting and tracking emerging variants.

- Enables early warning, targeted surveillance and evidence-based public-health responses.
- Reinforces the need for pandemic preparedness, especially for vulnerable populations and healthcare facilities.

AP's Preparedness

- Hospitals have been directed to maintain readiness, including testing facilities, isolation capacity and essential medical supplies.
- Continued surveillance and sequencing can help identify changes in transmissibility, severity or immune escape.

90. Thalliki Vandanam Scheme: Education Support in Andhra Pradesh – Indian Express

Why in News?

- Andhra Pradesh rolled out Thalliki Vandanam on 22 July 2026, providing financial assistance to eligible mothers/guardians for children studying from Classes I–XII, including Intermediate.
- The scheme has a ₹10,120.78 crore allocation for 2026–27 and is expected to cover 67.47 lakh students.

Key Features

- Provides ₹15,000 per child annually, irrespective of the number of eligible children in a family.
- ₹13,000 is transferred through Aadhaar-linked DBT, while ₹2,000 is utilised for school/junior-college maintenance, sanitation, hygiene and infrastructure.
- Covers recognised government, aided, private unaided and residential institutions.
- Uses income, landholding, vehicle ownership and other criteria for targeted beneficiary selection.

Significance

- Reduces financial barriers to education and can improve enrolment and retention.
- Supports human capital formation and long-term socio-economic mobility.
- Strengthens mother-centric welfare and DBT-based governance.
- The infrastructure component complements household support with school-level improvements.

Challenges

- Ensuring accurate beneficiary identification and preventing inclusion/exclusion errors.

- Ensuring effective utilisation of the ₹2,000 ecosystem component.

Way Forward

- Strengthen real-time beneficiary verification and grievance redressal.
- Link financial assistance with broader measures for learning outcomes, school infrastructure and dropout prevention.

91. Operation Tusker: Tackling Human–Elephant Conflict in Andhra Pradesh – Indian Express

Why in News?

- The Andhra Pradesh Forest Department successfully captured a lone wild tusker under 'Operation Tusker' in the Jagamarla forest near Palamaner, Chittoor district.
- The elephant had repeatedly entered villages and damaged crops along the Koundinya Wildlife Sanctuary boundary, causing concern among local communities.

Key Features

- The operation involved forest personnel and five trained Kumki elephants to safely restrain the tusker.
- Crop damage was reported in parts of Bangarupalem, Palamaner, Sadum, Somala, Pakala and Pulicherla, besides areas of Tirupati.
- The captured elephant was to undergo veterinary examination before relocation.

Human–Elephant Conflict: Significance

- Highlights the growing challenge of balancing wildlife conservation with human safety and agricultural livelihoods.
- Habitat fragmentation, shrinking corridors and increasing human activity near forest edges can intensify such encounters.
- Crop losses can undermine rural livelihoods and generate negative attitudes towards wildlife conservation.

Conservation Approach

- Early-warning systems and rapid-response teams can alert communities about elephant movements.
- Protecting elephant corridors and habitats can reduce encounters.
- Timely crop-loss compensation, community participation and scientific relocation can strengthen coexistence.

92. Sacred Groves of Andhra Pradesh Under Conservation Pressure – Indian Express

Why in News?

- A recent study highlighted the ecological importance of sacred groves (Pavithravanams) in Andhra Pradesh and growing threats from development and changing cultural practices.
- 730 sacred groves have been documented in the State. The Penna Ahobilam Sacred Grove in Anantapur recorded 378 plant species belonging to 220 genera and 54 families.

Ecological & Cultural Significance

- Serve as in-situ conservation sites for native and medicinal flora.
- Provide habitat for biodiversity and help regulate microclimate and store carbon.
- Preserve traditional ecological knowledge and community-based conservation practices.
- Religious beliefs and customary norms historically restricted exploitation of these forest patches.

Major Threats

- Temple expansion and modernisation, removal of native vegetation and infrastructure development.
- Erosion of traditional conservation practices due to changing cultural values and lifestyles.
- Habitat fragmentation and increasing human pressure.

Way Forward

- Recognise important groves through Biodiversity Heritage Site (BHS) and other appropriate conservation mechanisms; AP's Biodiversity Board has identified sacred groves among potential BHS sites.
- Strengthen Biodiversity Management Committees (BMCs) and community participation in protection and restoration.
- Combine scientific ecological management with traditional knowledge, while ensuring development around sacred sites remains ecologically sensitive.

93. PMGSY-IV: Strengthening Rural Connectivity in Ongole – Indian Express

Why in News?

- The Union Ministry of Rural Development sanctioned ₹30.506 crore for five rural roads and four high-level bridges in the Ongole Parliamentary constituency under PMGSY-IV (Batch-I) for 2026–27.

- The projects comprise 14.40 km of roads and 207.26 metres of bridges, aimed at providing all-weather connectivity to five habitations.

About PMGSY

- Pradhan Mantri Gram Sadak Yojana (PMGSY) was launched in 2000 to provide all-weather road connectivity to unconnected rural habitations.
- It focuses on improving rural accessibility and integrating villages with markets, education, healthcare and administrative services.
- The programme is implemented by the Ministry of Rural Development in collaboration with State Governments.
- PMGSY-I: Focused primarily on providing all-weather connectivity to eligible unconnected habitations.
- PMGSY-II: Emphasised upgradation of existing rural roads and improved connectivity to growth centres.
- PMGSY-III: Focused on consolidating the Gramin Agricultural Markets (GRAMs), higher secondary schools and hospitals through rural road connectivity.

PMGSY-IV

- PMGSY-IV (2024–25 to 2028–29) has an outlay of ₹70,125 crore to connect 25,000 unconnected habitations through 62,500 km of roads, including necessary bridges.
- It leverages PM Gati Shakti for integrated planning and promotes sustainable and climate-resilient construction.

Significance

- Economic integration: Improves access to markets and reduces transportation costs.
- Social development: Facilitates access to schools, healthcare and public services.
- Agricultural growth: Enables faster movement of farm inputs and produce.
- Inclusive growth: Reduces rural isolation and regional disparities.
- Disaster resilience: High-level bridges help sustain connectivity during monsoons.

Challenges

- Poor maintenance, construction delays and quality deficiencies can reduce the long-term benefits.
- Climate extremes and inadequate drainage can damage rural roads and bridges.

Way Forward

- Adopt life-cycle maintenance, quality audits and climate-resilient designs.
- Integrate local hydrology, drainage and disaster-risk assessments into project planning.

Telangana Current Affairs

94. Cybercrime Surge in Telangana – Indian Express

Why in News?

- Telangana recorded 27,230 cybercrime cases in 2024, the highest among States, according to NCRB data cited in the report; Karnataka stood second with 21,993 cases.
- Cases increased from 18,236 in 2023 to 27,230 in 2024, highlighting the growing challenge of cyber-enabled financial and digital crimes.

Major Trends

- Fraud constituted the largest category, with 18,922 cases.
- Common forms include investment scams, online banking/payment fraud, card fraud, gaming fraud, cyber-stalking and cyber-blackmailing.
- Rapid digitalisation, online financial transactions and social-media usage, combined with sophisticated fraud techniques, have expanded cybercrime risks.

Key Concerns

- Financial losses and identity theft undermine trust in digital services.
- Cross-border and inter-State operations complicate investigation and prosecution.
- Limited cyber awareness, digital literacy and forensic capacity increase vulnerability.
- Delays in reporting can reduce the possibility of freezing or recovering stolen funds.

Government Response

- I4C, the National Cyber Crime Reporting Portal and 1930 helpline strengthen coordinated reporting and response.
- CFCFRMS facilitates rapid intervention to prevent diversion of funds in financial cyber fraud.

Way Forward

- Strengthen State cyber-police units, cyber-forensics and specialised investigation capacity.
- Promote AI-based fraud detection, financial-sector information sharing and public cyber-awareness campaigns.
- Improve inter-State/international cooperation and ensure speedy prosecution.

95. Hyderabad Bird Atlas: Urban Biodiversity Mapping – Indian Express

Why in News?

- The fourth season of the Hyderabad Bird Atlas (HBA) added three species— Greater Flamingo, Yellow-footed Green-Pigeon and Brown-capped Pygmy Woodpecker—taking Hyderabad’s documented bird list to 248 species.
- The 22-day citizen-science survey involved 200+ volunteers, who recorded 158 species and over 75,000 individual birds, contributing more than 1,250 volunteer hours.

About Hyderabad Bird Atlas

- HBA is a systematic citizen-science initiative led by WWF-India, Hyderabad Birding Pals and Deccan Birders.
- Surveys are conducted across different urban habitats to document species distribution, abundance and seasonal occurrence.
- The project provides long-term ecological data for understanding urban bird diversity and seasonal movements.

Ecological Significance

- Biodiversity monitoring: Creates a baseline for tracking changes in urban bird populations.
- Urban planning: Identifies important habitats requiring conservation.
- Citizen participation: Demonstrates how public participation can complement scientific biodiversity monitoring.
- Conservation awareness: Encourages communities to recognise the ecological value of wetlands, green spaces and urban habitats.

Challenges & Way Forward

- Rapid urbanisation, habitat fragmentation, wetland degradation and pollution threaten urban bird habitats.
- Integrate bird-atlas data into urban biodiversity plans, protect key habitats and expand citizen-science networks.

96. Rashtrakuta-Era Hero Stones Discovered in Nirmal – Indian Express

Why in News?

- Two rare 8th-century hero stones (Veeragallu), believed to belong to the Rashtrakuta period, have been documented in the forests of Irlagandi, Pembri mandal, Nirmal district.
- The discovery highlights the archaeological importance of medieval Telangana and its links with the wider Deccan historical landscape.

What are Hero Stones?

- Veeragallu are memorial stones commemorating individuals who died displaying valour, particularly in battle.
- Their sculptures and inscriptions provide insights into military practices, social values, political history, material culture and contemporary beliefs.
- Hero-stone traditions were widespread across South India and the Deccan.



Key Features of the Discovery

- One stone depicts a warrior engaged in combat, carrying weapons and wearing warrior attire.
- The second contains three panels depicting a battle scene, a warrior with his horse and an inscription.
- Sun-Moon motifs are associated with the enduring remembrance of the commemorated hero.
- The inscription offers potential epigraphic evidence for understanding the period and locality.

About the Rashtrakutas

- The Rashtrakutas were a major Deccan power, with their core territory centred in present-day Karnataka and adjoining regions.
- Dantidurga established Rashtrakuta supremacy in the 8th century after overthrowing the Chalukyas of Badami.
- Amoghavarsha I was one of their prominent rulers and is associated with the development of literature and Jain cultural traditions.
- Their greatest architectural achievement is the Kailasa Temple at Ellora, commissioned by Krishna I.
- The Rashtrakutas played an important role in Deccan politics, competing with the Pratiharas and Palas in the tripartite struggle for Kannauj.

97. Telangana Wetlands: Absence from Ramsar List – Indian Express

Why in News?

- India reached 100 Ramsar Sites in 2026, while Telangana has no Ramsar-designated wetland, despite having 13,000+ wetlands covering nearly 5 lakh hectares.

- The issue highlights the gap between Telangana's significant wetland resources and their formal recognition and conservation.

Ecological Importance

- Water security: Facilitate groundwater recharge and water storage.
- Flood control: Absorb excess runoff and support natural drainage.
- Biodiversity: Provide habitat for aquatic organisms and migratory birds.
- Climate resilience: Moderate local temperatures and store carbon.
- Livelihoods: Support fisheries, agriculture and tourism-related activities.

Key Concerns in Telangana

- Urbanisation, encroachment, pollution and habitat fragmentation, particularly around Hyderabad, are degrading wetlands.
- Destruction of wetlands can increase urban flooding by reducing natural water-storage capacity.
- The Telangana State Wetland Authority (TGSWA) was constituted in 2018 under the Wetlands (Conservation and Management) Rules, 2017.

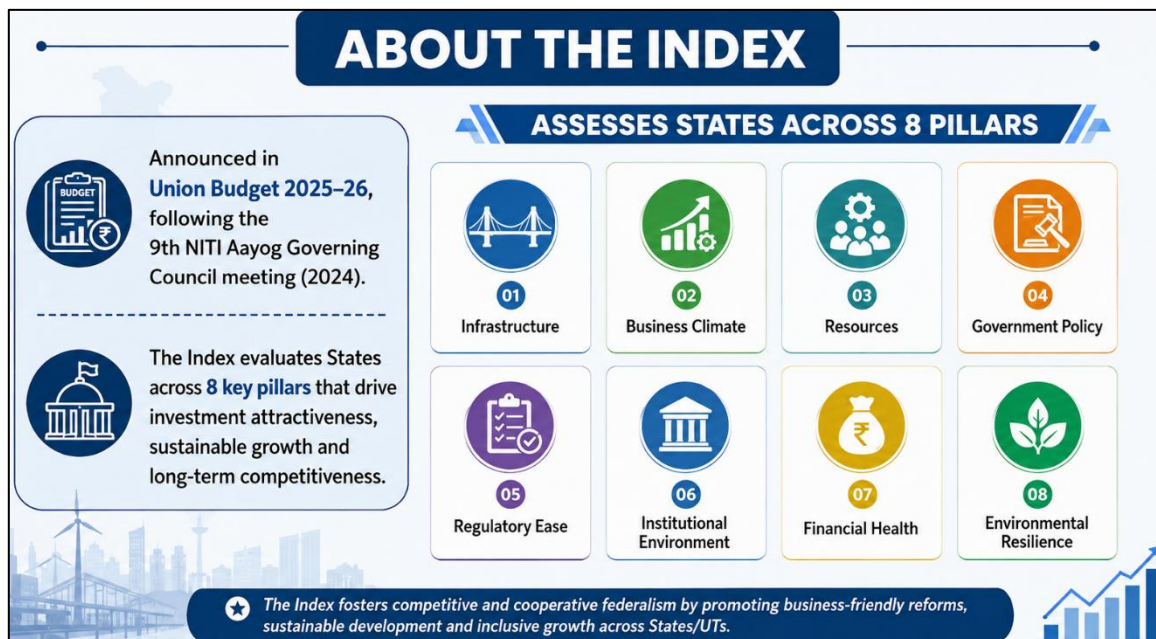
About Ramsar Convention

- Ramsar Convention on Wetlands is an international intergovernmental treaty adopted in 1971 at Ramsar, Iran, and came into force in 1975.
- It is the only international treaty focused on a single ecosystem — wetlands.
- Its mission is the “conservation and wise use of all wetlands” through national action and international cooperation.
- Ramsar Sites are wetlands designated as being of International Importance based on scientifically defined criteria.
- Designation does not automatically mean a wetland becomes a strictly protected area; the emphasis is on conservation and wise use.
- The Montreux Record identifies Ramsar Sites where ecological character has changed, is changing or is likely to change due to technological developments, pollution or other human interference.

98. Telangana in NITI Aayog's Investment Friendliness Index – Indian Express

Why in News?

- Telangana ranked 13th among all States/UTs and 10th among 17 large States, scoring 47.3/100 and receiving “Frontrunner” status in NITI Aayog's Investment Friendliness Index.
- The index aims to benchmark investment readiness, encourage reforms and strengthen competitive and cooperative federalism.



Telangana: Key Strengths

- Strong performance in business climate and regulatory ease.
- TS-iPASS: time-bound industrial approvals and self-certification.
- Hyderabad: quality education, healthcare, affordability and quality of life.
- Reliable power supply supports industrial operations.

Areas for Improvement

- Telangana ranked last among large States in institutional environment, with concerns over economic offences and cybercrime.
- Need to reduce time and cost of setting up businesses and improve inter-departmental coordination.
- TS-bPASS has simplified approvals for smaller projects, but large industrial/commercial projects still face delays.
- Automobile sector: high taxes and complex RTO procedures.
- Greater support is needed for MSMEs and first-time entrepreneurs.

99. Srisailem Sculptures: Clues to Medieval Trade Links – Indian Express

Why in News?

- Rare giraffe and camel sculptures on the outer prakara walls of the Sri Bhramaramba Mallikarjuna Swamy Temple at Srisailem have highlighted possible medieval trade and cultural links between South India, Africa and West Asia.
- The narrative bas-reliefs broadly date to the 14th–16th centuries, corresponding to the Vijayanagara period.



About Vijayanagara Empire

- Founded in 1336 CE by Harihara I and Bukka I, the Vijayanagara Empire became a major political and cultural power in South India.
- Its capital, Vijayanagara (Hampi), developed into a major centre of trade, temple architecture, literature and art.
- Krishnadevaraya (1509–1529) was its most prominent ruler and patron of temples and culture.
- The empire maintained extensive commercial links with Arabia, Persia, Africa and Southeast Asia through Indian Ocean networks.

Srisailem & the Sculptures

- Located in present-day Nandyal district, Andhra Pradesh, Srisailem was a major Shaiva pilgrimage centre, associated with the Mallikarjuna Jyotirlinga and Bhramaramba Shakti Peetha.
- A rare panel depicts two giraffes, two camels and attendants.
- Since giraffes are non-native to India, their depiction suggests familiarity with exotic animals through long-distance trade, diplomatic contacts or royal exchanges.

Medieval Indian Ocean Trade

- The sculptures provide clues to networks connecting India with East Africa, Arabia and West Asia.
- Important traded commodities included Arabian horses, spices, textiles and precious goods.
- Thus, temple art serves as an important supplementary source for reconstructing medieval economic and cultural interactions.

100. Rare 9th-Century Jain Parshvanatha Sculpture — Telangana – Indian Express

Why in News?

- A rare 9th-century sandstone sculpture of Jain Tirthankara Parshvanatha has been identified at Chand village in Adilabad, Telangana.

- Experts describe it as the first sculpture of this distinctive iconographic composition reported from Telangana, highlighting the region's lesser-known Jain heritage.



Iconographic Features

- Parshvanatha is shown seated in ardha-padmasana, with a serpent canopy behind him.
- Two Tirthankaras in kayotsarga posture flank the central figure.
- The pedestal features a Dharmachakra between two lions.
- Dharanendra and Padmavati, associated with Parshvanatha, are depicted with serpent canopies.
- Shravakas and Shravikas appear as devotees with folded hands.
- The composition corresponds with prescriptions mentioned in the Jain Rupamandana, a Jain iconographic treatise.

Historical Significance

- The sculpture reflects the development of Jain art and religious traditions in the early-medieval Deccan.
- Similar Parshvanatha representations from Rajgir (Bihar) and Erandol (Maharashtra) indicate broader regional parallels in Jain iconography.
- Other Jain sculptures found at Chand, including Kunthunatha, suggest that the settlement may have housed a Jain basadi (religious centre/temple).

Identification

- The Dharmachakra could lead to confusion with Buddhist imagery.
- However, the absence of the Buddha's characteristic Dharmachakra-pravartana mudra and monastic robe supports its identification as Parshvanatha.

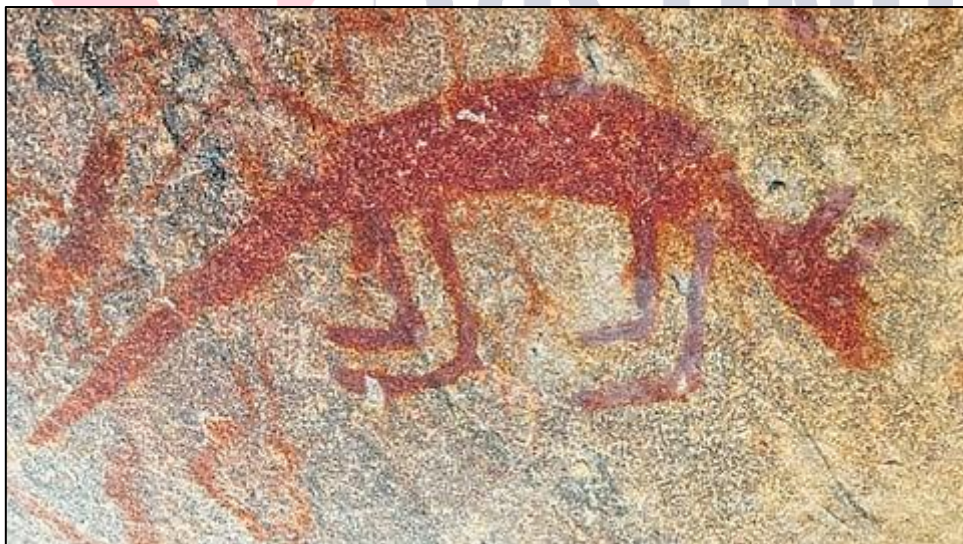
Significance

- Adds to the understanding of the spread and cultural presence of Jainism in the Deccan.
- Demonstrates the value of local archaeological surveys in recovering undocumented heritage.
- Underscores the need for documentation, conservation and protection of neglected rural heritage sites.

101. Maisamma Gutta Rock Art: New Evidence of Telangana's Prehistoric Heritage – Indian Express

Why in News?

- A rock shelter at Maisamma Gutta near Gannevaripalle, Rajanna-Sircilla district, Telangana, contains prehistoric paintings resembling a kangaroo and an echidna, animals not native to India.
- The site also yielded Palaeolithic and Mesolithic stone tools, grinding grooves and hematite, indicating prehistoric human activity.



Key Findings

- Rock art depicts kangaroo-like and echidna-like figures, along with a tortoise, lizard, snake, horse/donkey and geometric motifs.
- A circular motif with three branch-like symbols occurs above the kangaroo-like figure; interpretations as the sea and trees remain tentative.
- Researchers provisionally suggest that some paintings may date to around 10,000 BCE, while certain engravings and geometric motifs could be about 5,000 years old.

Prehistoric Context

- The associated Palaeolithic and Mesolithic tools point to the importance of the site for studying early human activity in the Deccan region.
- Similar kangaroo-like rock art has reportedly been identified earlier in the Kurnool region of Andhra Pradesh, warranting comparative study of Deccan rock-art traditions.

Significance

- May enhance understanding of prehistoric art, human mobility, subsistence, environmental interaction and cultural expression.
- However, the identification of the figures as kangaroo/echidna requires scientific verification; it should not be interpreted as proof that these animals inhabited prehistoric India.

Conservation Concerns

- The shelter is locally worshipped as a Maisamma shrine, creating risks from lime application, ritual activities and physical alteration of the rock surface.
- Priorities include scientific dating, archaeological documentation, expert/ASI verification, site protection and community-based conservation.

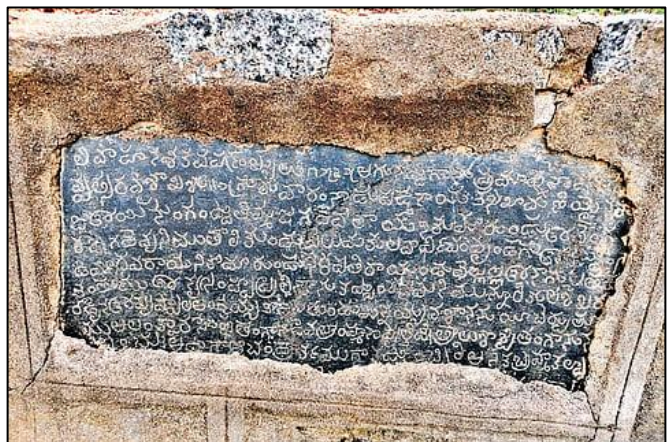
102. Vellulla Heritage Tank: A Living Archive of Telangana's Medieval History – Indian Express

Why in News?

- A historic tank at Vellulla village, Metpalli mandal, Jagtial district, preserves archaeological remains spanning several centuries, including a 12th-century Kala Bhairava sculpture and a 17th-century Telugu inscription.
- The site highlights the link between traditional water infrastructure and Telangana's cultural heritage.

Key Heritage Evidence

- A Telugu inscription records construction of the tank's sluice in 1613 CE (Shalivahana Era 1535) by Minnayya of the Munnuru community, under Dalapati Rayudu, an administrator of Padmanayaka ruler Vengala Jagadeva.
- The Kala Bhairava sculpture is shown in tribhanga posture, holding a sword, blood bowl, damaru and trident, with flaming locks and a skull girdle.



- A Kakatiya-period Ellamma sculpture and several hero stones add to the site's archaeological importance.

Historical Significance

- Provides evidence of religious practices, Telugu epigraphy, local communities and administrative structures in historical Telangana.
- Demonstrates how traditional tanks functioned not only as irrigation infrastructure but also as repositories of cultural memory and local history.

Conservation Concerns

- Several sculptures remain exposed to weathering and neglect, risking gradual deterioration.
- In-situ conservation, systematic documentation, heritage-site development and community participation can help safeguard these remains.

103. Telangana's Higher Education Expansion: High College Density and Enrolment – Indian Express

Why in News?

- The AISHE 2023–24, released by the Ministry of Education, places Telangana among the leading major states in higher-education access, with 56 colleges per lakh population (18–23 years)—second only to Karnataka (69).
- Telangana's college density increased from 53 in 2019–20 to 56 in 2023–24, indicating expansion of higher-education infrastructure.

Key Indicators

- Telangana recorded a GER of 42.7% in 2022–23, substantially above the national average of 29.5%.
- Undergraduate enrolment shows strong female participation, with women exceeding men in the reported 2023–24 UG enrolment.
- The state had 9,347 Ph.D. scholars in 2023–24, indicating an established research ecosystem.

Significance

- Expanding higher education can strengthen human capital, employability and Telangana's demographic dividend.
- Higher female participation supports women's empowerment, economic participation and social mobility.
- Telangana's extensive network of professional and higher-education institutions strengthens its position as an educational hub.

Challenges & Way Forward

- The gap between a large undergraduate base and relatively limited research/Ph.D. participation highlights the need to strengthen postgraduate education and R&D.
- Focus should shift from access to quality through better faculty, research infrastructure, industry-academia linkages, employability-oriented curricula and equitable access.

104. Utnoor Fort: Reviving Telangana's Gond Tribal Heritage – Indian Express

Why in News?

- Utnoor Fort (Gond Rajula Kota) in Adilabad district is undergoing a ₹3.9-crore restoration and development project to preserve its historical character and promote Gond heritage.
- The project includes a museum, heritage amenities, landscaping and spaces for cultural activities, with restoration being undertaken through the Heritage/Archaeology authorities and ITDA-Utnoor.



Historical Significance

- The fort is associated with the Gond rulers of the Deccan and reflects the political history of tribal kingdoms in the region.
- Gondwana rulers exercised influence across parts of present-day Maharashtra, Madhya Pradesh, Chhattisgarh, Odisha and northern Telangana.
- Gond royal descendants continue traditional Dasara prayers at the fort, linking its tangible architecture with living cultural traditions.

Significance

- Strengthens recognition of tribal contributions to Telangana's history and cultural landscape.

- A museum can promote Gond history, traditional knowledge, arts and material culture.
- Heritage-based tourism can generate local employment and livelihood opportunities while enhancing regional tourism.

Conservation Approach

- Restoration should preserve the fort's original architectural character, avoid excessive beautification and ensure scientific conservation.
- Gond community participation in interpretation, management and cultural programming can make conservation more inclusive and sustainable.

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Practice MCQs

1. Consider the following statements about the Right to be Forgotten (RTBF) in India:

1. The Right to be Forgotten is explicitly mentioned as a standalone Fundamental Right under Part III of the Constitution of India.
2. The recent framework established by the Delhi High Court mandates the complete physical destruction of judicial records from court registries to enforce this right.
3. The Right to be Forgotten has been recognised as an extension of the right to life and personal liberty under Article 21 of the Constitution.

Which one of the following conclusions based on the above statements is correct?

- (a) There are two correct statements, that include statement 2.
- (b) There are two correct statements, that are statements 1 and 3.
- (c) There is only one correct statement.
- (d) All three statements are correct.

Answer: (c)

2. Consider the following statements regarding the NIDAR 2.0 platform recently seen in the news:

1. It is a centralised database developed by the National Investigation Agency (NIA) specifically to track cross-border cybercriminals.
2. It is integrated with the Inter-operable Criminal Justice System (ICJS) to maintain a comprehensive repository of arrested narco-offenders.
3. The platform incorporates facial recognition technology and provides real-time data access to law enforcement agencies across India.

Which one of the following conclusions based on the above statements is correct?

- (a) There are two correct statements, that include statement 2.
- (b) There are two correct statements, that are statements 1 and 3.
- (c) There is only one correct statement.
- (d) All three statements are correct.

Answer: (a)

3. Consider the following statements regarding the India-Japan Strategic Partnership:

1. The 16th India-Japan Annual Summit focused exclusively on conventional bilateral trade and tariff reductions.
2. India's Free and Open Indo-Pacific (FOIP) vision is being aligned with Japan's Indo-Pacific Oceans Initiative (IPOI) to secure regional maritime interests.
3. The current bilateral economic partnership emphasizes a shift towards building resilient and diversified supply chains in strategic sectors.

Which of the statements given above is/are correct?

- (a) 1 and 2
- (b) 2 and 3
- (c) 1 only
- (d) 3 only

Answer: (d)

4. Consider the following statements regarding the India-Indonesia Enhanced Strategic Partnership:

1. Under the digital cooperation framework, Indonesia has launched a digital platform based on India's Aadhaar biometric architecture.
2. The connectivity initiatives include focused cooperation on the Sabang Port and establishing Andaman-Aceh linkages.
3. To boost Maritime Domain Awareness, the agreement includes posting an Indonesian liaison officer at the Information Fusion Centre – Indian Ocean Region (IFC-IOR).

Select the answer using the code given below:

- (a) 1 and 2
- (b) 2 and 3
- (c) 1 and 3
- (d) 2 only

Answer: (b)

5. The BRICS Guwahati Declaration was adopted in 2026. Which of the following is/are not correct in terms of the provisions and facts related to this declaration?

1. Egypt, Ethiopia, Iran, and the UAE joined BRICS in 2024, followed by Indonesia in 2025.
2. India's 2026–29 strategy under this framework prioritizes intercepting individual drug consignments over dismantling broader criminal networks.

3. The National Investigation Agency (NIA) acts as the nodal agency for enforcing India's zero-tolerance approach under the NDPS Act, 1985.
4. Key commitments include joint action against New Psychoactive Substances (NPS) and countering digital trafficking through the darknet.

Select the answer using the code given below:

- (a) 2 and 3
- (b) 1 and 4
- (c) 3 and 4
- (d) 1 only

Answer: (a)

6. Regarding the outcomes and implications of the recent NATO Ankara Summit, which of the following statements is/are not correct?

1. NATO members are committed to spending 5% of their GDP on defence and security by 2035.
2. Allies pledged at least €70 billion in military equipment, assistance, and training for Ukraine in both 2026 and 2027.
3. European Allies and Canada decreased their core defence investment since the 2025 Hague Summit.
4. Increased NATO procurement is expected to shift the global defence market from a seller's market towards a buyer's market.

Select the answer using the code given below:

- (a) 2 and 3
- (b) 1 and 4
- (c) 3 and 4
- (d) 1 only

Answer: (c)

7. Which of the following statements regarding the framework, methodology, and results of the state performance index is/are correct?

1. Under the performance categories, states scoring between 45 and 50 are classified as 'Top Performers'.
2. The framework relies entirely on secondary data to calculate the scores across its 84 indicators.

3. The evaluation methodology assesses states and UTs across eight pillars, which include Financial Health and Environmental Resilience.

Select the answer using the code given below :

- (a) 1 only
- (b) 1 and 2
- (c) 2 and 3
- (d) 3 only

Answer: (d)

8. Which of the following statements regarding the Ravidassia community's demand for a separate religious identity is/are correct?

1. Article 30 of the Indian Constitution intrinsically guarantees the recognition of a separate religion for the community in the official Census classification.
2. The community asserts its distinct religious identity, regarding the Amritbani Guru Ravidas Ji as their central religious scripture.

Select the answer using the code given below:

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

Answer: (b)

9. Which of the following statements regarding the Korku tribe and the governance of forest rights is/are correct?

1. The Korku are a Scheduled Tribe primarily inhabiting parts of Madhya Pradesh and Maharashtra.
2. Under the Forest Rights Act (FRA) of 2006, the State Forest Department is the designated authority to initiate the process of determining forest rights.
3. The PESA Act of 1996 weakens the role of the Gram Sabha in Scheduled Areas to centralize the management of community resources.

Select the answer using the code given below:

- (a) 1 only
- (b) 1 and 2

(c) 2 and 3

(d) 3 only

Answer: (a)

10. Consider the following statements regarding INS Mahendragiri:

1. It utilizes a Combined Diesel or Gas (CODOG) propulsion system for optimized economical cruising and high-speed operations.
2. It was constructed by Garden Reach Shipbuilders & Engineers (GRSE) as the final ship of the Project 17A programme.
3. The stealth frigate derives its name from a prominent mountain range situated in the Western Ghats.

Select the answer using the code given below:

(a) 1 only

(b) 1 and 2

(c) 2 and 3

(d) 3 only

Answer: (a)

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Practice Mains Questions

1. What are the potential benefits and risks of using Artificial Intelligence in the judicial system? Discuss with reference to the Supreme Court's proposed regulations on AI use in courts. – 10 Marks
2. India and Australia have emerged as important partners in shaping a stable and rules-based Indo-Pacific. Discuss the key areas of cooperation highlighted in the Third India-Australia Annual Summit. – 10 Marks
3. What is the significance of the proposed flexible pension scheme under EPFO 3.0? Examine its potential to expand social security coverage among formal, unorganised and gig workers. – 10 Marks
4. The State of Food Security and Nutrition in the World 2026 highlights that the affordability of healthy diets remains a major challenge despite a decline in global hunger. Explain the factors responsible and suggest measures to improve access to nutritious food. – 10 Marks
5. India's water crisis is increasingly becoming a challenge of water management rather than merely water availability. Analyze the major measures needed to strengthen water security in India. – 10 Marks

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