

# THE IAS GAZETTE

A House Journal of **APTI PLUS**

MAY 2026



**APTI PLUS**

Academy for Civil Services Pvt. Ltd.  
CREATING CIVIL SERVANTS FOR THE NATION



TH EDITION

**INDIA'S**

## **THREE STAGE NUCLEAR PROGRAMME**



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### Other topics

- Merger Under 10th Schedule
- India-New Zealand Free Trade Agreement (FTA)
- CAFÉ Norms And Draft CAFE 3
- Industrial Unrest In India

A MONTHLY PERIODICAL FOR ASPIRANTS OF UPSC CSE

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# 1. POLITY & GOVERNANCE

## 1.1 DEBATE OVER THE MERGER UNDER 10TH SCHEDULE

### Why In News?

- Invoking the Anti-Defection Law's "Merger" clause, seven AAP Rajya Sabha MPs joined the BJP to keep their seats without a full organizational party merger.

### What is the 10th Schedule?

- The **10th Schedule (Anti-Defection Law)** was enacted to prevent opportunistic political defections that threaten government stability.
- **Origin:** Added to the Constitution by the **52nd Amendment Act, 1985**.
- **Objective:** Eliminating the "Aaya Ram, Gaya Ram" culture of frequent floor-crossing to ensure legislator loyalty to their elected party.

### Grounds for Disqualification

A member of the Parliament or State Legislature can be disqualified under the following conditions:

- **Voluntary Give-up:** If an elected member voluntarily gives up the membership of their political party.
- **Violation of Whip:** If a member votes or abstains from voting in the House contrary to the directions (whip) issued by the political party without prior permission.
- **Independent Members:** If an independent candidate joins a political party after the election.
- **Nominated Members:** If a nominated member joins a political party after the expiry of six months from taking their seat.

### What is the framework of Party Mergers?

Governed by Paragraph 4 of the Tenth Schedule (Anti-Defection Law).

- **Paragraph 4(2):** The "Two-Thirds" Exemption

- **Rule:** Legislators avoid disqualification if their **original party** merges and **two-thirds** of the **legislature party** agree.
- **91st Amendment (2003):** Removed "split" protections, requiring a two-thirds super-majority for valid mergers.
- **The "Deemed Merger" Loophole**
  - **Legal Ambiguity:** Despite laws requiring full organizational mergers, Speakers often sanction "**Deemed Mergers**" limited to legislators, frequently disregarding parent party dissent.
  - **Judicial View:** In *Jagjit Singh vs State of Haryana (2006)*, the Supreme Court held that **legislature parties cannot act independently of the original party**, yet Speaker discretion allows these one-sided mergers to continue.
- **Speaker & Election Commission Roles**
  - **Adjudication:** The Speaker or Chairman has exclusive authority to validate Tenth Schedule mergers, subject to judicial review.
  - **Identity Disputes:** The **Election Commission of India (ECI)** resolves party name and symbol conflicts under the *Election Symbols Order, 1968*.

### How Do Party Mergers Impact Democratic Representation?

- **Social Contract Betrayal:** Mid-term mergers nullify voter choice by converting anti-incumbency votes into incumbency support.
- **Manufactured Majorities:** Post-election engineering in **Goa (2019)** and **Arunachal Pradesh (2016)** bypassed electoral verdicts and silenced dissent.
- **Weakening Opposition:** Mergers erode legislative diversity, turning the House into a ruling party "echo chamber."

- **Erosion of Trust:** Frequent switching prioritizes power over ideology, causing public cynicism and lower voter engagement.

### Judiciary on Political Mergers

- **Party Structure & Mergers:** The Supreme Court in *Subhash Desai vs Maharashtra (2023)* ruled that a legislature party cannot act independently. **Valid mergers require the parent organization to merge first**, followed by two-thirds legislative consent.
- **Judicial Review:** *Kihoto Hollohan (1992)* established that Speaker disqualification decisions are subject to judicial review, despite frequent procedural delays.
- **Timelines:** In *Keisham Meghachandra Singh (2020)*, the Court mandated a **three-month** window for Speakers to decide petitions, curbing prolonged office-holding by defectors.

### Issues with the 10th Schedule

- **Presiding Officer Bias:** Ruling party Speakers often face allegations of partiality or deliberate delays.
- **Organizational vs Legislative Wing:** *Subhash Desai (2023)* case highlighted misinterpretations placing the legislative wing above the **political organization**.
- **Loss of Individual Agency:** Strict whips override legislators' conscience and constituency interests.
- **Wholesale Defection:** The two-thirds rule permits mass switching while only penalizing individuals.
- **No Adjudication Deadlines:** Missing timeframes allow presiding officers to stall petitions indefinitely.

- **Permanent Tribunal:** In *Keisham Meghachandra Singh (2020)*, the SC proposed an **independent tribunal** of retired judges for impartial rulings.
- **End Merger Exceptions:** The **National Commission to Review the Working of the Constitution (NCRWC)** recommends deleting Paragraph 4, requiring all defectors to seek a fresh mandate.
- **Narrow the Whip:** The **Dinesh Goswami Committee** advised limiting anti-defection to votes affecting **stability** only.
- **Mandatory Deadlines:** A constitutional **time limit** is needed for disqualification decisions to prevent delays.

### Way Forward

- **Transfer Adjudication:** The **Law Commission (170th Report)** and EC suggest moving disqualification power from the Speaker to the President/Governor, acting on the EC's **binding advice**.

### Conclusion

- To uphold the **Anti-Defection Law**, the "Merger" exemption must be abolished and adjudication shifted from the **Speaker** to an **independent body** like the **Election Commission**, requiring defecting legislators to obtain a **fresh mandate**.

## 1.2 SC DECLARES RTE ACT ADMISSIONS MANDATORY

### Why In News?

- The Supreme Court upheld the 25% EWS quota as a fundamental right, ruling that private schools must accept government-allotted admissions without delay or rejection.

## What is RIGHT TO EDUCATION (RTE) ACT?

- Enacted to implement **Article 21-A** (via the **86th Amendment Act, 2002**), the **RTE Act, 2009** ensures free and compulsory education for children.

### Key Features of the RTE Act 2009

- **Free Education:** Children aged 6-14 are entitled to free elementary schooling (Classes 1-8) nearby.
- **25% Quota:** Private schools must reserve **25% of Class 1 seats** for disadvantaged and economically weaker sections.
- **Detention Policy:** The original no-detention rule was amended in **2019** to permit failing

students in Classes 5 and 8 following a re-examination.

- **No Admissions Barriers:** Screening procedures and capitation fees are prohibited, with violations carrying heavy penalties.
- **Staffing & Infrastructure:** The Act mandates specific **Pupil-Teacher Ratios** (1:30 for primary) and infrastructure standards.
- **Teacher Accountability:** Teachers must fulfill curriculum duties and are **banned from private tutoring**.
- **Governance:** Aided schools must establish SMCs with 75% parent membership to oversee operations and grants.

### Recent Directives from the Supreme Court Ruling

- **Private School Compliance:** State-allotted RTE students must be admitted immediately; schools lack the **authority to question eligibility** or delay entry.
- **Constitutional Mandate:** Denying RTE admissions violates the **Article 21A** fundamental right to education.
- **Equality as a "National Mission":** The 25% EWS/disadvantaged quota is a **"national mission"** for social integration.

## Key Challenges in RTE Implementation

- **Financial Bottlenecks:** Schools face strain due to delayed state reimbursements under Section 12(2) of the RTE Act. In Tamil Nadu, **₹875 crore** was released in **December 2025** to settle two years of arrears for 7,600 schools.
- **Social Discrimination:** Physical inclusion lacks social integration, as EWS students face exclusion and a "classroom within a classroom" divide, widening inequality.
- **Administrative Red Tape:** Complex documentation requirements hinder vulnerable families and migrant laborers from accessing the system.
- **Poor Learning Outcomes:** Despite high enrollment, **ASER reports indicate low proficiency**, suggesting a flawed focus on infrastructure over actual learning.

## Way Forward to Strengthen RTE

- **Shift Focus to Learning:** Monitoring must prioritize **learning gains** over physical infrastructure.
- **Expand Age Range:** Extend RTE to cover **3 to 18 years** (Early Childhood Care and Education to Secondary) to match **National Education Policy (NEP) 2020** goals.
- **Optimize 25% Quota:** Use **online portals** and **timely reimbursements** to improve seat fill rates and prevent discrimination.
- **Teacher Empowerment:** Link performance to student progress and provide continuous professional development.
- **Empower School Management Committees (SMCs):** Provide parents with digital tools and training for effective **community governance**.

- **Inclusive Infrastructure:** Strengthen specialized staff and facilities for **Children with Special Needs (CWSN)**.

## Conclusion

- To strengthen the **RTE Act**, an **outcome-oriented framework** should replace input-centric models, prioritizing **learning quality** and teacher accountability. Aligning with **NEP 2020**, the age bracket should also expand to **3–18 years**.

## 1.3 SHORT ARTICLES

### Panchayat Advancement Index (PAI) 2.0

#### Why In News?

- The Ministry of Panchayati Raj launched the Panchayat Advancement Index (PAI) 2.0 Report for FY 2023–24, following PAI 1.0 (FY 2022–23)

#### What is Panchayat Advancement Index (PAI) 2.0?

- The **Ministry of Panchayati Raj (MoPR)** created this framework to assess the holistic development and performance of Gram Panchayats.
- The index assesses Panchayats across **9 thematic areas** that align with the United Nations' Sustainable Development Goals:
  - Poverty Free & Enhanced Livelihoods Panchayat
  - Healthy Panchayat
  - Child Friendly Panchayat
  - Water Sufficient Panchayat
  - Clean and Green Panchayat
  - Self-Sufficient Infrastructure Panchayat
  - Socially Just & Socially Secured Panchayat
  - Panchayat with Good Governance
  - Women Friendly Panchayat
- **Participation:** PAI 2.0 achieved **97.30%** participation, with **2,59,867 Gram Panchayats** across 33 States/UTs reporting data—a 16.5% rise from the previous edition.
- **Grading:** Panchayats are categorized into **five grades** based on a 0-100 score to highlight leaders and developmental gaps.

#### Key Findings from PAI 2.0

- **Performance:** Majority of Panchayats fall into the **Grade B (Performer)** category.
- **Governance Scores:** While **1,02,008 GPs** are categorized as **Front Runners (Grade A)** in governance.
- **Top Performers:** States like **Kerala, Tamil Nadu, and Karnataka** traditionally maintain higher average PAI scores due to better historical devolution of the "3Fs" (Funds, Functions, and Functionaries).

### Women and Men in India 2025 Report

#### Why In News?

- The **Ministry of Statistics and Programme Implementation (MoSPI)** released the **27th** edition of the "Women and Men in India 2025" report

#### Highlights of the Women and Men in India 2025 Report

##### Key Demographic & Health Indicators

- **Sex Ratio at Birth:** Ratio improved to **917** (2021-23) from **904** (2017-19), indicating the long-term impact of gender-sensitization programs.
- **Maternal Mortality Ratio (MMR):** India achieved reduction from **254** (2004-06) to **88** (2021-23), nearing the global SDG target of less than 70.
- **Marital Age:** Mean age at marriage for women rose to **24.3 years** in 2023, facilitating longer pursuit of higher education.

##### Educational & Economic Breakthroughs

- **Higher Education:** For the first time, the **Gross Enrolment Ratio (GER)** for females (**30.2**) has surpassed that of males (**28.9**) as of 2022-23.
- **Labour Force Participation (LFPR):** Rural women led the growth, with their participation jumping from 37.5% to **45.9%** between 2022 and 2025.
- **Leadership Roles:** Women in **managerial positions** saw **102.54% increase** between 2017 and 2025, outperforming the growth rate of their male counterparts.

#### **Persistent Structural Challenges**

- **The Health Screening Gap:** A mere **1.7% of women** have ever undergone cervical cancer screening, highlighting a massive void in preventive healthcare.
- **The Literacy Divide:** A **14.4%** literacy gap persists between men and women (aged 7+), primarily due to historical disadvantages in older age cohorts.
- **Unpaid Care Work:** Women continue to shoulder a disproportionate share of domestic work, limiting their potential for "paid" economic contribution.

## **Promotion and Regulation of Online Gaming Rules 2026**

### **Why In News?**

- The **Ministry of Electronics and Information Technology (MeitY)** notified the **Promotion and Regulation of Online Gaming Rules, 2026** to establish the **Online Gaming Authority of India (OGAI)** as the central statutory regulator.

### **About Online Gaming Authority of India (OGAI)**

- It is a **statutory body** regulating online gaming to ensure safety and separate permissible games from illegal gambling.
- **Nodal Ministry:** Ministry of Electronics and Information Technology (MeitY).
- **Headquarters:** National Capital Region (NCR) of Delhi.
- **Legal Basis:** Established under Section 19 of the Promotion and Regulation of Online Gaming Act, 2025.

- **Nature:** It is a digital-first office, capable of conducting proceedings virtually.
- **Powers:** The OGAI holds powers similar to a civil court for inquiries and enforcement.

### **Key Functions**

- **Game Categorization:** OGAI exclusively classifies titles into three categories:
  - **Online Money Games (OMG):** Wagering games (e.g., poker, fantasy sports) are **prohibited and banned under the 2025 Act**.
  - **Online Social Games:** Non-monetary casual games are permitted.
  - **Esports:** Skill-based digital sports under the National Sports Governance Act, 2025, are regulated.
- **Selective Registration:** Required only for Esports and high-scale Social Games; certificates are valid for 10 years.
- **Financial Enforcement:** Banks must verify game status; OGAI blocks transactions for banned titles using a "Negative List".
- **User Safety:** Mandates include age-gating, parental controls, and time limits.
- **Grievance Redressal:** A three-tier system handles disputes, with OGAI and an Appellate Authority overseeing platform-level appeals.
- **Data Localisation:** Gaming Platforms must store user and traffic data within India.

## **Constitution (One Hundred And Thirty-First Amendment) Bill 2026**

### **Why In News?**

- The 131st Constitutional Amendment Bill 2026 defeated in the Lok Sabha, as it failed to attain the required two-thirds majority.

### **Key Features of the Bill**

- **Expansion of Lok Sabha:** The Bill proposed increasing the maximum strength of the Lok Sabha from the current 550 to **850 members**.
- **Delimitation Based on 2011 Census:** Redraw constituency boundaries using the population data from the **2011 Census**, rather than

waiting for the post-2026 census as currently mandated.

- **Expediting Women's Reservation:** By amending **Article 334A**, the Bill aimed to implement the 33% women's reservation (enacted via the 106th Amendment Act 2023), enabling the quota for the 2029 general elections.
- **Constitutional Amendments Proposed:** It sought to amend **Articles 81 and 82** (removing the freeze on seat allocation deferred in 1976 and 2001) to return to the principle that constituencies across states should have roughly the same population.
  - It also amended Articles 55, 170, 330, and 332 regarding the composition of state assemblies and SC/ST reservations.

### **Constitutional Procedure for Amendment (Article 368)**

The defeat of the Bill highlights the strict process of amending the Constitution under **Article 368**:

- **Special Majority Required:** A constitutional amendment must be passed by a majority of the total membership of the House AND a majority of not less than **two-thirds of the members present and voting**.
- **State Ratification:** Because this Bill altered the representation of states in Parliament (Articles 81/82), it would have also required ratification by at least **one-half of the State Legislatures** before receiving Presidential assent.
- **No Joint Sitting:** In cases of deadlock over Constitutional Amendment Bills, a joint sitting of Parliament cannot be summoned.

## **Supreme Court on Electoral Rolls and Voting Rights**

### **Why In News?**

- The Supreme Court emphasized the right to remain on the electoral roll and to vote is **not just a constitutional right, but a "sentimental expression of nationality and patriotism"**.

### **Constitutional Framework Governing Voting**

- **Article 324:** Grants the Election Commission the power of superintendence, direction, and control over the preparation of electoral rolls and the conduct of elections.
- **Article 325:** Mandates a single, general electoral roll for every territorial constituency and prohibits ineligibility on the grounds of religion, race, caste, or sex.
- **Article 326:** Establishes Adult Suffrage, guaranteeing that every Indian citizen over the age of 18 is entitled to be registered as a voter, barring specific disqualifications.

### **Legal & Statutory Framework**

- **Representation of the People Act, 1950:** Governs the allocation of seats, constituency delimitation, voter qualifications, and the preparation of electoral rolls.
- **Representation of the People Act, 1951:** Manages the conduct of elections, administrative machinery, qualifications/disqualifications of members, and the resolution of election disputes.
- **Registration of Electors Rules, 1960:** Outlines the procedural steps for preparing and revising electoral rolls, including the filing of claims and objections.
- **Conduct of Election Rules, 1961:** Details the technical mechanisms of voting, counting, and the use of EVMs and VVPATs.

### **Supreme Court Directives**

- **Inclusion over Statistics:** Fairness and the principle of inclusion must prevail over statistical justifications.
- **Due Process:** Administrative efficiency and technological interventions cannot override due process and fundamental voting rights.
- **Democracy at Stake:** Large-scale and arbitrary exclusions can severely undermine the legitimacy of democratic outcomes, particularly in closely contested constituencies.
- **Appellate Instructions:** Appellate tribunals were directed to hear the pending cases operating strictly on the principle of inclusion.

## 1.4 SNIPPETS

Topics	Details
Google AI Data Hub	<p>Andhra Pradesh Chief Minister laid the foundation stone for Google's \$15 billion AI Data Centre Hub near Visakhapatnam.</p> <p>The Google AI Data Hub, developed in partnership with Adani Infra. It aims to establish <b>Google's first major AI-focused campus in India</b>, enhancing the country's digital infrastructure and positioning Visakhapatnam as a global tech hub.</p>
Right To Safe Travel	<p>The Supreme Court ruled that the right to safe travel on highways is an integral part of the Right to Life under Article 21.</p> <p>The Right to Life under Article 21 of the Constitution, protects personal freedom, ensuring that no individual can be deprived of life or liberty without legal procedures. This right is <b>universally applicable to both citizens and foreigners</b>, prohibiting arbitrary government actions. Recently, the Court emphasizes state accountability in ensuring safe travel on highways.</p>

## 1.5 ADDITIONAL TOPICS FOR READING FROM IASGYAN WEBSITE

Topic Name	Date
Digital Arrest	29 <sup>th</sup> April 2026
Disqualification Of Mps: Constitutional Framework, Challenges, And Reforms	25 <sup>th</sup> April 2026
Internal Reservation For SCs: Need, Challenges And Way Forward	25 <sup>th</sup> April 2026
What Is Recusal Pleas? Explained	22 <sup>nd</sup> April 2026
Women's Reservation Bill: Delimitation And Lok Sabha Seat Expansion	17 <sup>th</sup> April 2026

## 2. INTERNATIONAL RELATIONS

### 2.1 INDIA-NEW ZEALAND FREE TRADE AGREEMENT (FTA)

#### Why In News?

- The India-New Zealand signed Free Trade Agreement to double bilateral trade to \$5 billion by granting 100% duty-free access for Indian exports while protecting the domestic dairy sector.

#### Key Provisions of the Proposed India-New Zealand FTA

The agreement is structured around three core pillars: **Trade in Goods, Services & Mobility, and Investment.**

- Tariff Elimination for India:** New Zealand commits to providing **100% zero-duty access** for all Indian exports immediately after the agreement comes into force.
- Market Access for New Zealand:** India will eliminate or reduce tariffs on **70%** of its tariff

lines, covering approximately **95%** of New Zealand's total exports to India by value.

- Investment Pact:** Agreement includes a binding commitment from New Zealand to facilitate **USD 20 billion in Foreign Direct Investment (FDI)** into India over the next 15 years.
- Services & Mobility Enhancements:**
  - An annual quota of **5,000 Temporary Employment Visas** for Indian professionals in high-demand sectors like IT, healthcare, and engineering.
  - Extension of post-study work visas for Indian STEM graduates for up to **3 years**.
  - First-ever formal recognition of Traditional Medicine (**AYUSH**) and **Yoga instructors** as a professional category for visas.

#### Sectoral Impact: Beneficiaries and Protected Areas

The FTA is designed to boost certain export-oriented sectors in India while protecting vulnerable domestic industries.

Category	Sectors	Key Details
<b>Beneficiary Sectors</b>	Textiles & Leather, Gems & Jewelry, Pharmaceuticals, Services (IT, Nursing)	Gain immediate <b>zero-duty access</b> , enhancing competitiveness. Regulatory cooperation in pharma will ease inspection hurdles. The services sector gains a regulated pathway to a high-income market across <b>118 sub-sectors</b> .
<b>Protected Sectors</b>	Dairy, Sensitive Agriculture (Wheat, Rice, Sugar)	The <b>dairy sector is completely excluded</b> from tariff cuts to protect India's 80 million dairy farmers. Sensitive agricultural items are also excluded, though a limited <b>Tariff Rate Quota (TRQ)</b> is offered for apples and kiwifruit.

#### Strategic Significance for India

- Diversification (China+1 Strategy):** This agreement strengthens India's strategy to create alternative global supply chains. It establishes a strong foothold in the Oceania region, serving as a **gateway to Pacific Island economies**.
- Boosting "Make in India":** By securing duty-free access to crucial raw materials from New Zealand like **wood, wool, and coking coal**, the FTA lowers input costs for Indian manufacturers, making their final products more competitive globally.

- **Setting a New Precedent:** Investment commitment of **\$20 billion** shows India's evolving approach to FTAs, viewing them as comprehensive "investment bridges" rather than just tools for trade liberalization.

### Challenges and Considerations

- **Non-Tariff Barriers (NTBs):** Indian exporters may still face challenges from New Zealand's quality and sanitary standards. Overcoming these requires establishing **Mutual Recognition Agreements (MRAs)**.
- **Political Friction:** The complete exclusion of the dairy sector has faced criticism in New Zealand, which could create political hurdles during the implementation phase.
- **Trade Deficit Risks:** Historically, some FTAs have widened India's trade deficit. **Continuous monitoring of import levels will be essential to ensure the trade balance** does not become skewed in New Zealand's favor.

### Way Forward to Maximize Gains

- **Leverage as "Gateway to Oceania":** India should use its strengthened relationship with New Zealand as a diplomatic and logistical base to deepen engagement with Pacific Island Nations, supporting the **Act East Policy**.

- **Tackle NTBs Proactively:** The formation of a Joint Trade Committee (JTC) should prioritize mutual recognition of standards to prevent Indian products from being rejected on technical grounds.
- **Modernize Domestic Sectors:** India can use the FTA's framework to import New Zealand's advanced technology in dairy and agriculture (e.g., cold chains, genetic stock) to prepare the domestic sector for future global competition.
- **Utilize Skill Quotas:** The Ministry of Skill Development must align training programs with New Zealand's specific skill shortages to ensure the visa quotas for professionals are fully and effectively utilized.
- **Monitor Trade Flows:** The Department of Commerce should implement a robust monitoring system to track import surges and use **Safeguard Mechanisms** if any domestic industry is threatened.

### Conclusion

The India-New Zealand FTA is a modern, balanced agreement. It **integrates India with a developed economy while shielding vulnerable sectors like dairy and agriculture**. Success depends on effective implementation, resolving non-tariff barriers, and achieving broader geopolitical and economic objectives.

## 2.2 INDIA-SOUTH KOREA RELATIONS

### Why In News?

- The India-South Korea relationship evolved into a "**futuristic partnership**" through the **Joint Strategic Vision (2026–2030)** signed in April 2026 during President Lee Jae Myung's visit.

### India-South Korea Strategic Partnership

#### Evolution of Ties

- **Ancient Links (48 AD):** Rooted in the legend of Princess Suriratna of Ayodhya, who

traveled to Korea to marry King Kim Suro of Gaya.

- **Korean War (1950–1953):** India played a neutral mediation role and deployed the 60th Parachute Field Ambulance, treating over 220,000 patients.
- **Diplomatic Upgrades:** Full diplomatic ties were established in 1973. Ties were elevated to a "**Strategic Partnership**" in 2010 and a "**Special Strategic Partnership**" in 2015, closely integrating India's "Act East" Policy

with South Korea's "New Southern" Policy and "Indo-Pacific Strategy".

### Key Initiatives launched during the meeting

- **Joint Strategic Vision (2026–2030)**: Five-year roadmap to elevate their relationship into a "futuristic partnership" centered on high technology, security, and climate cooperation.
- **New Dialogues**: Announced an inaugural Defence and Foreign Affairs 2+2 Dialogue at the vice-minister level.
- **Geopolitical Alignment**: Enhancing their shared vision for a free and open Indo-Pacific, South Korea officially joined the India-led Indo-Pacific Oceans Initiative (IPOI).
- **Trade Target**: Double bilateral trade to **\$50 billion by 2030**.
- **CEPA Upgrade**: Both sides committed to resuming and fast-tracking negotiations to upgrade the Comprehensive Economic Partnership Agreement (CEPA) by around 2027 to address trade friction and non-tariff barriers.
- **India-Korea Digital Bridge**: Collaboration in artificial intelligence (guided by the "MANAV" framework), data governance, and semiconductor design and manufacturing.
- **Shipbuilding Framework**: Under a new Comprehensive Framework for Shipbuilding, Shipping, and Maritime Logistics, Korea will help upgrade Indian shipyards.
- **Green Alliances**: South Korea became a member of the International Solar Alliance (ISA), while India joined the Seoul-headquartered Global Green Growth Institute (GGGI).
- **Space**: ISRO and Korea's space agency (KASA) have agreed on a **joint lunar mapping mission to launch by 2028**.
- **Energy**: Both nations are also collaborating on **Green Hydrogen and Ammonia** to meet Net Zero 2070 goals.

### Major Challenges

- **Trade Imbalance**: India has a major trade deficit (\$21bn imports vs \$6bn exports in 2025) and is stuck in a "commodity trap," trading raw materials for high-value tech.
- **Economic Friction**: The 2010 CEPA is seen as "lopsided" due to Korean **Non-Tariff Barriers (NTBs)** affecting Indian IT, pharma, and agriculture.
- **Strategic Divergence**: India seeks a China-alternative for supply chains, but South Korea remains trade-reliant on Beijing. Security priorities also differ: Korea focuses on North Korean nukes, while India prioritizes its borders and the Indian Ocean.
- **Tech & Investment Barriers**: Korean firms often resist sharing IP and R&D. Conversely, Indian bureaucratic delays and land acquisition issues hamper MoU implementation.
- **Limited Social Ties**: Despite "K-Culture" popularity, the Indian diaspora in Korea is small (12,000) and bilateral tourism is low.

### Way Forward

- **Economic Rebalancing & CEPA 2.0**: Expedite CEPA upgrades to lower non-tariff barriers for Indian exports. Implement a **Rupee-Won mechanism** to cut costs and establish a "Korea enclave" with plug-and-play infrastructure to boost South Korean investment.
- **Digital Bridge & Co-Innovation**: Transition to active co-innovation by incentivizing tech giants to establish local **semiconductor wafer fabrication**. Create joint R&D "Centres of Excellence" in Bengaluru and Seoul for quantum cryptography and ethical AI.
- **Defense Co-Production**: Shift to a "co-creator" model by operationalizing **KIND-X (Korea-India Defence Accelerator)** for startups and expanding the K9 Vajra model into naval and aviation sectors, focusing on submarine and jet engine tech.
- **Resilience**: Use the **VOYAGES framework** to make India a hub for green-shipbuilding and

ship-repair. Partner to secure **critical minerals** in third countries like Australia to support the EV industry.

- **Human Capital:** Liberalize STEM visas and develop the **Ayodhya-Gaya Corridor** heritage trail to deepen cultural ties beyond "K-Culture".

## 2.3 SHORT ARTICLES

### Organisation of The Petroleum Exporting Countries (OPEC)

#### Why In News?

- The **United Arab Emirates (UAE)** officially exited **OPEC** and the broader **OPEC+** alliance on **May 1, 2026**, ending nearly six decades of membership.

#### What is OPEC?

**Organisation of the Petroleum Exporting Countries (OPEC)** is a permanent intergovernmental organization designed to coordinate petroleum policies and ensure market stability.

- **Establishment:** Founded in **1960** at the Baghdad Conference by Iran, Iraq, Kuwait, Saudi Arabia, and Venezuela.
- **Current Membership:** Following the UAE's exit, the organization now has **11 members**: Algeria, Congo, Equatorial Guinea, Gabon, Iran, Iraq, Kuwait, Libya, Nigeria, Saudi Arabia, and Venezuela.
- **Global Influence:** OPEC members collectively hold roughly **80% of the world's proven crude oil reserves**.
- **Headquarters:** Vienna, Austria.

#### What is OPEC+?

Formed in **2016**, **OPEC+** is an expanded alliance that includes the core OPEC members plus 10 additional non-OPEC oil-exporting nations.

- **Non-OPEC Partners:** Azerbaijan, Bahrain, Brunei, Kazakhstan, Malaysia, Mexico, Oman, Russia, South Sudan, and Sudan.

### Conclusion

- While the India-South Korea "futuristic partnership" grows in tech and defense, reaching the \$50 billion 2030 trade target requires urgent CEPA upgrades to fix deep economic imbalances.

- Prior to the UAE exit, **OPEC+** controlled nearly **50% of the world's oil and liquids production**. With the UAE out, this share is expected to drop to approximately **45%**.

### Islamabad Accord

#### Why In News?

- Pakistan has proposed a two-phased "Islamabad Accord" to end the US-Israel war on Iran.

#### What is the Islamabad Accord?

- The **Islamabad Accord** is a proposed "two-tier" diplomatic framework mediated by Pakistan aimed at ending the 2026 US-Iran war.
- **Tier 1: Immediate De-escalation**
- **Ceasefire:** Immediate cessation of all aerial and naval hostilities.
- **Reopening the Strait:** Iran to immediately permit the passage of commercial tankers, easing global supply-chain bottlenecks.
- **Electronic MoU:** An initial Memorandum of Understanding finalized electronically through Pakistan.
- **Tier 2: The "Grand Bargain" (Long-Term Settlement)**
- **Negotiation Window:** A 15-20 day cooling-off period to finalize an agreement via in-person talks in Islamabad.
- **Nuclear Clause:** Verifiable guarantees from Iran not to pursue nuclear weaponization and to eliminate enrichment.
- **Economic Clause:** Targeted sanctions relief and the unfreezing of Iranian assets by the US.

**Why the Islamabad Accord Failed?**

- **Reparations Trap:** Iran sought \$270 billion from six Arab states (Saudi Arabia, UAE, Bahrain, Qatar, Kuwait, Jordan) for hosting US bases. The UAE countered with a \$6 billion claim, this mutual grievance ledger made consensus impossible.
- **Lebanon Linkage:** Iran demanded the ceasefire including Lebanon to secure Hormuz transit. The US rejected this condition.
- **Hormuz Tolls & Sovereignty:** The US rejected Iran's demands for a \$2 million per vessel transit fee and full US military withdrawal from the region.

**2.4 SNIPPETS**

Topics	Details
Bnei Menashe	<ul style="list-style-type: none"> <li>• India's security advisory for Israel noted 'Operation Wings of Dawn,' involving the airlifting of roughly 240 Bnei Menashe from Mizoram to Tel Aviv.</li> <li>• The Bnei Menashe, also known as the Shinlung in India, is a <b>Tibeto-Burman ethnic community of about 10,000 people residing in Mizoram and Manipur</b>. They claim descent from the Biblical tribe of Manasseh, one of the Ten Lost Tribes of Israel. Following a historical exodus through various regions, <b>they settled in India while maintaining Jewish practices</b>. In 2025, Israel initiated 'Operation Wings of Dawn' to facilitate the immigration of the remaining Bnei Menashe members.</li> </ul>
Strait of Malacca	<ul style="list-style-type: none"> <li>• Hormuz's closure has prompted Asian policymakers to reconsider the security of other maritime chokepoints like the Strait of Malacca.</li> <li>• The Strait of Malacca <b>connects the Andaman Sea to the South China Sea, bordered by Indonesia, Thailand, Malaysia, and Singapore</b>. Named after the Malacca Sultanate, it features a hot and humid climate with distinct monsoons. This strait is one of the busiest shipping lanes globally, <b>facilitating about 22% of maritime trade, including 60% of India's seaborne trade</b>. Joint patrolling is conducted by Singapore, Malaysia, and Indonesia, highlighting its role as the largest oil transit chokepoint in the world.</li> </ul>
UNESCO Chair on Gender Inclusion	<ul style="list-style-type: none"> <li>• India has launched Asia's first UNESCO Chair on Gender Inclusion and Skill Development at Symbiosis Skills and Professional University in Pune.</li> <li>• It is an international initiative supported by the Ministry of Skill Development &amp; Entrepreneurship, UNESCO, and Symbiosis Skills and Professional University, the <b>initiative focuses on training women in emerging sectors</b> like semiconductors, AI, and robotics. It targets underserved communities, ensuring industry-aligned skills for employment.</li> </ul>
Druzhba Pipeline	<ul style="list-style-type: none"> <li>• The resumption of Russian oil flows through the Ukrainian section of the Druzhba pipeline.</li> <li>• <b>Druzhba Pipeline</b>, also known as the "<b>Friendship Pipeline</b>," is one of the world's longest and most extensive crude oil pipeline networks, spanning approximately <b>4,000 kilometres</b>. The pipeline originates in <b>Almetyevsk, Russia</b>, and traverses through <b>Belarus</b>, where it bifurcates into two strategic legs: <b>Northern Branch</b> transports oil through <b>Poland</b> to <b>Germany</b> and <b>Southern Branch</b> routes through <b>Ukraine</b> to supply <b>Hungary, Slovakia, and the Czech Republic</b>. It remains a lifeline</li> </ul>

	<p>for landlocked refineries in Central Europe that lack direct access to maritime oil shipments.</p>
<b>World Earth Day 2026</b>	<ul style="list-style-type: none"> <li>World Earth Day 2026 celebrated on April 22.</li> <li>World Earth Day, celebrated annually on April 22 since 1970, <b>aims to raise awareness of environmental protection</b>, climate action, biodiversity, and sustainable development across over 190 countries. The <b>2026 theme, "Our Power, Our Planet,"</b> encourages sustainable practices by individuals and institutions to combat climate change and pollution.</li> </ul>
<b>United Nations Economic and Social Commission for Asia and the Pacific (UN ESCAP)</b>	<ul style="list-style-type: none"> <li>The United Nations Economic and Social Commission for Asia and the Pacific (UN ESCAP) released the 2026 Economic Survey, warning that the West Asia conflict is driving up energy and food costs.</li> <li><b>UN ESCAP</b> is an intergovernmental platform in the Asia-Pacific region and serves as one of the United Nations' five regional commissions. It comprises <b>53 member states and 9 associate members, representing nearly two-thirds of the global population</b>. Headquartered in Bangkok, Thailand, it was originally established in 1947 in Shanghai to aid post-WWII reconstruction before being renamed to ESCAP in 1976 to reflect a broader social mandate. It provides technical assistance and generates research to guide policymakers.</li> </ul>
<b>'Yellow Line' Security Strategy</b>	<ul style="list-style-type: none"> <li>The Israeli government expanded the Yellow Line strategy from the Gaza Strip to southern Lebanon, to create a militarized buffer zone up to the Litani River.</li> <li>The <b>Yellow Line, a military demarcation set by the Israel Defense Forces (IDF)</b>, acts as a free-fire zone and a fortified barrier between Israeli-occupied areas and local administrative regions. Initially introduced in Gaza in October 2025. Unlike traditional borders, the <b>Yellow Line establishes a permanent, static defense</b> involving fortified outposts and infrastructure marked by yellow bollards. <b>Approximately 58% of Gaza falls under direct Israeli control.</b></li> </ul>
<b>United Nations Economic and Social Council (ECOSOC)</b>	<ul style="list-style-type: none"> <li>India secured a diplomatic victory by winning four unopposed elections to key United Nations Economic and Social Council (ECOSOC) subsidiary bodies.</li> <li><b>ECOSOC, one of the six principal organs of the United Nations established in 1945</b>, serves as a platform for debate and consensus on international development goals. The Council's key functions include <b>linking regional and specialized agencies</b>, following up on major UN conferences, facilitating partnerships among stakeholders, identifying emerging global challenges, and <b>establishing normative frameworks through expert discussions.</b></li> </ul>
<b>SIPRI Report</b>	<ul style="list-style-type: none"> <li>The Stockholm International Peace Research Institute (SIPRI) released "Trends in World Military Expenditure 2025" report.</li> <li><b>Global military spending reached \$2,887 billion in 2025</b>, marking a 2.9% rise from 2024 and <b>accounting for 2.5% of global GDP</b>. Asia-Oceania's spending rose by 8.1%, led by China at \$336 billion and an 11% increase in Pakistan's spending to \$11.9 billion. <b>India's military expenditure grew by 8.9%, representing 3.2% of global spending</b>, while the US, China, and Russia together comprised 51% of total military spending.</li> </ul>

## 2.5 ADDITIONAL TOPICS FOR READING FROM IASGYAN WEBSITE

Topic Name	Date
India-Kenya Relations	30 <sup>th</sup> April 2026
Shanghai Cooperation Organisation (SCO)	29 <sup>th</sup> April 2026
Strategic Implications Of The West Asia Conflict On China's Influence	18 <sup>th</sup> April 2026
Us Sanctions Waiver Ends: Impact On India's Russian Oil Imports	17 <sup>th</sup> April 2026
How To Resolve The West Asian Crisis?	15 <sup>th</sup> April 2026
U.S. Initiates Naval Blockade Of Strait Of Hormuz	13 <sup>th</sup> April 2026

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## 3. ECONOMY

### 3.1 INDUSTRIAL UNREST IN INDIA

#### Context

- India's aspiration to emerge as a global manufacturing hub and a four trillion dollar economy is accompanied by recurring incidents of labour unrest.
- Violent protests in Noida, along with earlier episodes in Manesar and Bhiwadi, reveal tensions between growth narratives and labour realities.
- These incidents are not isolated law and order problems but reflect a structural crisis in industrial relations.

#### Nature of the Crisis

- Worker protests involving arson and violence indicate a breakdown of trust between employers and employees.
- Workers increasingly perceive themselves as dispensable and excluded from the benefits of growth.
- The recurrence of such unrest across industrial corridors points to a systemic issue rather than local grievances.

#### Conspiracy Narrative versus Structural Reality

- Authorities often attribute unrest to external conspiracies, diverting attention from underlying causes.
- In reality, workers in regions such as the National Capital Region earn extremely low wages, often below statutory minimum levels.
- The Supreme Court of India has observed that payment below minimum wage may amount to forced labour.
- The perception of labour shortage is misleading, as workers are available but unwilling to accept exploitative conditions.

#### New Labour Codes

- The four Labour Codes, consolidating 29 central labour laws, came into effect on April 1, 2026.
- They are projected as reforms to improve ease of doing business.
- However, critics argue that they prioritise employer flexibility over worker protection.
- Concerns exist that deregulation may weaken safeguards in already precarious labour markets.

#### Erosion of Workers' Rights

##### Minimum Wages.

- Statutory minimum wages are frequently violated in practice.
- Wage stagnation in several states has reduced real incomes.
- The Anoop Satpathy Committee recommended a national floor wage and housing allowance, which remain unimplemented.
- The Mahatma Gandhi National Rural Employment Guarantee Act has seen weakening due to irregular revisions and policy changes.

##### Working Hours.

- The eight hour workday is often not enforced, with workers compelled to work longer without overtime pay.
- Enforcement mechanisms remain weak, and compliance is inconsistent.

##### Right to Organise.

- Collective bargaining mechanisms are weakening.
- Trade unions face institutional and administrative barriers.

- Suppression of union activity reduces avenues for peaceful grievance redressal.

### Gig Economy as an Emerging Flashpoint

- Platform based work has increased labour informality and precarity.
- Workers operate through individual contracts without formal employer recognition.
- Declining pay, absence of social security, and lack of grievance mechanisms exacerbate vulnerability.
- Regulatory gaps risk making the gig economy a future source of labour unrest.

### Post Pandemic Labour Vulnerability

- The pandemic exposed structural weaknesses in migrant labour systems.
- Workers returned to cities under conditions of continued insecurity.
- Rising cost of living, stagnant wages, and absence of safety nets have worsened distress.

### Challenges

- Weak enforcement of minimum wage and labour standards.

- Policy bias towards investor confidence over worker welfare.
- Rising inequality leading to a deficit of dignity and social justice.
- Informalisation of labour and weakening institutional protections.

### Way Forward

- Implement a nationally enforceable floor wage indexed to inflation as recommended by expert committees.
- Strengthen and rationalise MGNREGA to ensure wage security and rural bargaining power.
- Revisit Labour Codes through tripartite consultations involving government, employers, and workers.
- Protect and promote collective bargaining as a stabilising mechanism in industrial relations.
- Regulate gig and platform work by extending social security and minimum wage protections.
- Ensure strict enforcement of existing labour laws, including overtime pay and workplace safety.
- Shift policy approach from a narrow law and order perspective to a broader social justice framework.

## 3.2 WOMEN'S WORKFORCE PARTICIPATION

### Why in News

- The delay in implementation of the Women's Reservation framework due to its linkage with delimitation has renewed debate on women's participation in public and economic life.
- The issue extends beyond legislatures to workforce participation, academia, and corporate leadership.

### Why Women's Economic Participation Matters

- The World Bank has highlighted that India must sustain nearly eight percent annual

growth to become a developed economy by 2047.

- Such growth is difficult to achieve with low female workforce participation.
- Empirical evidence shows constituencies with women representatives perform better economically.
- Women's participation enhances productivity, improves governance outcomes, and contributes to inclusive growth.

## Female Labour Force Participation Rate

- Labour Force Participation Rate refers to the proportion of the working age population that is employed or actively seeking work.
- It reflects the extent to which a country utilises its human capital.
- A low female LFPR indicates underutilisation of half the population's economic potential.

## India's Current Status

- Female LFPR has increased from 33.9 percent in 2022 to about 40 percent in 2025.
- Despite improvement, it remains below the global average of around 49 percent.
- Peer economies perform significantly better, indicating structural constraints in India.

## Reasons for Low Female LFPR

- The issue is largely demand side rather than purely supply driven.
- Supply side factors include social norms, childcare responsibilities, and mobility constraints.
- Demand side constraints include lack of sufficient quality jobs, especially in labour intensive sectors.
- In a labour surplus economy, increasing labour supply without job creation may depress wages.
- Additional factors include patriarchal norms, limited access to high productivity sectors, and exclusion from decision making roles.

## Women in Senior Academic Positions

- Women's representation at professor level has increased modestly but remains below parity.
- In premier institutions such as IITs, female faculty share is around 14 percent nationally.
- Some institutions show marginal improvement, while others reflect stagnation or decline.
- In leading management institutions, female faculty representation varies between roughly 19 percent and 31 percent.

- This indicates persistent gender imbalance in knowledge leadership and research ecosystems.

## Women in Business and Corporate Leadership

### Entrepreneurship.

- Female owned enterprises account for about 27 percent of unincorporated sector establishments.
- This reflects limited access to capital, networks, and market opportunities.

### Senior Management.

- For every 100 men in leadership roles such as legislators, senior officials, and managers, there are only about 13 women.
- This highlights a sharp gender gap in decision making positions.

### Corporate Boards.

- Most major firms comply with the requirement of having at least one woman director.
- However, 77 percent of firms have only one or two women directors, indicating tokenism.
- Only a small proportion of board chairpersons are women.
- Research suggests that at least 30 percent representation is required for meaningful influence, known as the concept of critical mass.

## Challenges

- Persistent gender norms and institutional biases limiting women's mobility and career progression.
- Inadequate job creation in sectors that can absorb female labour.
- Informalisation of work leading to insecure and low paid employment.
- Lack of supportive infrastructure such as childcare and safe transport.
- Token representation in leadership roles without substantive participation.

## Way Forward

- Promote labour intensive manufacturing and services to create employment opportunities for women.
- Improve access to education, skill development, and digital inclusion.
- Strengthen childcare support systems and workplace safety mechanisms.

- Encourage gender diversity in leadership through policy incentives and corporate governance reforms.
- Move beyond token representation to ensure critical mass in decision making bodies.
- Align legal and institutional frameworks to enable both participation and advancement of women.

## 3.3 INDIA'S ECONOMIC RANKING DECLINE

### Why in News:

- India has slipped to the sixth position among the world's largest economies as per the International Monetary Fund World Economic Outlook 2026.

### How Global Economic Rankings Are Measured:

- Global rankings are based on nominal Gross Domestic Product expressed in United States dollar terms.
- The IMF calculates nominal GDP using two variables, domestic GDP in local currency and the prevailing exchange rate against the dollar.
- This implies that even if an economy grows domestically, currency depreciation can reduce its global ranking.
- Rankings are therefore sensitive not only to real economic growth but also to exchange rate movements.

### India's Position in 2026:

- India's nominal GDP is estimated at approximately 4.15 trillion dollars.
- The United Kingdom and Japan have marginally higher GDP levels, placing India at the sixth position globally.
- This marks a reversal from 2022, when India had emerged as the fifth largest economy after overtaking the United Kingdom.

### Reasons for the Decline:

- Statistical revision of GDP estimates following a change in base year led to a downward adjustment in the size of the economy.
- India's GDP for 2025-26 was revised downward, indicating earlier overestimation.
- Depreciation of the Indian rupee reduced the dollar value of GDP.
- Other currencies such as the British pound and Japanese yen performed relatively better, widening the gap.
- The IMF's dollar based methodology amplifies the impact of exchange rate fluctuations on rankings.

### Global Economic Context:

- The global economy is dominated by the United States and China, which are significantly ahead of other economies.
- The rest of the major economies, including India, Japan, Germany, and the United Kingdom, are closely clustered around the four trillion dollar range.
- This close grouping makes rankings highly volatile and sensitive to small changes in data and exchange rates.

### Future Outlook for India:

- India's long term growth prospects remain robust due to structural reforms and demographic advantages.
- Projections indicate that India may regain the fourth position by 2027.

- It is expected to become the third largest economy by around 2031.
- The current decline is therefore temporary and driven by short term statistical and currency factors.

### 3.4 LAND INEQUALITY IN INDIA

#### Why in News:

- A recent study by the World Inequality Lab highlights significant concentration of land ownership in rural India.

#### Land Distribution in India:

- Land ownership in India has historically been unequal due to colonial land systems, caste hierarchies, and agrarian structures.
- Despite post independence land reforms, disparities persist across regions and social groups.
- Land remains a critical asset in rural India, determining income, social status, and access to institutional credit.

#### Categories of Landholding.

- Large landholders owning substantial agricultural land.
- Small and marginal farmers with limited holdings.
- Landless households dependent on wage labour.

#### Nature of Land Inequality:

- Inequality is measured using indicators such as land share concentration and the Gini coefficient.
- A higher Gini value indicates greater inequality.
- Key characteristics include concentration of land among a small elite, widespread landlessness, and strong regional variations.

#### Findings of the Study:

- The top 10 percent of rural households own about 44 percent of total land.

- Around 46 percent of rural households are landless.
- The top 5 percent own about 32 percent of land, while the top 1 percent control around 18 percent.
- The study is based on data from the Socio Economic Caste Census 2011, covering millions of individuals across villages.

#### State Level Variations.

- Bihar shows the highest land concentration, with extreme ownership disparities.
- Uttar Pradesh exhibits relatively lower concentration levels.
- Punjab records very high landlessness despite agricultural prosperity.
- Kerala has one of the highest Gini coefficients, indicating severe inequality.
- Karnataka and Rajasthan show comparatively lower inequality levels.

#### Village Level Patterns.

- The largest landholder in a village controls a significant share of total land.
- In some villages, a single landlord owns more than half of the land.

#### Drivers of Inequality.

- Agro ecological factors and market access influence land concentration.
- Regions with better agricultural potential tend to have higher concentration.
- Social factors such as caste composition contribute to landlessness and inequality.
- Proximity to infrastructure like towns and highways is associated with higher inequality.
- Historical factors such as the zamindari system continue to shape present patterns.

### Implications of Land Inequality:

- Reinforces rural poverty and limits economic mobility.
- Leads to unequal access to agricultural inputs and reduces productivity.
- Deepens social inequalities, particularly along caste lines.
- Restricts access to institutional credit and government welfare schemes.
- Contributes to social tensions and uneven development.

### Way Forward:

- Strengthen land reforms and ensure secure tenancy rights.
- Promote digitisation and transparency of land records.
- Encourage cooperative farming and land pooling mechanisms.
- Improve access to credit, technology, and markets for small and marginal farmers.
- Focus on targeted interventions for socially disadvantaged groups.

## 3.5 IBC AMENDMENTS 2026

### Why in News

- Parliament has passed amendments to the Insolvency and Bankruptcy Code 2016 to address delays and improve resolution efficiency.

### Insolvency and Bankruptcy Code

- Enacted in 2016 to provide a time bound framework for resolving insolvency of companies, partnerships, and individuals.
- Focuses on revival through resolution plans or orderly liquidation if revival is not feasible.
- The process is overseen by the National Company Law Tribunal, with regulation by the Insolvency and Bankruptcy Board of India.
- Marked a shift to a creditor driven system with strict timelines.

### Issues in Implementation

- Delays in admission of cases have weakened the time bound process.
- Growing backlog in tribunals has extended resolution timelines.
- Recovery rates have been moderate in several cases.
- Litigation and procedural bottlenecks have reduced effectiveness.

### Key Amendments in 2026

#### Faster Admission of Cases.

- Mandatory admission of applications once default is established.
- Reduces discretionary delays at the initial stage.

#### Creditor Initiated Insolvency Resolution Process.

- Allows financial creditors to initiate resolution outside traditional court processes.
- Requires approval of at least 51 percent of creditors.

*Out of Court Mechanisms:* Introduces flexible resolution pathways to reduce tribunal burden.

#### Group and Cross Border Insolvency.

- Provides framework for handling interconnected companies and international cases.
- Aligns India with global best practices.

#### Strengthening Oversight.

- Incorporates Select Committee recommendations.
- Imposes stricter timelines for appellate decisions.

*Conflict of Interest Provisions:* Prevents resolution professionals from acting as liquidators in the same case.

*Shift to Civil Penalties:* Replaces certain criminal penalties with civil penalties for procedural

### Key Implications

- Faster admission and resolution will reduce delays and improve efficiency.
- Out of court mechanisms will ease pressure on tribunals.
- Enhanced frameworks will improve handling of complex corporate structures.
- Greater predictability will boost investor confidence and credit discipline.

### Performance of IBC So Far

- Over 1,300 companies have been resolved under the framework.
- Credit recovery has exceeded ₹4 lakh crore.

violations.

- Recovery rates for financial creditors are around one third of claims.
- Indicates significant progress but scope for improvement remains.

### Way Forward

- Strengthen institutional capacity of tribunals and regulatory bodies.
- Ensure strict adherence to timelines to maintain credibility.
- Reduce excessive litigation through clearer legal provisions.
- Develop robust cross border insolvency rules for global integration.
- Focus on resolution over liquidation to preserve economic value.

## 3.6 MANDI SYSTEM IN INDIA

### Why in News

- Farmers in Haryana have protested against mandatory biometric verification for selling crops in mandis.
- The state government has defended the measure as a step to improve transparency and prevent fraud in procurement.

### Mandi System in India

- The mandi system refers to regulated agricultural markets where farmers sell produce through auctions.
- These markets are governed by state level laws under the Agricultural Produce Market Committee Act.
- Trade is restricted to designated market yards, with intermediaries such as arhatiyas facilitating transactions.

### Key Issues in the Mandi System

- Monopoly of middlemen leads to farmer dependence and reduced bargaining power.

- Fragmented markets require multiple licences and involve various levies, increasing transaction costs.
- Farmers often receive a small share of the final consumer price.
- Infrastructure deficits such as lack of storage, grading, and cold chain facilities lead to losses.
- Information asymmetry limits farmers' access to price discovery.

### Government Reforms

- Electronic National Agriculture Market integrates mandis into a unified online trading platform.
- The Model APMC Act 2003 encouraged market liberalisation and private participation.
- Strengthening of Gramin Haats and Primary Agricultural Cooperative Societies aims to promote direct marketing and collective bargaining.

## Haryana's Biometric Procurement System

- Introduced in 2026, it mandates Aadhaar based fingerprint verification before crop sale.
- Linked with the “Meri Fasal Mera Byora” portal for accurate farmer registration.
- Includes vehicle tracking, geofencing of mandis, and monitoring of storage points.
- Aims to digitise procurement and prevent discrepancies in transactions.

### Reason for Introduction

- The system was introduced after the Karnal paddy procurement scam of 2025.
- Fake gate passes enabled sale of produce from other states, leading to fraudulent claims and financial losses.
- The reform seeks to ensure traceability and accountability in procurement operations.

### Farmers' Concerns

- Farmers argue that irregularities were due to collusion among officials and traders, not farmers.

- Mandatory biometric verification causes delays, long queues, and operational difficulties.
- Challenges arise when the registered farmer is not physically present.
- Many perceive the system as excessive and intrusive, affecting dignity and ease of doing farming.

### Government–Opposition Divide

- The state government maintains that biometric verification enhances transparency and reduces fraud.
- It has introduced certain relaxations such as allowing authorised representatives.
- Opposition leaders criticise the system as bureaucratic and burdensome.
- Concerns have been raised that the reform targets farmers rather than addressing systemic corruption.

## 3.7 SHORT ARTICLES

### Jute Cultivation in India

#### Context

- The government has reduced stock limits for raw jute traders and balers to zero, aiming to regulate supply and stabilize prices in the jute sector.

#### Details

- Jute is the second most important fibre crop after cotton and is grown in humid tropical climates; it requires temperatures of 17°C–41°C, well-distributed rainfall above 1200 mm, 40–90% humidity, and fertile alluvial soil, with sowing in February and harvesting around October.
- Over 99% of production is concentrated in West Bengal (around 81%), followed by Bihar, Assam, Odisha, and Andhra Pradesh, especially in delta regions.

- Jute is a versatile natural fibre used for ropes, gunny bags, carpets, rugs and tarpaulins, and is valued for being biodegradable and eco-friendly.

### Bharat Maritime Insurance Pool (BMI Pool)

#### Context

- The Union Government has launched the Bharat Maritime Insurance Pool to protect India's seaborne trade from global disruptions and insurance uncertainties.

#### Details

- It is a Centre-backed domestic maritime insurance mechanism providing coverage to Indian-flagged and Indian-controlled vessels, as well as ships carrying cargo to or from India; it includes risks such as hull and machinery,

cargo, protection and indemnity, and war risk insurance.

- It aims to ensure uninterrupted and affordable maritime insurance coverage, especially during geopolitical instability or disruptions in global insurance markets.
- It promotes self-reliance in marine insurance, develops domestic underwriting capacity, and secures continuity of trade by reducing dependence on foreign insurers.

## Skills Outcomes Fund

### Context

- New initiative for employment-linked skilling.

### Details

- It is an outcomes-based financing initiative led by National Skill Development Corporation.
- Objective: To link skill development investments with verified employment outcomes.
- Focus: Targets high-growth sectors like IT, healthcare, manufacturing and green jobs.

## National Mineral Exploration and Development Trust (NMEDT)

### Context

- The Standing Committee on Coal, Mines and Steel highlighted offshore mineral exploration under NMEDT as a major opportunity to tap seabed resources.

### Details

- The Trust was set up under the Mines and Minerals (Development and Regulation) Amendment Act, 2015 for mineral exploration; it has a two-tier structure with a Governing Body chaired by the Minister of Mines and an Executive Committee chaired by the Secretary, Ministry of Mines.
- It operates through the NMED Fund, which is financed by contributions from mining lease holders equivalent to 2 percent of the royalty paid under the MMDR Act.
- It supports regional and detailed exploration of minerals, funds studies for sustainable

mining and advanced technologies, focuses on strategic and critical minerals, and promotes research through a national mineral data repository.

## NBFC-UL Identification

### Context

- The Reserve Bank of India has proposed draft changes to simplify identification of NBFCs in the Upper Layer and ensure regulatory parity.

### Details

- NBFCs provide banking-like services without a banking licence and are classified under the Scale Based Regulation into Base, Middle, Upper, and Top layers.
- NBFC-UL entities are systemically important and face stricter norms on capital, governance, and listing.
- Currently, identification follows a two-pronged approach: top ten by asset size and others via a scoring methodology based on risk parameters.
- This framework has been criticised for complexity and lack of transparency.
- RBI proposes a single asset-based threshold of ₹1,00,000 crore for NBFC-UL classification, replacing the dual system. Government-owned NBFCs will also be included based on size, reflecting ownership-neutral regulation. NBFCs may use state government guarantees as a credit risk transfer tool, enhancing financial flexibility.

## Petroleum and Natural Gas Regulatory Board (PNGRB)

### Context

- PNGRB has initiated bidding for LPG pipeline infrastructure to reduce bulk transport and improve energy logistics.

### Details

- Petroleum and Natural Gas Regulatory Board is a statutory body set up under the PNGRB Act, 2006 to regulate downstream petroleum

and natural gas sectors and protect consumer interests.

- It authorises city gas distribution networks and pipelines, determines tariffs, lays down technical and safety standards, and regulates refining, storage, transportation, distribution and marketing (excluding production).
- Headquartered in Delhi under the Ministry of Petroleum and Natural Gas, it has a Chairperson, Member (Legal) and members; it has quasi-judicial powers similar to a civil court for dispute resolution and inquiries.

## National Backward Classes Finance and Development Corporation (NBCFDC)

### Context:

- NBCFDC recorded a high disbursement, enhancing socio-economic empowerment of backward classes.

### Details

- It is a Government of India undertaking under the Ministry of Social Justice and Empowerment, set up in 1992 as a non-profit entity.
- It aims to promote economic development and provide concessional finance for self-employment and skill development among backward classes.
- Financial assistance is routed through State Channelizing Agencies and banks under schemes like microfinance, skill development and vocational training.

## MyLIC and Super Sales Saathi Apps

### Context:

- LIC has launched two digital applications to enhance customer and agent services.

### Details

- MyLIC app: Designed for policyholders, it provides services like policy management, premium payments, e-KYC and digital purchase of insurance products.

- Super Sales Saathi app: Tailored for LIC agents, it offers tools for digital sales, customer tracking, performance monitoring and AI-driven insights.
- Both apps are built on LIC's DIVE platform, ensuring integrated, secure and efficient service delivery.

## Bonus Issue

### Context

- LIC has announced its first-ever bonus issue to reward shareholders.

### Details

- A bonus issue involves a company issuing additional shares free of cost to existing shareholders in a fixed ratio.
- It increases the number of shares and share capital but does not change market capitalisation, as share price adjusts proportionally.
- Bonus shares are issued from retained earnings or reserves, enhancing liquidity and investor confidence without diluting ownership.

## Makhana

### Context

- Exports impacted by global disruptions.

### Details

- Makhana (*Euryale ferox*) is an aquatic crop producing edible seeds (fox nuts).
- Grown in stagnant water bodies in tropical climates; Bihar is the leading producer.
- Nutritionally rich, used in food and medicine, and supported under ODOP scheme.

## Khanij Bidesh India Limited (KABIL)

### Context

- KABIL has received environmental clearance from Argentina for lithium exploration, strengthening India's access to critical minerals.

### Details

- Khanij Bidesh India Limited is a joint venture of NALCO, Hindustan Copper Ltd and MECL (40:30:30), set up under the Companies Act, 2013 and functioning under the Ministry of Mines.
- It aims to identify, explore and acquire overseas mineral assets, particularly critical minerals like lithium and cobalt, to ensure resource security for India.
- It supports India's strategic push for energy transition and electric mobility by securing supply chains of key minerals from countries like Argentina, Australia and Chile.

## Annual Survey of Incorporated Services Sector Enterprises

### Context

- The first-ever survey launched by National Statistical Office to map services sector.

### Details

- Covers companies and LLPs using GSTN database with large scale sampling for comprehensive data.
- Conducted under Collection of Statistics Act 2008 to support evidence based policymaking and economic planning.

## Purchasing Managers Index

### Context

- India's manufacturing Purchasing Managers Index declined to a 45 month low indicating slowdown in industrial activity.

### Details

- The Purchasing Managers Index is a survey based economic indicator measuring business activity in manufacturing and services sectors.
- A value above 50 indicates expansion while a value below 50 indicates contraction based on parameters such as new orders output and employment.

## Food and Agriculture Organization Food Price Index

### Context

- The index increased in March 2026 due to rising energy costs linked to geopolitical tensions.

### Details

- It measures monthly changes in global food prices based on a basket of commodities including cereals dairy meat sugar and vegetable oils.
- It is published by the Food and Agriculture Organization with base period 2014 to 2016.

## Government e-Marketplace GeM

### Context:

- Achieved cumulative Gross Merchandise Value of about 18.4 lakh crore with over 5 lakh crore in FY 2025 to 26.

### Details

- National digital procurement portal launched in 2016 under Ministry of Commerce and Industry for government purchases.
- Ensures transparency and efficiency through cashless system with AI tools enabling e bidding reverse auctions and price discovery.

## Indian Accounting Standards Ind AS

### Context

- The Insurance Regulatory and Development Authority of India has introduced these standards for the insurance sector.

### Details

- Indian Accounting Standards are notified by the Ministry of Corporate Affairs and are aligned with International Financial Reporting Standards.
- They promote transparency fair value accounting and improved financial disclosures replacing the earlier Indian Generally Accepted Accounting Principles.

## Non Deliverable Derivative

### Context

- The Reserve Bank of India has restricted banks from participating in such contracts in the rupee market.

### Details

- A Non Deliverable Derivative is a financial contract where settlement is done in cash based on exchange rate differences instead of actual currency delivery.
- It is mainly used by offshore investors due to capital controls but can distort price discovery and encourage speculative activities.

## Payments Banks

### Context

- RBI has cancelled the banking licence of Paytm Payments Bank Limited (PPBL) with

immediate effect, more than two years after initially restricting it from accepting new deposits.

### Details

- Payments banks are a special category of banks introduced by the Reserve Bank of India to promote financial inclusion by providing basic banking services.
- They can accept deposits up to two lakh rupees per customer but are not allowed to lend loans or issue credit cards.
- They focus on digital payments remittances and small savings especially for underserved sections of society.
- The action was taken under the Banking Regulation Act 1949 which empowers the Reserve Bank of India to cancel licences in case of persistent violations.

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## 4. DEFENSE & SECURITY

### 4.1 SHORT ARTICLES

#### Exercise Pragati

##### Context

- **Exercise Pragati** (Partnership of Regional Armies for Growth and Transformation in the Indian Ocean Region), a multilateral military exercise hosted by the **Indian Army**.

##### Details

- The first edition is held in **Umroi, Meghalaya**. It involves **11 friendly countries**, including Malaysia, Vietnam, Philippines, Maldives, and others from the Indian Ocean and ASEAN regions. The exercise centers on **counter-insurgency** and **counter-terrorism** operations. Beyond tactical drills, it includes a **two-day industry exposition** to showcase Indian defence capabilities and build partnerships with ASEAN nations.

#### Atlas drone swarm system

##### Context

- The Chinese People's Liberation Army (PLA) has introduced the Atlas drone swarm system.

##### Details

- The Atlas Drone Swarm System is a **mobile platform developed** by China Electronic Technology Group Corporation (CETC) for the Chinese People's Liberation Army (PLA). It is **designed to deploy and control up to 96 drones from a single command point**. The system supports flexible formations and swarm-level coordination, allowing drones to operate both collectively and autonomously.

#### Project DANTAK

##### Context

- Project DANTAK of the Border Roads Organisation (BRO) celebrated its 66th Raising Day on April 24, 2026, in Thimphu, Bhutan,

marking 65 years of developing critical infrastructure and fostering friendship.

##### Details

- Project DANTAK is an **initiative of the Border Roads Organisation (BRO) under the Ministry of Defence**, established in 1961 through an agreement between Bhutan's King Jigme Dorji Wangchuck and Indian Prime Minister Jawahar Lal Nehru. The project aims to **enhance infrastructure and connectivity in remote Bhutan**. The BRO, formed in 1960, focuses on securing India's borders and developing infrastructure in remote regions, with its **motto being "Shramena Sarvam Sadhyam"**.

#### Exercise Dustlik

##### Context

- India participated in the joint military "Exercise Dustlik".

##### Details

- Exercise Dustlik is an **annual bilateral training event between Indian and Uzbek forces**, with the 2026 edition held in Uzbekistan. It focuses on establishing unified command-and-control for joint missions through joint planning, counter-terrorism strategies.

#### IN-SLN DIVEX 2026

##### Context

- Indian Navy participated in the fourth edition of IN-SLN DIVEX 2026.

##### Details

- IN-SLN DIVEX 2026 is a **bilateral naval exercise between India and Sri Lanka** focused on diving and underwater operations, hosted in Colombo.

## Exercise Cyclone

### Context

- The Indian Army participated in Exercise Cyclone.

### Details

- Exercise Cyclone is a **bilateral military drill between the Special Forces units of India and Egypt**, focusing on special operations in challenging environments. The 2026 edition, Cyclone - IV, hosted in Anshas, Egypt.

## Central Armed Police Forces (General Administration) Act 2026

### Context

- The Central Armed Police Forces (General Administration) Act, 2026 received assent from the President.

### Details

- The Act has been enacted to **regulate the administrative and service matters of specified Central Armed Police Forces (CAPFs)**. It ensures clarity, maintains the operational distinctiveness of CAPFs, and **establishes uniformity in recruitment and service conditions**. It fixes **mandatory deputation quotas for IPS officers**, allowing

the Central Government to create rules for recruitment.

## Project Chetak

### Context

- BRO's Project Chetak celebrated its 47th Raising Day at Bikaner, Rajasthan.

### Details

- Project Chetak is an infrastructure initiative by the **Border Roads Organisation (BRO)**, established in 1980 to **enhance road and defence-related infrastructure in the western border regions**.

## Operation Him Setu

### Context

- Indian Army launched Operation Him Setu to rescue over 1,300 tourists stranded in North Sikkim.

### Details

- Operation Him Setu is a **Humanitarian Assistance and Disaster Relief mission initiated by the Indian Army in North Sikkim due to severe landslides caused by torrential rains**. The Trishakti Corps organized the rescue operation, establishing transit camps for medical aid and communication.

## 5. ENVIRONMENT & ECOLOGY

### 5.1 CAFE NORMS AND DRAFT CAFE 3

#### Why in News

- The Government of India has released draft CAFE 3 norms proposing flexible compliance and carbon credit trading for automobile manufacturers.
- The move reflects a shift towards market based mechanisms in regulating vehicular emissions.

#### Corporate Average Fuel Efficiency Norms:

- CAFE norms are regulatory standards that require automobile manufacturers to meet fleet wide fuel efficiency and emission targets.
- They apply to the average performance of all vehicles sold by a manufacturer rather than individual models.

#### Objectives:

- To reduce vehicular fuel consumption.
- To lower greenhouse gas emissions, particularly carbon dioxide.
- To reduce dependence on crude oil imports.
- To promote energy efficient and cleaner mobility technologies.

#### Key Features:

- Compliance is based on average carbon dioxide emissions measured in grams per kilometre.
- Standards are implemented in phases such as CAFE 1, CAFE 2, and now CAFE 3.
- Monitoring is carried out using standard testing cycles like the Modified Indian Driving Cycle.

#### Implementation in India:

- CAFE norms were introduced in 2017.
- CAFE 2 norms were implemented from 2022 with stricter emission targets.

- CAFE 3 is proposed to be implemented from April 2027.
- These norms are aligned with India's climate commitments, including achieving net zero emissions by 2070.

#### Need for Strengthening CAFE Norms:

- The transport sector is a major contributor to emissions and oil consumption.
- Rising vehicle ownership is increasing fuel demand.
- Dependence on crude oil imports exposes India to global energy shocks.
- Climate commitments require sustained and measurable emission reductions.

#### Features of Draft CAFE 3:

##### Flexible Compliance Mechanism.

- Greater flexibility in meeting targets rather than strict penalty driven enforcement.
- Focus on encouraging compliance through incentives.

##### Carbon Credit Trading System.

- Manufacturers exceeding targets can generate tradable credits.
- Companies failing to meet targets can purchase these credits.
- This creates a market based mechanism similar to cap and trade systems.

##### Offset Mechanism.

- Manufacturers can offset compliance gaps by purchasing credits through the Bureau of Energy Efficiency.
- This ensures compliance even for firms facing technological or cost constraints.

### Progressive Emission Reduction Targets.

- Emission limits are proposed to decline from 113 grams of carbon dioxide per kilometre in FY27 to about 78.9 grams by FY32.
- Indicates a gradual but firm tightening of standards.

### Promotion of Clean Technologies.

- Incentivises electric vehicles, hybrid vehicles, and flex fuel technologies.
- Encourages diversification away from conventional fossil fuels.

### Support for Alternative Fuels.

- Promotes biofuels and ethanol blending.
- Encourages development of flex fuel vehicles capable of running on multiple fuels.

### Reduced Penalty Orientation.

- Shift from punitive regulation to incentive driven compliance.

- Emphasis on industry cooperation and smoother transition.

### Implementation Timeline.

- Applicable from FY 2027–28 to FY 2031–32.
- Provides time for industry adaptation and technological upgrades.

### Significance of Draft CAFE 3 Norms:

- Encourages innovation in clean and energy efficient mobility.
- Supports India's climate commitments and long term decarbonisation goals.
- Reduces compliance burden through flexibility and market mechanisms.
- Aligns industrial growth with environmental sustainability.
- Strengthens energy security by reducing dependence on fossil fuel imports.

## 5.2 SOLARISATION AS FISCAL REFORM

### Why in News

- States in India spend nearly ₹2.4 lakh crore annually on electricity subsidies, mainly for agriculture and domestic consumers.
- The Union government is repositioning solar schemes as fiscal reform tools to reduce this recurring burden.
- With installed power capacity reaching about 535 GW and a rising share of non fossil sources, solarisation is emerging as a key instrument of both energy transition and fiscal restructuring.

### Reframing Solar Policy:

- Solar initiatives are no longer viewed only as climate interventions but as tools for subsidy rationalisation.
- Schemes aim to replace subsidised grid electricity with low cost solar power.

- This reduces the fiscal burden on States and improves financial health of distribution companies.
- Over time, solarisation can reduce cross subsidies borne by industrial and commercial consumers.

### Schemes Driving the Transition:

#### PM KUSUM Scheme.

- Pradhan Mantri Kisan Urja Suraksha evamUtthaanMahabhiyan focuses on solarisation of agricultural feeders and deployment of solar pumps.
- Reduces dependence on grid electricity and diesel based irrigation.
- Promotes decentralised solar generation near substations.

### State Level Innovation. Maharashtra Model.

- Mukhyamantri Saur Krishi Vahini Yojana promotes decentralised solar plants near agricultural feeders.
- Enables reduction in cross subsidy burden and lowers tariffs.
- Facilitates transition from diesel pumps to solar pumps.
- Demonstrates scalability of feeder level solarisation.

### PM Surya Ghar Scheme.

- PM Surya Ghar Muft Bijli Yojana promotes rooftop solar adoption in households.
- Traditional model is demand driven but faces low uptake among subsidised consumers.

### Utility Led Aggregation Model.

- Distribution utilities install rooftop solar systems either directly or through service companies.
- Eliminates upfront cost for households.
- Reduces subsidy burden on States by lowering grid electricity demand.
- Being implemented in multiple States with a target of large scale adoption.

## **Institutional and Policy Challenges:**

### Fragmented Governance.

- Renewable energy governance is divided across ministries and institutions.
- The Ministry of New and Renewable Energy lacks full statutory authority under the Electricity Act 2003 and the Energy Conservation Act 2001.

- Coordination challenges persist between central and state agencies.

### Domestic Manufacturing versus Cost Efficiency.

- The Approved List of Models and Manufacturers promotes domestic solar manufacturing.
- However, domestic equipment is costlier and supply constrained.
- States may prefer cheaper imports, creating a trade off between self reliance and affordability.

### Behavioural and Structural Constraints.

- Poor households lack incentives to shift from free or subsidised electricity to solar.
- Vendors face supply and financing constraints.
- States differ in fiscal capacity and political willingness to reform subsidies.

### **Way Forward:**

- Provide statutory clarity and strengthen the role of the Ministry of New and Renewable Energy in renewable governance.
- Improve coordination between central ministries, state governments, and distribution companies.
- Scale innovative models such as utility led aggregation and decentralised feeder solarisation.
- Balance domestic manufacturing goals with cost efficiency through targeted incentives and technology upgrades.
- Link central financial assistance to measurable reduction in subsidy burdens by States.

## **5.3 SHORT ARTICLES**

### **Annatto**

#### Context

- Farmers are seeking support for annatto, a major natural colourant crop.

#### Details

- Annatto is a natural dye obtained from seeds of the achiote tree (*Bixa orellana*), rich in carotenoid pigments.
- It is widely used as a food colour and flavouring agent, with applications in cosmetics and textiles.

- It is a low-input crop and has antimicrobial properties, making it economically and nutritionally valuable.

## Appemidi Mango

### Context

- The variety is under threat from climate change prompting calls for in situ conservation in the Aghanashini valley of Karnataka.

### Details

- It is a geographically indicated variety grown in Uttara Kannada and Shivamogga districts known for its aroma and long shelf life.
- It is widely used in the pickle industry and recognized under the Geographical Indications of Goods Registration and Protection Act 1999.

## Tar Balls

### Context

- Draft rules by Ministry of Environment aim to manage tar balls along Indian coasts.

### Details

- Formed from weathered crude oil and transported to shores affecting marine ecosystems.
- Contain toxic pollutants and pose risks to marine fauna especially along western coast during April to September.

## Per and Polyfluoroalkyl Substances

### Context

- Added to EU water pollution monitoring list due to rising environmental concerns.

### Details

- Synthetic forever chemicals with strong carbon fluorine bonds causing persistence and bioaccumulation.
- Used in industrial and consumer products and linked to health risks such as cancer hormonal disruption and developmental issues.

## E20 Fuel

### Context

- The government has mandated supply of E20 fuel with higher octane rating across petrol pumps.

### Details

- E20 fuel is a blend of 20 percent ethanol and 80 percent petrol aimed at reducing fossil fuel dependence.
- It offers cleaner combustion and supports renewable energy goals by using ethanol derived from crops.

## Commission for Air Quality Management

### Context

- The 128th meeting of the Enforcement Task Force was held to review compliance and strengthen pollution control measures in the National Capital Region.

### Details

- It is a statutory body established under the Commission for Air Quality Management in National Capital Region and Adjoining Areas Act 2021 to address air pollution.
- It coordinates with Delhi Punjab Haryana Rajasthan and Uttar Pradesh and has binding powers to regulate activities issue directions and enforce air quality standards.

## Bio Bitumen

### Context

- A new technology for producing bio bitumen from agricultural biomass has been promoted for industrial use.

### Details

- Bio bitumen is a renewable alternative to petroleum based bitumen made from plant based materials and agricultural waste.
- It reduces carbon emissions import dependence and is used in applications such as road construction roofing and waterproofing.

## Leaf Spot Diseases

### Context

- Field demonstrations are being conducted to manage leaf spot disease in arecanut plantations.

### Details

- Leaf spot diseases are caused mainly by fungi and bacteria and result in lesions on leaves affecting photosynthesis.
- They are widespread globally especially in humid conditions and can severely impact agricultural productivity.

## 5.4 SNIPPETS

### PROTECTED AREAS IN NEWS

Topics	Details
Col. Sher Jung National Park	<ul style="list-style-type: none"> <li>The Himachal Pradesh High Court quashed a notification declaring Eco-Sensitive Zones around the park.</li> <li>Col. Sher Jung National Park (Simbalbara National Park) is located in the Paonta Valley of Sirmaur district along the Haryana border; situated in the Shiwalik ranges at the confluence of the Himalayas, Gangetic plains and semi-arid regions, and connected to Kalesar National Park.</li> <li>The park is characterized by dense Sal forests with grassy glades; dominant species include Sal and Terminalia tomentosa, with riverine vegetation like Jamun and Cassia along the Simbalbara River.</li> <li>It supports diverse wildlife such as nilgai, sambar, spotted deer, wild boar, goral and rhesus macaque.</li> </ul>
Anaimalai Tiger Reserve	<ul style="list-style-type: none"> <li>A recent human-wildlife conflict incident was reported from the Manampally forest range of Anaimalai Tiger Reserve in Tamil Nadu.</li> <li>Located in the Anaimalai Hills of Pollachi and Coimbatore districts of Tamil Nadu, south of the Palakkad Gap in the Southern Western Ghats; declared a tiger reserve in 2007 and bordered by Parambikulam Tiger Reserve, Chinnar Wildlife Sanctuary and Eravikulam National Park.</li> <li>It has diverse habitats including wet evergreen, semi-evergreen, moist and dry deciduous, thorn forests and shola-grassland ecosystems, with rich flora including wild relatives of mango, jackfruit, ginger, turmeric, pepper and cardamom.</li> <li>The reserve hosts species like tiger, Asiatic elephant, leopard and deer species, and is inhabited by indigenous communities such as Kadar, Muduvar, Malasar, Malai Malasar, Eravalar and Pulaya</li> </ul>
Dalma Wildlife Sanctuary	<ul style="list-style-type: none"> <li>A herd of 38 elephants has recently returned to Dalma Wildlife Sanctuary after nearly three years.</li> <li>Dalma Wildlife Sanctuary is located in Jharkhand around the Dalma Hills of the Chotanagpur Plateau; the region is hilly and rocky, and falls within the catchment of the Subarnarekha River.</li> <li>The sanctuary features dry peninsular Sal and northern dry mixed deciduous</li> </ul>



	rich biodiversity.
<b>Indravati Tiger Reserve</b>	<ul style="list-style-type: none"> <li>• Reopening signals conservation revival.</li> <li>• Indravati Tiger Reserve is located in central India with connectivity to major tiger habitats.</li> <li>• Dominated by deciduous forests and bounded by Indravati River.</li> <li>• Hosts rare wild buffalo, tiger, leopard and other species.</li> </ul>
<b>Umred–Pauni–Karhandla Wildlife Sanctuary</b>	<ul style="list-style-type: none"> <li>• Rare melanistic spotted deer sighting highlights biodiversity.</li> <li>• Umred–Pauni–Karhandla Wildlife Sanctuary is located near Nagpur and connected to Tadoba-Andhari Tiger Reserve via forest corridors.</li> <li>• It has forests dominated by teak, bamboo, tendu and mahua.</li> <li>• Hosts tigers, gaur, wild dogs, pangolins, flying squirrels and honey badgers.</li> </ul>
<b>Mudumalai Tiger Reserve</b>	<ul style="list-style-type: none"> <li>• The Nilgiris Collector recently inspected Thengumarahada village located inside the core area of the reserve to ensure basic amenities for voters.</li> <li>• It is located in the Nilgiris district of Tamil Nadu at the tri junction of Karnataka Kerala and Tamil Nadu and forms part of the Nilgiris Biosphere Reserve.</li> <li>• It has diverse vegetation and rich fauna including elephants tigers and leopards and the Moyar River flows through the reserve.</li> </ul>
<b>UdantiSitanadi Tiger Reserve</b>	<ul style="list-style-type: none"> <li>• The presence of the Indian giant flying squirrel has been recorded in this reserve expanding its known distribution.</li> <li>• It is located in Chhattisgarh and was formed by merging the Udanti and Sitanadi Wildlife Sanctuaries with a drainage system linked to the Mahanadi River.</li> <li>• It has tropical dry and moist deciduous forests and is important for conserving endangered species such as the wild buffalo tiger leopard and sloth bear.</li> </ul>
<b>Gangotri National Park</b>	<ul style="list-style-type: none"> <li>• The park has recently reopened after a six month winter closure for visitors.</li> <li>• It is located in Uttarakhand along the upper catchment of the Bhagirathi River and shares an international boundary with Tibet China.</li> <li>• It includes the Gangotri Glacier and high Himalayan peaks such as Chaukhamba and Satopanth and supports species like snow leopard and musk deer.</li> </ul>
<b>Barnawapara Wildlife Sanctuary</b>	<ul style="list-style-type: none"> <li>• Blackbucks have been reintroduced into Rampur grassland within the sanctuary to restore native populations.</li> <li>• It is located in the Mahasamund district of Chhattisgarh and derives its name from the Bar and Nawapara forest villages situated within it.</li> <li>• It has tropical dry deciduous forests with rivers like Balamdehi and Jonk and supports fauna such as tigers leopards gaur deer and diverse bird species.</li> </ul>
<b>Mookambika Wildlife Sanctuary</b>	<ul style="list-style-type: none"> <li>• Sewage discharge from tourism activities in Kollur is threatening the ecological health of the sanctuary.</li> <li>• It is located in Udupi district of Karnataka and connects Someshwara and Sharavathi Wildlife Sanctuaries in the Western Ghats.</li> <li>• It has evergreen and moist deciduous forests with rich biodiversity including lion tailed macaque slender loris tiger and important rivers like Souparnika.</li> </ul>
<b>Shekha Jheel Bird Sanctuary</b>	<ul style="list-style-type: none"> <li>• It has been designated as a Ramsar site increasing India's total number of such wetlands.</li> <li>• It is a freshwater wetland in Uttar Pradesh formed due to the Upper Ganges Canal and is part of the Central Asian Flyway.</li> </ul>

	<ul style="list-style-type: none"> <li>It supports rich aquatic vegetation and provides habitat for migratory birds such as bar headed goose painted stork and several duck species.</li> </ul>
<b>Namdapha Tiger Reserve</b>	<ul style="list-style-type: none"> <li>The discovery of the new frog species highlights the biodiversity richness of this reserve.</li> <li>It is located in Arunachal Pradesh along the India Myanmar border and lies at the junction of Indo Malayan and Palearctic biogeographic regions.</li> <li>It is known for its diverse ecosystems and is the only park hosting four big cat species namely tiger leopard snow leopard and clouded leopard.</li> </ul>
<b>Srivilliputhur Meghamalai Tiger Reserve</b>	<ul style="list-style-type: none"> <li>A special polling station was set up inside the reserve highlighting election accessibility.</li> <li>It is located in Tamil Nadu in the Western Ghats and was formed by merging Grizzled Squirrel and Megamalai Wildlife Sanctuaries.</li> <li>It serves as an ecological corridor between Periyar and KalakkadMundanthurai Tiger Reserves and hosts diverse flora and fauna.</li> </ul>
<b>Bhoramdeo Wildlife Sanctuary</b>	<ul style="list-style-type: none"> <li>The Chhattisgarh government is planning to launch a jungle safari in the sanctuary to promote eco tourism.</li> <li>It is located in Kabirdham district in the Maikal range of the Satpura hills and forms part of the Kanha Achanakmar corridor.</li> <li>It has tropical deciduous forests and supports wildlife such as tigers leopards sloth bears along with tribal communities like Baiga and Gond.</li> </ul>

## FAUNA IN NEWS

Topics	Details
<b>Apis mellifera (Western Honey Bee)</b>	<ul style="list-style-type: none"> <li>CSIR-Indian Institute of Integrative Medicine (IIIM), Pulwama has demonstrated that Apis mellifera can survive sub-zero temperatures, reducing the need for seasonal migration of bee colonies.</li> <li>Apis mellifera, also known as the Western or European honey bee, is the most widely distributed and commercially important honey bee species, extensively used for honey, wax, propolis production and crop pollination.</li> <li>Native to Europe, West Asia and Africa, it has been globally introduced since the 17th century; it thrives in areas with abundant flowering plants such as meadows, forests and gardens, and nests in cavities like hollow trees.</li> <li>It is a eusocial insect forming organized colonies with a single queen, numerous worker bees and a few drones, exhibiting complex social behaviour and division of labour.</li> </ul>
<b>Indian Softshell Turtle</b>	<ul style="list-style-type: none"> <li>Sixteen Indian Softshell Turtles were recently rescued in Greater Noida highlighting concerns of illegal wildlife trade.</li> <li>The Indian Softshell Turtle scientifically known as Nilssoniagangetica is a large freshwater species found in major river systems such as the Ganga Brahmaputra and Indus.</li> </ul>

	<ul style="list-style-type: none"> <li>It is classified as Endangered by the International Union for Conservation of Nature and is protected under Schedule I of the Wildlife Protection Act 1972.</li> </ul>
<b>Emperor Penguin</b>	<ul style="list-style-type: none"> <li>IUCN uplisted it to Endangered.</li> <li>Emperor penguin (<i>Aptenodytes forsteri</i>) is the largest penguin species.</li> <li>Found in Antarctic ice and marine environments.</li> <li>Threats: Climate change and ice loss impacting breeding and survival.</li> </ul>
<b>Rove Beetle</b>	<ul style="list-style-type: none"> <li>Three new species of rove beetles have been discovered in Arunachal Pradesh indicating high biodiversity in the region.</li> <li>Rove beetles belong to the family Staphylinidae and are characterized by elongated bodies and short wing covers exposing abdominal segments.</li> <li>They act as natural predators and are beneficial for biological pest control in ecosystems.</li> </ul>
<b>Bengal Florican</b>	<ul style="list-style-type: none"> <li>The global population has declined to fewer than one thousand individuals making it highly vulnerable.</li> <li>It is a grassland dependent bustard species found in the Gangetic Brahmaputra plains of India Nepal and Bangladesh.</li> <li>It is classified as Critically Endangered by the International Union for Conservation of Nature and is protected under Schedule One of the Wildlife Protection Act 1972.</li> </ul>
<b>Dung Beetle</b>	<ul style="list-style-type: none"> <li>Recent research shows dung beetles can navigate in straight lines even in darkness by using the band of light from the Milky Way.</li> <li>Dung beetles belong to the family Scarabaeidae under order Coleoptera; they are robust insects with hard exoskeletons, strong legs for digging and rolling, and may appear in dull or metallic colours.</li> <li>Found on all continents except Antarctica, they inhabit diverse ecosystems from deserts to forests; they feed on animal dung and exhibit three lifestyles—rollers, tunnelers and dwellers—and can orient using celestial cues like the Milky Way.</li> <li>They play a crucial role in nutrient recycling, soil aeration, seed dispersal and control of parasites and flies.</li> </ul>
<b>Snowy Owl</b>	<ul style="list-style-type: none"> <li>It has been granted international protection under the Convention on the Conservation of Migratory Species.</li> <li>Snowy owl scientifically known as <i>Bubo scandiacus</i> is a large Arctic bird found in tundra regions of North America and Eurasia.</li> <li>It is classified as Vulnerable and is unique among owls for being active during both day and night.</li> </ul>
<b>New Species of Jumping Spiders</b>	<ul style="list-style-type: none"> <li>Scientists have discovered two new species of jumping spiders in India.</li> <li>Mogrusshushka and Mogruspune belong to the genus Mogrus, a group of medium-sized jumping spiders typically found in arid regions of Africa, Europe and Asia.</li> </ul>

	<ul style="list-style-type: none"> <li>• Mogrusshushka: Discovered in Desert National Park, Rajasthan, it is adapted to extreme desert conditions such as high temperature, low humidity and sandy terrain; its name is derived from the Sanskrit word "shushka" meaning dry.</li> <li>• Mogruspune: Identified in the Alfa Laval Biodiversity Park in Pune, Maharashtra.</li> </ul>
<b>Cyrtodactylusjayadityai (New Gecko Species)</b>	<ul style="list-style-type: none"> <li>• A new bent-toed gecko species has been discovered in Tripura.</li> <li>• Cyrtodactylusjayadityai is a newly identified gecko inhabiting lowland forest patches.</li> <li>• It is nocturnal, active at night and hides in burrows and crevices during the day.</li> <li>• Geckos are widely distributed reptiles found across diverse habitats, showing high adaptability.</li> </ul>
<b>Painted Leopard Gecko</b>	<ul style="list-style-type: none"> <li>• A rare Painted Leopard Gecko was recently spotted in Chhattisgarh.</li> <li>• Painted Leopard Gecko (<i>Eublepharis pictus</i>) is a colourful terrestrial and nocturnal lizard belonging to the Eublepharidae family.</li> <li>• It is found in the Eastern Ghats of Andhra Pradesh and Odisha, preferring dry evergreen forests with scrub and meadow landscapes.</li> <li>• It is strictly nocturnal, emerging after dusk for foraging and taking shelter in burrows and crevices during the day.</li> </ul>
<b>Tibetan Antelope (Chiru)</b>	<ul style="list-style-type: none"> <li>• Illegal trade in Shahtoosh shawls highlights conservation concerns.</li> <li>• The Tibetan antelope (<i>Pantholopshodgsonii</i>) is a medium-sized herbivore adapted to cold alpine and steppe habitats.</li> <li>• Found mainly in Tibet, Xinjiang and Qinghai (China), with some presence in Ladakh, India.</li> <li>• Listed as Near Threatened (IUCN) and protected under CITES Appendix I and Schedule I of the Wildlife Protection Act.</li> </ul>
<b>Calamaria garoensis</b>	<ul style="list-style-type: none"> <li>• A new species of burrowing reed snake has been discovered in Meghalaya.</li> <li>• Calamaria garoensis is a newly identified, non-venomous, fossorial snake species found in the Garo Hills.</li> <li>• It inhabits moist forest floors, living under leaf litter and soil, and feeds on small invertebrates.</li> </ul>
<b>Arachnids</b>	<ul style="list-style-type: none"> <li>• Fossil evidence suggests extinct arachnid lineages existed in Europe, highlighting evolutionary diversity.</li> <li>• Arachnids are arthropods under phylum Arthropoda, characterized by two body segments, eight legs, and absence of wings and antennae.</li> <li>• They include spiders, scorpions, ticks and mites, with around 100,000 species distributed globally across terrestrial habitats.</li> <li>• They are mostly carnivorous, possess specialized mouthparts and respiratory systems (book lungs or tracheae), and often use venom or digestive fluids to process prey.</li> </ul>
<b>Millipede</b>	<ul style="list-style-type: none"> <li>• A study revealed a self-cleaning mechanism in a Western Ghats millipede.</li> </ul>

	<ul style="list-style-type: none"> <li>• Millipedes belong to class Diplopoda under phylum Arthropoda, characterized by segmented bodies with two pairs of legs per segment.</li> <li>• Found mainly in moist environments like leaf litter and soil; they are slow-moving detritivores feeding on decomposing organic matter.</li> <li>• They play a crucial role in nutrient recycling, soil formation and maintaining ecosystem health.</li> </ul>
<b>Cyrtodactylusraimonaensis</b>	<ul style="list-style-type: none"> <li>• A new bent-toed gecko species has been discovered in Assam.</li> <li>• Cyrtodactylusraimonaensis is a newly identified gecko species named after Raimona National Park.</li> <li>• Found in forest ecosystems near the India-Bhutan border in the Eastern Himalayas region.</li> </ul>
<b>Sentinel Species</b>	<ul style="list-style-type: none"> <li>• IUCN highlighted species like emperor penguin as indicators of ecosystem health.</li> <li>• Sentinel species are organisms whose health reflects the condition of their environment.</li> <li>• They respond early to environmental stressors and provide warning signals of ecological degradation.</li> <li>• Examples: Frogs (sensitive skin), honeybees (chemical exposure) and polar bears (climate change indicators).</li> </ul>
<b>Madras Hedgehog</b>	<ul style="list-style-type: none"> <li>• Mitochondrial genome study provided new insights into evolutionary history of the species.</li> <li>• Endemic to peninsular India inhabiting dry scrublands thorn forests and grasslands.</li> <li>• Nocturnal insectivore with protective spines IUCN status Least Concern but threatened by hunting and habitat loss.</li> </ul>
<b>Woolly-Necked Stork</b>	<ul style="list-style-type: none"> <li>• Rare sightings reported from Tamil Nadu.</li> <li>• Woolly-necked stork (<i>Ciconia episcopus</i>) is a large wading bird of the stork family.</li> <li>• Found in wetlands, paddy fields, riverbanks and grasslands across Asia and Africa.</li> <li>• Listed as Near Threatened due to habitat loss and environmental changes.</li> </ul>
<b>Caribou</b>	<ul style="list-style-type: none"> <li>• Declining lichen threatens survival.</li> <li>• Caribou (<i>Rangifer tarandus</i>) is a deer species found in Arctic and sub-Arctic regions.</li> <li>• Possess antlers in both sexes, UV vision and nasal structures for cold adaptation.</li> <li>• Vulnerable due to climate change and habitat degradation.</li> </ul>
<b>Shellear Fish</b>	<ul style="list-style-type: none"> <li>• Discovery of waterfall-climbing ability.</li> <li>• Shellear fish (<i>Parakneriathysi</i>) is a freshwater species found in the Congo Basin.</li> <li>• Uses specialized fins and muscles to climb vertical waterfalls.</li> <li>• Threats: Illegal fishing and water extraction affecting habitat.</li> </ul>

<b>Sanderling</b>	<ul style="list-style-type: none"> <li>• Long-distance migratory bird sighted in India.</li> <li>• Sanderling (<i>Calidris alba</i>) is a small migratory shorebird.</li> <li>• Found along coasts, wetlands and riverbanks globally.</li> <li>• Known for long-distance migration and feeding on small invertebrates.</li> </ul>
<b>Indian Crested Porcupine</b>	<ul style="list-style-type: none"> <li>• Observed feeding on saffron corms in Kashmir causing pre-harvest crop damage and economic loss.</li> <li>• Large nocturnal rodent of family Hystricidae distributed across South Asia and Middle East including Himalayan regions up to about 2400 m.</li> <li>• Primarily herbivorous with strong defensive quills and classified as IUCN Least Concern but locally an agricultural pest.</li> </ul>
<b>New Nematode Species</b>	<ul style="list-style-type: none"> <li>• Two new marine species <i>Corononemadhriti</i> and <i>Epacanthion indica</i> discovered off Tamil Nadu coast by Zoological Survey of India.</li> <li>• Nematodes are bilaterally symmetrical worms found in diverse habitats including soil freshwater and oceans with global distribution.</li> <li>• Ecologically significant in nutrient cycling sediment health and as bio indicators of environmental change.</li> </ul>
<b>Sloth Bear</b>	<ul style="list-style-type: none"> <li>• A sloth bear was recently captured by forest officials after it was roaming near villages around Shivamogga airport.</li> <li>• The sloth bear is a myrmecophagous species that primarily feeds on termites and insects and is found in India Nepal and Sri Lanka.</li> <li>• It is nocturnal in habit and is classified as Vulnerable by the International Union for Conservation of Nature and listed in Schedule I of the Wildlife Protection Act 1972.</li> </ul>
<b>Humpback Whale</b>	<ul style="list-style-type: none"> <li>• A stranded humpback whale was successfully guided back into the sea in the Baltic region.</li> <li>• The humpback whale scientifically known as <i>Megaptera novaeangliae</i> is a migratory baleen whale found in oceans worldwide.</li> <li>• It is known for bubble net feeding long migrations and is classified as Least Concern by the International Union for Conservation of Nature.</li> </ul>
<b>Rice Whale</b>	<ul style="list-style-type: none"> <li>• Expansion of oil drilling in the Gulf region threatens the survival of this species.</li> <li>• Rice whale is a baleen whale species closely related to Bryde whales and was identified as a distinct species in 2021.</li> <li>• It is critically endangered and found only in the Gulf of Mexico facing threats from oil spills noise pollution and vessel strikes.</li> </ul>
<b>Limnonectesmotijheel</b>	<ul style="list-style-type: none"> <li>• Indian scientists discovered this new frog species in Namdapha Tiger Reserve in Arunachal Pradesh.</li> <li>• It is a fanged frog species belonging to the genus <i>Limnonectes</i> and is named after Motijheel Lake due to its amphibian diversity.</li> <li>• It shows a unique mud nesting behaviour under leaf litter unlike typical frogs that lay eggs in water making it ecologically significant.</li> </ul>
<b>Honey Badger</b>	<ul style="list-style-type: none"> <li>• The species has been recently sighted in Kheoni Wildlife Sanctuary</li> </ul>

	<p>indicating its presence in central India.</p> <ul style="list-style-type: none"> <li>• The honey badger scientifically known as <i>Mellivora capensis</i> is a tough mammal of the weasel family with a wide distribution across Africa and Asia.</li> <li>• It inhabits dry areas forests and grasslands and is known for its digging ability and aggressive defence behaviour.</li> </ul>
<b>New Species of Dragonflies</b>	<ul style="list-style-type: none"> <li>• Three new species have been discovered in Northeast India indicating high biodiversity.</li> <li>• Dragonflies belong to the order Odonata and are fast flying predatory insects commonly found near freshwater habitats.</li> <li>• They play an important ecological role in controlling insect populations and are indicators of ecosystem health.</li> </ul>
<b>Sea Slugs</b>	<ul style="list-style-type: none"> <li>• A rare species <i>Discodoridcebuensis</i> has been recorded for the first time in India at Haji Ali Mumbai.</li> <li>• Sea slugs also known as nudibranchs are soft bodied marine molluscs belonging to the gastropod group and are found across all oceans.</li> <li>• They lack shells and are often brightly coloured with toxins derived from their prey which act as a defence mechanism against predators.</li> </ul>
<b>Pushkarmemacurajae</b>	<ul style="list-style-type: none"> <li>• A new cyanobacteria species has been discovered in Pushkar Lake Rajasthan.</li> <li>• Pushkarmemacurajae is a photosynthetic microorganism with potential applications in medicine agriculture and nutrition.</li> <li>• Cyanobacteria play a crucial role in oxygen production and nitrogen fixation and are among the oldest life forms on Earth.</li> </ul>
<b>Barbary Macaque</b>	<ul style="list-style-type: none"> <li>• A recent study observed soil-eating behaviour among these primates in Gibraltar.</li> <li>• The Barbary macaque is the only macaque species found outside Asia and the only wild primate in Europe and North Africa.</li> <li>• It is native to the Atlas Mountains of Algeria and Morocco and has been introduced in Gibraltar.</li> <li>• It inhabits mountainous regions, rocky terrains, and cedar forests.</li> <li>• It is currently classified as Endangered due to habitat loss and human interference.</li> </ul>
<b>Tapir</b>	<ul style="list-style-type: none"> <li>• World Tapir Day is observed on April 27 to raise awareness about conservation.</li> <li>• Tapirs are large herbivorous mammals often referred to as “living fossils.”</li> <li>• They have a distinctive flexible snout used for feeding.</li> <li>• They are excellent swimmers and inhabit forests and wetlands.</li> <li>• There are four species, including the Malayan, Baird’s, Lowland, and Mountain tapirs.</li> <li>• They are found in South America, Central America, and Southeast Asia.</li> </ul>
<b>Theridionhimalayana</b>	<ul style="list-style-type: none"> <li>• A new species of spider has been discovered in the western</li> </ul>

	<p>Himalayas.</p> <ul style="list-style-type: none"> <li>• It is known as a “happy-face spider” due to its unique body patterns.</li> <li>• It shows polymorphism with multiple colour morphs resembling smiling patterns.</li> </ul>
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## FLORA IN NEWS

Topics	Details
Water Hyacinth	<ul style="list-style-type: none"> <li>• Rapid regrowth in the Mula-Mutha river highlights challenges in managing invasive species.</li> <li>• Water hyacinth (<i>Eichhornia crassipes</i>) is a fast-growing, free-floating invasive aquatic plant native to South America.</li> <li>• It forms dense mats that degrade water quality, block sunlight, disrupt ecosystems and irrigation, and outcompete native species.</li> <li>• Despite being invasive, it is used in biofertilizers, handicrafts and phytoremediation due to its ability to absorb pollutants</li> </ul>
Morchella Mushroom	<ul style="list-style-type: none"> <li>• Successfully cultivated in controlled conditions.</li> <li>• Morchella (Gucchi mushroom) is an edible, high-value fungus from Ascomycota group.</li> <li>• Grows in temperate forests, especially Himalayan regions.</li> <li>• Known for culinary value, medicinal properties and high market price.</li> </ul>
Dillenia galim	<ul style="list-style-type: none"> <li>• A new plant species has been discovered in Manipur.</li> <li>• Dillenia galim is a small shrub endemic to Manipur, with bright yellow flowers and unique leaf features.</li> <li>• It grows in tropical deciduous forests at low altitudes (250–350 m).</li> <li>• It is provisionally classified as Critically Endangered due to its limited distribution</li> </ul>
Fimbristylis wayanadensis	<ul style="list-style-type: none"> <li>• New plant species discovered in Western Ghats.</li> <li>• It is a sedge (grass-like plant) endemic to Wayanad, Kerala.</li> <li>• Found in high-altitude rocky grassland transition zones.</li> </ul>
Oak Tree	<ul style="list-style-type: none"> <li>• Protection measures highlight ecological importance.</li> <li>• Oak (genus <i>Quercus</i>) is a dominant species in temperate forests.</li> <li>• Found across North America, Europe, Asia and Himalayan regions of India.</li> <li>• Supports biodiversity, soil conservation and water recharge.</li> </ul>
Stauranthera aureo glossa	<ul style="list-style-type: none"> <li>• A new plant species with a distinctive golden tongue like structure has been discovered in Arunachal Pradesh.</li> <li>• It is a perennial herb found in moist streamside habitats in the eastern Himalayas with bluish purple bell shaped flowers.</li> <li>• It is provisionally classified as endangered due to habitat destruction from human activities such as logging and road construction.</li> </ul>
Kendu Leaf	<ul style="list-style-type: none"> <li>• Tribal communities in Odisha are demanding legal rights over kendu leaf collection.</li> <li>• Kendu leaf scientifically known as <i>Diospyros melanoxylon</i> is a major non</li> </ul>

	<p>timber forest produce used in bidi making.</p> <ul style="list-style-type: none"> <li>It is classified as Minor Forest Produce under the Forest Rights Act 2006 and is economically significant in several Indian states.</li> </ul>
<p><b>Eulophia picta</b></p>	<ul style="list-style-type: none"> <li>A rare orchid species has been recorded for the first time in central Andhra Pradesh.</li> <li>Eulophia picta is a medium to small terrestrial orchid commonly known as the Nodding Swamp Orchid.</li> <li>It is found across India, Southeast Asia, and Australia in moist grasslands, coastal sandy areas, and lowland forests.</li> <li>The plant has underground spherical pseudobulbs and grows in both full sun and partial shade.</li> <li>It is characterised by pale pink or white flowers that remain tubular and do not fully open.</li> <li>The flowering stalk is initially curved like a shepherd's crook and straightens during fruit development.</li> </ul>

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## 6. SCIENCE & TECHNOLOGY AND HEALTH

### 6.1 INDIA'S THREE STAGE NUCLEAR PROGRAMME

#### Conceptual Foundation

- India's three stage nuclear programme is a long term strategy to utilise limited uranium and abundant thorium resources efficiently.
- It is based on converting fertile materials such as uranium 238 and thorium 232 into fissile materials like plutonium 239 and uranium 233.
- The programme follows a closed fuel cycle, where spent fuel is reprocessed to maximise resource use and minimise waste.

#### Stage One: Pressurised Heavy Water Reactors

- The first stage uses Pressurised Heavy Water Reactors that operate on natural uranium.
- Heavy water is used as both moderator and coolant.
- These reactors do not require enriched uranium, making them suitable for India's resource profile.
- They produce plutonium 239 as a by product, which serves as fuel for the next stage.

#### Stage Two: Fast Breeder Reactors

- The second stage focuses on Fast Breeder Reactors, which generate more fissile material than they consume.
- They use plutonium 239 as fuel and uranium 238 as a blanket material to produce additional plutonium.

#### Kalpakkam Milestone.

- India's first indigenous Prototype Fast Breeder Reactor at Kalpakkam has achieved criticality.
- Criticality refers to a stable nuclear chain reaction where each fission sustains the next.
- The reactor is a 500 megawatt electric sodium cooled system using mixed oxide fuel.

#### Significance of FBRs.

- They can increase energy extraction from natural uranium manifold through recycling.
- They act as a bridge between uranium based and thorium based stages.
- They help build the fissile material inventory required for the third stage.

#### Stage Three: Thorium Based Reactors

- The final stage utilises thorium 232, which is converted into uranium 233.
- Advanced reactor designs such as Advanced Heavy Water Reactors and Molten Salt Reactors are envisaged.
- India's large thorium reserves, especially in coastal monazite sands, provide long term energy security.

#### Fuel Dynamics in the Programme:

- Uranium 238 is converted into plutonium 239 in reactors.
- Thorium 232 is converted into uranium 233 through neutron absorption and decay.
- Continuous recycling ensures efficient utilisation of nuclear fuel.

#### Closed Fuel Cycle and Reprocessing:

- India adopts a closed fuel cycle involving reprocessing of spent fuel.
- This recovers valuable fissile materials and reduces radioactive waste.
- Facilities such as the Fast Reactor Fuel Cycle Facility support large scale fuel management.

#### Technological and Strategic Significance:

- The programme is unique in its long term vision of resource optimisation and energy independence.
- It reduces dependence on imported uranium and fossil fuels.

- It strengthens strategic autonomy and promotes advanced technological capabilities.

### Challenges in Implementation:

- High technological complexity and capital costs.

- Safety and engineering challenges in fast breeder reactors, particularly due to sodium coolant.
- Long gestation periods for reactor development and deployment.
- Continued research required for commercial scale thorium based reactors.

## 6.2 INDIA BETS BIG ON 3D GLASS SEMICONDUCTORS FOR CHIP FUTURE

### Why in News:

- The foundation stone for India's first advanced 3D chip packaging facility has been laid in Bhubaneswar, Odisha.
- The project has been approved under the India Semiconductor Mission with an investment of ₹1,934 crore.
- It is led by 3D Glass Solutions with investments from Intel and Lockheed Martin.
- The initiative is being viewed as a significant step towards placing India at the forefront of advanced semiconductor technology.

### Semiconductors and Their Importance:

- Semiconductors are materials, typically silicon, that conduct electricity under controlled conditions.
- They form the foundation of integrated circuits or chips used in modern electronic devices.
- Chips are indispensable in sectors such as telecommunications, automobiles, defense, and space technology.
- Semiconductor capability determines a nation's technological strength, economic competitiveness, and strategic autonomy.

### Moore's Law and Its Limitations:

- Gordon Moore proposed that the number of transistors on a chip doubles approximately every two years.
- This principle drove exponential improvements in computing power and reductions in cost.

- However, the industry is now encountering physical and thermal limitations to further miniaturization.
- Challenges include heat dissipation, quantum effects, and fabrication complexity.
- Consequently, the industry is shifting towards advanced packaging, chiplets, and three dimensional integration.

### Traditional Chips versus 3D Glass Chips:

- Traditional chips are fabricated on planar silicon wafers with components arranged horizontally.
- They face limitations in terms of space, heat management, and signal interference.
- Three dimensional glass chips adopt vertical stacking of components, thereby increasing computing density.
- Glass substrates offer superior thermal stability and reduced signal loss.
- They enable heterogeneous integration, combining processors, memory, and sensors within a single package.
- These features are crucial for applications such as artificial intelligence, fifth generation communication, data centres, and defense systems.

### India Semiconductor Mission Overview:

- The India Semiconductor Mission was launched in 2021 with an outlay of ₹76,000 crore.

- It aims to develop a comprehensive semiconductor ecosystem covering fabrication, packaging, testing, and design.
- Ten semiconductor projects have been approved across multiple states.
- Total investments have exceeded ₹1.6 lakh crore.
- These include fabrication initiatives and OSAT units such as those by Micron Technology.
- India currently has stronger capabilities in assembly and testing than in fabrication.

### ISM 2.0 and the Way Forward:

- The next phase of the mission is expected to have an outlay of approximately 11 billion dollars.
- It will focus on strengthening the entire semiconductor value chain.
- Greater emphasis will be placed on design capabilities, supply chains, and advanced manufacturing.
- The approach reflects a transition from isolated projects to a holistic ecosystem strategy.

## 6.3 INDUCTION VERSUS INFRARED

### Why in News:

- Fuel disruptions linked to geopolitical tensions have exposed India's dependence on LPG imports.
- Rising LPG prices and shortages have led households to shift towards electric cooking options such as induction and infrared cooktops.
- This transition raises concerns about additional stress on the electricity grid, especially during peak demand periods.

### Induction Cooktops as an Alternative to LPG:

- Induction cooktops are relatively affordable, with prices comparable to LPG cylinder costs in scarcity conditions.
- They offer a clean and efficient alternative to flame based cooking.

### Working Mechanism.

- Induction cooktops generate a rapidly changing electromagnetic field.
- This induces heat directly in the cooking vessel through electrical resistance.
- Heat is produced within the vessel itself, leading to minimal energy loss.

### Advantages.

- High energy efficiency, typically between 85 and 95 percent.
- Faster cooking and better heat control.
- Safer operation due to absence of open flame.

### Limitations.

- Requires ferromagnetic cookware such as cast iron or certain types of stainless steel.
- Additional cost of compatible utensils may discourage adoption for temporary use.

### Infrared Cooktops:

- Infrared cooktops are gaining popularity due to their compatibility with all types of cookware.

### Working Mechanism.

- Electricity heats a coil or halogen element beneath a ceramic surface.
- The heated element emits infrared radiation.
- This radiation passes through the glass and heats the vessel indirectly.

### Reasons for Rising Adoption.

- Compatible with steel, aluminium, glass, and ceramic utensils.
- No need for specialised cookware.

- Ease of use and flexibility have driven rapid increase in sales.

### Challenges of Infrared Cooktops:

- Lower energy efficiency, typically around 70 to 80 percent due to multi stage heat transfer.
- Higher electricity consumption for the same cooking output compared to induction.
- Limited precision in heat control due to on off regulation mechanisms.
- Power quality issues such as waveform distortion and reduced power factor.
- Increased technical losses and inefficiencies in the distribution system.

### Electric Cooking and Stress on Power Grid:

#### Peak Demand Pressure.

- Cooking demand is concentrated in morning and evening hours.
- Even a moderate increase in load can significantly strain the grid during peak times.

#### Localised Load Stress.

- Clusters of households adopting electric cooking can overload local transformers.
- This may lead to voltage fluctuations and outages.

#### Infrastructure Constraints.

- Existing distribution networks are not designed for sudden spikes in residential demand.
- Upgrading infrastructure requires time and investment.

#### Long Term Implications.

- A sustained shift from LPG to electricity will increase baseline demand.
- This necessitates expansion of generation capacity and grid modernisation.

#### Seasonal Pressures.

- Rising summer temperatures already push electricity demand to high levels.
- Additional cooking load may force reliance on coal based generation and emergency measures.

## 6.4 SHORT ARTICLES

### CAR-T Cell Therapy

#### Context

- CAR-T therapy has been successfully used to treat multiple resistant autoimmune diseases.

#### Details

- CAR-T (Chimeric Antigen Receptor T-cell therapy) is an advanced immunotherapy where a patient's T-cells are genetically modified to target specific disease cells.
- T-cells are extracted, engineered in the lab to express CAR proteins, multiplied, and reinfused to identify and destroy target cells (e.g., cancer cells).
- It offers potential cures for certain blood cancers and immune disorders but may cause

severe side effects like immune overreaction, anemia and thrombocytopenia.

### Memristor

#### Context:

- A new hafnium-oxide memristor may significantly reduce energy consumption in AI systems.

#### Details

- A memristor is an electronic component that combines memory and resistance, retaining information about past electrical states.
- It has variable resistance, low energy consumption and nanoscale size, often made using materials like titanium dioxide.

- It is used in non-volatile memory, integrated circuits and neuromorphic computing for AI systems.

## Whole-Exome Sequencing (WES)

### Context:

- Scientists have used WES to identify a rare genetic disease, highlighting its diagnostic utility.

### Details

- Whole-Exome Sequencing is a genetic technique that sequences only the protein-coding regions (exons) of the genome, which constitute less than 2% of DNA but contain most disease-related mutations.
- It is faster, more cost-effective and easier to analyse than whole-genome sequencing while capturing about 85% of disease-linked genetic variants.
- Widely used in clinical diagnostics and research to detect rare and common genetic disorders and understand disease mechanisms.

## Cyborg Botany

### Context

- Scientists are exploring the integration of plants with electronic systems.

### Details

- Cyborg botany is an emerging interdisciplinary field that combines plant biology with electronics and materials science.
- It involves embedding electronic components such as sensors and nanowires into plant tissues.
- These systems can monitor plant health, detect stress conditions, and transmit signals externally.
- It has applications in agriculture, environmental monitoring, and sustainable technology development by enabling early detection of plant stress and improving precision farming.

## BioNEST

### Context

- A new BioNEST incubation centre was inaugurated at the Central Food Technology and Research Institute in Mysuru to promote biotechnology startups.

### Details

- BioNEST stands for Bioincubators Nurturing Entrepreneurship for Scaling Technologies and is an initiative of the Biotechnology Industry Research Assistance Council.
- It provides infrastructure mentorship intellectual property support and industry academia linkages under the Biotechnology Research Innovation and Entrepreneurship Development scheme.

## Anusandhan National Research Foundation (ANRF)

### Context:

- ANRF is developing SARAL AI to simplify scientific content.

### Details

- Anusandhan National Research Foundation was set up under the ANRF Act, 2023 under the Department of Science and Technology.
- Objective: To promote research, innovation and collaboration among academia, industry and government.
- It provides strategic direction and funding for R&D and supports initiatives like AI-based science communication platforms.

## Keytruda

### Context

- Concerns have arisen over counterfeit versions of this cancer drug.

### Details

- Keytruda is an immunotherapy drug used to treat various cancers.
- It is a checkpoint inhibitor that enables T-cells to recognize and attack cancer cells by blocking PD-1 receptors.

- Approved for multiple cancers including lung, cervical, and melanoma, it represents a major advancement in cancer treatment.

## Antariksh Venture Capital Fund

### Context

- The government announced that investments under this fund are expected to begin from the first quarter of Financial Year 2027.

### Details

- It is a close ended fund registered with the Securities and Exchange Board of India as a Category Two Alternative Investment Fund with Indian National Space Promotion and Authorization Centre as a key investor.
- It aims to provide capital to Indian space sector companies with Technology Readiness Level four and above to support innovation commercialization and scaling.

## 6.5 SNIPPETS

### MATERIALS IN NEWS

Topics	Details
Fructose	<ul style="list-style-type: none"> <li>• A recent study highlights fructose as a potential driver of obesity, metabolic syndrome and related chronic diseases, prompting renewed focus on dietary sugars.</li> <li>• Fructose is a monosaccharide (simple sugar) with chemical formula <math>C_6H_{12}O_6</math>, one of the three common natural sugars along with glucose and galactose; it is the most water-soluble and structurally different from glucose.</li> <li>• Commonly called fruit sugar, it occurs naturally in fruits, vegetables, honey, sugarcane and sugar beet; it is sweeter than glucose and combines with glucose to form sucrose (table sugar).</li> <li>• Fructose is metabolised in the liver by conversion into glucose, does not require insulin for absorption and has a lower immediate impact on blood sugar levels.</li> </ul>
Ammonium Nitrate	<ul style="list-style-type: none"> <li>• A coal to ammonium nitrate project was initiated in Odisha to boost industrial production.</li> <li>• Ammonium nitrate with chemical formula <math>NH_4NO_3</math> is a white crystalline compound formed from ammonia and nitric acid.</li> <li>• It is widely used as a fertilizer and in explosives and is regulated in India due to its potential misuse.</li> </ul>
Glutathione	<ul style="list-style-type: none"> <li>• Recent research highlights glutathione's role in maintaining proper functioning of the endoplasmic reticulum, a key protein-producing structure in cells.</li> <li>• Glutathione is a naturally occurring antioxidant and a tripeptide made of three amino acids—glutamate, cysteine and glycine—synthesised mainly in the liver.</li> <li>• Known as the "master antioxidant," it protects cells from oxidative damage, aids in detoxification, supports immune function, and plays a role in tissue repair and protein synthesis.</li> <li>• It is produced within the body and also obtained from foods like broccoli, garlic and cabbage; its levels decline with age and can be affected by poor nutrition, stress and environmental toxins.</li> </ul>

<b>Vitamin D</b>	<ul style="list-style-type: none"> <li>• Studies link Vitamin D levels to long-term brain health.</li> <li>• Vitamin D is a fat-soluble vitamin produced by sunlight exposure and obtained from diet and supplements.</li> <li>• It aids calcium absorption, bone health, immune function and cell growth regulation.</li> <li>• Deficiency effects: Leads to rickets in children and osteomalacia in adults, while excess intake can cause toxicity.</li> </ul>
<b>Sulphur</b>	<ul style="list-style-type: none"> <li>• Supply disruptions due to West Asia conflict highlight sulphur's critical role in industry and agriculture.</li> <li>• Sulphur is a non-metallic chemical element (symbol S), found in native form or as sulphide and sulphate minerals; it is a pale yellow, brittle solid, poor conductor of electricity and largely insoluble in water.</li> <li>• It is one of the most abundant elements in Earth's crust and occurs in India at places like Puga Valley, Barren Island, Andhra Pradesh, Kerala and Himachal Pradesh.</li> <li>• It is primarily used to produce sulphuric acid (key industrial chemical) for fertilizers, oil refining and chemical processing; also used in rubber vulcanisation, pharmaceuticals, detergents and fungicides.</li> </ul>
<b>Methanol</b>	<ul style="list-style-type: none"> <li>• Increasing use in green shipping and energy transition.</li> <li>• Methanol (CH<sub>3</sub>OH) is the simplest alcohol, a colourless, volatile liquid.</li> <li>• Produced mainly from natural gas via synthesis gas and catalytic processes.</li> <li>• Used as fuel alternative, solvent, chemical feedstock and in energy applications due to clean-burning properties.</li> </ul>
<b>Aluminium</b>	<ul style="list-style-type: none"> <li>• New research expands its industrial potential.</li> <li>• Aluminium is a lightweight, corrosion-resistant metal derived from bauxite.</li> <li>• Extracted via Bayer process (alumina) and Hall-Héroult process (smelting).</li> <li>• Widely used in transport, infrastructure, packaging, electrical and defence sectors.</li> </ul>
<b>Lead</b>	<ul style="list-style-type: none"> <li>• Rising contamination concerns in urban areas.</li> <li>• Lead is a toxic heavy metal found naturally in the earth's crust.</li> <li>• Widely used in batteries, construction and radiation shielding.</li> <li>• Highly toxic, affecting brain, kidneys and bones, especially in children.</li> </ul>
<b>Cornstarch</b>	<ul style="list-style-type: none"> <li>• Study highlights unique physical behaviour.</li> <li>• Cornstarch is a carbohydrate extracted from corn through wet milling.</li> <li>• Acts as a thickener and exhibits non-Newtonian fluid behaviour.</li> <li>• Used in food, pharmaceuticals, cosmetics and industrial products.</li> </ul>
<b>Psychedelics</b>	<ul style="list-style-type: none"> <li>• Recent research shows psychedelics can alter brain patterns linked to sense of self.</li> <li>• Psychotropic substances affecting perception and consciousness mainly via serotonin receptors with examples like LSD psilocybin and 3,4-Methylenedioxymethamphetamine (MDMA), commonly known as ecstasy in tablet form.</li> <li>• Illegal in India under NDPS Act 1985 but under clinical research globally for mental health treatment.</li> </ul>
<b>Cerium</b>	<ul style="list-style-type: none"> <li>• China has discovered this new mineral from a lunar meteorite providing insights</li> </ul>

<b>Magnesium Changesite</b>	<p>into the Moon's geology.</p> <ul style="list-style-type: none"> <li>It is a rare lunar mineral that is colourless transparent and shows fluorescent properties under certain conditions.</li> <li>Its composition helps scientists understand the formation and evolution of the Moon's surface and may have applications in advanced materials.</li> </ul>
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## SPACE IN NEWS

Topics	Details
<b>PACE Satellite</b>	<ul style="list-style-type: none"> <li>Helps detect pollution at finer scales.</li> <li>PACE (Plankton, Aerosol, Cloud, ocean Ecosystem) is a NASA satellite launched in 2024.</li> <li>Provides hyperspectral imaging using Ocean Color Instrument and polarimeters to study oceans and atmosphere.</li> <li>Aids in monitoring air pollution, marine ecosystems, fisheries and climate interactions.</li> </ul>
<b>Artemis II</b>	<ul style="list-style-type: none"> <li>Artemis II set a new record for the farthest human spaceflight at about 406,771 km from Earth, surpassing Apollo 13. The mission is a crewed lunar flyby, not a landing, with the distance achieved as part of its planned trajectory.</li> <li>The mission uses a free return trajectory where the spacecraft loops around the Moon and naturally returns to Earth using lunar gravity.</li> <li>This ensures a built in safety mechanism and reduces fuel requirements by minimising engine burns.</li> <li>Artemis II is primarily a test mission for the Orion spacecraft's life support and deep space capabilities.</li> <li>The data generated will be crucial for future missions aimed at returning humans to the Moon and establishing long term lunar presence.</li> </ul>
<b>Curiosity Rover</b>	<ul style="list-style-type: none"> <li>The rover has detected organic molecules on Mars adding to evidence about possible past life.</li> <li>It is a robotic explorer launched by National Aeronautics and Space Administration in 2011 as part of the Mars Science Laboratory mission.</li> <li>It operates in Gale Crater and studies the planet's climate geology and potential for supporting life.</li> </ul>
<b>Artemis Accords</b>	<ul style="list-style-type: none"> <li>Jordan recently joined the Artemis Accords expanding international cooperation in space exploration.</li> <li>The Artemis Accords are a set of non binding principles launched in 2020 to guide peaceful and sustainable exploration of outer space.</li> <li>India is a signatory and the accords promote transparency interoperability and responsible use of space resources.</li> </ul>

## DISEASES IN NEWS

Topics	Details
Scarlet Fever	<ul style="list-style-type: none"> <li>DNA analysis of a pre-Hispanic mummy indicates that the bacterium causing scarlet fever existed in the Americas before European colonization, challenging earlier assumptions about its origin.</li> <li>Scarlet fever (scarlatina) is a bacterial infection caused by Group A Streptococcus, the same organism responsible for strep throat, impetigo and rheumatic fever; it mainly affects children aged 5–15 years.</li> <li>It is highly contagious and spreads through respiratory droplets; symptoms include fever, sore throat and a characteristic red rash, and reinfection is possible with no available vaccine.</li> <li>It is treated effectively with antibiotics such as penicillin, but if left untreated can lead to serious complications affecting the heart, kidneys and other organs.</li> </ul>
Acute Lymphoblastic Leukaemia	<ul style="list-style-type: none"> <li>A recent study identified genetic mutations linked to aggressive forms of this disease.</li> <li>Acute lymphoblastic leukaemia is a fast growing blood cancer affecting white blood cells and bone marrow.</li> <li>It is the most common childhood cancer and is treated using chemotherapy and targeted therapies.</li> </ul>
Subacute Sclerosing Panencephalitis (SSPE)	<ul style="list-style-type: none"> <li>Maharashtra has informed the Bombay High Court about absence of a policy for SSPE, a rare but fatal neurological disorder.</li> <li>SSPE (Dawson disease) is a progressive, fatal brain disorder caused by persistent measles infection, often appearing years after recovery.</li> <li>It results from an abnormal immune response or mutated virus leading to chronic brain inflammation; mainly affects children and adolescents.</li> <li>There is no cure; treatment is symptomatic, and the disease has a very high fatality rate (around 95%).</li> </ul>
BCG Vaccine	<ul style="list-style-type: none"> <li>India supplied BCG vaccines to Afghanistan for child immunisation.</li> <li>BCG is a live attenuated vaccine derived from Mycobacterium bovis, used against tuberculosis.</li> <li>It is the only TB vaccine and is widely administered to newborns.</li> <li>It also provides protection against leprosy and is used in bladder cancer treatment.</li> </ul>
Newcastle Disease	<ul style="list-style-type: none"> <li>The disease is spreading across Europe prompting increased vigilance among poultry producers.</li> <li>It is a highly contagious viral disease in birds caused by avian paramyxovirus serotype 1 affecting poultry and wild birds.</li> <li>There is no specific treatment and it spreads through respiratory secretions and droppings causing respiratory and neurological symptoms.</li> </ul>
Chagas Disease	<ul style="list-style-type: none"> <li>World Chagas Disease Day is observed annually on April 14 to raise awareness about this neglected tropical disease and its long-term health impacts.</li> <li>Chagas disease (American trypanosomiasis) is an infectious disease caused by the protozoan parasite Trypanosoma cruzi, leading to chronic heart and digestive</li> </ul>

	<p>system complications.</p> <ul style="list-style-type: none"> <li>• It spreads mainly through bites of infected triatomine (“kissing”) bugs, as well as via blood transfusion, organ transplant, contaminated food and mother-to-child transmission; it is most prevalent in Latin America.</li> <li>• There is no vaccine; prevention relies on vector control and screening, while early-stage treatment targets the parasite, and later stages focus on managing symptoms due to irreversible damage.</li> </ul>
<b>Measles</b>	<ul style="list-style-type: none"> <li>• Bangladesh has launched an emergency vaccination campaign due to a fast spreading measles outbreak affecting children.</li> <li>• Measles is a highly contagious viral disease caused by a paramyxovirus and spreads through respiratory droplets and airborne transmission.</li> <li>• It can be prevented through the measles rubella vaccine and there is no specific antiviral treatment available.</li> </ul>
<b>Obstructive Sleep Apnea</b>	<ul style="list-style-type: none"> <li>• A recent study has found that individuals with obstructive sleep apnea have a seventy one percent higher risk of cardiovascular events.</li> <li>• Obstructive Sleep Apnea is a common sleep disorder in which breathing repeatedly stops and starts due to blockage of the upper airway during sleep.</li> <li>• It can be managed through lifestyle changes continuous positive airway pressure devices and oral appliances and has significant health implications.</li> </ul>
<b>Kawasaki Disease</b>	<ul style="list-style-type: none"> <li>• A recent study examined treatment outcomes related to coronary complications in affected children.</li> <li>• Kawasaki disease is a rare inflammatory condition affecting blood vessels mainly in children under five years of age.</li> <li>• It can impact coronary arteries and is treated using intravenous immunoglobulin therapy to prevent complications.</li> </ul>

## 7. CULTURE & HISTORY

### 7.1 MAHATMA JYOTIRAO PHULE'S BIRTH ANNIVERSARY

#### Why in News

- The Prime Minister paid tribute to Jyotirao Phule on his birth anniversary on April 11.
- The occasion marks the beginning of his 200th birth anniversary celebrations and revives focus on his contributions to social reform and equality.

#### Jyotirao Phule's Life and Ideas

##### Early Life and Background.

- Born on 11 April 1827 in Pune, Maharashtra, in a socially disadvantaged Mali community.
- Experienced caste discrimination early in life, shaping his reformist outlook.
- Influenced by egalitarian ideas such as those in *The Rights of Man* and global anti slavery movements.

##### Key Areas of Work.

##### Education for the Marginalised.

- Established the first school for girls in Pune in 1848 at Bhide Wada.
- Opened schools for lower castes and socially excluded groups.
- His wife Savitribai Phule became India's first female teacher and a pioneer in women's education.

##### Women's Empowerment.

- Established a home in 1863 for widows and abandoned children.
- Challenged social stigma around widowhood and gender inequality.

##### Fight Against the Caste System.

- Critiqued Brahminical dominance and rejected the authority of texts used to justify caste hierarchy.
- Linked caste oppression with economic exploitation of peasants and labourers.

##### Satyashodhak Samaj.

- Founded the Satyashodhak Samaj in 1873.
- Aimed to promote social equality, rational thinking, and freedom from priestly control.
- Introduced practices such as non Brahmin officiated marriages to challenge caste norms.

##### Literary Contributions.

- Authored influential works including *Gulamgiri*, *ShetkaryachaAsud*, and *SarvajanikSatyadharm Pustak*.
- His writings exposed social injustice and advocated reform.

##### Legacy and Recognition.

- Conferred the title "Mahatma" in 1888 for his contributions to society.
- Inspired later leaders such as B R Ambedkar.
- Regarded as a pioneer of social justice and anti caste movements in modern India.

#### Highlights of the Prime Minister's Address

- Phule was described as a transformative reformer who emphasised change from within society.
- Education was highlighted as the central instrument of empowerment and equality.
- His work for farmers, women, and marginalised communities was recognised as foundational to social justice.
- Contributions of Savitribai Phule were acknowledged, especially in advancing women's education and social service.
- Phule's ideas were linked to contemporary priorities such as education, innovation, and youth empowerment.
- The bicentenary was presented as an opportunity to renew commitment to equality, justice, and inclusive development.

## 7.2 SHORT ARTICLES

### Pelusium

#### Context

- Recent excavations at Tell el-Farama in northern Sinai have revealed a rare round temple within the ruins of the ancient city of Pelusium, highlighting its evolving historical significance.

#### Details

- Pelusium was situated at the easternmost mouth of the Nile in Egypt, southeast of Port Said in the Sinai Peninsula; earlier known as Sainu and Per-Amun, it served as a strategic frontier city.
- It functioned as a major fortress and customs post on Egypt's border with Judaea and was famous for flax production; it witnessed major events such as the Battle of Pelusium (525 BC) involving Cambyses II and later conflicts during Greek, Ptolemaic and Roman periods.
- Under the Ptolemies it acted as an important customs station, and during the Roman era it was part of the province of Augustamnica, reflecting its continued administrative and military importance.

### Aspero

#### Context

- Archaeologists discovered a structure used for sky observation indicating early scientific practices.

#### Details

- It is an archaeological site in Peru associated with the Norte Chico or Caral Supe civilization.
- It functioned as an important urban and trade centre with monumental architecture such as platform mounds and circular plazas.

### Byzantine Empire

#### Context

- A fortified site in southeastern Spain has been identified as a rare Byzantine stronghold, indicating the empire's extended influence in the western Mediterranean.

#### Details

- The Byzantine Empire, also known as the Eastern Roman Empire, began in 330 CE when Constantine I established Constantinople (modern-day Istanbul) as its capital; it survived nearly a millennium after the fall of the Western Roman Empire.
- It was a Greek-speaking continuation of the Roman state, marked by strong imperial authority and rich cultural developments; it reached its peak under Justinian I, during which monumental works like the Hagia Sophia were built.
- The empire weakened due to invasions, internal conflicts and religious divisions, was sacked during the Fourth Crusade (1204), and finally fell to the Ottoman Turks in 1453; its legacy endures in law, architecture and Eastern Orthodox Christianity.

### Abhilekh Patal Portal

#### Context

- The Prime Minister encouraged citizens to explore this portal for accessing historical records.

#### Details

- It is a digital platform developed by the National Archives of India to provide access to millions of historical documents and records.
- It includes government files private papers maps photographs and rare archival materials for research and public use.

## Pompeii

### Context

- Artificial Intelligence has helped reconstruct the face and final moments of a victim of the Mount Vesuvius eruption.

### Details

- Pompeii is an ancient Roman city located near Naples in Italy.

- It lies at the base of Mount Vesuvius.
- It was founded around the 6th century BCE by the Samnites and later became part of the Roman Empire.
- The city was buried under volcanic ash during the eruption in 79 CE.
- It is a UNESCO World Heritage Site.

## 7.3 SNIPPETS

### TEMPLES IN NEWS

Topics	Details
Bankey Bihari Temple	<ul style="list-style-type: none"> <li>The Supreme Court has declined structural changes in religious practices at the temple.</li> <li>Bankey Bihari Temple is dedicated to Lord Krishna in his 'tribhanga' posture.</li> <li>It was established by Swami Haridas, guru of Tansen, and the present structure was built in 1864.</li> <li>Known for Rajasthani-style architecture, absence of bells and conchs, and its role in India's freedom movement as a centre for revolutionary activities.</li> </ul>
Shree Chamundeshwari Temple	<ul style="list-style-type: none"> <li>Karnataka High Court flagged violations related to construction activities.</li> <li>Chamundeshwari Temple is located on Chamundi Hills and dedicated to Goddess Chamundeshwari (Durga).</li> <li>Originally built by Hoysala rulers and later expanded under the Vijayanagara Empire; associated with Mysuru royalty.</li> <li>Architecture: Dravidian style with a seven-tier gopuram, ornate carvings and a long stone stairway leading to the temple.</li> </ul>

### FESTIVALS IN NEWS

Topics	Details
Baisakhi Festival	<ul style="list-style-type: none"> <li>Baisakhi is being celebrated across Punjab with devotion and enthusiasm, marking both agrarian and religious significance.</li> <li>Baisakhi (Vaisakhi) is a spring harvest festival celebrated on April 13 or 14, marking the Sikh New Year and the beginning of the month of Vaishakha in the solar calendar.</li> <li>It commemorates the foundation of the Khalsa Panth in 1699 by Guru Gobind Singh at Anandpur Sahib.</li> <li>It celebrates agricultural prosperity and is observed in different forms across India such as PohelaBoishakh (West Bengal), Vishu (Kerala), Bohag Bihu (Assam) and Puthandu (Tamil Nadu).</li> </ul>
Rongali Bihu	<ul style="list-style-type: none"> <li>The festival is being widely celebrated across Assam marking the Assamese New Year and spring season.</li> <li>Rongali Bihu also known as Bohag Bihu is a major cultural festival symbolising joy fertility and agricultural prosperity.</li> </ul>

	<ul style="list-style-type: none"> <li>It involves traditional attire exchange of gamocha and community celebrations reflecting Assamese cultural identity.</li> </ul>
<b>Thrissur Pooram</b>	<ul style="list-style-type: none"> <li>The festival celebrations were scaled down due to a fireworks accident, yet it witnessed large public participation at the Vadakkunnathan Temple.</li> <li>It is one of the most famous temple festivals of Kerala held annually at Thekkinkadu Maidanam in the Malayalam month of Medam and was initiated by Rama Varma Sakthan Thampuran.</li> <li>It is known for grand elephant processions, Kudamattam parasol exchange, Ilanjithara Melam, and spectacular fireworks involving major temples like Paramekkavu and Thiruvambady.</li> </ul>

## ARCHITECTURE IN NEWS

Topics	Details
<b>Amber Fort</b>	<ul style="list-style-type: none"> <li>The Rajasthan High Court has issued notices regarding alleged illegal elephant rides near Amber Fort.</li> <li>Amber Fort (Amer Fort) is located near Jaipur on the Aravalli hills; originally built in 1592 by Raja Man Singh I, a Navaratna in Akbar's court, and later expanded by Jai Singh I.</li> <li>Amer served as the capital of the Kachwaha Rajputs before the capital shifted to Jaipur in 1727, and the fort evolved under successive rulers of the dynasty.</li> <li>A UNESCO World Heritage Site, it showcases a fusion of Rajput and Mughal styles, built with sandstone, featuring grand ramparts, courtyards, Diwan-i-Khas, Sheesh Mahal, and overlooking Maota Lake.</li> </ul>

## PERSONALITIES IN NEWS

Topics	Details
<b>Guru Tegh Bahadur</b>	<ul style="list-style-type: none"> <li>Prime Minister paid homage on Parkash Purab highlighting his legacy of sacrifice.</li> <li>Ninth Sikh Guru 1621 to 1675 known as Hind Di Chadar for defending religious freedom against Mughal oppression.</li> <li>Founded Anandpur Sahib and contributed hymns to Guru Granth Sahib with martyrdom commemorated as Shaheedi Divas.</li> </ul>
<b>Raja Ravi Varma</b>	<ul style="list-style-type: none"> <li>His painting Yashoda and Krishna was sold for a record amount highlighting his enduring artistic legacy.</li> <li>Raja Ravi Varma was a nineteenth century Indian painter known for combining European realism with Indian mythological themes.</li> <li>He popularised art through lithographic printing and created notable works such as Shakuntala and scenes from the Ramayana.</li> </ul>
<b>Samrat Samprati</b>	<ul style="list-style-type: none"> <li>A museum dedicated to him was inaugurated highlighting his historical and cultural importance.</li> <li>Samrat Samprati was a Mauryan ruler and grandson of Emperor Ashoka known for promoting Jainism and non violence.</li> <li>He is credited with building numerous Jain temples and spreading Jain culture beyond India.</li> </ul>

## 8. GEOGRAPHY AND DISASTER MANAGEMENT

### 8.1 SHORT ARTICLES

#### Hindu Kush Himalaya

##### Why in the News?

- According to the **International Centre for Integrated Mountain Development (ICIMOD)**, the Hindu Kush Himalaya (HKH) has recorded a **record 27% drop in snow persistence** in 2024.

##### About Hindu Kush Himalaya (HKH)

Also referred to as the **Third Pole** because it contains the largest area of permanent ice cover outside the North and South Poles.

- **Extensive Reach:** It stretches over **3,500 km** across eight countries: Afghanistan, Bangladesh, Bhutan, China, India, Nepal, Myanmar, and Pakistan.
- **Topographic Divide:** It runs northeast to southwest, acting as a watershed that divides the **Amu Darya** valley to the north from the **Indus River** valley to the south.
- **Highest Peaks:** The highest point of the range is **Tirich Mir** (7,708 meters) located in Pakistan.
- **Three Sections:** The range is geologically divided into the Eastern, Central, and Western Hindu Kush (the latter known as the **Bābā Mountains**).

##### Ecological and Hydrological Significance

The HKH is not just a mountain range; it is the "Water Tower of Asia."

- **River Systems:** It is the source of **ten major Asian rivers**, including the Indus, Ganges, Brahmaputra, Mekong, and Yangtze.
- **Biodiversity:** The region is home to **four global biodiversity hotspots**, containing unique ecosystems like alpine meadows, wetlands, and high-altitude grasslands.
- **Climate Regulator:** By influencing the Asian monsoon and jet streams, the HKH plays a critical role in the global climate system.

##### Findings of the ICIMOD Report

- **Snow Persistence Drop:** The 27% drop in snow persistence is the lowest on record, below the 20-year average.
- **Impact on Glaciers:** Reduced snow cover leads to faster glacial melting. Glaciers in the HKH could lose up to **80% of their volume** by the end of the century if current warming trends continue.
- **Water Insecurity:** This "snow drought" will lead to decreased seasonal runoff, affecting hydropower generation and irrigation in the Indo-Gangetic plains.
- **Climate Change:** The HKH is warming at a rate **0.3°C to 0.7°C faster** than the global average, a phenomenon known as Elevation-Dependent Warming.
- **Glacial Lake Outburst Floods (GLOFs):** As glaciers retreat, they form unstable lakes that can burst, causing catastrophic downstream flooding.

#### Mahanadi River

##### Why in the News?

- The Mahanadi Water Disputes Tribunal (MWDT) issued a final warning to Odisha and Chhattisgarh to resolve their water-sharing dispute mutually.

##### About Mahanadi River

- **Origin:** The river rises from the **Sihawa mountains** in the Dhamtari district of Chhattisgarh.
- **Course:** It flows for about **851 km** through Chhattisgarh and Odisha, before draining into the **Bay of Bengal** at False Point.
- After Godavari, it is the **peninsular second-largest river by water potential** and flood-producing capacity.
- **Tributary Network**

- **Left Bank Tributaries:** Seonath (Shivnath), Hasdeo, Mand, and Ib.
- **Right Bank Tributaries:** Jonk, Ong, and Tel.
- **Note:** The **Seonath** is the largest tributary, joining the Mahanadi in Chhattisgarh.
- **Hirakud Dam:** Constructed near Sambalpur, Odisha, it remains the **longest earthen dam in the world**.
- **Mahanadi Delta:** Merges with the **Brahmani** and **Baitarani** river systems, forming a massive complex of distributaries including the Kathjori and Devi rivers.
- **Ecology:** The river **flows through the Satkosia Gorge**, which is home to the **Satkosia Tiger Reserve**. Distributaries of the Mahanadi feed into the **Chilika Lake**, Asia's largest brackish water lagoon, and its highly fertile delta **supports the Bhitarkanika Mangroves**.
- **Inland Waterways:** Government developing the Mahanadi River as **National Waterway 64 (NW-64)** to facilitate cargo transport and river cruise tourism.
- Historically known as the "**Sorrow of Odisha**" due to its devastating seasonal floods, the river is **now considered the state's lifeline**.

## Subarnarekha River

### Why in the News?

- The Indian Army safely neutralised a World War II-era bomb recovered from the Subarnarekha River.

### About Subarnarekha River

- **Origin:** Originating near **Nagri village** in the Ranchi district of Jharkhand.
- **Course:** Flows for approximately **395 kilometers** through the Chhota Nagpur Plateau, traversing the states of Jharkhand, West Bengal, and Odisha before emptying into the Bay of Bengal near Kirtania, Odisha.
- **Etymolog:** The name "Subarnarekha" translates to "Streak of Gold". The river was named for the **historical discovery of gold particles in its riverbed**.
- **Tributaries:** **Kharkai River** joins the Subarnarekha at the Domuhani confluence in Jamshedpur. Other notable tributaries include the Kanchi, Karkari, Roro, Gurma, Garra, Harmu Nadi, Damra, Singaduba, and Dulunga.
- **Waterfalls:** As the river descends from the Chota Nagpur Plateau, it forms the **Hundru Falls**.
- **Industrial Hub:** The Subarnarekha is the primary water source for Jamshedpur, supporting major heavy industries like Tata Steel.
- **Mineral-Rich Basin:** The river traverses the Singhbhum belt, a region rich in copper and uranium ores.

## 8.2 SNIPPETS

Topics	Details
Noyyal River	<ul style="list-style-type: none"> <li>● Farmers in the Coimbatore-Tiruppur belt campaigned to protect the Noyyal River.</li> <li>● The <b>Noyyal River</b> is a seasonal tributary of the Kaveri River in Tamil Nadu. It rises in the <b>Vellingiri Hills</b> of the Western Ghats, within the Nilgiri Biosphere Reserve. Traditionally known as <b>Kanchimanadi</b>, the name 'Noyyal' translates to "one who is relieved of diseases". An ancient network of <b>32 tanks and 23 anicuts</b> (dams) was built by the <b>Chola and Pandyan dynasties</b> between the 9th and 13th centuries to manage floods and replenish groundwater. Historical site of <b>Kodumanal</b> is located on its banks.</li> </ul>

<p><b>Pompeii</b></p>	<ul style="list-style-type: none"> <li>Artificial Intelligence (AI) aided Pompeii archaeologists in reconstructing the face and final moments of a man killed in the AD 79 Mount Vesuvius eruption.</li> <li>Pompeii is an <b>archaeological site in Italy's southern Campania region</b>, famously frozen in time by the catastrophic eruption of <b>Mount Vesuvius</b> in 79 AD. Once a thriving Roman city, <b>it was buried under meters of volcanic ash and pumice</b>, which perfectly preserved its buildings, streets, and even the final moments of its inhabitants for nearly 1,700 years. It is a <b>UNESCO World Heritage Site</b>.</li> </ul>
<p><b>Atacama Desert</b></p>	<ul style="list-style-type: none"> <li>Light pollution now threatens the Atacama Desert's status as one of the world's darkest skies.</li> <li>Atacama Desert, the <b>driest desert globally</b>, is <b>situated in northern Chile between the Andes Mountains and the Pacific Ocean</b>. It borders <b>Argentina, Peru, and Bolivia</b> and features 12 volcanoes mainly in its western Andes. With an average rainfall of about 1 mm annually, <b>some areas have never experienced rain</b>. The average temperature is around 18°C. This desert is notable for having the <b>largest natural supply of Sodium Nitrate</b>, utilized in fertilizers and explosives, and is home to the <b>Chinchorro Mummies, the oldest artificially mummified remains</b>.</li> </ul>
<p><b>Lake Issyk-Kul</b></p>	<ul style="list-style-type: none"> <li>Underwater archaeologists have discovered a hidden city in Lake Issyk-Kul, revealing a lost civilization dating back seven hundred years.</li> <li>Lake Issyk-Kul, <b>located in Kyrgyzstan</b>, is an <b>endorheic basin surrounded by the Tian Shan mountains</b>. Formed 25 million years ago, it is the <b>second-largest high mountain lake globally</b>, with a surface area of 6,280 sq.km and a depth of 668 meters. <b>Known for its blue, brackish water and warm springs, it does not freeze in winter</b>. <b>Issyk-Kul, meaning "hot lake," features diverse landscapes and was designated a Ramsar wetland of international importance</b>.</li> </ul>
<p><b>Pykara Lake</b></p>	<ul style="list-style-type: none"> <li>The Madras High Court has upheld a temporary stay on the operation of boating services for tourists at Pykara Lake in Tamil Nadu.</li> <li>Pykara Lake, located 20 km from Ooty in Tamil Nadu's Nilgiri district, is a <b>reservoir formed by the Pykara Dam on the Pykara River</b>. Considered sacred by the local Toda Adivasi community, the river originates from the Mukurthi peak, it feeds a 60 MW powerhouse and creates the two-cascade Pykara Falls. <b>Surrounded by Mukurthi National Park, a UNESCO World Heritage site, it is a key tourist spot</b>.</li> </ul>
<p><b>Tornado</b></p>	<ul style="list-style-type: none"> <li>A tornado struck Kay County, Oklahoma, USA, drawing attention to the broader phenomenon of tornadoes.</li> <li>Tornadoes are <b>violent, rotating columns of air</b> that extend from a thunderstorm base to the ground, <b>characterized by a funnel of condensation</b>. They form through the <b>interaction between warm, moist air and cool, dry air, in low-pressure systems</b>. Tornado wind speeds range from 105 to 322 km/h, with some exceeding this. They can be <b>stationary or move quickly</b>, usually at about 97 km/h. Tornadoes are most prevalent in mid-latitude regions.</li> </ul>
<p><b>Tuvalu Island</b></p>	<ul style="list-style-type: none"> <li>Tuvalu, a Polynesian island nation in the Pacific, faces significant threats from rising sea levels, with large areas potentially submerged by the end of the century.</li> <li>Tuvalu is a <b>Polynesian island nation in the South Pacific</b>, consisting of nine coral atolls and reef islands, <b>covering 26 km<sup>2</sup> and home to around 11,000 people</b>. Due to climate change, it faces an existential threat from rising sea levels, with flooding</li> </ul>

	<p>expected by the end of the century. Economically, Tuvalu relies on foreign aid, fishing fees, and limited tourism. It was <b>formerly a British colony, gaining independence in 1978</b>, and is a constitutional monarchy. Its capital is Funafuti.</p>
<b>Santiago volcano</b>	<ul style="list-style-type: none"> <li>Guatemala's Santiago volcano eruption sent ash and debris down the mountainside.</li> <li>Santiago Volcano, located near Quetzaltenango in Guatemala, is an <b>active volcano formed after the catastrophic 1902 eruption of Santa María Volcano</b>, which resulted in 5,000 deaths. Created around 1922, Santiago features continuous minor explosions, smoke, and ash emissions. It has four craters, with one currently active.</li> </ul>
<b>Bering Strait</b>	<ul style="list-style-type: none"> <li>Research indicates that building a dam across the Bering Strait may help stabilize the Atlantic Meridional Overturning Circulation (AMOC).</li> <li>The Bering Strait Dam is a <b>proposed geoengineering project aimed at counteracting climate change by altering ocean currents</b>. It is <b>planned to connect the Russian mainland and Alaska through three segments totaling approximately 80 km</b>. The primary goal is to <b>stabilize the Atlantic Meridional Overturning Circulation (AMOC) by influencing the exchange of cold Arctic and warmer Pacific waters</b>.</li> </ul>
<b>Scarborough Shoal</b>	<ul style="list-style-type: none"> <li>Satellite imagery shows China has deployed a floating barrier and vessels to block access to Scarborough Shoal.</li> <li>Scarborough Shoal, also known as <b>Bajo de Masinloc in the Philippines and Huangyan Island in China</b>, is a <b>triangular chain of reefs and rocks in the South China Sea</b>. It is a coral atoll with strategic value for its <b>proximity to shipping lanes and the Philippines' Exclusive Economic Zone (EEZ)</b>. The <b>Philippines claims it under UNCLOS</b>, while <b>China asserts historical rights through the Nine-Dash Line</b>, with Taiwan echoing similar claims.</li> </ul>

### 8.3 ADDITIONAL TOPICS FOR READING FROM IASGYAN WEBSITE

Topic Name	Date
Forest Fires: Causes, Climate Impacts, And Management Strategies	29 <sup>th</sup> April 2026
Light Pollution In India: Causes, Impacts, Challenges, Way Forward	28 <sup>th</sup> April 2026
Indian Ocean Dipole: Mechanism, Impacts And Way Forward	10 <sup>th</sup> April 2026

## 9. GOVERNMENT SCHEMES

### 9.1 SHORT ARTICLES

#### Vishwa Sutra Initiative

##### Context

- The **Ministry of Textiles** has launched '**Vishwa Sutra - Weaves of India for the World**' to globalize Indian handloom heritage through design innovation.

##### Details

- Developed by the Office of the Development Commissioner (Handlooms) in collaboration with the National Institute of Fashion Technology, it brings together 30 handloom weaves from different states, each reinterpreted using design inspirations from 30 countries.
- It aims to present Indian handlooms in a contemporary global design framework while preserving traditional techniques, showcasing cross-cultural fusion such as Odisha Ikat with Greek elements and Banarasi with UAE-inspired designs.
- It promotes 'Vocal for Local to Global' by enhancing global competitiveness of handlooms and aligns with the 5F framework—Farm to Fibre to Factory to Fashion to Foreign.

#### Market Intervention Scheme (MIS)

##### Context

- The Union Agriculture Ministry has approved procurement of 20 LMT of potatoes under MIS to support farmers amid falling prices.

##### Details

- MIS is a component of PM-AASHA and is implemented on the request of States/UTs for procurement of perishable commodities like tomato, onion and potato where MSP is not available.
- It aims to prevent distress sale by farmers during bumper production periods when

market prices fall below cost of production, ensuring income protection.

- Implemented by the Department of Agriculture and Farmers Welfare, losses are shared between Centre and States (50:50, or 75:25 for North-East); activated when prices fall by at least 10 percent and procurement is limited to 25 percent of production.

#### Trade Enablement and Marketing Initiative

##### Context

- The government has highlighted this initiative to boost digital participation of Micro Small and Medium Enterprises.

##### Details

- It is a Central Sector Scheme under the Raising and Accelerating Micro Small and Medium Enterprises Performance Programme.
- It aims to onboard enterprises onto digital commerce platforms provide training and improve market access with support from the National Small Industries Corporation.

#### Sagarmala Programme

##### Context

- Ongoing implementation of port-led development projects.

##### Details

- Sagarmala Programme was launched in 2015 to enhance logistics and port infrastructure.
- Objectives: Improve port capacity, connectivity, industrialisation and coastal community development.
- Implemented through multi-tier institutional mechanisms involving central and state coordination.

## Pradhan Mantri Gram Sadak Yojana (PMGSY)

### Context

- The Union Cabinet has approved continuation of PMGSY-III till March 2028, extending rural connectivity efforts.

### Details

- Launched in 2000, PMGSY is a flagship rural development programme aimed at providing all-weather road connectivity to unconnected habitations, ensuring improved access to markets, education and healthcare.
- Connectivity is provided based on population thresholds—500 or more in plain areas and 250 or more in North-Eastern, Himalayan states and UTs (as per 2001 Census), focusing on previously unconnected habitations.
- Implemented by State/UT governments through designated agencies, with district-level execution by Programme Implementation Units (PIUs) linked to District Rural Development Agencies (DRDAs); nodal ministry is the Ministry of Rural Development.

## Kar Saathi

### Context

- The Income Tax Department launched Kar Saathi to simplify compliance and improve taxpayer assistance.

### Details

- Kar Saathi is an artificial intelligence based chatbot developed as a virtual tax assistant under the Income Tax Act 2025.
- It provides round the clock support for filing returns understanding provisions and resolving taxpayer queries through automated responses.

## Trade Receivables Discounting System (TReDS)

### Context

- RBI proposes easing onboarding norms.

### Details

- Trade Receivables Discounting System is an electronic platform for MSMEs to discount invoices.
- Objective: Improves cash flow and working capital access for MSMEs.
- Participants: Sellers (MSMEs), buyers (corporates/PSUs) and financiers (banks/NBFCs).

## Production Linked Incentive Scheme for Food Processing Industry (PLISFPI)

### Context

- The scheme has exceeded its committed investment, indicating strong industry response and growth in food processing.

### Details

- Production Linked Incentive Scheme for Food Processing Industry was launched by the Ministry of Food Processing Industries to boost value addition, expand processing capacity and create global food manufacturing champions.
- Implemented from 2021-22 to 2026-27, it incentivises key segments such as ready-to-eat foods, processed fruits and vegetables, marine products and mozzarella cheese, along with support for SMEs and branding abroad.
- It enhances farmer income, generates rural employment, promotes Indian brands globally and strengthens the food processing ecosystem.

## Pradhan Mantri Mudra Yojana (PMMY)

### Context

- Scheme completes 11 years of promoting micro-enterprises.

### Details

- Pradhan Mantri Mudra Yojana was launched in 2015 to provide loans to non-corporate, non-farm small businesses.

- Loan categories: Shishu (up to ₹50,000), Kishor (₹50,000–₹5 lakh), Tarun (₹5–10 lakh), TarunPlus (₹10–20 lakh).
- Supports entrepreneurship, financial inclusion and employment generation.

## Atal Pension Yojana

### Context

- The scheme has crossed nine crore enrollments indicating its wide reach among citizens.

### Details

- It is a voluntary contributory pension scheme launched in 2015 to provide social security to workers in the unorganised sector.
- It guarantees a monthly pension between one thousand and five thousand rupees after the age of sixty and is regulated by the Pension Fund Regulatory and Development Authority.

## Technology Development and Investment Promotion Scheme

### Context

- Revised guidelines have been issued to boost India's role in global telecom standards.

### Details

- It is a scheme aimed at promoting indigenous telecom technology development and increasing participation in global standard setting bodies.
- It supports startups academia and industry with funding and is implemented through agencies like Telecommunications Standards Development Society India and Telecommunications Consultants India Limited.

## Coal Gasification Incentive Scheme

### Context

- The government announced an incentive scheme worth 8500 crore rupees to promote coal gasification projects.

### Details

- It aims to achieve 100 million tonnes of coal gasification by 2030 to reduce dependence on imports of petroleum fertilizers and chemicals.
- Coal gasification converts coal into syngas through a thermo chemical process for industrial and energy applications.

## Rebate of State and Central Taxes and Levies Scheme

### Context

- The scheme has been extended to support exports of garments and made ups until September 2026.

### Details

- It is a scheme operational since 2019 to reimburse embedded state and central taxes on exported goods.
- It provides duty credit scrips to exporters to enhance competitiveness of Indian textile exports.

## Credit Guarantee Fund Trust for Micro and Small Enterprises

### Context

- A global symposium was organised to strengthen credit access for small businesses

### Details

- It was established in 2000 by the Government of India and Small Industries Development Bank of India to provide credit guarantees to micro and small enterprises
- It enhances credit flow by offering partial guarantee coverage to lending institutions thereby reducing risk for lenders.

## Arogya Van Initiative

### Context:

- Promotes biodiversity along highways.

### Details

- Nature: Arogya Van Initiative focuses on planting medicinal trees along highways.
- Objective: Enhances biodiversity and ecological resilience.

- Implementation: Across multiple states with focus on high-visibility highway zones.

## National Quantum Mission

### Context

- Achieved milestone in quantum communication.

### Details

- National Quantum Mission launched in 2023 to develop quantum technologies.
- Focus areas: Quantum computing, communication, sensing and materials.
- Strengthens India's capabilities in advanced technologies and secure communication.

## Mission MITRA

### Context

- Launched in Ladakh by Indian Space Research Organisation to test astronauts under extreme conditions.

### Details

- Studies physiological psychological and team dynamics of Gaganyaan crew in high altitude low oxygen environment.
- Aims to improve crew coordination decision making and preparedness for long duration human space missions.

## YUVIKA Programme

### Context

- The government highlighted this programme to promote scientific temper among school students.

### Details

- Yuva Vigyani Karyakram is an initiative of the Indian Space Research Organisation to provide basic knowledge of space science and technology to students.
- It is a two week residential programme for Class 9 students with preference to rural areas to encourage careers in Science Technology Engineering and Mathematics.

## Prime Minister Internship Scheme (PMIS)

### Why In the News?

- The Ministry of Corporate Affairs (MCA) expanded the Prime Minister Internship Scheme (PMIS) to include final-year graduate and postgraduate students for paid internships.

### About Prime Minister Internship Scheme (PMIS)

- It is a "phygital" initiative by the Government to provide **structured, paid internship opportunities** for youth within India's top 500 companies.
- **Nodal Ministry:** Managed by the **Ministry of Corporate Affairs (MCA)**.
- **Launch:** Pilot phase was announced in the Union Budget 2024-25 and officially launched in **October 2024**.

### Key Features

- **Financial Assistance:** Interns receive a **monthly stipend of ₹5,000** from the government and **₹500** from the company, totaling at least **₹5,500**. However, current pilot highlights indicate some contexts offer a minimum assistance of **₹9,000 per month**.
- **Eligibility Age:** Open to youth between **18 and 25 years old**.
- **Duration:** Internships last for **12 months** to ensure deep industry immersion.
- **Insurance Cover:** Interns are provided coverage under the **Pradhan Mantri Jeevan Jyoti Bima Yojana** and **Pradhan Mantri Suraksha Bima Yojana**.

### New Rules

- **Expanded Eligibility:** The MCA has expanded the scheme so it is no longer restricted to degree-holders; **final-year undergraduate and postgraduate students** are now eligible to apply.
- **Mandatory NOC:** Student applicants must submit a **No Objection Certificate (NOC)** from their educational institution.

## Pradhan Mantri Gram Sadak Yojana-III (PMGSY-III)

### Why in the News?

- The Union Cabinet approved the continuation of Pradhan Mantri Gram Sadak Yojana-III (PMGSY-III) up to March 2028.

### About Pradhan Mantri Gram Sadak Yojana

- Launch:** Launched on December 25, 2000, to provide all-weather road connectivity to eligible, previously unconnected rural habitations.
- Objectives:** Poverty alleviation and aims to bridge the rural-urban divide.
- Phases of PMGSY:**
  - PMGSY-I (2000):** Aimed to connect eligible habitations with a population of 500+ in plain areas and 250+ in special category areas based on the 2001 Census.
  - PMGSY-II (2013):** Focused on upgrading existing Through Routes (TRs) and Major Rural Links (MRLs) to enhance transportation efficiency to rural market centers.
  - RCPLWEA (2016):** The Road Connectivity Project for Left Wing Extremism Affected Areas to enable socio-economic development and smooth security operations.
  - PMGSY-III (2019):** Strengthen connections between rural habitations and Gramin Agricultural Markets (GrAMs), hospitals, and higher secondary schools.
  - PMGSY-IV (2024):** Connect newly eligible habitations (based on Census 2011 populations).
- Cost Sharing:** Road funding is 60:40 (Centre:States) for plains and 90:10 for Himalayan/NE States. UTs without legislatures get 100% Central funding.
- Maintenance:** PMGSY assets require a 5-year routine maintenance contract (Defect Liability Period) linked to construction, followed by a 5-year performance-based maintenance contract. 100% of these maintenance costs

are borne by the respective State/UT Governments.

## River Basin Management (RBM) Scheme

### Why in the News?

- The River Basin Management (RBM) Scheme has been extended for the 16th Finance Commission cycle (2026-27 to 2030-31).

### What is the RBM Scheme?

- It is a Central Sector Scheme that treats an entire river basin—including its tributaries, distributaries, and groundwater—as a single hydrological unit.
- Nodal Ministry:** Ministry of Jal Shakti
- The scheme is implemented through three specific organizations:
  - Brahmaputra Board:** Manages flood control, Majuli Island anti-erosion, and drainage in the North East (Brahmaputra/Barak valleys).
  - Central Water Commission (CWC):** Conducts hydrological surveys and creates DPRs for major basins, including the Indus and Teesta.
  - National Water Development Agency (NWDA):** Oversees Interlinking of Rivers via water balance studies and feasibility reports for surplus-to-deficit transfers.
- Technological Integration:** Employs LiDAR (Light Detection and Ranging) technology and GIS mapping to generate high-resolution data for improved flood forecasting.
- Community-Centric Approach:** Supports "Springshed Management" in the Himalayas to restore water sources for tribal communities.

## Urban Challenge Fund (UCF)

### Why in the News?

- The Ministry of Housing and Urban Affairs (MoHUA) launched the operational guidelines of the Urban Challenge Fund (UCF).

### What is the Urban Challenge Fund (UCF)?

It is a financing mechanism designed to incentivize **million-plus cities** to undertake structural reforms and innovative urban projects.

- **Establishment:** Initially proposed in the **Union Budget 2022-23** and expanded during the **16th Finance Commission cycle (2026-2031)**.
- **Nature:** It is a **Central Sector Scheme** where funds are awarded to cities based on a competitive, challenge-based framework rather than fixed allocations.
- **Nodal Ministry:** Ministry of Housing and Urban Affairs (MoHUA).

**Working Mechanism: The "Challenge" Model**

Unlike the AMRUT or Smart Cities Mission, where states receive funds based on population, the UCF operates as a **contest**:

- **Eligibility:** Primarily targets **8-10 selected Million-Plus urban agglomerations** in its initial phase.
- **Reform Linkage:** To access the fund, cities must demonstrate progress in:

- **Property Tax Reforms:** Digitization of records and increasing collection efficiency.
- **Ring-fencing of Accounts:** Maintaining transparent and audited municipal accounts.
- **Urban Planning:** Implementing modern building bye-laws and GIS-based master plans.
- **Award Criteria:** Cities are ranked on their "Reform Scorecard", and the top performers receive the "Challenge Grant" to execute high-impact projects.

**Strategic Focus Areas**

- **Brownfield Redevelopment:** Converting underutilized urban land (like old factory sites) into green parks or commercial hubs.
- **Blue-Green Infrastructure:** Integrating water bodies (Blue) and parks (Green) to mitigate the "Urban Heat Island" effect.
- **Municipal Bond Issuance:** Providing "Gap Funding" to cities that are attempting to raise money from the capital market via **Municipal Bonds**.

**9.2 SNIPPETS**

Topics	Details
E-PRAAPTI Portal	<ul style="list-style-type: none"> <li>• The Employees' Provident Fund Organisation (EPFO) launched the <b>E-PRAAPTI</b> portal (EPF Aadhaar-Based Access Portal for Tracking Inoperative Accounts).</li> <li>• The E-PRAAPTI portal is a new <b>EPFO digital platform</b> designed to <b>help members identify and link old, inoperative EPF accounts to their active UAN using Aadhaar-based authentication</b>.</li> </ul>
Mission SAKSHAM	<ul style="list-style-type: none"> <li>• The Reserve Bank of India (RBI) launched Mission SAKSHAM (Sahkari Bank Kshamta Nirman).</li> <li>• The mission aims to train <b>1.40 lakh individuals</b> across the Urban Co-operative Banking (UCB) sector, from grassroots staff to leadership. RBI is providing content in <b>regional languages</b> to reach regional cooperatives.</li> </ul>
Pradhan Mantri Rashtriya Bal Puraskar	<ul style="list-style-type: none"> <li>• The Union government invited nominations for the Pradhan Mantri Rashtriya Bal Puraskar (PMRBP).</li> <li>• It is an annual national award for children excelling in Bravery, Art &amp; Culture, Environment, Social Service, Science &amp; Technology, and Sports. <b>Organized by the Ministry of Women and Child Development</b>, eligibility requires candidates to be Indian Citizens <b>aged 5 to 18 years as of July 31 of the application year</b>, with achievements occurring within the last two years. <b>A maximum of 25 awards may be conferred</b>, with each recipient receiving a medal, certificate, and citation booklet.</li> </ul>
Abhilekh Patal	<ul style="list-style-type: none"> <li>• The Abhilekh Patal portal promoted by the Prime Minister of India.</li> </ul>

Portal	<ul style="list-style-type: none"> <li>Abhilekh Patal Portal developed by the <b>National Archives of India (NAI)</b> to provide <b>online access to historical archives</b>. NAI established in 1891, in Kolkata, serves as South Asia's largest archival repository, preserving public records, private papers, and various archival media.</li> </ul>
Nasha Mukh Bharat Abhiyaan	<ul style="list-style-type: none"> <li>The Ministry of Social Justice &amp; Empowerment launched the upgraded Nasha Mukh Bharat Abhiyaan (NMBA) App 2.0.</li> <li>The Nasha Mukh Bharat Abhiyaan, launched on August 15, 2020, by the <b>Ministry of Social Justice &amp; Empowerment</b>, aims to <b>raise awareness about substance abuse across all districts</b>. The initiative includes awareness programs, outreach in educational institutions, community engagement, and improved counseling and treatment facilities.</li> </ul>
NARIT-AI	<ul style="list-style-type: none"> <li>The Gujarat Police introduced the Narcotics Analysis &amp; RAG-based Investigation Tool (NARIT-AI).</li> <li>NARIT-AI is an <b>AI system designed to aid law enforcement in investigating and prosecuting narcotics cases</b> while ensuring compliance with the NDPS Act. Key features include an investigation roadmap, evidence checklists, drafting support for legal documents, and paralegal analysis to identify prosecution weaknesses.</li> </ul>
Samridh Gram Initiative	<ul style="list-style-type: none"> <li>The Samridh Gram initiative nominated for the WSIS Prizes 2026 in the Enabling Environment category.</li> <li>Samridh Gram Initiative is a service delivery model <b>created by the Department of Telecommunications, leveraging BharatNet broadband to provide essential social and economic services in rural areas</b>. Launched in 2024-25, the initiative features <b>Samridhi Kendras as community hubs offering telemedicine, education through AR/VR, smart agriculture solutions, e-governance access, and public safety enhancements</b>. <b>WSIS Prizes recognize innovative ICT projects that support sustainable development, organized by the International Telecommunication Union.</b></li> </ul>
Startup India Fund of Funds 2.0	<ul style="list-style-type: none"> <li>The Government notified the ₹10,000 crore Startup India Fund of Funds 2.0 (FoF 2.0).</li> <li>Startup India Fund of Funds 2.0 (FoF 2.0) aimed at <b>catalyzing domestic investment in startups</b> through contributions to SEBI-registered Alternative Investment Funds (AIFs). Its objectives include <b>bridging funding gaps for early-stage startups</b>, mobilizing private venture capital, and fostering innovation in competitive technologies. FoF 2.0 aims to <b>reduce reliance on foreign technology</b> and create quality jobs in technology-driven sectors.</li> </ul>
e-SafeHER Programme	<ul style="list-style-type: none"> <li>The Ministry of Electronics and Information Technology (MeitY) launched e-SafeHER.</li> <li>e-SafeHER is a <b>Cyber Security Awareness Training Programme</b> aimed to equip one million women for safe digital participation by 2029, <b>enhancing cybersecurity awareness</b> for those involved in digital financial transactions and online livelihoods. The program <b>trains women as Cyber Sakhis, who serve as peer educators, and utilizes multilingual materials for accessibility</b>.</li> </ul>
Vibrant Villages Programme	<ul style="list-style-type: none"> <li>The Vibrant Villages Programme-II extended to border villages in Jammu &amp; Kashmir's Kathua district.</li> <li>The Vibrant Villages Programme (VVP) is a <b>Centrally Sponsored Scheme launched in</b></li> </ul>

	the Union Budget 2022-23 aimed at developing villages along northern borders. Its main objective is to reverse out-migration by enhancing the quality of life in border areas to maintain a stable civilian presence, crucial for national security.
Small Hydro Power (SHP) Development Scheme	<ul style="list-style-type: none"> <li>The Union Cabinet approved the Small Hydro Power (SHP) Development Scheme.</li> <li>The Scheme was initiated by the Ministry of New and Renewable Energy (MNRE), to enhance decentralized hydroelectric generation by targeting 1,500 MW capacity from small hydro projects (1 MW to 25 MW). It spans from FY 2026-27 to FY 2030-31 with a budget of ₹2,584.60 crore.</li> </ul>

### 9.3 ADDITIONAL TOPICS FOR READING FROM IASGYAN WEBSITE

Topic Name	Date
PM-AASHA Scheme	24 <sup>th</sup> April 2026
Nutrient Based Subsidy (NBS) Scheme	9 <sup>th</sup> April 2026
Namo Drone Didi Yojana	6 <sup>th</sup> April 2026



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