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# NO JUDICIAL TIMELINES FOR PRESIDENT, GOVERNORS

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- India-Bhutan Partnership
- MSME Role in Indian Economy
- SC invalidates Tribunal Reforms Act Provisions
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# 1. POLITY & GOVERNANCE

## 1.1    NO JUDICIAL TIMELINES FOR PRESIDENT, GOVERNORS

## Context

- The Supreme Court ruled that the judiciary cannot impose mandatory timelines on the President or a Governor for granting assent to legislative bills.

## The Supreme Court's Judgement

The Supreme Court rejected the imposition of fixed timelines and the concept of "deemed assent" for the following reasons:

- **Constitutional Design and Elasticity:** Articles 200 and 201 are designed to be flexible, and rigid timelines would be "strictly contrary to the Constitution."
- **Separation of Powers:** Prescribing timelines would constitute judicial overreach and violate the doctrine of separation of powers, a part of the basic structure.
- **"Deemed Assent" Unconstitutional:** The court deemed the concept of bills automatically becoming law after a period of inaction as unconstitutional.

> **Background to the Ruling**
>
> - **Two-Judge Bench Verdict (April 2025):** The Supreme Court set specific deadlines: three months for Governors to act on bills and one month for re-enacted bills. It also introduced the concept of "deemed assent" for certain Tamil Nadu bills using the power under Article 142.
> - **Presidential Reference (Article 143):** Following the verdict, the President invoked Article 143(1) to seek the Supreme Court's advisory opinion, posing 14 questions to clarify the constitutional limits of Articles 200 and 201 regarding judicially imposed timelines or "deemed assent."

## Constitutional Provisions Governing Assent

- The Constitution outlines the following processes for legislative assent, none of which prescribe a specific timeframe for action:

| Provision | Authority | Process | Details |
|---|---|---|---|
| Article 111 | President (Parliamentary Bills) | **Options:** Assent, withhold assent, or return (non-Money Bill) for reconsideration. | If Parliament re-passes the bill, the President *must* give assent. No prescribed timeframe. |
| Article 200 | Governor (State Bills) | **Options:** Assent, withhold assent, reserve for President, or return (non-Money Bill) for reconsideration. | The Governor acts with discretion (not bound by the Council of Ministers' advice). Must act **"as soon as possible"** when returning a bill. |
| Article 201 | President (Bills Reserved by Governor) | **Options:** Assent, withhold assent, or direct the Governor to return (non-Money Bill) to the state legislature. | No prescribed timeframe. Unlike Article 111, the President is **not bound** to give assent if the state legislature re-passes the bill. |

## Scope of Judicial Review

The Supreme Court confirmed a limited scope for judicial intervention:

- **Non-Justiciability of Merits:** The merits of a Governor's or President's decision (assent, withhold, or reserve) are generally "non-justiciable." Courts cannot examine the contents of a bill or the decision itself before it becomes law.
- **Limited Judicial Review for Inaction:** While the court cannot impose universal timelines, "prolonged, unexplained and indefinite inaction" by a Governor is subject to **"limited judicial scrutiny."**
  - In such cases, the court may issue a limited directive (mandamus) requiring the Governor to act within a **"reasonable, time-bound period"** without commenting on the bill's merits.
- **Article 361 Immunity:** The Governor's personal immunity under Article 361 does not excuse indefinite delays or prevent limited judicial review of the constitutional office.
- **President's Decision (Article 201):** The President's decision on a reserved state bill is not subject to judicial review on its merits.

## Challenges Regarding Assent Delays

- **Pocket Veto by Inaction:** The absence of a constitutional timeline allows for indefinite delay, effectively acting as a "pocket veto."
- **Against Legislative Will:** Delays undermine the democratic process and the authority of state legislatures.
- **Federalism Concerns:** Discretionary power of the Governor, a Union appointee, over state legislation creates tension in federal relations.

- **Ambiguity:** The phrase "as soon as possible" (Article 200) lacks a precise definition, leading to misuse and varied interpretations.

## Way Forward

- **Institutional Dialogue:** Promoting direct dialogue between Governors and state legislatures to resolve disagreements.
- **Codification of Conventions:** Establishing clearer constitutional conventions or guidelines for a reasonable timeframe for action.
- **Constitutional Amendment:** Parliament should amend Articles 111, 200, and 201 to introduce specific, reasonable timelines.
- **Commission Recommendations:**
  - **Sarkaria Commission (1988):** Recommended the President dispose of a reserved bill within **six months**.
  - **Punchhi Commission (2010):** Suggested a **six-month limit** for both Governors to decide on a bill and for the President to decide on reserved bills.
- **Case-by-Case Judicial Intervention:** The current allowance for intervention in cases of "prolonged, unexplained and indefinite inaction" serves as a crucial check.

## Conclusion

- The Supreme Court upheld the constitutional framework for legislative assent, validating the Governor's and President's discretion by rejecting fixed timelines and deemed assent, subject only to judicial review for unreasonable delay, thus reinforcing the separation of powers.

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## 1.2  JUVENILE JUSTICE SYSTEM IN INDIA

## Context

- A recent study by the India Justice Report (IJR), titled *"Juvenile Justice and Children in Conflict with the Law,"* highlights significant failings in the juvenile justice system.

## About Juvenile Justice (Care and Protection of Children) Act 2015

- Enacted in 2015, it replaced the Juvenile Delinquency Law and the Juvenile Justice (Care and Protection of Children Act) 2000.
- It aims to establish a **child-centric justice system** for both **children in conflict with the**

law (CICL) and those **in need of care and protection (CNCP)**.

### Key Provisions

- **Juvenile Justice Boards (JJBs):** Mandated in every district to handle CICL cases. Each board comprises a Judicial Magistrate and two social workers (one being a woman), emphasizing **rehabilitation over punishment**.
- **Trial for Heinous Crimes:** The Act permits juveniles aged **16–18 years** to be **tried as adults** for **heinous offences** following an assessment by the JJB, balancing child rights with public safety.
- **Uniform Adoption System:** It introduced a **uniform and accessible adoption system** by replacing previous adoption laws (Hindu Adoptions and Maintenance Act, 1956, and Guardians and Wards Act, 1890).
- **Empowering CARA:** The **Central Adoption Resource Authority (CARA)** was granted statutory body status to regulate and monitor all adoptions.
- **Compulsory Registration:** All **Child Care Institutions (CCIs)**, whether government or NGO-run, must be **compulsorily registered** within six months of the Act's commencement.

### The 2021 Amendment

- Crimes under the **"Other Offences Against Children"** section of the JJ Act, 2015, with a penalty of 3–7 years of imprisonment, are now classified as **non-cognisable**.
- The power to issue adoption orders was shifted from courts to the **district magistrate** to expedite adoption cases.

## Gaps Identified by the India Justice Report (IJR)

- **High Case Pendency:** As of October 2023, over **55%** of cases before the **Juvenile Justice Boards (JJBs)** were pending, with state pendency ranging 83% in Odisha to 35% in Karnataka.
- **Structural Deficiencies in JJBs:** A quarter of **JJBs (24%)** were not fully constituted,

hindering quorum and timely decision-making. **30% of JJBs lacked a legal services clinic**, compromising the right to timely legal representation for children.

- **Weak Accountability and Transparency:** The RTI response culture is poor; out of over 500 requests, **11% were rejected**, **24% received no reply**, and only **36%** provided complete information, indicating a lack of transparency.
- **Systemic Administrative Weaknesses:** The decentralized framework of the JJ Act is weakened by a lack of **inter-agency coordination**, poor **data-sharing**, and ineffective **monitoring mechanisms**.
- **Absence of a Central Data Grid:** Experts stress the urgent need for a **National Data Grid** to ensure real-time data flow and effective oversight across key agencies, including the police, Department of Women and Child Development, State Child Protection Society (SCPS), and State Legal Services Authority (SLSA).

## Way Forward

- **Strengthen Institutional Infrastructure:** Ensure the **timely filling of vacancies** in **JJBs** and **Child Welfare Committees (CWCs)** to maintain quorum. Every JJB should be linked to a dedicated **Legal Services Clinic** for immediate, free legal aid.
- **Prioritize Rehabilitation and Reintegration:** The focus must shift from custody to rehabilitation, requiring better **vocational training**, **education**, and **mental health support** in CCIs. Robust **post-care systems** are essential to ensure successful reintegration and prevent recidivism.
- **Enhance Data Transparency and Accountability:** A centralized, public-facing data portal is needed to track **JJB cases**, monitor **pendency**, and follow each child's progress, thereby strengthening accountability across the system.

## Conclusion

- The Juvenile Justice (Care and Protection of Children) Act, 2015 is undermined by systemic

failures such as high case pendency, infrastructural and human resource gaps. Addressing these issues is crucial to uphold the foundational principle of a child-centric justice system.

## 1.3 SC INVALIDATES TRIBUNAL REFORMS ACT PROVISIONS

### Context

- The Supreme Court invalidated some sections of the Tribunal Reforms Act, 2021, asserting that they granted the Union government excessive control over the appointment, tenure, and operation of tribunals.

### Key Provisions of the Act Invalidated by the SC

- **Minimum Age:** The 50-year minimum age was deemed arbitrary; the Court upheld eligibility for advocates with 10 years of practice.
- **Tenure:** The four-year tenure was found to undermine independence; the Court reinstated the minimum five-year tenure.
- **Recommendation:** The requirement for a panel of two names was invalidated; the Search-cum-Selection Committee (SCSC) must recommend only one name per post to limit executive discretion.
- **Service Conditions:** Equating tribunal members (who perform judicial functions) with civil servants was struck down as violating separation of powers.

The Court ordered the Centre to create a National Tribunal Commission within four months to ensure tribunal autonomy and transparency.

### About Tribunals

- Tribunals are **quasi-judicial bodies** designed to alleviate the workload on regular courts and introduce specialized expertise to complex disputes.
- **Part XIV-A** of the Constitution, inserted by the **42nd Amendment Act of 1976**, established the framework for tribunals through **Articles 323A and 323B**.
  - **Article 323A:** Allows Parliament to create **Administrative Tribunals** for service-related matters concerning employees of the Centre, states, and public authorities.
  - **Article 323B:** Permits Parliament and state legislatures to establish tribunals for subjects such as taxation, land reforms, and industrial disputes.
  - The SC clarified that legislatures can establish tribunals for any subject listed in the **Seventh Schedule**.

### Challenges Associated with Tribunal System

- **Threat to Judicial Independence:** Dominant role of the Union Government in **appointments, tenure, salaries, and service conditions** of members, hamper impartial justice and violate the basic feature of judicial independence.
- **Lack of Centralised Oversight:** Absence of a supervisory body, unlike the National Judicial Data Grid for courts, hinders transparency and evidence-based reform.
- **High Pendency and Vacancies:** Many tribunals suffer from large backlogs (e.g., the **Income Tax Appellate Tribunal**) exacerbated by vacancies and slow appointment processes.
- **Short Tenure and Executive Influence:** Short tenures and the possibility of reappointments pressure members to align with the government to secure extensions, increasing executive influence.
- **Non-Uniform Procedures:** Different rules across tribunals create confusion for litigants and lead to inconsistencies in justice delivery.

### Way Forward to Strengthen the Tribunal System

- **Establish a National Tribunal Commission (NTC):** As directed by the SC, the NTC is a crucial structural safeguard for ensuring autonomy, transparency, and uniformity in appointments and administration.

- **Leverage Technology:** Utilizing e-filing, virtual hearings, digitized records, and AI-based case management to boost efficiency.
- **Streamline Procedures:** Standardizing procedural rules across all tribunals to ensure uniformity and reduce delays.
- **Clarify Jurisdictional Boundaries:** Issuing clear legislative guidelines to prevent overlapping powers between tribunals and courts.
- **Enhance Training:** Providing regular legal and technical training for both judicial and expert members to improve the quality and consistency of decisions.

## Conclusion

- The Supreme Court stressed that tribunals need executive independence. Establishing a National Tribunal Commission and standardizing procedures are vital for ensuring autonomy and public trust.

## 1.4    SHORT ARTICLES

# Digital Personal Data Protection (DPDP) Rules 2025

### Context

- The Government notified the Digital Personal Data Protection (DPDP) Rules, 2025, to operationalise the Digital Personal Data Protection (DPDP) Act 2023.

### About Digital Personal Data Protection (DPDP) Act, 2023

- It is the foundational law for protecting digital personal data in India.
- The law is based on **7 principles guiding every stage of data processing**, ensuring data is used only for lawful and specific purposes:
  - Consent and Transparency
  - Purpose Limitation
  - Data Minimisation
  - Accuracy
  - Storage Limitation
  - Security Safeguards
  - Accountability

### Key Definitions:

- **Data Principal:** The individual to whom the personal data relates (includes a parent/lawful guardian for a child, or a lawful guardian for a person with disability).
- **Data Fiduciary:** The entity that determines the 'why' and 'how' of personal data processing.
- **Data Processor:** The entity that processes personal data on behalf of a Data Fiduciary.
- **Consent Manager:** An entity providing a transparent platform for a Data Principal to manage, give, review, or withdraw consent.

- **Appellate Tribunal:** The Telecom Disputes Settlement and Appellate Tribunal (TDSAT), which hears appeals against the Data Protection Board's decisions.

### About Digital Personal Data Protection (DPDP) Rules, 2025

- **Phased Implementation:** An **18-month compliance window** is provided for organisations (Data Fiduciaries) to update systems.
- **Consent Notices:** Data Fiduciaries must issue simple, purpose-specific consent notices. Consent Managers must be India-based companies.
- **Personal Data Breach Notification:** Data breaches must be reported to affected individuals **without delay** in simple language, detailing the incident, impact, and steps taken.
- **Transparency and Accountability:** Data Fiduciaries must display clear contact information for data queries. **Significant Data Fiduciaries** face stricter rules, including independent audits and impact assessments.
- **Digital-First Data Protection Board:** The Rules establish a fully digital **Data Protection Board** (with four members), allowing citizens to file and track complaints online.

# Contempt of Court

### Context

The recent controversy over derogatory remarks made against the Chief Justice of India and the Supreme Court has sparked a debate about

the limits of free speech and the administration of justice in India.

### About Contempt of Court

- Contempt of Court laws protect judicial institutions from motivated attacks and unwarranted criticism to ensure the orderly administration of justice.
- It balances free speech with the need to uphold the courts' dignity and authority.

### Legal and Constitutional Framework

- The **Contempt of Courts Act, 1971**, based on the H.N. Sanyal committee's recommendations, governs contempt.
- Power to punish for contempt is also enshrined in the Constitution.
  - **Article 129:** Grants the **Supreme Court** the power to punish for contempt of itself, designating it as a 'court of record'.
  - **Article 215:** Grants every **High Court** the power to punish for contempt of itself, also designating them as 'courts of record'.

### Types of Contempt

The Contempt of Courts Act, 1971, categorizes contempt into two types.

| Basis | Civil Contempt | Criminal Contempt |
|---|---|---|
| Definition | **Wilful disobedience** to any judgment, decree, direction, order, writ, or other process of a court, or a wilful breach of an undertaking given to a court. | Any act or publication which:<br>• **Scandalises** or lowers the authority of any court.<br>• **Prejudices** or interferes with any judicial proceeding.<br>• **Obstructs** the administration of justice in any other manner. |
| Nature | Remedial. It aims to compel compliance with the court's order. | Punitive. It aims to protect the authority of the court and public confidence in the judicial system. |
| Example | Failure to pay alimony as directed by a court. | Making baseless allegations of corruption against a judge. |

Contempt of court is punishable by up to six months' simple imprisonment, a fine up to ₹2,000, or both. The court may waive the punishment if the accused offers a sincere and satisfactory apology.

## SC Upholds Minors' Property Right

### Context

- The Supreme Court in the K.S. Shivappa vs Smt. K. Neelamma case clarified the legal position on sales of a minor's property by a guardian without prior court permission.

### Legal Framework Governing Minor's Property

- **Indian Contract Act, 1872 (Section 11):** A minor is legally incompetent to enter into a contract. Any agreement they make is considered **void ab initio** (void from the very beginning) and cannot be legally enforced.
- **Hindu Minority and Guardianship Act (HMGA), 1956:**
  - **Guardian's Restriction (Section 8(2)):** A natural guardian is prohibited from transferring a minor's immovable property (e.g., through sale, gift, mortgage, or charge) without first obtaining the **permission of the court**.
  - **Consequence of Unauthorized Transfer (Section 8(3)):** A property transfer made by a guardian without court approval is considered **voidable**; the minor can choose to either approve or reject the transaction once they become an adult.
- **Guardians and Wards Act, 1890:** Strengthens protection by requiring a guardian (e.g., under Section 29) to get court approval before selling their ward's property.
- **Limitation Act, 1963 (Article 60):** A minor has three years after attaining majority to legally challenge or repudiate a property transfer made by their guardian.

# Transplantation of Human Organs and Tissues (Amendment) Rules 2025

## Context

- The Union Ministry of Health and Family Welfare has notified the Transplantation of Human Organs and Tissues (Amendment) Rules, 2025.

## Recent Policy Reforms to Boost Transplants

- **"One Nation, One Policy" for Organ Allocation:** The government eliminated discriminatory barriers to promote fairness. Key changes include:
  - **Domicile requirement abolished:** Patients can register for a deceased donor organ nationally.
  - **Removal of Age Cap:** The 65-year upper age limit for organ transplant registration has been removed, enabling senior citizens to register.
  - **No Registration Fees:** States must not charge fees for transplant waiting list registration.
- **Simplified Rules for Corneal Transplants:** The Ministry of Health and Family Welfare removed the mandatory requirement for expensive Clinical Specular Microscopes at corneal transplant centers.

## About Transplantation of Human Organs and Tissues Act (THOTA) 1994

- **Regulation of Donation:** Defines donors, recipients, and near relatives to ensure proper consent and prevent exploitation.
- **Brain Stem Death:** Legally recognized brain stem death as death is crucial for expanding the deceased donor pool.
- **Authorization Committees:** Institutional and state committees were established to approve transplants, ensuring ethical compliance.
- **Prohibition of Commercial Trade:** Makes buying or selling organs a punishable offence with stringent penalties, including imprisonment and fines.
- **2011 Amendment:** Expanded to include **tissues and cells**, permitted **swap donations**, and introduced stricter penalties for violations.

# First-Ever Individual Entitlement Survey for PVTGs

## Context

- The Government to start the first 'Individual Entitlement Survey' targeting Particularly Vulnerable Tribal Group (PVTG) households to assess the on-ground reach of 39 schemes managed by 18 central government departments.

## Scope and Methodology of the Survey

- The survey will target 10 lakh households across **75 recognized PVTGs** in 18 states and the Union Territory of Andaman and Nicobar.
- Surveyors will use a mobile application developed by the **National e-Governance Division (NeGD)** for direct data input.
- Upon completion, the government will issue a **'Universal Entitlement Card'** to each tribal member from a vulnerable group, detailing their eligibility status for the monitored government schemes.

## About Particularly Vulnerable Tribal Groups (PVTGs)

- PVTGs are a sub-category of **Scheduled Tribes** who face greater vulnerability stems from **limited access to education, healthcare, and modern infrastructure.**
- **Article 342(1)** empowers the President to specify tribes or tribal communities as Scheduled Tribes in a State/UT, in consultation with the Governor.
- In **1973**, the **Dhebar Commission** created a category called **Primitive Tribal Groups (PTGs)** for the least developed tribal groups. The Government renamed them **PVTGs** in **2006**.
- Key characteristics include a **small, homogenous population, physical isolation, lack of written language**, simple technology, and slow socio-economic development; **low literacy, and economic backwardness**.
- **Odisha** has the highest number of PVTGs (13), followed by Andhra Pradesh and Telangana (12).

# Central Empowered Committee (CEC)

## Context

- The Supreme Court (SC) has blocked any attempt to dismantle the Central Empowered Committee (CEC), asserting that the body requires SC approval for dissolution.

## About Central Empowered Committee (CEC)

- The CEC was initially established in **2002** by a Supreme Court order in the *T.N. Godavarman*case (1995).
- It was granted **statutory status in 2023** through a notification issued by the Union Ministry of Environment, Forest and Climate Change (MoEFCC), at the SC's direction.
- **Goals:** Monitors and ensures compliance with **Supreme Court orders concerning environmental, forest, and wildlife matters.**
  - o It conducts **field inspections** and submits **independent, fact-finding reports** to the SC.
  - o Its functions include reviewing **cases of non-compliance,** overseeing issues such as the **removal of encroachments** and **compensatory afforestation,** and considering **petitions from aggrieved persons** to aid the Court's environmental oversight.
- **Composition:** The CEC comprises a **chairperson, three expert members** (one each specializing in **environment, forest, and wildlife**), and a member secretary. All members are civil servants appointed by the **MoEFCC.**
- **Significance:** CEC reports have been instrumental in SC decisions on various crucial matters, including the declaration of **Goa's first tiger reserve (Mhadei Wildlife Sanctuary),** regulation of tourism in **Sariska Tiger Reserve,** disputes over tree-felling in **Hyderabad's Kancha Gachibowli,** and **mining in the Aravallis.**

## 1.5  SNIPPETS

| Topics | Details |
|---|---|
| Sahitya Akademi – Bal Sahitya Puraskar 2025 | - The Bal Sahitya Puraskar 2025 by the Sahitya Akademi was held on 14th November 2025.<br>- Instituted in 2010, the Bal Sahitya Puraskar honours excellence in children's literature across 24 Indian languages, with eligibility limited to Indian authors whose original works target readers aged 9–16 and were published within the five years preceding the award year. **The Sahitya Akademi Awards, launched in 1954, recognise outstanding works in 22 scheduled languages,** English, and Rajasthani, standing as India's second-highest literary accolade after the Jnanpith. |
| Drone City and Space City Project | - The Union Ministry of Commerce & Industry laid the foundation stone for India's first Drone City and a new Space City in Andhra Pradesh.<br>- The Drone City and Space City projects aimed at driving aerospace, drone, and space tech growth. Close to Sriharikota, Space City will boost private space ventures in partnership with IN-SPACe. Supported by incentives such as 100% SGST refunds and 20% capital reimbursements, these initiatives align with the Viksit Bharat 2047 and Swarna Andhra 2047 goals. |
| Sujalam Bharat Summit 2025 | - The Ministry of Jal Shakti hosted the Vision for Sujalam Bharat Summit 2025 in New Delhi.<br>- The event **promotes water sustainability through evidence-based policy, sectoral reforms, and cooperative federalism**. It focuses on **six themes:** river/spring rejuvenation via wetland restoration and community stewardship; greywater management with circular use and nature-based solutions; technology (AI |

monitoring, precision agriculture); water conservation through aquifer recharge and LiFE-aligned shifts; sustainable, climate-resilient drinking water; and strong community engagement (PRIs, SHGs). **Five national priorities emerged:** source sustainability, groundwater recharge, modern/nature-based solutions, stronger community institutions, and inter-departmental convergence.

## 1.6    ADDITIONAL TOPICS FOR READING FROM IASGYAN WEBSITE

| Topic Name | Date |
|---|---|
| Role of Technology In Governance | 1st NOVEMBER |
| SC To Review Surrogacy Ban | 5th NOVEMBER |
| Supreme Court Concerned Over Misuse Of POCSO Act | 5th NOVEMBER |
| AI In Judiciary | 6th NOVEMBER |
| Property Law In India | 8th NOVEMBER |
| Rights Of Muslim Women In India | 11th NOVEMBER |
| Right To Vote Different From Freedom Of Voting | 12th NOVEMBER |
| Legal Aid In India | 12th NOVEMBER |
| Anti-Conversion Law | 18th NOVEMBER |
| Guidelines Defining 'Obscenity' In Online Content | 22nd NOVEMBER |
| State Public Service Commissions | 24th NOVEMBER |

# 2. INTERNATIONAL RELATIONS

## 2.1    INDIA SECURES SIX-MONTH US WAIVER FOR CHABAHAR PORT

### Context

- The United States granted India a six-month sanctions waiver for continued operations at Iran's Chabahar Port.

### About Chabahar Port

- Located in Iran's Sistan-Baluchestan province, it is the country's sole deep-sea port with direct Indian Ocean access.
- **Geographic Location:** Located at the Gulf of Oman's mouth, it offers direct Indian Ocean access, bypassing the congested Strait of Hormuz.
- **10-Year Agreement:** In 2024, India and Iran signed for the operation of the Shahid Beheshti terminal.

### Strategic Significance of Chabahar Port for India

- **Gateway to Afghanistan & Central Asia:** Allows India to bypass Pakistan to reach Afghanistan and the landlocked, resource-rich nations of Central Asia, vital for India's **'Connect Central Asia'** policy.
- **Anchor for INSTC:** Chabahar is a key node in the **7,200-km International North-South Transport Corridor (INSTC)**, a multi-modal project linking India, Iran, Azerbaijan, Russia, Central Asia, and Europe. The corridor aims to cut transit time by **40%** and costs by **30%** compared to the Suez Canal route.
- **Geopolitical Counterbalance:** Located about 170 km west of China-operated Gwadar Port in Pakistan, Chabahar acts as a strategic counter to China's "String of Pearls" influence in the Indian Ocean Region.
- **Humanitarian Assistance Hub:** The port has proven to be a reliable channel for delivering aid, exemplified by India's use of the port to ship relief materials to Afghanistan in partnership with the UN World Food Programme (WFP).

### Major Challenges Hindering Progress

- **US Sanctions Risk:** Uncertainty discourages private sector involvement (banks, insurance, companies) and damages the port's commercial viability.
- **Internal Connectivity Delays:** The port's effectiveness is hampered by the slow construction of the essential **Chabahar-Zahedan railway line**.
- **Regional Political Instability:** The volatile situation in Afghanistan under the Taliban creates an unpredictable operating environment.
- **Commercial Hurdles:** Commercial success for the port depends on consistently attracting a high cargo volume by overcoming strong regional competition and establishing a reliable, fully functional logistical ecosystem.

### Way Forward for India

To maximize the potential of this strategic asset, India must adopt a multi-pronged approach:

- **Sustained Diplomatic Engagement:** India needs to continue engaging with the U.S. to ensure a stable and predictable waiver regime for Chabahar, emphasizing its importance for Afghanistan's stability and regional connectivity.
- **Accelerate Connectivity Projects:** Expedite the Chabahar-Zahedan railway. India must swiftly support this project to integrate the port with the INSTC network.
- **Integrate Regional Partners:** Including Central Asian nations like Uzbekistan and Kazakhstan in the port's ecosystem will boost cargo traffic, diversify stakeholders, and enhance economic viability.
- **Develop a Commercial Ecosystem:** Streamline customs and logistics, promoting the Chabahar route to ensure consistent traffic from Indian traders and businesses.

## Conclusion

- The successful development of Chabahar Port will be a force multiplier for India's economic and strategic goals and will solidify its role as a primary connectivity provider in the region.

| 2.2 | US ORDERS RESUMPTION OF NUCLEAR WEAPON TESTING |
|---|---|

## Context

- U.S. The president ordered the resumption of nuclear weapons testing after a 33-year voluntary moratorium, raising global concerns about triggering a new arms race and undermining non-proliferation efforts.

## About Nuclear Testing

The nuclear age began with the 1945 U.S. "Trinity" test, starting a Cold War arms race with the Soviet Union that led to devastating environmental and human consequences due to rapid weapons development.

- **Total Tests:** Since 1945, over **2,000 nuclear tests** have been conducted worldwide.
- **Atmospheric vs Underground:** Early tests were atmospheric, scattering radioactive fallout globally. The **1963 Partial Test Ban Treaty** moved most testing underground, but risks of contamination remained.
- **Major Power Moratoriums:** The Soviet Union last tested in 1990, the U.K. in 1991, the U.S. in 1992, and both France and China in 1996.
- **Post-Moratorium Tests:** India and Pakistan conducted tests in 1998, and North Korea has conducted the most recent test in **2017**.

## International Treaties and Regimes

- International treaties are the foundation of global non-proliferation and disarmament; renewed testing by a major power would gravely risk this vital security framework.

| Treaty | Key Provisions | Current Status |
|---|---|---|
| Treaty on the Non-Proliferation of Nuclear Weapons (NPT) | Aims to prevent the spread of nuclear weapons, promote peaceful uses of nuclear energy, and achieve nuclear disarmament. | Cornerstone of non-proliferation but weakened by the modernization of arsenals by nuclear-weapon states. India is not a signatory, viewing it as discriminatory. |
| Comprehensive Nuclear-Test-Ban Treaty (CTBT) of 1996 | Bans all nuclear explosions, for both military and civilian purposes, in all environments. | Not yet in force. Requires ratification by 44 specific "Annex 2" states. **Eight** key states, including the U.S., China, India, and Pakistan, have not ratified it. |
| Treaty on the Prohibition of Nuclear Weapons (TPNW) | The first legally binding treaty to comprehensively prohibit nuclear weapons, including their development, testing, and use. | Entered into force in 2021. However, none of the nuclear-armed states have signed or ratified it. |

## Consequences of Resuming Testing

- **Geopolitical Fallout:** It would **trigger a new arms race** (provoking reactive tests from Russia, China, India, and Pakistan) and **undermine global norms**, effectively ending the Comprehensive Nuclear-Test-Ban Treaty (CTBT).
- **Environmental Impact:** Underground tests risk **radioactive contamination** of soil and groundwater for centuries, leading to **long-term health risks** like increased cancer rates.

**India's Stance on Nuclear Weapons**

- **Credible Minimum Deterrence:** Maintain a survivable nuclear force for aggression deterrence without sparking an arms race.
- **No First Use (NFU):** Nuclear weapons will only be used in retaliation to a nuclear attack on Indian territory or forces.
- **Voluntary Moratorium on Testing:** Since the **Pokhran-II tests in 1998**, India has maintained a unilateral moratorium on further explosive nuclear testing.
- **Stance on NPT & CTBT:** India has not signed either treaty, viewing them as discriminatory for creating a divide between nuclear "haves" and "have-nots" and not providing a clear path to universal disarmament.

## Way Forward

- **Strengthen Arms Control Dialogue:** Strategic discussions between nuclear-armed states are essential to establish new safeguards for arms control.
- **Enforcing the Ban on Testing:** The international community must increase pressure for the Comprehensive Nuclear-Test-Ban Treaty (CTBT) to be signed and ratified, legally enforcing the non-testing norm.
- **Implement Robust Confidence-Building Measures (CBMs):** Nuclear powers must implement CBMs—like transparency, pre-announcing missile launches, and crisis hotlines—to reduce accidental conflict risk.
- **Elevate Diplomacy:** UN and G20 forums must prioritize nuclear risk reduction. Dialogue and disarmament, not just deterrence, are key to global stability.

## Conclusion

- India and the world must recommit to diplomacy for a nuclear-weapon-free world. Resuming nuclear testing is a dangerous step that threatens decades of arms control and sparks a new arms race amid global instability.

## 2.3 INDIA-BHUTAN PARTNERSHIP

## Context

- The Indian Prime Minister visited Bhutan for the 70th birthday of the fourth king, Jigme Singye Wangchuck.

## About India-Bhutan Relations

- The relationship, rooted in the **1949 Treaty of Friendship** and the revised **India-Bhutan Friendship Treaty of 2007**.
- This special relationship is built on a foundation of shared strategic interests, mutual trust, and extensive cooperation in economic, developmental, and cultural spheres.

### Recent Developments & Key Agreements

- India pledged **₹10,000 crore** to support Bhutan's 13th Five-Year Plan (2024-2029), encompassing project, community, and economic stimulus assistance.
- India supports Bhutan's ambitious **Gelephu Mindfulness City**, a special administrative region aimed at creating a sustainable economic hub on the Assam border.
- The **Punatsangchhu-II Hydroelectric Project** was fully commissioned in August 2025, boosting Bhutan's power generation capacity by about 40%. Both nations also agreed to restart work on the stalled **1200 MW Punatsangchhu-I Project**.
- **Cross-border rail links from Gelephu to Kokrajhar (Assam) and Samtse to Banarhat (West Bengal)** are progressing, with final surveys underway. A **new Immigration Check Post opened at Darranga, Assam,** to boost regional tourism and trade.

## Areas of Cooperation

- **Economic Relations:** Since 2014, India's trade with Bhutan has more than tripled—from $484 million in 2014–15 to $1,7 Billion in 2024–25, accounting for over 80% of Bhutan's overall trade.
- **Regional Integration:** Bhutan contributes to India's broader regional agenda through SAARC and BIMSTEC, helping India balance China's regional influence.
- **Connectivity:** India is developing roads via Project DANTAK.
- **Education, Health & Space:** India provides STEM teachers, funded a modern Mother and Child Hospital, supplied 5.5 lakh COVID vaccines, and jointly launched the 'India-Bhutan SAT' satellite.
- **Cultural Ties:** PM Modi received Bhutan's highest civilian honour, the 'Order of the Druk Gyalpo,' in 2024, highlighting deep mutual respect.

## Key Challenges in the Bilateral Relationship

- **China Factor & Geopolitical Balancing:** Bhutan's ongoing border negotiations with China, have direct security implications for India's strategic **Siliguri Corridor ("Chicken's Neck")**.
- **Tourism Policy Impact:** Bhutan's "High Value, Low Volume" tourism policy includes a Sustainable Development Fee (SDF). Indian tourists pay INR 1,200 per night, a rate that reduced Indian tourist volume, affecting border economies and people-to-people contact.
- **Environmental & Water-Sharing Concerns:** Development of large-scale hydropower projects raises environmental concerns in downstream Indian states like Assam regarding unregulated water flow, siltation, and flood management.
- **Connectivity Gaps:** Limited infrastructure and Bhutan's environmental reservations on initiatives like the BBIN Motor Vehicle Agreement slow integration.

## Way Forward

- **Economic Diversification:** India should promote joint ventures in sectors beyond hydropower, such as organic agriculture, information technology, and eco-tourism, to help Bhutan build a more resilient and diversified economy.
- **Strategic Alignment:** Close coordination and intelligence sharing on border negotiations and regional security issues to ensure that India's strategic interests are protected.
- **Integrated Water Management:** Transition from project-based hydropower to **Integrated River Basin Management**, using joint mechanisms for flood forecasting, climate adaptation, and environmental impact assessment.
- **Enhancing Connectivity:** Expediting cross-border rail and connectivity projects will boost trade and strategically integrate the region, supporting India's 'Neighbourhood First' and 'Act East' policies.

## Conclusion

- The India-Bhutan relationship is evolving, deepening cooperation in areas like space technology and renewable energy. This partnership balances strategic concerns and promotes economic growth, serving as a key element of regional stability.

## 2.4  SHORT ARTICLES

# Asia-Pacific Economic Cooperation (APEC) Summit 2025

**Context**

- The 2025 Asia-Pacific Economic Cooperation (APEC) Summit, held in Gyeongju, South Korea, concluded with the adoption of the Gyeongju Declaration.

### About Asia-Pacific Economic Cooperation (APEC)

- It is a regional economic forum established in 1989.
- **Membership:** 21 member economies from the Pacific Rim. **India is not a member.**
- **Economic Powerhouse:** Home to around 3 billion people. Contributes 61% of global GDP and nearly 50% of world merchandise trade.
- **Operating Principles:** Non-binding commitments and decisions reached by consensus.
- APEC is guided by the **Putrajaya Vision 2040**, to create an "open, dynamic, resilient and peaceful Asia-Pacific community by 2040."

### Gyeongju Declaration: Major Outcomes and Initiatives

- **APEC AI Initiative (2026-2030):** Promote inclusive, resilient growth through innovation, cooperation, and capacity building in sustainable AI.
- **Framework for Demographic Changes:** Addressing aging, declining birth rates, and rapid urbanization via people-centered policies and a "silver economy."
- **Trade and Investment:** Free and open trade, strengthening supply chains, and supporting the market-driven Free Trade Area of the Asia-Pacific (FTAAP) agenda.

## US-Proposed Plan for Gaza

### Context

- The UN Security Council (UNSC) adopted Resolution 2803, endorsed the Trump Gaza Peace Plan, and authorized the establishment of an International Stabilization Force (ISF) in Gaza.

### Key Elements of the US Gaza Plan

- **Immediate Action:** Calls for ceasefire, a freeze on battle lines, and a Hamas-Israel hostage-detainee exchange.
- **New Governance:** Excludes Hamas from future governance, establishing an international "Board of Peace" to oversee administration and reconstruction until comprehensive Palestinian governance reforms are complete.

- **Oversight/Peacekeeping:** A multinational "International Stabilisation Force (ISF)," including Arab troops, would deploy to maintain peace, secure borders, and train a new Palestinian police force.
- **Economic Plan:** Creates a "New Gaza" special economic zone, using international aid and preferential trade to spur reconstruction and job creation.
- **Rights/Statehood:** Guarantees no forced displacement for Palestinians and offers a "political horizon" for a future Palestinian state.

### India's Position

India's policy on the Gaza conflict is characterized by a strategic balance, upholding core principles while managing complex regional relationships:

- **Two-State Solution:** India strongly advocates for a negotiated two-state solution, establishing a sovereign, independent, and viable State of Palestine to coexist securely and peacefully with Israel.
- **Zero-Tolerance for Terrorism:** India condemned the attacks on Israel, citing its anti-terrorism policy, while simultaneously voicing deep concern over civilian casualties and emphasizing adherence to international humanitarian law.
- **Humanitarian Commitment:** As a first responder, India supplied essential humanitarian aid (food, medical supplies, disaster relief) to Palestinian civilians and increased its annual contribution to UN Relief and Works Agency for Palestine Refugees in the Near East (UNRWA) to $5 million.
- **Strategic Diplomacy:** India balances strong, independent relations with all key regional players, including strategic partnerships with Israel (defence, tech, agriculture), the US, and vital Arab nations like the UAE and Saudi Arabia (energy, trade).

## Seychelles Joins Colombo Security Conclave (CSC)

### Context

- The 7th National Security Adviser (NSA) - level meeting of the Colombo Security

Conclave (CSC) in New Delhi inducted Seychelles as the 6th full member.

### About Colombo Security Conclave (CSC)

- It is a regional security grouping focused on addressing transnational threats and challenges shared by its member states; **India, Bangladesh, Sri Lanka, Maldives, Mauritius, and Seychelles**.
- The grouping facilitates coordinated security cooperation through meetings involving the National Security Advisors (NSAs) and Deputy NSAs of the member countries.
- **Evolution:**
  - **Origin (2011):** Started as the Trilateral Maritime Security Cooperation involving India, Maldives, and Sri Lanka.
  - **Stalled (2014):** Activity was paused due to geopolitical shifts and tensions between India and the Maldives.
  - **Revival (2020):** Revived and rebranded as the CSC.
  - **Expansion:** Membership grew with the inclusion of **Mauritius (2022), Bangladesh (2024),** and **Seychelles (2025).**
- **Pillars of Cooperation:** The CSC focuses on five key areas:
  - Maritime safety and security
  - Countering terrorism and radicalisation
  - Combating trafficking and transnational organised crime
  - Cyber security and protection of critical infrastructure
  - Humanitarian assistance and disaster relief (HADR)
- A permanent secretariat in Colombo, Sri Lanka.

### About Seychelles

- It is an island nation and archipelagic state of 155 islands located in the **western Indian Ocean**, northeast of Madagascar and off the east coast of mainland Africa. It is part of the **Mascarene Plateau**.
- It is **Africa's smallest and least populated country**.
- **Capital:** Victoria (located on Mahé Island).
- Seychelles is vital for India's SAGAR vision and Indian Ocean diplomacy. Its location along

crucial maritime trade routes makes it a key partner in **anti-piracy operations, maritime security, and the Blue Economy**.



# G20 Johannesburg Summit 2025

### Context

- The 2025 20th G20 Summit, held in Johannesburg, South Africa—the first on the continent—focused on the Global South under the theme of "Solidarity, Equality, Sustainability."

### About G20

- **Origin:** Formed after the **Asian Financial Crisis (1997–98)** as a platform for Finance Ministers and Central Bank Governors to enhance global financial stability.
- **Evolution:** Expanded its focus beyond macroeconomics to issues like **trade, climate change, health, food security, energy transitions, and digital governance.**
- **Elevation:** Elevated to the **Leaders' Level (2007-08)** during the Global Financial Crisis, with annual summits becoming the norm since 2009.
- **Composition:** An informal grouping of **19 major economies, the European Union (EU), and the African Union (AU).** India is a founding member.
- **Global Clout:** G20 members represent **85% of global GDP, over 75% of world trade,** and nearly **two-thirds of the global population.**
- **Informal Structure:** The G20 lacks a permanent headquarters or staff.

**Key Highlights of the G20 Johannesburg Leaders' Declaration:**

- **Spirit of Ubuntu and Multilateralism:** Emphasizing the African philosophy of **Ubuntu ("I am because you are,"** highlighting shared global responsibility). Leaders urged stronger **multilateral cooperation** to tackle global conflicts, inequality, and humanitarian crises.
- **UN Security Council Reform:** Support for **transforming the United Nations Security Council (UNSC)** to better reflect modern geopolitical realities, calling for expanded representation for regions like **Africa, Asia-Pacific, and Latin America.**
- **Expanded Climate Action:** Agreement to scale up global **climate finance** to ensure a more equitable transition under the **Paris Agreement.**

- **Women's Empowerment:** Commitment to **removing barriers to women's participation**, ensuring their equal role in decision-making, and recognizing them as agents of peace.
- **Financial Reform:** A **Cost of Capital Commission** was launched to reform global credit rating practices and address the "African risk premium."
- **Mission 300:** Highlighted an initiative by the **World Bank and African Development Bank** aiming to provide electricity to 300 million people in Sub-Saharan Africa by 2030.
- **Critical Minerals Framework:** Welcomed the **G20 Critical Minerals Framework** focused on securing sustainable value chains, promoting investment, and local beneficiation in developing countries.

## 2.5    SNIPPETS

| Topics | Details |
|---|---|
| Abraham Accords | • The US President announced that Kazakhstan will join the Abraham Accords.<br>• The Abraham Accords, US-brokered agreements from 2020, **normalized relations between Israel and several Arab/Muslim-majority nations, including the UAE, Bahrain, Morocco, and Sudan.** Named after the shared ancestor Abraham, the accords represent a symbolic shift in Arab diplomacy away from the Palestinian issue, advancements in regional trade, technology, and tourism. |
| ICFT–UNESCO Gandhi Medal | • The ICFT-UNESCO Gandhi Medal at the 56th International Film Festival of India (IFFI) 2025 recognizes films promoting Mahatma Gandhi's values: peace, non-violence, and inter-cultural dialogue.<br>• The 46th IFFI instituted the medal in 2015 through a collaboration between the International Council for Film, Television and Audiovisual Communication (ICFT)-Paris under UNESCO. In 1956 UNESCO's New Delhi conference established ICFT. |
| Booker Prize 2025 | • David Szalay won the 2025 Booker Prize for his novel, *Flesh*, which chronicles a man's ambitious rise from poverty in Hungary to wealth in London.<br>• The Booker Prize, formerly the Booker Prize for Fiction and the Man Booker Prize, is a literary award conferred each year for the best single work of sustained fiction **written in the English language, which was published in the United Kingdom or Ireland.** |
| Singapore Introduces World's First Green Fuel Levy | • Singapore will be the first country globally to impose a Green Fuel Levy on departing air passengers starting next year.<br>• The levy will channel revenue into centralized purchases of Sustainable Aviation Fuel (SAF), empowering the **aviation sector—responsible for 2.5% of** |

| | |
|---|---|
| | global greenhouse gas emissions—to slash its carbon footprint. **SAF, derived from renewables like agricultural waste, forestry residues, and municipal solid waste,** blends (10–50%) with conventional Aviation Turbine Fuel without engine or infrastructure tweaks. It slashes emissions by up to 80% via diverse feedstocks and tech, offering compatibility and flexibility; **globally, SAF could drive 65% of the cuts needed for net-zero aviation by 2050,** aligning with Paris Agreement goals. |
| **Strait of Hormuz** | • Iran seized a Marshall Islands-flagged oil tanker while it was passing through the Strait of Hormuz.<br>• The Strait of Hormuz lies between **Iran to the north and Oman and the United Arab Emirates to the south.** It **connects the Persian Gulf with the Gulf of Oman and the Arabian Sea.** Narrowest at about 21-35 miles wide, the strait serves as the sole maritime outlet for oil-rich Persian Gulf nations like Saudi Arabia, Iraq, Kuwait, and Qatar. **Around 20-25% of global oil and 30% of liquefied natural gas transits daily**, making it the world's top energy chokepoint. |
| **India Re-Elected to Codex Executive Committee** | • India was unanimously re-elected to the Executive Committee of the Codex Alimentarius Commission (CCEXEC).<br>• The Codex Alimentarius Commission (CAC) was established in 1963 **by the Food and Agriculture Organization (FAO) and the World Health Organization (WHO)** to protect consumer health and ensure fair practices in international food trade. It has 189 members (188 countries and the European Union), with India being a member since 1964. The standards, guidelines, and codes of practice developed by the CAC are **recognized by the World Trade Organization (WTO)** as reference points for international trade. The Codex Secretariat is **located at FAO headquarters in Rome.** |
| **2nd Regional Open Digital Health Summit (RODHS) 2025** | • India hosted the 2nd Regional Open Digital Health Summit (RODHS) 2025 in New Delhi.<br>• Organized by the National e-Governance Division (NeGD) under the Ministry of Electronics & IT, National Health Authority (NHA), World Health Organization South-East Asia Regional Office, and UNICEF, the **summit underlined India's robust Digital Public Infrastructure (DPI) stack**—including Aadhaar for identity, Unified Payments Interface (UPI) for seamless transactions, CoWIN for vaccination tracking, and Ayushman Bharat Digital Mission for integrated health records—as blueprints for secure, scalable systems. |
| **Asian and Pacific Centre for Development of Disaster Information Management (APDIM)** | • The 10th Session of the Asian and Pacific Centre for Development of Disaster Information Management (APDIM) took place at Vigyan Bhawan in New Delhi.<br>• APDIM, an UN Economic and Social Commission for Asia and the Pacific (UN ESCAP) regional institution **headquartered in Tehran, Iran,** serves as a knowledge hub for disaster risk information, consolidating data, strengthening information systems, and promoting cooperation on transboundary hazards to ensure sustainable development in Asia and the Pacific. |
| **Commonwealth Games** | • India won the Commonwealth Games (CWG) 2030 bid, with Ahmedabad set to host the CWG 2030.<br>• The Commonwealth Games (CWG), the **world's second-largest multi-sport event after the Olympics,** unites athletes from 71 nations and territories, |

| | |
|---|---|
| | mostly former British colonies, under the Commonwealth Games Federation (CGF). Evolving from the 1911 Inter-Empire Championships, the first official Games was held in Hamilton, Canada, in 1930. Occurring quadrennially since (except 1942 and 1946), the event was renamed the Commonwealth Games in 1978. **India last hosted the Games in New Delhi in 2010.** |
| **International Institute for Democracy and Electoral Assistance** | • India's Chief Election Commissioner Gyanesh Kumar has assumed the chairship of the International Institute for Democracy and Electoral Assistance (International IDEA). <br> • Founded in 1995 as an **intergovernmental organization with UN observer status and a Stockholm secretariat,** International IDEA—where India is a founding member among 35 states (with U.S. and Japan as observers)—advocates sustainable democracy worldwide through knowledge sharing, and capacity building. |
| **Operation Sagar Bandhu** | • India launched Operation Sagar Bandhu to deliver humanitarian assistance to Sri Lanka after Cyclone Ditwah. <br> • Cyclone Ditwah, a tropical storm rapidly intensified over the southwest Bay of Bengal, earned its name from Yemen under the North Indian Ocean's regional naming convention. |
| **UNESCO Creative Cities Network (UCCN)** | • Lucknow designated a UNESCO Creative City of Gastronomy at the 43rd UNESCO General Conference in Uzbekistan. <br> • The **UNESCO Creative Cities Network (UCCN), launched in 2004,** unites over 350 cities worldwide in harnessing creativity, culture, and innovation for sustainable urban growth, **aligning with UN Sustainable Development Goal 11**. Members like Lucknow must collaborate on projects, share knowledge, build capacity, and report progress to sustain their vibrant, inclusive legacies. |
| **Maldives "generational ban" on tobacco** | • Maldives introduced a "generational ban" on tobacco, making it illegal for anyone born on or after January 1, 2007, to purchase tobacco products. <br> • A generational tobacco ban **prohibits the sale of tobacco to individuals born after a specific cutoff year**; this ensures that younger generations never gain legal access to tobacco products. This gradually eliminates tobacco use as older users age out and legal restrictions prevent younger people from starting, which creates a "tobacco-free generation." |

## 2.6 ADDITIONAL TOPICS FOR READING FROM IASGYAN WEBSITE

| Topic Name | Date |
|---|---|
| How To Escape China's Rare-Earth Chokehold | 14th NOVEMBER |
| Sheikh Hasina's Extradition | 19th NOVEMBER |

# 3. EOCNOMY

## 3.1    MSME ROLE IN INDIAN ECONOMY

### Context

- India's MSMEs face rising pressure from global tariff barriers, especially the US' 50% tariff shock. Against this backdrop, Chief Economic Advisor **V. Anantha Nageswaran** emphasised the need for a shift in MSME behaviour.

### What are Micro, Small and Medium Enterprises (MSMEs)?

- **Micro, Small and Medium Enterprises (MSMEs)** are businesses classified by the Government of India based on their **investment in plant/equipment and annual turnover**. They form the backbone of India's economy through production, employment, innovation and exports.

**Classification:**

| Type of Enterprise | Investment (Current) | Investment (Revised) | Turnover (Current) | Turnover (Revised) |
|---|---|---|---|---|
| Micro Enterprise | ₹1 crore | ₹2.5 crore | ₹5 crore | ₹10 crore |
| Small Enterprise | ₹10 crore | ₹25 crore | ₹50 crore | ₹100 crore |
| Medium Enterprise | ₹50 crore | ₹125 crore | ₹250 crore | ₹500 crore |

### Role of MSMEs in strengthening Indian Economy:

- MSMEs contribute **30% of India's GDP**. They diversify industrial output beyond large corporate dominance and provide resilience to economic shocks.
- Key contributors in textiles, leather, pharmaceuticals, engineering goods, handicrafts and IT services. Contribute **about 48% of India's merchandise exports**.
- Reduce regional inequality by **industrialising backward areas** and supporting cluster-based development (e.g., Moradabad brass cluster, Surat diamond cluster).
- MSMEs account for **new product ideas, frugal innovations, process improvements** (e.g., Jaipur jewellery industry, Coimbatore auto components).

### Challenges of MSME

- Even with Trade Receivables Discounting System and Samadhaan portal, delayed payments remain **₹8.14 lakh crore in FY24**. *Example:* Ministry of MSME reported that **only 20% of cases on Samadhaan are actually resolved**, showing weak enforcement.

- RBI Financial Stability Report shows that **70% of MSMEs borrow informally** because banks over-rely on collateral.
- Majority remain stuck with **outdated machinery and inefficient processes**.
- Shortage of trained labour in **automation, digital tools, product design and quality management**.

### Key Committee on strengthening MSMEs

- **Nayak Committee (1992):** The panel recommended that **banks should finance at least 20% of an MSME's projected turnover**, with firms contributing around **5% as their own margin**
- **Abid Hussain Committee (1997):** It urged a **shift in MSME policy from protectionism to proactive promotion**, emphasising skill development, marketing assistance and cluster-based infrastructure
- **UK Sinha Committee (2019):** This committee advocated a **₹5,000 crore stressed asset fund** to revive small businesses hit by shocks like demonetisation, GST transition and liquidity crunch, and recommended **doubling the ceiling on collateral-free loans** under Mudra

- **Standing Committee on Finance Report on MSME Credit (April 2022):** The Committee proposed a shift from traditional collateral-based lending to **cash-flow driven credit**, where banks use real-time GST data and account aggregator systems to evaluate loan worthiness.

## Way Forward

- India already has Samadhaan, TReDS and Section 43B(h), but enforcement is weak.A mandatory **'deemed payment'** mechanism

where large firms automatically lose tax deduction if dues cross 45 days.
- Integrating **GST data, invoice history and utility bill payments** into credit scoring through Account Aggregators can reduce the ₹25 lakh crore credit gap.
- Dedicated **revival packages tied to innovation, branding and export diversification** can reverse stagnation instead of blanket subsidies.
- MSMEs dependent on a single export market (e.g., US tariff hike) need **market diversification support, India-EU Standards Centre access, and credit insurance.**

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## 3.2    CAPITAL GAINS ACCOUNT SCHEME (CGAS), 1988

### Context

- The **Ministry of Finance** has recently issued the **Capital Gains Accounts (Second Amendment) Scheme, 2025**, modifying operational provisions under the **CGAS, 1988**.

### About CGAS

- The central government introduced CGAS in **1988** to assist taxpayers in claiming exemptions on **long-term capital gains**.
- Under **Section 54 of the Income Tax Act**, capital gains must be reinvested within **three years** to avoid taxation.
  However, if the **income-tax return filing deadline** arrives before reinvestment can be completed, taxpayers may face difficulty utilising their gains in time.
- To address this, taxpayers may **temporarily park their unutilised long-term capital gains** in a CGAS account, provided the deposit is made **before filing the tax return**.
- Depositing the amount under CGAS is **treated as reinvestment** for exemption purposes. Note: **Short-term capital gains do not qualify** under this scheme.

### Who Can Deposit Under CGAS?

- Any taxpayer eligible for **long-term capital gains exemption**

### Key Changes in 2nd Amendment

- Authorises **non-rural branches of 19 major private banks** to accept and manage CGAS deposits
- Defines **"non-rural branches"** as those located in areas with a **population of 10,000+ (as per Census 2011)**
- Formally recognises **electronic modes of deposit**, including:
  o  Debit/credit cards
  o  Net banking
  o  UPI
  o  IMPS, RTGS, NEFT
  o  BHIM/Aadhaar-enabled payment systems.

### Challenges

- The requirement to deposit *before* filing the income-tax return (or by due date) is somewhat rigid and often missed, especially by individuals who first plan reinvestment but delay actual investment.
- If the deposited funds are not used in time (purchase/construction), the exemption is withdrawn and the entire amount gets taxed in the year the investment deadline expires.
- While deposits earn interest (especially Type B term deposits), that interest is taxable as "income from other sources."

## Way Forward

- Provide notifications or automated reminders for reinvestment deadlines, to reduce risk of "missing" deadlines and losing exemption.
- Exempt interest earned in CGAS from tax (or at least offer concessional Tax Deducted at

Source) this would meaningfully improve net benefit.

- Government or income-tax department should run periodic campaigns (especially around real-estate boom cycles) to educate taxpayers about CGAS.

## 3.3   SHORT ARTICLES

# Financial Sector Assessment (FSA) Report

## Context:

- The latest **Financial Sector Assessment (FSA)** report has highlighted that India is steadily progressing toward its long-term goal of becoming a **$30 trillion economy by 2047**.

## Details:

- The FSA Report is published by the **World Bank** as part of its evaluation of a country's financial stability, regulatory framework, and financial-sector resilience.

## Key Highlights of the report:

- The report notes that India's financial system has become **more resilient, diversified, and inclusive.**
- It praises India's **world-class digital public infrastructure**—including UPI, Aadhaar, and Jan Dhan, which has expanded access to a wider range of financial services for both men and women.
- The World Bank commended India's **scale-based regulation for NBFCs**, which tailors' regulatory requirements to the size and risk-profile of different non-banking financial entities.

# Export Promotion Mission

## Context:

- The Union Cabinet has recently approved the **Export Promotion Mission (EPM)**, a major initiative announced in the **Union Budget 2025–26.**

## Key Features:

- The mission introduces a **comprehensive, flexible, and digital-first platform** that replaces multiple fragmented schemes.

- EPM represents a strategic shift from siloed, scheme-specific interventions to a **single, adaptive, and performance-driven mechanism.**
- The mission will operate through a **collaborative framework involving the Department of Commerce, Ministry of MSME, Ministry of Finance.**

## Objective:

- The Export Promotion Mission is designed as a **flagship, outcome-oriented mechanism** to strengthen India's export capacity by supporting **MSMEs, first-time exporters, and key labour-intensive sectors.**
- **Sub-Schemes Under the Export Promotion Mission**: NIRYAT PROTSAHAN and NIRYAT DISHA

# Electronics Development Fund (EDF)

## Context:

- The Government of India launched the **Electronics Development Fund (EDF) on 15 February 2016** to accelerate research, innovation, and entrepreneurship in electronics, nano-electronics, and information technology.

## Details:

- EDF launched to to accelerate research, innovation, and entrepreneurship in electronics, nano-electronics, and information technology.
- It funds directly to startups and operates as a **Fund of Funds (FoF)**.EDF invests in a set of **professionally managed Daughter Funds**, which then provide financial support to startups and technology ventures.

- To ensure proper regulation and transparency, every Daughter Fund receiving EDF support must be registered in India and must comply with the **SEBI (Alternative Investment Funds) Regulations, 2012** under **Category I or Category II AIFs**.

### Objectives:

- The Electronics Development Fund aims to promote market-driven innovation and R&D in electronics and emerging technologies; strengthen the venture funding pipeline by investing in Daughter Funds that support early-stage startups; encourage indigenous product and technology development to reduce import dependence; enhance domestic design capabilities by supporting core technology creation; build a strong national IP base by enabling ownership of critical innovations; and facilitate strategic acquisition of foreign technologies or companies in sectors with high import volumes to boost technological self-reliance.

## National Gopal Ratna Awards

### Context:

- The **Department of Animal Husbandry and Dairying** has released the list of recipients for the **National Gopal Ratna Awards (NGRA) 2025**.

### About:

- The National Gopal Ratna Awards are among the **highest national recognitions** in India's livestock and dairy sector.
- They were introduced by the **Department of Animal Husbandry and Dairying** under the **Ministry of Fisheries, Animal Husbandry and Dairying**, as part of the **Rashtriya Gokul Mission** in **2021**.

### Award Categories

The NGRA honours individuals and organisations under the following heads:

- **Best Dairy Farmer** rearing registered indigenous cattle or buffalo breeds.
- **Best Dairy Cooperative Society / MPC / Dairy FPO**.
- **Best Artificial Insemination Technician (AIT)**.

In addition, **special awards** are reserved for achievers from the **North Eastern Region** and **Himalayan States** to support and encourage dairy development in these areas.

## National Industrial Classification (NIC) 2025

### Context:

- The **Ministry of Statistics and Programme Implementation (MoSPI)** has unveiled the **NIC 2025** during the culmination event marking **75 years of the National Sample Survey (NSS)** and **World Statistics Day 2025**.

### Details:

- The **National Industrial Classification (NIC)** is India's unified framework for categorising all economic activities, forming the basis for **statistical surveys, industrial censuses.**
- The classification was first launched in **1962** and has undergone several revisions—**1970, 1987, 1990, 1998, 2004, and 2008**—to keep pace with changing economic structures and international norms. The **2025 edition** is the newest update to this national statistical standard.
- NIC 2025 has been developed by **Ministry of Statistics and Programme Implementation (MoSPI)** in line with the **UN's International Standard Industrial Classification of All Economic Activities (ISIC) Revision 5.**

### Major updates of NIC 2025:

- New classifications have been added for intermediaries across sectors like **energy, retail, logistics, healthcare, education, real estate,** and **food services.**
- The system now includes clearer categories for **carbon capture, waste management, pollution control,** and **environmental remediation**, aligning with the **SDGs** and the **SEEA** (System of Environmental–Economic Accounting).
- Activities such as **cloud infrastructure, blockchain services, platform-based businesses,** and **web-search portals** receive distinct classification.
- The NIC avoids differentiating activities based on the tools or techniques used, traditional or

modern, focusing solely on the **type of economic activity**.

# SARAL SIMS

## Context:

- The Ministry of Steel has rolled out a simplified registration mechanism called Sahaj Registration for Lightweight Steel Import Monitoring System **'SARAL'** under the Steel Import Monitoring System (SIMS).

## About:

- It is a new facility designed to make the registration process easier for small-scale steel imports under the Steel Import Monitoring System.
- It aims to reduce procedural hurdles faced by importers dealing with small quantities and exporters working through schemes such as Advance Authorisation, Special Economic Zones and Export-Oriented Units.

## Key Features:

- Applies to iron and steel products listed under Chapters 72, 73 and 86 of the Indian Trade Classification, Harmonised System 2022.
- Allows importers to submit **a single declaration for the entire financial year**, stating their expected import volume.
- A registration number is issued which can be used for multiple shipments.
- This removes the earlier requirement of creating a new registration number for every single consignment.
- Users must submit an **annual return by 30 April**, reporting the actual quantity imported.

## Eligibility:

- **For small consignments:** Covers shipments up to **10 tonnes each**, capped at **500 tonnes for FY 2025-26**, rising to **1000 tonnes from FY 2026-27**.
- **For export-linked imports:** Available for shipments routed through **Advance Authorisation, SEZs and EOUs**, with **no quantity restrictions.**

# Entrepreneur-in-Residence (EIR) Programme

## Context:

- The Union Minister of State for Science and Technology recently highlighted the growing popularity of the Entrepreneur-in-Residence Programme among emerging startups and young innovators.

> **NIDHI:** The **National Initiative for Developing and Harnessing Innovations (NIDHI)** is a broad government umbrella programme aimed at nurturing knowledge-based and technology-driven ideas into successful start-ups.

## About EIR Programme:

- The EIR Programme is a key component under the **National Initiative for Developing and Harnessing Innovations (NIDHI)**.
- It is designed to motivate graduate students to pursue entrepreneurship as a viable career choice by offering both financial and institutional support in the form of a fellowship.

## Key Features of the EIR Programme

- **Financial Assistance:** Fellows receive up to ₹30,000 per month.
- **Duration:** The support is available for a period of up to **12 months**.
- **Support Ecosystem:** Beneficiaries gain access to incubator infrastructure, mentorship, expert guidance, technical inputs, financial advisory services, and industry linkages.
- **Implementation:** The programme is delivered by the Department of Science and Technology (Government of India) in partnership with the **NCL Venture Centre, Pune**.

## 3.4 ADDITIONAL TOPICS FOR READING FROM IASGYAN WEBSITE

| Topic Name | Date |
|---|---|
| India's $30 Trillion Economy by 2050: Projections, Challenges, and Opportunities | 1st November |
| Drone Technology in Agriculture: Opportunities and Challenges | 1st November |
| Rising Household Debt in India: Causes, Implications, and Solutions | 2nd November |
| Nutritional Security in India: Challenges, Measures, and Way Forward | 4TH November |
| IPOs in 2025: Trends, Challenges, and Opportunities | 5th November |
| India's Vision for World-Class Banks: Reforms, Challenges, and Way Forward | 7th November |
| Technical Textiles: Opportunities, Challenges, and Policy Support in India | 7th November |
| Evolution and Role of the Central Pay Commission in India | 11th November |
| Credit Guarantee Scheme for Exporters: Enhancing Global Competitiveness | 13th November |
| Mahatma Gandhi National Rural Employment Guarantee Scheme: meaning, issue and recommendations | 18th November |
| Apparel export slump: Causes, Implications, and Policy Response in Indian Textiles | 19th November |
| When the Fed Cuts Rates: Opportunities and Risks for India | 20th November |
| Transforming Indian Agriculture: Key Government Measures for Farmer Welfare | 21st November |
| New Labour Codes: A Shift Toward Simplification, Security and Productivity | 22nd November |
| Balancing Flexibility and Fairness: The Industrial Relations Code, 2020 | 24th November |
| Bharat New Car Assessment Programme 2.0: Redefining Vehicle Safety in India | 24th November |
| Rupee Depreciation: Causes, Impacts, and Institutional Response | 26th November |
| Scheme to Promote Manufacturing of Sintered Rare Earth Permanent Magnets (REPM) | 27th November |

# 4. DEFENSE & SECURITY

## 4.1 SHORT ARTICLES

## Patriot Air Defense System

### Context

- Ukraine has received Patriot air defence systems from Western allies to counter Russian attacks.

### Details

- The Patriot system—standing for Phased Array Tracking Radar for Intercept on Target—was developed by Raytheon Technologies (US aerospace and defense company). Its **surface-to-air missile defender**, excelling at neutralizing aircraft, ballistic missiles, and cruise missiles with precision. Its radar detects threats over 150 km away, engaging them up to 20 km in altitude while providing robust 15–20 km coverage against incoming barrages. Deployed by 16 nations worldwide.

## Trishul Exercise

### Context

- India has conducted Tri-Services Exercise "Trishul-2025" in the Sir Creek and desert sectors of Rajasthan–Gujarat, extending into the northern Arabian Sea.

### Details

- Trishul-2025 is a **tri-services exercise testing joint capabilities across land, air, sea, cyber, and space domains,** aimed at strengthening network integration, and enhancing inter-service interoperability. Sir Creek, originally Ban Ganga, is a 96 km tidal estuary separating Gujarat (India) and Sindh (Pakistan) in the uninhabited marshlands of the Indus River Delta, flowing into the Arabian Sea.

## Operation 'WeedOut'

### Context

- The Directorate of Revenue Intelligence (DRI) executed Operation 'WeedOut' at Mumbai Airport, seizing high-grade hydroponic cannabis smuggled from Bangkok.

### Details

- Hydroponic cannabis involves cultivating the plant in a water-based, nutrient-rich solution without soil, yielding potent strains favored by smugglers for their high THC content and ease

of concealment. The DRI, an intelligence and enforcement agency under the Central Board of Indirect Taxes and Customs (CBIC), Ministry of Finance, combats smuggling and economic fraud.

## Malabar Exercise 2025

### Context

- The annual Malabar exercise, uniting the Quad nations—India, the US, Australia, and Japan—held in the Northern Pacific near Guam, US.

### Details

- Malabar, an annual bilateral naval drill between India and the US since 1992, became a four-nation Quad exercise in 2020 with Japan (joining 2015) and Australia. It reflects **shared commitment to an open, inclusive Indo-Pacific and a rules-based international order.**

## MITRA SHAKTI-2025

### Context

- The 11th edition of Exercise MITRA SHAKTI-2025 was held at Belagavi, Karnataka.

### Details

- Exercise MITRA SHAKTI is an annual joint training exercise **between the Indian and Sri Lankan Armies**, conducted alternately in both countries since 2012, focusing on rehearsing sub-conventional operations under Chapter VII of the United Nations Mandate to address threats to peace, breaches, and aggression.

## Nyoma Airbase

### Context

- India has inaugurated its newest and highest fighter-capable airbase at Nyoma in Ladakh, built by the Border Roads Organisation (BRO).

### Details

- Nyoma, at 13,700 feet and just 35 km from the LAC, is now one of the world's highest fighter-capable airbases. This strategic upgrade enhances India's rapid-response capability against potential Chinese incursions. The base now supports full-spectrum fighter

operations, boosting surveillance, mobility, and logistics on the northern frontier.

## Exercise Garuda 25

### Context

- The Indian Air Force participated in the 8th edition of the bilateral air exercise 'Garuda 25' with the French Air and Space Force at Mont-de-Marsan, France.

### Details

- Garuda, an air exercise initiated in 2003, is key to the India–France Strategic Partnership (1998). Drills focus on air combat, air defence, joint strikes, strengthening collaborations like the Rafale deal, Indo-Pacific security, and space defence. Other exercises include Varuna (naval), Shakti (army), and Desert Knight (trilateral with UAE).

## Mahe: Indigenous Warfare Vessel

### Context

- India is set to commission Mahe at the Naval Dockyard, Mumbai.

### Details

- INS Mahe, the lead vessel of the Mahe-class Anti-Submarine Warfare Shallow Water Craft (ASW-SWC), developed by Cochin Shipyard Limited in Kochi, crafted under the Aatmanirbhar Bharat initiative with over 80% indigenous components.

## Territorial Army (TA)

### Context

- The Directorate General of Territorial Army has decided to induct women soldiers into Territorial Army (TA) Home & Hearth (H&H) Infantry battalions for the first time.

### Details

- The Territorial Army (TA), a **part-time voluntary force under the 1948 Act,** complements the Regular Indian Army with citizen-soldiers who train annually while holding civilian jobs—rooted in 1857's Volunteer Forces and **inaugurated in 1949 by C. Rajagopalachari**. It handles static duties, counter-insurgency in J&K and the North-East, disaster relief, and eco-restoration through specialized battalions.

## HAMMER Precision Guided Weapon

### Context

- India and France have signed a Joint Venture Cooperation Agreement (JVCA) to produce the Highly Agile Modular Munition Extended Range (HAMMER) system in India.

### Details

- HAMMER is a precision-guided air-to-ground weapon developed by French firm Safran Electronics & Defence, transforming unguided bombs into smart munitions via a versatile modular guidance and propulsion kit. With a range of up to 70 km, proven in action during Operation Sindoo.

## Operation Crystal Fortress

### Context

- Operation Crystal Fortress, a joint Narcotics Control Bureau (NCB) and Delhi Police Special Cell operation, dismantled a transnational methamphetamine cartel, by seizing methamphetamine worth approximately ₹262 crore from a New Delhi residence.

### Details

- The 2019 Magnitude of Substance Use in India report by the Ministry of Social Justice and Empowerment and AIIMS reveals prevalence among the 10-75 age group: 16 crore (14.6%) current alcohol users with 2.9 crore dependent; 3.1 crore (2.8%) cannabis users, 72 lakh needing help; 2.26 crore (2.06%) opioid users (heroin dominant), 77 lakh requiring treatment; inhalants at 1.17% among youth with 4.6 lakh children and 18 lakh adults affected; and 8.5 lakh injecting drug users at high HIV/Hepatitis risk.

## SURYAKIRAN XIX – 2025

### Context

- The 19th edition of the India–Nepal joint military exercise, SURYAKIRAN XIX – 2025, was held at Pithoragarh, Uttarakhand.

### Details

- Launched in 2011, **SURYAKIRAN enhances Sub-Conventional Operations under the UN Mandate, improving peacekeeping** and conflict resolution skills. Troops train in Jungle Warfare, Counter-Terrorism in mountain terrain, HADR, Medical Response,

## 4.2    ADDITIONAL TOPICS FOR READING FROM IASGYAN WEBSITE

| Topic Name | Date |
| --- | --- |
| Coastal Security | 21st November |

# 5. ENVIRONMENT & ECOLOGY

## 5.1 SHORT ARTICLES

## Kunming Biodiversity Fund

### Context
- Seven countries have secured $5.8 million from the Kunming Biodiversity Fund to enhance nature-friendly agriculture.

### About:
- The KBF is a **Multi-Partner Trust Fund (MPTF)** established under the leadership of the **Ministry of Ecology and Environment of the People's Republic of China (MEE)** and the **United Nations Environment Programme (UNEP),** with participation by the **Secretariat of the Convention on Biological Diversity (SCBD) and the United Nations Development Programme (UNDP).**

### Objective
- The Kunming Biodiversity Fund supports developing countries in implementing the **Kunming-Montreal Biodiversity Framework and National Biodiversity Strategies & Action Plans (NBSAPs)** by enhancing policy coherence, capacity, cooperation, and biodiversity financing.
- **Kunming-Montreal Global Biodiversity Framework (KMGBF)**: It's a **landmark international agreement** adopted at **COP15 of the Convention on Biological Diversity (CBD)** in **Montreal, Canada, in December 2022. It sets the global roadmap for biodiversity conservation for the decade 2023–2030.**
- **Objective:** The KMGBF aims to **halt biodiversity loss, restore ecosystems, ensure sustainable resource** use with respect for indigenous rights, and mobilize finance and global cooperation by 2030.

## Mussel

### Context
- Mussels act as **bioindicators** because they filter seawater continuously and accumulate microplastics and other contaminants in their tissues, helping researchers assess pollution levels in marine ecosystems.

### Classification
- Mussels are **bivalve mollusks**.
- **Marine mussels** belong to the family **Mytilidae**.
- **Freshwater mussels** belong to the family **Unionidae**.

### Distribution
- Most abundant in **cool seas**.
- Freshwater mussels, also called **naiads**, inhabit: Streams, Lakes, Ponds

### Benefits:
- **Food Source:** Edible and highly nutritious. Rich in: **Protein, Omega-3 fatty acids, Vitamins and minerals**
- **Pearl Production: Freshwater mussels** are widely used in **pearl cultivation**.
- **Ecological Importance:** Their filter-feeding behaviour helps maintain **water quality**. Serve as **bioindicators**, reflecting levels of marine contaminants such as: Microplastics, Heavy metals, other pollutants

## ReALCRaft Portal

### Context
- The government recently notified rules for "Sustainable Harnessing of Fisheries in the Exclusive Economic Zone."

### About:
- **Purpose:** National online platform for **registration and licensing of fishing vessels**, transfer of ownership, and related processes.
- **Objective:** Build a **modern, transparent vessel data management system** enhancing security, efficiency, accountability, and reliability.
- **Developer:** Department of Fisheries, Ministry of Fisheries, Animal Husbandry & Dairying

### Key Features:
- Integration with **state-specific payment gateways** (Bank/treasury)

- Integration with **security agencies** to track vessel movements
- Linkage with **insurance agencies** and **subsidy schemes** via eDBT
- Collaboration with **ISRO** for real-time communication with fishermen at sea
- Data sharing with **government/security agencies**
- Integration with **MPEDA** and **Export Inspection Council (EIC)** for **Fish Catch and Health Certificates**

# Lichen

## Context

- Researchers have discovered **four new lichen species** in the Western Ghats, enhancing understanding of regional biodiversity.

## About:

- Symbiotic association between a **fungus** and an **algae or cyanobacterium**
- **Mutual Benefits:**
  1. Algae/cyanobacteria produce **carbohydrates** and **vitamins** for fungi
  2. Fungi provide **water absorption** and **shade** for light-sensitive algae
- **Body Structure:**
  3. Composite body = **thallus**
  4. Anchored to substrate by **rhizines**
- **Habitat:** Worldwide; found on **tree bark, rocks, soil crusts**, and extreme environments

## Ecological Importance:

- **Keystone Species:** Supports ecosystem stability
- **Food & Habitat:** For deer, birds, rodents
- **Nesting Material:** For birds
- **Protection:** Shields trees and rocks from rain, wind, snow
- **Pioneers of Colonization:**
  1. Invade bare areas, break down rocks (physical & chemical)
  2. Contribute to **soil formation**, enabling mosses and liverworts to grow

## Significance:

- Enhances **biodiversity understanding**

- Plays crucial role in **ecosystem functioning and soil formation**

# United Nations Framework Convention on Climate Change (UNFCCC)

## Context:

- Global leaders, negotiators and climate experts have convened in **Belém**, located in the Brazilian state of **Pará**, for the **30th Conference of the Parties (COP30)** under the **United Nations Framework Convention on Climate Change (UNFCCC)**.

## About UNFCCC:

- The **UNFCCC** is the primary international treaty designed to coordinate global actions to address climate change. It serves as the institutional base for later climate agreements, including the **Kyoto Protocol** and the **Paris Agreement**.

## Objectives:

- The Convention aims to limit the rise in global average temperatures, reduce the adverse impacts of climate change, enable timely adaptation, protect food security, and support sustainable economic development.

## Origin:

- The UNFCCC was adopted during the **1992 Rio Earth Summit**, alongside two other major environmental treaties: **Convention on Biological Diversity (CBD) and Convention to Combat Desertification (UNCCD)**

## Members:

- The Convention has **198 Parties** (197 countries + European Union), making it one of the world's most widely ratified treaties.
- Parties meet annually at the **Conference of the Parties (COP)** and through various technical bodies to drive progress under the **Paris Agreement**.

## Linkages between IPCC and UNFCCC:

- The UNFCCC relies heavily on scientific assessments from the **Intergovernmental Panel on Climate Change (IPCC)**, the UN body responsible for evaluating climate science.

- Established in **1988** by **UNEP** and the **World** Meteorological Organization (WMO)

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**Kyoto Protocol**
- Adopted in **1997** under the UNFCCC, the **Kyoto Protocol** set the first legally binding emission-reduction commitments for **developed countries**.
- Required developed countries to reduce greenhouse gas emissions by **5%** below **1990 levels** during the **2008–2012 commitment period.**
- To help countries meet their targets, the Protocol introduced innovative tools:**Clean Development Mechanism (CDM), Joint Implementation (JI) and Emissions Trading**
- **Paris Agreement**
- **The Paris Agreement, adopted at COP21 in 2015,**
- It set three core goals i.e. keeping **global temperature rise well below 2°C** with efforts to **limit it to 1.5°C,** strengthening adaptation and climate resilience, and aligning **financial flows with low-carbon**, climate-resilient pathways.
- It also introduces Nationally Determined Contributions (NDCs), under which all countries outline their climate actions and targets.

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# Climate Investment Fund (CIF)

## Context:
- During **COP-30 of UNFCCC**, **Germany and Spain pledged USD 100 million** to the Climate Investment Fund's new programme **ARISE (Accelerating Resilience Investments and Innovations for Sustainable Economies).**

## Details:
- The Climate Investment Fund, launched in **2008**, is a **multilateral climate financing mechanism** that supports climate action in **over 70 low- and middle-income countries**, and its core purpose is to provide **highly concessional finance** for climate mitigation, adaptation, clean technology deployment.
- CIF comprises **two primary funds**, namely the **Clean Technology Fund (CTF)**, which promotes the large-scale adoption of low-carbon technologies, and the **Strategic Climate Fund (SCF)**, which functions as an umbrella for targeted programmes such as the **Pilot Program for Climate Resilience (PPCR)**, the **Forest Investment Program (FIP)**, and the **Scaling-Up Renewable Energy Program (SREP)**.
- CIF is the **only global climate fund that operates exclusively through six AAA-rated multilateral development banks**, including the **Asian Development Bank, African Development Bank, European Bank for Reconstruction and Development, Islamic Development Bank, International Finance Corporation, and the World Bank Group.**
- The **Clean Technology Fund (CTF) Trust Fund Committee** serves as the principal decision-making body responsible for guiding strategies and approving investments, while the **CIF Secretariat**, hosted by the **World Bank**, coordinates fund operations, reporting, and donor engagement across partner countries.

# Integrated Forum on Climate Change and Trade (IFCCT)

## Context:
- At **COP30 (Belém, Brazil)** on **15 November 2025**, Parties to the UNFCCC formally launched a new global mechanismthe **Integrated Forum on Climate Change and Trade (IFCCT)**to address the rising tensions between climate policies and international trade.

## About IFCCT:
- A *politically supported*, voluntary forum enabling countries to discuss the complex linkages between **trade policy** and **climate action**.
- To prevent growing friction over climate-related trade measures (e.g., carbon border

taxes, green standards) and to help **developing countries gain a stronger voice**.
- **Membership:** Open to **all Parties to the UNFCCC**.
- **Independent** of both the **WTO** and the **UNFCCC**.

**Key Features:**

- The IFCCT will not make rules, settle disputes, or review national policies; it will act only as a voluntary dialogue platform.

- It brings together civil society, business groups, and international initiatives to ensure broad and balanced participation, especially between North and South.
- It aims to align climate regulations, trade frameworks, and sectoral standards to avoid duplication and reduce trade fragmentation.

## 5.2 SNIPPETS

## WATERBODY IN NEWS

| Water Body | Context | Description |
|---|---|---|
| Sambar lake | Sambhar Lake is witnessing an extraordinary influx of migratory birds this winter | • **Sambhar Lake** is **India's largest inland saltwater lake**, located in **Rajasthan**. <br> • **Features:** It produces over **200,000 tonnes of salt annually**. <br> • **Saline ecosystem** supports unique **halophytic (salt-tolerant) vegetation and invertebrate species (such as *Artemia salina*)**. <br> • **Feeding rivers:** Mendha, Runpangarh, Kharian, Khandel, and others drain into the lake. <br> • **Designation:** Sambhar Lake is a **Ramsar Site** (designated in 1990) — recognized as a **Wetland of International Importance** under the Ramsar Convention <br> • **Fauna:** The lake is a key **habitat for migratory birds**, particularly **flamingos** (both greater and lesser), **pelicans**, **storks**, and **avocets**. <br> • **Historical Evidence:** The lake is mentioned in **ancient texts and epics**, including the *Mahabharata*, as part of the **kingdom of Brishadarva**. |
| Gogabeel Lake | Gogabeel Lake of Katihar district in Bihar, has got a tag of international importance as a Ramsar site. | • It is an **ox-bow (cut-off) lake formed between the Ganga River (south/east) and its tributary the Mahananda River (north)** as the rivers changed their course over time. <br> • Gogabeel was declared as Bihar's **first "Community Reserve"** <br> • The lake was designated as India's **94th site** under the Ramsar Convention on Wetlands of International Importance (for hydrological & social significance) <br> • It consists of tropical dry deciduous forests. |

## WILDLIFE/NATIONAL PARK IN NEWS

| Wildlife Sanctuary / National Park | Context | Description |
|---|---|---|
| Nauradehi Wildlife Sanctuary | Nauradehi Wildlife Sanctuary will become the third home for cheetahsafter Kuno. | • **Geography:** It lies on the upper **Vindhya Range plateau**, part of the **Deccan Peninsula** biogeographic zone. <br> • **Biome:Tropical dry deciduous forest** (dominant |

| | | |
|---|---|---|
| | | species: teak). <br> • **Drainage:** ¾ in **Ganga basin**, ~¼ in **Narmada basin.** Jamni River (Tributary of the **Betwa River)**, Sunar River flow through it. <br> • **Flora:** Dominated by **teak, Saja, Dhaora, Bhirra, Ber, Amla.** <br> • **Fauna:** Nilgai, blackbuck, chinkara, chital, sambar, barking deer. |
| **Pampadum Shola National Park** | Pampadum Shola National Park, once dominated by invasive Australian wattles, is now **undergoing successful ecological restoration**. | • **Location:** Eastern part of the southern Western Ghats, Kerala — bordering **Dindigul district (Tamil Nadu)**. <br> • **Significance:** Southernmost *shola–grassland mosaic* in the Western Ghats; connects **Eravikulam NP** and the **Palani Hills**. <br> • **Flora:** Rich in orchids, medicinal plants, and native shola trees. <br> • **Fauna:** Nilgiri marten, Kerala laughing thrush, black-and-orange flycatcher, etc. |
| **Nagarjunasagar–Srisailam Tiger Reserve (NSTR)** | **Andhra Pradesh Forest Department** is preparing to launch the **next round of the Tiger Census** in the **Nagarjunasagar–Srisailam Tiger Reserve (NSTR)**. | • Located in the **Nallamala Hills** (Eastern Ghats), Andhra Pradesh. <br> • **Rivers & Dams:** Traversed by the Krishna River. <br> • **Vegetation:** Tropical dry deciduous forests with bamboo and grasses. <br> • **Fauna:** Tiger, leopard, wolf, wild dog, sambar, chital, and mugger crocodile. <br> • **Cultural Sites:** Mallikarjuna Swamy Temple and Buddhist relics of Nagarjunakonda. |
| **Khangchendzonga National Park** | The **IUCN** recently rated **Khangchendzonga National Park** as **"good"** in its global review of natural World Heritage sites. | • Part of **Khangchendzonga Biosphere Reserve (KBR)**, India's first **mixed UNESCO World Heritage Site** (2016) <br> • Home to **Mt. Khangchendzonga**, the **third highest peak in the world** <br> • Subtropical to alpine vegetation <br> • Notable species: **oak, fir, birch, maple, rhododendron** <br> • **Flagship species:** Snow leopard, Tibetan wolf, red panda, blue sheep, Himalayan tahr, mainland serow Nearly **half of India's bird diversity** |
| **Greater Flamingo Sanctuary** | Concerns have recently emerged regarding a **proposed wind farm project near the Greater Flamingo Sanctuary in Dhanushkodi, Tamil Nadu** | • The sanctuary is located in **Dhanushkodi in the Ramanathapuram district of Tamil Nadu**, and forms an important ecological zone within the **Gulf of Mannar Biosphere Reserve.** <br> • It serves as a **critical stopover site along the Central Asian Flyway.** <br> • The area contains vital **mangrove forests dominated by species like Avicennia and** |

| | | |
|---|---|---|
| | | Rhizophora. |
| **Sukhna Wildlife Sanctuary** | A **nine-day wildlife census** has commenced in the Sukhna Wildlife Sanctuary. | • Located in **Chandigarh**, near the iconic **Sukhna Lake**, at the base of the **Shivalik hills**.<br>• The lake was created in **1958 by architect Le Corbusier** by diverting the Sukhna Choe, a seasonal hill stream.<br>• The sanctuary emerged from **afforestation undertaken to prevent soil erosion** around the lake.<br>• Spread over **2600 hectares**, it was declared a wildlife sanctuary in **1998**.<br>• **Flora:** Common plant species include **Khair, Phulai, Kikar, Shisham, Moonj, Amaltas, Jhingan, Amla, Rati and Vasaka**.<br>• **Fauna**<br>• Mammals: **sambar, Indian hare, porcupine, jungle cat, jackal, wild boar, mongoose and squirrels**.<br>• Birds: **peacock, hill myna, black drongo, jungle crow, parrots, doves and many others**, including seasonal migrants. |
| **Pobitora Wildlife Sanctuary** | With winter setting in, **Pobitora Wildlife Sanctuary** in Assam's has begun receiving an **early arrival of migratory birds** | • The sanctuary was officially declared in **1998** and spreads over **48.81 sq. km**.<br>• It encompasses two major forest blocks—the **Raja Mayong Reserve Forest** and **Pobitora Reserve Forest**.<br>Historically, this area formed part of the **expansive floodplains of the Brahmaputra**,<br>• It is associated with **Indian Rhino Vision 2020**, a conservation initiative for the Great Indian one-horned rhinoceroses' population.<br>• The sanctuary is dominated by **alluvial grasslands** interspersed with thick patches of **tall elephant grass**.<br>• Fauna: Pobitora is notable for having the **highest population density of the Greater One-Horned Rhinoceros** in India.<br>• It also hosts species such as **leopard, wild boar, barking deer, and wild buffalo**, alongside several reptiles. |

| Satpura Tiger Reserve | During a routine patrol in the **buffer zone of Satpura Tiger Reserve (STR)**, forest personnel spotted a **tigress gracefully swimming across the Denwa River** | • Situated in **Madhya Pradesh**, STR forms part of the **Satpura hill ranges** within the **Central Indian landscape**, lying **south of the Narmada River**.<br>• The reserve integrates **three protected areas**:<br>  o **Satpura National Park**<br>  o **Bori Wildlife Sanctuary**<br>  o **Pachmarhi Sanctuary**<br>• STR features **mixed deciduous forest**, typical of the **Central Indian Highlands**.<br>Key vegetation includes: **Teak, bamboo, ebony, acacias, wild mango, Indian gooseberry, and satinwood**<br>• The reserve supports a rich wildlife population, including: **Tiger, leopard, sloth bear, Indian gaur (bison), and sambar deer.** |

# SPECIES IN NEWS

| Species | Context | Description |
|---|---|---|
| **Cycad Plant** | The All India Institute of Medical Sciences in Bhubaneswar has launched a research study on the **Cycad plant** amid concerns that it may contain **BMAA**, a compound suspected to act as a neurotoxin. | • Cycads are **palmlike, woody, gymnosperm plants**.<br>• They grow across diverse environments: Wet rainforests, Semi-desert climates, Grasslands, seasonally dry forests, Swampy soils, Salty (halophytic) soils<br>• Found in **tropical and subtropical regions**, including: The Americas, Caribbean, Sub-Saharan Africa, Madagascar, Eastern India |
| **Striped Hyena** | A **rare striped hyena (Hyaena hyaena)** was recently sighted in the **Kali Tiger Reserve**, located in the Uttara Kannada district of Karnataka. | • The striped hyena is a **mammal** belonging to the family **Hyaenidae**.<br>• The Hyaenidae family includes four members: Striped hyena, Spotted hyena, Brown hyena, Aardwolf (despite its name, it is not a wolf)<br>• Widely distributed across: **South Asia**: India, Nepal, Afghanistan, **North Africa, Sub-Saharan Africa**<br>• **International Union for Conservation of Nature (IUCN):***Near Threatened*<br>• **Wildlife Protection Act of India (1972):***Schedule I* (provides the highest level of protection) |
| **Crassicaulismiddletonii** | Scientists from the **Botanical Survey of India (BSI)** have reported a major botanical discovery with the identification of a new flowering plant | • Crassicaulismiddletonii is a newly documented **flowering plant species** belonging to the **Gesneriaceae family**, a group that includes several popular ornamental plants such as African violets. |

| | | |
|---|---|---|
| | species, **Crassicaulismiddletonii**, from Arunachal Pradesh. | • **Location**; The species was found in the **evergreen forests of West Siang district**, Arunachal Pradesh.<br>**Features:**<br>• Grows along **stream banks** and near **small waterfalls**.<br>• Typically found at an elevation of around **800 metres**.<br>• Reaches a height of nearly **30 cm**.<br>• **Conservation Status**: Critically Endangered (IUCN) |
| **Humboldt Penguin** | Chilean scientists have recently raised concerns over **heightened risks to the already declining global population of Humboldt penguins** | • The Humboldt penguin (*Spheniscus humboldti*) belongs to the **"banded penguin" group**, a genus characterized by distinctive black bands across the chest, which differentiates them from other penguin species.<br>• Humboldt penguins are **endemic to the Pacific coasts of Chile and Peru**, with **Chile hosting nearly 80% of the world's remaining population.**<br>• The Humboldt penguin is classified as **Vulnerable** by the **IUCN Red List**, and listed under **CITES Appendix I** |
| **Himalayan Black Bear** | Wildlife experts in **Uttarakhand** have recently expressed concern that **Himalayan Black Bears (Ursus thibetanus laniger)** are becoming increasingly aggressive | • The Himalayan Black Bear is a **subspecies of the Asian black bear**, commonly known as the **Asiatic Black Bear** or **Moon Bear.**<br>• They occur widely across the **Himalayan region**, and are native to **Tibet, India, Nepal, Pakistan, and China**.<br>• They are **omnivorous**, consuming a varied diet that includes **acorns, nuts, berries, fruits, honey, roots.**<br>• The Himalayan Black Bear is classified as **Vulnerable** on the **IUCN Red List.** |
| **Caracal** | **Asiatic Caracal** has been recently spotted at **Ramgarh in Jaisalmer, Rajasthan** | • The caracal is an **elusive, medium-sized wild cat**. Commonly called the **desert lynx**, though it is more closely related to the **African golden cat** and the **serval.**<br>• **Distribution:** Native to **Africa**, **Central Asia**, the **Middle East**, **northwestern India**, and **arid regions of Pakistan**.<br>• India's population has sharply declined to an estimated **50 individuals**, mainly in **Rajasthan** and **Gujarat**.<br>• **Habitat:** Found in **semi-deserts, savannahs, shrublands, steppes, forests**, and **woodlands**. |

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| | | • **Conservation Status:** Listed as **Least Concern** on the **IUCN Red List**, though populations in India remain critically low. |
| **Protidricerusalbocapitatus** | Scientists have identified a new species of owlfly in Kerala after 134 years, naming it **Protidricerusalbocapitatus**. | • Discovered in **Nedumkayam forest**, Malappuram district, Kerala.<br>• Belongs to the **order Neuroptera** and **family Myrmeleontidae**.<br>• With this discovery, Kerala now records **five owlfly species**, and **India's total reaches 37**.<br>• **Distinctive feature:** white tufted head with club-shaped antennae.<br>• **Appearance:** Notable for their **bulging eyes** and **long, clubbed antennae**. Some species develop wing pigmentation after emerging.<br>• **Behaviour:** Become active during dusk and fly to hunt and function as aerial predators feeding on smaller insects. |
| **Indian Pond Heron** | Citizen-science records from Visakhapatnam indicate that **pond herons and cattle egrets might be making regular seasonal movements along India's eastern coastline** | **About:**<br>• Also known as **paddybird**, the **Indian Pond Heron (Ardeolagrayii)** is a small heron belonging to the **Ardeidae family**.<br>• During the breeding season, it develops **maroon-coloured plumes on the back and a long crest on the head**.<br>**Distribution**<br>• Favors **shallow water bodies**—fresh or salty, natural or man-made.<br>• Distributed from **Iran to Pakistan, India, Bangladesh, Myanmar and Sri Lanka**.<br>**Behaviour and Diet**<br>• A **semi-colonial breeder**, often sharing communal roosts in roadside trees even within busy cities.<br>• Although frequently solitary and secretive, it can be seen **waiting motionlessly at water edges to ambush prey**.<br>**Conservation Status**<br>• **IUCN Red List:** Least Concern<br>• **Wildlife Protection Act, 1972:** Listed under Schedule IV. |
| **Taningiasilasii** | Scientists from the Central Marine Fisheries Research Institute in Kochi have identified a **new deep-sea squid species in the Arabian Sea**, naming it **Taningiasilasii** | • Found at a depth of **around 390 metres off the Kollam coast**.<br>• Belongs to the **Octopoteuthidae family**.<br>• It is only the **second recognised species** under the genus Taningia, the first being Taningiadanae from the Atlantic Ocean.<br>• Genetic studies indicate **11% divergence** |

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| | | from its only known relative, Taningiadanae. |
| **African Grey Parrot** | Currently, **no officially recognised breeders or licensed pet shops** exist in India for selling African grey parrots | • The African grey parrot is a **medium-sized bird with a dusty grey appearance. Scientific Name:** *Psittacus Erithacus*<br>• It is renowned as one of the **most intelligent and skilled mimicking bird species** globally.<br>• **Distribution:** These parrots are **native to the forests of Central and Western Africa**.<br>• Habitat: **Lowland tropical forests.**<br>• **Conservation Status:** The species is listed as **Endangered on the IUCN Red List**, mainly due to habitat loss and illegal trade. |
| **Cuban Gar** | In **Cuba's Zapata Swamp**, scientists have intensified conservation initiatives aimed at **preventing the Cuban gar from extinction** | • The **Cuban gar (Atractosteustristoechus)**, locally called **manjuarí**, belongs to the **Lepisosteidae** family.<br>• It is one of the **ancient gar species**, with evolutionary roots dating back nearly **100 million years**.<br>• The species thrives mainly in **tropical freshwater systems** but can also survive in **brackish water environments**.<br>• The Cuban gar inhabits: **Large lakes, rivers, backwaters, pools, and slow-moving tributaries**<br>• **Conservation Status:** The Cuban gar is classified as **Critically Endangered** on the **IUCN Red List**, underscoring the urgency for conservation action. |
| **Hawfinch** | A rare sighting of the Hawfinch recently documented in Jim Corbett National Park, Uttarakhand. | • The Hawfinch is the largest member of the finch family (Fringillidae).<br>• **Distribution:** Its range extends across Europe, North Africa (including Algeria, Tunisia, and Morocco), and eastern parts of Asia up to northern Japan.<br>• **Habitat:** The species prefers deciduous and mixed forests, as well as orchards, parks, streamside vegetation, and cultivated green spaces.<br>• **Conservation Status:** Listed as **Least Concern** on the IUCN Red List. |
| **Finn's Weaver Bird** | Ornithologists have raised concern that the population of Finn's Weaver is quietly declining across the marshy lowlands of India's Terai region. | • Finn's Weaver (*Ploceus megarhynchus*)is a member of the weaver bird family.It was named in honour of Frank Finn, a British naturalist.<br>• **Distribution:** The species is native to the floodplains of the **Ganga and Brahmaputra river valleys** in India and Nepal. |

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| | | • **Habitat:** These birds are typically found near **dams, wetlands, and reservoirs**. Their preferred environment includes **marshy soil, tall grasses, and trees such as Semal (silk cotton) and Shisham (rosewood)**.<br>• **Feeding Behaviour:** They are predominantly **seed-eaters**, though adult birds also consume small invertebrates<br>• **Conservation Status: IUCN Red List:** Vulnerable<br>• **Wildlife Protection Act, 1972:** Listed under **Schedule IV** |
| **Grey Seal** | Researchers recently discovered that the milk of grey seals contains **332 distinct types of oligosaccharides.** | • The grey seal is a **large marine mammal** belonging to the family *Phocidae*.It is also known as the **Atlantic seal** or **horsehead seal**.<br>• The species is distributed on **both coasts of the North Atlantic Ocean**.<br>**Distribution and Habitat**<br>• Grey seals are found along the **North Atlantic coast**, from the mid-Atlantic region to the **Baltic Sea**.<br>• They spend most of their time in **coastal waters**, but haul out on **rocky shores, islands, sandbars, ice shelves, and icebergs.**<br>**Behaviour**<br>• Grey seals are **diurnal**, staying active during the day and resting at night.<br>• They exhibit a unique posture called **"bottling"**, where their bodies remain vertical in the water with only the head above the surface.<br>• **Conservation Status:** Listed as **Least Concern in IUCN Red List.** |

# INDEX IN NEWS

| Index | Context | Description |
|---|---|---|
| **Climate Change Performance Index (CCPI) 2026** | In the **2026 edition of the CCPI**, India's ranking dropped by **13 places**, moving from **10th to 23rd position**. | • The **CCPI** is an annual assessment released by **Germanwatch**, the **New Climate Institute**, and **Climate Action Network International**.<br>• It evaluates how well major emitting countries are responding to climate change.<br>• The index judges national performance across **four parameters**:<br>1. **Greenhouse Gas (GHG) Emissions**<br>2. **Renewable Energy**<br>3. **Energy Use**<br>4. **Climate Policy** |

|  |  | • The CCPI has been published **since 2005**.<br>• **Denmark, the United Kingdom, and Morocco** ranked at the top of this year's index.<br>• Among G20 nations, **China (54th)**, **Russia (64th)**, **the United States (65th)**, and **Saudi Arabia (67th)** performed the worst, receiving **very low overall scores**. |

## 5.3 ADDITIONAL TOPICS FOR READING FROM IASGYAN WEBSITE

| Topic Name | Date |
|---|---|
| Climate Crisis 2025: Indicators, Impacts, and Way Forward | 1st November |
| Heavy Metal Contamination in India: Causes, Risks, and Mitigation | 4th November |
| Stopping Illegal Wildlife Imports: Insights from the CITES Report | 5th November |
| FPI Outflows: Causes, Consequences, and Policy Response | 6th November |
| Financial Risks in a Warming World: Challenges and Responses | 7th November |
| Air Pollution and Child Health: A Growing Concern in India | 8th November |
| Deforestation in the Amazon: A Threat to Global Climate Stability and Biodiversity | 14th November |
| Belem Action Plan for Health and Climate Adaptation | 15th November |
| Graded response action plan: meaning, issue and way forward | 17th November |
| Dugong Conservation in India: Challenges, Strategies, and Successes | 19th November |
| Ocean Pollution: Challenges, Impacts, and Governance Measures | 21st November |
| COP30: Prioritizing Climate Adaptation in a Fossil Fuel-Dependent World | 24th November |
| Heat Stress and the Future of Coral Reefs | 25th November |
| Climate Change and Its Impact on India's Commercial Crops | 26th November |
| PM1 Pollution in India: Health Risks, Regulatory Gaps, and the Need for Ultrafine Particle Monitoring | 27th November |
| India's Agricultural Future Under Heat Stress: Challenges and Policy Imperatives | 28th November |
| Forest Survey and importance of Aravali Hills | 28th November |

# 6. SCIENCE & TECHNOLOGY AND HEALTH

## 6.1 SHORT ARTICLES

## Melatonin

### Context

- Increase in consumption of melatonin supplements.

### Details:

- **Production in Human by:** The *pineal gland* in the brain (and in smaller amounts by the gut, retina, and other tissues).
- **Triggered by:** Darkness — melatonin levels rise in the evening, peak during the night, and drop in the morning with exposure to light.
- **Inhibited by:** Blue light (from screens or artificial light) and stress hormones.

### Functions

- **Regulates sleep patterns:** Helps signal to your body that it's time to sleep.
- **Acts as an antioxidant:** Protects cells from free radical damage.
- **Supports immune function** and may influence metabolism, mood, and reproduction.
- **Jet lag & shift work:** Helps re-synchronize circadian rhythms disrupted by time zone changes or irregular schedules.

### Side Effects & Precautions:

- Drowsiness, Headache, Dizziness, Nausea.

## Interstellar Comet 3I/ATLAS

### Context:

- NASA astronomers have recently confirmed the presence of **water's chemical fingerprint** on the **interstellar comet 3I/ATLAS**.

### Interstellar Comet 3I/ATLAS:

- 3I/ATLAS is the **third known interstellar object** to pass through our solar system, after:**1I/'Oumuamua** (2017) and **2I/Borisov** (2019)
- It follows a **hyperbolic orbit**, meaning it is **not gravitationally bound** to the Sun.
- Travels at **57–68 kilometres per second** relative to the Sun.
- Will **exit the solar system permanently** after a brief encounter with the Sun.

### Key Features:

**Active comet:** Displays a **visible coma**, consisting of ice particles and dust around the nucleus.

- **Tail Formation:** Expected to form a **tail** as it approaches the Sun due to solar heating— typical of cometary bodies.
- **Composition Indicators:** Photometric studies show a **reddish hue**, suggesting: Presence of **complex organic compounds**, or Significant amounts of **water ice**.
- **Size:** The nucleus is estimated to be **10–30 kilometres wide**.

### What are Interstellar objects?

- Celestial bodies that **originate outside the solar system** and pass through it. They are **not gravitationally bound** to any star. They follow **open-ended hyperbolic trajectories** with a perihelion (closest approach to the Sun) but **no aphelion**.

## Melanin

### Context:

- Melanin research highlights how our ancestors adapted to **high UV exposure** about **50,000 years ago**

### About:

**About Melanin:**

- Natural pigment present in humans and most living organisms
- Found in **skin, hair, eyes**, and in special structures called **melanosomes** within **melanocytes**
- Determines **unique skin, hair, and eye color**

### Types of Melanin:

- **Eumelanin:** Brown/black shades in skin, hair, eyes
- **Pheomelanin:** Red/yellow hues; more common in red-haired or lighter-skinned people
- **Neuromelanin:** Found in the brain; formed from **dopamine** and **noradrenaline** oxidation

### Roles of Melanin:

- **Biological Shield:** Absorbs harmful **UV rays**, reducing risk of **skin cancer**
- **Camouflage & Survival:** Aids **animals** in blending with the environment, protecting both predator and prey
- **Thermoregulation:** Helps regulate **heat loss and generation** via mechanisms like sweating

# GPS Spoofing

## Context:

- Delhi's **Indira Gandhi International Airport** recently faced **massive flight disruptions** due to **GPS spoofing**.

## What is a Spoofing Attack?

- A **cyberattack** where **fake data** masquerades as originating from a **trusted source** to deceive systems or users
- **Types of spoofing:**
  1. **GPS spoofing**
  2. **IP spoofing** (often used in DDoS attacks)
  3. **SMS and caller ID spoofing**

## About GPS Spoofing:

- Involves **manipulating navigation data** with malicious intent
- Unlike jamming (blocking signals), **spoofing sends fake satellite signals** to override genuine ones
- Aircraft navigation systems may calculate **wrong position, altitude, time, and speed**
- Fake signals are amplified so the **receiver treats them as authentic**
- Can lead to aircraft flying **blind or dangerously off-course**

# Scintillometer

## Context:

- A scintillometer has recently been installed at the **Tamil Nadu Rice Research Institute (TRRI)** in Aduthurai.

## About Scintillometer:

- A scintillometer is an **optical instrument** used to measure **heat and moisture exchange** between the land surface and the atmosphere. It provides a direct way to estimate how much heat is being transferred upward from the ground, which is crucial for understanding evapotranspiration and microclimatic variations.

## Working of Scintillometer:

- The device operates by **sending a light beam across two fixed points**.
- As air turbulence causes minute and rapid fluctuations—called **scintillations**—in this beam, the instrument analyses these variations to compute the **sensible heat flux** between land and air.
- The newly installed scintillometer has been integrated into the existing sensor network at the **TRRI Critical Zone Observatory (CZO)**.

## What is Critical zone observatory?

- The CZO continuously records Weather parameters, Soil-moisture levels, Air–surface heat and moisture fluxes, Canopy and hydrological variables. Set up by the **Tamil Nadu Agricultural University (TNAU)** with assistance from the **National Centre for Earth Science Studies (NCESS)**.
- With the addition of the scintillometer, the observatory now directly measures **sensible heat flux**, and improving the accuracy of microclimate assessment.

# Visible Emission Line Coronagraph (VELC)

## Context:

- Scientists from the **Indian Institute of Astrophysics (IIA)**, in collaboration with **NASA**, have recently used data from the **Visible Emission Line Coronagraph (VELC)** onboard India's **Aditya-L1 mission** to estimate key parameters of a **Coronal Mass Ejection (CME)**.

## Details:

- VELC is the **primary scientific payload** of **Aditya-L1**, India's first dedicated mission to observe the Sun from the **Lagrange Point L1**.
- The instrument measures crucial coronal properties such as temperature, plasma velocity and electron density
- It also play key role in tracking **Coronal Mass Ejections (CMEs)** and understanding **solar wind initiation and evolution**.

## Features:

- VELC is an **internally occulted solar coronagraph** that enables **simultaneous imaging, spectroscopy, and spectro-polarimetry** very close to the solar limb.
- The payload integrates a **coronagraph**, **spectrograph**, **polarimetry module**, advanced **detectors**, and auxiliary optical components.
- It has been developed by the **Indian Institute of Astrophysics (IIA)** at the **CREST campus** in Hosakote, Karnataka.

# ESCAPADE Mission

## Context:

- Blue Origin has recently launched **NASA's ESCAPADE mission**, a highly anticipated dual-spacecraft mission to Mars.

**Details:**

- The **ESCAPADE (Escape and Plasma Acceleration and Dynamics Explorers)** mission is NASA's **first coordinated multi-spacecraft orbital science mission to Mars**, designed to study the planet's magnetospheric environment using two identical orbiters.
- The mission features two spacecraft—**Blue** and **Gold**—which will make **simultaneous measurements from different positions around Mars.**
- ESCAPADE is part of NASA's **SIMPLEx (Small Innovative Missions for Planetary Exploration)** program, which focuses on low-cost, high-efficiency planetary missions.
- The mission uses a unique **"launch and loiter" approach**, wherein the satellites are first sent toward the **Earth-Sun Lagrange Point 2.**

**Objective:**

- The mission seeks to **track how Mars' magnetosphere responds to space weather**, especially during solar storms; **examine how solar wind interacts with and erodes Mars' thin atmosphere**, shaping its long-term climate evolution; and **generate insights crucial for understanding the planet's past habitability as well as radiation risks for future human explorers**.

# Hydrogen Valley Innovation Clusters

**Context:**

- The Union Minister of State for Science and Technology has announced that **four Hydrogen Valley Innovation Clusters (HVICs)** are being developed across India to accelerate green hydrogen adoption and innovation.

**Details:**

- Hydrogen Valley Innovation Clusters are being established to **demonstrate the complete green hydrogen value chain**, covering **production, storage, transport, and end-use**, while building an integrated local ecosystem for hydrogen demand across transport, industry, and energy sectors.
- Originally conceptualized by the **Department of Science and Technology**, the clusters are now aligned under the **National Green Hydrogen Mission.**
- Four Hydrogen Valleys are being developed in **Pune, Jodhpur, Bhubaneswar, and Kerala.**

# Fourier Transform Infrared Spectroscopy

**Context:**

- A recent report highlights how forensic experts are increasingly using **Fourier Transform Infrared Spectroscopy (FTIR)** to analyse **post-blast residues.**

**About:**

- Fourier Transform Infrared Spectroscopy, also known as **FTIR analysis**, is an analytical technique used to **identify chemical constituents and determine molecular structures** in real-world samples by studying the **vibrational modes of functional groups**.

**Working:**

- FTIR operates by **passing infrared light through a sample** and observing how different molecular bonds absorb specific wavelengths, thereby revealing **molecular vibrations, functional groups, and chemical components** present in solids, liquids, or gases.

**Application:**

- **Industrial use:** FTIR is widely used in **industrial quality control**, helping evaluate polymers, coatings, pharmaceuticals, and other manufactured materials.
- **Environmental monitoring:** It is applied for **air-quality assessment**, **water-quality testing**, and **soil analysis**, aiding in tracking pollution and environmental hazards.
- **Chemical and Forensic analysis:** FTIR is essential in identifying **organic, polymeric, and select inorganic materials**, and has become a key tool in **forensic investigations.**

# Man-Portable Autonomous Underwater Vehicles (MP-AUVs)

**Context:**

- DRDO has recently developed new generations of man-portable autonomous underwater vehicles (MP-AUVs).

**About MP-AUVs**

- The MP-AUVs have been designed specifically for mine countermeasure operations and are developed by the Naval Science & Technological Laboratory (NSTL), Visakhapatnam under DRDO.

**Key Features:**

- The vehicles provide rapid-response capability with reduced operational risk and logistic

burden, making them highly suitable for naval mine warfare.

- They use deep-learning–based target recognition algorithms that enable autonomous classification of underwater threats, thereby reducing operator load and mission duration.
- The system includes multiple AUVs equipped with side-scan sonar and underwater cameras to ensure real-time detection and classification of mine-like objects.
- Their underwater acoustic communication network enables seamless data exchange between AUVs during missions, improving coordination and situational awareness.

## Sentinel-6B Satellite

### Context:

- The **Sentinel-6B satellite** has been successfully launched from the **Vandenberg Space Force Base in California**, marking the next phase in global sea-level monitoring.

### Details:

- Sentinel-6B is a **collaborative mission** involving **NASA**, **National Oceanic and Atmospheric Administration (NOAA)**, and the **European Space Agency (ESA)**.
- Its central purpose is to **track changes in sea levels** and study how rising oceans are influencing the Earth's climate systems.

### Components:

- The spacecraft is equipped with **six scientific instruments** designed for precision ocean observation.
- It carries **two fixed solar arrays** along with **two deployable panels,** supplying power as it movesalong a **non–Sun-synchronous orbit**.
- Its planned operational lifetime in space is approximately **5.5 years**.

### Significance

- Sentinel-6B enhances our ability to **monitor ocean dynamics** and **track sea-level rise**, contributing directly to **better weather modelling** and **early warning systems for floods**.
- The data supports **disaster preparedness**, aids **coastal infrastructure planning**, and offers valuable insights for **industry and public safety**.

## BIRSA 101

### Context:

- The **Union Minister of State for Science & Technology** has unveiled **BIRSA 101,** India's first home-grown **CRISPR-based gene therapy** for treating **Sickle Cell Disease (SCD)**.

### Sickle Cell Disease

- SCD is an inherited blood disorder where red blood cells become **rigid**, **crescent-shaped**, and less efficient at carrying oxygen. These distorted cells can obstruct blood vessels, causing **severe pain episodes**, **chronic health problems**, **anaemia**, **organ damage**, **infections**, and **stroke risk**.

### About BIRSA 101

- BIRSA 101 is the country's first **indigenously developed CRISPR gene-editing treatment** for SCD.
- It has been developed by the **CSIR–Institute of Genomics and Integrative Biology (IGIB)**.

### Key Features:

- The therapy uses the **CRISPR–Cas9 system** to directly repair the faulty gene responsible for Sickle Cell Disease.
- Compared to international CRISPR-based therapies, BIRSA 101 is priced much lower.

### Treatment:

- The treatment corrects the underlying **genetic mutation** that results in sickle-shaped red blood cells.
- It is administered as a **one-time infusion**, after which the patient's body is expected to start producing **healthy, normally shaped red blood cells**.

## YUVA AI for ALL Initiative

### Context:

- The **Ministry of Electronics and Information Technology (MeitY)** has launched the **YUVA AI for ALL** initiative to make Artificial Intelligence learning accessible to the general public.

### About YUVA AI for ALL

- This initiative, introduced under the **IndiaAI Mission**, is a **free, introductory AI course** designed for all Indians—especially students, young professionals, and anyone curious about emerging technologies.
- It offers a **4.5-hour self-paced learning module**, aimed at helping participants grasp

the basics of Artificial Intelligence without requiring prior technical knowledge.

- **Goal:** To equip **1 crore (10 million)** citizens with foundational AI skills.

### Key Features

- The course uses **simple explanations**, practical insights, and **Indian real-life examples** to make AI concepts easy to understand.
- It is hosted **free of cost** on platforms like **FutureSkills Prime**, **iGOTKarmayogi**, and other major ed-tech portals.
- Learners receive an **official Government of India certificate** upon completion.
- Open to all and accessible **anytime, anywhere**, allowing complete flexibility.

## Pharmacogenomics

### Context:

- Pharmacogenomics is reshaping healthcare by shifting from uniform drug prescriptions to **precision treatments tailored to a person's genetic makeup**.

### What is Pharmacogenomics?

- It is the branch of science that studies how **genetic variations influence an individual's response to medicines**.
- The term blends **pharmacology** (study of drugs) and **genomics** (study of genes), reflecting its role at the intersection of medication and genetics.
- It forms an integral part of **genomic medicine and precision medicine**, where treatment strategies consider a person's genes, environment and lifestyle.

### Importance:

- Enhances **safety and effectiveness** of medication by preventing adverse reactions.
- Lowers healthcare costs by ensuring better treatment outcomes.
- Helps in **developing targeted medicines**, particularly for disorders linked to specific gene changes.

### Applications

- **Cancer care:** Designing therapies based on tumour genetics and patient DNA.
- **Heart diseases:** Personalising blood-thinner dosage according to genetic differences.
- **Mental health:** Identifying antidepressants that are both effective and cause fewer side effects.

- **Infectious disease management:** Anticipating how patients will respond to antiviral drugs.

## HAMMER Weapon System

### Context:

- Bharat Electronics Limited (BEL) and **Safran Electronics and Defence (SED)** of France have recently inked a **joint venture agreement** to manufacture the **HAMMER Weapon System**.

### What is the HAMMER Weapon System?

- The **HAMMER (Highly Agile and Manoeuvrable Munition Extended Range)** is an **air-launched, precision-guided strike weapon** designed by the French defence firm Safran.
- It functions as a **glide bomb**, enabling controlled strikes against ground targets.

### Key Features

- **Range:** Up to **70 kilometres**, allowing stand-off strikes
- Can be integrated with **standard bomb payloads** of 250 kg, 500 kg, and 1,000 kg
- Equipped with **anti-jamming capability**
- Can be deployed from **low-altitude flight over difficult terrain**
- Designed to **penetrate reinforced structures** and evade interception
- Its **modular configuration** makes it compatible with multiple aircraft platforms, including the **Rafale fighter jet and India's Light Combat Aircraft Tejas**.

## Young Stellar Objects (YSOs)

### Context:

- A research team has recently traced the early evolutionary phases of young stars—known as Young Stellar Objects.

### What are Young Stellar Objects?

- Young Stellar Objects represent stars at the earliest phase of their development—before they reach the stable hydrogen-burning stage of the main sequence on the Hertzsprung–Russell diagram, which categorizes stars by brightness and surface temperature.
- These infant stars are typically embedded in dense molecular clouds full of gas and dust.

### Formation Process

- YSOs originate from the gravitational collapse of molecular clouds.
- This collapse may be triggered by shocks from supernova explosions, radiation from nearby

stars, or turbulence within the interstellar medium.

## Types of YSOs

YSOs are broadly grouped into two categories:

- **Protostars**
- **Pre-main sequence stars**

## Evolutionary Stages

- **Class 0 and Class I:** Extremely young stages, detectable mainly in infrared and radio wavelengths due to thick surrounding dust.
- **Class II and Class III:** The star becomes progressively clearer at visible wavelengths as its surrounding envelope disperses.

## Importance:

- **Understanding Star Birth:** They offer crucial insights into early star development, including phenomena like magnetic fields, stellar winds, and gas outflows.
- **Planetary Systems:** Studying YSOs helps scientists understand how planets form and the environment that shaped our early solar system.

# Vikram-I Rocket

## Context

- The Prime Minister of India recently showcased **Skyroot Aerospace's first orbital-class launch vehicle, Vikram-I.**

## About Vikram-I:

- Developed by **Skyroot Aerospace**, Vikram-I is India's new **private orbital-class rocket**, named after **Dr. Vikram Sarabhai**, the father of India's space programme.

## Key Features:

- **Thrust:** Generates **1,200 kN thrust** and uses an **all-carbon composite body**, providing high strength with reduced weight.
- **Design:** Built for **simplicity, reliability, and rapid launch capability**, allowing deployment within **24 hours from varied launch sites**.

## Stages: A four-stage rocket:

- The **first three stages run on solid fuel** for strong lift-off performance.

- The **fourth stage uses hypergolic propulsion**—a cluster of **four Raman engines** that ignite when MMH fuel and NTO oxidiser come into contact, enabling precise orbit insertion.

**Payload Capacity:** Can carry **up to 350 kg to Low Earth Orbit (LEO)** and **260 kg to Sun-Synchronous Orbit (SSO)**.

# Syntactic Foam

## Context:

- India's first crewed deep-sea submersible mission, has been postponed due to delays in sourcing its external **syntactic foam cladding.**

## What is Syntactic Foam?

- **Syntactic foam** is an engineered composite made by embedding tiny hollow inorganic spheres, called **microballoons**, into a metal, polymer, or ceramic base.

## Properties of Syntactic Foam

- The microballoons keep weight low while delivering high compressive strength.
- **Excellent Buoyancy:** Its low density makes it ideal for deep-sea applications requiring flotation.
- **Thermal & Acoustic Insulation:** It limits heat transfer and dampens sound, enhancing marine and aerospace efficiency.
- **Corrosion & Water-Resistance:** Its sealed cellular structure blocks moisture entry, ensuring long operational life in harsh saltwater environments.

## Applications of Syntactic Foam

- **Subsea & Offshore Use:** Applied in remotely operated vehicles (ROVs), autonomous underwater vehicles (AUVs), and pipeline insulation.
- **Aerospace:** Used in lightweight components of satellites and aircraft.
- **Defence:** Utilised in sonar systems, buoyancy modules, and protective armour.
- **Automotive & Sports:** Increasingly used for lightweight crash-resistant parts and high-performance sporting gear.

## 6.2    SNIPPETS

# DISEASE IN NEWS

| Disease | Context | Description |
|---|---|---|
| **Leprosy** | Maharashtra government has officially declared leprosy a "notifiable disease" | **Leprosy**, also called **Hansen's disease**, is a **chronic infectious disease** caused by the bacterium *Mycobacterium leprae*<br>It primarily affects the **skin**, **peripheral nerves**, **upper respiratory tract**, and **eyes**, leading to sensory loss, deformities, and disability if untreated.<br>**Transmission: Prolonged close contact, Spread occurs via nasal droplets and skin contact.**<br>**Symptoms: Skin lesions (pale or reddish patches with loss of sensation)**<br>**Nerve involvement (**numbness, weakness, thickened peripheral nerves), Muscle weakness, Loss of eyebrows/ eyelashes. |
| **Chronic Obstructive Pulmonary Disease** | The World Health Organization reports that **Chronic Obstructive Pulmonary Disease** is the **fourth-leading cause of death globally**, accounting for **3.5 million deaths in 2021.** | Chronic Obstructive Pulmonary Disease is a chronic, progressive condition caused by **damage to the lungs**, leading to **persistent breathing difficulties**.<br>**Causes**<br>• **Smoking** is one of the most important causes.<br>• **Indoor air pollution**, including biomass fuel exposure, is another major risk factor in many countries.<br>Types:<br>**Chronic Bronchitis:** Caused by **inflammation of the bronchi**, the tubes that bring air into the lungs.<br>**Emphysema:** Occurs when the **air sacs (alveoli)** are damaged.<br>**Symptoms:** Persistent **cough with mucus** lasting three months or more, Chest **tightness, Shortness of breath**, especially during physical activity, **Wheezing** or whistling sounds while breathing, **Frequent chest infections, Fatigue** or extreme tiredness. |
| **Sickle Cell Disease (SCD)** | A decade-long study conducted by a Gurugram hospital has reported successful cures of Sickle Cell Disease (SCD) in children through bone marrow (stem cell) transplantation | • SCD is a group of inherited blood disorders affecting haemoglobin, the protein that carries oxygen in the blood.<br>• It leads to episodes of severe pain and can cause life-threatening complications.<br>• Sickle cell anaemia is the most common and severe form of SCD.<br>**Cause**<br>• SCD is caused by a defective sickle cell gene.<br>• A child develops SCD only if **two sickle genes** (one from each parent) are inherited.<br>**Symptoms**<br>• **Early stage:** Extreme tiredness, painful swelling of hands and feet, and jaundice.<br>• **Later stage:** Severe pain episodes, chronic anaemia, infections, and organ damage. |
| **Marburg Virus Disease** | The **World Health Organization (WHO)** has announced that | • Marburg virus disease (MVD) is a **severe and often fatal hemorrhagic fever** caused by the Marburg virus.<br>• Initial transmission occurs from **infected fruit bats to** |

| | | |
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| | **Ethiopia** has reported its **first-ever outbreak** of Marburg virus disease. | **humans**. <br>• Human-to-human transmission happens through **direct contact** with bodily fluids of infected persons or contaminated surfaces. <br>• Most outbreaks have occurred in **sub-Saharan Africa**, especially in **Uganda, Tanzania, Angola, Ghana, Kenya, and Zimbabwe**. <br>• **Symptoms:** High fever, severe headache, and general malaise. <br>• **Treatment:** There is **no specific antiviral treatment** for Marburg virus disease. Supportive care can improve survival. |
| **Acanthosis Nigricans** | Early detection of Acanthosis Nigricans can help identify prediabetes or diabetes in both children and adults. | Acanthosis Nigricans is a skin disorder marked by dark, velvety thickening of skin, especially around body folds. <br>**Causes:** The condition is commonly linked to; Obesity, Insulin resistance, Metabolic syndrome, Diabetes <br>**Symptoms:** Gradual appearance of dark, coarse or velvety patches in areas like the neck, armpits, groin, breast folds, elbows or knees. <br>**Treatment:** Treating the associated metabolic or hormonal disorder often improves the skin condition. |
| **Leptospirosis** | Jamaica recently declared an **outbreak of leptospirosis** after Hurricane Melissa caused widespread flooding | • A **serious bacterial infection** caused by Leptospira interrogans. <br>• The bacteria enter the body through **cuts or abrasions on the skin**, especially on the feet. <br>• More common in **warm, humid climates** across both rural and urban settings. <br>**Transmission:** <br>• Primarily a **contagious animal disease**, occasionally infects humans during flooding or contaminated water. <br>• **Reservoir hosts:** Rodents, livestock such as cattle and pigs, and domestic pets <br>**Symptoms** <br>• **Initial Phase:** Fever, chills, headache, vomiting, diarrhoea and body aches—symptoms may subside temporarily. <br>• **Second Phase (severe cases):** Can lead to **meningitis**, **liver or kidney failure**, known as Weil's disease. <br>**Treatment:** <br>• Effectively managed with **antibiotics** if detected early. |

## DRUGS IN NEWS

| Drugs | Context | Description |
|---|---|---|
| **Alprazolam** | The Directorate of Revenue Intelligence has uncovered a **clandestine factory** manufacturing **alprazolam** in Valsad during **Operation White Cauldron**. | Alprazolam is classified as a **psychotropic substance** under the **Narcotics, Drugs and Psychotropic Substances Act 1985**.It belongs to the **benzodiazepine** class of medicines. <br>Primarily used to treat:**Anxiety disorders, Panic disorders, Anxiety associated with depression** |
| **Methamphetamine** | A joint team of the **Narcotics Control Bureau** | • Methamphetamine is a **highly addictive stimulant drug** that targets the **central** |

| | | |
|---|---|---|
| | **and Delhi Police** recently dismantled a large **international methamphetamine trafficking network** under an operation named **"Crystal Fortress."** | **nervous system**. • It was once used in **inhalers and nasal decongestant formulations** before its addictive nature became widely recognised. • Classified as a **neurotoxin and psychostimulant**, with harmful effects on the brain and body. **Effects on the Human Body** Methamphetamine causes: • **Heightened energy and alertness** • **Reduced appetite** • **Intense feelings of pleasure or euphoria** |

## OUTBREAKS IN NEWS

| Outbreak | Context | Details |
|---|---|---|
| **Rift Valley Fever** | The **World Health Organization (WHO)** has confirmed a fresh outbreak of **Rift Valley Fever (RVF)** in **Mauritania and Senegal** in Western Africa | Rift Valley Fever is a viral zoonotic disease caused by a **Phlebovirus** of the **Phenuiviridae** family. It primarily infects **sheep, goats, cattle, and camels**, and humans usually contract the virus through direct contact with infected animals or through the **bite of infected mosquitoes**. **Vector:** Multiple mosquito species can carry the RVF virus, and the **dominant vector varies by region** **Symptoms: In nearly 90% of cases,** RVF manifests as a **mild, flu-like illness** that develops 2–6 days after exposure. Treatment: There is **no specific antiviral therapy** for RVF. |

## ELEMENT IN NEWS

| Element | Context | Description |
|---|---|---|
| **Neodymium** | India has announced plans to **increase its neodymium production nearly nine-fold**, targeting an output of **500 tons by the end of FY27** | Neodymium, represented by the chemical symbol **Nd** and atomic number **60**, is a key member of the **lanthanide series**, which forms part of the broader family of **rare earth elements**. It is actually the **second most abundant rare earth element after cerium.** Neodymium is a **ductile, malleable, silvery-white metal** that **oxidizes rapidly in air**, forming a flaky oxide layer ($Nd_2O_3$) that exposes fresh metal to further oxidation |
| **Vanadium** | The Union Minister for Power has recently inaugurated **India's first MWh-scale Vanadium Redox Flow Battery (VRFB) system** at **NTPC's NETRA facility in Noida** | Vanadium is a chemical element represented by the symbol **V** with **atomic number 23.** It is a **silver-gray, ductile, and malleable metal**, distinguished by its **high hardness.** Vanadium is the **22nd most abundant element in Earth's crust.** The **largest mineral resources** of vanadium are concentrated in **South Africa and Russia**, while **China, Russia, and South Africa. Application:** Vanadium is used as an alloying element in steel, Vanadium Redox Flow Batteries (VFBs). Vanadium is used in certain nuclear reactors as a structural material and neutron moderator |
| **Tungsten** | Hindustan Zinc Ltd (HZL) has recently | • Tungsten is a chemical element with the symbol **W** and atomic number **74**. |

| | | |
|---|---|---|
| | received a licence to explore and mine a tungsten block in Andhra Pradesh | • It is a naturally occurring **transition metal** and has been designated a **Critical Mineral** by the Government of India.<br>• Major global producers include **China**, **Vietnam**, **Russia**, and **North Korea**.<br>• Tungsten never occurs as a pure metal in nature. It is commonly found in minerals such as **wolframite** and **scheelite**.<br>**Application:**<br>• Used in **X-ray tubes**, **light bulbs**, **high-speed cutting tools**, and **welding electrodes**.<br>• **Tungsten carbide**, known for its extreme hardness, is vital in the **metal-working, mining, and petroleum** industries.<br>• Tungsten compounds are used in **ceramic pigments**, **fire-retardant fabric coatings**, and **color-resistant dyes**. |
| **Ammonium Nitrate** | Ammonium nitrate, identified as one of the substances behind the recent Delhi explosion | • Ammonium nitrate ($NH_4NO_3$) is a **white, crystal-like solid** produced on a large industrial scale.<br>• It is a **salt of ammonia and nitric acid**.<br>• Commonly used as a **high-nitrogen fertilizer** and also as an **oxidizing agent** in explosives.<br>• Ammonium nitrate **is not explosive on its own**.<br>• It becomes explosive only when **mixed with fuel or other substances**.<br>• Even such mixtures need **initiators like detonators** to trigger an explosion.<br>**Legal Controls:** As per rules notified in **2012** and updated in **2021**, any mixture with **more than 45% ammonium nitrate** is legally treated as an **explosive**.<br>• A **District Magistrate** can permit possession of up to **30 metric tonnes**; larger quantities require approval from the **Petroleum and Explosives Safety Organisation (PESO)**. |

## 6.3 ADDITIONAL TOPICS FOR READING FROM IASGYAN WEBSITE

| Topic Name | Date |
|---|---|
| India's Heaviest Satellite Launch: Implications for Future Missions | 2nd November |
| Nanotechnology: Revolutionizing Cancer Treatment and Diagnosis | 6th November |
| Governing Artificial Intelligence: Challenges and Way Forward | 10th November |
| Alzheimer's Disease: Emerging Challenge for India's Public Health | 12th November |
| Declining TB Burden in India: Significance and Implications | 13th November |
| Hepatitis A in India: Challenges and Solutions | 14th November |
| Antimicrobial Resistance in India: GLASS Report, Causes, Consequences, and Solutions | 14th November |
| Understanding Diabetes: Types, Causes, and Management | 15th November |
| Coronal mass ejection: Meaning, formation and impacts | 17th November |
| UNESCO's Global Framework on Neurotechnology | 18th November |
| Comet 3I/Atlas and Interstellar object | 22nd November |
| H5N5 Bird Flu Explained | 27th November |

# 7. CULTURE & HISTORY

## 7.1 NCERT LINKS ALGEBRA, GEOMETRY TO ANCIENT INDIA

### Context
- NCERT's newly released Class 7 mathematics textbook (Ganita Prakash Part 2) included ancient Indian contributions to mathematics, particularly algebra and geometry.

### Contribution of Ancient India in the development of Mathematics:
- India developed the **base-10 decimal system** with **positional notation**. The earliest references appear in *Bakhshali Manuscript*, *Aryabhatiya* and *Brahmasphuta-siddhanta*.
- **Brahmagupta (7th c.)** gave arithmetic rules for zero — addition, subtraction, multiplication and division involving zero.
- Bhaskara II's *Bijaganita* included **indeterminate equations (chakravala method)**, seen as an early form of algorithmic algebra.
- **Aryabhata (499 CE)** pioneered trigonometry with **Sine (jya)** tables and relations akin to modern identities.
- **Kerala School of Mathematics** (14th–16th c.), led by **Madhava of Sangamagrama**, developed **infinite series expansions** for sine, cosine and π.

### Importance of inclusion of Ancient India's contribution into School curriculum:
- For long, the history of science and mathematics in Indian classrooms has been filtered through colonial narratives that over-emphasised Western discoveries. Including ancient contributions creates a **more accurate and inclusive historiography.**
- Showcasing achievements such as zero, algebra, astronomy or the Sulba-Sutras cultivates **identity, pride and self-worth** among students.
- Linking mathematical ideas to their historical origin — e.g., Brahmagupta's algebra or Aryabhata's trigonometry — helps students see concepts as human inventions, not abstract rules.
- The National Education Policy mandates mainstreaming indigenous knowledge. Including ancient contributions operationalises this vision through **textbook content, pedagogy and values**.

### Challenges in preserving Ancient Indian knowledge:
- Much of ancient Indian knowledge exists in palm-leaf manuscripts, copper plates, or oral traditions.
- Guru–shishya parampara, Ayurveda formulations, architectural knowledge of sthapatis, or astronomical practices depended on oral transmission.
- Colonial education delegitimized indigenous knowledge as superstition or unscientific.
- Texts in **Sanskrit, Prakrit, Tamil, Pali, Persian and regional scripts** require specialised expertise decline in language proficiency restricts interpretation and translation.

### Initiatives taken by India to preserve Ancient Indian knowledge:
- **Indian Knowledge Systems (IKS):** Promotes interdisciplinary research and integration of indigenous knowledge into education.
- **Indira Gandhi National Centre for the Arts (IGNCA):** Documents manuscripts, art traditions and intangible heritage.
- **National Mission for Manuscripts (NMM):** Repository of over **5 million manuscripts**.
- **NEP 2020 mandate for Indian knowledge systems:** Encourages inclusion of ancient mathematics, astronomy, philosophy, Ayurveda, architecture and yoga in textbooks.
- **Manuscript Digitisation Projects:** National Digital Library, e-Granth initiative, IGNCA's Kala Nidhi digital archive, **and** Kerala palm leaf digitisation project.

## 7.2 SHORT ARTICLES

# UNESCO Creative Cities Network (UCCN)

## Context

- Lucknow has officially joined the UNESCO Creative Cities Network (UCCN) under the Gastronomy category during the 43rd Session of the UNESCO General Conference.

## About UNESCO UCCN:

- The UCCN is a global network launched by UNESCO in **2004** to connect cities that **view culture and creativity as strategic drivers of sustainable urban development**. The **Network covers seven core creative fields** (as of the conventional listing) in which cities can be designated: **Crafts & Folk Art, Design, Film, Gastronomy, Literature, Media Arts, Music**
- Recently, a new field—**Architecture**—has been added to the list of creative fields.

## What is this Gastronomy Category?

- The *Gastronomy* sub-network specifically recognises cities whose **food culture and culinary traditions contribute significantly to their creativity, heritage and sustainable urban development.**
- In **2025, new cities** under Gastronomy included: **Al-Madinah Al-Munawwarah (Saudi Arabia), Cuenca (Ecuador), Kelowna (Canada), Matosinhos (Portugal), Quanzhou (China), San Javier de Loncomilla (Chile), Songkhla (Thailand), Zaragoza (Spain)** etc.
- **Indian Cities in the UCCN: Kozhikode (Literature) and Gwalior (Music) Jaipur (Crafts and Folk Arts), Varanasi (Music), Chennai (Music), Mumbai (Film), Hyderabad (Gastronomy), Lucknow (Gastronomy), and Srinagar (Crafts and Folk Arts)**
- **Objective: The UNESCO Creative Cities Network aims to integrate culture and creativity into sustainable urban development** by expanding access to **cultural life, empowering creative professionals, and fostering international cooperation among cities.**

## 43rd Session key highlights:

- Uzbekistan proposed a global platform for **inclusive education, a pilot AI school, and a global forum on AI ethics.**
- A "UNESCO Academy on Women's Leadership" and a global forum of women leaders in **education, science and culture were proposed.**
- The **UNESCO Institute for Statistics (UIS) presented its 2024-25 achievements: expanded data coverage on SDG4 (quality education),** methodological innovations and the launch of new tools.

# Vande Mataram

## Context

- The **Prime Minister of India** will inaugurate a **year-long commemoration** of **150 years** of the National Song **"Vande Mataram"** in New Delhi.

## About Vande Mataram:

- **Author:** Bankim Chandra Chatterjee
- **Language:** Blend of **Sanskrit and Bengali**
- **First Featured:** In the novel **Anandamath (1882)**
- **Tune Composer:** Yadunath Bhattacharya
- **Significance:** Symbol of **patriotism** during India's freedom struggle

## Historical Background:

- Initially composed independently, later included in **Anandamath**
- **First sung:** By Rabindranath Tagore at the **1896 Congress Session**, Calcutta
- **Political Slogan:** First used on **7 August 1905**
- **1907:** Madam Bhikaji Cama displayed the **tricolour flag** in Stuttgart, Berlin, with **"Vande Mataram"** written on it
- **24 January 1950:** Adopted by the **Constituent Assembly** as India's **National Song**

# Piprahwa Relics

## Context:

- In a significant cultural event, a portion of the **Piprahwa Relics of Lord Buddha**, brought

from India, was ceremonially enshrined at **Tashichhodzong Monastery in Thimphu**, Bhutan.

### Details:

- The **Piprahwa Relics** are a revered collection of ancient Buddhist artifacts discovered in **1898** at the **Piprahwa Stupa in Uttar Pradesh**, believed to be part of the ancient city of **Kapilavastu**, the homeland of Gautama Buddha.
- These relics hold exceptional **archaeological, spiritual, and historical value**, as they are widely considered to be directly connected to Lord Buddha.

### Discovery:

- The relics were unearthed by **William Claxton Peppé**, a British colonial engineer
- Under the **Indian Treasure Trove Act (1878)**, the British crown took possession of the find and later on the sacred bones and ashes were gifted to **King Chulalongkorn of Siam (Thailand)**.

### Cultural significance:

- In India, the Piprahwa Relics are categorised as **'AA' antiquities**, meaning their **export or sale is strictly prohibited** under heritage protection laws, reflecting their immense national significance.

## Konark Sun Temple

### Context

- The **Archaeological Survey of India (ASI)** has recently barred tourists from entering the **Nata Mandap** of the **Konark Sun Temple** in Odisha's Puri district.

### Details:

- Konark Sun Temple—also known as **Surya Devalaya**—is dedicated to **Surya. T**he temple was constructed in **1250 CE** by **King Narasimha I** of the Eastern Ganga dynasty. It gained global recognition when it was declared a **UNESCO World Heritage Site in 1984**.

### Architectural Features:

- Originally rising to nearly **227 feet**, it was among the tallest temples in India.

- The structure is designed as a **gigantic stone chariot** of the Sun God, featuring:
  - **24 intricately carved wheels**
  - **Six horses** pulling the chariot
  - An orientation towards the **east**, allowing the first rays of the sun to illuminate the entrance
- The stone wheels function as **sundials**, capable of measuring time with minute-level precision, showcasing the scientific understanding of the temple builders.
- The base of the temple is adorned with carvings of **animals**, **foliage**, and **warriors** with intricate scenes from **Hindu mythology**
- The builders used three different types of stones i.e., **Laterite** for boundary walls, flooring, and steps, **Khondalite** for the main structural components and **Chlorite** for doorjambs and lintels

## Guru Tegh Bahadur

### Context

- Following a recent car blast near the Red Fort, security has been heightened around the monument as it prepares to host an event marking **350 years since the martyrdom of Guru Tegh Bahadur**.

### About Guru Tegh Bahadur:

- **Guru Tegh Bahadur (1621–1675)** was the **ninth Sikh Guru**.
- Born as **Tyaga Mal**, he was the youngest son of **Guru Hargobind**, the sixth Sikh Guru.
- He earned the name **Tegh Bahadur**, meaning "brave with the sword," after displaying courage in battle against Mughal forces.
- In **1664**, he succeeded **Guru Har Krishan** as the ninth Guru.
- His son, **Guru Gobind Singh**, later became the tenth Guru.

### Contributions:

- **Founded Anandpur Sahib** in present-day Punjab, a key Sikh centre where Guru Gobind Singh later founded the **Khalsa Panth in 1699**.
- Composed **over 100 hymns** included in the Guru Granth Sahib, addressing themes like spiritualism, morality, and human duty.

- **Defended religious freedom**, especially standing against forcible conversions of Kashmiri Pandits and other non-Muslims.

### Legacy:

- **Executed in Delhi in 1675** on the orders of Mughal emperor Aurangzeb for refusing to renounce his faith.

### Martyrdom:

- **Gurdwara Sis Ganj Sahib** in Chandni Chowk marks the execution site, while **Gurdwara Rakab Ganj Sahib** stands at his cremation place.
- His martyrdom is observed annually as **Shaheedi Divas.**

# Arunachalesvara Temple

### Context

- Authorities in Tiruvannamalai recently cleared illegal structures around the Arunachalesvara Temple to expand road access for pilgrims.

### About Arunachalesvara Temple:

- The Arunachalesvara Temple, situated at the foothills of **Arunachala Hill in Tiruvannamalai, Tamil Nadu**, is a major Shaivite pilgrimage centre.
- The temple's presence is rooted in antiquity, and it is referenced in **Tamil Saiva literature and ancient scriptures**.

### Architectural Features:

- A prominent example of **Dravidian temple architecture**, the complex spans **around 25 acres**, making it one of India's largest temple enclosures.
- The temple contains **four main gopurams (gateway towers).**
- The **Rajagopuram on the eastern side**, is among the tallest temple towers in India and was constructed by the **Nayaka rulers.**
- In total, the temple houses **nine ornate gopurams**, decorated with rich mythological sculptures.

- It also features a monumental **thousand-pillar hall**, attributed to ancient royal patronage.

# Brihadeeswarar Temple

### Context

- To commemorate **World Heritage Week**, the **Archaeological Survey of India** recently held a **heritage walk and temple clean-up drive** at the Brihadeeswarar Temple in Thanjavur.

### Description:

- Located in **Thanjavur, Tamil Nadu**, this temple is a major shrine devoted to **Lord Shiva**. It is popularly referred to as **Periya Kovil, Raja Rajeswara Temple, or Rajarajesvaram**.
- This monumental structure stands as one of **India's largest temples** and represents a peak example of **Chola-era Dravidian temple architecture**. It was commissioned by **Raja Raja Chola I** and was completed around **1010 CE**.
- Brihadeeswarar Temple forms part of the **UNESCO-listed "Great Living Chola Temples"**, along with the temples at **Gangaikonda Cholapuram** and **Airavatesvara (Darasuram)**.

### Architecture:

- The temple is encircled by **fortified walls**, believed to have been constructed in the **16th century**.
- Its **towering vimana**, rising to **216 feet (66 m)**, remains one of the tallest of its kind.
- The **Kumbam**, or crown stone, is carved from a **single block of granite weighing around 80 tonnes**.
- Covering **over 40 acres**, the complex is adorned with **rich sculptures and stone inscriptions**, illustrating the artistic brilliance of the Chola period.
- The entrance hosts a **massive monolithic Nandi statue**, measuring **about 16 ft long and 13 ft tall**.
- The entire monument is constructed wholly from **granite.**

## 7.3 ADDITIONAL TOPICS FOR READING FROM IASGYAN WEBSITE

| Topic Name | Date |
|---|---|
| Sardar Vallabhbhai Patel: The Pillar of India's Unity | 1st November |
| Empowering Citizens Through Legal Aid: NALSA and DISHA Explained | 10th November |
| Uttarakhand at 25: Journey from Hills to Statehood | 10th November |
| The Role of Literature in India's Freedom Struggle | 14th November |
| Janjatiya Gaurav Divas: Honouring India's Tribal Heroes | 15th November |
| Press as the Fourth Pillar: Historical and Contemporary Perspectives | 17th November |
| Batukeshwar Dutt: Contributions to the Freedom Struggle | 18th November |
| Social Justice in Nineteenth-Century India: The Vision of Jyotiba Phule | 28th November |
| Sirpur's Multi-Religious Legacy and the Road to UNESCO | 29th November |

# 8. GEOGRAPHY AND DISASTER MANAGEMENT

## 8.1 SHORT ARTICLES

## Tropical Forest Forever Facility (TFFF)

### Context

- Brazil launched the Tropical Forest Forever Facility (TFFF) for tropical forest conservation on the sidelines of the COP30 climate summit in Belém, Brazil.

### About Tropical Forest Forever Facility (TFFF)

- It aims to create a sustainable financing model for the conservation of tropical forests in developing countries.
- India has announced intention to join the initiative as an observer.

### Core Purpose and Mechanism

- It aims to make forests more economically valuable than cleared land by providing long-term, predictable finance against deforestation from agriculture, logging, and other economic activities.
- It operates on a performance-based model, rewarding tropical forest nations for maintaining and increasing their forest cover.
- A **$250 billion endowment fund**, created via blended finance, will distribute annual returns to participating countries based on verified forest conservation.

### About Tropical Forests

- **Location:** Found mainly in the equatorial zone between the Tropics of Cancer and Capricorn.
- **Climate:** Warm and wet climate, consistently above 18°C and over 2,000 mm annual rainfall.
- **Soils:** Warm, humid conditions cause rapid decomposition, holding most nutrients in living plant biomass, leaving soils nutrient-poor.
- **Biodiversity Hotspots:** Though they cover only about **6% of the Earth's land surface**, tropical forests are home to over **50% of the world's terrestrial species**. (Source: IUCN)
- **Climate Regulation:** Act as enormous **carbon sinks**. Forests globally absorb a net **7.6 billion metric tonnes of CO2 per year**.

- **Threat of Deforestation:** In 2024, the tropics lost 6.**7 million hectares** of primary rainforest, equivalent to losing 18 football fields per minute. (Source: Global Forest Watch)

## Jharkhand's Saranda Forest

### Context

- The Supreme Court has directed the Jharkhand government to declare part of the Saranda forest as a wildlife sanctuary.

### About Saranda Forest

- **Location:** Located in the West Singhbhum district of Jharkhand, bordering Odisha, it is part of the Chota Nagpur Plateau ecosystem.
- **Etymology:** The name 'Saranda' translates to **"the land of seven hundred hills"** in the local language.
- **Significance:** **Asia's largest and oldest continuous Sal forest**. Historically, it served as the private royal hunting ground of Seraikela.
- **Flora:** Dominated by forests of **Sal (*Shorea robusta*)**. Other significant tree species include **Mahua, Kusum, Jackfruit, and Jamun**.
- **Fauna:** Part of the **elephant corridor** in Eastern India, connecting habitats in Jharkhand, Odisha, and Chhattisgarh.
- **Economic Significance:** Forest division holds an estimated **25-26% of India's total iron ore reserves**. Major steel-industry mining towns like **Gua, Chiria, Kiriburu, and Noamundi** are situated in or near the forest.
- **Tribes:** Saranda is the ancestral home of the Ho, Munda, and Oraon Adivasi tribes.

## Mekedatu Dam

### Context

- Karnataka plans to submit a revised Detailed Project Report (DPR) to the Centre for the Mekedatu dam, on the Cauvery river.

## About Mekedatu Dam Project

- Build a balancing reservoir at the Mekedatu gorge, near Kanakapura, Karnataka, where the Cauvery and Arkavathi rivers converge.
- **Objectives:** Supply drinking water to Bengaluru and surrounding areas, and generating 400 MW of hydroelectric power.
- **Controversy:** Tamil Nadu, the downstream (lower riparian) state, opposes the project, concerning it will reduce the water flow downstream.

## About Cauvery River

- **Origin:** The river originates at Talakaveri on the Brahmagiri Hill range in the Western Ghats, in the Kodagu (Coorg) district of Karnataka.
- **Catchment area:** Basin area is distributed among; Tamil Nadu>Karnataka> Kerala> Puducherry.
- **Mouth:** It drains into the Bay of Bengal near Poompuhar in the Mayiladuthurai district of Tamil Nadu, forming a fertile delta known as the "garden of southern India".
- **In Karnataka:** It forms the islands of Srirangapatna and Shivanasamudra, where the Shivanasamudra Falls are located.
- **In Tamil Nadu:** It divides into numerous distributaries, creating the wide, fertile delta region. The ancient Grand Anicut (Kallanai Dam), built by a Chola King in the 2nd century CE, still functions as part of the extensive irrigation system in the delta.
- **Major Tributaries**
  - **Left:** Harangi, Hemavati, Shimsha, Arkavati
  - **Right:** Lakshmana Tirtha, Kabini, Suvarnavati, Bhavani, Noyyal, Amaravati
- The Cauvery River dispute over water sharing between Karnataka, Tamil Nadu, Kerala and Puducherry, originating from historical agreements and increasing water scarcity.

## 8.2    SNIPPETS

| Topics | Details |
|---|---|
| **Discovery of Largest and Most Distant Black Hole Flare** | <ul><li>Astronomers detected the largest and most distant flare from a black hole, which erupted from the supermassive heart of Active Galactic Nucleus (AGN) J2245+3743, 10 billion light-years from Earth.</li><li>The flare is the result of a powerful tidal disruption event (TDE), where a supermassive black hole with a mass 500 million times that of our Sun is tearing apart and consuming a star at least 30 times more massive than the Sun. A black hole is a region in space with gravity so intense that nothing, **not even light, can escape**, formed from collapsed massive stars or other extreme density events, characterized by an **invisible boundary called the event horizon.**</li></ul> |
| **Hayli Gubbi Volcano** | <ul><li>Ethiopia's Hayli Gubbi volcano, dormant for over 12,000 years, erupted, sending a massive ash cloud across the Red Sea and South Asia.</li><li>A volcanic eruption releases gases, rock fragments, and molten lava from Earth's depths through a vent. Pressure builds in magma—molten rock from the asthenosphere beneath the crust—causing it to expand and burst through fissures. **Hayli Gubbi, a broad shield volcano in Ethiopia's Afar region along the Erta Ale Range, sits at the East African Rift's edge**. Diverging African and Arabian plates pull apart here, allowing hot mantle rock to rise, melt, and fill magma chambers until an eruption occurs.</li></ul> |
| **Typhoon Kalmaegi** | <ul><li>Typhoon Kalmaegi hit the Philippines and Vietnam in November 2025.</li><li>Typhoons are powerful, rotating tropical storms—**a type of tropical cyclone—that form in the northwestern Pacific Ocean, around the**</li></ul> |

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| | **Philippines, Japan, and China** when conditions align: warm sea surface temperatures of at least 26.5°C to 50 meters deep for thermal fuel, abundant mid-tropospheric moisture to drive convection, low vertical wind shear to preserve the storm's integrity, the **Coriolis force to spin it up away from the equator,** a pre-existing disturbance like a tropical wave, and upper-level divergence to intensify the low-pressure core. |
| **Cyclone Senyar** | • Cyclone Senyar is the first recorded November cyclone in Sumatra, Indonesia. <br> • Originating from a low-pressure area in the Strait of Malacca, Senyar rapidly intensified into a weak but rare tropical cyclone—only the second ever documented in the strait—defying the equator's feeble Coriolis force that stifles rotation. Named by the United Arab Emirates, where "Senyar" evokes the ferocity of a lion. |

## 8.3    ADDITIONAL TOPICS FOR READING FROM IASGYAN WEBSITE

| Topic Name | Date |
|---|---|
| Groundwater Extraction Is Sinking Indian Cities | 1st November |
| Tamil Nadu Model Of Climate Action | 14th November |

# 9. GOVERNMENT SCHEMES

## 9.1    SHORT ARTICLES

## Pradhan Mantri Kaushal Vikas Yojana (PMKVY)

### Context

- The Ministry of Skill Development and Entrepreneurship (MSDE) is scrutinizing the Pradhan Mantri Kaushal Vikas Yojana (PMKVY) after it blacklisted 178 training partners (TPs) and training centres (TCs).

### About Pradhan Mantri Kaushal Vikas Yojana (PMKVY)

- It was launched in **2015** to provide free, short-duration skill training to Indian youth and enhance their employability.
- It is implemented by the **National Skill Development Corporation (NSDC)** and aligns training with the National Skills Qualification Framework (NSQF)
- As of October 30, 2024, a total of **1.57 crore candidates**have been trained across the country under the scheme. (Source: Digital Sansad)

### Challenges in PMKVY Implementation

- **Corruption/Fund Misuse:** 178 Training Partners/Centres were blacklisted (59 in UP, 25 in Delhi, 24 in MP) for massive irregularities (fake trainees, forged documents).
- **Low Placement Rates:** Parliament reported just **23% under PMKVY 2.0** and **8% under PMKVY 3.0**. Overall, only 15% (24.3 lakh of 1.6 crore trained since 2015) secured jobs.
- **Skill-Industry Mismatch:** Gap between training and industry demand reduces employability.
- **Inadequate Monitoring:** Insufficient oversight allows fraud, damaging scheme credibility.

### Way Forward for Effective Implementation

- **Monitoring & Accountability:** Mandate digital tools (Aadhaar, geo-tagging). Shift to **outcome-based funding** linked to verified placements (per **Sharda Prasad Committee**).

- **Customisation:** Empower **District Skill Committees (DSCs)** for local skill-gap analysis and tailored training.
- **Industry Linkages:** Make **On-the-Job Training (OJT)** mandatory. **Sector Skill Councils (SSCs)** must update curricula with industry input.
- **Digital & Convergence:** Scale up **Skill India Digital Hub (SIDH)** for skilling and job matching. Improve convergence with schemes like **MUDRA** and **PM-Vishwakarma** for credit and self-employment support.

## Research, Development And Innovation (RDI) Scheme

### Context

- The Prime Minister launched the Research, Development, and Innovation (RDI) Scheme.

### About Research, Development and Innovation (RDI) Scheme?

- **About:** The **Department of Science & Technology (DST)** initiated the Scheme with a corpus of **Rs 1 lakh crore** to promote private sector participation in **research, innovation, and technology commercialization**.
- **Objective:** Offer long-term, low-interest financing/refinancing to boost private sector R&D and innovation investment.
- **Governance Structure:**
  - **Anusandhan National Research Foundation (ANRF) Governing Board**, chaired by the **Prime Minister**, will guide the **RDI Scheme's strategic direction**. Its **Executive Council (EC)** will set guidelines, appoint **fund managers**, and define **projects in sunrise sectors**.
  - The Cabinet Secretary leads the Empowered Group of Secretaries (EGoS), overseeing approvals, sectoral focus, and performance review.
- The **RDI Scheme** follows a **two-tier funding model**; a **Special Purpose Fund (SPF)** under

ANRF, the fund custodian, channels resources to **2nd level fund managers** like **NBFCs**.

# Womaniya Initiative

## Context

- The Government e-Marketplace (GeM) and UN Women have signed a Memorandum of Understanding (MoU) under the Womaniya initiative.

## About Womaniya Initiative

- Launched in **2019**, on GeM to promote women's entrepreneurship, by enabling **women-led Micro and Small Enterprises (MSEs)**, **Self-Help Groups (SHGs)**, artisans, and marginalized women to sell their goods and services directly to government entities.
- The initiative addresses the **triple challenge** commonly faced by women entrepreneurs: Access to markets, Access to finance, Access to value-addition.
- It also supports the government's goal of reserving **3% of total government procurement** for businesses owned by women.

- Data from the **Udyam Registration Portal** highlights women-owned MSMEs constitute **20.5%** of all MSMEs, contribute **18.73%** to total employment, and account for **11.15%** of the total investment in the sector.

## About GeM

- GeM is an **online procurement platform** launched in **2016** by the **Ministry of Commerce**.
- It is the mandated channel for Central and State Government **Ministries**, **Departments**, **Public Sector Undertakings (PSUs)**, and associated bodies to procure goods and services.
- It is operated by the GeM **Special Purpose Vehicle (SPV)**, a fully government-owned, not-for-profit entity.
- GeM has been adopted across all **36 States and Union Territories (UTs)**, with **Uttar Pradesh** being the leading user.
- It aims for more **transparent**, **efficient**, and **fair** public procurement. It has reduced delays and **corruption**, yielding about **10% cost savings** according to the **World Bank**.

## 9.2    SNIPPETS

| Topics | Details |
|---|---|
| **Kendriya Grihmantri Dakshata Padak 2025** | - The Ministry of Home Affairs (MHA) has honoured 1,466 personnel from various States, Union Territories, Central Armed Police Forces (CAPFs) and Central Police Organisations (CPOs) with the 'Kendriya Grihmantri Dakshata Padak 2025'. <br> - Instituted by the MHA in February 2024, the Padak is **announced annually on October 31, commemorating the birth anniversary of Sardar Vallabhbhai Patel**, India's first Home Minister, to celebrate excellence in Special Operations, Investigation, Intelligence, and Forensic Science. The award spans Police Forces, Security Organizations, Intelligence Wings, CAPFs, CPOs, and Forensic Science institutions nationwide. |
| **Integrated Sohra Tourism Circuit Under PM-DeVINE** | - The Ministry of Development of North Eastern Region (DoNER) laid the foundation stone for the Integrated Sohra Circuit under the Prime Minister's Development Initiative for North Eastern Region (PM-DevINE) scheme. <br> - The Integrated Sohra Tourism Circuit is a ₹650+ crore initiative under the central government's PM-DevINE scheme to transform Sohra (Cherrapunji) into a global eco-tourism hub. PM-DevINE is a Central Sector scheme, **launched in the 2022-23 Budget, with 100% central funding** to accelerate holistic development in the North Eastern Region (NER). |

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| **Jeevan Pramaan Services** | • India Post Payments Bank (IPPB) has signed an MoU with the Employees' Provident Fund Organisation (EPFO) to provide doorstep Digital Life Certificates (Jeevan Pramaan) services for pensioners under the Employees' Pension Scheme.<br>• Jeevan Pramaan is an **Aadhaar-based, biometric-enabled Digital Life Certificate (DLC) that verifies a pensioner's existence annually**, ensuring seamless pension credits into bank accounts and eliminating the need for physical visits. Implemented by the Ministry of Personnel, Public Grievances and Pensions. **IPPB, a 100% Government of India-owned entity under the Ministry of Communications**, offers accessible, affordable, and trusted banking services to unbanked and underbanked populations nationwide by utilizing the postal network. |
| **Jal Sanchay Jan Bhagidari (JSJB) Initiative** | • The Jal Shakti Ministry announced the 1st Jal Sanchay Jan Bhagidari (JSJB) Awards, with Telangana topping the list for 5.2 lakh water conservation structures.<br>• Launched in 2024 in Surat, JSJB is a **community-driven program under Jal Shakti Abhiyan: Catch the Rain**, through a Whole-of-Government and Whole-of-Society approach. It advocates rooftop rainwater harvesting and the revival of traditional water bodies like lakes, ponds, and stepwells, and creating artificial recharge and storage structures—for ensuring water security. |

## 9.3 ADDITIONAL TOPICS FOR READING FROM IASGYAN WEBSITE

| Topic Name | Date |
|---|---|
| **Ayushman Bharat Pradhan Mantri-Jan Arogya Yojana** | 3rd November |
| **Mahatma Gandhi National Rural Employment Guarantee Scheme** | 18th November |