

FORTUNE Prelims Precise

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FORTUNE IAS

Toppers in Top 100



Preface

Fortune IAS Academy presents '**Prelims Precise**', a monthly current affairs magazine through which we make prelims current affairs revision precise and effective.

This magazine is a comprehensive resource that condenses the significant news of each month into distinct sections such as polity and governance, economic development, science & technology, among others.

Each content is organised with the why in news context followed by its explanation.

Fortune Prelims Precise is available to all Prelims cum Mains batch students (2024) as part of the course study material. **It can be purchased from Fortune IAS Academy for Rs. 75 per issue.**

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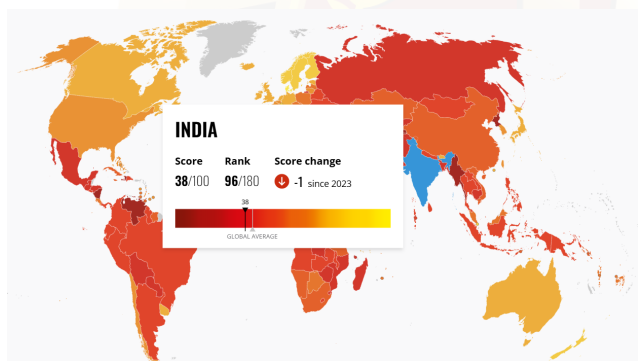
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Polity & Governance

Corruption Perceptions Index (CPI) 2024

- India ranked **96th out of 180** in the 2024 Corruption Perceptions Index (CPI) by Berlin based Transparency International.
 - India's 2023 rank was 93.
- The index, which ranks 180 countries and territories by their perceived levels of public sector corruption, uses a **scale of zero to 100**, where **"zero" is highly corrupt and "100" is very clean**.
- India scored 38, down from 39 in 2023 and 40 in 2022.
- Among neighbors, Pakistan ranked 135, Sri Lanka 121, Bangladesh 149, and China 76.
- Denmark topped the list, followed by Finland and Singapore with South Sudan at the bottom.
- The global average remains 43, with over two-thirds of countries scoring below 50.



Devolution Index

- The comprehensive Devolution Index Report was recently released at **Indian Institute of Public Administration (IIPA)**, New Delhi.
- The Index evaluates **six critical dimensions**: Framework, Functions, Finances, Functionaries, Capacity Building, and Accountability of the Panchayats.
- The report, last published in **2014**, shows the national average score rose from **39.92 to 43.89**, assessing Panchayat autonomy per **Article 243G** of the Constitution.

- This article empowers State legislatures to **devolve powers and responsibilities to Panchayats across 29 subjects** listed in the Eleventh Schedule.

Key Findings:

- Karnataka, Kerala, and Tamil Nadu** have topped the index and Uttar Pradesh and Bihar have recorded the biggest improvement.
- Average Rural Population per Panchayat (2024): 4,669** (up from **3,087** in 2013-14). Most densely populated: **West Bengal, Assam, Bihar** (earlier Kerala in 2013-14).
- Women Representatives: 46.44%** (up from **45.9%** in 2013-14).

National Dam Safety Authority

- The **Supreme Court** directed a **supervisory committee** led by the **National Dam Safety Authority (NDSA)** chief to address Tamil Nadu's concerns over **Mullaperiyar Dam**.
- NDSA** is a **statutory body** that regulates, inspects, and oversees dams and was established by the Central Government under the **National Dam Safety Act, 2021**.
- The Act **applies to all dams with height more than 15 metres**, or height between 10 metres and 15 metres with certain design and structural conditions.
- NDSA**, headquartered in **New Delhi**, is led by a chairman with **five wings**: policy & research, technical, regulation, disaster & resilience, and administration & finance.
- NDSA's function is to resolve any **issue between the State Dam Safety Organisations** of States or between a State Dam Safety Organisation and any owner of a specified dam in that state.
- According to the **National Register of Large Dams**, there are 5,264 completed large dams in the country, while 437 were under construction.

Access Now Report

- India recorded **84 internet shutdowns in 2024**, the highest among democratic nations, surpassed only by Myanmar, according to a report by **digital rights organisation Access Now**.
- Legal basis for internet shutdowns:** Temporary Suspension of Telecom Services (Public Emergency or Public Safety) Rules, 2017, notified under Indian Telegraph Act, 1885.
- Orders:** It can be imposed based on **Public emergency** up to **15 days** per order issued by the **Union/State Home Secretary**.
- Review:** A **three-member Review Committee** led by the Cabinet Secretary (Centre) or Chief Secretary (State) reviews orders.
- Regional impact:** **Manipur (21)** had the most shutdowns, followed by **Haryana (12)** and **Jammu & Kashmir (12)**.
- Reasons:** Protests (41), communal violence (23), job exams (5).
- Global trend:** India, Myanmar, and Pakistan accounted for 64% of shutdowns.

Doctrine of pith and substance

- The Supreme Court recently invoked the **Doctrine of Pith and Substance** in a case relating to service tax on lottery distributors.
- SC held that the **Centre cannot impose service tax** on the distributors engaged in lottery business, as only the state governments have the power to do so.
- The Supreme Court ruled that **lotteries are a form of gambling, not a service**, and therefore, the relationship between states and lottery distributors is that of a **buyer and seller**, not a principal-agent, making service tax inapplicable.
- It emphasized that the power to tax betting and gambling, including lotteries, lies exclusively with **state legislatures under Entry 62 of List II**.
- This prevents Parliament from imposing service tax through its **residuary powers under Entry 97 of List I**.

The Doctrine of Pith and Substance originated in **Canada** and was later adopted in India through the **Government of India Act, 1935**.

It helps courts determine the **true purpose of a law**, even if it overlaps with another jurisdiction.

It applies when a law's legislative authority is in **question due to jurisdictional ambiguities**.

While minor overlaps are permitted, the doctrine ensures that the law's core objective remains within the enacting legislature's domain.

Rarest of Rare Doctrine

- The Kolkata R.G. Kar Medical College and Sharon murder (Kerala) cases reignited debates on the '**rarest of rare**' doctrine in India.
- The death penalty is given in India for "**rarest of rare**" cases, including **terror** cases, as per the Supreme Court's guidelines.
- The Supreme Court upheld the death penalty's constitutionality in **Jagmohan Singh vs. State of U.P. (1972)**.
- SC said that the death penalty imposed after trial in accordance with the procedure established by law is not unconstitutional under Article 21.
- The **rarest of rare doctrine** was introduced in the **Bachan Singh case (1980)** and later provided a framework in **Machhi Singh vs. State of Punjab (1983)**.
- The court identified **five categories of crimes** where such a punishment is justified.
 - Brutal manner, depraved motive, social abhorrence, crime magnitude, and victim vulnerability.
- In **Mithu vs. State of Punjab (1983)**, the SC struck down Section 303 of the IPC, which prescribed **mandatory death penalty** for anyone who commits murder while serving a life sentence.
- The court ruled that it was against Articles 14 and 21 of the Constitution.

President's Rule in Manipur

- Following **Manipur** Chief Minister N Biren Singh's resignation, President's Rule was imposed under **Article 356** of the Constitution.
 - This transfers state governance to the Centre, except for High Court functions.
 - The process begins when the **President**, based on the Governor's report (not mandatory), determines that the state government cannot function per the Constitution.
 - A **proclamation** is issued for up to **two months** and must be meanwhile approved by both Houses of Parliament to extend up to six months.
 - Further renewals are **allowed up to three years** under specific conditions, such as a declared **National Emergency** in the country or that particular state or **Election Commission certification** of election difficulties.
 - During **President's Rule**, the state legislature is **dissolved or suspended**, with its powers exercised by **Parliament**.
 - The **Governor administers** the state and receives advice from the Chief Secretary and advisors appointed by the President,
- This makes it **difficult for the government to effectively regulate** small-scale mining operations like rat-hole mining, especially when conducted by individual landowners on their land.
 - Coupled with the scattered nature of coal deposits in the state, further encourages the practice despite its hazardous nature

Marital Rape Exception (MRE)

- A **Private Member's Bill** was introduced in the Rajya Sabha to remove the marital rape exception (MRE) in the Bharatiya Nyaya Sanhita.
- A "private member" refers to a Member of Parliament (MP) or Member of Legislative Assembly who is not a minister.
- The MRE stems from the colonial "**doctrine of coverture**," which treated husband and wife as a single legal entity.
- Exception 2 of **Section 63 of BNS** (formerly Section 375 IPC) excludes forced intercourse with a wife over 18 from the definition of rape.
- The Bharatiya Nyaya Sanhita (Amendment) Bill, 2024 by the private member, proposes removing this exception, stating that **marriage should not be a mitigating factor in rape cases**.
- Past Law Commission reports (42nd and 84th) recommended its removal, and the **Prevention of Women from Domestic Violence Act, 2005**, recognizes marital rape as domestic violence but not a criminal offense.
- The **Chhattisgarh High Court** had also recently ruled that a husband cannot be charged with rape or unnatural sex with wife.

Article 371 & Rat Hole Mining in Meghalaya

- Demands from Meghalaya indicated that **bringing the State under the purview of Article 371** could help resume rat-hole coal mining in the state.
- Article 371 of the Indian Constitution provides **special provisions for certain states** based on their unique social, cultural, economic, and political conditions and Meghalaya is not covered as of now.
- The **National Green Tribunal (NGT)** banned rat-hole mining in Meghalaya in 2014 which was also upheld by the Supreme Court, was extended to other areas of the northeast.
- The demand for special provisions in Meghalaya comes from the **example of Nagaland**
 - ★ Specific to Nagaland, **Article 371A** has **special provisions** guaranteeing the protection of land and its resources apart from the Naga customary law and procedure.

Minimum Selling Price (MSP) on Sugar

- Sugar mills have requested a hike in the **minimum selling price (MSP)** of sugar due to rising costs.
- The **Minimum Selling Price (MSP)** of sugar is the **floor price** at which sugar mills must sell their sugar to wholesalers or retailers.
- It was introduced in **2018 by the Centre under the Sugar Price (Control) Order, 2018** issued under the **Essential Commodities Act, 1955**.
- It seeks to ensure that mills cover their **cost of production** and can pay **Fair and Remunerative Price (FRP)** to farmers.
 - ◆ FRP on the other hand is the price that **sugar mills must pay the farmers for the sugarcane**.
- FRP is decided based on recommendations of the **Commission for Agricultural Costs and Prices (CACP)** in consultation with State governments and the sugar industry.
- However, some States like Uttar Pradesh, Haryana and Punjab offer higher prices for sugarcane under **State Advised Price (SAP)**, which mills in those States must abide by.
- The MSP was introduced by the Centre to ensure that the industry gets at least the minimum cost of production of sugar, allowing them to clear sugarcane dues of farmers.
- MSP is determined by taking **FRP and adding minimum conversion cost (sugarcane to sugar) incurred by sugar mills** running at highest efficiency.

Adjusted Gross Revenue (AGR)

- The Supreme Court has **dismissed review petitions** seeking corrections in the calculation of Adjusted Gross Revenue (AGR) dues.
- As per a **1999 revenue sharing model**, telecom companies in India have to pay a license fee to the central government at the rate of 8% of their **Adjusted Gross Revenue**.

- There is a **dispute** regarding what constitutes AGR as the telecom companies wanted AGR to include only **telecom-related revenue** (calls, SMS, internet) but the **government** (DoT) insisted AGR should include all revenue, even from **non-telecom sources** (like rent, interest, or asset sales of the telecom company).
- In 2021, the **Supreme Court ruled in favor** of the DoT, making telecom companies pay higher dues.
 - ☞ This puts a **financial strain** on telecom companies that **exceeded Rs 1 trillion**
 - ☞ Later, the government **provided relief** by allowing deferred payments and converting dues into equity to support struggling telecom firms.
- In addition to License fee, telcos have to pay a **Spectrum Usage Charge (SUC)** of 3-5% of AGR.

Gross Domestic Knowledge Product (GDKP)

- The Government of India is reviving the **Gross Domestic Knowledge Product (GDKP)** to supplement GDP by measuring knowledge-driven sectors' impact on economic growth.
- This initiative, spearheaded by the **Ministry of Statistics and Programme Implementation (MoSPI)**, aims to quantify the impact of knowledge-driven sectors on economic growth.
- GDKP quantifies contributions from **research, technology, education, and intellectual property**, unlike GDP, which focuses on tangible goods and services.
- First proposed by **NITI Aayog in 2021**, concerns were raised regarding the feasibility of developing a standardized methodology for data collection.
- To overcome this, MoSPI is considering a **"satellite account" approach** now.
- **Satellite account** is like a **separate notebook** that tracks specific things without changing the main record.
 - ☞ For example, while GDP measures the entire economy, a **tourism satellite account** tracks only tourism-related activities like hotels, travel, and attractions.
- Similarly, for **GDKP**, the government wants a special record to track the value of **knowledge, research, and innovation** separately, while still linking it to overall economic data.

Electronic-Negotiable Warehouse Receipts (e-NWRs)

- Central government has set aside ₹1,000 crore to support a scheme that helps farmers get loans using digital warehouse receipts called **e-NWRs**.
- An **e-NWR (electronic Negotiable Warehouse Receipt)** is a digital proof that a farmer has stored crops in a registered warehouse.
- Farmers can use the receipt as **collateral for bank loans**, giving them immediate financial support without selling their produce at low prices.
- It also enables **trading and transfer**, helping farmers get better market prices while reducing risks like spoilage and theft.
- It is called “**negotiable**” because it can be **transferred or traded** to another person, similar to a cheque or a promissory note.
- To promote safe and better storage of farm produce, the central government established the **Warehousing Development and Regulatory Authority (WDRA)** in 2010 under the Warehousing (Development & Regulation) Act, 2007.
- WDRA promotes the **e-NWR** system as they prevent fraud, damage, or misuse.
- The receipt stays valid until the crop's shelf-life or until the farmer takes it back.

National Bank for Financing Infrastructure and Development (NaBFID)

- The Finance Minister recently said the National Bank for Financing Infrastructure and Development (NaBFID) will set up a **partial credit enhancement facility** for corporate bonds in the infrastructure sector.
- NaBFID is a specialized **Development Finance Institution (DFI)** established in India to address the critical need for long-term infrastructure financing.
- Created under the NaBFID Act, 2021, it aims to **bridge the financing gaps** in infrastructure projects, particularly those requiring **extended loan tenures** and **non-recourse** financing.

- NaBFID functions under the regulatory oversight of the Reserve Bank of India (RBI) as an All-India Financial Institution (AIFI).
- NaBFID plays a vital role in promoting the development of **robust bond and derivatives markets**.

In a **non-recourse loan**, if the borrower fails to repay the loan, the lender can seize the **collateral**.

However, they **cannot pursue the borrower's other assets** to recover any remaining debt

Market Intervention Scheme

- The Agriculture Ministry revised **Market Intervention Scheme (MIS)** guidelines, raising the **procurement limit** for select **non-MSP perishables** from **20% to 25%**.
- Revision will also include allowing states to pay the difference between the **Market Intervention Price (MIP)** and the selling price directly into the bank account of farmers.
- MIS** is a government program that helps farmers when prices of perishable crops (not covered under MSP) fall sharply.
- Under MIS, the government **procures perishable crops like tomatoes, onions, and potatoes** to prevent distress selling (selling at low prices due to financial needs).
- MIS is implemented on the **request of a state/ UT govt for procurement** when there is a **reduction of at least 10% in market prices in states/UTs** as compared to rates of the previous normal season.
- MIS is one of the **three components** under the Pradhan Mantri Annadata Aay Sanrakshan Abhiyan (**PM-AASHA**) launched in 2018.
- Other components are:
 - ➔ **Price Support Scheme (PSS)** – Government agencies procure pulses, oilseeds, and copra at Minimum Support Price (MSP) to support farmers.
 - ➔ **Price Deficiency Payment Scheme (PDPS)** – Farmers receive direct compensation if the market price falls below MSP, without physical procurement of crops.

Composite Flash Purchasing Managers' Index

- After softening for three quarters in a row, the **Composite flash Purchasing Managers' Index (PMI)** rose at a faster pace in February.
- The **Composite Flash Purchasing Managers' Index (PMI)** is an **early estimate** of overall economic activity in a country measured later as PMI, covering both **manufacturing and services sectors**.
- PMI data are compiled by **S&P Global** for more than 40 economies worldwide.
- It is based on surveys of **purchasing managers** (people who buy the supplies for businesses) in companies and helps gauge economic trends like growth or contraction.
- PMI focuses on month-over-month changes and thus is a diffusion index without a base year.
 - ✓ **Above 50** → Expansion in business activity.
 - ✓ **Below 50** → Contraction in business activity.
 - ✓ **Exactly 50** → No change.

National Manufacturing Mission

- Recently, the Union Minister for Finance announced the National Manufacturing Mission while presenting the Union Budget 2025-26 in Parliament.
- It aims to cover **small, medium and large industries** for furthering "Make in India".
- The National Manufacturing Mission will lay emphasis on **five focal areas**:
 - 🚗 Ease and cost of doing business;
 - 🚗 Future ready workforce for in-demand jobs;
 - 🚗 A vibrant and dynamic MSME sector;
 - 🚗 Availability of technology; and
 - 🚗 Quality products.
- The Mission will also support **Clean Tech manufacturing** and aims to **Clean Tech/Climate Tech manufacturing**, EV batteries, motors among others.

Grameen Credit Score

- The finance minister announced **Grameen Credit Score** scheme in the union budget 2025.
- GCS is a digital initiative to be designed by public sector banks to **improve financial inclusion** in rural India, particularly for women entrepreneurs and Self-Help Groups (SHGs).
- By **analyzing diverse data points** such as financial transactions, repayment history, and business activities, this system provides a creditworthiness assessment for individuals and groups often excluded from traditional financial systems.
- The initiative will be supplemented by **customized credit cards for micro-enterprises**, with limits of up to ₹5 lakh.
- GCS will **complement existing microfinance models** and work alongside credit scores like CIBIL and CRIF Highmark for assessing loans.

Qualified Institutional Placement

- Indian companies have shown more acceptance in issuing **Qualified Institutional Placements (QIPs)** to raise capital quickly and efficiently domestically.
- QIPs are **equity instruments** that provide companies with a faster and cost-effective way to raise capital.
- SEBI allows public listed companies to **issue equity shares** or **convertible securities** in the form of QIPs directly to **"Qualified Institutional Buyers" (QIBs)** without extensive regulatory approvals.
- QIPs help companies **avoid market volatility risks**, as shares are privately placed with institutional investors, ensuring stability.
- Additionally, QIPs **promote domestic institutional investment**, reducing reliance on foreign capital while allowing companies to secure funds efficiently for growth and expansion.
- **QIBs are institutional investors recognized by SEBI** as financially sophisticated entities capable of assessing investment risks.
 - 🚗 QIBs include mutual funds, scheduled commercial banks, insurance companies, foreign portfolio investors (FPIs), pension funds, and sovereign wealth funds.

Dollar Rupee Swap Auction

- To address durable liquidity needs, the RBI will conduct a **\$10 billion USD-INR buy/sell swap auction** for three years (long term).
- This will be the second swap in a month since on January 31, RBI had infused \$5.1 billion through a six-month swap (short-term).
- A **Dollar-Rupee Swap** is a foreign exchange transaction where the Reserve Bank of India (RBI) or banks exchange U.S. dollars for Indian rupees with an agreement to reverse the transaction at a later date.

➔ In a **USD-INR buy/sell swap**, banks sell USD to the RBI and agree to buy it back later at a pre-agreed premium rate.

➔ This helps inject rupee liquidity into the banking system.

➔ In a **USD-INR sell/buy swap**, banks buy USD from the RBI and agree to sell it back later, absorbing rupee liquidity.

- These swaps help manage liquidity, stabilize currency markets, and influence interest rates (as banks will have more liquidity).
- Successful bidders would be those who **had placed their bids at or above the cut-off premium**.
- In the first leg of the transaction, the bank will sell U.S. dollars to the Reserve Bank at **FBIL Reference Rate** on the auction date.

➔ FBIL Reference rate means the rates of currency pairs computed and published on a daily basis, on all Mumbai business days, by **Financial Benchmarks India Private Limited**.

Indian Rupee Fall Against Dollar

- The Indian rupee hit a **record low of over 87 against the US dollar** for the first time ever recently as a reaction to US President Donald Trump's tariffs.

The Reasons:

➔ The sharp fall in the rupee was mainly **triggered by the executive orders signed by Trump** to increase tariffs on Canada, Mexico and China

➔ The new trade restrictions have **boosted the value of the US dollar**, making it stronger against most global currencies.

➔ **The dollar index** (which measures the US dollar against six major currencies) also **rose 0.3% to 109.8**.

➔ **Foreign Institutional Investors (FII)** have been on a selling spree in Indian markets since October 2024.

- A weaker rupee increases import costs and inflation but boosts export competitiveness and remittance value, benefiting export sectors like IT and remittance-dependent regions.

Soil Health Cards Scheme (SHCS)

- The Soil Health Card Scheme (SHCS) marks a **decade** since its inception.
- Launched in 2015 in **Suratgarh, Rajasthan**, it falls under the Ministry of Agriculture and Farmers Welfare.
- The scheme helps **State Governments issue soil health cards** to farmers, providing **nutrient status** and fertilizer recommendations.
- Each card assesses **12 soil parameters**, including macronutrients (N, P, K, S), micronutrients (Zn, Fe, Cu, Mn, Bo), pH, EC, and organic carbon.
- Soil samples are collected **twice a year**, post-harvest of Rabi and Kharif crops, or when no crop is standing.

KAS
Test Series

Test Series will start on
23 March 2025

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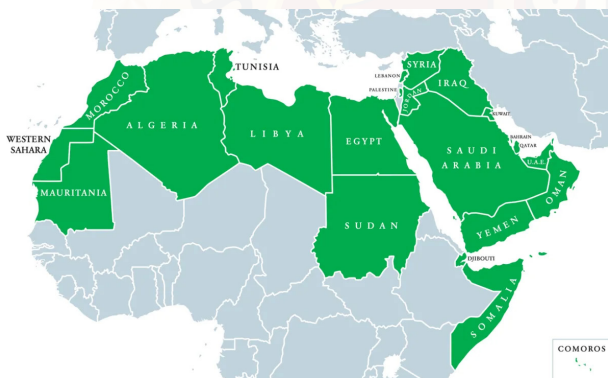
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International Relations

Arab League

- The Arab League rejected U.S. President Donald Trump's suggestion to relocate Palestinians from Gaza to neighbouring Egypt and Jordan.
- Formed in **Cairo in 1945** and officially called the League of Arab States, Arab League is a union of **22 Arabic-speaking nations**, including Palestine, across Africa and Asia.
- **It was initially founded** by Egypt, Iraq, Lebanon, Saudi Arabia, Syria, Transjordan (Jordan), and Yemen.
- The league was chartered in response to concerns about **post-war colonial divisions** of territory as well as strong **opposition to the emergence of a Jewish state on Palestinian territory**.
- The seven observer nations: Armenia, Brazil, Chad, Eritrea, Greece, **India (2007)**, and Venezuela.



AI Action Summit

- The Indian Prime Minister co-chaired the AI Action Summit along with the President of France in Paris.
- The Paris AI Action Summit followed the **UK AI Safety Summit** at Bletchley Park (2023) and the **AI Seoul Summit** (2024).
- **Joint Declaration:** 58 nations (incl. India, China, EU; excl. US, UK) signed the 'Inclusive and Sustainable AI' statement.

- **Public Interest AI:** Launched a platform to bridge public-private AI efforts, ensuring transparency, financing, and data accessibility.
- **Global Priorities:** Focus on AI accessibility, safety, job creation, sustainability, and governance, aligning with UN, UNESCO, AU, G7, G20 frameworks.
- **India's Stance:** Advocated open-source, sustainable AI, clean energy, and workforce upskilling. As 2024 GPAI chair, aims to position it as the hub for responsible AI.
- The next AI summit is currently **anticipated to be hosted by India**.

International Organization of Aids to Marine Navigation (IALA)

- **India has been elected as the Vice President** of the International Organization of Aids to Marine Navigation (IALA) during its inaugural General Assembly in Singapore.
- Formerly the International Association of Marine Aids to Navigation and Lighthouse Authorities (est. 1957), it became an intergovernmental organization (IGO) in 2024, now called the **International Organization for Marine Aids to Navigation**.
- **Objective:** Enhancing global vessel safety, efficiency, and navigation through harmonized aids.
- **Marine Aid to Navigation:** Any external device, system, or service improving vessel navigation.
 - ➔ This includes lighthouses, buoys (floating markers), beacons (fixed structures), Automatic Identification System to transmit real-time navigation data to ships etc
- With its headquarters in **Saint-Germain-en-Laye, France**, IALA boasts a membership comprising national maritime authorities, manufacturers, consultants, and scientific institutes.



Prime Minister's Visit to the US

- Prime Minister of India went on an official visit to USA and signed many new initiatives

US-India COMPACT Initiative

- 📁 **Framework for military, technology, trade, and defence industrial cooperation.**
- 📁 **10-year US-India Major Defence Partnership** to be signed this year.
- 📁 **Reciprocal Defence Procurement (RDP) agreement** negotiations to align procurement systems.
- 📁 **Autonomous Systems Industry Alliance (ASIA)** launched to boost Indo-Pacific industry ties.

US-India Energy Security Partnership

- ★ Reaffirmed cooperation in **oil, gas, and civil nuclear energy.**
- ★ US to support India's **full membership in the International Energy Agency (IEA).**
- ★ Strengthening **energy trade** with the US as a key supplier to India.

Underwater Domain Awareness (UDA) Cooperation

- ★ India is the **first country** to offer US defence industry collaboration on UDA technologies.
- ★ Focus on **co-production** of advanced systems like **Sea Picket sonar, Wave Glider USVs, and MSA sonobuoys** for submarine tracking.

India-US TRUST (Transforming the Relationship Utilizing Strategic Technology) initiative

- 📁 It aims to strengthen **cooperation in critical minerals, pharmaceuticals, advanced materials** etc.
- 📁 The initiative encourages **public-private investments** to boost manufacturing capacity and job creation

Bay of Bengal Inter-Governmental Organisation

- India has assumed the **chairmanship** of the Bay of Bengal Programme Inter-Governmental Organisation (BOBP-IGO) at the 13th Governing Council Meeting in Male, Maldives.
- Established in 2003 and **headquartered in Chennai**, BOBP-IGO is a regional fisheries body dedicated to supporting **small-scale and artisanal fisher folk** in the Bay of Bengal region.
- Its current **members** include Bangladesh, India, Maldives, and Sri Lanka, while Indonesia, Malaysia, Myanmar, and Thailand participate as cooperating non-contracting parties.
- The organisation evolved from the **Food and Agriculture Organisation's (FAO)** Bay of Bengal Programme, founded in 1979.

USAID

- The US administration has announced the elimination of over 90% of USAID's foreign aid contracts and a \$60 billion cut in U.S. assistance.
- **United States Agency for International Development (USAID)**, the U.S. government's lead **humanitarian and development agency**, was established in 1961 during John F Kennedy administration to implement the **Foreign Assistance Act**, focusing on poverty alleviation, economic growth, and humanitarian aid.
 - 📁 It is considered as a soft power outreach by the USA.
- It operates as an agency under the **U.S. Department of State** and follows U.S. foreign policy objectives.
- In India, the **Department of Economic Affairs** oversees bilateral funding with USAID..
- Since 1961, USAID has provided over \$17 billion for 555+ projects, including sustainable forests, climate adaptation, and energy efficiency.
- Currently, it partners with India on seven projects worth \$750 million

History & Culture

Kashi-Tamil Sangam (KTS) 3.0

- **Kashi Tamil Sangamam 3.0** was recently held at **Namo Ghat, Varanasi**, organized by the **Ministry of Education** to celebrate the civilizational bond between **Tamil Nadu and Kashi**.
- The 2024 theme focused on **Sage Agastya's contributions** to the **Siddha System, Classical Tamil Literature, and cultural unity**.
- KTS brings together **scholars, students, artisans, and artists**, fostering cultural exchange and youth awareness.
- Aligned with **NEP 2020** and **Ek Bharat Shreshtha Bharat**, the event started in 2022 and has been held at Varanasi (also called Kashi)
- **Sage Agastya**, a revered figure in **Vedic and Tamil traditions**, authored **Rigveda hymns (1.165–1.191)** and appears in **epics and Puranas**, including **Ramayana and Mahabharata**.
- Some texts list him among the **Saptarishi** or as an **extraordinary sage**.
- In Tamil heritage, he is the **father of Tamil language** and compiler of **Agattiyam (Tamil grammar)**.
- His Sanskrit works include **Agastya Gita (Varaha Purana)**, **Agastya Samhita (Skanda Purana)**, and **Dvaiddha-Nirnaya Tantra**.
- He is also known as **Mana, Kalasaja, Kumbhaja, Kumbhayoni, and Maitravaruni**.

Devi Ahilyabai Holkar



- The Indira Gandhi National Centre for the Arts (IGNCA) held a lecture titled '**Devi Ahilya – Empress Renunciate**', honoring **Ahilyabai Holkar (1725–1795)**, ruler of **Malwa** under the **Maratha Confederacy**.
- She governed from **Maheshwar and Indore**, leading the **Holkar dynasty** to its peak.
- Known for her **philanthropy**, she rebuilt the **Kashi Vishwanath Temple** and constructed multiple Hindu temples.
- She also fostered a **textile industry in Maheshwar**, giving rise to the **Maheshwari sari**.
- Referred to as **Punyashlok Ahilyabai**, her legacy was documented by **John Malcolm** in **A Memoir of Central India (1823)**.

Gyan Bharatam Mission

- The Union Budget 2025-26 announced the Gyan Bharatam Mission to conserve and **document one crore manuscripts**, preserving India's intellectual heritage.
- The mission focuses on the survey, documentation, and conservation of manuscripts held by institutions, museums, libraries, and private collectors.
- To support this, the **budget for the National Manuscripts Mission (NMM)** has been increased from ₹3.5 crore to ₹60 crore.
- NMM was launched by the **Ministry of Culture** in 2003 under the Indira Gandhi National Centre for Arts (IGNCA).
- **IGNCA** was established in **1987** as an autonomous institution under the Ministry of Culture, as a centre for research, academic pursuit and dissemination in the field of the arts.

Manikaran



- A proposal to transfer water from **Manikaran** to **Kasol** in Himachal Pradesh's **Kullu district** for a hot bath facility has sparked opposition from locals.
- **Manikaran**, a sacred pilgrimage site for Hindus and Sikhs, is located in the **Parvati Valley** on the **Parvati River** at **1760m altitude**, about **4 km from Kasol** and **45 km from Kullu**.
- Known for its **hot springs and pilgrim centers**, it holds significance in Hindu belief as the place where **Manu recreated human life after the flood**.

Bathousim



- The **Bodoland Territorial Region (BTR) autonomous administration** in Assam has officially included '**Bathouism**' as a religion option in application forms.
- **Bathouism** is the traditional faith of the **Bodos**, the largest plains tribe of Assam, residing on the **north bank of the Brahmaputra** with Bhutan's foothills to the north.
- The term '**Ba**' (five) and '**thou**' (deep thought) represents **five elements: Air (Bar), Sun (San), Earth (Ha), Fire (Or), and Sky (Okhrang)**, similar to **Panchatatva in Hinduism**.
- **Bathoubwrai**, the supreme deity, is symbolized by the **Sijou plant (Euphorbia splendens)**, central to the faith.

BTR is an **autonomous region** created under the **Bodo Peace Accord 2020** and is administered by the **Bodoland Territorial Council (BTC)**.

The **BTC government** has legislative, executive, and financial powers over subjects delegated under the **Sixth Schedule of the Indian Constitution**.

It governs the four districts of **Kokrajhar, Baksa, Chirang, and Udalguri**, primarily inhabited by the **Bodo community** and other ethnic groups.

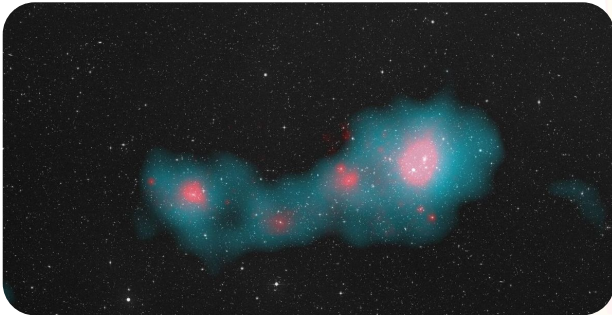
Herath

- The Herath festival, celebrated by **Kashmiri Pandits**, marks their unique observance of **Mahashivratri**.
- Beginning on the 13th day of **Phalgun** (February/March) and continuing until the new moon, its name derives from "**Har-Ratri**" or "**night of Hara**" (Lord Shiva).
- It symbolizes the divine union of Shiva and Parvati.
- A key ritual, **Vatuk Pooja**, involves placing a kalash filled with water and walnuts for worship.
- The festival also features "**Salam**", which is a unique tradition where **Kashmiri Pandits exchange greetings and good wishes with their Muslim neighbors** the day after Mahashivratri.

Vijay Durg

- Fort William in Kolkata, headquarters of the Eastern Army Command, has been renamed **Vijay Durg** as part of efforts to eliminate colonial legacies in the armed forces.
- Kitchener House is now **Manekshaw House**, and St. George's Gate has been renamed **Shivaji Gate**.
- Built in 1781 and originally named after King William III of England, Fort William now takes its name from **Vijay Durg**, the oldest fort on the Sindhudurg coast (Maharashtra), which served as a naval base under Chhatrapati Shivaji.
- However, the move has sparked debate due to the **Borgi invasions (1741–1751)**, when Maratha raiders, led by Raghoji Bhonsle, ravaged Bengal in a decade-long campaign, causing widespread destruction and trauma.
- Their **plunder left a lasting imprint on Bengali folklore**, with the Borgis still invoked as a symbol of fear in popular memory.

Quipu



- Astronomers have discovered **Quipu**, the largest known structure in the universe, named after the **Incan system of measurement**.
- Spanning **1.3 billion light-years** and containing **200 quadrillion times the Sun's mass**, Quipu is visible in sky maps without specialized detection methods.
- The Quipu superstructure contains around 68 galaxy clusters and stretches from high northern latitudes to nearly the southern end of the sky,
- Previously, the **Hercules Corona-Borealis Great Wall** was considered the largest structure, though its existence is debated.
- Alongside Quipu, researchers identified four other massive superstructures: **Serpens-Corona Borealis, Hercules, Sculptor-Pegasus, and Shapley** (previously the largest known).
- Together, these structures **occupy 13% of the universe's volume** and influence the **cosmic microwave background (CMB)**, affecting measurements of the **Hubble constant** and **gravitational lensing**.

The name Quipu references the **Incan knotted-string system**, a decimal-based recording method where knots represent numerical values.

The **Inca civilization (1438–1533 CE)** emerged in the Andes across modern-day Peru, Ecuador, Bolivia, Chile, Argentina, and Colombia.

Their empire, Tawantinsuyu, built roads, agricultural terraces, and cities like Machu Picchu.

The empire thrived until the **Spanish conquest** in 1532.

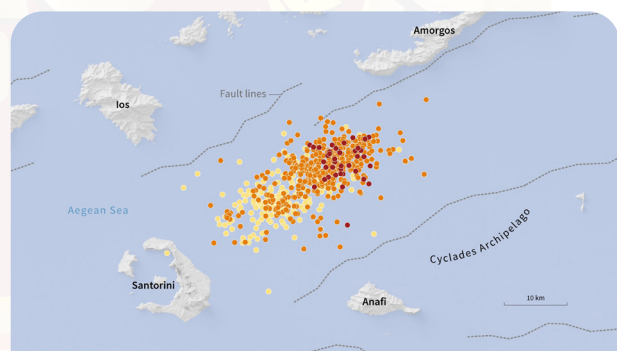
Study on Age of Saturn's Rings

- A new study by researchers challenges the idea that **Saturn's rings** are young.
- Saturn, mostly **hydrogen and helium**, has bright-white rings made of ice and rock.
- NASA's **Cassini Orbiter** found them unusually clean, suggesting they are only 100 million years old, as older rings should have accumulated dust.
- However, new computer models show **dust particles evaporate and disperse** when colliding with ice, keeping the rings clean regardless of age.
- The study also highlights **Enceladus**, Saturn's geologically active moon, whose cryovolcanic water plumes contribute material to the rings, impacting their composition and age estimation.

Four planets in our Solar System have rings:

Saturn, Jupiter, Uranus, and Neptune. Saturn has the most prominent and extensive ring system, composed mainly of ice and rock. Jupiter's rings are faint and made of dust from its moons, while Uranus has thin, dark rings consisting of ice and rock. Neptune's rings are also faint and fragmented, with some bright arcs. Among these, Saturn's rings are the most visible, whereas the others require telescopes to observe.

Earthquake Swarm



Santorini: seismic activity near the island

The Greek island and its neighbour Amorgos have been hit by a series of tremors. Experts warn that the earthquakes could continue for weeks.

Earthquakes registered since January 25, 2025
Magnitude
• < 2.5
• 2.5 to 4
• 4 to 4.9



Source: Geodynamic Institute of the National Observatory of Athens, data as of February 4 at 07:30 GMT

Map data: OSM, JAXA, GNIRAS, AFP

- **Greece's Santorini** and nearby islands have declared a state of emergency after a swarm of undersea earthquakes.

- This region lies in the **volcanic arc** of the **Hellenic subduction zone**, where the **African plate** slowly slides beneath the Eurasian plate, creating weak zones in the crust.
- Unlike typical earthquake sequences, **swarms consist of multiple tremors** of similar intensity without a single large mainshock.
- These can last for days, weeks, or even months.
- The swarms are likely **caused by ascending magma fluids**, but their distribution suggests they occur along pre-existing faults.

Brine Pools

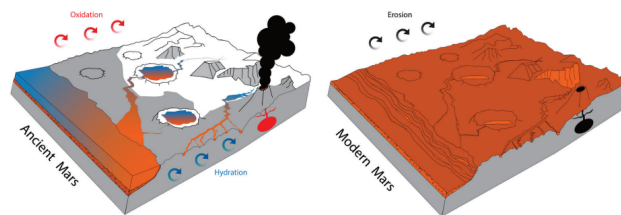


- Scientists have discovered **deadly brine pools** beneath the Red Sea, located 4,000 feet deep in the **Gulf of Aqaba**.
- These **hypersaline pockets**, up to ten times saltier than surrounding water, instantly kill or stun marine life.
- Brine pools form when **ancient salt deposits leach into the ocean**, creating dense, oxygen-deprived environments.
- Their extreme salinity **prevents mixing with seawater**, making them appear as “underwater lakes.”
- The deepest-known brine pool is in the **Orca Basin**, Gulf of Mexico, at 2,200 m below sea level.

Ferrihydrite in Mars

- New research **challenges** the belief that Mars’ red color is due to iron minerals rusting in dry conditions.
- Combining **ESA and NASA spacecraft data** with lab experiments, scientists found that **ferrihydrite**—an **iron oxide requiring water**—better explains the planet’s hue.

- This suggests that Mars became rusty during a period when liquid water was present on its surface, several billion years ago.
- Earlier, Mars’ red color was thought to come from **hematite**, forming under dry conditions without water.
- Unlike hematite, ferrihydrite forms quickly in cool, wet environments, suggesting Mars had **liquid water much earlier** than thought, perhaps billions of years ago.
- The latest study suggests Mars **had a wetter past**, which could have supported microbial life that once existed.
- Mars is believed to have initially started as a **‘gray’ planet** and then acquires its characteristic red hue by erosion of altered ferrihydrite-rich rocks and dispersal of dust by aeolian processes
- Future missions, including **NASA’s Perseverance and ESA’s Rosalind Franklin rover**, aim to analyze Martian dust for further insights into its wet history.





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International Big Cat Alliance (IBCA)

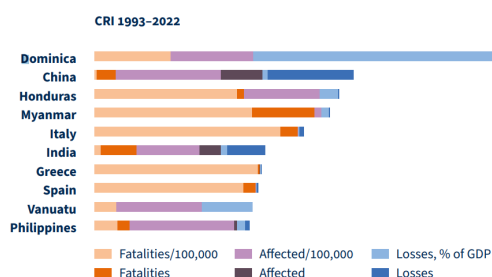
- The **International Big Cat Alliance (IBCA)** recently became a treaty-based intergovernmental organization.
- Launched by **India in 2023 on Project Tiger's 50th anniversary**, IBCA aims to conserve **seven big cats**: Tiger, Lion, Jaguar, Leopard, Snow Leopard, Puma, and Cheetah.
- Though Puma and Cheetah are not part of **Panthera**, they are included in big cat listings.
- Besides range countries, IBCA includes **non-range countries**, conservation partners, and scientific organizations.
- With Liberia as the fifth signatory, alongside India, Nicaragua, Eswatini, and Somalia, the agreement has come into force.
- India serves as the **depository**, and 27 countries have consented to join.

Big Cats		IUCN Status	Schedule (WPA, 1972)
Tiger (<i>Panthera tigris</i>)		Endangered	Schedule 1
Cheetah (<i>Acinonyx jubatus</i>)		Asian – Critically endangered African – Vulnerable	Schedule 1 Schedule 1
Leopard (<i>Panthera pardus</i>)		Vulnerable	Schedule 1
Lion (<i>Panthera leo</i>)		Vulnerable	Schedule 1
Snow Leopard (<i>Panthera uncia</i>)		Vulnerable	Schedule 1
Jaguar (<i>Panthera onca</i>)		Near Threatened	–
Puma (<i>Puma concolor</i>)		Least Concern	–

Climate Risk Index 2025

- **India ranks sixth** among the top 10 countries most affected by extreme weather from 1993-2023, according to the **Climate Risk Index (CRI) by NGO Germanwatch**.
- The findings of the report are based on extreme weather event data from the International Disaster Database (Em-dat) and socio-economic data from the International Monetary Fund (IMF).
- **India faced over 400 extreme events**, including major cyclones (Gujarat 1998, Odisha 1999, Amphan 2020), devastating floods (1993, 2013, 2019), and deadly heat waves (1998, 2002, 2003, 2015).
- These events caused **\$180 billion in losses and at least 80,000 deaths**.

Figure 1: The 10 countries most affected in 1993-2022



Bacterial Cellulose

- Researchers recently reported that **Bacterial cellulose can be used as a bandage to significantly improve healing and regeneration in plants**.
- Bacterial cellulose is a **natural polymer produced by certain bacteria**.
- It has thus far been widely used in human medicine, often for wound healing.
- The latest findings suggest **potential applications in agriculture**, such as facilitating grafting, preserving cut plant material, or serving as a growth medium in laboratories.
- To test the effectiveness of the patches as healing devices, the scientists made small cuts in the leaves of two common lab plants, **Nicotiana benthamiana and Arabidopsis thaliana**, applying the "Band-Aids" to half the wounds.
- After one week, more than 80% of the treated wounds had healed completely, compared with less than 20% of the untreated ones.

Cali Fund

- The '**Cali Fund**' was launched at the resumed COP16 of the UN Convention on Biological Diversity in Rome after the original meeting in Cali, Colombia, was cut short.
- The COP16 meeting in Cali, Colombia, last year was cut short due to a **lack of quorum**—not enough countries were present to make official decisions.
 - This was due to a **boycott by many countries**, mainly from the **European Union and other developed nations**.
 - They protested over **disagreements on financial commitments**,
- It will receive contributions from industries using Digital Sequence Information (DSI) from plants, animals, and microorganisms.
- Funds will support **biodiversity projects**, developing countries, and scientific research, with at least 50% allocated to indigenous and local communities.
- Managed by **UNDP and UNEP**, it is the first UN biodiversity fund to receive **direct business contributions** and supports the Kunming-Montreal Global Biodiversity Framework goal of reversing biodiversity loss by 2030.

Intertidal Bioblitz



- India's **first Intertidal Bioblitz** documented over **500 marine species** along the coasts of **Visakhapatnam, Mumbai, Goa, and the Andaman Islands**.
- An **Intertidal Bioblitz** is an intensive survey of marine biodiversity in the **intertidal zone**, the area between high and low tide.
- The **10-day survey**, led by the Coastal Conservation Foundation and East Coast Conservation Team, recorded **3,600+ observations**, including **Pseudoceros bifascia**, a flatworm species recorded for the first time on mainland India.

- Team found that the **fourth global coral bleaching event** in 2024 had a severe impact on this region of the Andaman islands, mainly its soft corals.

New Ramsar Sites

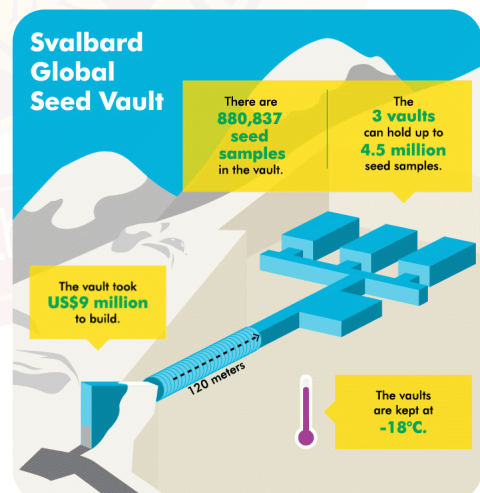
- India has added four new wetlands to the Ramsar List of Wetlands of International Importance, announced on **World Wetlands Day (February 2)**.
- The country now has 89 of these sites, making it the nation with the **most Ramsar sites in Asia** and the **third highest number of such sites in the world**.
- Tamil Nadu has the most number of Ramsar sites** in India, 20 in number.
- India's new Ramsar sites include **Sakkarakottai Bird Sanctuary** and **Therthangal Bird Sanctuary** in Tamil Nadu, **Khecheopalri Wetland** in Sikkim and **Udhwa Lake** in Jharkhand.

👉 This marks a significant milestone for Sikkim and Jharkhand, as they have secured their first-ever Ramsar sites.

Site	Species	Importance
Sakkarakottai Bird Sanctuary & Therthangal Bird Sanctuary	Spot-billed Pelican, Black-headed Ibis, and Oriental Darter	Lie along the Central Asian Flyway
Khecheopalri Wetland	Great Barbet Long-tailed Shrike Green-backed Tit Rufous Sibia and Fish Cyprinus carpio (Common Carp) and Danio aequipinnatus (Giant Danio).	Originally known as Kha-Chot-Palri , meaning “the heaven of Padmasambhava”. It is considered sacred by both Buddhists and Hindus and is believed to be a wish-fulfilling lake.
Udhwa Lake	Near threatened Black-necked stork (Ephippiorhynchus asiaticus), Critically Endangered Oriental white-backed vulture (Gyps bengalensis), Lesser adjutant (Leptoptilos javanicus).	The Sanctuary is an Important Bird Area . It is connected to the Ganga River through a 25 km long water channel known as the Udhuwa Nala, at Farakka .

Svalbard Global Seed Vault

- The **Svalbard Global Seed Vault** was recently in the news due to new seed deposits from multiple countries, reinforcing its role in global food security.
- Located on **Spitsbergen Island in Norway's Svalbard archipelago**, it is built into a mountainside about **120 meters deep** to protect against natural and human-made disasters.
- Positioned **1,300 km from the North Pole**, it benefits from **permafrost** conditions that help naturally preserve seeds.
- The vault stores **backup seed samples** from around the world, covering over **1.2 million seed varieties** from **almost every country**.
- These include essential food crops such as **rice, wheat, maize, barley, lentils, and sorghum**, as well as wild relatives and traditional crop varieties.



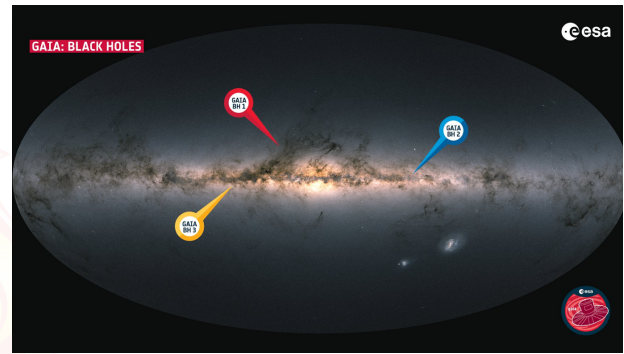
Foetus in fetu (FIF)

- Doctors at Buldhana District Women's Hospital, Maharashtra, detected a rare **"foetus in fetu"** case, where an underdeveloped twin is enwrapped inside the body of the other in a monozygotic twin pregnancy.
- This rare congenital disorder, affecting about **1 in 500,000 births**, results from an uneven embryo split, leaving one twin trapped within the other.
- The **parasitic twin**, dependent on the host twin for nutrients, has some fetal features but cannot survive independently.
- In this case, it was detected during a routine scan, and doctors successfully removed it after a C-section delivery.

Onchocerciasis

- The World Health Organization (WHO) recently congratulated Niger for having met the **criteria for onchocerciasis elimination**.
- Onchocerciasis, also known as river blindness, is a **neglected tropical disease (NTD)** caused by the **parasitic worm Onchocerca volvulus**.
- This makes it the **fifth country globally and the first country in Africa** to be acknowledged by WHO.
- It is transmitted through the **bite of infected blackflies (Simulium species)**, which breed near fast-flowing rivers and streams.
- The disease primarily affects **sub-Saharan Africa**, with some cases in **Latin America** and **Yemen**.
- Symptoms** include severe itching, skin rashes, nodules under the skin, and progressive vision impairment that can lead to blindness

Gaia Mission



- Astronomers have discovered a massive black hole, **Gaia BH3, located about 2,000 light-years away** in the **constellation Aquila**.
- It is the third of its kind, following Gaia BH1 and BH2, all detected by the **European Space Agency's Gaia telescope**.
- Gaia, launched in 2013, aims to create the most precise **3D map of the Milky Way** by tracking the motion of billions of stars.
- Operating at the **second Lagrange point**, it observes each of its 1 billion target stars around 70 times over five years.
- Gaia BH3 appears to be a **passive black hole**, not actively pulling in material from its surroundings.

Bombay Blood Group

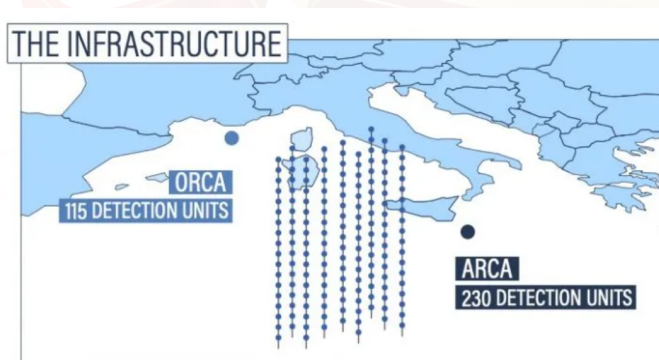
SIGNIFICANCE	
<p>➤ Bombay blood group is rare because only one out of 10,000 humans is born with it</p> <p>➤ Para Bombay blood group is even rarer type of Bombay blood group</p> <p>➤ A father-son duo with Para Bombay blood group found in Nagpur</p>	<p>➤ This means, people with this rarest blood group are there in Vidarbha</p> <p>➤ In case they need blood transfusion, blood of exactly same group is must for them</p> <p>➤ Directory of people with rare blood groups is maintained at national-level</p>

- In a rare and complex medical procedure, a 30-year-old woman with the extremely rare **'Bombay' (hh) blood group underwent a successful kidney transplant** in India.
- First identified in Bombay in 1952, the blood group is exceptionally rare, occurring in approximately **one in 10,000 Indians and only one in a million people globally**.

- Also known as ‘**hh**’ or ‘**Oh**’ **blood group**, people with this type **lack the H antigen**, making them incompatible with all standard blood types, including O-negative, complicating both transfusions and organ transplants.
- The Bombay phenotype is inherited in an “**autosomal recessive manner**,” requiring two copies of the hh allele from each parent to exhibit the BBG phenotype.

KM3NeT (Cubic Kilometre Neutrino Telescope)

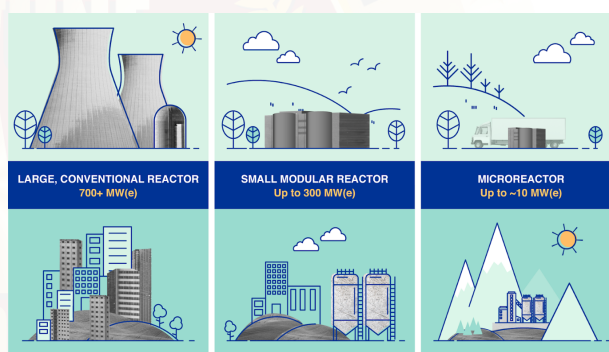
- Scientists using the KM3NeT have detected a **high-energy neutrino**, a ghostly subatomic particle, marking a major step in understanding cosmic events.
- **KM3NeT** (Cubic Kilometre Neutrino Telescope) is a **European** research infrastructure located at the bottom of the Mediterranean Sea designed to detect high-energy neutrinos.
- It consists of two large neutrino detectors placed at the bottom of the Mediterranean Sea:
 - 🚗 **ARCA (Astroparticle Research with Cosmics in the Abyss)** – Located 3.4 km deep near Sicily, Italy it is designed to detect high-energy neutrinos from cosmic sources.
 - 🚗 **ORCA (Oscillation Research with Cosmics in the Abyss)** – Situated 2.4 km deep near Provence, France, it focuses on studying low-energy neutrinos and their oscillations.
- **Neutrinos** are nearly massless, chargeless subatomic particles that interact very weakly with matter, making their detection extremely challenging.
- KM3NeT detects the **Cherenkov radiation** produced when neutrinos interact with water molecules, helping scientists study cosmic events like supernovae and black holes.



National Geospatial Mission

- The Finance Minister announced the launch of a National Geospatial Mission in the Budget 2025-26 allocating an amount of Rs 100 crore.
- The Mission aims to **develop foundational geospatial infrastructure and data**, a move aimed at modernising land records, **aid urban planning** and promoting earth observation systems.
- **Geospatial** refers to data associated with a specific location on the Earth’s surface, which is crucial for positioning systems and adding layers of information on a map.
- The government has allocated **Rs 100 crore** for the National Geospatial Mission.
- The initiative also aims **to address challenges related to land disputes** and inefficient land use, which have long hindered growth in various regions.

Small Modular Reactors (SMRs)



- The Government announced a ₹20,000 crore **Nuclear Energy Mission** to develop indigenous **Small Modular Reactors (SMRs)**, aiming to operationalize at least five by 2033.
- SMRs are advanced small nuclear reactors with capacities of **30MWe to 300MWe**, compared to conventional reactors that produce **500 MW or more**.
- Their modular design allows factory assembly, reducing costs and enabling flexible deployment.
- There are four SMR types based on coolants: **light water, high-temperature gas, liquid metal, and molten salt**.

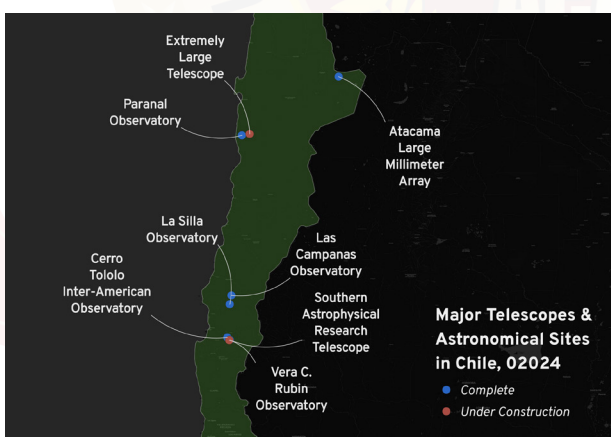
- Globally, two SMR projects are operational: **Akademik Lomonosov** (Russia, floating unit, 35MWe) and **HTR-PM** (China, grid-connected since December 2023).

Extremely Large Telescope

- The Extremely Large Telescope (ELT), nearing 60% completion in Chile's Atacama Desert, is set for its first observations by 2028.
- Built by the **European Southern Observatory (ESO)** at \$1.51 billion, it will be the world's largest visible and infrared telescope.
- Its **39.3-meter-wide primary mirror**, made of 798 segments, will search for life on **exoplanets** and study the universe's earliest stars and galaxies.
- The **Atacama**, with its dark, clear skies, minimal light pollution, and high altitude, hosts nearly 40% of global ground-based astronomy, set to rise to 60% within a decade.

The **European Southern Observatory (ESO)** is an intergovernmental organization for astronomical research, operating advanced ground-based telescopes in Chile, including the **Very Large Telescope (VLT)**, **Atacama Large Millimeter/submillimeter Array (ALMA)**, and the under-construction **Extremely Large Telescope (ELT)**.

Established in 1962, ESO is supported by **16 European countries and Australia**, focusing on exoplanets, black holes, and the early universe.



Brucellosis Disease

- An **eight-year-old girl** from Kerala, **died from brucellosis** after two months of treatment.
- Brucellosis** is a bacterial disease caused by **Brucella species**, mainly affecting cattle, goats, sheep, and dogs.
- Humans** get infected through **direct contact, consuming contaminated animal products, or inhaling airborne agents**, with unpasteurized milk and cheese being the most common sources.
- Symptoms** include **fever, weakness, weight loss, and discomfort**, with an incubation period of **one week to two months**.
- Treatment** involves **doxycycline (45 days) and streptomycin (15 days)**.
- Prevention** includes **vaccinating animals and pasteurizing milk and dairy products**.
- Brucella is known as the **"Great Imposter"** as the clinical signs in both humans and animals can be mistaken for other illnesses.
- There are **12 known species** of Brucella, with the most common ones causing human brucellosis being **Brucella melitensis** (from goats and sheep), **Brucella abortus** (from cattle), **Brucella suis** (from pigs), and **Brucella canis** (from dogs).
- Other species primarily affect marine animals and wildlife.

Srjanam Rig

- India's first **indigenous Automated Biomedical Waste Treatment Plant, Srjanam**, was launched at AIIMS New Delhi by the Union Minister of Science and Technology.
- Developed by **CSIR-NIIST**, this eco-friendly rig disinfects biomedical waste without incineration, neutralizing pathogens and odors.
- With a daily **capacity of 400 kg**, it can initially process 10 kg of degradable medical waste.
- Once validated, it awaits full-scale implementation approval.
- India generates 743 tonnes of biomedical waste daily, posing a major disposal challenge.

Selenium

- Sudden hair loss cases in Maharashtra's Buldhana district were linked to high **selenium levels in wheat** from Punjab and Haryana supplied through ration shops.
- Selenium, essential in **small amounts for metabolism**, has a recommended daily intake of 20–70 mcg, with a tolerable upper limit of 400 mcg.
- Excess selenium can cause **selenosis**, leading to symptoms like hair loss, brittle nails, nausea, fatigue, skin rashes, garlic-like breath odor, and neurological issues.
 - ☞ Severe cases may result in gastrointestinal problems, respiratory distress, and even organ damage.
- Selenium is an **essential trace element** that acts as an antioxidant, supports immunity, thyroid function, and metabolism.
- Found in **soil and foods** like nuts, seafood, and grains, it is crucial for **selenoprotein formation**.
- It also has **industrial uses** in glassmaking and electronics.

Black Plastics

- Black Plastic made headlines as a recent study claimed that the **material contained toxic flame retardants** which could be leaching into food at hazardous levels.
- Black plastic is often made from **recycled electronic waste** such as computers, TVs, and appliances.
- The issue is that these electronics typically contain substances such as the **flame retardant bromine, antimony and heavy metals** such as lead, cadmium, and mercury.
- The study found that these products contained a flame-retardant chemical called **decabromodiphenyl ether (BDE-209)** that had been linked to potential human health risks and was phased out in the US more than a decade ago.

Harmful flame retardants (FRs) used in electronics were found in **black plastic household products**—including toys and kitchen utensils—likely due to recycled content.

Presumed FR Source



TBBPA, BDE-209, 2,4,6-TBP, DBDPE, TBP, TAC, BDP, RDP, & THPP are or have been intentionally used in electronics.

FRs Detected



This study found FR concentrations up to 22,790 mg/kg in food serviceware, hair accessories, kitchen utensils, and toys.

- 17 out of 20 products analyzed contained brominated and/or organophosphate FRs.
- Most frequently detected compounds included TBBPA, BDE-209, 2,4,6-TBP, RDP, BDP, and DBDPE.
- Items containing polymers used in electronics had significantly higher FR levels.



Faecal Coliform Bacteria

- **The Central Pollution Control Board (CPCB)** has released data on the assessment of water quality at the Sangam confluence in Prayagraj in Uttar Pradesh.
- High levels of **faecal coliform (microbes from human and animal excreta)** were found in river water in which crores of people took holy dip during the Maha Kumbh.
- **Faecal coliforms** are a group of bacteria, including **Escherichia coli (E. coli)**, found in the intestines of warm-blooded animals.
- Their presence in water indicates contamination by human or animal waste, posing a risk of disease-causing pathogens.
- The maximum permissible **limit of fecal coliform should be 2500 MPN/100mL** and BOD should be 3 mg/L.
- Data released by the CPCB shows that on Makar Sankranti (January 14), the fecal coliform levels were over 4 times (11,000 MPN/100mL) the permissible limits.

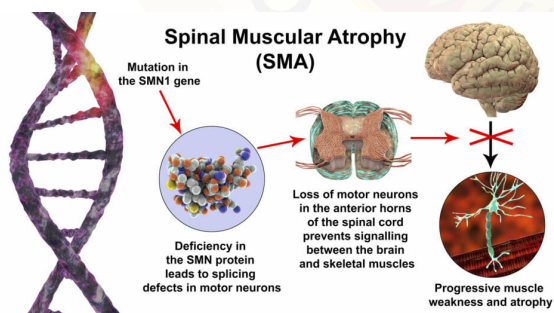
International Thermonuclear Experimental Reactor (ITER)

- Prime Minister Narendra Modi recently visited the International Thermonuclear Experimental Reactor (ITER) in France with President Emmanuel Macron.
- ITER, a **global collaboration of 33 nations**, aims to demonstrate fusion as a large-scale, carbon-free energy source.
- Under development since 2005, it plans to begin **deuterium-tritium fusion by 2039**, generating 500 MW of power.
- Though it **won't produce electricity**, its success could pave the way for future fusion energy use.

- Around 200 Indian scientists and companies like L&T, Inox India, TCS, and HCL Technologies are involved in the project.
- **Fusion is superior to fission** as it produces more energy, uses abundant hydrogen isotopes, and generates no long-lived radioactive waste.
- It is **inherently safer**, with no risk of meltdowns, and does not emit greenhouse gases.
- Additionally, fusion **fuel cannot be weaponized (unlike uranium in fission)**, reducing proliferation risks, making it a cleaner and more sustainable energy source.

Treatment for Spinal Muscular Atrophy:



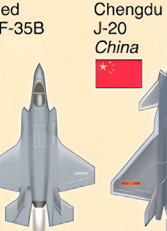

- The **U.S. Food and Drug Administration (FDA)** has approved a New Drug Application (NDA) for an **Evrysdi® (risdiplam)** tablet for people living with spinal muscular atrophy (SMA).
- Spinal Muscular Atrophy (SMA) is a **genetic disorder** caused by mutations in the **SMN1 gene**, leading to progressive muscle weakness and atrophy (**wasting away or shrinking of tissues or organs**).
- It primarily affects infants and children but can also appear in adulthood.
- SMA is classified into **five types (0–4)** based on severity, with **Type 1 (Werdnig-Hoffmann disease)** being the most severe, often leading to early childhood mortality, and **Type 4** being the mildest.
- SMA impairs voluntary muscle movements, particularly affecting **breathing, swallowing, and limb control**, while intelligence remains unaffected.



Defence

Aero India 2025

- Aero India is a **biennial aerospace and defense exhibition** in Bengaluru, organized by the Ministry of Defence since 1996.
- Touted as Asia's biggest aerospace expo, Aero India takes place every two years at the **Yelahanka Air Force Station in Bengaluru**.
- It showcases advancements in aviation and defense, attracting global participants.
- The recent event saw the participation of Fifth Generation fighter jets including **Lockheed Martin F-35 Lightning II** (US) and the **Russian Sukhoi Su-57**.
- The **theme** of the 15th Aero India is 'The Runway to a Billion Opportunities'.

Sukhoi Su-57 Russia	Lockheed Martin F-22 U.S.	Lockheed Martin F-35B U.S.	Chengdu J-20 China
			
Length: 22m	18.9m	15.6m	20.4m
Empty weight: 18,000kg	19,700kg	14,650kg	19,400kg
Internal fuel: 10,300kg	8,200kg	6,125kg	11,340kg
Maximum speed: Mach 2	Mach 2	Mach 1.6	Mach 1.7
Service entry: 2019	2005	2015	2018

Sources: Aviation Week, Business Insider, Global Security, Lockheed Martin © GRAPHIC NEWS

Pinaka Multiple Rocket Launch System:



- The Union Defence Ministry recently signed contracts worth ₹10,147 crore for a variety of ammunition for the Army's **Pinaka Multiple Rocket Launch Systems (MRLS)**.

- It is an artillery system developed by India's **Defence Research and Development Organisation (DRDO)**.
- The system is mounted on a **Tatra truck**, providing high mobility.
- Pinaka was effectively used **during the Kargil War in 1999** and has since become a key component of the Indian Army's artillery units.
- **Firepower** – Capable of launching **12 rockets in 44 seconds**, with a range of **45–75 km** (depending on variant).

Military Exercises

Sl No.	Name of Exercise	Held Between	Force	Important Points
1.	Ekuverin	India & Maldives	Army	Held at Chaubatia, Uttarakhand. Ekuverin meaning ' Friends ' is a bilateral annual exercise conducted alternatively in India and Maldives.
2.	TROPEX-25	India	Navy	It was conducted over a period of three months from Jan to Mar. The exercise includes an Amphibious Exercise - AMPHEX , a Joint Work Up Phase focused on precise delivery of ordnance on target, Cyber and Electronic Warfare, and a Tactical Phase.
3.	Cyclone 2025	India & Egypt	Army	This is the third edition & was held at Rajasthan. Motto: "Together we train, together we excel"
4.	Dharma Guardian	India & Japan	Army	The 6th edition was held at the East Fuji Manoeuvre Training area of Japan. It is an annual event .
5.	Komodo 2025	Multilateral Exercise - 39 countries including India.	Navy	Hosted by the Indonesian Navy . Komodo 2025 is the fifth iteration of the exercise, which was first held in 2014.

Miscellaneous

Bharatiya Bhasha Pustak Scheme

- The Union Budget 2025-26 introduced the Bharatiya Bhasha Pustak Scheme, an important initiative **to digitise Indian-language textbooks**.
- This scheme will offer **digital textbooks and educational materials to school and university students** to promote **regional languages in education**.
- It aligns with the **NEP (National Education Policy) 2020** vision to promote multilingualism and emphasises mother-tongue-based education.
- It complements the **ASMITA (Augmenting Study Materials in Indian Languages through Translation and Academic Writing) initiative**.
 - ★ It will help to achieve the ASMITA aim of developing 22,000 books in Indian languages in the next five years.
- This scheme will be a **collaborative effort between the University Grants Commission (UGC) and the Bharatiya Bhasha Samiti**, which operates under the Ministry of Education.

Pradhan Mantri Dhan Dhanya Krishi Yojana

- The Finance Minister announced the Pradhan Mantri Dhan Dhanya Krishi Yojana, or the **developing agri-districts programme**.
- The programme is motivated by the **Aspirational Districts Programme** which was launched in 2018 to “to quickly and effectively transform 112 most under-developed districts across the country.”
- This new scheme will cover **100 districts with low productivity**, moderate crop intensity, and below-average parameters.
- The **programme’s aims** are to:
 - ➔ Enhance agricultural **productivity**
 - ➔ Adopt crop **diversification** and sustainable agricultural practices

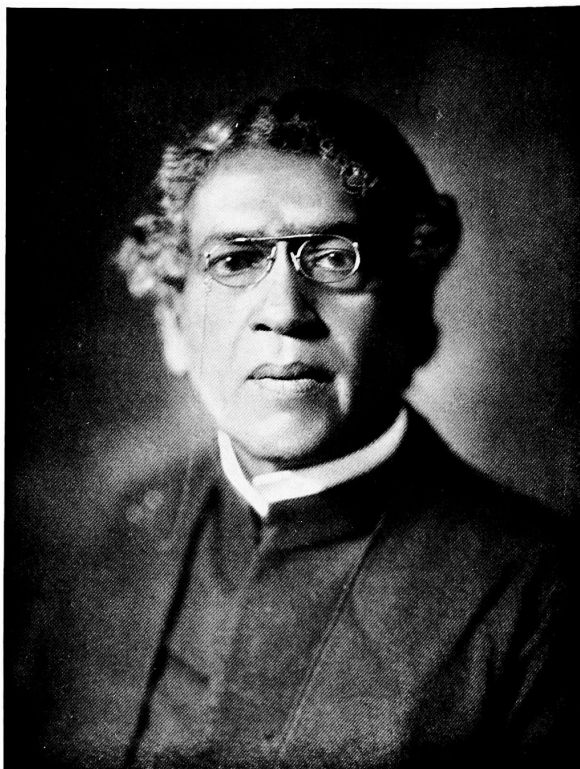
- ➔ Augment post-harvest **storage** at panchayat and block level
- ➔ Improve **irrigation** facilities
- ➔ Facilitate availability of long- and short-term **credit**

Pradhan Mantri Shram Yogi Maandhan

- The allocation for the PM Shram Yogi Maandhan Yojana (PM-SYM) in the 2025-26 Budget has seen a 37% increase compared to the previous year.
- The PM-SYM is a Voluntary and Contributory Scheme aimed at providing **old-age protection and social security for unorganized sector workers**.
- It is a **Central Sector Scheme** managed by the **Ministry of Labour and Employment**, and is executed in collaboration with the **Life Insurance Corporation of India (LIC)** and CSC eGovernance Services India Limited (CSC SPV).
- Subscribers will receive a minimum assured pension of **RS 3000 per month upon reaching the age of 60**.
- The Central Government matches the subscriber’s contributions on a **50:50 basis**, following age-specific contribution amounts.

National Youth Parliament Scheme 2.0

- Recently, the Minister of State in the **Ministry of Parliamentary Affairs** provided information about the National Youth Parliament Scheme 2.0 to the Rajya Sabha.
- The key objectives of the Scheme is to strengthen the **roots of democracy, inculcate healthy habits of discipline, and tolerance of the views of others** and to enable the student community to know about practices and procedures of the Parliament.
- It also aims to enhance **their knowledge of the functioning of the Government**, Constitutional values and for living their life in a democratic way.
- The web-portal of NYPS 2.0 enables **all the citizens of the country to participate in the Youth Parliament programme** of the Ministry through 3 different ways: **Institution Participation, Group Participation and Individual Participation**.



*Yours Sincerely
J. C. Bose*

- The **Anusandhan National Research Foundation (ANRF)** launched the J. C. Bose Grant, a restructured version of the J. C. Bose Fellowship, to support senior scientists and engineers for outstanding research.
- It offers **₹25 lakh annually for five years**, covering manpower, consumables, travel, contingency, and equipment (up to 20%), plus ₹1 lakh annually for institutional overheads.
- The grant is available **until age 68** and can continue post-superannuation if a host institution supports it.
- **Jagadish Chandra Bose** (1858–1937) was an Indian scientist who pioneered research in **radio waves, microwave optics, and plant physiology**.
- He demonstrated plant responses to stimuli and contributed to early wireless communication and solid-state physics.

Places in News

The Aravali Safari Park



- **Haryana's** 3,858-hectare Aravali safari park, planned in Gurugram and Nuh, aims to be the world's largest.
- It will **feature** animal enclosures, safaris, hotels, restaurants, botanical gardens, aquariums, and an animal hospital.
- The Aravali Range is considered as the **world's oldest fold mountain, estimated to be around 2.5 to 3.2 billion years old**, helps combat desertification and recharge groundwater.
- **Critics** argue the project prioritizes tourism over conservation, with concerns over groundwater depletion and forest protection under the Forest Conservation Act, 1980.
- Haryana's **low forest cover** (3.6%) calls for rewilding efforts instead.

The **Aravalli Range** extends across **four Indian states**—Rajasthan, Haryana, Gujarat, and Delhi. Rajasthan has the largest portion, including **Mount Abu**, the highest peak.

In Haryana, the range runs through southern districts like **Gurugram and Nuh**.

In Gujarat, it reaches the **northeastern region near Champaner**, while in Delhi, it forms the **Ridge area**, a crucial ecological zone.

Gulf of Eilat



- A new study has uncovered a significant pause in coral reef growth in the Gulf of Eilat.
- The Gulf of Eilat is also known as the **Gulf of Aqaba**.
- It falls in the northeastern arm of the Red Sea, penetrating **between Saudi Arabia and the Sinai Peninsula**.
- Navigation is difficult because of the gulf's **narrow entrance at the Straits of Tiran**.
 - ▶ The Tiran Strait connects the **Gulf of Aqaba with the Red Sea**.
 - ▶ It also serves as a connecting **point between the continents of Asia and Africa**.
- The Gulf is part of the complex **East African Rift System**, and its head touches the Egyptian, Israeli, Jordanian, and Saudi Arabian boundaries.

Mount Etna

- Mount Etna has erupted once again, in Sicily, Italy, sending lava flows and thick clouds of ash into the sky.

- Mount Etna is the **highest active volcano in Europe**, its topmost elevation being about 10,900 feet.
- The name comes from the Greek word **Aitne**, which is from **aithō**, meaning **"I burn."**
- Etna's geological characteristics indicate that it has been active since the end of the **Neogene Period** (i.e., for about the past 2.6 million years).
- Mount Etna **World Heritage Site** comprises the most strictly protected and scientifically important area of Mount Etna, and forms part of the **Parco dell'Etna Regional Nature Park**.

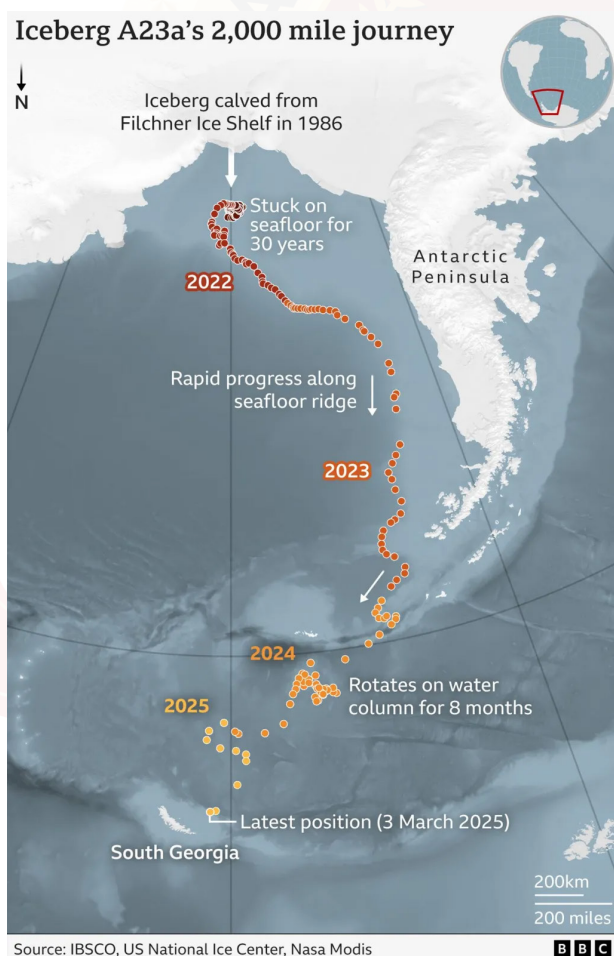


Kurdistan Region of Iraq



- India has sent a shipment of medical supplies to support the residents of the **Kurdistan Region of Iraq (KRI)** as part of India's **Vishwabandhu** (global friend) policy.
- Kurdistan refers to a geographical and cultural region primarily inhabited by **Kurds**, an ethnic group native to the Middle East.
- It is **not an independent country** but spans parts of **Turkey, Iraq, Iran, and Syria**.
- The **Kurdistan Region of Iraq (KRI)** is the only officially recognized autonomous Kurdish region, governed by the Kurdistan Regional Government (KRG).
- The Kurdistan region, comprising **Erbil, Sulaymaniyah, and Dohuk**, has seen a steady increase in Indian workers
- India established a **consulate in Erbil, the capital of the Kurdistan region**, in August 2016 to enhance economic and commercial ties with Iraq.

South Georgia Island



- The world's largest iceberg has run aground in shallow waters off the **remote British island of South Georgia**, home to millions of penguins and seals.
- South Georgia is an island in the **South Atlantic Ocean** that is part of the **British Overseas Territory** of South Georgia and the South Sandwich Islands.
- It lies around 1,300 kilometres **east of the Falkland Islands**.
- The terrain is mountainous, with the central ridge rising to 2,935 metres **at Mount Paget**.

Mount Taranaki



- Taranaki Maunga, the **second-highest mountain on New Zealand's North Island**, has been granted legal personhood, becoming the third natural feature in the country to receive the same rights, duties, and protections as an individual.
- It is also known as **Mount Egmont** and is located in Egmont National Park.
- It is one of the **most symmetrical volcanic cones** in the world.

Gulf Of Tonkin



- **Vietnam's** foreign ministry released a map defining its baseline claim in the Gulf of Tonkin, where it shares a maritime border with **China**.
- Located in the **northwest South China Sea**, the gulf receives the **Red River** and hosts key ports like Haiphong (Vietnam) and Beihai (China).
- A **1964 incident** involving North Vietnamese torpedo boats and U.S. destroyers led to the Gulf of Tonkin Resolution, escalating U.S. involvement in the Vietnam War.
- ✎ The US involvement ended with the **Vietnam War**, and North Vietnam's victory in 1975 led to the unification of Vietnam

- India recently dispatched humanitarian assistance of 26 tons to Honduras in the wake of the recent **Tropical storm SARA**.
- Honduras is a country of Central America situated between **Guatemala and El Salvador** to the west and Nicaragua to the south and east.
- The **Caribbean Sea** washes its northern coast, the **Pacific Ocean** its narrow coast to the south.
- More than **three-fourths of the land area** of Honduras is **mountainous**.
- The official language of Honduras is **Spanish**, and the predominant religion is Roman Catholicism.

Honduras





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Species in News

Antarctic Midge



- Researchers have uncovered a part of the mystery of how the **Antarctic midge** **cope**s with freezing temperatures.
- Flightless Antarctic midge (*Belgica antarctica*) is the **only known insect native to Antarctica** that is able to survive the extreme climate.
- The researchers found that the midge deals with the seasons **during its two-year life cycle** by undergoing **quiescence** in its first year and **obligate diapause** in its second.
- **Quiescence** is a form of dormancy in immediate response to adverse conditions, and when conditions improve, the organism becomes active again.
- **Obligate diapause** is a dormant period naturally induced at **a fixed time in an organism's life cycle**, a rare form seen in insects in temperate regions.
- This occurs in anticipation of an upcoming harsh environment, allowing insects to accumulate additional energy reserves and seek suitable overwintering sites before diapause entry.

Loggerhead Turtle



- The loggerhead turtle can learn and remember the magnetic signature of an area and does a **'turtle dance'** when in a location that they associate with food, a study in Nature reports.
- The loggerhead turtle is named for its **large head**, which supports **powerful jaw muscles that enable them to feed on hard-shelled prey**, such as whelks and conch.
- Primarily carnivorous, loggerheads feed on shellfish that inhabit the bottom of the ocean which can be easily crushed with their powerful jaws.
- Loggerheads reach **sexual maturity at approximately 30 to 35 years of age**.
- Loggerheads are **not known to nest in India**, but nests have been recorded in **Sri Lanka and the Gulf of Mannar**.
- The loggerhead turtle has been listed as a **Vulnerable Species by the IUCN**.

Rusty-Spotted Cat



- The rusty-spotted cat, the **world's smallest wild cat (900g)**, was recently spotted in West Bengal's Purulia for the first time.
- Found in **India, Sri Lanka, and Nepal**, India hosts 80% of its population, though habitat loss threatens it.
- The cat is typically found in the jungles of **Chhattisgarh, Odisha, and Jharkhand**, and thrives in dry, deciduous forests.
- *Prionailurus rubiginosus* (**Rusty-Spotted Cat**) is listed as Near Threatened in the IUCN Red List of Threatened Species list.

Gambusia Affinis and Poecilia Reticulata (Guppy):

- The **National Green Tribunal** has sought a response from the Centre on two highly-invasive and alien fish species being used **as biological agents for controlling mosquitoes**.

Gambusia Affinis (mosquitofish)

- It is widely used as a **biological agent for controlling mosquito** larvae but is **highly invasive**.
- It is native to the **waters of North America** and a single full grown fish eats about **100 to 300 mosquito larvae per day**.
- They can survive in harsh environments, including stagnant, polluted, and brackish water.
- The fish has a high breeding capacity and a single female may produce between **900 and 1,200 offspring during its lifespan**.
- Highly **aggressive**, often outcompetes or harms native fish species.
- They are **plain, dull gray or brown**, no vibrant colors.
- Gambusia affinis is listed as **Least Concern**.



Poecilia Reticulata (Guppy)



- **Guppies** are sometimes used as an **alternative** to mosquitofish, especially in tropical regions like **India**.
- It is native to South America with a range that includes **Trinidad and Tobago, Venezuela and Guyana**.
- It is an extremely popular ornamental **freshwater fish** species worldwide due to its vibrant colours.
- **Slightly larger but less aggressive** than mosquitofish, so it coexists better with native species.

- Adaptable to different water conditions, but **prefers clean water**.
- **Less effective** than mosquitofish in high-mosquito areas
- The **males are smaller than females**.
- Poecilia reticulata is listed as **Least Concern** as per IUCN Data.

Rhododendron Wattii Tree



- A study highlights the endangerment of **Rhododendron wattii** in Nagaland, where only one tree was found at 2,600m altitude
 - ➔ The **only other Rhododendron Wattii** reported during a field survey in 2012-13 in the **Nagaland part of Dzukou Valley** was felled by the locals for firewood.
 - The Tree is **endemic to Manipur and Nagaland** and attains a **maximum height of 25 feet**.
 - It is listed as **vulnerable** by IUCN due to **population fragmentation** and an area occupancy of less than 500 sq. km.
 - Flowering occurs from the end of February to April, and fruiting is observed from April to December.
 - They are foraged and pollinated by the **Fire-tailed Sunbird Aethopyga ignicauda** and **bumble bees (Bombus spp.)**.
- ### Nilgai
- Haryana Cabinet's recent decision permitting the **shooting of male nilgais (blue bulls)** has sparked a wave of criticism from conservationists and environmentalists.
 - Nilgai (**Boselaphus tragocamelus**) is the **largest Asian antelope (family Bovidae)**.
 - The nilgai is **indigenous** to the Indian subcontinent

- Nilgai is the **Hindustani word for “blue cow,”** which describes the blue-gray of adult bulls.
- The nilgai's conformation, however, is **more horselike than cowlike**: it has a long neck with a short upright mane, a bony narrow head, a barrel-like chest, strong legs, and high withers sloping back to the croup.
 - On the other hand, it has a hock-length cow's tail that ends in a black tuft.
- Nilgaits inhabit **flat and rolling dry savanna** covered by thin woodland and scrub.
- *Boselaphus tragocamelus* is listed as **Least Concern** as per IUCN Red List.



- It is a species of **sisorid catfish** native to **Laos, Cambodia, and Thailand**, where it occurs in the **Mekong and Chao Phraya river** basins.

Shatavari Plant



- In a bid to raise awareness about the health benefits of medicinal plants, a **species-specific campaign titled “Shatavari –For Better Health”** was launched by the **Ministry of Ayush**.
- *Asparagus racemosus* (*A. racemosus*), commonly known as **Satawar, Satamuli, Satavari**, belongs to family Liliaceae and is found at low altitudes throughout India.
- The **dried roots of the plant are used as drugs** and have ulcer healing effects, probably via strengthening the **mucosal resistance or cytoprotection**.
- Its roots contain **saponins, flavonoids, and alkaloids**, making it useful for women's reproductive health, lactation support, and stress relief.
- It has also been identified as one of the drugs **to control the symptoms of AIDS**.
- It thrives in **tropical and subtropical regions**, growing in forests, grasslands, and sandy soils, especially in **India, Sri Lanka, Nepal, and the Himalayas**.

Crocodile Catfish



- The Crocodile Catfish (***Bagarius suchus***), an invasive species, was discovered in the **Bahini River**, Guwahati, raising ecological concerns.
- Native to Southeast Asia, it preys on smaller fish, threatening local aquatic ecosystems, and is listed as **Near Threatened** by the IUCN.

Keywords

- **Swavalambini Programme:** Launched by the **Ministry of Skill Development and Entrepreneurship (MSDE)** for Northeast India to equip **female students** in Higher Educational Institutions (HEIs) with entrepreneurial skills, resources, and mentorship. In collaboration with NITI Aayog and implemented by the Indian Institute of Entrepreneurship (IIE), the programme initially targets 600 students from nine HEIs in **Meghalaya, Mizoram, and Assam**.
- **Coltan (columbite-tantalite):** A mineral **ore from which tantalum** is extracted. Tantalum is a critical metal used in **capacitors** for electronic devices like smartphones, laptops, and medical equipment. The Democratic Republic of **Congo** (DRC) holds a significant portion of the world's coltan reserves.
- **Financialisation:** It is the growing **dominance of financial markets**, institutions, and speculative investments over the real economy. The **Economic Survey 2024-25** warns that excessive financialisation in India could lead to volatility, income inequality, and reduced investments in productive sectors.
- **Ultra-conserved elements (UCEs):** They are **highly conserved DNA sequences** found across multiple species with little or no variation over millions of years. They are believed to play crucial roles in gene regulation, development, and evolutionary stability.
- **Extra-Long Staple (ELS) Cotton:** It refers to a **high-quality cotton** variety with fiber lengths exceeding 34 mm, known for its **superior strength**, softness, and durability. India aims to boost ELS cotton production through a five-year mission focused on improving productivity, sustainability, and self-sufficiency, reducing reliance on imports.
- **Ambergris:** It is a **rare, waxy substance** produced in the digestive system of **sperm whales**, valued in the **perfume** industry for its ability to fix scents. It was recently in the news due to **seizures** of illegally traded ambergris in India, highlighting its high black-market value and conservation concerns.
- **Project Waterworth:** A multi-billion dollar initiative by **Meta** (parent company of Whatsapp) to construct a 50,000-kilometer **subsea cable** system connecting the U.S., India, Brazil, South Africa, and other regions. This project aims to enhance global connectivity, support AI innovation, and promote digital inclusion across these areas.
- **Perovskite nanocrystals:** They are **semiconductor materials** with a unique crystal structure, exhibiting exceptional light-emitting and absorbing properties that make them promising for applications in solar cells, LEDs, and displays. Their **tunable colors and high efficiency** offer potential for revolutionizing optoelectronic technologies.
- **AI Singularity:** It refers to the **hypothetical point where artificial intelligence surpasses human intelligence**, leading to rapid, uncontrollable advancements. Recent breakthroughs in AI, such as powerful language models and autonomous systems, have intensified debates on its potential risks, ethical concerns, and impact on jobs and decision-making.
- **Biodiversity Leak:** It refers to the **unintended spread of invasive species** into natural ecosystems, disrupting native biodiversity and causing ecological harm. This has been reported when conservation efforts in **wealthy nations** lead to shifting of environmentally harmful activities, such as agriculture or deforestation, to **poorer but more ecologically diverse areas** undermining their conservation efforts.

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