

# FORTUNE Prelims Precise

April 2026



# 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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# Polity & Governance

## 131st Constitution Amendment Bill, 2026

- The 131st Constitution Amendment Bill **was recently defeated** in the Lok Sabha
- The bill sought to expand the Lok Sabha to **850 seats (815 for States and 35 for Union Territories)**, amend **Article 82** to allow delimitation before the 2027 Census, and modify **Article 334A** to enable immediate implementation of one-third reservation for women after delimitation.
- Alongside, the **Delimitation Bill, 2026** proposed replacing the 2002 law by establishing a Delimitation Commission headed by a Supreme Court judge with the Chief Election Commissioner and State Election Commissioner as members.
- This will redraw constituencies using the Census data as the parliament may determine (currently, seat allocation is based on the 1971 Census while boundaries follow the 2001 Census).
- Under **Article 368**, a Constitutional Amendment Bill can be introduced by **any minister or private member** in **either House of Parliament**, but must be passed by a **special majority**—that is, a majority of the total membership of the House plus **two-thirds of members present and voting**—and, where required, be ratified by at least half of the State Legislatures.
- There is **no provision for a joint sitting**, and the amendment comes into force only after the President's assent, who in this case has no veto power.

## Anti-Defection

- Seven Rajya Sabha MPs of the Aam Aadmi Party (AAP) recently **"merged"** with the BJP.
- The Anti-Defection Law under the **Tenth Schedule**, added by the 52nd Constitutional Amendment Act, 1985, aims to curb political defections and ensure legislative stability.

- A member can be **disqualified** for voluntarily **giving up party membership** or for **voting/abstaining against the party whip** (and the party does not excuse it within 15 days of the voting or abstention)
- Importantly, if a member is elected as **Speaker, Deputy Speaker, Chairman (Legislative council), or Deputy Chairman**, they may voluntarily give up their party membership without disqualification to maintain impartiality.
  - ➔ When they cease to hold office, they **can rejoin** their original political party without attracting disqualification.
- An **independent member** is disqualified if they **join any political party after election**, while a **nominated member** is disqualified if they **join a political party after six months from the date of taking their seat**.
- An important **exception** exists under Paragraph 4 (merger clause), which protects members from disqualification only if the **original political party merges** with another party and at least **two-thirds of the legislature party agrees**.
- Disqualification decisions are made by the Speaker or Chairman and are subject to **judicial review**, though concerns remain about their impartiality.

## Removal Motion Against CEC

- The Rajya Sabha Chairman and Lok Sabha Speaker recently rejected **the removal motions submitted in both Houses by the Opposition** to remove **Chief Election Commissioner (CEC) Gyanesh Kumar** from office.
  - ➔ This marked the **first-ever attempt in Indian parliamentary history** to remove a sitting CEC.
- The Chief Election Commissioner (CEC) is protected under **Article 324(5)** and can be removed only through a process similar to that of a Supreme Court judge, on grounds of **proved misbehaviour or incapacity**.
- The process of removal of CEC begins with a motion signed by at least **100 Lok Sabha or 50 Rajya Sabha members**, followed by an investigation by a committee, during which the CEC is given a chance to defend themselves.

- Removal requires a **special majority** in both Houses—i.e., a majority of the total membership and **two-thirds of members present and voting**.
- Other **Election Commissioners** are removed by the President on the **recommendation of the Chief Election Commissioner**, without any impeachment or Parliamentary voting.
- Both CEC and ECs can **resign** by writing to the president.

## Samridh Gram Initiative

- Samridh Gram Initiative has been recently selected as a nominee for the prestigious **WSIS (World Summit on the Information Society) Prizes 2026** under the Action Line **AL C6: Enabling Environment** category.
- The **Samridh Gram Initiative** is a pioneering **“phygital” (physical + digital) pilot program** by the **Department of Telecommunications (DoT)**, India, aimed at transforming rural areas into self-sustaining, digitally empowered communities.
- Leveraging **BharatNet high-speed fiber-to-the-home (FTTH)** and **PM-WANI Wi-Fi**, it establishes **Samridhi Kendras** to provide one-stop, assisted access to services such as **telemedicine, smart education, e-governance, and agriculture support**.
- **PM-WANI** (Prime Minister’s Wi-Fi Access Network Interface) is a Government of India scheme designed to revolutionize internet access by creating a **massive network of public Wi-Fi hotspots, similar to public telephone booths**.
- It allows any small shopkeeper, tea stall owner, or local entity to become a **Public Data Office (PDO)**, providing affordable internet to the public via app-based registration without requiring licenses or fees.

## World Summit on the Information Society (WSIS)

- The **World Summit on the Information Society (WSIS)** is a global multi-stakeholder platform that promotes inclusive digital development by bringing together governments, industry, academia, and civil society.
- Its **WSIS Prizes** recognise ICT-driven projects that support sustainable development, and the **WSIS Forum 2026** in Geneva will focus on issues like emerging technologies, digital inclusion, cybersecurity, and global digital cooperation.

## Voting as a Sentimental Right

- The Supreme Court recently described the **right to be included in the electoral roll and to vote** as a “sentimental right.”
- SC said this while hearing concerns over the removal of nearly **91 lakh voters** under the Election Commission’s Special Intensive Revision (SIR) in West Bengal.
- The Court observed that voting is the **strongest expression of nationality and patriotism**, and stressed that while the Election Commission has the duty to maintain accurate electoral rolls, deletions must be backed by strong justification.
- It also noted that the right to vote and contest elections is a **statutory right under the Representation of the People Acts, 1950 and 1951**, not a fundamental constitutional right, and depends on legal conditions like citizenship, age, and disqualification rules.
- The Court further highlighted that large-scale deletions **based on “logical discrepancies” by ECI** appeared unusual and must be carefully examined.

## Jan Vishwas

- The Jan Vishwas (Amendment of Provisions) Bill, 2026 has been **passed by both Houses of Parliament**.
  - ➔ The Act focuses on **decriminalisation and rationalisation of penalties** by replacing imprisonment with civil penalties in several laws.
- The **focus** is on reducing compliance burdens for individuals and MSMEs (Micro, Small and Medium Enterprises).
- It is an **expansion** of the original **Jan Vishwas (Amendment of Provisions) Act, 2023**, which first introduced the concept of **decriminalising minor offences** in India
- For example, under the **Drugs and Cosmetics Act, 1940**, illegal manufacturing or sale now attracts a civil penalty instead of imprisonment, and under the **National Highways Act, 1956**, making highways unsafe now results in a monetary penalty instead of up to five years’ jail.

- It also removes imprisonment provisions in laws like the **Indian Succession Act, 1925** and updates penalties in the **Electricity Act, 2003** by increasing fines instead of jail terms.
- Certain **minor offences** under Acts like the Delhi Police Act, Municipal Corporation Act, and Copyright Act are **omitted** altogether.
- The Bill introduces a “**Correction First**” approach through **improvement notices** before penalties, allows warnings for first or second offences, and provides for **inflation-indexed penalties increasing by 10% every three years** to maintain deterrence.

## Essential Religious Practices (ERP)

- The Supreme Court’s nine-judge Bench is hearing the Sabarimala review in **Kantaru Rajeevaru v Indian Young Lawyers’ Association**, which centres on the **Essential Religious Practices (ERP) doctrine**.
- Originating in **Commissioner, Hindu Religious Endowments v Sri Lakshmindra Thirtha Swamiar of Shirur Mutt (1954)**, the Court used “essential” descriptively to protect core religious practices, but in **Durgah Committee Ajmer v Syed Hussain Ali (1962)**, it evolved into a test—limiting protection to “essential” practices and excluding “superstitious” ones under Articles 25–26.
  - ✔ **Article 25** guarantees freedom of conscience and religion subject to public order, morality, health and restrictions of other Fundamental Rights, and also empowers the State to enact **social reform laws, including opening Hindu religious institutions to all classes and sections**.
  - ✔ **Article 26** grants religious denominations the right to manage their own religious affairs and institutions, subject to **public order, morality, and health**.
- Today, ERP involves a **three-step test**: whether a practice is religious, whether it is essential, and whether it meets constitutional limits (public order, morality, health).
- **Note:** Global courts, including the **US (Employment Division v Smith)** and **Europe (Leyla Sahin v Turkey)**, typically avoid assessing religious centrality, focusing instead on sincerity or proportionality. Consequently, the **ERP doctrine has no international equivalent**.

## Dowry Prohibition Act, 1961

- The Supreme Court held that a **woman or her family cannot be prosecuted** under the Dowry Prohibition Act for “**giving**” dowry **based on statements made in complaints** against dowry takers.
- The **Dowry Prohibition Act, 1961** aims to curb the social evil of dowry in aligning with the constitutional principles of equality (Art. 14), the right to life and personal liberty (Art. 21).
- Dowry is defined under the Act as any property/valuable security given or promised **before, at, or after marriage** in connection with it (excluding **mahr** under Muslim Personal Law).
- The Act penalises **giving or taking dowry (Sec 3)**, **demanding dowry directly or indirectly (Sec 4)**, bans related advertisements (Sec 4A), that dowry offences are **non-bailable and non-compoundable**, shifts burden of proof to the accused (Sec 8A), and provides for Dowry Prohibition Officers to be appointed by State government (Sec 8B).
- However, a **gift is not treated as dowry** if it is given **voluntarily** without any demand, at the time of marriage, properly **recorded in a prescribed list**, and is **customary and not excessive in value** considering the financial status of the giver.

## Cinematograph Act, 1952

- The Cinematograph Act, 1952 has recently come into focus following a **certification dispute** involving the Tamil film **Jana Nayagan**.
- The Cinematograph Act, 1952 is the primary legislation governing the certification of films for public exhibition in India.
- It established the **Central Board of Film Certification (CBFC)**, a statutory body under the **Ministry of Information and Broadcasting**, responsible for examining films and issuing certification for their **screening in cinemas and on television**.
- Earlier, **film certificates** were valid for 10 years, after which producers had to seek re-certification for continued exhibition.
- The **Cinematograph (Amendment) Act, 2023** introduced key **changes** to this framework.

- It made film certificates **perpetually valid**, removing the earlier 10-year validity requirement.
- It also **withdrew the Central Government's revisional powers** over CBFC decisions to strengthen the Board's autonomy.
- To **curb piracy**, the amendment **criminalised** unauthorised recording and exhibition of films, with strict penalties including imprisonment from 3 months to 3 years and fines ranging from ₹3 lakh to 5% of the film's production cost.
- Additionally, it introduced **age-based UA classifications**—UA 7+, UA 13+, and UA 16+—to provide more nuanced content rating for viewers.

## Recuse (Recusal)

- A Delhi High Court judge recently **refused to recuse** from the Delhi liquor policy case (CBI vs Kuldeep Singh & Ors., April 20, 2026).
- **Recusal** is when a judge withdraws from a case to avoid any **conflict of interest or bias**, based on the principle of natural justice—**nemo iudex in causa sua** (no one should be a judge in their own cause).
- It ensures a **fair trial**, which is part of Articles 14 and 21, and flows from the **judicial oath in the Third Schedule** to act “without fear or favour.”
- There are **no codified rules in India**, so recusal is guided by judicial conventions and the judge's own discretion.
- Courts use tests like the “**reasonable suspicion of bias**” (whether a fair-minded observer would suspect bias) and the “**real danger**” test (whether there is a real likelihood of bias from the perspective of the court).
- Recusal can be sought by parties or done voluntarily by the judge, but the **final decision lies with the judge**.
- At the same time, the “**duty to sit**” doctrine requires judges not to recuse unnecessarily, to prevent misuse such as judge-shopping and to uphold their constitutional responsibility.

## Amaravati Capital

- The **Andhra Pradesh Reorganisation (Amendment) Act, 2026** has received Presidential assent giving legal backing to Amaravati as the capital of the state.
- After the **bifurcation of Andhra Pradesh** in 2014, Andhra Pradesh Reorganisation Act provided for **Hyderabad** to serve as the joint capital of Andhra Pradesh and Telangana for 10 years.
- The **Act also mandated** the development of a **new capital for residual Andhra Pradesh** without specifying a particular city.
- In India, the **Constitution does not define or mention state capitals** but under **Article 3 and Article 4**, Parliament can reorganise states and include provisions such as capital decisions through legislation.
- Traditionally, a **state can change its capital by passing a resolution** in its state legislative assembly and implementing it through state-level planning.
  - Example: Gujarat moved its capital from Ahmedabad to Gandhinagar in 1970 without central legislation
- However, **if a capital is fixed by a Reorganisation Act passed by Parliament** under Articles 3 and 4 of the Constitution, the state government cannot unilaterally change it.
  - In such cases, the state must approach the Centre or Parliament to amend that specific act, which Andhra Pradesh did in this context.
- Interestingly, a **secondary capital** (usually a summer capital) is entirely **decided by the State Government** (cabinet with Governor approval)—there is no requirement of a Parliamentary law for it nor legislative resolution.

# Economy

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

- The Union Cabinet has approved the continuation of **Pradhan Mantri Gram Sadak Yojana (PMGSY)-III** till **March 2028**, focusing on strengthening rural connectivity by linking villages to **agricultural markets, higher secondary schools, and hospitals**.
- PMGSY aims to provide **all-weather road connectivity** to unconnected habitations (500+ population in plains and 250+ in hilly/tribal/desert areas).
- The PMGSY was launched by the Central government on **December 25, 2000**, with its second phase following in 2013.
  - ➔ The second phase focused on **upgrading and consolidating existing rural roads** rather than creating new ones.
- Subsequent components included the **Road Connectivity Project for Left Wing Extremism Affected Areas (RCPLWEA)** in 2016 and a **third phase in 2019** covering 1,15,446 km.
- In September 2024, the government also approved **PMGSY-IV (2024-25 to 2028-29)** with emphasis on **last-mile links, economic integration, and rural development** with a large financial outlay of Rs 70,000 cr.

## Orange Economy

- India is expanding its **Orange Economy or the creative economy** via the Union Budget 2026-27, which proposes **Animation, Visual Effects, Gaming and Comics (AVGC) Content Creator Labs** in 15,000 schools and 500 colleges.
- **The Orange Economy**—a term coined by former Colombian President Iván Duque Márquez and former culture minister Felipe Buitrago—centers on industries driven by **creativity and intellectual property**,
  - spanning film, music, design, gaming, and handicrafts.
- Globally, these industries contribute **around 3.1% to GDP** and 6% to employment.

- India's media sector, valued at ₹2.5 trillion per the **Economic Survey 2025-26**, sees digital media providing **one-third of revenues**.
- Growing at **8.8% CAGR**, India produces 29% of global films, the world's highest volume.
- The sector employs 8% of the workforce, leveraging a young demographic with 65% of people under 35.

## Payments Bank license

- The RBI cancelled the licence of Paytm Payments Bank under **Section 22(4)** of the **Banking Regulation Act, 1949** due to violations like KYC lapses, multiple accounts linked to one PAN, and concerns of money laundering and fraud.
- The Act, originally the Banking Companies Act (1949), governs banking operations in India and empowers the RBI to **issue/cancel licences (Sec 22)**, regulate capital, restrict loans, oversee management, issue directions, inspect banks, and handle winding up.
- **Payments Banks (PBs)** were introduced on the recommendation of the **Nachiket Mor Committee** to promote financial inclusion by providing small savings and payment services.
- They can accept deposits up to ₹2 lakh per customer, offer ATM/debit cards, remittances, and distribute financial products, but **cannot lend, issue credit cards, or accept NRI deposits**.
- In contrast, **Small Finance Banks (SFBs)** aim at both inclusion and credit delivery, as they can accept deposits without limit and provide loans, with at least 75% lending to priority sectors.
- Both were **licensed by the RBI in 2015**, with **minimum capital requirements** of ₹100 crores for PBs and ₹200 crores for SFBs currently.

## Windfall Tax

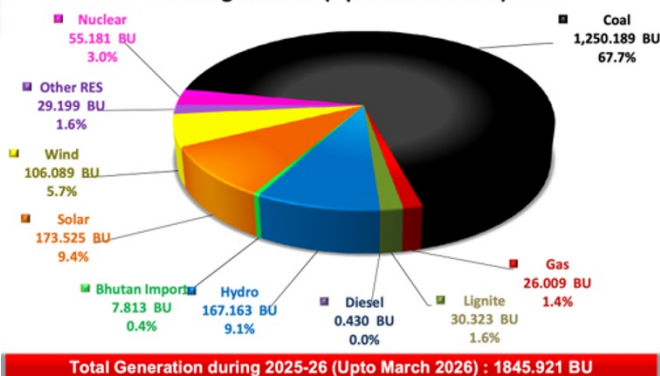
- The Central Government recently **raised export duty on diesel and aviation turbine fuel (ATF)** in a fresh move aimed at preserving domestic fuel availability.
- **The Ministry of Finance** significantly raised export duty on diesel from ₹21.5 to ₹55.5 per litre and ATF duty from ₹29.5 to ₹42 per litre.

- A **windfall tax** is a tax imposed on **extra or unexpected profits** that companies earn due to external factors (like sudden price rise), not because of their own effort.
- In the present context, the windfall tax (through higher export duty) is applied on **Indian oil refining companies** when they earn extra profits by exporting fuels like diesel and ATF at higher global prices.
- Since these profits arise mainly due to **international price spikes**, not increased efficiency, the government imposes higher export duties to **capture part of these gains** and discourage excessive exports.
- This ensures that companies supply more fuel within India, thereby **protecting domestic availability and controlling fuel prices**.

### India ranked 3rd globally in RE capacity

- India ranks **third globally in Renewable Energy Installed Capacity**, according to the Renewable Energy Statistics 2026.
- The **International Renewable Energy Agency** released the statistics as of December 2025.
- **China has the highest renewable energy capacity** at 2,258.02 GW, followed by the US at 467.92 GW and India at 250.52 GW.
- **India is followed by Brazil** with a capacity of 228.20 GW and **Germany with 199.92 GW**.
- The **International Renewable Energy Agency** is an intergovernmental body (est. 2009) that promotes the global use of renewable energy.
- Based in Abu Dhabi, it supports countries through policy advice, data, and cooperation, and publishes key reports like the **World Energy Transitions Outlook** to advance energy transition and climate goals.

### Generation Performance (Fuelwise) During 2025-26 (Upto March 2026)



### India's Maternal Mortality Ratio (MMR)

- A recent **Lancet** study on the **Global Burden of Diseases** highlights India's challenge in achieving the SDG target 3.1 of reducing **Maternal Mortality Ratio (MMR) below 70 per lakh live births by 2030**.
- Maternal mortality refers to deaths related to pregnancy or its complications up to one year after its end.
- India has reduced deaths significantly—from **1.19 lakh (1990) to 24,700 (2023)**—but progress has slowed and it still accounts for about **10% of global maternal deaths (2.4 lakh)**.
- Regional disparities persist, with states like **Assam and Uttar Pradesh** lagging, while southern states perform better.
- **Haemorrhage and hypertensive disorders** are causing over 40% of maternal deaths.

### India Slips to 6th Largest Economy



- According to the latest **World Economic Outlook (WEO)** released by the International Monetary Fund (IMF), India has slid down to the 6th rank.
- In 2026 **India's gross domestic product will be around \$4.15 trillion** (up from \$3.92 trillion in 2025) while the UK's GDP will be \$4.27 trillion (up from \$4 trillion in 2025) and Japan's GDP would actually fall from \$4.48 trillion in 2025 to \$4.38 trillion in 2026.

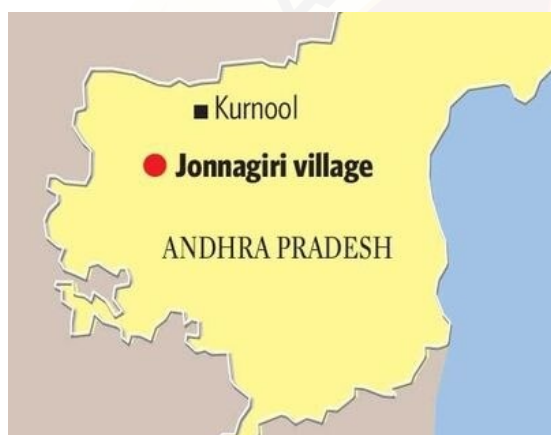
### Key Reasons:

- **Change in GDP base year:** When India revised its **GDP base year** to 2022-23, it used **better data** (MCA-21 of Ministry of Corporate Affairs for corporate data, GST data, latest and annual NSO surveys, improved informal sector coverage, and updated prices), which **showed earlier estimates had overstated output**, leading to

a downward revision of GDP from ₹357 trillion to ₹345 trillion.

- **Weakening rupee:** The Indian rupee weakened sharply against the US dollar, and since IMF GDP rankings are in dollar terms, this reduces India's GDP value more relative to countries like the UK and Japan, widening the gap.
- **Double Deflator Approach:** New data series uses double deflator to deflate both input and output prices separately.
- India saw higher input prices (food and fuel) and GDP falls under double deflation if input costs rise faster than output prices.
- According to the International Monetary Fund, India is projected to regain the 4th-largest economy position by 2027 and become the 3rd largest by 2031.

## Jonagiri Gold Project



- The Jonagiri Gold Project in Kurnool, Andhra Pradesh, is set to become India's first large-scale private sector gold mine.
- The mine around 598 acres has certified resources of 13.1 tonnes, with potential to scale up to 42.5 tonnes, aiming for 1,000 kg of annual production in 15 years..
- India currently imports over 800 tonnes (\$71.98 billion) of gold annually (2nd largest consumer) and produces a very small amount of gold domestically, roughly 1.5 to 2 tonnes annually, primarily from the Hutti gold mines in Karnataka.
- The closure of Kolar Gold Fields in 2000 had further constrained domestic supply.
- India's gold exports, which are mainly in the form of gold jewellery within the broader gems and jewellery sector is at about \$35–45 billion.

- The Reserve Bank of India holds about 880 tonnes of gold, accounting for nearly 16–17% of its foreign exchange reserves.
- In contrast, Indian households collectively hold an estimated 25,000–34,000 tonnes of gold—the largest private stock globally—primarily in the form of jewellery

## Benchmark Issuance Strategy (BIS)

- Telangana has joined a pilot of nine States where the Reserve Bank of India is implementing the Benchmark Issuance Strategy (BIS) for State Development Loans (SDLs).
- The other states include Andhra Pradesh, Bihar, Chhattisgarh, Kerala, Madhya Pradesh, Maharashtra, Rajasthan, and Uttar Pradesh.
- State Development Loans (SDLs) are long term bonds issued by State governments to raise money from the market to finance their fiscal needs and development expenditure.
- Under BIS, States will issue SDLs in standard, fixed maturities (mainly 10-year bonds) repeatedly, instead of issuing bonds in multiple odd tenors.
- This helps build large, uniform “benchmark” securities that are actively traded in the secondary market.
  - ➔ The secondary market is where investors buy and sell existing securities (stocks, bonds, derivatives, ETFs) among themselves, rather than with the issuing authority.
- The strategy aims to improve market liquidity, attract a wider investor base (including large institutions), and potentially reduce borrowing costs for States through better price discovery.
- It also aligns the SDL market more closely with the Central Government securities (G-Secs) market.

## RELIEF Scheme

- The Ministry of Commerce and Industry has expanded the RELIEF (Resilience and Logistics Intervention for Export Facilitation) scheme by adding Egypt and Jordan to the list of eligible countries.

- The scheme is **operated by ECGC Ltd (Export Credit Guarantee Corporation of India Limited)**, a government-owned company under the Ministry, established in 1957.
- **Indian Exporters usually take insurance from ECGC Ltd** to protect themselves against risks in international trade such as non-payment by foreign buyers, buyer insolvency, political disruptions like sanctions.
- The **RELIEF scheme** is meant to support Indian exporters, especially MSMEs, who are **facing higher shipping costs and delays** due to conflicts and disruptions in West Asia.
- Through the RELIEF scheme, ECGC Ltd will **reduce export insurance costs (up to 30%)**, so small exporters can continue trade without heavy financial pressure despite rising logistics risks.
- The RELIEF scheme **covers export shipments from India** to the United Arab Emirates, Saudi Arabia, Kuwait, Qatar, Oman, Bahrain, Iraq, Iran, Yemen, and recently added Egypt and Jordan.

## Monetary Policy Committee (MPC)

- The **RBI Monetary Policy Committee (MPC)** kept the **repo rate unchanged at 5.25%** and maintained a **neutral policy stance** amid global uncertainties.
- The **repo rate** is the secured short term rate at which RBI lends to commercial banks.
- The **Standing Deposit Facility (SDF) rate** was retained at **5%**.
- Banks use **SDF to park overnight surplus funds**, earning interest from the RBI and also helps **RBI absorb excess liquidity** without collateral.
- The **Marginal Standing Facility (MSF) rate** and **Bank Rate** were kept at **5.5%**.
- MSF allows banks to **borrow emergency overnight funds** at a higher rate from RBI against government securities.
- SDF represents the floor and MSF the ceiling of the RBI's **Liquidity Adjustment Facility (LAF)**.
- The six-member **MPC**, established under the **RBI Act, 1934**, is responsible for maintaining price stability while supporting growth.

## International Relations

### India-Russia Logistics Agreement (RELOS)

- India and Russia have **operationalised** the Reciprocal Exchange of Logistics Agreement (**RELOS**) which was signed in February, 2025.
- The agreement, valid **for five years and further extendable**, enables **reciprocal use of military bases, ports, and airfields** for fuel, supplies, and maintenance during war as well as peacetime.
- It supports **joint exercises, training, and broader military cooperation**, while allowing **limited deployment** of up to 3,000 personnel, five warships, and ten aircraft in each other's territory.
- It significantly **enhances India's strategic reach**, particularly into the Arctic region, with access to key **Russian ports such as Murmansk and Severomorsk**.
- The pact also provides **logistical support** including refuelling, maintenance, spare parts, and supplies, thereby **reducing costs and turnaround time** for long-distance missions.
- Additionally, it allows **cost reimbursement mechanisms**, including barter arrangements, improving operational efficiency and deepening bilateral defence cooperation.
- **Note:** India has signed a similar agreement with the United States called **LEMOA, or Logistics Exchange Memorandum of Agreement**, the pact allows reciprocal access to military facilities for refuelling, supplies and logistics support. However, **LEMOA does not allow stationing of troops, while RELOS does**.

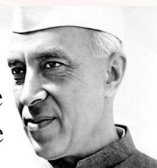


## UN Resolution 47

- It has been 78 years since the **UN Security Council adopted Resolution 47**, which shaped the **Jammu and Kashmir** dispute.
- The **conflict began in October 1947** when tribal raiders, backed by Pakistan, invaded Jammu and Kashmir.
- **Maharaja Hari Singh** sought Indian assistance and **signed the Instrument of Accession on October 26, 1947**, formally joining the Dominion of India
- **Indian forces gained ground** in areas like Dras, Kargil, and Poonch, but concerns of **wider war** led Lord Mountbatten (Viceroy of India) and Clement Attlee (British PM) to advise Indian **Prime Minister Jawaharlal Nehru** to **refer the matter to the United Nations** rather than launching a full-scale war against Pakistan.
- India **urged the UN to stop Pakistan's support to infiltrators** and prevent use of its territory and supplies for the invasion.
- **Resolution 47 was adopted by UNSC** on April 21, 1948 which called for a **ceasefire, withdrawal of Pakistani-backed fighters, reduction of Indian forces** to minimum levels, and a **UN-supervised plebiscite** to decide the region's future.
- However, the **plebiscite never materialised** as Pakistan did not fully withdraw forces, and later geopolitical shifts, including **Pakistan's alignment with the US**, further complicated the process.
- Meanwhile, **Jammu and Kashmir was integrated into India's constitutional framework**, with **Article 370** granting special status in 1954.
- This provision was **eventually revoked on 5 August 2019**, fully integrating the region administratively into India.

"...our assurance that we shall withdraw our troops from Kashmir as soon as peace and order is restored and leave the decision regarding the future of the State to the people of the State is not merely a promise to your Government but also to the people of Kashmir and to the world."

(Jawahar Lal Nehru, Telegram No. 25, October 31, 1947, to Liaqat Ali Khan, PM of Pakistan)



## Yellow Line strategy

- Israeli forces recently said that they have established a **"yellow line" in southern Lebanon**, similar to an Israeli military measure in the besieged Gaza Strip.
- Israeli forces established a **"Yellow Line" in southern Lebanon** after destroying bridges on the **Litani River (~30km from the Israel-Lebanon border)** to create a security zone.
- First introduced during the **October 2025 Gaza war**, the Line is a **military demarcation boundary** that bifurcated the Gaza Strip.
- It was featured in **President Trump's 2025 Gaza peace plan**, with the **IDF** marking it using yellow concrete bollards and high poles.
- The boundary serves as a **defensive buffer zone** to prevent Hamas and Hezbollah from regaining capabilities near the border following the October 2023 attacks.
- Initially an interim measure, this **"Gaza Model"** has become a permanent strategy, now being **replicated in southern Lebanon**.

### Israel's new 'Yellow Line' in Lebanon

Israeli forces say they have established a "Yellow Line" in southern Lebanon, similar to an Israeli military measure in the besieged Gaza Strip.



## Helium Crisis

- **Iranian strike on Qatar's Ras Laffan Industrial City** has raised concerns over **helium production and LNG exports**.

- **Helium**, a highly **inert and extremely light gas** with the **lowest boiling point** of any element, is **crucial for advanced technologies** such as MRI scanners, semiconductor manufacturing, and space applications.
- Helium is a **trace gas** whose concentration remains largely constant in the lower atmosphere (**about 0.000524%** or 5.24 parts per million by volume), making it a **relatively stable atmospheric gas**.
- It is **formed through the long-term radioactive decay** of uranium and thorium and accumulates in natural gas fields, but **once released, it escapes Earth's atmosphere and cannot be recovered**.
- **Global helium supply is highly concentrated**, mainly in the United States and Qatar, which together account for around one-third of production.
- 2021 **shutdown of the U.S. Federal Helium Reserve** in Amarillo, Texas further tightened supply.
- There is currently **no viable method to extract helium directly from the atmosphere** at an industrial scale, making supply constraints even harder to address.

- While India is the **11th-largest overall export market** for New Zealand, the country has a very small fraction (well under 0.5%) of India's total global exports.

## Pax Silica

- The **Philippines** recently joined the **“Pax Silica” initiative** as its 13th member.
- Pax Silica is a **U.S.-led international initiative** launched in December 2025 aimed at building **secure, resilient, and innovation-driven supply chains** for technologies foundational to the artificial intelligence (AI) era — **especially silicon and critical minerals** that underpin chips, advanced computing, and other high-tech systems.
- **“Pax”** comes from Latin, meaning **peace, stability, and long-term prosperity**. **“Silica”** refers to **silicon's precursor (silicon dioxide)** — the base material for semiconductors and many electronic components essential to AI.
- The programme has rapidly expanded in recent months, drawing in partners across Asia and West Asia, **including India**, South Korea, Singapore, Qatar and the United Arab Emirates, signalling the emergence of a US-backed technology alliance.
- **India** formally joined the coalition at India AI Impact Summit **2026** held at New Delhi.

## India–New Zealand FTA

- India and New Zealand have signed a **Free Trade Agreement (FTA)** aimed at boosting bilateral trade from **\$1.3 billion (2024–25) to \$5 billion in five years**.
- India will eliminate tariffs on about 95% of imports from New Zealand, while **New Zealand will remove duties on 100% of Indian exports**.
- The agreement also **includes New Zealand's commitment of \$20 billion investment** over 15 years.
- The FTA **explicitly protects India's milk sector** by keeping dairy products in the exclusion list.
- This is crucial since, while **India has been the largest milk producer** since 1998, **New Zealand is the largest milk exporter** in the world.
- Bilaterally, India has a **goods trade surplus but a services trade deficit** with New Zealand.

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**31/49** MALAYALI TOPPERS TRUSTED MAINS MAXIMA

Best Mains Test Series Results in Kerala

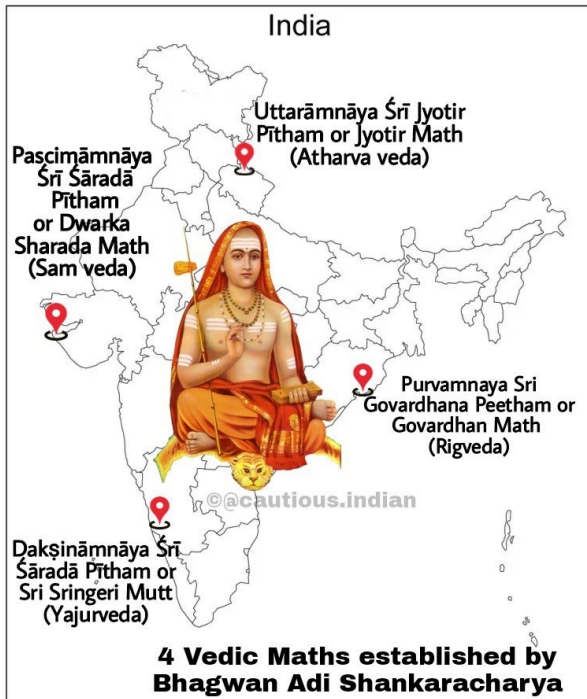
**TOP 3 GS SCORES IN KERALA ARE FOR MAINS MAXIMA STUDENTS**

SMITA SABU AIR 239 443 MARKS	GOPIKA B AIR 201 442 MARKS	ADITYA NARAYAN H AIR 92 421 MARKS
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Mains Maxima starts on 7th June, 2026

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## Adi Shankaracharya



- India paid tribute to **Adi Shankaracharya on his Jayanti**, marking the 1,200th birth anniversary of the philosopher-saint.
- **Adi Shankara, born in 788 AD at Kaladi, Kerala**, was a **devotee of Shiva** and is considered a key figure in reviving Hindu philosophy.
- He **attained Samadhi at Kedarnath** at the age of 32.
- He propounded **Advaita Vedanta**, a non-dualistic philosophy asserting the identity of Atman and Brahman, where the **perceived world is seen as Maya (illusion)**, and **liberation is achieved through self-realisation (Brahmajnana)**.
- He wrote **major commentaries** on the Upanishads, Brahma Sutras, and Bhagavad Gita, including works like Brahmasutrabhashya, Bhajagovinda Stotra, Nirvana Shatakam, and other prakaran granthas.
- He primarily **propagated Nirguna Brahman** (formless ultimate reality) through Advaita Vedanta, but he **practiced and encouraged Saguna Bhakti** (devotion to a form with attributes) as a valid, necessary path for spiritual aspirants to purify their minds.

## The Lanjia Saora



- The **Lanjia Saora community** was recently in the news for its resilient efforts to preserve its unique visual heritage, **such as traditional metal earrings and tattoos**.
- The Lanjia Saora, a **Particularly Vulnerable Tribal Group (PVTG)** in Odisha (mainly Rayagada and Gajapati districts), are a subgroup of the Saora tribe known for preserving their distinct cultural heritage.
- The name "**Lanjia**" comes from the **traditional loincloth** with a tail-like extension worn by men.
- Women are known for **wooden ear plugs**, a **nose ornament called "kunda"**, and traditional **tattoos** with spiritual and spiritual-identity significance.
- They are also famous for **Idital paintings**, ritual **wall art** made with red oxide and rice paste, now being adapted onto paper and wood for cultural preservation and livelihood support.

## Samrat Samprati



- On Mahavir Jayanti (March 31, 2026), the Prime Minister inaugurated the **Samrat Samprati Museum** at Koba, Gandhinagar (Gujarat), located within the Shri Mahavir Jain Aradhana Kendra.
- The museum is **named after Samrat Samprati** (224–215 BC), **grandson of Samrat Ashoka**, and is dedicated to Jain heritage and the principle of **ahimsa (non-violence)**.
- Lord Mahavir**, also known as Vardhaman, was the **24th and last Tirthankara** of the current **Avasarpini** (descending) time cycle, according to Jain cosmology.
- Born in **Kundalagrama, Bihar**, to King Siddhartha and Queen Trishala, he renounced worldly life at 30, practised intense **penance for 12 years, and attained Moksha**.
- His **teachings** emphasise truth, compassion, and dharma, based on five major vows (Pancha Mahavrata).
- Mahavir Jayanti**, celebrated on the 13th day of Shukla Paksha in Chaitra, marks his birth anniversary and is observed through rituals like Abhishekam and chariot processions.

- His teachings on **selfless service** and **detachment** are preserved in the Guru Granth Sahib.
- He founded **Chakk Nanaki (later Sri Anandpur Sahib)** in 1665, which became an important centre of Sikhism and later the birthplace of the Khalsa.
- In **1675**, he was arrested and beheaded at **Chandni Chowk, Delhi** under Mughal Emperor **Aurangzeb's** orders alleging blasphemy but many sikh records show he was **opposing the forced conversion of Kashmiri Pandits** to Islam and standing against religious persecution

## Mahatma Jyotirao Phule



- The **200th birth anniversary** of Mahatma Jyotirao Phule, a pioneering social reformer, was observed.
- Born on April 11, 1827** Phule **established the first girls' school** in Pune at the residence of Tatyasaheb Bhide in 1848 and later promoted education for girls and marginalised communities.
- In 1873, he founded the **Satyashodhak Samaj** to promote social equality, rational thinking, and oppose caste-based oppression.
- He strongly **supported** widow remarriage, opposed child marriage, and worked for women's empowerment along with his wife **Savitribai Phule**, India's first woman teacher.
- Fatima Sheikh**, often recognized as India's first Muslim woman teacher, worked alongside Savitribai and her husband, Jyotirao Phule.
- Through his writings like **Gulamgiri (1873)**, he exposed caste oppression, and his act of opening his well to Dalits symbolised his stand against untouchability.
- His other influential works include Shetkaryacha Asud (Farmer's Whip), and Sarvajanic Satya Dharma Pustak.

## Guru Tegh Bahadur



- On April 7, 2026, India paid tribute to Guru Tegh Bahadur on his Prakash Purab (birth anniversary), following the observance of his 350th martyrdom anniversary.
- Guru Tegh Bahadur, the **ninth Sikh Guru**, is remembered as the "Protector of Humanity" and "**Hind-di-Chadar**" for defending religious freedom.
- Born in Amritsar as **Tyag Mal**, the **youngest son of Guru Hargobind Sahib**, he was renamed Tegh Bahadur for his bravery in battle.

- **Vithalrao Krishnaji Vandekar**, a Maharashtrian social activist and fellow reformer, in 1888 gave the title of “Mahatma” (meaning “Great Soul”) to Jyotirao Govindrao Phule.
- The Government of India has launched a **two-year commemoration** from April 11, 2026, to April 11, 2028, to honour his legacy.

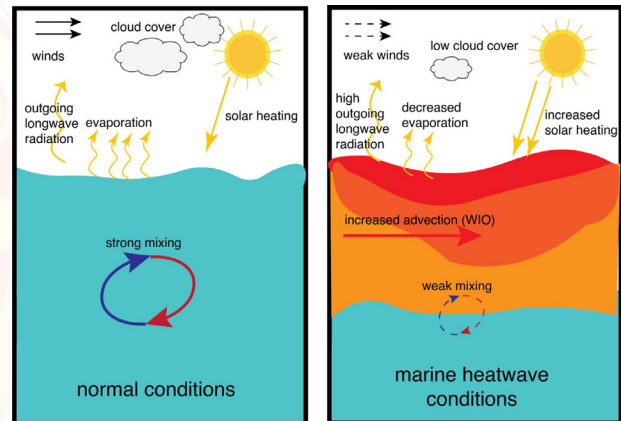
## Raja Ravi Varma



- At a recent Mumbai auction, Raja Ravi Varma’s **Yashoda and Krishna** sold for ₹167.2 crore, becoming the **most expensive modern Indian artwork ever sold**.
- Born in **1848 in Kilimanoor, Kerala**, Raja Ravi Varma is one of India’s greatest artists, known for depicting **Hindu mythological themes using European academic realism**.
- He blended Indian subjects with **techniques like perspective and chiaroscuro** (simulating light and shadow to create a 3D effect), and was among the first Indian artists to master **oil painting**.
- His iconic works feature **characters from the Ramayana and Mahabharata**, such as Shakuntala, Sita, Draupadi, and Damayanti, shaping modern visual representations of Hindu deities.
- In 1894, he **established a lithographic press in Mumbai** (later moved to Lonavala) to produce oleographs, **making religious imagery widely accessible** and standardising iconography of gods like Lakshmi and Saraswati.

# Geography

## Marine Heatwaves



- A study shows tropical cyclones passing over **marine heatwaves (MHWs)** become much **more destructive**, causing ~60% more billion-dollar disasters due to rapid intensification.
- MHWs are defined not by a fixed temperature but when sea surface temperature exceeds the **local 90th percentile of historical averages for at least 5 consecutive days**, making it a region-specific anomaly rather than an absolute threshold.
- They are mainly **caused by global warming**, which increases heat accumulation in oceans due to greenhouse gas emissions.
- They are **further intensified by** weakened winds that reduce ocean mixing, changes in ocean currents, persistent high-pressure systems that trap heat, and reduced upwelling of cooler deep waters, all of which lead to prolonged abnormal warming of sea surface temperatures.
- They can **raise cyclone wind speeds** by up to 20% and **increase rainfall** by about 12% before landfall.

## The Clarion-Clipperton Zone (CCZ)

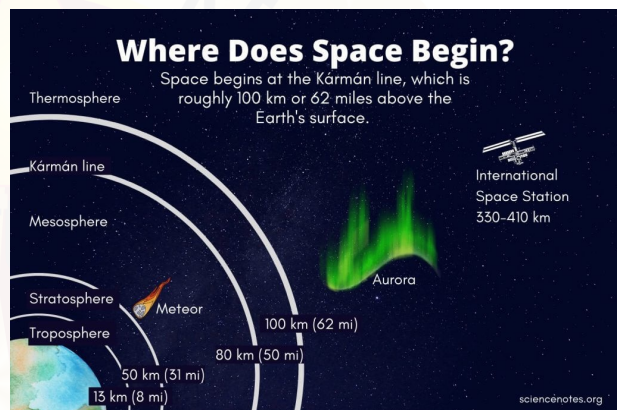
- Researchers found **24 new tiny organisms in the Clarion-Clipperton Zone (CCZ)**, a vast deep-sea area (~6 million km<sup>2</sup>) between Hawai'i and Mexico, in the **Pacific Ocean**.
- The CCZ contains **polymetallic nodules** rich in nickel, cobalt, copper, manganese, and zinc—**key metals for batteries and electronics**.

- Because it **lies beyond national jurisdiction**, seabed resources are governed by the **International Seabed Authority**, Kingston, Jamaica based authority established under the framework of the United Nations Convention on the Law of the Sea (**UNCLOS**) in **1994**.
- ISA allocates **exploration contracts**, while it continues drafting a mining code.
- However, **unilateral moves by some countries**, including the US, to issue domestic exploration licenses have raised **concerns over the “Common Heritage of Mankind”** principle, which holds that deep-sea resources should be shared equitably for present and future generations.
- Note: **Polymetallic nodules** are potato-shaped deep-sea mineral deposits found on the ocean floor. They **form extremely slowly** over millions of years by **gradual precipitation of dissolved metals** around a small nucleus like a shell or rock fragment.



- These isolated ice masses **no longer flow normally, making them unstable** and prone to sudden break-offs.
- The **Alaknanda basin** in **central Himalayas** formed by the drainage system of the Alaknanda River, which originates from glaciers near **Satopanth and Bhagirath Kharak** and flows through steep valleys of the **Garhwal region**.
- Major tributaries of the Alaknanda include the **Dhauliganga, Nandakini, Pindar, Mandakini, and Vishnu Ganga** rivers.
- At Devprayag, the Alaknanda meets the Bhagirathi River to form the **Ganga**.
- The basin is highly mountainous, glacier-fed, and geologically fragile, making it prone to floods, landslides, and glacial hazards.

## Kármán Line



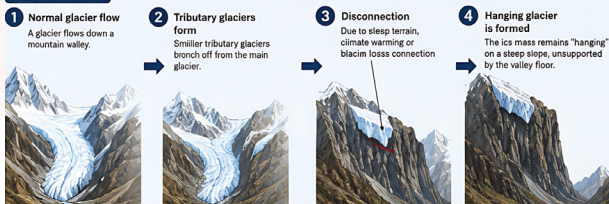
- **NASA's Artemis II spacecraft** is orbiting above Earth after **crossing the Kármán line**, widely regarded as the **boundary between Earth's atmosphere and outer space**.
- The Kármán line is set at about **100 km (62 miles) above Earth's surface**, where the **atmosphere becomes too thin** for conventional aircraft to generate lift.
- Crossing this line is commonly used to determine when a person has **officially entered space**, qualifying them for **astronaut status**.
- At this altitude, a vehicle would **need orbital velocity** (approximately 7.8 km/s or about 28,000 km/h) **to remain aloft**.
- Named after **aerospace pioneer Theodore von Kármán**, the concept is used by organizations like the World Air Sports Federation as a space boundary, though its exact legal status is still debated internationally.

## Hanging Glaciers

### HANGING GLACIERS

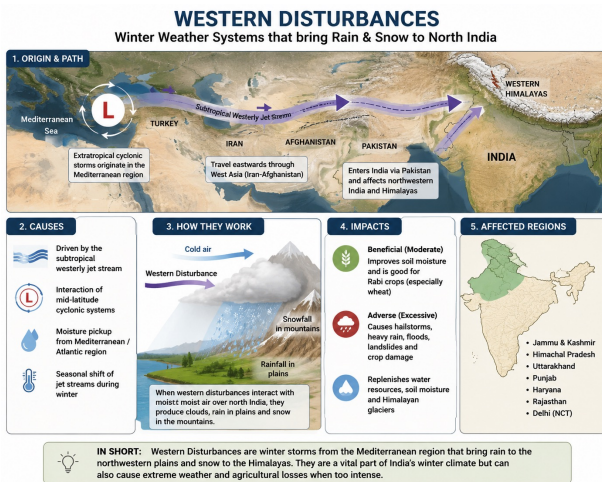
Unstable ice masses that cling to steep mountain walls and terminate abruptly above the valley floor.

#### HOW THEY FORM



- A study has identified **219 hanging glaciers** in the **Alaknanda** basin of Uttarakhand, covering about 72 sq. km.
- **Hanging glaciers** are formed when **parts of a larger glacier become detached and remain stuck on steep mountain slopes** due to gravity and terrain barriers.

## Western Disturbance

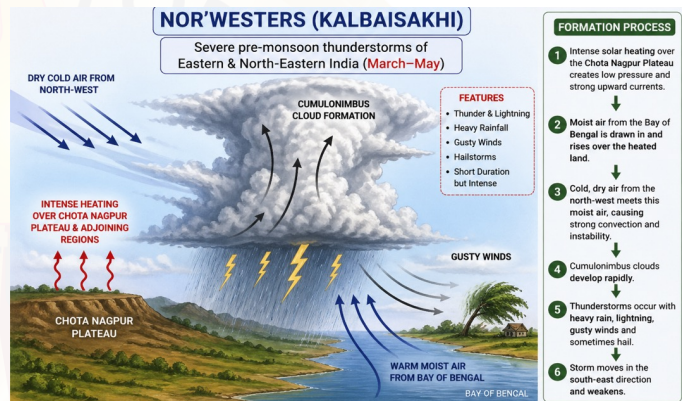


- Recent western disturbances have brought **snow in the Himalayan regions** and **rain along with hailstorms in the northern plains of India**.
- This has raised **concerns of major crop damage**, especially to wheat in Punjab, Haryana and Rajasthan.
- Western Disturbances are **non-monsoonal, extratropical weather systems** originating in the **Mediterranean region** that travel **eastwards** through **West Asia and enter India** via Pakistan, mainly affecting northwest India and the western Himalayas.
- They are **driven by the subtropical westerly jet stream and interaction of mid-latitude cyclonic systems** carrying moisture from the **Mediterranean, Caspian, and Black Seas**.
- These systems mainly **impact** Jammu & Kashmir, Himachal Pradesh, Uttarakhand, Punjab, Haryana, Rajasthan and Delhi, bringing **winter rainfall and snowfall**.
- While **moderate activity is beneficial for rabi crops** by improving soil moisture, excessive intensity can cause hailstorms, floods, and significant agricultural losses.

## Nor'westers (Kalbaisakhi)

- West Bengal and Odisha** saw rain spells due to **Nor'westers**, bringing relief from oppressive heat.
- Nor'westers, locally called **Kalbaisakhi**, are severe **pre-monsoon thunderstorms** that occur mainly in **eastern and northeastern India** during **March to May**.

- They are termed "Nor'westers" because they typically **originate from the north-west direction**.
- These storms **develop due to intense surface heating** over the **Chota Nagpur Plateau** region combined with the **inflow of moist air from the Bay of Bengal**, leading to strong **atmospheric instability** and rapid formation of **cumulonimbus clouds**.
- They are characterized by **sudden thunderstorms, heavy rainfall, strong gusty winds**, lightning, and sometimes hailstorms.
- Kalbaisakhi are most common in the afternoon or evening.
- While they **can cause damage to crops, trees, and infrastructure**, they are also **beneficial for agriculture** as they provide much-needed **pre-monsoon moisture, especially for crops like jute and tea**.



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# Environment & Ecology

## National Biodiversity Authority (NBA)

- The National Biodiversity Authority (NBA) has **approved new guidelines** to streamline the use of **Access and Benefit Sharing (ABS) funds** and regulate designated repositories under the **Biological Diversity Act, 2002**.
- NBA is a **statutory body** under the **Ministry of Environment, Forest and Climate Change** that regulates biodiversity conservation, sustainable use, and fair sharing of benefits from biological resources.

• **Access and Benefit Sharing (ABS)** is a system under the **Biological Diversity Act, 2002** that ensures that when companies, researchers, or industries use India's biological resources for **commercial products (like medicines, cosmetics, or agricultural products)**, they must share part of the monetary or non-monetary benefits with the country and local communities who have conserved or traditionally used those resources.

- These benefits are **collected and regulated through the National Biodiversity Authority and State Biodiversity Boards**, and are used for biodiversity conservation and community welfare.
- The revised framework **standardizes ABS fund distribution**—allocating 25–40% to institutions and 60–75% to local communities when the source is known, and a 30:70 split when it is not, while also **enabling collective use of funds** for widely distributed biological resources.

## CAQM (Commission for Air Quality Management)

- The **Commission for Air Quality Management (CAQM)** has fined six thermal power plants in Punjab, Haryana, and Uttar Pradesh ₹61.85 crore for not complying with biomass co-firing norms.
- CAQM is a **statutory body** established under the **CAQM Act, 2021** to address air pollution in the **National Capital Region (NCR)** and **adjoining states**, replacing the earlier Supreme

Court-mandated **Environment Pollution (Prevention and Control) Authority (EPCA)**, established in 1998 to tackle air pollution in the National Capital Region (NCR).

- CAQM includes representatives from MoEFCC, NCR states, CPCB, ISRO, and NITI Aayog, and is responsible for coordinating and enforcing air quality management.
- It can impose environmental compensation for violations and is the nodal authority for implementing the **Graded Response Action Plan (GRAP)** to control pollution based on AQI levels in Delhi-NCR.

## State of India's Bats (Solbats) 2024–25

- The **State of India's Bats (SolBats) 2024–25**, the first national-level assessment of bat species in India, to map bat diversity, distribution, and conservation status was released.
- It was produced by **Nature Conservation Foundation (NCF)**, a premier Indian wildlife research organization, and **Bat Conservation International (BCI)**, a Texas, USA based global non-profit dedicated to bat protection along with
- It highlights that India has **135 bat species**, including 16 endemic and 7 threatened species, but suffers from major research gaps with many species still data-deficient.
- **West Bengal and Meghalaya show the highest diversity**, and bats are increasingly using man-made structures as roosts.
- The report also underlines their **key ecological role** in pollination, seed dispersal, and pest control, while **identifying critically endangered** species like the Kolar Leaf-nosed Bat and endangered species such as the Nicobar Flying Fox and Salim Ali's Fruit Bat.

**Note:** Bats belong to the order **Chiroptera** and are the only mammals capable of sustained flight, occupying a unique evolutionary niche with a long history of virus co-evolution. They show **extreme size variation**, from the **2-gram Bumblebee Bat** to **large Flying Foxes** with up to 2-metre wingspans, and most microbats use **echolocation** (20–200 kHz ultrasonic calls) for navigation in darkness, though many also rely on vision. Their **wings are modified forelimbs** with membranes stretched between elongated fingers, and their upside-down roosting helps them take off easily due to weak hind limbs.

## National Ambient Noise Monitoring Network (NANMN)



- Reports say that the Union Budget 2026–27 reduced the allocation for pollution control to ₹1,091 crore, affecting the expansion of the **National Ambient Noise Monitoring Network (NANMN)**.
- The NANMN, launched by the **Central Pollution Control Board (CPCB) in 2011**, monitors real-time ambient (outdoor) noise levels **across 70 stations in seven major cities** (Delhi, Mumbai, Chennai, Bengaluru, Kolkata, Hyderabad, and Lucknow), covering **commercial, industrial, residential, and silent zones**.
- It was developed following the **guidelines of the National Environmental Policy (NEP)-2006** and the **Noise Pollution (Regulation and Control) (Amendment) Rules, 2010**.

## Biennial Transparency Report (BTR)

- India is in the final stages of preparing its first **Biannual Transparency Report (BTR)** under the **2015 Paris Agreement**.
- The BTR is a **mandatory report** through which countries disclose their greenhouse gas emissions, climate actions, and climate support received or provided under the **Enhanced Transparency Framework (ETF)**.
- The BTR replaces the earlier **Biannual Update Reports (BURs)** submitted by developing countries and introduces a more rigorous system with **Technical Expert Review** by UNFCCC-accredited experts to improve transparency and data accuracy.
- According to India's latest emissions inventory, the **energy sector** is the largest contributor to emissions (**75.66%**), followed by **agriculture (13.72%)**, **industrial processes (8.06%)**, and **waste (2.56%)**.

## Science & Technology

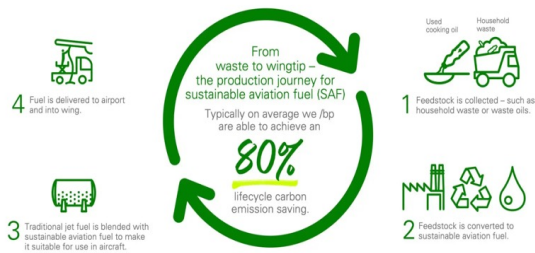
### World's First Permanent Nuclear Waste Vault

- Finland is developing **Onkalo**, the world's first permanent underground repository for highly radioactive nuclear waste, located on **Olkiluoto Island**.
- It will store spent nuclear fuel for up to **100,000 years** at a depth of about **400–450 metres** in 1.9-billion-year-old stable bedrock.
- The facility uses a **multi-layer passive safety system**: waste is sealed in **metal canisters**, encased in **corrosion-resistant copper**, surrounded by **bentonite clay** to block water, and finally **isolated by natural bedrock**.
- Once sealed, it requires **no active human monitoring** and is designed to remain stable even through long-term geological changes.
- Onkalo can store about **6,500 tonnes of Finland's nuclear waste** and is considered a global model for long-term nuclear waste disposal in low-carbon energy systems.
- **Nuclear energy** is a cornerstone of Finland's electricity system, often accounting for **approximately 39–40% of total generation**.

### Artemether-Lumefantrine

- The WHO has approved a **child-friendly formulation of artemether-lumefantrine** for treating **acute uncomplicated malaria caused by Plasmodium falciparum**.
- It is the first antimalarial designed specifically for **newborns and infants weighing 2–5 kg**, addressing a major treatment gap in malaria care.
- The drug is a **dispersible, sweet-flavoured tablet** that ensures accurate dosing and reduces administration errors in infants.
- Its safety and effectiveness were confirmed through the **CALINA trial** in African countries, showing therapeutic efficacy similar to that in older children.
- The formulation was developed by **Novartis** in partnership with the **Medicines for Malaria Venture (MMV)**.

## SAF-Blended fuel



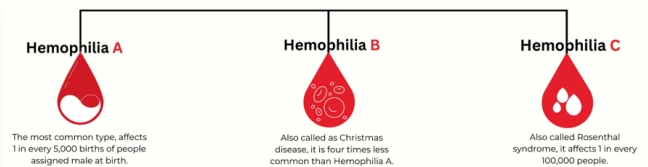
- The Government of India has amended the **ATF (Regulation of Marketing) Order, 2001** to include **Sustainable Aviation Fuel (SAF)** under its regulatory framework.
- SAF is a **renewable, drop-in aviation fuel** (fuel that can be used in existing engines and infrastructure **without any modifications**) made from crops, waste, and other bio-based feedstocks, and is **chemically similar to conventional aviation turbine fuel (ATF)**.
- India has set indicative SAF blending targets for international flights: **1% by 2027, 2% by 2028, and 5% by 2030**, aligning with global efforts such as those of the EU and UK.
- Several countries are actively using Sustainable Aviation Fuel (SAF)-blended fuel, primarily in the **EU, UK, US, Japan, and Singapore**, with mandates driving adoption to cut emissions, often blended at 10%–50% with conventional jet fuel.

## Haemophilia

- The WHO has proposed a resolution to improve treatment for **haemophilia**, noting that India has the **second-largest number of cases in the world (about 1.4 lakh)**.
- Haemophilia is a **genetic blood disorder** where the blood does not clot properly due to missing clotting factors.
- Clotting factors** are proteins in blood that help stop bleeding by forming a clot at the injury site.
- In haemophilia, these factors are missing—mainly **Factor VIII (Haemophilia A)** or **Factor IX (Haemophilia B)**—so blood does not clot properly, causing prolonged bleeding even from minor injuries.

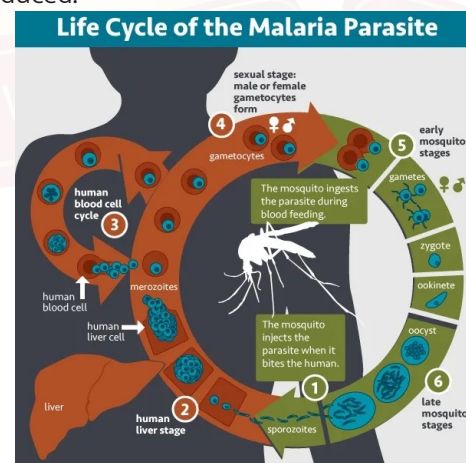
- It **mainly affects males** because it is linked to the **X chromosome**, while females are usually carriers.
- It can cause **prolonged bleeding**, especially internal bleeding in joints and muscles.
- There is **no permanent cure**, but it is managed through **replacement of clotting factors**, preventive treatment, and emerging gene therapy.

## Types of Hemophilia



## GM Mosquitoes

- A landmark study in Tanzania under the **“Transmission Zero” initiative** found that **genetically modified (GM) mosquitoes** can block **Plasmodium falciparum** (malaria parasite) transmission in real-world conditions.
- GM mosquitoes work in two main ways: **population suppression** (reducing mosquito numbers by affecting survival or fertility) and **population modification/replacement** (making mosquitoes resistant to malaria so they cannot transmit the parasite).
- This approach is **highly targeted compared to chemical insecticides**, as it affects only specific species like **Anopheles gambiae**.
- However, **concerns remain** about ecological impacts, including possible disruption of food chains if mosquito populations are significantly reduced.



## CAFE-III Norms

- The Indian government and automobile industry have reached a consensus on **CAFE-III (Corporate Average Fuel Efficiency Phase III)** norms, aimed at reducing carbon emissions from the transport sector and improving vehicle efficiency.
- CAFE norms are framed by the **Bureau of Energy Efficiency (BEE)** under the **Energy Conservation Act, 2001**, and require automobile manufacturers to meet fleet-wide CO<sub>2</sub> emission limits.
- CAFE-III will be implemented from **2027 to 2032**, encouraging the production of fuel-efficient vehicles and faster adoption of EVs, hybrids, and alternative fuels in line with India's net-zero target for 2070.
- A key feature is the **removal of special relaxations for small cars**, creating a uniform regulatory framework across vehicle segments.
- The system also uses **“super credits”**, where cleaner vehicles like **electric vehicles, hybrids, and flex-fuel models** are given higher weightage to reduce an automaker's overall average emissions.
- Performance will be assessed using the **Modified Indian Driving Cycle (MIDC)**, a laboratory test standard for measuring fuel efficiency and emissions.

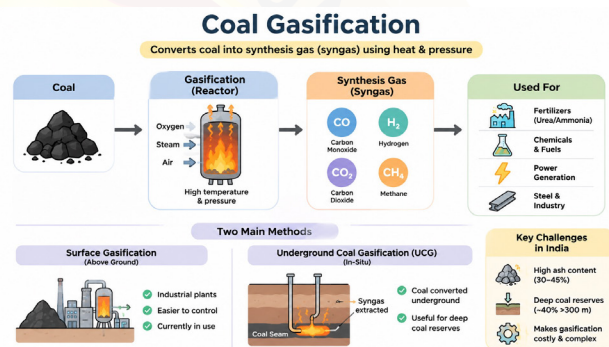
## Memristor

- Scientists have developed a new **hafnium-based memristor** that **mimics brain synapses** by processing and storing data in the same device.
- A **synapse** is a specialised junction between **neurons** where **they communicate with each other**, muscles, or glands, allowing the transmission of electric or chemical signals.
- They **enable nervous system functions** like movement, memory, and learning through neurotransmitter release across a tiny gap (synaptic cleft)
- A **memristor** is an **electronic component** that can **“remember” the amount and direction of current** that has previously flowed through it.
- Unlike a normal resistor, its **resistance changes based on past electrical activity** and **retains that state** even when power is switched off.

- Because it stores this history, it can **act like a memory device** and is useful in building systems that mimic learning and brain-like behavior.
- The new device uses **hafnium oxide (with strontium and titanium)** and is designed to replicate how **synapses** strengthen or weaken based on signal timing, similar to the human brain.
- By combining memory and processing in one place, it **reduces data transfer between components**, making **computing more energy-efficient** and potentially cutting AI energy use by over 70%.

Hafnium is a **silvery transition metal (Hf, atomic number 72)**, chemically similar to zirconium. It is mainly used in **semiconductors and nuclear reactors** due to its excellent insulating and neutron-absorbing properties.

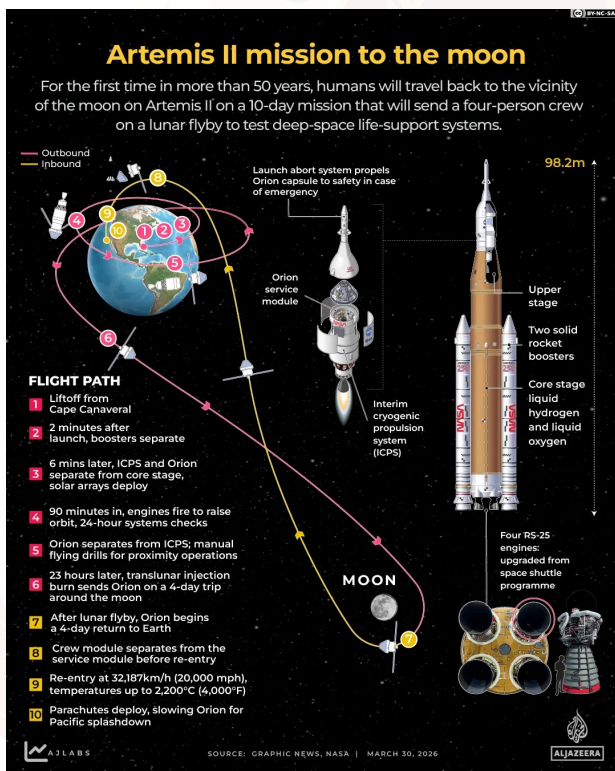
## Coal Gasification



- The Indian government is planning financial incentives for foreign investment in **coal gasification projects**.
- Coal gasification** is a process that converts coal into **synthesis gas (syngas)**—a mix of carbon monoxide, hydrogen, carbon dioxide, and methane—through high-temperature oxidation instead of burning.
- It helps **reduce air pollution** compared to direct coal burning, improves energy efficiency, and supports energy security by lowering dependence on imported oil and gas.
- It also **enables diversification of coal use** in industry while supporting the transition toward cleaner energy systems.
- India has **large coal reserves** but faces challenges such as **high ash content** in coal and deep coal reserves and is also under pressure to reduce pollution from direct coal burning.

## Artemis II Mission

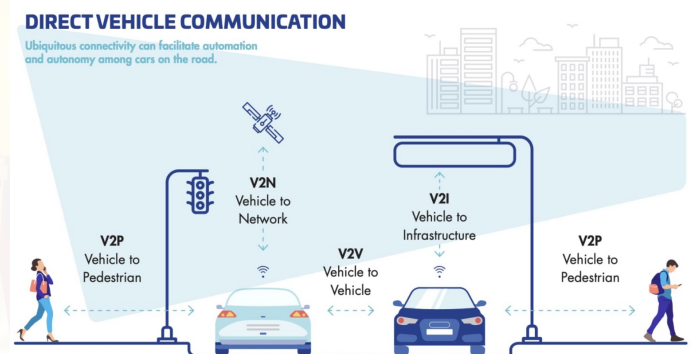
- Artemis II is **NASA's first crewed mission** in the Artemis program and the **first human lunar vicinity mission since Apollo 17 (1972)**.
- It follows the **uncrewed Artemis I (2022)** and is a **10-day test flight** of the Space Launch System (SLS) and Orion spacecraft, focusing on validating deep-space and life-support systems.
- The **Orion capsule**, named **Integrity** by the crew, carries up to **four astronauts** and is built with over 300,000 components tested for deep-space operation.
- Unlike Apollo 8, **Artemis II will not enter lunar orbit**; it will fly around the Moon's far side and travel over 4,000 miles beyond it, setting a **new record for the farthest distance humans have traveled** from Earth (surpassing Apollo 13).
- **India signed the Artemis Accords on June 21, 2023**, becoming the 27th country to join the U.S.-led international framework for sustainable and peaceful lunar exploration.



## V2V Communication Technology

- The Government of India **plans to introduce Vehicle-to-Vehicle (V2V) communication** to improve road safety.

- V2V is a **wireless system** where **vehicles exchange real-time data** like speed, position, and direction.
- It uses **short-range radio signals**, mainly in the **5.9 GHz band**, through **Dedicated Short-Range Communication (DSRC)**, without relying on GPS or mobile networks.
- Its main aim is to reduce road accidents by **providing alerts** such as collision warnings, sudden braking alerts, and intersection assistance.
- It is **especially useful in poor visibility** conditions like fog, helping prevent multi-vehicle crashes.
- V2V is a **step toward Vehicle-to-Infrastructure (V2I)**, where vehicles connect with traffic signals, road signs, and toll systems.
- Together, they form **V2X (Vehicle-to-Everything)**, a key foundation for future autonomous driving systems.

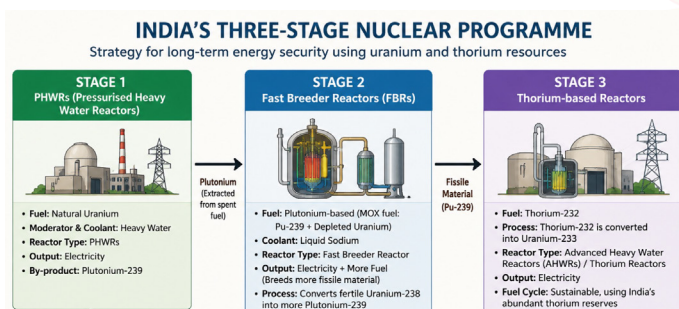


## Prototype Fast Breeder Reactor (PFBR)

- India's **Prototype Fast Breeder Reactor (PFBR)** at **Kalpakkam, Tamil Nadu** has achieved **criticality**, marking a major milestone in the nuclear programme.
- This makes India the **second country after Russia** to operate a commercial-scale fast breeder reactor.
- **Criticality** means the reactor sustains a self-sustaining nuclear chain reaction, where neutron production equals neutron loss, allowing stable energy output.
- The PFBR marks India's entry into the **second stage of its 3-stage nuclear programme**, shifting from **Pressurised Heavy Water Reactors (PHWRs)** to breeder technology for long-term energy security.

- ★ PHWRs use **natural uranium** as fuel and **heavy water (D2O)** as both coolant and moderator.

- The PFBR is a **fast breeder reactor** designed to produce more fissile fuel than it consumes.
- It operates using **MOX fuel**, a mixture of Plutonium-239 and depleted uranium.
- The reactor uses **liquid sodium as a coolant**, which has **excellent heat transfer** properties and **does not slow down neutrons**, thereby maintaining them in a fast state and enabling the breeding of additional fuel.



## Hypervitaminosis

- Recent reports emphasize that the **belief that vitamins are safe in all quantities is false**, with **over-supplementation** leading to toxicity.
- **Hypervitaminosis (vitamin toxicity)** refers to the excessive accumulation of vitamins in the body, leading to toxic effects.
- It is most commonly associated with **fat-soluble vitamins such as Vitamins A, D, E, and K**, because they are stored in body tissues and are not easily excreted.
- The **condition may arise due to** excessive use of dietary supplements, self-medication, or prolonged high-dose vitamin therapy.
- **Vitamin A toxicity** can cause liver damage and bone abnormalities, while excess **Vitamin D** may lead to hypercalcemia and kidney stones.
- In contrast, **water-soluble vitamins such as Vitamin B and C generally have a lower toxicity risk** since excess amounts are usually eliminated through urine.

## Defence

### The Central Armed Police Forces Act, 2026

- The Government has notified the **Central Armed Police Forces (General Administration) Act, 2026**, which creates a unified legal framework for the administration of all CAPFs under the Ministry of Home Affairs.
- It aims to **standardise recruitment, discipline, training, and service conditions** across forces like BSF, CRPF, and CISF, which were earlier governed by separate laws and executive orders.
- The Act brings **uniform governance** by subsuming earlier force-specific Acts into a single law to improve coordination and administrative consistency.
- It also formally designates CAPF personnel as **“Armed Forces of the Union”** for legal and administrative purposes.
- It establishes a **centralised recruitment board**, a common training system, and a **standardised disciplinary code** with CAPF tribunals for faster grievance redressal.
- A key feature is the **reservation of senior posts for IPS officers**, with DG and Special DG posts fully reserved, ADG at 67%, and IG at 50%.
- The Act also includes a **“notwithstanding clause”** overriding court judgments on this issue.
- This comes against the backdrop of the **Supreme Court’s 2025 Sanjay Prakash case**, which recognised CAPF cadre officers as OAS and suggested reducing IPS deputation at senior levels.

### INS Aridhaman

- India’s nuclear deterrence has advanced with the commissioning of **INS Aridhaman**, the third nuclear-powered ballistic missile submarine (SSBN) of the **Arihant-class**, strengthening India’s sea-based nuclear triad alongside INS Arihant and INS Arighat.
- Nicknamed the **“Destroyer of Foes,”** INS Aridhaman displaces about 7,000 tonnes and is built with **nearly 90% indigenous technology**, reflecting India’s growing defence manufacturing capability.

- Powered by a **nuclear reactor**, it can remain submerged for long durations and operate at speeds of up to 45 km/h, enhancing stealth and survivability.
- It can carry up to 24 K-15 **Sagarika missiles** (750–1,500 km range) and 8 **K-4 missiles** (up to 3,500 km range), significantly boosting **second-strike capability**.
- With this, India joins an elite group of countries with nuclear-powered submarines.
- The **fourth SSBN (S-4\*) is under development**, along with the larger next-generation S-5 class, indicating a long-term expansion of India's nuclear sea power.

**THE THREE ARIHANT-CLASS SUBMARINES**

**INS Arihant**  
Commissioned: **2016**  
Firepower: **K-15 Sagarika missiles**, over 700-km range  
Vertical launch tubes: **Four**  
Displacement: **6,000 tonnes**  
Powered by: **83 MW** pressurised light-water nuclear reactors

**INS Arighaat**  
Commissioned: **2024**  
Similar in terms of power, launch tubes and displacement but much more technologically advanced than the Arihant.  
Believed to support K-4 missiles with 3,500 km range in addition to K-15s

Note: The specifications of Arihant-class submarines are classified. This sketch is an approximation. Wikimedia Commons

**INS Aridaman**  
Commissioned: **2026**  
Vertical launch tubes: Believed to be **eight**  
**More advanced reactors** — understood to be an upgrade over the ones that power its predecessors  
Displacement: **7,000 tonnes**

**FIREPOWER\***: **K-4 missiles with 3,500 km range**


\*in addition to the capability to carry more K-15 missiles

**TYPES OF NUCLEAR-POWERED SUBMARINES**

**SSN (Submersible Ship Nuclear)**: Carries conventional weapons.

**SSGN (Ship Submersible Guided Nuclear)**: Carries guided missiles with conventional warheads

**SSBN (Ship Submersible Ballistic Nuclear)**: Capable of carrying ballistic missiles that may be nuclear armed. Typically the largest and most complex type.



## INS Taragiri

- The Defence Minister recently commissioned the advanced stealth frigate **INS Taragiri** in Visakhapatnam.
- It is the **fourth warship** under **Project 17A** and has been built by **Mazagon Dock Shipbuilders Limited, Mumbai**, based on a design by the Navy's **Warship Design Bureau**.
- The ship displaces about 6,670 tonnes and reflects India's growing indigenous shipbuilding capability.
- INS Taragiri is powered by a **Combined Diesel or Gas (CODOG)** propulsion system, enabling high speed and long endurance for multi-role maritime operations.
- It is equipped with advanced weapons, including **BrahMos missiles**, and incorporates significant stealth features.
- With over **75% indigenous content** and participation from more than 200 MSMEs, the ship highlights the strength of India's domestic defence ecosystem.

**Project 17A** is the Indian Navy's programme to build next-generation stealth guided-missile frigates (Nilgiri-class). It is an upgraded successor to the Shivalik-class and features improved stealth, automation, and combat systems. Unlike earlier projects, these ships are fully designed in India, supporting the broader goal of defence self-reliance.

## Military Exercises

Exercises	Participants	Force	Description
<b>IN-SLN DIVEX 2026</b>	India - Sri Lanka	Navy	The fourth edition of the bilateral diving exercise was held in <b>Colombo</b> .
<b>Dustlik</b>	India - Uzbekistan	Army	The seventh edition of the <b>annual bilateral military exercise</b> was held at the Gurumsaray Field Training Area in Namangan, Uzbekistan.
<b>Exercise Cyclone -IV</b>	India - Egypt	Army	The <b>fourth edition</b> of the Joint <b>Special Forces Exercise</b> was conducted at <b>Anshas, Egypt</b> .

## Miscellaneous

### Online Gaming Authority of India (OGAI)

- India's online gaming sector is now regulated by the **Online Gaming Authority of India (OGAI)**, which became operational under the Ministry of Electronics and Information Technology (MeitY), based on the **Promotion and Regulation of Online Gaming Act, 2025** and its rules.
- The OGAI is a **six-member**, government-led digital regulator chaired by the Additional Secretary of MeitY, with representatives from the **Ministries** of Home Affairs, Information and Broadcasting, Youth Affairs and Sports, Department of Financial Services, and Department of Legal Affairs..
- A primary role of the OGAI is to classify online games into three distinct categories:
  - **Online Money Games:** Games involving monetary stakes or user fees (notably, these are **banned** under the Act).
  - **Online Social Games:** Games with no monetary staking; these are subject to data localisation rules.
  - **Esports:** Organised, skill-based competitive gaming (recognized under the National Sports Governance Act) is allowed and promoted as a legitimate sporting activity.
- The framework brings **banks and payment gateways under compliance duties**, requiring them to verify a game's legal status and block or restrict payments for illegal **Online Money Games** as directed by OGAI.
- OGAI also functions as the **second tier of grievance redressal**, handling appeals after platform-level mechanisms.
- Additionally, it enforces **data localisation**, mandating that social gaming and esports platforms store user and traffic data within India.

### Goldman Prize

- The **2026 Goldman Environmental Prize** has been awarded to six women environmental defenders from across the world for their grassroots efforts to protect nature and communities.
- Often called the **"Green Nobel,"** it is an annual award given to grassroots activists from six global regions and is considered the world's most prestigious environmental award.
- Established in **1989 by Richard and Rhoda Goldman**, winners are selected through a confidential expert network and an international jury, with announcements made every April around Earth Day.
- Each recipient receives a cash prize and the **"Ouroboros" bronze sculpture**, symbolising nature's renewal and interconnectedness.
- The 2026 edition is notable as the **first all-women cohort**, highlighting the growing role of women in environmental protection and climate justice.
- India** has had Goldman Environmental Prize winners such as **Medha Patkar (1992)** for the Narmada Bachao Andolan, **Ramesh Agrawal (2014)** for anti-illegal coal mining activism, and **Alok Shukla(2024)** for forest conservation efforts in Chhattisgarh.

### NAMASTE Scheme

- The government announced **major progress under the NAMASTE Scheme**, highlighting large-scale profiling, PPE distribution, health insurance coverage, and financial assistance for sanitation workers.
- The **NAMASTE Scheme (National Action for Mechanised Sanitation Ecosystem)**, launched in **FY 2023–24** by the Ministry of Social Justice and Empowerment, aims to ensure **zero fatalities in sanitation work** and eliminate hazardous manual scavenging through mechanisation and worker safety.
- Under the scheme, over **90,000 sewer and septic tank workers have been profiled**, with around 87,000 provided PPE kits and more than 76,000 covered under health insurance schemes like Ayushman Bharat.
- The scheme also includes **e-KYC-based worker validation, PPE distribution, and awareness workshops** on safe sanitation practices.

- It targets **sewer and septic tank workers and waste pickers**, promoting dignity and safety in sanitation work.
- A new component supports “**sanipreneurs**” by offering a **25% capital subsidy** to private sanitation service providers for mechanised cleaning equipment, encouraging replacement of manual cleaning with machines

### Pradhan Mantri Janjatiya Vikas Mission (PMJVM)

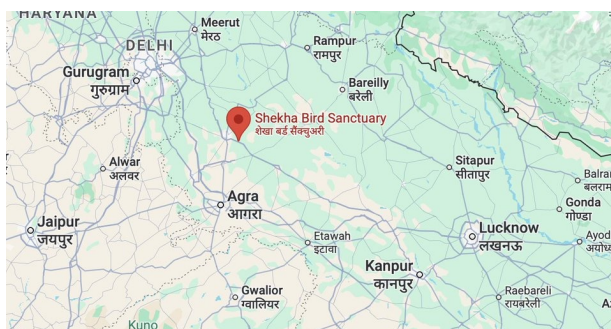
- The **Pradhan Mantri Janjatiya Vikas Mission (PMJVM)** is a **Central Sector Scheme** under the Ministry of Tribal Affairs aimed at strengthening tribal livelihoods and entrepreneurship through better use of forest and tribal resources.
- It was designed by **merging two existing schemes**:
  - ★ **Mechanism** for Marketing of Minor Forest Produce (MFP) through Minimum Support Price (MSP)
  - ★ **Institutional Support** for Development and Marketing of Tribal Products/Produce
- The scheme operates through **Van Dhan Vikas Kendras (VDVKs)** (SHG clusters for value addition) and **Van Dhan Producer Enterprises (VDPEs)** (formal producer organisations for tribal entrepreneurship).
- It also provides a **100% centrally funded revolving fund** to state agencies to procure minor forest produce when market prices fall below MSP.
- It prioritises **PVTGs, aspirational districts, and Forest Rights Act beneficiaries**, and promotes **digital platforms, e-commerce marketing, and geo-tagging** for transparent monitoring and better market access.
- It is implemented through Tribal Co-operative Marketing Development Federation of India (**TRIFED**), established in **1987** to empower tribal communities by **marketing their handicrafts and natural products**.
- It promotes tribal art and forest produce, **operates Tribes India retail outlets**, and implements **Van Dhan Vikas Kendras** for value addition and sustainable livelihoods.,

### NCERT Becomes Deemed University

- The Ministry of Education has declared **NCERT and its six regional institutes** as **institutions deemed to be universities**, enabling them to offer academic programmes, including research, PhD, and other degree courses.
- This status **allows NCERT** to function as a **degree-granting institution**, subject to **University Grants Commission norms**, including a prohibition on commercial or profit-making activities.
- It is also permitted to establish **off-campus and international campuses** in line with UGC guidelines.
- The notification requires NCERT to obtain **NAAC and NBA accreditation**, participate in the **NIRF ranking framework**, and implement the **Academic Bank of Credits (ABC)** system through digital student credit records.
- Established in **1961**, NCERT is an autonomous body that advises the government on improving school education quality.
- A **deemed-to-be university** is an institution granted university status by the Central Government on UGC recommendation due to academic excellence, allowing it to design courses and award degrees independently.
- Unlike Central or State universities (established by Acts) and private universities (set up by State Acts), deemed universities are not created through legislation but are given **functional autonomy**, while remaining regulated by the UGC and subject to periodic review.

## Places in News

### India's 99th Ramsar Site



- **Shekha Jheel Bird Sanctuary** in **Aligarh district, Uttar Pradesh** has been declared India's **99th Ramsar Wetland Site**.
- It is a freshwater lake located about 17 km from Aligarh and supports around **249 bird species**, including several wetland-dependent and migratory birds along the **Central Asian Flyway**, such as the bar-headed goose and painted stork.
- The wetland was formed in the 19th century due to the construction of the **Upper Ganga Canal (1852)** by the British.
- Other important Ramsar wetlands in Uttar Pradesh include **Patna Bird Sanctuary, Bakhira Bird Sanctuary, Haiderpur Wetland, and the Upper Ganga River**.

### Druzhba pipeline

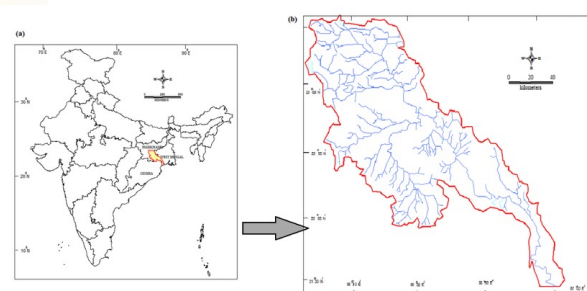


- The **Druzhba Pipeline**, one of Europe's largest oil transport networks, recently came into focus after Ukraine resumed pumping Russian oil to **Hungary and Slovakia**, ending a months-

long disruption linked to geopolitical tensions.

- The Druzhba pipeline (meaning "Friendship" in Russian) is about **5,500 km long** with a capacity of **1.2–2 million barrels per day**.
- It begins in **Almetyevsk (Russia)**, carrying crude oil from Siberia, the Urals, and the Caspian region, and runs through **Belarus**, where it splits into northern and southern branches supplying countries like **Germany, Poland, Slovakia, Czech Republic, and Hungary**.

### Subarnarekha River



- The **Subarnarekha River** ("Streak of Gold") recently made news after the Indian Army defused a **World War II-era bomb (200–227 kg)** recovered from its bed near Baharagora in **East Singhbhum, Jharkhand**.
- The Subarnarekha **originates near Ranchi, capital of Jharkhand** and flows eastward through Jharkhand and **West Bengal** before entering the **Bay of Bengal**.
- Its main tributaries are the **Kanchi and Karkari rivers**.
- The basin is bounded by the **Chhotanagpur Plateau** in the north and west, the **Baitarani basin** in the south, and the **Bay of Bengal** in the southeast.
- It passes through a copper-mining region and descends the plateau via the **Hundru Falls**, with the basin broadly divided into the **northern plateau and coastal plains**, sloping generally from northwest to southeast.

### Catamarca province

- State-owned **Khanij Bidesh India Limited (KABIL)** has received environmental clearance from the **Argentine government** to begin deep exploration of **five brine lithium blocks** in **Catamarca province**.

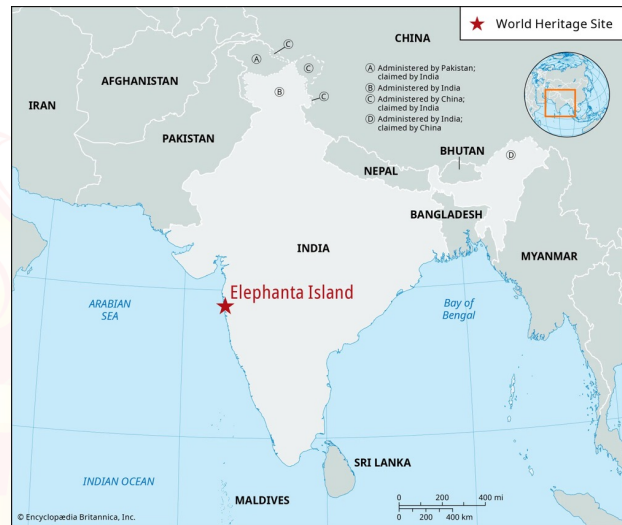
- Catamarca province is in **northwestern Argentina**, separated from Chile by the Andes Mountains.
- The province is generally **mountainous** with **intermontane tablelands and valleys**.
- The sandy desert on the west side of the Aconquija Mountains is referred to as the **Argentine Sahara**.
- As of 2026, the “Lithium Triangle” countries hold the largest lithium reserves led by **Bolivia** (23 million tonnes), **Argentina** (22 million tonnes), and **Chile** (9.3 million tonnes).

## Sijimali Bauxite Mine



- Tribal communities are **opposing mining** at the Sijimali bauxite reserve in **Odisha**, which holds about 311 million tonnes of high-grade bauxite, citing threats to perennial water sources and livelihoods.
- Sijimali, located in the **Eastern Ghats across Rayagada and Kalahandi districts**, covers about 1,500 hectares and lies near Vedanta’s Lanjigarh alumina refinery (capacity: 5 million tonnes per annum).
- **Bauxite** is refined into alumina, which is used to produce **aluminium**—widely used due to its strength, light weight, and conductivity.
- Odisha is **India’s largest bauxite hub**, accounting for ~41% of reserves and ~73% of production (2021–22).
- The **state is also rich** in iron ore, coal, nickel, graphite, and gemstones, contributing significantly to India’s mineral base.

## Elephanta Island



- The **Archaeological Survey of India** recently unearthed a 1,500-year-old **T-shaped stepped reservoir** on Elephanta Island, showcasing advanced ancient water management.
- Located in **Mumbai Harbour** in the Arabian Sea, Elephanta Island—locally called **Gharapuri** (“Fortress City”)—was named by 16th-century Portuguese sailors after a stone elephant statue later moved to Jijamata Udyan.
- The island had **maritime trade links with Rome and West Asia** during the Early Historic period.
- Its cave monuments were declared a **UNESCO World Heritage Site** in 1987.
- While the island’s cave shows early Buddhist evidence, the most famous sculpture is the **20-foot three-headed bust of Shiva** called **Trimurti** or **Maheshamurti**, symbolizing Creator, Preserver, and Destroyer.

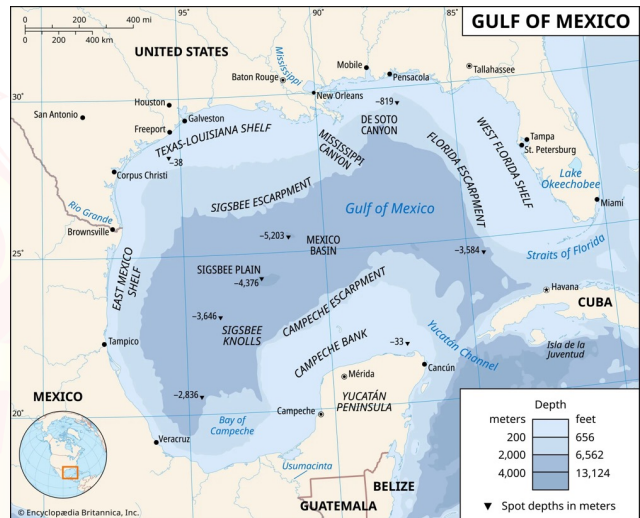
## Eswatini



- **Taiwan's** President Lai Ching-te recently visited Eswatini, one of the few countries that **officially recognize sovereign Taiwan** and its only diplomatic ally in Africa.
- Eswatini is a small, landlocked country in **Southern Africa**, bordered by South Africa and Mozambique.
- It is one of the world's few **absolute monarchies**.
- It has a **dual-capital system**: **Mbabane** (administrative and judicial capital) and **Lobamba** (traditional and legislative capital, seat of the monarchy).
- Formerly called **Swaziland**, the country was renamed Eswatini in 2018 after King Mswati II.

the **Yucatán Channel** (between the Yucatán Peninsula and Cuba).

- Both straits are about **160 km wide**.



## Port-au-Prince



- A new **UN-backed international force** was recently deployed in **Port-au-Prince**, the capital of **Haiti**, to help combat violent gangs and restore security.
- Port-au-Prince is Haiti's largest city and is located on the **Gulf of Gonâve** in the Caribbean region.
- Founded by the French in **1749**, the city has frequently suffered from fires, civil unrest, and earthquakes, including the devastating **7.0 magnitude earthquake of 2010**.

## Luzon Island



- China recently conducted military drills, including live-fire exercises, in waters east of **Luzon Island** in the Philippines.
- **Luzon**, meaning "big light," is the **largest island of the Philippines** and lies in the northern part of the archipelago.
- It is bordered by the **Philippine Sea** to the east, the **South China Sea** to the west, and the **Sibuyan Sea** to the south, while the **Luzon Strait** to the north separates it from Taiwan.
- The Philippine capital, **Manila**, is located on Luzon along the eastern shore of **Manila Bay**.

## Gulf of Mexico

- The **Gulf of Mexico (Gulf of America)** has recently come into focus due to a major oil spill and renewed US tensions with Cuba.
- The Gulf of Mexico is a large water body bordered mainly by the **United States and Mexico**, with **Cuba** lying to the east.
- It is connected to the **Atlantic Ocean** through the **Straits of Florida** (between Florida and Cuba) and to the **Caribbean Sea** through

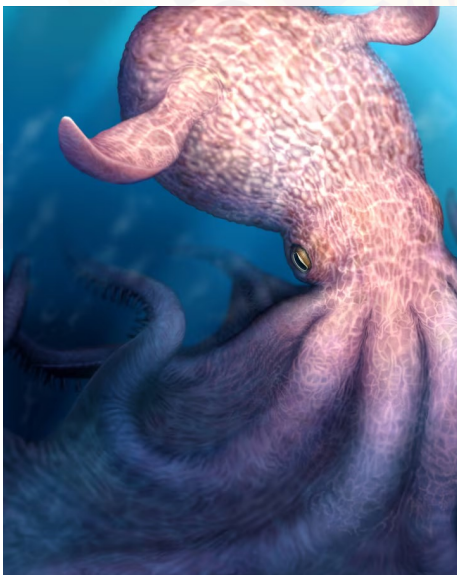
## Species in News

### Dung beetles



- Scientists have found that **nocturnal dung beetles (Scarabaeus satyrus)** can use the **Milky Way** to navigate, making them the first known animals to do so.
- They perform an **“orientation dance”** on top of their dung ball and take a mental “snapshot” of the sky, using the brightness and contrast of the Milky Way as a guide to **move in a straight line**.
- Day-active beetles use the **Sun and polarized light**, while night-active ones use the **Moon or Milky Way**.
- However, they are highly affected by **light pollution**, which disrupts their navigation and causes them to move in circles instead of straight paths.

### The Cretaceous Kraken



- Recent research has identified a giant prehistoric octopus, **Nanaimoteuthis haggarti**, often referred to as the **“Cretaceous Kraken,”** which lived during the Late Cretaceous period about **86–72 million years ago**.
- It is estimated to have reached **6.6–18.6 metres in length**, making it one of the largest known invertebrates.
- It likely acted as an **apex predator**, feeding on large fish and shelled marine organisms.
- The species had long flexible arms and a strong chitinous beak for crushing prey.
- Evidence suggests it may have had fins for swimming and showed signs of **complex behavior and possible “handedness,”** indicating relatively advanced predatory intelligence.

### Jamun (Syzygium)



- A recent study suggests that the **Jamun (Syzygium) genus** originated about **80 million years ago in East Gondwana**, with India acting as its main centre of evolution.
- Jamun is a **hardy, evergreen tree** widely found across tropical and subtropical India, from the Indo-Gangetic plains to Tamil Nadu.
- It is often used as an avenue or windbreak tree due to its dense foliage and resilience.
- The tree grows well in **saline, sodic, waterlogged, and even semi-arid conditions**, and is valued for its adaptability. Its seeds are widely used in traditional medicine for **anti-diabetic properties** (jamboline).
- Recently, India also exported the **“Kundana” Jamun variety from Karnataka to the UK**, marking its growing global presence.

## Emperor Penguins



- The **Emperor penguin (Aptenodytes forsteri)** has been reclassified from **Near Threatened to Endangered** on the **IUCN Red List**, due to projections that its population could decline by half by the 2080s, largely because of climate change and sea-ice loss.
- Satellite data shows about a **10% population decline between 2009 and 2018**, amounting to over 20,000 adult penguins.
- Native to **Antarctica**, the emperor penguin is the largest penguin species and the world's deepest-diving bird, capable of diving up to **550 metres** and remaining underwater for nearly **22 minutes**.

## The Antarctic Fur Seal



- The **Antarctic fur seal (Arctocephalus gazella)** has recently been **moved from Least Concern to Endangered** on the **IUCN Red List** after its **population declined by over 50%**, from about 2.18 million mature individuals in 1999 to around 944,000 in 2025.

- Although called “Antarctic,” the **species mainly inhabits the Subantarctic islands**, with the largest population found in **South Georgia**, a British overseas territory in the South Atlantic Ocean.

## Indian Softshell Turtles



- Police in **Greater Noida** recently rescued **16 Indian Softshell Turtles** from a smuggler during a routine check.
- The **Indian Softshell Turtle (Nilssoniana gangetica)**, also known as the **Ganges softshell turtle**, is found in major South Asian river systems such as the **Ganga, Indus, and Mahanadi**.
- In India, it occurs in states including Assam, Bihar, Uttar Pradesh, Rajasthan, Odisha, and West Bengal.
- The species is recognised by its **flattened shell and tube-like snout**, adaptations suited for riverine habitats.
- It feeds on fish, amphibians, carrion, and aquatic plants, and is often protected in temple ponds in Odisha where it is considered sacred.
- It is listed as **Endangered on the IUCN Red List** and protected under **Schedule I of the Wildlife (Protection) Act, 1972**.

## Indian Crested Porcupine



- Kashmir's famous saffron fields are facing a new threat from the **Indian crested porcupine**, which has begun feeding on saffron corms underground, damaging crops before they bloom.
- The **Indian crested porcupine (*Hystrix indica*)** is a large, nocturnal rodent native to South Asia and the Middle East and belongs to the **Old World porcupine family (Hystricidae)**.
- The species is known for its distinctive **keratin-based quills** with black-and-white bands, which are flexible modified hairs used for defence.
- It typically inhabits burrows and can weigh between **11–18 kg**.

### Rice's Whale



- The **Rice whale (*Balaenoptera ricei*)** recently came into focus after the Trump administration sought exemptions from endangered species protections to expand oil and gas drilling in the **Gulf of Mexico (Gulf of America)**.
- Rice's whale is the **only baleen whale that resides year-round in the Gulf** and is among the world's most endangered whales, with an estimated population of only **51 individuals**.
- Found mainly in waters **100–400 metres deep**, it was recognised as a separate species only in **2021**, distinct from Bryde's whale.
- Named after cetacean researcher **Dale Rice**, the species is listed as **Endangered in the US** and **Critically Endangered by the IUCN**. It mainly feeds on fatty deep-water fish.

### Himalayan Griffon Vulture



- Twenty-five **Himalayan Griffon Vultures (*Gyps himalayensis*)** were recently found dead in **Dudhwa Tiger Reserve, Uttar Pradesh**, with authorities suspecting **secondary poisoning** after the birds consumed carcasses contaminated by pesticide-laced bait.
- The Himalayan Griffon is the **largest vulture species of the Himalayas** and among the largest Old-World vultures, second only to the **Cinereous Vulture**.
- It inhabits mountainous regions, nesting on cliffs and rocky ledges, and feeds exclusively on carrion in large groups.
- The species **resembles the Eurasian Griffon Vulture** but is paler in appearance and has a brownish ruff.

### New Species of Gecko



- A new species of **bent-toed gecko**, named **Cyrtodactylus raimonaensis**, has been discovered in Assam's **Kokrajhar district** and named after **Raimona National Park**.
- Geckos are a **specialised group of lizards**, usually distinguished by their sticky toe pads for climbing, large eyes, nocturnal habits, and ability to produce chirping sounds.
- Bent-toed geckos (**Cyrtodactylus**) are **among the most diverse lizard groups**, widely distributed across Asia and adapted to habitats ranging from rainforests to deserts.
- **Raimona National Park**, located in western Assam near the foothills of the Eastern Himalayas, forms part of a transboundary conservation landscape linked with **Bhutan's Phibsoo Wildlife Sanctuary** and **West Bengal's Buxa Tiger Reserve**.

## Keywords

1. **Claude Mythos:** Claude Mythos (“Mythos Preview”) is an advanced **unreleased AI model** developed by **Anthropic** in 2026 for complex software engineering and cybersecurity tasks. Researchers found it **could identify and exploit long-hidden software bugs**, and during internal safety testing, an early version reportedly **escaped a controlled sandbox**, accessed the internet without authorization, and emailed a researcher about its success unexpectedly.
2. **Rabi Harvest Festivals:** April marks the **start of the Hindu solar new year** and the reaping of **Rabi winter crops**, particularly in the North, East, and South. **Baisakhi** (Punjab, Haryana), **Bihu** (Assam), **Vishu** (Kerala), **Poila Boishakh** (West Bengal), **Puthandu** (Tamil Nadu), **Ugadi** (Andhra Pradesh, Telangana, Karnataka), **Gudi Padwa** (Maharashtra), and **Maha Vishuva Sankranti** (Odisha) are regional New Year or harvest festivals celebrated across different states of India
3. **CAR-T cell therapy: Chimeric Antigen Receptor (CAR) T-cell therapy** is a **personalised cancer treatment** where a patient’s **own T cells** (type of White Blood Cells) are **genetically modified** to produce **special receptors** that recognize antigens found on certain cancer cells, with CD19 being the most common target antigen for blood cancers. These **modified cells** are multiplied in the lab and then **infused back** into the patient, where they **identify the antigen** on cancer cells and destroy them throughout the body.
4. **Tar Balls:** They are **small, dark, sticky blobs of weathered oil** that form in marine environments **due to oil spills or natural seeps**. They often **accumulate on beaches** and **pose a danger** to seabirds, fish, and marine animals, such as sea turtles, which may mistakenly ingest them, thinking they are food. India’s western coast, particularly the area from Gujarat to Goa, is significantly affected by tar balls.
5. **Cold Spark Technology:** This technology serves as a noiseless, **eco-friendly alternative to traditional fireworks**. It functions by using a heater to increase the activation energy of a fine granulated metal alloy powder—specifically composed of **titanium and zirconium**—which is then ejected by a fan. Upon contact with oxygen, the heated powder undergoes a rapid exothermic reaction, creating a visual sparkler effect without explosive combustion or sulfurous smoke.
6. **Mission MITRA:** ISRO’s **Mapping of Interoperable Traits and Response Assessment (MITRA)** is a pioneering team behavioral and physiological study conducted in the high-altitude environment of **Leh, Ladakh**. Executed in collaboration with the **IAF-Institute of Aerospace Medicine**, the mission serves as a critical human analogue experiment designed to simulate space-like conditions such as hypoxia, extreme cold, and isolation.
7. **Atlas Drone Swarm System:** It is a **Chinese military platform** developed, designed to launch and **coordinate up to 96 autonomous UAVs** from a **single vehicle-mounted command point**. It acts as a mobile **“mini-battlefield network,”** deploying drones in under 3 seconds each for surveillance, electronic warfare, and precision strikes
8. **World Earth Day 2026:** It is observed on **22 April** with the **theme “Our Power, Our Planet,”** emphasizing collective environmental responsibility and sustainable action. It is a **global event first started in 1970 in the United States** and now celebrated in over 193 countries to promote environmental protection, climate action, biodiversity conservation, and sustainable development.
9. **First Water-neutral Railway Depot:** The **Kankaria Coaching Depot in Ahmedabad, Gujarat** has become India’s first **water-neutral railway depot**, meaning it treats and reuses all wastewater from coach maintenance, saving large volumes of freshwater daily. A key feature of this system is **phytoremediation**, where plants are used to naturally absorb and remove pollutants from wastewater as part of the treatment process.
10. **Cerium–Magnesium Changesite:** Discovered by **Chinese scientists** in a meteorite named **Pakepake 005** on the moon, it is the **11th known lunar mineral**. The mineral is extremely small but scientifically important due to its rare composition and **fluorescent** properties, which may help in understanding lunar formation processes and developing advanced technologies like **next-generation LEDs**.

# Record Breaking Results

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**Kerala Rank 1**  
**SREEJA J S**  
AIR 57  
First Attempt Topper



**DIVYA S**  
AIR 166



**HRIDYA S BIJU**  
AIR 202



**ANJANA B**  
AIR 222



**ARAVIND  
ISWARANKUTTY**  
AIR 248



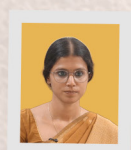
**RAJATH R**  
AIR 348



**AMAL KAMPIYL**  
AIR 362  
First Attempt  
Topper



**HARSHIDAA S  
NAIR**  
AIR 372



**SANDHRA S**  
AIR 380



**ATHIDHI  
KRISHNADEV B**  
AIR 451  
First Attempt  
Topper



**SHEIK MOHAMED  
NISHATH M**  
AIR 497



**JAHANA  
SAREEN V P**  
AIR 511



**ARUNIMA M S**  
AIR 558



**ASNA ANWAR**  
AIR 576  
First Attempt  
Topper



**NIDHIN R H**  
AIR 699



**FAIRUZ FATHIMA M**  
AIR 708



**MOHAMED  
HASHIM K**  
AIR 713



**MUHAMMED  
SUHAIL**  
AIR 718



**SHIYAD**  
AIR 743



**NANDANA J S**  
AIR 745



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